

F. SHIRTLIFF.

BALING PRESS.

APPLICATION FILED MAY 7, 1910.

1,043,157.

Patented Nov. 5, 1912.

2 SHEETS—SHEET 1.

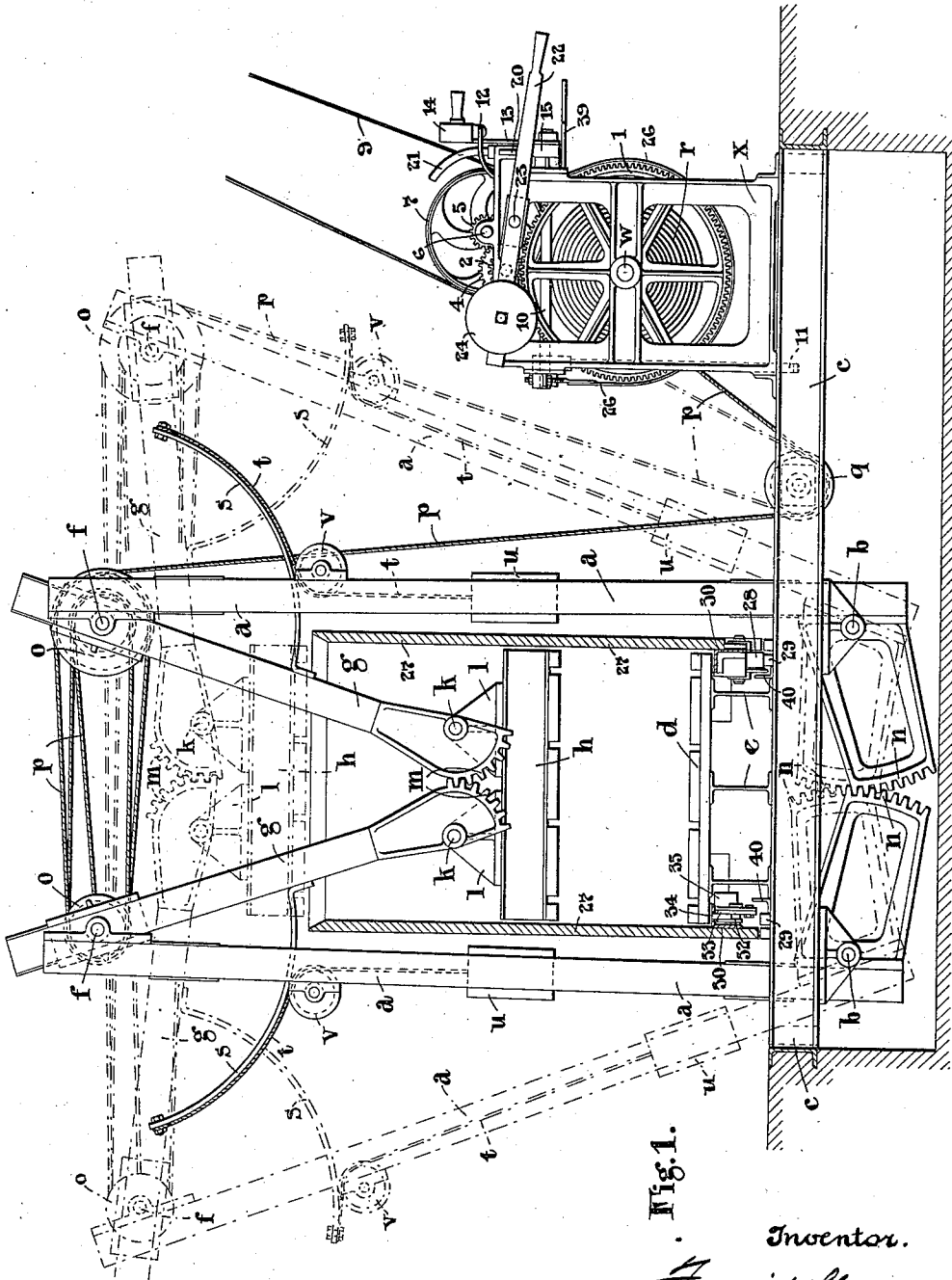


Fig. 1.

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Witnesses:

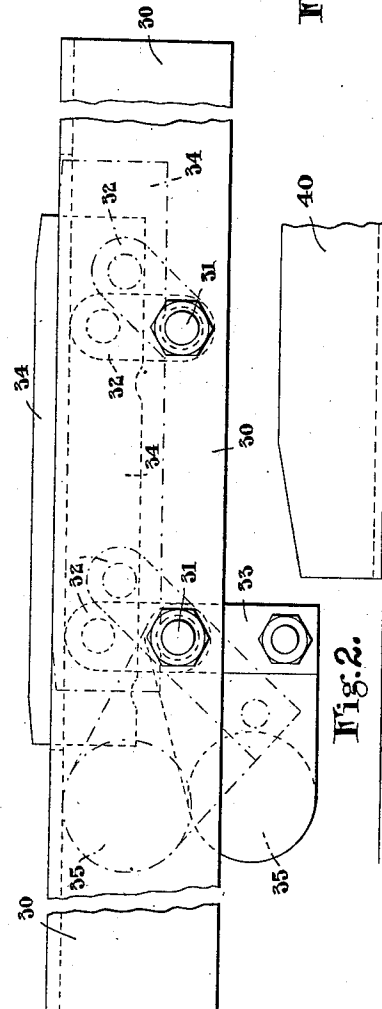
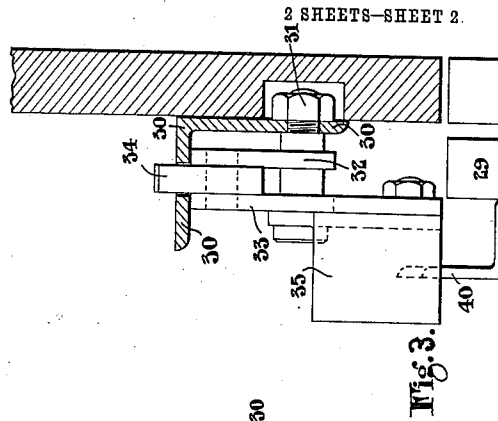
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By

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UNITED STATES PATENT OFFICE.

FREDERICK SHIRTLIFF, OF HAMPTON HILL, ENGLAND.

BALING-PRESS.

1,043,157.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FREDERICK SHIRTLIFF, a subject of the King of Great Britain and Ireland, and residing at Park Road, Hampton Hill, in the county of Middlesex, England, have invented a certain new and useful Improvement in Baling-Presses, of which the following is a specification.

This invention relates to presses for pressing bales of jute, cotton, wool, hay, hides, cloth and other materials and of the type wherein a follower or platen is carried on the ends of two links which are pivoted to uprights or levers which in turn are pivoted at their lower ends, the levers being forced toward each other by suitable means applied at their upper ends in such a manner that adequate purchase is obtained to thrust down the follower or platen with the required pressure toward a stationary table.

The objects of the present invention are to produce a compact and efficient baling press of this type which shall require the minimum of head-room and side room, to provide means for preventing over pressure being applied to the bale being pressed due to the negligence or carelessness of the operator and to devise simple and convenient means for placing the box containing the materials to be baled in position in the press.

In the accompanying drawings, Figure 1 is an elevation showing a complete press. Figs. 2 and 3 are two views illustrating a detail.

In carrying out the invention according to one mode a pair of uprights *a* are pivoted at or near their lower ends *b* to a frame *c* composed of metal joists, although it is to be understood that wooden members may be used if desired. A stationary table or lashing plate *d* on which the materials to be baled are placed rests upon the girders *e* mounted on the frame *c*. Pivoted at *f* to the upper ends of the levers *a* are the links *g*, which are connected at their lower ends to a platen or follower *h* by means of pivot pins *h* in brackets *l* and the ends of the links adjacent to the platen are provided with gears or toothed segments *m* in order to insure that the links shall work in unison and that the platen *h* shall be moved parallel to the lashing-plate *d*. For similar reasons toothed segments *n* are secured to the lower ends of the levers *a*, and these segments are so arranged that they will gear with one another for any degree of travel of the press. The upper

ends of the levers *a* are provided with sheaves *o* and a cable or chain *p* is anchored to one sheave or to one of the levers *a* and after being passed successively over the set of sheaves, passes around a third sheave *q* and is anchored to the drum *r* of a winch which may be of any suitable type and driven in any convenient manner.

Secured to each link *g* is a lever or levers *s* curved in the form of an arc struck with the center of the pivot pin *f* as center, and fastened to the end of the lever *s* is a cable or rope *t* carrying at its lower end a counterweight *u* adapted to cause the platen *h* to move upward when the winch is released, said counterweight being arranged to slide in a groove in the lever *a* or between two similar halves of the said lever. The cords or cables *t* are caused to remain tangential to the levers *s* by means of pulleys or sheaves *v* pivoted to the levers *a*. The curved levers *s* may be replaced by straight levers if they are hinged where they join the links *g*.

It is to be understood that the winch used for forcing the levers together may be of any suitable form and may be driven by hand or by any suitable form of power. The preferred form of winch is clearly shown to the left in Fig. 1 in which the drum *r* is of the spiral groove type, tapered from one end to the other, and mounted on a shaft *w* carried in a frame *x*. Mounted upon the shaft *w* is a spur wheel 1 adapted to gear with a second smaller pinion 2 mounted upon a shaft 3 which carries at its other end a spur wheel 4. The spur wheel 4 is adapted to mesh with a spur wheel 5 carried on the shaft 6, which also carries a fast and loose pulley 7 and 8, arranged to be operated from any convenient source of power by means of the belt 9. One convenient form of apparatus for automatically stopping the winch when the desired pressure has been applied to the bale and the latter is down to size, is illustrated. Mounted on a shaft 10 attached to the frame of the winch is an arm or lever 11, while the shaft 10 also carries a bent arm or lever 12 adapted to engage with a lever 13 loosely mounted upon the shaft 10 and carrying at its end a weight 14. A sector 15 having a link attached to it by means of pins in such a way that the lever 13 is free to move between the sector 15 and the link but to be arrested in its movement by the pins is also loosely mounted upon the shaft 10. The

sector 15 is provided with a slot 18 with which engages a pin secured to or formed integral with the arm 20 which passes through guides in the winch frame and carries at one end the belt guide 21. The other end of the arm 20 is arranged to rest when the winch is in motion, on a lever 22 pivoted to a short shaft 23 and carrying at one end a counterweight 24. Also rigidly mounted on the shaft 23 is a link or lever to which is secured one end of a brake band 26, the other end of which is fixed, and which is adapted to surround the spur wheel 1.

The action of the apparatus is as follows:—When the bale is being compressed in the machine the rope *p* is traveling from the large to the small end of the winch drum *r*. As soon as the rope reaches the lever 11 it causes the latter to tilt, thus also rotating the lever 12, which in turn pushes over the lever 13 carrying the counterweight 14. As soon as this counterweight is pushed beyond the vertical it falls by its own weight, and the lever 13 striking the pin causes the sector 15 to rotate, thus, through the medium of the slot and the pin pushing the arm 20 along, and causing the belt to move from the fast pulley 7 to the loose pulley 8. At the same time, as soon as the arm 20 is moved off the lever 22, the weight 24 falls and causes the shaft 23, with the link to rotate thus tightening up the brake band 26, and causing the winch to stop. By suitably arranging the lever 11 to be adjusted in different positions, the winch may be caused to stop as soon as the bale is down to any required size.

Figs. 2 and 3 illustrate a device for enabling boxes containing heavy materials to be simply and rapidly placed in position in the press. The lashing plate and materials are placed in a box 27 (Fig. 1) open at the top and provided with doors in the front and side.

In the following description the apparatus at one side only of the box will be described, but it is to be understood that a similar apparatus will be attached to the other side of the box, the whole box being adapted to run on wheels 28 in turn guided on rails 29 (Fig. 1). Attached to the side of the box is an angled piece 30 extending the whole length of the box, and to which are secured two pins 31 on each of which are pivoted levers 32 and 33 carrying a plate or bar 34 kept in its normal or raised position by means of the counterweight 35 attached to one of the levers 33. The height of the bar 34 in its upper position is so arranged that it is above the level of the girders *e* (Fig. 1) which in turn are slightly above the level of the angle pieces 30. The lashing plate *d* is placed on the bars 34 in the box 27, which is then filled with the material to be baled and pushed along the

rails 29 into position in the press. Just before the box is in its correct position, the counterweight 35 strikes against a projection 40 on each side (Fig. 1) with the result that the counterweights immediately push the levers supporting the bars 34 out of the vertical, the weight of the materials in the box thereupon depressing the bars 34 into the position indicated by chain dotted lines in Fig. 2. The lashing plate and materials in the box are thus deposited in position on the girders *e*, the weight being taken off the frame of the box 27, which can then be wheeled away from under the press if desired.

When it is desired to disconnect the gearing of the winch this may be effected by means of a hand-lever 39 pivoted at one end and carrying a pin 38 which is adapted to engage with a groove 37 to a clutch 36 mounted on the shaft 3.

Having now described my invention what I claim as new and desire to secure by Letters Patent is:—

1. A baling press of the character referred to comprising in combination counterweights, a pair of uprights or levers pivoted at their lower ends and having longitudinal grooves for counterweights to slide in, a pair of links pivoted to said uprights and carrying a platen adapted to be pressed down toward a stationary table when the uprights are forced toward each other, and means for forcing said uprights toward each other, as set forth.

2. A baling press of the character referred to comprising in combination counterweights, a pair of uprights or levers pivoted at their lower ends and having longitudinal grooves for counterweights to slide in, a pair of links pivoted to said uprights and carrying a platen adapted to be pressed down toward a stationary table when the uprights are forced toward each other, means for forcing said uprights toward each other, and means automatically operated for arresting the downward travel of the platen for preventing over pressure on the bale, as set forth.

3. A baling press of the character referred to comprising in combination counterweights, a pair of uprights or levers pivoted at their lower ends and having longitudinal grooves for counterweights to slide in, a pair of links pivoted to said uprights and carrying a platen adapted to be pressed down toward a stationary table when the uprights are forced toward each other, a set of sheaves carried by said uprights, a chain or cable anchored to one sheave or upright and passing successively over said sheaves, and driving means for pulling the chain or cable tight so as to force the uprights toward each other, as set forth.

4. A baling press of the character referred

to comprising in combination a pair of up-
rights or levers pivoted at their lower ends,
a pair of links pivoted to said uprights and
carrying a platen adapted to be pressed
5 down toward a stationary table when the
uprights are forced toward each other,
counterweights for said platen sliding in
grooves in the uprights, a set of sheaves
carried by said uprights, a chain or cable
10 anchored to one sheave or upright and pass-
ing successively over said sheaves, driving
means for pulling the chain or cable tight
so as to force the uprights toward each
other, and means for automatically throw-
15 ing the driving mechanism out of action
when the bale is compressed to the desired
size, as set forth.

5. A baling press of the character referred
to comprising in combination a pair of up-
rights or levers pivoted at their lower ends,
a pair of links pivoted to said uprights and
carrying a platen adapted to be pressed
down toward a stationary table when the up-
rights are forced toward each other, counter-
25 weights for said platen sliding in grooves in
the uprights, a pair of toothed segments at-
tached to the lower ends of said uprights, a
set of sheaves carried by said uprights, a
chain or cable anchored at one end and pass-
30 ing successively over said sheaves, driving
means for pulling the chain or cable tight
so as to force the uprights toward each
other, and means for automatically throwing
the driving mechanism out of action when
35 the bale is compressed to the desired size, as
set forth.

6. A baling press of the character referred
to comprising in combination a pair of up-
rights or levers pivoted at their lower ends,
40 a pair of links pivoted to said uprights and

carrying a platen adapted to be pressed
down toward a lashing plate on which the
materials to be compressed are placed when
the uprights are forced toward one another,
means for forcing said uprights toward one 45
another, girders for supporting said lashing
plate and bale, a box mounted on wheels
guided on rails for carrying said materials
and lashing plate and means for dropping
the materials and lashing plate in position 50
on the girders, as set forth.

7. A baling press of the character referred
to comprising in combination a pair of up-
rights or levers pivoted at their lower ends
a pair of links pivoted to said uprights and 55
carrying a platen adapted to be pressed
down toward a lashing plate on which the
materials to be compressed are placed when
the uprights are forced toward one another
means for forcing said uprights toward one 60
another, girders for supporting said lashing
plate and materials, a box mounted on
wheels guided on rails for carrying said
materials and lashing plate, angle pieces
attached to the sides of the said box, levers 65
pivoted to said angle pieces and carrying
bars on which the materials and lashing
plate are adapted to be placed, a counter-
weight attached to one of said pivoted levers
on each side of the box and a stop adapted 70
to strike each counterweight just before the
bale is in position, all for the purpose set
forth.

In testimony whereof I affix my signature
in presence of two witnesses.

FREDERICK SHIRTLIFF.

Witnesses:

R. A. WOLSTENHOLME,
P. A. OUTHWAITE.