

**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 [A01F 2015/0725](#))}
  - [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 (pick-ups <a href="#">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 <a href="#">A01D 39/00</a> }
A01F 15/141	...	{for round balers (wrapping devices <a href="#">A01F 15/071</a> )}
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
<b>A01F 19/00</b>	<b>Devices for securing threshing machines or baling presses to the ground, e.g. for compensating for unevenness of the ground</b>
<b>A01F 21/00</b>	<b>Devices for protecting human beings for threshing machines or baling presses (in combines <a href="#">A01D 75/20</a>; for feeders for threshing apparatus <a href="#">A01F 12/16</a>)</b>
<b>A01F 25/00</b>	<b>Storing agricultural or horticultural produce; Hanging-up harvested fruit (maturing fruit <a href="#">A23N 15/06</a>; arrangements in barns for preparatory treatment of tobacco <a href="#">A24B 1/02</a>; packing or storing hops <a href="#">C12C 3/04</a>)</b>
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 ( <a href="#">A01F 25/14</a> 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 <a href="#">A01F 2025/145</a> )}
A01F 2025/145	.. {Bagging machines for loose materials making some kind of "sausage" on the field (making sausage-like groups of bales <a href="#">A01F 2025/142</a> )}
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 <a href="#">A01F 25/045</a> )}
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 <a href="#">A01F 2025/2063</a> )}
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
<b>A01F 29/00</b>		<b>Cutting apparatus specially adapted for cutting hay, straw or the like</b> (mowers combined with means for cutting up the mown crop <a href="#">A01D 43/08</a> )
A01F 29/005	. .	{for disintegrating and cutting up bales of hay, straw or fodder (for unrolling round bales <a href="#">A01D 87/127</a> )}
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 <a href="#">A01D 87/10</a> )
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