

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](#))

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](#))}

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 A01D 89/00](#))}
- A01F 15/101 . . . {Feeding at right angles to the compression stroke ([A01F 15/106](#) 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}

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