B41J

TYPEWRITERS; SELECTIVE PRINTING MECHANISMS, (e.g. INK-JET PRINTERS, THERMAL PRINTERS), i.e. MECHANISMS PRINTING OTHERWISE THAN FROM A FORME; CORRECTION OF TYPOGRAPHICAL ERRORS (composing B41B; printing on special surfaces B41F; laundry marking B41K; erasers, rubbers or erasing devices B43L 19/00; fluid media for correction of typographical errors by coating C09D 10/00; recording the results of measuring G01; recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching, G06K; franking or ticket-printing and issuing apparatus G07B; electric keyboard switches, in general H01H 13/70, H03K 17/94; coding in connection with keyboards or like devices, in general H03M 11/00; receivers or transmitters for transmission of digital information H04L; transmission or reproduction of documents, or the like, e.g. facsimile transmission, H04N 1/00; printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance, see the relevant subclasses)

Definition statement

This place covers:

• Only selective printing mechanisms including kinds of type-writers
• Manually controlled power-operated apparatus or apparatus of this type with additional control by input of stored program instructions, e.g. on punched cards or tapes;
• The "print-out" features of apparatus controlled by stored program instructions or electric signals in so far as these are of general interest, e.g. impression, inking, line-spacing mechanisms, printing heads;
Relationships with other classification places

B41J
SELECTIVE PRINTING MECHANISMS, e.g. INK-JET PRINTERS, THERMAL PRINTERS

G03G
ELECTROPHOTOGRAHY, e.g. COPYING MACHINES

if the invention is directed to the printhead(s), e.g. laser printhead(s)

H04N 1/...
SCANNING, REPRODUCTION OF DOCUMENTS, in particular composing, repositioning or otherwise modifying originals (H04N 1/387), picture signal circuits (H04N 1/40), colour correction or control (H04N 1/60)

G06F 3/12
DIGITAL OUTPUT TO PRINT UNIT, i.e. print job management

if text processing is involved

G06F 17/...
DIGITAL COMPUTING OR DATA PROCESSING EQUIPMENT OR METHODS, SPECIFICALLY ADAPTED FOR SPECIFIC FUNCTIONS, in particular formatting and presentation of the text document (G06F 17/21F)

The preceding image includes references to B41J, G03G, H04N 1/00, H04N 1/387, H04N 1/40, H04N 1/60, G06F 3/12, G06F 17/21F, G06F 17/00, and G06K 15/00
## References

### Limiting references

**This place does not cover:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Class Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaping of 3D-objects by means of liquid-jetting</td>
<td>B29C 64/112</td>
</tr>
<tr>
<td>Composing</td>
<td>B41B</td>
</tr>
<tr>
<td>Printing on special surfaces</td>
<td>B41F</td>
</tr>
<tr>
<td>Laundry marking</td>
<td>B41K</td>
</tr>
<tr>
<td>Erasers, rubbers or erasing devices</td>
<td>B43L 19/00</td>
</tr>
<tr>
<td>Fluid media for correction of typographical errors by coating</td>
<td>C09D 10/00</td>
</tr>
<tr>
<td>Recording the results of measuring</td>
<td>G01</td>
</tr>
<tr>
<td>Recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching</td>
<td>G06K</td>
</tr>
<tr>
<td>Processing computer-generated data for printing or electrical features of apparatus controlled by record carriers or electric signals and of interest apart from the “print-out” features of said apparatus</td>
<td>G06K 15/00 or G06F 3/12</td>
</tr>
<tr>
<td>Franking or ticket-printing and issuing apparatus</td>
<td>G07B</td>
</tr>
<tr>
<td>Electric keyboard switches, in general</td>
<td>H01H 13/70, H03K 17/94</td>
</tr>
<tr>
<td>Coding in connection with keyboards or like devices, in general</td>
<td>H03M 11/00</td>
</tr>
<tr>
<td>Receivers or transmitters for transmission of digital information</td>
<td>H04L</td>
</tr>
<tr>
<td>Transmission or reproduction of documents, or the like, e.g. facsimile transmission</td>
<td>H04N 1/00</td>
</tr>
<tr>
<td>Conversion of picture/colour signals for printing</td>
<td>H04N 1/00</td>
</tr>
</tbody>
</table>

## Special rules of classification

Printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance: see the relevant subclasses.

## Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing material/media</td>
<td>paper or temporary record carriers from which records are transferred to a paper (not: printing masters, e.g. formes or printing plates)</td>
</tr>
<tr>
<td>Paper</td>
<td>printing material, including similar flexible material</td>
</tr>
</tbody>
</table>

## B41J 1/00

**Typewriters or selective printing mechanisms characterised by the mounting, arrangement, or disposition of the types or dies (non-selective embossing)**

### Definition statement

*This place covers:*

- Type-writers only.
• Publications of general interest and those not provided for in the lower sub-groups, e.g. complete machines.

References

Limiting references

This place does not cover:

| Dot-marking printers as ink-jet printers, dot-matrix printers, laser printers | B41J 2/00 (appropriate sub-groups) |
| Non-selective embossing, Machines or apparatus for embossing decorations or marks | B44B 5/00 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| Type-writer | device with printing elements having complete characters, thus not built up from dots |

B41J 1/02

with separate or detached types or dies

Definition statement

This place covers:

In general with additional characters

B41J 1/20

with types or dies mounted on endless bands or the like

Definition statement

This place covers:

Using type-belts.

Control circuits therefor.

B41J 1/22

with types or dies mounted on carriers rotatable for selection

Definition statement

This place covers:

Drums and wheels in general
**B41J 1/24**

the plane of the type or die face being perpendicular to the axis of rotation *(B41J 1/60 takes precedence)*

**Definition statement**

*This place covers:*

Daisy wheel printers and general aspects of the machine

**References**

*Limiting references*

*This place does not cover:*

<table>
<thead>
<tr>
<th>With types or dies on spherical, truncated-spherical, or like surfaces</th>
<th>B41J 1/60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Details of the carriers, font change and interchangeable carriers</td>
<td>B41J 25/24</td>
</tr>
</tbody>
</table>

**B41J 1/32**

the plane of the type or die face being parallel to the axis of rotation, e.g. with type on the periphery of cylindrical carriers *(B41J 1/60 takes precedence)*

**References**

*Limiting references*

*This place does not cover:*

<table>
<thead>
<tr>
<th>With types or dies on spherical, truncated-spherical, or like surfaces</th>
<th>B41J 1/60</th>
</tr>
</thead>
</table>

*Informative references*

*Attention is drawn to the following places, which may be of interest for search:*

| Output mechanism with printing mechanisms, e.g. for character-at-a-time or line-at-a-time printing | G06C 11/04 |

**B41J 1/60**

with types or dies on spherical, truncated-spherical, or like surfaces

**Definition statement**

*This place covers:*

E.g. of the golf-ball type
**B41J 2/00**

Typewriters or selective printing mechanisms characterised by the printing or marking process for which they are designed (mounting, arrangement, or disposition of types or dies B41J 1/00; marking methods B41M 5/00; structure or manufacture of heads, e.g. inductive, for recording by magnetisation or demagnetisation of a record carrier G11B 5/127; heads for reproducing capacitive information G11B 9/07)

**Definition statement**

This place covers:

This group covers bringing liquid or particles selectively onto a printing material, either by jetting or through contact. In particular, the sub-groups contain inkjet printers and thermal printers. It covers the structure of the apparatuses used for bringing liquid or particles selectively onto a printing material, their driving/controlling methods and the methods to manufacture them.

**References**

**Limiting references**

This place does not cover:

<table>
<thead>
<tr>
<th>Type of mechanism</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typewriters, This group does not cover use of selective printing mechanisms in manufacturing processes unless the printer itself has something specific(mounting, arrangement, or disposition of types or dies</td>
<td>B41J 1/00</td>
</tr>
<tr>
<td>Marking methods</td>
<td>B41M 5/00</td>
</tr>
<tr>
<td>Structure or manufacture of heads, e.g. inductive, for recording by magnetisation or demagnetisation of a record carrier</td>
<td>G11B 5/127</td>
</tr>
<tr>
<td>Heads for reproducing capacitive information</td>
<td>G11B 9/07</td>
</tr>
</tbody>
</table>
B41J 2/005

characterised by bringing liquid or particles selectively into contact with a printing material (printing by selective application of impact or pressure on a printing or impression-transfer material B41J 2/22)

Definition statement

This place covers:

Ink reaches paper without forming a flying drop

References

Limiting references

This place does not cover:

| Printing by selective application of impact or pressure on a printing or impression-transfer material | B41J 2/22 |
B41J 2/0057

{where an intermediate transfer member receives the ink before transferring it on the printing material}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

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B41J 2/01

**Ink jet**

**Definition statement**

*This place covers:*

Inkjet printers in general, when no details on structure is provided.

**Relationships with other classification places**

This sub group does not cover use of inkjet printers in manufacturing processes unless the printer itself has some significance

**References**

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>For printing on special surfaces</th>
<th>B41J 3/407</th>
</tr>
</thead>
</table>

---

Fig. 1
**B41J 2/02**

**generating a continuous ink jet**

**Definition statement**

*This place covers:*

Heads generating a continuous stream of droplets, and selecting some to be printed while others are collected back into the ink supply system.

**B41J 2/025**

**by vibration**

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

**B41J 2/04**

**generating single droplets or particles on demand**

**Definition statement**

*This place covers:*

On-demand inkjet heads (every formed ink droplet will be printed).

**B41J 2/14** takes precedence.
**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Magnetic and electrostatic actuators | B41J 2002/041, B41J 2002/043 |

**B41J 2/04501**

*{Control methods or devices therefor, e.g. driver circuits, control circuits}*

**Special rules of classification**

For control methods, each document should bear at least one code specifying the type of head being controlled, chosen from B41J 2/04575 - B41J 2/04586.

**B41J 2/04543**

*{Block driving}*

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
B41J 2/04593

{Dot-size modulation by changing the size of the drop}

Definition statement

*This place covers:*

Illustrative example of subject matter classified in this group.
B41J 2/04595
{Dot-size modulation by changing the number of drops per dot}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
B41J 2/055
Devices for absorbing or preventing back-pressure

Definition statement
This place covers:
Illustrative example of subject matter classified in this group.

B41J 2/06
by electric or magnetic field

Definition statement
This place covers:
This sub-group contains documents in which an electric field causes the ejection of ink directly, without involvement of a membrane or the like.
Illustrative example of subject matter classified in this group.
B41J 2/065

involving the preliminary making of ink protuberances

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

B41J 2/125

Sensors, e.g. deflection sensors

Definition statement

This place covers:

Deflection sensors for continuous ink jet printers

Cameras for jet or dot position control

References

Limiting references

This place does not cover:

| During manufacture or detection by means of print head drive signal response | B41J 2/045 |
| Nozzle clogging detection for cleaning reasons | B41J 2/16579 |
| Detection for compensation of nozzle failures | B41J 2/2139 |
B41J 2/135
Nozzles

Definition statement
This place covers:
This group should be left empty. Classify in the lower subgroups that cover structures of on-demand inkjet heads (not only of nozzles). For nozzles and nozzle plates per se, see B41J 2/1433 and B41J 2002/14475. For manufacturing of nozzles and nozzle plates, see B41J 2/162. Heads in which an electric field causes the ejection of ink directly (thus without involvement of a membrane) are classified only in B41J 2/06 (thus not in the sub-groups of B41J 2/135).

B41J 2/14
Structure thereof {only for on-demand ink jet heads}

Definition statement
This place covers:
Should be understood as "structure of on-demand inkjet heads", where the head is the part comprising the chambers and actuators, and not the whole cartridge. See also B41J 2/04.

References
Limiting references
This place does not cover:

| Heads in which an electric field causes the ejection of ink directly (thus without involvement of a membrane) | B41J 2/06 |

Informative references
Attention is drawn to the following places, which may be of interest for search:

| Generating single droplets or particles on demand | B41J 2/04 |
**B41J 2/14008**

{Structure of acoustic ink jet print heads}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

![Diagram of acoustic ink jet print head](image-url)
B41J 2/1404

{Geometrical characteristics}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
B41J 2/14048

{Movable member in the chamber}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/14056

{Plural heating elements per ink chamber}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
B41J 2/14064

{Heater chamber separated from ink chamber by a membrane}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/14072

{Electrical connections, e.g. details on electrodes, connecting the chip to the outside...}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/1408

{Structure dealing with thermal variations, e.g. cooling device, thermal coefficients of materials}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
B41J 2/14096

{Current flowing through the ink}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
**B41J 2/14104**

{Laser or electron beam heating the ink}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
B41J 2/1412

{Shape}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/14137

{Resistor surrounding the nozzle opening}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

Fig. 1A

Fig. 1B
B41J 2/14153
{Structures including a sensor}

Definition statement
This place covers:
Illustrative example of subject matter classified in this group.

FIG. 3A

FIG. 3B
B41J 2/14161

{Structure having belt or drum with holes filled with ink}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.

B41J 2/14209

{of finger type, chamber walls consisting integrally of piezoelectric material}

Definition statement

This place covers:
No membrane between the chamber and the piezo element.
Illustrative example of subject matter classified in this group.

**B41J 2/14233**

{of film type, deformed by bending and disposed on a diaphragm}

Definition statement

*This place covers:*

Illustrative example of subject matter classified in this group.
B41J 2/14274

{of stacked structure type, deformed by compression/extension and disposed on a diaphragm}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/14282
{of cantilever type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
**B41J 2/1429**

(of tubular type)

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
B41J 2/14298

(of disc type)

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.

FIG. 1

FIG. 2
B41J 2/14314
{Structure of ink jet print heads with electrostatically actuated membrane}

Definition statement
This place covers:
Illustrative example of subject matter classified in this group.

FIG. 4

FIG. 5
B41J 2/1433
{Structure of nozzle plates}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/14451

{Structure of ink jet print heads discharging by lowering surface tension of meniscus}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
B41J 2/145
Arrangement thereof

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
**B41J 2/155**

for line printing

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

**B41J 2/16**

Production of nozzles

**Definition statement**

*This place covers:*

Should be understood as “production of on-demand inkjet heads”. This group is used when the type of head manufactured (i.e. bubble-jet, piezo etc..) is not known or when no specific sub-group exists for said type (like for instance acoustic heads or head which work by lowering the surface tension of the meniscus). This group does not cover manufacturing of heads in which an electric field causes the ejection of ink directly (without involvement of a membrane) nor manufacturing of continuous inkjet heads.

**Special rules of classification**

When classifying a manufacturing method, at least one classification should always be given for the type of head being manufactured (i.e. B41J 2/16 - B41J 2/162 or B41J 2/1648). A classification for each used manufacturing process (B41J 2/1623 - B41J2/M8T) should be given.
**B41J 2/1601**

{Production of bubble jet print heads (B41J 2/1606, B41J 2/162 take precedence)}

**Definition statement**

*This place covers:*

This group is used for bubble-jet heads when it is neither front shooter nor edge shooter (i.e. it is used when orientation is unknown or for back shooters)

**B41J 2/1603**

{of the front shooter type}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
**B41J 2/1604**

(of the edge shooter type)

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

![Diagram](FIG.1)
**B41J 2/1606**  
{Coating the nozzle area or the ink chamber}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

---

**B41J 2/1607**  
{Production of print heads with piezoelectric elements (B41J 2/1606, B41J 2/162 take precedence)}

**Definition statement**

*This place covers:*

This sub-group is used when the type of piezoelectric head being manufactured is not defined.
B41J 2/1609
{of finger type, chamber walls consisting integrally of piezoelectric material}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/161
{of film type, deformed by bending and disposed on a diaphragm}

Definition statement
This place covers:
Illustrative example of subject matter classified in this group.
B41J 2/1612
{of stacked structure type, deformed by compression/extension and disposed on a diaphragm}

Definition statement
This place covers:
Illustrative example of subject matter classified in this group.
Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
**B41J 2/1615**

{of tubular type}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
B41J 2/1617
{of disc type}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/1618

{Fixing the piezoelectric elements}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
**B41J 2/162**

{Manufacturing of the nozzle plates}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in this group.

---

**B41J 2/1621**

{manufacturing processes}

**Definition statement**

This place covers:

This group is not in use.

**Special rules of classification**

When classifying a manufacturing method, at least one class should always be given for the type of head being manufactured (i.e. B41J 2/16 - B41J 2/162 or B41J 2/1648). A classification for each used manufacturing process (from B41J 2/1623 - B41J2/M8T) should be given.
B41J 2/1635
{dividing the wafer into individual chips}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.
**B41J 2/1639**

{sacrificial molding}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
**B41J 2/1648**

*Production of print heads with thermal bend detached actuators*

**Definition statement**

This place covers:

Illustrative example of subject matter classified in this group.

---

**B41J 2/165**

Preventing {or detecting} of nozzle clogging, e.g. cleaning, capping or moistening for nozzles

**Definition statement**

This place covers:

Preventing clogging of nozzles;

Cleaning of nozzles;

Detection of defective nozzles for cleaning

**Relationships with other classification places**

G03G for powder toner printers

**References**

**Limiting references**

This place does not cover:

| Conditioning of ink supply systems/circuits | B41J 2/1707, B41J 2/1714 |

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Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "nozzles", "apertures", "print(ing) elements" and "openings"
- " discharge/ejection failure", "defect "non-discharge", " clogging", "defective","failing", "non-operative", "inoperative", "non-firing", "malperforming"
- "cleaning", "maintenance", "recovery" and "priming"

B41J 2/16505

{Caps, spittoons or covers for cleaning or preventing drying out}

Definition statement

This place covers:

Caps connected to the print head itself instead of to the printer frame.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Cap/cover</th>
<th>to isolate the print head nozzles from the atmosphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spittoon</td>
<td>ink collector in which the print head ejects ink (it may be the cap itself)</td>
</tr>
</tbody>
</table>

B41J 2/16508

{connected with the printer frame}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Line or stationary printers | B41J 2/16585 |
| Collecting waste ink, ink collectors therefor | B41J 2/1721 |

B41J 2/16511

{Constructions for cap positioning (B41J 2/16547 takes precedence)}

References

Limiting references

This place does not cover:

| Cap and wiper on the same support | B41J 2/16547 |
**B41J 2/16517**

{Cleaning of print head nozzles (B41J 2/16505, B41J 2/1707, B41J 2/1714 take precedence)}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

---

**References**

**Limiting references**

*This place does not cover:*

| Cleaning of printer parts not mentioned under | B41J 2/165, B41J 2/17 - B41J 29/17 |
| Caps | B41J 2/16505 - B41J 2/16511 |
| Waste ink/suction circuits | B41J 2/16523 |
| Line or stationary printers | B41J 2/16585 |
| Cleaning of the ink supply system | B41J 2/1707 |
| Cleaning of printhead parts not dealing with the nozzle plate | B41J 2/1714 |
| Waste ink collection tanks | B41J 2/1721 |

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**B41J 2/16523**

{Waste ink collection from caps or spittoons, e.g. by suction}

**Definition statement**

*This place covers:*

Systems comprising waste ink transport from a cap to a waste ink collector.
Special rules of classification
Waste ink containers are classified in B41J 2/1721

B41J 2/16526
{by applying pressure only}

Definition statement
This place covers:
Liquid from the inside of the print head is forced through the printing apertures by actuation of the drivers.

Synonyms and Keywords
In patent documents, the following words/expressions are often used as synonyms:
• "idle/idly discharge/ejection", "flushing", "priming", "spitting" and "purging"

B41J 2/16532
{by applying vacuum only}

Definition statement
This place covers:
Processes and means sucking liquid from the inside of the print head through the printing apertures into a cap connected to a vacuum pump.

B41J 2/16535
{using wiping constructions (B41J 2/16552 takes precedence)}

Definition statement
This place covers:
Nozzle plate wipers as rollers or ribbons.

Illustrative example of subject matter classified in this group.
References

Limiting references

This place does not cover:

| Brushes or blades perpendicular to the nozzle plate | B41J 2/16538 |

Special rules of classification

Devices cleaning the wipers: B41J 2/16541

B41J 2/16552

{using cleaning fluids}

Definition statement

This place covers:

Liquids or fluids for cleaning ink supply systems, nozzles or wipers.

References

Limiting references

This place does not cover:

| Cleaning liquid compositions (Detergent compositions based essentially on surface-active compounds; Use of these compounds as a detergent) | C11D 1/00 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Nozzles</th>
<th>printhead openings for passing the printing liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wipers</td>
<td>material contacting a print head nozzle plate for removing liquid thereon.</td>
</tr>
</tbody>
</table>

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "cleaning", "cleansing", "rinsing liquid" and "fluid"

B41J 2/16579

{Detection means therefor, e.g. for nozzle clogging}

References

Limiting references

This place does not cover:

| Detection during manufacture or detection by means of print head drive signal response | B41J 2/045, B41J 2/05 |
| Detection of and compensation for defective nozzles | B41J 2/2142, B41J 2/2139 |
**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| For monitoring ink quality | B41J 2/195 |

**B41J 2/16585**

(for paper-width or non-reciprocating print heads)

**Definition statement**

*This place covers:*

- Line heads or stationary print heads.

---

**Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

| Page-width or stationary print head | print head not moving during printing |

**Synonyms and Keywords**

*In patent documents, the following words/expressions are often used as synonyms:*

- "line", "page-width" and "paper-width"
- "non-reciprocating" and "stationary"
B41J 2/17

characterised by ink handling

References

Limiting references

This place does not cover:

| Forcing ink through nozzles for cleaning nozzles | B41J 2/1652 |
| Forced drying of ink/liquid printed onto a printing medium | B41J 11/0015 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| Ink | all kinds of liquid for printing onto a printing medium, may also be colourless |

B41J 2/1707

{Conditioning of the inside of ink supply circuits, e.g. flushing during start-up or shut-down}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| For removing air bubbles from ink supply circuits, cartridges or tanks | B41J 2/19 |
| Circulating the ink in the stand-by time | B41J 2/20 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| Flushing | rinsing |

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "rinsing", "flushing" and "priming"

B41J 2/1721

{Collecting waste ink; Collectors therefor}

Definition statement

This place covers:

Ink tanks collecting waste ink from caps or directly from a print head during borderless printing.
References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| For collecting ink after ink ejection | B41J 2/16508, B41J 2/185 |

Special rules of classification
Closed waste ink collector: B41J 2002/1728
Open ink collector: B41J 2002/1742
Waste ink systems between cap and waste ink collector: B41J 2/16523

B41J 2/1752
{Mounting within the printer}

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| Bodily-changeable print heads or carriages | B41J 25/34 |

B41J 2/17546
{electronically}

Definition statement
This place covers:
Also other data transfer as remaining liquid information

B41J 2/17566
{Ink level or ink residue control}

Definition statement
This place covers:
Remaining ink quantity measurement using floater, optical means, impedance measurements, vibration, temperature change or counting ejected dropletsLow level operation of printer

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| For information data transfer therewith | B41J 2/17546 |
| For details | B41J 2002/17569 - B41J 2002/17589 |
B41J 2/185
Ink-collectors; Ink-catchers

Definition statement
This place covers:
Ink-catchers for ink jet printers of the continuous type.
Collecting ink after ejection from printers of the DOD-type.

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| Spittoons receiving ink by idle ink ejection during maintenance | B41J 2/16505, B41J 2/16508 |
| Collectors receiving ink during printing (e.g. borderless printing) | B41J 2/1721 |

Glossary of terms
In this place, the following terms or expressions are used with the meaning indicated:

| DOD | drop on demand (opposite to ink jet of the continuous type) |

B41J 2/205
for printing a discrete number of tones (B41J 2/21 takes precedence)

Definition statement
This place covers:
Monochrome gray levels.
Liquids of same hue but with different intensity.

References
Limiting references
This place does not cover:

| Halftoning by varying the number of within a pixel (dithering) for multi-colour printers | B41J 2/2132 |

Synonyms and Keywords
In patent documents, the following words/expressions are often used as synonyms:
• "gray levels", "tone levels" and "colour intensity"
• "levels", "grayscale", "shading", "halftoning", "gradation" and "gradation value"
**B41J 2/2052**

{by dot superpositioning, e.g. multipass doubling}

**Definition statement**

*This place covers:*

True half toning by means of superpositioning of droplets of the same colour.

**B41J 2/2054**

{by the variation of dot disposition or characteristics, e.g. dot number density, dot shape}

**Definition statement**

*This place covers:*

Halftoning by a selectable number of adjacent dots of the same colour within a pixel.

**References**

*Limiting references*

*This place does not cover:*

| Halftoning by dithering dots of different colour within a pixel | B41J 2/2132 |

**B41J 2/2056**

{by ink density change}

**Definition statement**

*This place covers:*

Ejecting liquids of same hue but with different intensity, e.g. light and dark magenta/cyan inks.

**B41J 2/21**

for multi-colour printing

**References**

*Limiting references*

*This place does not cover:*

| Print resolution change: | B41J 2/505 |
| Print resolution change by print head rotation: | B41J 25/003 |
| Conversion of colour signals | H04N |
| Colour registering | H04N |

**Synonyms and Keywords**

*In patent documents, the following words/expressions are often used as synonyms:*

- "colour", "color" and "hue"
**B41J 2/2107**

{characterised by the ink properties}

**Definition statement**

*This place covers:*

Covering dye-based inks vs pigmented inks.

Inks reactive which each other.

**References**

**Limiting references**

*This place does not cover:*

<table>
<thead>
<tr>
<th>Using solid state inks</th>
<th>B41J 2/17593</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ink compositions</td>
<td>C09D 11/30</td>
</tr>
</tbody>
</table>

**B41J 2/211**

{Mixing of inks, solvent or air prior to paper contact}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
B41J 2/2114

{Ejecting transparent or white coloured liquids, e.g. processing liquids (B41J 2/211 takes precedence)}

Special rules of classification
B41J 2/2117: using white inks

Synonyms and Keywords
In patent documents, the following words/expressions are often used as synonyms:

• "processing liquid", "ink", "printing improvement liquid", and "ink"

B41J 2/2125

{by means of nozzle diameter selection}

Definition statement
This place covers:
Illustrative example of subject matter classified in this group.

B41J 2/2128

{by means of energy modulation}

Definition statement
This place covers:
Half-toning or colouring by ejecting an ink droplet of selectable size from nozzles by using different drive power levels.
References

Limiting references

This place does not cover:

Drive signal shaping, stabilising ejection rates e.g. by temperature measurements

B41J 2/04501

B41J 2/2132

{Print quality control characterised by dot disposition, e.g. for reducing white stripes or banding (methods for local corrections by dot omission, image edge enhancement, or multi-pass mask selection G06K 15/102; colour conversion H04N 1/40)}

Definition statement

This place covers:

Multi-pass printing; Interlacing, the printed pixels printed in both fast- as slow-scan direction.

Dithering: several non-overlapping dots of different colour (C,M,Y,K) within a pixel to give the impression of one colour.

Preventing banding: white or dark stripes due to systematic dot positioning errors.

References

Limiting references

This place does not cover:

Methods for local corrections by dot omission, image edge enhancement, or multi-pass mask selection

G06K 15/102

Colour conversion

H04N 1/40

Error diffusion

H04N 1/4052

Informative references

Attention is drawn to the following places, which may be of interest for search:

Arrangements for producing a permanent visual presentation of the output data

G06K 15/102

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-pass</td>
<td>several movements of a print head in the main-scan direction, without a paper feed</td>
</tr>
<tr>
<td>Interlacing/interleaving</td>
<td>filling up the lines between the raster lines caused by the distance between two adjacent nozzles. Sometimes also used for filling up the empty pixels in a mask in the fast-scan direction</td>
</tr>
</tbody>
</table>
**B41J 2/2135**

{Alignment of dots (adjustments by bodily moving print heads or carriages **B41J 25/001**)}

**Definition statement**

*This place covers:*

Alignment by nozzle drive control adjustment.

**Test pattern**

**References**

**Limiting references**

*This place does not cover:*

| Mechanical adjustment | **B41J 25/001, B41J 25/304, B41J 25/34** |

**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

| Devices for controlling or analysing the entire machine | **B41J 29/393** |

**B41J 2/2139**

{Compensation for malfunctioning nozzles creating dot place or dot size errors}

**References**

**Limiting references**

*This place does not cover:*

| Compensation for malfunctioning nozzles during the process of manufacture | **B41J 2/045** |

**B41J 2/2142**

{Detection of malfunctioning nozzles (for cleaning purposes **B41J 2/16579**; jet deflection sensors **B41J 2/125**)}

**References**

**Limiting references**

*This place does not cover:*

| During manufacture or detection by means of print head drive signal response | **B41J 2/045, B41J 2/05** |
| Sensors for jet control, e.g. deflection sensors | **B41J 2/125** |
| Detection for necessity of cleaning | **B41J 2/16579** |
**B41J 2/32**

using thermal heads

**Definition statement**

This place covers:
Direct printing type thermal head, i.e. using heat sensitive print media

**References**

**Limiting references**

This place does not cover:
Indirect printing using intermediate ribbon

---

**B41J 2/325**

by selective transfer of ink from ink carrier, e.g. from ink ribbon or sheet

**Definition statement**

This place covers:
Indirect thermal printing using ribbon between the head and the paper for printing.

---

**B41J 2/335**

Structure of thermal heads

**Definition statement**

This place covers:
All aspects relating to the head itself
**B41J 2/3351**

*{Electrode layers}*

**Definition statement**

*This place covers:*

Details concerning the electrodes: shape, geometry, dimension, material.

US2008100686
B41J 2/33515

{Heater layers}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
B41J 2/3352
{Integrated circuits}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group.

Fig 1
**B41J 2/33525**

{Passivation layers}

**Definition statement**

_This place covers:_

Details of passivation layer: shape, dimension, geometry, material

WO2008081949
**B41J 2/3353**

**{Protective layers}**

**Definition statement**

*This place covers:*

Details of the protection layer: shape, dimension, geometry, material

---

**US2010134583**

**B41J 2/33535**

**{Substrates}**

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.
Detail of the substrate such as architecture, material, geometry

5(5a)  8  3  9  8  6

10

EP0763431
**B41J 2/3354**

(characterised by geometry)

**Definition statement**

This place covers:

Geometrical characteristic:

US2011141216
Definition statement

This place covers:

Dimension being one of the key issues of the invention

FIG. 2

![Graph showing improvement in the sense of grattness vs. curvature of heater portion (mm⁻²)]

US6151054
**Definition statement**

This place covers:

If a specific material is used for the head.

![Graph showing performance test](image-url)
Definition statement

This place covers:
Heater at the corner of the substrate.
B41J 2/33565
{Edge type resistors}

Definition statement

This place covers:
Heater on the edge of the substrate
B41J 2/3357
{Surface type resistors}

Definition statement

This place covers:
Heater on the surface of the substrate
**B41J 2/33575**

{Processes for assembling process heads}

**Definition statement**

*This place covers:*

Method comprising steps for assembling parts of a head

---

**WO9610490**
B41J 2/3358

{Cooling arrangements}

Definition statement

*This place covers:*

Architecture for cooling the head itself by heat dissipation on the substrate side.

![Diagram](image)

FIG. 6

US5568176
**B41J 2/33585**

{Hollow parts under the heater}

**Definition statement**

*This place covers:*

Part of the substrate or first layer above the substrate having a groove filled or not in order to dissipate heat.
B41J 2/3359

{Manufacturing processes}

Definition statement

This place covers:

Illustrative example of subject matter classified in this group.
**B41J 2/33595**

*Conductors through the layered structure*

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

---

**EP1077135**

**B41J 2/385**

characterised by selective supply of electric current or selective application of magnetism to a printing or impression-transfer material (*B41J 2/005* takes precedence; electrography, magnetography *G03G*)

**Definition statement**

*This place covers:*

Print heads only.

**References**

**Limiting references**

*This place does not cover:*

<table>
<thead>
<tr>
<th>Characterised by bringing liquid selectively into contact with a printing material</th>
<th><em>B41J 2/005</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Copying machine subjects other than the print head:</td>
<td><em>G03G 15/00</em></td>
</tr>
</tbody>
</table>
**Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEP</td>
<td>Direct Electrostatic Printing, without the intermediate step of a latent image because the toner particles are directly driven through the holes or slits.</td>
</tr>
</tbody>
</table>

**B41J 2/42**

*for heating selectively*

**Definition statement**

*This place covers:*

Printing by selective heating by applying an electric current to a printing medium.

**References**

*Limiting references*

*This place does not cover:*

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B41J 2/32</td>
<td>Printing by contacting a printing medium by heated electrodes</td>
</tr>
<tr>
<td>B41J 2/475</td>
<td>Printing by heating through selective radiation</td>
</tr>
</tbody>
</table>

**Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing medium</td>
<td>e.g. a paper sheet on which is printed</td>
</tr>
</tbody>
</table>

**B41J 2/435**

*characterised by selective application of radiation to a printing material or impression-transfer material (optical elements, systems, or apparatus G02B; modulation or deflection of light G02F; electrophotography G03G)*

**Definition statement**

*This place covers:*

Optical print heads as laser print heads

**References**

*Limiting references*

*This place does not cover:*

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>B23K 26/0665</td>
<td>Ablation writing by laser on work pieces:</td>
</tr>
<tr>
<td>B41M 5/24</td>
<td>Ablative marking methods and sheet material for use therein:</td>
</tr>
<tr>
<td>G02B</td>
<td>Optical elements, systems, or apparatus</td>
</tr>
</tbody>
</table>

89
Limiting references

| Modulation or deflection of light         | G02F |
| Parts of copying machines other than the print head: | G03G |
| Using a test patch for electrographic printers | G03G 15/5058 |
| Control of optical/laser print heads:    | G06K 15/12 |

**Special rules of classification**

See the appropriate lower sub-groups

**B41J 2/442**

{using lasers (ablative marking methods and sheet materials for use therein B41M 5/24; working material by laser beam in general B23K 26/00)}

**Definition statement**

This place covers:
Laser characteristics as power, power density.

**References**

**Limiting references**

This place does not cover:

| Working material by laser beam in general | B23K 26/00 |
| Ablative marking methods and sheet materials for use therein | B41M 5/24 |

**B41J 2/447**

using arrays of radiation sources (B41J 2/475 takes precedence)

**Definition statement**

This place covers:
General lay-outs of printers with light array print heads

**References**

**Limiting references**

This place does not cover:

| Characterised by selective application of radiation to a printing material for heating selectively: | B41J 2/475 |

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Apparatus for electrographic processes using a charge pattern by application of light, e.g. using a LED array | G03G 15/326 |
Special rules of classification

Light beam arrays are also used as light source in rotating mirror printers:

B41J 2/473

For reciprocating print head carriers: B41J 2/47

**B41J 2/4476**

{using cathode ray or electron beam tubes}

**Definition statement**

*This place covers:*

Illustrative example of subject matter classified in this group.

---

**B41J 2/46**

characterised by using glass fibres

**Definition statement**

*This place covers:*

Printers using one or more glass fibres as optical waveguide to guide light from a light source to the printing medium.

**B41J 2/465**

using masks, e.g. light-switching masks (photographic composing B41B)

**Definition statement**

*This place covers:*

Light-switching mirrors or valves for modulating.

Light slits for focussing light beams.
References

Limiting references

This place does not cover:

| Photographic composing | B41B |

B41J 2/47

using the combination of scanning and modulation of light

Definition statement

This place covers:

Light array print heads reciprocating (scanning) over the media to be printed.

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

| Light modulation | light source intensity being set on a level corresponding with an image data map |
B41J 2/471
{using dot sequential main scanning by means of a light deflector, e.g. a rotating polygonal mirror}

Definition statement

This place covers:

A modulated light beam from e.g. a laser diode array is directed to a rotating mirror. From there the light beam is directed through a lens and is moved (scanned) over a medium (e.g. an electrically chargeable drum).

An example of a rotating polygonal scanning mirror for moving (scanning) a laser light beam over an imaging drum.

Here the laser is neutralizing a negative charge on the photoreceptive drum to form an electrostatic image.


References

Limiting references

This place does not cover:

| Printer aspects other than the print head, e.g. toner powder subjects | G03G |
Informative references

Attention is drawn to the following places, which may be of interest for search:

| Optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light | G02B 26/00 |

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROS</td>
<td>raster output scanner</td>
</tr>
<tr>
<td>Rotating polygon</td>
<td>rotating device having a plurality of mirrored facets</td>
</tr>
<tr>
<td>Scanning mirror</td>
<td>moving mirror, e.g. rotating</td>
</tr>
<tr>
<td>Main-scanning</td>
<td>here: light beam moving over e.g. a drum</td>
</tr>
<tr>
<td>Sub-scanning</td>
<td>drum, belt or paper movement;</td>
</tr>
<tr>
<td>Light modulation</td>
<td>light source intensity being set on a level corresponding with an image data map.</td>
</tr>
</tbody>
</table>

B41J 2/473

{using multiple light beams, wavelengths or colours}

Definition statement

This place covers:
A plurality of light beams directed to the same scanning mirror (e.g. a light source array).

B41J 2/475

for heating selectively {by radiation or ultrasonic waves}

References

Limiting references

This place does not cover:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal heads using heated electrodes contacting the material to be treated</td>
<td>B41J 2/32</td>
</tr>
<tr>
<td>By an electrical current between head and printing medium</td>
<td>B41J 2/42</td>
</tr>
</tbody>
</table>

B41J 2/4753

{using thermosensitive substrates, e.g. paper}

Definition statement

This place covers:
Heating for writing or erasing on print media
References

Limiting references
This place does not cover:

<table>
<thead>
<tr>
<th>Description</th>
<th>CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erasing by a thermal head by contacting the print media</td>
<td>B41J 2/315</td>
</tr>
<tr>
<td>Erasing by an electric or magnetic field</td>
<td>B41J 3/4076</td>
</tr>
</tbody>
</table>

B41J 2/485

characterised by the process of building-up characters {or image elements} applicable to two or more kinds of printing or marking processes

Definition statement
This place covers:
Matrix printing having means to control the print result e.g. negative print, background shaded, avoiding of wearing out by selective use of print elements. E.g. use of ultra-sonic vibrations therefor.

B41J 2/49

by writing

Definition statement
This place covers:
Reproducing of handwriting.
Signatures.
Pens on carriages (plotters).

B41J 2/50

by the selective combination of two or more non-identical printing elements

References

Informative references
Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Description</th>
<th>CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>With multiple print heads of different type</td>
<td>B41J 3/546</td>
</tr>
</tbody>
</table>

B41J 2/505

from an assembly of identical printing elements {{printers with two or more sets of printing elements B41J 3/54; arrangements for producing a permanent visual presentation of the digital output data using matrix printers, e.g. individual print element control for printing letters G06K 15/10}}

Definition statement
This place covers:
Matrix printer print quality adjustment;
Print resolution adjustment;

Interlacing for printers not being of the ink-jet type.

**References**

**Limiting references**

*This place does not cover:*

<table>
<thead>
<tr>
<th>Description</th>
<th>CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ink-jet subjects not having resolution change</td>
<td>B41J 2/2103 - B41J 2/215</td>
</tr>
<tr>
<td>Arrangements for producing a permanent visual presentation of the digital output data using matrix printers, e.g. individual print element control for printing letters</td>
<td>G06K 15/10</td>
</tr>
</tbody>
</table>

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Description</th>
<th>CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>With multiple print heads of different type</td>
<td>B41J 3/546</td>
</tr>
</tbody>
</table>

**Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Printing elements</td>
<td>e.g. nozzles, electrodes, LED’s to form dots on a material to be printed (print media)</td>
</tr>
<tr>
<td>Identical printing elements</td>
<td>e.g. an array of nozzles</td>
</tr>
<tr>
<td>NLQ</td>
<td>Near letter quality, which means high print quality</td>
</tr>
<tr>
<td>Registration/registering</td>
<td>In color printing the method of correlating the overlapping colours on one single position of an image</td>
</tr>
<tr>
<td>Print resolution</td>
<td>printing at a predetermined dot density</td>
</tr>
<tr>
<td>Dot density</td>
<td>number of dots per unit of surface</td>
</tr>
<tr>
<td>Raster</td>
<td>line or grid with a predetermined dot density</td>
</tr>
</tbody>
</table>

**B41J 2/5052**

{with special adaptations characterised by the ink properties (B41J 2/2107 takes precedence)}

**References**

**Limiting references**

*This place does not cover:*

<table>
<thead>
<tr>
<th>Description</th>
<th>CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ink jet for multi-colour printing characterised by the ink properties</td>
<td>B41J 2/2107</td>
</tr>
</tbody>
</table>
B41J 2/5054
{with special adaptations characterised by dot size (B41J 2/2121 takes precedence)}

Definition statement
This place covers:
Print heads other than of the ink jet type.

B41J 2/51
serial printer type

Definition statement
This place covers:
Printers with a print head reciprocating over the material to be printed in order to print a single line or swath.
E.g. geometry aspects as columns/rows of print elements (monochrome), functional aspects as inclination of characters (matrix printers).

References
Limiting references
This place does not cover:

| Movements parallel to the plane of printing other than reciprocating: | B41J 25/003, B41J 25/005 |

Informative references
Attention is drawn to the following places, which may be of interest for search:

| Ink jet nozzle arrangements for serial printing | B41J 2/15 |
| Features not dealing with the colouring process per se, e.g. construction of printers or heads, driving circuit adaptations | B41J 2/2103 |

Glossary of terms
In this place, the following terms or expressions are used with the meaning indicated:

| Serial printer | printer with a print head reciprocating over the material in order to print a single line or swath. |
| Line head printer | page-width printer printing at least one raster line at the same time. |

B41J 2/515
line printer type

Definition statement
This place covers:
Page-width printers printing at least one raster line at the same time.
References

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ink jet nozzle arrangements for line printing</td>
<td>B41J 2/155</td>
</tr>
<tr>
<td>Movements parallel to the plane of printing other than reciprocating</td>
<td>B41J 25/001</td>
</tr>
</tbody>
</table>

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial printer</td>
<td>printer with a print head reciprocating over the material in order to print a single line or swath.</td>
</tr>
<tr>
<td>Line printer type</td>
<td>page-width printer printing at least one raster line at the same time.</td>
</tr>
</tbody>
</table>

B41J 2/52

Arrangement for printing a discrete number of tones, not covered by group B41J 2/205, e.g. applicable to two or more kinds of printing or marking process (B41J 2/525 takes precedence; for photomechanical production G03F 5/00)

References

Limiting references

This place does not cover:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ink jet</td>
<td>B41J 2/205, B41J 2/21</td>
</tr>
<tr>
<td>Gradual grey tones</td>
<td>H04N</td>
</tr>
</tbody>
</table>

B41J 2/525

Arrangement for multi-colour printing, not covered by group B41J 2/21, e.g. applicable to two or more kinds of printing or marking process (for photomechanical production G03F 3/00)

References

Limiting references

This place does not cover:

<table>
<thead>
<tr>
<th>Reference</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ink jet printers:</td>
<td>B41J 2/21</td>
</tr>
<tr>
<td>For photomechanical production</td>
<td>G03F 3/00</td>
</tr>
<tr>
<td>Colour printing in general:</td>
<td>H04N</td>
</tr>
</tbody>
</table>
**B41J 3/00**

Typewriters or selective printing or marking mechanisms, {e.g. ink-jet printers, thermal printers} characterised by the purpose for which they are constructed (cryptographic typewriters **G09C 3/00**)

**Definition statement**

*This place covers:*

In particular bar code printers, flat-bed ink-jet printers, ink-jet printers for printing on bank books, passports or the like, portable printers, hand-held printers, stamp-type ink-jet printers, printers for printing on CDs or DVDs, ink-jet printers for printing on three-dimensional objects, label printers, ink-jet printers for printing on textile, printers for printing on the front and on the back of sheets or continuous material.

**References**

**Limiting references**

*This place does not cover:*

| Cryptographic typewriters | G09C 3/00 |

---

**B41J 3/28**

for printing downwardly on flat surfaces, e.g. of books, drawings, boxes {, envelopes, e.g. flat-bed ink-jet printers (**B41J 3/36, B41J 3/407, B41J 3/4071, B41J 3/4073, B41J 3/4075, B41J 3/4076, B41J 3/4078** take precedence; flat page-size platens **B41J 11/06**; conveyor belts **B41J 13/12**; drawing instruments **B43L 13/00**, automatic draughting machines **B43L 13/022**}

**References**

**Limiting references**

*This place does not cover:*

| Selective printing mechanisms for portability | B41J 3/36 |
| Selective printing mechanisms for marking on special material | B41J 3/407 |
| Selective printing mechanisms for printing on disk-shaped media, e.g. CDs | B41J 3/4071 |
| Selective printing mechanisms for printing on three-dimensional objects | B41J 3/4073 |
| Tape printers; label printers | B41J 3/4075 |
| Selective printing mechanisms for printing on rewritable, bistable "electronic paper" by a focused electric or magnetic field | B41J 3/4076 |
| Selective printing mechanisms for printing on textile | B41J 3/4078 |

**Informative references**

*Attention is drawn to the following places, which may be of interest for search:*

| Conveyor belts | B41J 11/007, B41J 13/08, B41J 15/048 |
| Flat page-size platens | B41J 11/06 |
B41J 3/28 (continued)

Informative references

<table>
<thead>
<tr>
<th>Drawing instruments</th>
<th>B43L 13/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic drafting machines</td>
<td>B43L 13/022</td>
</tr>
</tbody>
</table>

B41J 3/36

for portability {i.e. hand-held printers or laptop printers (B41J 3/4075 takes precedence; printers with reduced dimensions B41J 29/023; stackable printers B41J 29/026)}

References

Limiting references

This place does not cover:

| Tape printers; label printers            | B41J 3/4075 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Printers with reduced dimensions</th>
<th>B41J 29/023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stackable printers</td>
<td>B41J 29/026</td>
</tr>
<tr>
<td>Manually-controlled or manually-operable label dispensers having printing equipment</td>
<td>B65C 11/02</td>
</tr>
</tbody>
</table>

B41J 3/365

{Toy typewriters (toy imitations of typewriters A63H 33/3077)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Toy imitations of typewriters            | A63H 33/3077 |

B41J 3/38

for embossing, e.g. for making matrices for stereotypes {{surface shaping, e.g. embossing B29C 59/00; mechanical deformation of paper or cardboard without removing material B31F 1/00; machines or apparatus for embossing decorations or marks B44B 5/00}}

Definition statement

This place covers:

Marking devices having a set of marking elements, for example a set of numerals, wherein each marking element can be selected and used independently from the others in order to carry out the impression operation.
### References

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface shaping, e.g. embossing</td>
<td>B29C 59/00</td>
</tr>
<tr>
<td>Mechanical deformation of paper or cardboard without removing material</td>
<td>B31F 1/00</td>
</tr>
<tr>
<td>Machines or apparatus for embossing decorations or marks</td>
<td>B44B 5/00</td>
</tr>
</tbody>
</table>

**B41J 3/407**

for marking on special material (printing on special surfaces **B41F 7/00**; apparatus or processes for manufacturing printed circuits by printing or dispensing a conductive paste or ink **H05K 3/1241**)

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods of making colour filters, e.g. printing</td>
<td>G02F 1/133516</td>
</tr>
<tr>
<td>Apparatus or processes for manufacturing printed circuits by ink-jet</td>
<td>H05K 3/125</td>
</tr>
</tbody>
</table>

**B41J 3/4071**

{Printing on disk-shaped media, e.g. CD's}

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording by optical means, e.g. recording using a thermal beam of optical radiation</td>
<td>G11B 7/00</td>
</tr>
<tr>
<td>Guiding record carriers from consecutive-access magazine of disc records, e.g. for optically recording on CDs</td>
<td>G11B 17/08</td>
</tr>
</tbody>
</table>

**B41J 3/4073**

{Printing on three-dimensional objects not being in sheet or web form, e.g. spherical or cubic objects (**B41J 3/283**, **B41J 3/286** take precedence; building up a 3D object using individual droplets from jetting heads **B29C 64/112**)

**References**

**Limiting references**

This place does not cover:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selective printing mechanisms for printing on bank books or the like</td>
<td>B41J 3/283</td>
</tr>
<tr>
<td>Selective printing mechanisms for printing on boxes</td>
<td>B41J 3/286</td>
</tr>
</tbody>
</table>
Building up a 3D object using individual droplets from jetting heads

B41J 3/4075

{Tape printers; Label printers (tape cartridges B41J 15/044)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

- Tape cartridges containing continuous copy material to be printed

B41J 3/4076

{printing on rewritable, bistable "electronic paper" by a focused electric or magnetic field (displays in which the positions of movable elements are controlled by the application of an electric field G09F 9/372, of a magnetic field G09F 9/375)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

- Displays in which the positions of movable elements are controlled by the application of an electric field
- Displays in which the positions of movable elements are controlled by the application of a magnetic field

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

- Electrochromism means the phenomenon displayed by some chemical species of reversibly changing colour when a burst of charge is applied (adjective: electrochromic).

B41J 3/4078

{Printing on textile (ink-jet dying or printing processes for textile D06P 5/30; conversion of colour signals for textile printing H04N 1/54)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

- Ink-jet dying or printing processes for textile
- Conversion of colour picture signals to a plurality of signals some of which represent particular mixed colours, e.g. for textile printing
B41J 3/44

Typewriters or selective printing mechanisms having dual functions or combined with, or coupled to, apparatus performing other functions (printing mechanisms coupled to typographical composing machines B41B 27/41)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Printing mechanisms coupled to typographical composing machines | B41B 27/41 |

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

| RFID | radio frequency identification |

B41J 3/50

Mechanisms producing characters by printing and also producing a record by other means (e.g. printer combined with RFID writer) (punching mechanisms G06K)

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Methods or arrangements for marking by punching | G06K 1/02 |

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

| RFID | radio frequency identification |

B41J 3/51

the printed and recorded information being identical; using type elements with code-generating means (G06K 1/12 takes precedence)

References

Limiting references

This place does not cover:

| Methods or arrangements for marking the record carrier in digital fashion | G06K 1/12 |
**B41J 3/54**

with two or more sets of type or printing elements (**B41J 3/60** takes precedence)

**Definition statement**

This place covers:

Selective printing or marking mechanisms with two or more sets or types of printing elements

**References**

**Limiting references**

This place does not cover:

| Selective printing mechanisms for printing on both faces of the printing material | B41J 3/60 |

**B41J 3/543**

{with multiple inkjet print heads (**B41J 2/17503, B41J 2/2103** take precedence)}

**References**

**Limiting references**

This place does not cover:

| Ink cartridges; ink cartridges mounted on a common carriage | B41J 2/17503 |
| Construction of print heads for multi-colour ink-jet printing; multi-colour print heads mounted on a common carriage | B41J 2/2103 |

**B41J 3/62**

for printing on two or more separate sheets or strips of printing material {being conveyed simultaneously to or through the printing zone} (**B41J 3/54** takes precedence {; **B41J 15/18, B41J 15/20, B41J 15/22** and **B41J 15/24** take precedence})

**Definition statement**

This place covers:

The cases of two or more cut sheets or at least one cut sheet and at least one strip of printing material that are conveyed simultaneously to or through the printing zone.

**References**

**Limiting references**

This place does not cover:

| Selective printing mechanisms with two or more sets or types of printing elements | B41J 3/54 |
| Multiple web-feeding apparatus | B41J 15/18 |
| Multiple web-feeding apparatus for webs superimposed during printing | B41J 15/20 |
Multiple web-feeding apparatus for feeding webs in separate paths during printing

Multiple web-feeding apparatus with means for registering the webs with each other

B41J 5/00

Devices or arrangements for controlling character selection (interpreting G06K 3/00; methods or arrangements for sensing record carriers G06K 7/00)

Definition statement
This place covers:
Type-writers only.

References
Limiting references
This place does not cover:

Interpreting G06K 3/00
Methods or arrangements for sensing record carriers: G06K 7/00

B41J 5/08

Character or syllable selected by means of keys or keyboards of the typewriter type

Definition statement
This place covers:
Keyboards for type-writers.

References
Limiting references
This place does not cover:

Keyboards not for type-writers G06F 3/02

B41J 5/28

Multiple-action keys, e.g. keys depressed by two or more amounts or movable in two or more directions to effect different functions or selections

Definition statement
This place covers:
E.g. repeat actions for type-writers.
B41J 5/30
Character or syllable selection controlled by recorded information

Definition statement
This place covers:
Type-writers only.

B41J 5/44
characterised by storage of recorded information

Definition statement
This place covers:
E.g. font or memory cartridges.

B41J 7/00
Type-selecting or type-actuating mechanisms (index setting B41J 5/02)

Definition statement
This place covers:
Type-writers only.

References
Limiting references
This place does not cover:

| Index setting | B41J 5/02 |

B41J 7/005
\{Type-selecting actions or mechanisms by unusual means, e.g. for use by physically disabled persons (control means for physically disabled persons in general A61F 4/00)\}

References
Limiting references
This place does not cover:

| Control means for physically disabled persons in general | A61F 4/00 |
**B41J 7/24**
Construction of type-levers (U-shaped levers **B41J 7/12**)

**References**

**Limiting references**

This place does not cover:

| U-shaped levers: | **B41J 7/12** |

**B41J 7/30**

Preventing rebound or clash of levers or type members

**Definition statement**

This place covers:

E.g. print sequence control for type-writers.

**B41J 7/36**

Selecting arrangements applied to type-carriers rotating during impression

**Definition statement**

This place covers:

E.g. carrousel type carriers for type-writers.

**B41J 7/42**

Timed impression, e.g. without impact

**Definition statement**

This place covers:

E.g. accelerated or delayed impression for type-writers.

**B41J 7/48**

Type carrier arrested in selected position by electromagnetic means

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Output mechanism with printing mechanisms | **G06C 11/04** |
**B41J 7/50**

Type-face selected by combinations of two movements of type carrier

**Definition statement**

This place covers:

E.g. selection over the shortest rotation in type-writers.

**B41J 7/54**

Selecting arrangements including combinations, permutation, summation, or aggregation means

**Definition statement**

This place covers:

Type-writers only.

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Apparatus or local circuits for transmitting or receiving codes wherein each character is represented by the same number of equal-length code element - at the receiving end, using aggregate motion translation | H04L 17/26 |

**B41J 7/92**

Impact adjustment; Means to give uniformity of impression (B41J 9/46, B41J 9/48 take precedence)

**Definition statement**

This place covers:

Type-writers only.

**References**

**Limiting references**

This place does not cover:

| For deciding or adjusting hammer-firing time | B41J 9/46 |
| For deciding or adjusting hammer-drive energy | B41J 9/48 |

**B41J 7/96**

Means checking correctness of setting

**Definition statement**

This place covers:

E.g. control of selected characters for type-writers
Hammer-impression mechanisms

Definition statement
This place covers:
Illustrative example of subject matter classified in this group.

Hammers; Arrangements thereof

Definition statement
This place covers:
General features.

of more than one hammer, e.g. one for each character position

Definition statement
This place covers:
Hammer banks.

Means for operating hammers to effect impression

Definition statement
This place covers:
Mechanisms for quiet printing, mechanical means for print density adjustment.
**B41J 9/36**
in which mechanical power is applied under electromagnetic control

**Definition statement**
*This place covers:*
Preloaded springs.

**B41J 9/44**
Control for hammer-impression mechanisms

**Definition statement**
*This place covers:*
Circuits.

General features.
Noise reduction.

**B41J 9/46**
for deciding or adjusting hammer-firing time

**Definition statement**
*This place covers:*
Flight time adjustment.

Print intensity adjustment by flight time control.

**B41J 9/48**
for deciding or adjusting hammer-drive energy

**Definition statement**
*This place covers:*
Print intensity adjustment by drive energy control.

**B41J 9/50**
for compensating for the variations of printer drive conditions, e.g. for compensating for the variation of temperature or current supply

**Definition statement**
*This place covers:*
Also compensating for source voltage variations, paper feed variations.
B41J 9/52
for checking the operation of print hammers

Definition statement

This place covers:
In general: limiting the number of fired hammers.
Detection of the impact.
Preventing overheating.

B41J 11/00

Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,} for supporting or handling copy material in sheet or web form (specially adapted for supporting or handling copy material in short lengths B41J 13/00; in continuous form B41J 15/00; holders for text to be copied B41J 29/00)

Definition statement

This place covers:
Inventions that are independent from the length of the copy material (the copy material therefore including cut sheets and continuous webs), e.g. ink-jet printers with irradiating or cutting devices.
Relationships with other classification places

Hierarchical Relationship between B65H, H04N, B41J and G03G

The preceding image includes references to B41J, B41J 11/00, B41J 13/00, B41J 15/00, B65H, H04N, H04N 1/04, G03G, and G03G 15/00.

References

Limiting references

This place does not cover:

| Specially adapted for supporting or handling copy material in short lengths | B41J 13/00 |
| Specially adapted for supporting or handling copy material in continuous form | B41J 15/00 |
| Holders for text to be copied | B41J 29/00 |

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Printing on both faces | B41J 3/60 |
| Handling sheets or webs in general | B65H |
Apparatus for electrographic processes using a charge pattern, e.g. copying machines

G03G 15/00

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

• "recording medium", "paper to be printed" and "copy material"

B41J 11/0005

{Curl smoothing, i.e. smoothing down corrugated printing material, e.g. by pressing means acting on wrinkled printing material}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Means for tensioning webs in general | B41J 15/16 |
| Means for tensioning webs in selective printing or marking devices | B41J 15/165 |
| Smoothers in general | B65H 5/36, B65H 29/52 |
| Taking out curl from webs in general | B65H 23/34 |
| Article bending or stiffening arrangements | B65H 29/70 |
| Decurling sheets after fixing process in copying machines | G03G 15/6576 |

B41J 11/001

{Handling wide copy materials}

Definition statement

This place covers:

Selective printing machines which are designed such that they allow to handle copy materials being wider than "usual" copy materials.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

| Selective printing machines adapted to print on wide cut sheets | B41J 13/0072 |
B41J 11/0015
{for treating before, during or after printing or for uniform coating or laminating the copy material before or after printing (selective coating B41J 2/2114)}

References

Limiting references
This place does not cover:

| Selective coating, i.e. coating dot by dot | B41J 2/2114 |

Informative references
Attention is drawn to the following places, which may be of interest for search:

| Methods of application of ink fixing material by inkjet printers | B41M 5/0011 |
| Methods of after-treatment of prints relating to the nature of material | B41M 7/00 |
| Methods of after-treatment of prints using protective coatings or layers | B41M 7/0027 |

B41J 11/0021
{using irradiation}

References

Informative references
Attention is drawn to the following places, which may be of interest for search:

| Methods of after-treatment of prints using UV radiation | B41M 7/0081 |
| Methods of after-treatment of prints using IR radiation | B41M 7/009 |

B41J 11/0035
{Handling copy materials differing in thickness (B41J 11/20 and B41J 25/308 take precedence)}

References

Limiting references
This place does not cover:

| Platen adjustments for varying the strength of impression, for a varying number of papers or for alignment | B41J 11/20 |
| Movable mechanisms for print heads with print gap adjustment mechanisms | B41J 25/308 |
B41J 11/0045
{Guides for printing material (curl smoothing B41J 11/0005; platens B41J 11/02, B41J 11/06; guiding webs B41J 15/046)}

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| Guiding webs               | B41J 15/046 |

B41J 11/005
{Guides in the printing zone, e.g. guides for preventing contact of conveyed sheets with printhead (guides in the printing section for copy material in short lengths B41J 13/14)}

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| Guides in the printing section for copy material in short lengths | B41J 13/14 |

B41J 11/0065
{Means for printing without leaving a margin on at least one edge of the copy material, e.g. edge-to-edge printing}

Synonyms and Keywords
In patent documents, the following words/expressions are often used as synonyms:
• "borderless printing", "marginless printing", "bleed printing", "full bleed printing" and "edge-to-edge printing"

B41J 11/007
{Conveyor belts or like feeding devices (conveyor belts specially adapted for handling sheets B41J 13/08; conveyor belts specially adapted for handling copy material in continuous form B41J 15/048; conveyor belts in general B65G 15/00; separating articles from piles using belts B65H 3/04; feeding articles by belts B65H 5/02)}

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

| Conveyor belts specially adapted for handling cut sheets    | B41J 13/08 |
| Conveyor belts specially adapted for handling copy material in continuous form | B41J 15/005 |
| Conveyor belts in general                                | B65G 15/00 |
Informative references

Separating articles from piles using endless belts
Feeding articles by belts

B41J 11/0085

{Using suction for maintaining printing material flat (on rotatable drums B41J 13/226)}

References

Attention is drawn to the following places, which may be of interest for search:

Using suction for maintaining copy material on rotatable drums

B41J 11/009

{Detecting type of paper, e.g. by automatic reading of a code that is printed on a paper package or on a paper roll or by sensing the grade of translucency of the paper (selecting type of paper B41J 11/485; investigating or analysing materials by the use of optical means G01N 21/00; investigating moving sheets G01N 21/86)}

References

Attention is drawn to the following places, which may be of interest for search:

Selecting type of paper
Investigating or analysing materials by the use of optical means
Investigating moving sheets

B41J 11/053

with sound-deadening devices (structure of surface B41J 11/057)

References

Attention is drawn to the following places, which may be of interest for search:

Structure of platen surface
**B41J 11/06**

Flat page-size platens {or smaller flat platens having a greater size than line-size platens (*B41J 11/0085* takes precedence; flat-bed ink-jet printers *B41J 3/28*)}

**References**

*Limiting references*

This place does not cover:

Using suction for maintaining printing material flat *B41J 11/0085*

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Flat-bed ink-jet printer *B41J 3/28*

---

**B41J 11/14**

Platen-shift mechanisms; Driving gear therefor {(*B41J 11/20* takes precedence)}

**References**

*Limiting references*

This place does not cover:

Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment *B41J 11/20*

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**B41J 11/20**

Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment {, or for print gap adjustment (adjustments by moving the print head *B41J 25/308, B41J 25/312*)}

**References**

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

Mechanisms for print heads or carriages movable towards or from paper surface with print gap adjustment mechanisms *B41J 25/308*

Mechanisms for print heads or carriages movable towards or from paper surface with print pressure adjustment mechanisms *B41J 25/312*
**B41J 11/22**

**Paper carriage guides or races** (printhead carriage guides **B41J 19/00**)

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Print head carriage guides | B41J 19/00 |

**B41J 11/42**

**Controlling** (printing material conveyance for accurate alignment of the printing material with the printhead; Print registering (controlling printhead **B41J 11/008**; control of the transport of cut sheets **B41J 13/0009**))

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Controlling the print head to print on accurate positions on the copy material | B41J 11/008 |
| Control of the transport of cut sheets | B41J 13/0009 |

**B41J 11/48**

Apparatus for condensed record, tally strip, or like work using two or more papers, or sets of papers {, e.g. devices for switching over from handling of copy material in sheet form to handling of copy material in continuous form and vice versa or point-of-sale printers comprising means for printing on continuous copy material, e.g. journal for tills, and on single sheets, e.g. cheques or receipts (**B41J 15/042** takes precedence; simultaneous conveyance of sheets or strips **B41J 3/62**)}

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Simultaneous conveyance of sheets or strips | B41J 3/62 |
| Supporting or feeding devices for loading rolled-up continuous copy material into printers, e.g. for replacing a used-up paper roll; Point-of-sale printers with openable casings allowing access to the rolled-up continuous copy material | B41J 15/042 |
**B41J 11/485**

{Means for selecting a type of copy material amongst different types of copy material in the printing apparatus (detecting type of paper B41J 11/009)}

**References**

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Detecting type of paper</td>
<td>B41J 11/009</td>
</tr>
</tbody>
</table>

**B41J 11/50**

in which two or more papers or sets are separately fed in the same direction towards the printing position ((B41J 15/18, B41J 15/20, B41J 15/22 and B41J 15/24 take precedence))

**References**

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple web-feeding apparatus</td>
<td>B41J 15/18</td>
</tr>
<tr>
<td>Multiple web-feeding apparatus for webs superimposed during printing</td>
<td>B41J 15/20</td>
</tr>
<tr>
<td>Multiple web-feeding apparatus for feeding webs in separate paths during printing</td>
<td>B41J 15/22</td>
</tr>
<tr>
<td>Multiple web-feeding apparatus with means for registering the webs with each other</td>
<td>B41J 15/24</td>
</tr>
</tbody>
</table>

**B41J 11/51**

with different feed rates ((B41J 15/18, B41J 15/20, B41J 15/22 and B41J 15/24 take precedence))

**References**

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple web-feeding apparatus</td>
<td>B41J 15/18</td>
</tr>
<tr>
<td>Multiple web-feeding apparatus for webs superimposed during printing</td>
<td>B41J 15/20</td>
</tr>
<tr>
<td>Multiple web-feeding apparatus for feeding webs in separate paths during printing</td>
<td>B41J 15/22</td>
</tr>
<tr>
<td>Multiple web-feeding apparatus with means for registering the webs with each other</td>
<td>B41J 15/24</td>
</tr>
</tbody>
</table>
B41J 11/56
specially constructed to facilitate storage or transport of typewriter ((B41J 3/36 takes precedence))

References

Limiting references
This place does not cover:

| Selective printing mechanisms for portability | B41J 3/36 |

B41J 11/58
Supply holders for sheets or fan-folded webs, e.g. shelves, tables, scrolls, pile holders ((B41J 13/10, B41J 13/103 and B41J 13/106 take precedence))

References

Informative references
Attention is drawn to the following places, which may be of interest for search:

| Sheet holders, retainers, movable guides, or stationary guides | B41J 13/10 |
| Sheet holders, retainers, movable guides, or stationary guides for the sheet feeding section | B41J 13/103 |
| Sheet holders, retainers, movable guides, or stationary guides for the sheet output section | B41J 13/106 |

B41J 11/66
Applications of cutting devices {(cutting in general B26D)}

Relationships with other classification places
Cutting tools in general, independent from the field where the cutting tools are used: B26D 1/00

B41J 13/00
Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,} specially adapted for supporting or handling copy material in short lengths, e.g. sheets {handling sheets or webs in general B65H; apparatus for electrographic processes using a charge pattern, e.g. copying machines, G03G 15/00}

Definition statement
This place covers:
In particular selective printing mechanisms comprising devices for the control of the conveyance of sheets, paper sheet guides, rotatable drums for holding sheets by suction or by clamps
Hierarchical Relationship between B65H, H04N, B41J and G03G

- **B65H**
  - HANDLING THIN MATERIAL, e.g. SHEETS, WEBS
  - If the invention is directed to selective printing and there is an interaction between the conveyance of the sheet/web and the printhead/printing unit in the printing zone:

- **H04N 1/04**
  - SCANNING ARRANGEMENTS

- **B41J 11/..., B41J 13/..., B41J 15/...**
  - HANDLING OF SHEETS/WEBS IN SELECTIVE PRINTING MECHANISMS, e.g. INK-JET PRINTERS, THERMAL PRINTERS
  - If the invention is directed to electrophotographic printing, e.g. if handling of the toner or the electric (de)charging operation is mentioned:

- **G03G 15/...**
  - ELECTROPHOTOGRAPHY, e.g. COPYING MACHINES
The preceding image includes references to B41J 11/00, B41J 13/00, B41J 15/00, B65H, G03G 15/00, and H04N 1/04.

**B41J 13/0018**

{in the sheet input section of automatic paper handling systems (guides therefor B41J 13/103)}

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

| Guides for the sheet feeding section | B41J 13/103 |
B41J 13/0027

{in the printing section of automatic paper handling systems (rollers B41J 13/02, guides therefor B41J 13/14)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Guides for the printing section B41J 13/14

B41J 13/0036

{in the output section of automatic paper handling systems (rollers B41J 13/02, guides B41J 13/106)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Guides in the output section B41J 13/106

B41J 13/0045

{concerning sheet refeed sections of automatic paper handling systems, e.g. intermediate stackers, reversing units (printing on both faces B41J 3/60)}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Printing on both faces B41J 3/60

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "duplex printing", "printing on both faces" and "perfect printing"

B41J 13/0063

{Handling thick cut sheets larger than credit cards, e.g. greeting cards, postcards, e.g. using means for enabling or facilitating the conveyance of thick sheets (B41J 11/20, B41J 13/12 and B41J 25/308 take precedence)}

References

Limiting references

This place does not cover:

Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment B41J 11/20
Devices specially adapted for small cards, envelopes, or the like, e.g. credit cards, business cards

Adjustment by moving the print head

**B41J 13/0063**

Rollers (roller platens **B41J 11/04** (; rollers for conveying in general **B65G 39/00**; separating articles from piles using friction rollers **B65H 3/06**; feeding articles by rollers **B65H 5/06**))

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Reference</th>
<th>CPC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roller platens</td>
<td>B41J 11/04</td>
</tr>
<tr>
<td>Rollers for conveying in general</td>
<td>B65G 39/00</td>
</tr>
<tr>
<td>Separating articles from piles using friction rollers in general</td>
<td>B65H 3/06</td>
</tr>
<tr>
<td>Feeding articles by rollers in general</td>
<td>B65H 5/06</td>
</tr>
</tbody>
</table>

**B41J 13/08**

{Conveyor} bands or like feeding devices {{**B41J 11/007** takes precedence}}

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Reference</th>
<th>CPC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conveyor belts adapted both for handling copy material in sheet form and</td>
<td>B41J 11/007</td>
</tr>
<tr>
<td>in continuous form</td>
<td></td>
</tr>
</tbody>
</table>

**B41J 13/103**

{for the sheet feeding section}

**References**

**Informative references**

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Reference</th>
<th>CPC Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports and (paper feeding) cassettes for supporting articles horizontally in general</td>
<td>B65H 1/04</td>
</tr>
</tbody>
</table>
**B41J 13/106**  
{for the sheet output section}  

**References**  

**Informative references**  
Attention is drawn to the following places, which may be of interest for search:

| Pile receivers in general | B65H 31/00 |

**B41J 13/12**  

specially adapted for {small} cards, envelopes, or the like {, e.g. credit cards, cut visiting cards (handling thick cut sheets larger than credit cards B41J 13/0063)}  

**References**  

**Informative references**  
Attention is drawn to the following places, which may be of interest for search:

| Handling thick cut sheets larger than credit cards | B41J 13/0063 |

**Glossary of terms**  
In this place, the following terms or expressions are used with the meaning indicated:

| "visiting cards" means | "business cards" |

**B41J 13/26**  

Registering devices {(registering in general B65H 9/00)}  

**References**  

**Informative references**  
Attention is drawn to the following places, which may be of interest for search:

| Registering, e.g. orientating, articles in general | B65H 9/00 |

**B41J 15/00**  

Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,) specially adapted for supporting or handling copy material in continuous form, e.g. webs {(handlling sheets or webs in general B65H)}  

**Definition statement**  
This place covers:  
In particular selective printing mechanisms comprising devices for feeding web material and devices for tensioning web material
Relationships with other classification places

Hierarchical Relationship between B65H, H04N, B41J and G03G

B65H
HANDLING THIN MATERIAL, e.g. SHEETS, WEBS

if the invention is directed to selective printing and there is an interaction between the conveyance of the sheet/web and the printhead/printing unit in the printing zone:

H04N 1/04
SCANNING ARRANGEMENTS

B41J 11/..., B41J 13/..., B41J 15/...
HANDLING OF SHEETS/WEBS IN SELECTIVE PRINTING MECHANISMS, e.g. INK-JET PRINTERS, THERMAL PRINTERS

if the invention is directed to electrophotographic printing, e.g. if handling of the toner or the electric (de)charging operation is mentioned:

G03G 15/...
ELECTROPHOTOGRAHY, e.g. COPYING MACHINES

The preceding image includes references to B41J 11/00, B41J 13/00, B41J 15/00, B65H, G03G 15/00, and H04N 1/04.

B41J 15/04
Supporting, feeding, or guiding devices; Mountings for web rolls or spindles

References

Informative references
Attention is drawn to the following places, which may be of interest for search:

Unwinding mechanisms not restricted to selective printing mechanisms for a continuous web depletion B65H 16/00
B41J 15/048

{Conveyor belts or like feeding devices (B41J 11/007 takes precedence)}

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

Conveyor belts adapted both for handling copy material in sheet form and in continuous form B41J 11/007

B41J 15/20

for webs superimposed during printing (machines for separating superposed webs B65H 41/00)

References
Informative references
Attention is drawn to the following places, which may be of interest for search:

Machines for separating superposed webs, not restricted to selective printing mechanisms B65H 41/00

B41J 17/00

Mechanisms for manipulating page-width impression-transfer material, e.g. carbon paper (in manifolding devices B41L)

Definition statement

This place covers:
 Thermal transfer webs.
 Ink donor films (IDF).
 Page-wide ribbons.
 IDF-identification means.

References
Limiting references

This place does not cover:

In manifolding devices: B41L
Sheet material for duplicating or marking: B41M 5/00
**B41J 17/32**

Detachable carriers or holders for impression-transfer material mechanism

**Definition statement**

*This place covers:*

In general cassettes

**B41J 17/36**

Alarms, indicators, or feed-disabling devices responsible to material breakage or exhaustion

**Definition statement**

*This place covers:*

Reading the IDF

**References**

*Limiting references*

*This place does not cover:*

<table>
<thead>
<tr>
<th>For colour ribbons</th>
<th>B41J 35/18</th>
</tr>
</thead>
<tbody>
<tr>
<td>For ribbons</td>
<td>B41J 35/36</td>
</tr>
</tbody>
</table>

**B41J 17/38**

for dealing with the impression-transfer material after use

**Definition statement**

*This place covers:*

Peeling-off.

Deleting the information.

**B41J 17/40**

for retracting sheets for re-use

**Definition statement**

*This place covers:*

Re-use of impression material by using all the remaining ink thereof
**B41J 19/00**

Character- or line-spacing mechanisms ({{paper carriage guides B41J 11/22; superimposed movements for serial printing B41J 25/005;} key actions B41J 25/02})

**Definition statement**

*This place covers:*

Mechanisms for relative movement in two directions between printing element and medium to be printed and parallel thereto:

- Type-writer carriages.
- Serial (reciprocating) or oscillating print head constructions for selective printing devices
- Print head carriage guide bar constructions.

**References**

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

| Character-spacing mechanisms | B41J 19/18 |
| Positive feed character-spacing mechanisms | B41J 19/20 |

**Special rules of classification**

Dot printing devices: B41J 19/00 - B41J 19/04, B41J 19/14 - B41J 19/207, B41J 19/305, B41J 19/76, B41J 19/78

Dot printer with continuous moving drum and serial printing head: B41J 19/16

**Glossary of terms**

*In this place, the following terms or expressions are used with the meaning indicated:*

| Character and line spacing | In type-writers generally performed by means of the paper carriage while the print element head is stationary. Character spacing is in the direction of the paper width and line spacing is in the direction of the paper sheet length |
| Main- and sub-scanning | In modern serial dot printers the character (dot) spacing is generally done by the movement of the print head over the width of a paper sheet (main-scanning) and the line spacing is done by paper movement (sub-scanning). If a drum is continuously rotating during printing, then this movement is called main-scanning. The step-wise movement of the print head after one revolution of the drum is then called sub-scanning |
| Fast-scanning | see main scanning |
| Slow-scanning | see sub-scanning |

**Synonyms and Keywords**

*In patent documents, the following words/expressions are often used as synonyms:*

- "print head-carrier -shuttle or - carriage"
B41J 19/005
{Cable or belt constructions for driving print, type or paper-carriages, e.g. attachment, tensioning means}

Definition statement
This place covers:
Mechanical constructions making the movement of carriages possible or easier.
Also including the electrical cables (guiding, attachment).

B41J 19/04
Sound-deadening or shock-absorbing devices or measures therein (B41J 19/38 takes precedence)

Definition statement
This place covers:
Type-writers only

References
Limiting references
This place does not cover:

Adapted for silent return (type-writers) B41J 19/38

B41J 19/14
with means for effecting line or character spacing in either direction

References
Limiting references
This place does not cover:

X,Y-printers with a print head movable in X- and Y-direction B41J 11/00

B41J 19/142
{with a reciprocating print head printing in both directions across the paper width}

Synonyms and Keywords
In patent documents, the following words/expressions are often used as synonyms:
• "bidirectional or rearward“ and "forward/backward printing”
B41J 19/16
Special spacing mechanisms for circular, spiral, or diagonal-printing apparatus

Definition statement
This place covers:
Serial print head above a rotating drum (spiral printing with main-scanning in rotating direction and sub-scanning in the width direction);
A continuously rotating drum with a print head carriage movement after each drum rotation (circular dot bands).

B41J 19/18
Character-spacing or back-spacing mechanisms; Carriage return or release devices therefor

Definition statement
This place covers:
Only type-writers.
The carriage of a typewriter is for carrying paper.

B41J 19/20
Positive-feed character-spacing mechanisms (controlled by escapements
B41J 19/52)

Definition statement
This place covers:
Type-writers.
Ink jet, matrix or optical print head carriers moving along the width of material to be printed (fast-scan direction).
References

Limiting references

This place does not cover:

<table>
<thead>
<tr>
<th>Topic</th>
<th>CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print head movement in slow-scan direction parallel to the rotating axis of a drum or belt</td>
<td>B41J 19/16</td>
</tr>
<tr>
<td>Linear carriage motors</td>
<td>B41J 19/305</td>
</tr>
<tr>
<td>Typewriters controlled by escapements</td>
<td>B41J 19/52</td>
</tr>
</tbody>
</table>

Informative references

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Topic</th>
<th>CPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print head carriage guide constructions</td>
<td>B41J 19/00</td>
</tr>
<tr>
<td>Lead-screws in general</td>
<td>F16H</td>
</tr>
<tr>
<td>Motors and control for carriage movement in general</td>
<td>H02P, H02K</td>
</tr>
</tbody>
</table>

Synonyms and Keywords

In patent documents, the following words/expressions are often used as synonyms:

- "print head-carrier, -carriage, -shuttle, and -chute"
- "pitch, spacing and distance"
**B41J 19/202**

{Drive control means for carriage movement}

**Definition statement**

This place covers:

Illustrative example of subject matter classified in this group

**Synonyms and Keywords**

In patent documents, the following words/expressions are often used with the meaning indicated:

| "main/fast-scan direction" | "reciprocating movement direction of the print head carriage" |
| "sub/slow-scan direction" | "paper feed direction" |
B41J 19/205

{Position or speed detectors therefor}

Definition statement

This place covers:
Illustrative example of subject matter classified in this group

B41J 19/22

acting by friction or gripping effect

Definition statement

This place covers:
Type-writers only.

B41J 19/24

Pawl and ratchet

Definition statement

This place covers:
Type-writers only.
**B41J 19/30**

Electromagnetically-operated mechanisms

**Definition statement**

*This place covers:*

Type-writers only.

Linear motors therefor.

**B41J 19/305**

{Linear drive mechanisms for carriage movement}

**Definition statement**

*This place covers:*

Printers using a linear motor instead of a cable, belt or lead screw to move the print head carrier

Illustrative example of subject matter classified in this group

---

**B41J 19/32**

Differential or variable-spacing arrangements

**Definition statement**

*This place covers:*

Type-writers only.
**B41J 19/34**
Escapement-feed character-spacing mechanisms

**Definition statement**

*This place covers:*
Type-writers only.

**B41J 19/60**
Auxiliary feed or adjustment devices

**Definition statement**

*This place covers:*
Type-writers only.

**B41J 19/66**
Carriage-release mechanisms

**Definition statement**

*This place covers:*
Type-writers only.

**Glossary of terms**

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Terms</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carriage</td>
<td>a paper supporting device moving sideward during printing (opposed to a print head carriage of e.g. an ink jet printer)</td>
</tr>
</tbody>
</table>

**B41J 19/68**
Carriage-return mechanisms, e.g. manually actuated

**Definition statement**

*This place covers:*
Type-writers only.

**B41J 19/74**

with special means to maintain character-spacing or back-spacing elements in engagement during case-shift or like movement

**Definition statement**

*This place covers:*
Type-writers only.
**B41J 19/76**

Line-spacing mechanisms (special line-feeds, e.g. long feeds **B41J 11/36**)

**Definition statement**

*This place covers:*

Paper movement in horizontal line direction for only type-writers.

**References**

**Limiting references**

*This place does not cover:*

| Paper transport other than for type-writers | B41J 11/00, B41J 13/00, B41J 15/00 |

---

**B41J 21/00**

Column, tabular, or like printing arrangements; Means for centralising short lines (carrier-release mechanisms **B41J 19/66**; key actions **B41J 25/18**)

**Definition statement**

*This place covers:*

Type-writers only.

**References**

**Limiting references**

*This place does not cover:*

| Carrier-release mechanisms therefor | B41J 19/66 |
| Key actions for type-writers | B41J 25/18 |

---

**B41J 21/08**

Mechanisms for initiating, effecting, skipping, or stopping tabulation movement; Means for centralising short lines

**References**

**Limiting references**

*This place does not cover:*

| Adjusting side margins for type-writers | B41J 29/50 |
B41J 21/14
characterised by denominational arrangements

Definition statement
This place covers:
In general: decimal tabulation for typewriters.

B41J 21/17
controlled by stored information

Definition statement
This place covers:
Memory.
Register controlled

B41J 23/00
Power drives for actions or mechanisms (B41J 9/00, {B41J 19/305}, take precedence)

References
Limiting references
This place does not cover:

<table>
<thead>
<tr>
<th>Hammer printers</th>
<th>B41J 9/00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear motors</td>
<td>B41J 19/305</td>
</tr>
</tbody>
</table>

Special rules of classification

<table>
<thead>
<tr>
<th>Dot printers</th>
<th>B41J 23/02, B41J 23/025</th>
</tr>
</thead>
</table>

B41J 23/04
with driven mechanism arranged to be clutched to continuously-operating power source

Definition statement
This place covers:
Type-writers only.
B41J 23/12
Mechanism driven by cams engaging rotating roller

Definition statement
This place covers:
Type-writers only.

B41J 23/14
Mechanism driven by through an oscillating or reciprocating member

Definition statement
This place covers:
Type-writers only.

B41J 23/16
Mechanisms driven by a spring tensioned by power means

Definition statement
This place covers:
Type-writers only.

B41J 23/18
Continuously-cycling drives

Definition statement
This place covers:
Type-writers only.

B41J 23/20
Fluid-pressure power drives

Definition statement
This place covers:
Type-writers only.

B41J 23/32
Electromagnetic power drives, e.g. applied to key levers

Definition statement
This place covers:
Type-writers only.
B41J 25/00

Actions or mechanisms not otherwise provided for

Definition statement
This place covers:
Selective printers, including type-writers, ink jet and thermal printers.

B41J 25/001

{Mechanisms for bodily moving print heads or carriages parallel to the paper surface (character- or line-spacing mechanisms B41J 19/00)}

Definition statement
This place covers:
E.g. page-width print heads moving during printing for compensating for print element aberrations.

References
Limiting references
This place does not cover:

| Character- or line-spacing mechanisms | B41J 19/00, B41J 19/20 |

B41J 25/003

{for changing the angle between a print element array axis and the printing line, e.g. for dot density changes (dot arrays providing selective dot disposition modes B41J 2/5056)}

Definition statement
This place covers:
Serial and line print heads.

B41J 25/005

{for serial printing movements superimposed to character- or line-spacing movements}

Definition statement
This place covers:
Serial print heads only.
E.g. mechanical alignment parallel to the printing medium

**Illustrative example:**

![Diagram from EP0748693](image)

**FIG. 2 from EP0748693**

### Glossary of terms

*In this place, the following terms or expressions are used with the meaning indicated:*

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serial print head</td>
<td>Reciprocating print head printing during its movement along the width of a medium to be printed (main-scanning)</td>
</tr>
<tr>
<td>Line-spacing</td>
<td>Movement step in the length direction of the printing material, by means of a medium transport system (sub-scanning)</td>
</tr>
</tbody>
</table>

### B41J 25/006

{for oscillating, e.g. page-width print heads provided with counter-balancing means or shock absorbers}

### References

*Informative references*

Attention is drawn to the following places, which may be of interest for search:

<table>
<thead>
<tr>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear drive mechanisms for carriage movement</td>
</tr>
</tbody>
</table>
B41J 25/02

Key actions for specified purposes

Definition statement

This place covers:
Type-writers only.

In general: repeat actions

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

For repeat keys

Special rules of classification

G06F 3/02 takes precedence

B41J 25/04

Back spacing

Definition statement

This place covers:
Only for type-writers, in general half-space keys.

B41J 25/20

Auxiliary type mechanisms for printing distinguishing marks, e.g. for accenting, using dead or half-dead key arrangements, for printing marks in telegraph printers to indicate that machine is receiving

Definition statement

This place covers:
Type-writers only.

B41J 25/22

for aligning characters for impression (in machines using index setting

Definition statement

This place covers:
Type-writers only.
**B41J 25/24**

Case-shift mechanisms (B41J 11/14 takes precedence; key actions B41J 25/08); Fount-change arrangements

**Definition statement**

This place covers:
Type-writers only.

**References**

**Limiting references**

This place does not cover:

| Interchangeable type-writer print heads, as disks | B41J 25/34 |

**B41J 25/308**

with print gap adjustment mechanisms {{by platen movement B41J 11/20}}

**Definition statement**

This place covers:

With print gap adjustment means on the print head carriage (e.g. for rotation around a guide bar or using a rotatable eccentric bearing).

With print gap adjustment means between the print head and its carriage.

With print gap adjustment means on the printer frame (e.g. for rotation of an eccentric carriage guide shaft).
References

Limiting references
This place does not cover:

By platen movement: B41J 11/20

Glossary of terms

In this place, the following terms or expressions are used with the meaning indicated:

<table>
<thead>
<tr>
<th>Term</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print gap</td>
<td>Distance between print head nozzle plate and print medium;</td>
</tr>
<tr>
<td>Guide shaft/rod/bar/rails</td>
<td>Guiding means supporting and guiding a reciprocating print head carriage;</td>
</tr>
<tr>
<td>Print/printing medium/media</td>
<td>Material to be printed, e.g. a sheet of paper;</td>
</tr>
<tr>
<td>Carriage/carrier</td>
<td>Print head holder which is movable over the width of a print medium</td>
</tr>
<tr>
<td>Platen</td>
<td>Surface supporting the print medium, e.g. flat surface or a rotating drum;</td>
</tr>
</tbody>
</table>

B41J 25/312

with print pressure adjustment mechanisms, e.g. pressure-on-the paper mechanisms

References

Limiting references
This place does not cover:

By means of moving the platen B41J 11/20

B41J 25/316

with tilting motion mechanisms relative to paper surface

References

Limiting references
This place does not cover:

Mounting in general: B41J 25/304

B41J 25/32

Impression mechanisms in which a roller co-operates with stationary type-faces

Definition statement
This place covers:
Type-writers only.
B41J 25/34
Bodily-changeable print heads or carriages (B41J 1/20, B41J 1/22, B41J 1/60 take precedence)

Definition statement
This place covers:
Print head carriages, e.g. for ink jet.
Interchangeable type-writer print heads, as disks.

References
Limiting references
This place does not cover:

| Typewriters or selective printing mechanisms with types or dies mounted on endless bands or the like | B41J 1/20, B41J 1/22, B41J 1/60 |

Special rules of classification
For mounting an ink-jet cartridge into a carriage, see also B41J 2/1752 (only ink jet).

B41J 27/00
Inking apparatus

Definition statement
This place covers:
Inking in type-writers and desk-top printers other than of the ink-jet type.

References
Limiting references
This place does not cover:

| Ink supply in ink-jet printers | B41J 2/175 |
| Ink ribbons or devices to apply ink to them | B41J 31/00, B41J 32/00, B41J 33/00, B41J 35/00 |

B41J 29/06
Special supports, platforms or trolleys for supporting machines on tables

References
Limiting references
This place does not cover:

| Office furniture | A47B 21/00 |
B41J 29/15
Script supports connected to the typewriter or printer (tables, desks, office furniture in general A47B)

References
Limiting references
This place does not cover:

| Copy holders not linked to type-writers or printers | A47B |

B41J 29/17
Cleaning arrangements

References
Limiting references
This place does not cover:

| Cleaning of nozzles | B41J 2/165 |
| Conditioning of ink supply systems (inside/outside) | B41J 2/1707, B41J 2/1714 |

B41J 29/26
Devices, non-fluid media or methods for cancelling, correcting errors, underscoring or ruling

Definition statement
This place covers:
Only type writers

References
Limiting references
This place does not cover:

| Correcting fluids, ink removers | C09D |

B41J 29/28
Writing or like instruments in holders or guides

Definition statement
This place covers:
E.g. vertical ruling.
**B41J 29/377**

Cooling or ventilating arrangements

**Definition statement**

*This place covers:*

Using fans or cooling liquid.

Detecting ambient temperature

**B41J 29/393**

Devices for controlling or analysing the entire machine (; Controlling or analysing mechanical parameters involving printing of test patterns)

**Definition statement**

*This place covers:*

Printing and reading test patterns requiring mechanical action.

Battery mounted in the printer.

Wireless communication between the carriage and the printer.

**References**

**Limiting references**

*This place does not cover:*

| All specific purposes (measurement of parameters and /or action to be performed) Printing control, data processing | B41J, G06K, H04N... |
| Nozzle failure detection | B41J 2/16579, B41J 2/2142 |
| Ink residue control | B41J 2/17566 |
| Density or colour adjustment | B41J 2/2132 |
| print head/platen gap adjustment | B41J 25/308, B41J 11/20 |
| Using a test patch for electrographic printers | G03G 15/5058 |
| Data exchange with an external device (e.g. host device) | G06K |

**B41J 31/00**

Ink ribbons (spools for ink ribbons B65H 75/00; coated or treated non-woven strips or sheets used as ink ribbons D21H); Testing or renovating ink ribbons

**References**

**Limiting references**

*This place does not cover:*

| Page width ink ribbons | B41J 17/00 |
| Spools for ink ribbons | B65H 75/00 |
| Coated or treated non-woven strips or sheets used as ink ribbons | D21H |
B41J 32/00

Ink-ribbon cartridges

Definition statement
This place covers:
Contains general features about ink ribbon cartridges and those with ribbons stored on spools.

References

Limiting references
This place does not cover:

For page width ink ribbons B41J 17/32

Informative references
Attention is drawn to the following places, which may be of interest for search:

Magnetic tape cassettes G11B

B41J 33/00

Apparatus or arrangements for feeding ink ribbons or like character-size impression-transfer material

Definition statement
This place covers:
In general ribbon-sized impression transfer material. But in some cases also page-width impression transfer material if B41J 17/00 does not provide an appropriate entry.

B41J 33/003

{Ribbon spools (spools in general B65H 75/00)}

References

Limiting references
This place does not cover:

For page width ink ribbons B41J 17/32
Spools in general B65H 75/00

B41J 33/08

and extending parallel to the length of the platen

Definition statement
This place covers:
Containing in general correcting ribbons on separate holders
References

Limiting references
This place does not cover:

| Mechanisms permitting the selective use of a plurality of ink ribbons | B41J 35/22 |

**B41J 33/54**

for ensuring maximum life of the ribbon (B41J 33/38 takes precedence; by adjustment of vibrator mechanisms B41J 35/14)

References

Limiting references
This place does not cover:

| Slow, e.g. "creep", feed mechanisms | B41J 33/38 |
| By adjustment of vibrator mechanisms | B41J 35/14 |

**B41J 35/00**

Other apparatus or arrangements associated with, or incorporated in, ink-ribbon mechanisms

Definition statement
This place covers:
Impression transfer ribbon material.

Also covering page-width impression transfer material in the sub-groups if B41J 17/00 does not provide an appropriate entry.

In general the heating or pre-heating of ink ribbons.

**B41J 35/12**

adjustable, e.g. for case shift (key actions B41J 25/02)

References

Limiting references
This place does not cover:

| Key actions | B41J 25/02 |
B41J 35/16
Multicolour arrangements (B41J 35/10 takes precedence)

References
Limiting references
This place does not cover:

<table>
<thead>
<tr>
<th>Description</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vibrator mechanisms; Driving gear therefor</td>
<td>B41J 35/10</td>
</tr>
<tr>
<td>Colour picture communication systems:</td>
<td>H04N 1/46</td>
</tr>
</tbody>
</table>

B41J 35/22
Mechanisms permitting the selective use of a plurality of ink ribbons

Definition statement
This place covers:
Use of correcting ribbons.

References
Limiting references
This place does not cover:

<table>
<thead>
<tr>
<th>Description</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ribbons placed on separate holders</td>
<td>B41J 33/06</td>
</tr>
</tbody>
</table>

B41J 35/26
Ink-ribbon shields or backings

Definition statement
This place covers:
Avoiding "ghost printing"

B41J 35/38
Feeding the ink ribbon to waste after use

Definition statement
This place covers:
E.g. deleting the printed text from the ribbon or making the text illegible.