

**CPC****COOPERATIVE PATENT CLASSIFICATION****A01F**

**PROCESSING OF HARVESTED PRODUCE; HAY OR STRAW PRESSES; DEVICES FOR STORING AGRICULTURAL OR HORTICULTURAL PRODUCE** (devices for topping or skinning onions or flower bulbs [A23N 15/08](#))

**A01F 1/00**

**Stationary apparatus or hand tools for forming or binding straw, hay or the like into bundles** (baling apparatus or presses [A01F 13/00](#), [A01F 15/00](#); mobile binders for use in the field [A01D 37/00](#), [A01D 39/00](#))

[A01F 1/02](#)

- . Hand-operated tools

[A01F 1/04](#)

- . Fastening or tying devices

[A01F 1/06](#)

- . Ties for bundles

**A01F 3/00**

**Hand-operated implements for cutting-up straw, hay or the like** (mechanically-driven straw cutters [A01F 29/00](#); cutting in general [B26](#))

**Guidance heading:** Threshing

**A01F 5/00**

**Hand-operated implements for threshing**

**A01F 7/00**

**Threshing apparatus**

[A01F 7/02](#)

- . with rotating tools ([threshing cylinders or concaves](#) [A01F 12/18](#))

[A01F 7/04](#)

- . . with axles transverse to the feeding direction

[A01F 7/06](#)

- . . with axles in line with the feeding direction; { [Axial threshing machines](#) }

[A01F 7/062](#)

- . . . { [with a rotating cage](#) }

[A01F 7/065](#)

- . . . { [with cage sweep mechanisms](#) }

[A01F 7/067](#)

- . . . { [with material-flow influencing means](#) }

[A01F 7/70](#)

- . with flails

**A01F 2009/00**

**Threshing machines with flails; Threshing devices with flails for combines**

**A01F 11/00**

**Threshing apparatus specially adapted for maize; Threshing apparatus specially adapted for particular crops other than cereals**

[A01F 11/02](#)

- . for flax

[A01F 11/04](#)

- . for clover or like seeds, e.g. lucerne

- A01F 11/06 . for maize, e.g. removing kernels from cobs
- A01F 11/08 . for palm fruit, e.g. releasing the fruit from the stalk
- A01F 12/00** **Parts or details of threshing apparatus** (devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#))
  - A01F 12/10 . Feeders
  - A01F 12/12 .. without band-cutters
  - A01F 12/14 .. with band-cutters
  - A01F 12/16 .. Safety devices
  - A01F 12/18 . Threshing devices
    - A01F 12/181 .. { Adjustable threshing mechanisms }
    - A01F 12/182 .. { Stripper beaters after the threshing drum }
    - A01F 12/184 .. { Cleaning means }
    - A01F 12/185 .. { Mounting means }
    - A01F 12/187 .. { Vibratory threshing mechanisms }
    - A01F 2012/188 .. { Rethreshing devices }
    - A01F 12/20 .. Threshing cylinders with ribs
    - A01F 12/22 .. Threshing cylinders with teeth
    - A01F 12/24 .. One-part threshing concaves
    - A01F 12/26 .. Multi-part threshing concaves
    - A01F 12/28 .. Devices for adjusting the concaves
  - A01F 12/30 . Straw separators { , i.e. straw walkers, for separating residual grain from the straw ([grain cleaning A01F 12/44](#)) }
    - A01F 12/305 .. { combined with additional grain extracting means }
    - A01F 12/32 .. with shaker screens or sieves
    - A01F 12/34 ... Sieve elements; Linings for shakers
    - A01F 12/36 .... Sieve elements specially adapted for handling short straw
    - A01F 12/38 .. with juxtaposed and independently-moved shaker bars or the like
    - A01F 12/385 .. with endless straw-conveying surface
    - A01F 12/39 .. with straw carriers in the form of rotors or drums
    - A01F 12/395 .. Conical or cylindrical straw separators with internal working surface
  - A01F 12/40 . Arrangements of straw crushers or cutters
  - A01F 12/42 . Apparatus for removing awns from the grain
  - A01F 12/44 . Grain cleaners; Grain separators
    - A01F 12/442 .. { Rotary cleaners }
    - A01F 12/444 .. { Fanning means }

- A01F 12/446 . . { Sieving means }
- A01F 12/448 . . . { Sieve adjusting means }
- A01F 12/46 . Mechanical grain conveyers
- A01F 12/48 . Air conduits or blowers for grain
- A01F 12/50 . Sack-filling devices; Counting or weighing devices
- A01F 12/52 . Arrangements for returning unthreshed grain to the threshing device
- A01F 12/54 . Arrangements for collecting or removing dust
- A01F 12/56 . Driving mechanisms for the threshing parts
- A01F 12/58 . Control devices; Brakes; Bearings
- A01F 12/60 . Grain tanks {(for combines [A01D 41/1208](#))}

**Guidance heading:** **Baling straw or the like** (baling presses in general, briquetting presses [B30B](#))

**A01F 13/00 Hand-operated baling apparatus**

**A01F 15/00 Baling presses for straw, hay or the like** { making compressed stacks [A01D 85/00](#) }

- A01F 15/005 . { for conditioning bales, e.g. rebaling }
- A01F 15/02 . with press-boxes {([A01F 15/046](#) takes precedence)}
- A01F 15/04 . Plunger presses
- A01F 15/042 . . { Plungers }
- A01F 15/044 . . { with open pressing chambers }
- A01F 15/046 . . { with press-boxes }
- A01F 2015/048 . . { Anti-return systems for the material in the pressing chamber when the plunger moves backwards }
- A01F 15/06 . . with double-action plunger
- A01F 15/07 . Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing
- A01F 15/0705 . . { Arrangements for continuous operation }
- A01F 15/071 . . { Wrapping devices (tying devices [A01F 15/141](#))}
- A01F 15/0715 . . . { Wrapping the bale in the press chamber before opening said chamber }
- A01F 2015/072 . . . . { Braking means for the film roll in balers which wrap the bale before opening the pressing chamber in order to stretch the film while wrapping. }
- A01F 2015/0725 . . . { Film dispensers for film rollers in a satellite type wrapper, e.g. holding and tensioning means for the film roller (the rotating arm itself [A01F 2015/073](#))}

A01F 2015/073	...	{ Features related to the horizontal rotating arm of a wrapping device of the satellite type (features of film dispensers <a href="#">A01F 2015/0725</a> ) }
A01F 2015/0735	...	{ Combined machines that include a press bale and a wrapping device in a further step, e.g. turning table, not in the same closed pressing chamber }
A01F 2015/074	...	{ Mechanisms for discharging a bale from the wrapping machine. }
A01F 2015/0745	...	{ Special features of the wrapping material for wrapping the bale. }
A01F 2015/075	...	{ Opening the pressing chamber before wrapping, and then wrapping by rotating the bale without displacing it out of the open pressing chamber }
A01F 2015/0755	...	{ Configuration of support surfaces which can move in order to rotate a bale around at least one axis while wrapping }
A01F 2015/076	...	{ Wrapping device incorporating sensors }
A01F 15/0765	..	{ Rolling bales on the ground }
A01F 2015/077	..	{ Pressing chamber formed by belts and rollers. }
A01F 2015/0775	..	{ Pressing chambers with fix volume }
A01F 2015/078	..	{ Pressing chamber formed exclusively by flexible elements, e.g. belts }
A01F 2015/0785	..	{ Latching or locking means for the tailgate of the rotobaler. }
A01F 2015/079	..	{ Sledge for rollers of the pressing chamber. }
A01F 2015/0795	..	{ Pressing chamber with variable volume }
A01F 15/08	.	Details
A01F 2015/0808	..	{ Balers incorporate an inclinometer }
A01F 15/0816	..	{ Devices for dispensing chemicals in bales during formation }
A01F 15/0825	..	{ Regulating or controlling density or shape of the bale }
A01F 15/0833	...	{ for round balers }
A01F 15/0841	..	{ Drives for balers }
A01F 15/085	...	{ for round balers }
A01F 15/0858	...	{ for the tying devices or needles }
A01F 2015/0866	....	{ Clutching means for the knotting process; Bale length measuring means for triggering the clutching mean }
A01F 15/0875	..	{ Discharge devices }
A01F 15/0883	...	{ for round balers }
A01F 2015/0891	...	{ Weighing the finished bale before falling to ground }
A01F 15/10	..	Feeding devices for the crop material, { e.g. precompression devices ( <a href="#">pick-ups A01D 89/00</a> ) }
A01F 15/101	...	{ Feeding at right angles to the compression stroke ( <a href="#">A01F 15/106</a> takes precedence) }
A01F 2015/102	....	{ the pressing chamber is fed from the bottom side }
A01F 2015/103	....	{ the pressing chamber is fed from a lateral side }
A01F 2015/105	....	{ the pressing chamber is fed from the top side }
A01F 15/106	...	{ for round balers }
A01F 2015/107	...	{ Means for withdrawing knives, rotor or walls of the feeding chamber in case of plugging or congestion }
A01F 2015/108	...	{ Cutting devices comprising cutter and counter-cutter }

- A01F 15/12      ..      Feeding devices for the ties
- A01F 15/14      ..      Tying devices specially adapted for baling presses { independent binders [A01D 39/00](#) }
- A01F 15/141      ...      { for round balers (wrapping devices [A01F 15/071](#)) }
- A01F 2015/143      ....      { Guiding fingers for twines in order to avoid the slippage of twines to the sides of the bale when tying it }
- A01F 15/145      ...      { Twine knotters }
- A01F 15/146      ...      { Wire twisters }
- A01F 15/148      ...      { Monitoring the tying, e.g. mistie detectors }
- A01F 15/16      ..      Division blocks
- A01F 15/18      ..      Endless belts, rolls or the like
- A01F 2015/183      ...      { Constructional details of belts of the press chamber }
- A01F 2015/186      ...      { Constructional details of rollers or the bearings of the rollers of the press chamber }

**Guidance heading:** **Accessories for threshing machines or baling presses** (loaders for sheaves, stacks or bales [A01D 87/12](#); trailers [B62D 63/06](#))

**A01F 17/00      Straw conveyers for threshing machines or baling presses**

- A01F 17/02      .      Mechanical conveyers
- A01F 17/04      .      Pneumatic conveyers

**A01F 19/00      Devices for securing threshing machines or baling presses to the ground, e.g. for compensating for unevenness of the ground**

**A01F 21/00      Devices for protecting human beings for threshing machines or baling presses** (in combines [A01D 75/20](#); for feeders for threshing apparatus [A01F 12/16](#))

**A01F 25/00      Storing agricultural or horticultural produce; Hanging-up harvested fruit** (maturing fruit [A23N 15/06](#); arrangements in barns for preparatory treatment of tobacco [A24B 1/02](#); packing or storing hops [C12C 3/04](#))

- A01F 25/02      .      Clamps; Pits
- A01F 25/04      .      Stacks, ricks or the like
- A01F 25/045      ..      { Distributing arrangements in haystacks }
- A01F 25/08      ..      Ventilating means
- A01F 25/10      ..      Shelters; { Open sheds or similar structures }
- A01F 25/12      .      Racks for drying purposes
- A01F 25/125      ..      { Transport devices for hay racks }

- A01F 25/13 . Coverings ([A01F 25/14](#) takes precedence)
- A01F 25/14 . Containers specially adapted for storing
- A01F 2025/142 .. { Machinery for making sausage-like groups of bales by wrapping or bagging (for bagging of loose material [A01F 2025/145](#)) }
- A01F 2025/145 .. { Bagging machines for loose materials making some kind of "sausage" on the field (making sausage-like groups of bales [A01F 2025/142](#)) }
- A01F 2025/147 .. { the containers are specially adapted for storing or drying the products in vacuum }
- A01F 25/16 . Arrangements in forage silos
- A01F 25/163 .. { in tower silos }
- A01F 25/166 .. { in trench silos }
- A01F 25/18 .. Loading or distributing arrangements
- A01F 25/183 ... { Loading arrangements }
- A01F 25/186 ... { Distributing arrangements (for haystacks [A01F 25/045](#)) }
- A01F 25/20 .. Unloading arrangements
- A01F 25/2009 ... { Top unloading units for tower silos }
- A01F 25/2018 ... { Bottom unloading units for tower silos }
- A01F 25/2027 ... { for trench silos }
- A01F 25/2036 .... { Cutting or handling arrangements for silage blocks }
- A01F 2025/2045 .... { Unloading arrangements including a conveyor belt for transferring the material to a hopper }
- A01F 2025/2054 .... { Machinery for cutting successive parallel layers of material in a trench silo (for shredding [A01F 2025/2063](#)) }
- A01F 2025/2063 .... { Machinery for shredding successive parallel layers of material in a trench silo }
- A01F 2025/2072 .... { Scoops with an extracting tool mounted inside or in the vicinity of said scoop }
- A01F 2025/2081 .... { Hydraulic features of the trench silos unloading devices, e.g. hydraulic circuits }
- A01F 2025/209 .... { Manual portable tools for unloading a silo, e.g. for cutting out a block }
- A01F 25/22 .. Ventilating arrangements
- A01F 29/00** **Cutting apparatus specially adapted for cutting hay, straw or the like** (mowers combined with means for cutting up the mown crop [A01D 43/08](#))
- A01F 29/005 . { for disintegrating and cutting up bales of hay, straw or fodder (for unrolling round bales [A01D 87/127](#)) }
- A01F 29/01 . specially adapted for being mounted on or drawn by a tractor, e.g. field choppers
- A01F 29/02 . having rotating knives with their cutting edges in a plane perpendicular to their rotational axis

- A01F 29/025 . . { with feeding direction parallel to axis }
- A01F 29/04 . . with feeding direction transverse to axis
- A01F 29/06 . having rotating knives with their cutting edges on a cylinder surface, e.g. of the helical-type
- A01F 29/08 . having reciprocating knives
- A01F 29/09 . Details
- A01F 29/095 . . { Mounting or adjusting of knives }
- A01F 29/10 . . Feeding devices
- A01F 29/12 . . Discharge means (loaders for hay or like field crop having blowers [A01D 87/10](#))
- A01F 29/14 . . Drives
- A01F 29/16 . . Safety devices, e.g. emergency brake arrangements
- A01F 29/18 . . . for protecting human beings
- A01F 29/22 . . Arrangement of knife sharpening devices