

**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 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 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 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 15/0765 .. { Rolling bales on the ground }
- A01F 15/08 . Details
- 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 15/0875 .. { Discharge devices }
- A01F 15/0883 ... { for round balers }
- 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 15/106 . . . { for round balers }
- 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 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

**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 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 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

**A01F 2009/00** **Threshing machines with flails; Threshing devices with flails for combines**

**A01F 2012/00** **Parts or details of threshing apparatus ( devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#) )**

- A01F 2012/18 . Threshing devices
- A01F 2012/188 .. Rethreshing devices

<b>A01F 2015/00</b>	<b>Baling presses for straw, hay or the like { making compressed stacks <a href="#">A01D 85/00</a> }</b>
A01F 2015/04	. Plunger presses
<a href="#">A01F 2015/048</a>	.. Anti-return systems for the material in the pressing chamber when the plunger moves backwards
A01F 2015/07	. Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing
A01F 2015/071	.. { Wrapping devices ( tying devices <a href="#">A01F 15/141</a> ) }
A01F 2015/0715	... { Wrapping the bale in the press chamber before opening said chamber }
<a href="#">A01F 2015/072</a>	.... 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.
<a href="#">A01F 2015/0725</a>	... Film dispensers for film rollers in a satellite type wrapper, e.g. holding and tensioning means for the film roller ( the rotating arm itself <a href="#">A01F 2015/073</a> )
<a href="#">A01F 2015/073</a>	... 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> )
<a href="#">A01F 2015/0735</a>	... 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
<a href="#">A01F 2015/074</a>	... Mechanisms for discharging a bale from the wrapping machine.
<a href="#">A01F 2015/0745</a>	... Special features of the wrapping material for wrapping the bale.
<a href="#">A01F 2015/075</a>	... Opening the pressing chamber before wrapping, and then wrapping by rotating the bale without displacing it out of the open pressing chamber
<a href="#">A01F 2015/0755</a>	... Configuration of support surfaces which can move in order to rotate a bale around at least one axis while wrapping
<a href="#">A01F 2015/076</a>	... Wrapping device incorporating sensors
<a href="#">A01F 2015/077</a>	.. Pressing chamber formed by belts and rollers.
<a href="#">A01F 2015/0775</a>	.. Pressing chambers with fix volume
<a href="#">A01F 2015/078</a>	.. Pressing chamber formed exclusively by flexible elements, e.g. belts
<a href="#">A01F 2015/0785</a>	.. Latching or locking means for the tailgate of the rotobaler.
<a href="#">A01F 2015/079</a>	.. Sledge for rollers of the pressing chamber.
<a href="#">A01F 2015/0795</a>	.. Pressing chamber with variable volume
A01F 2015/08	. Details
<a href="#">A01F 2015/0808</a>	.. Balers incorporate an inclinometer
A01F 2015/0841	.. { Drives for balers }
A01F 2015/0858	... { for the tying devices or needles }
<a href="#">A01F 2015/0866</a>	.... Clutching means for the knotting process; Bale length measuring means for triggering the clutching mean
A01F 2015/0875	.. { Discharge devices }
<a href="#">A01F 2015/0891</a>	... Weighing the finished bale before falling to ground
A01F 2015/10	.. Feeding devices for the crop material, { e.g. precompression devices ( pick-ups <a href="#">A01D 89/00</a> ) }
A01F 2015/101	... { Feeding at right angles to the compression stroke ( <a href="#">A01F 15/106</a> takes precedence ) }
<a href="#">A01F 2015/102</a>	.... the pressing chamber is fed from the bottom side
<a href="#">A01F 2015/103</a>	.... the pressing chamber is fed from a lateral side

- A01F 2015/105 . . . . the pressing chamber is fed from the top side
- 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 2015/14 . . . Tying devices specially adapted for baling presses { [independent binders A01D 39/00](#) }
- A01F 2015/141 . . . { [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 2015/18 . . . 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
  
- A01F 2025/00** **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 2025/14 . . 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 2025/16 . . Arrangements in forage silos
- A01F 2025/20 . . . Unloading arrangements
- A01F 2025/2027 . . . { [for trench silos](#) }
- 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