

S. P. FOSTER.
BALING PRESS.

APPLICATION FILED AUG. 28, 1911.

1,019,626.

Patented Mar. 5, 1912.

4 SHEETS—SHEET 1.

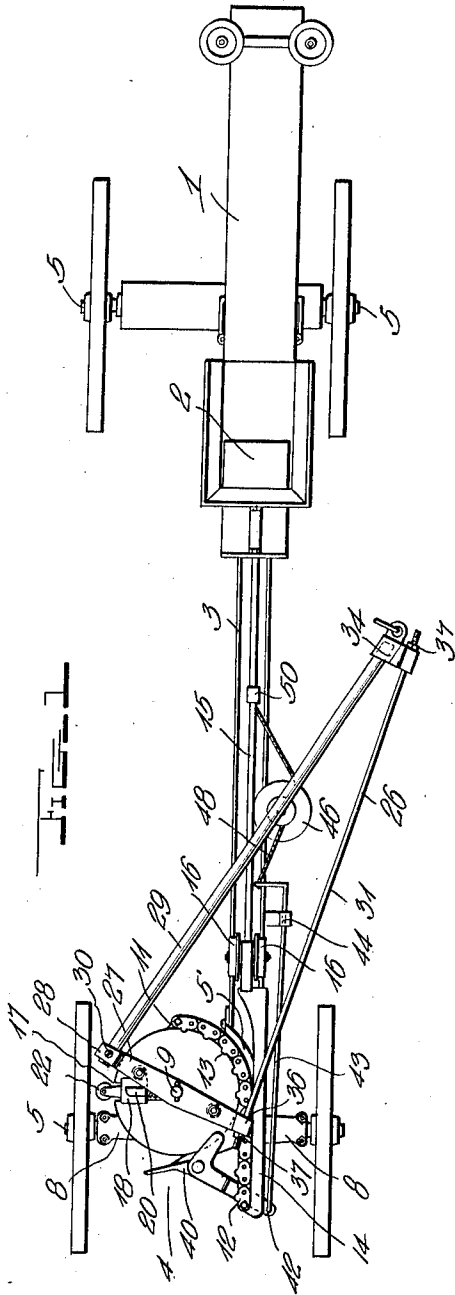
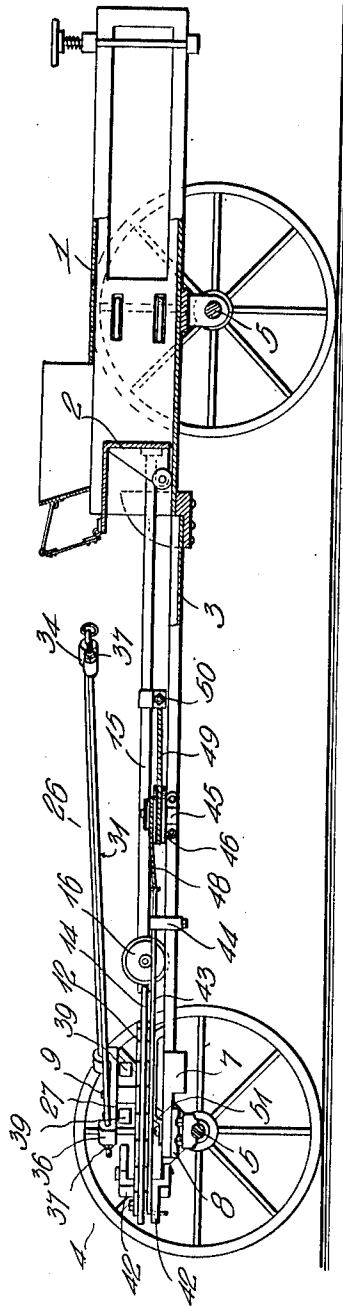


FIG. 1



Witnesses

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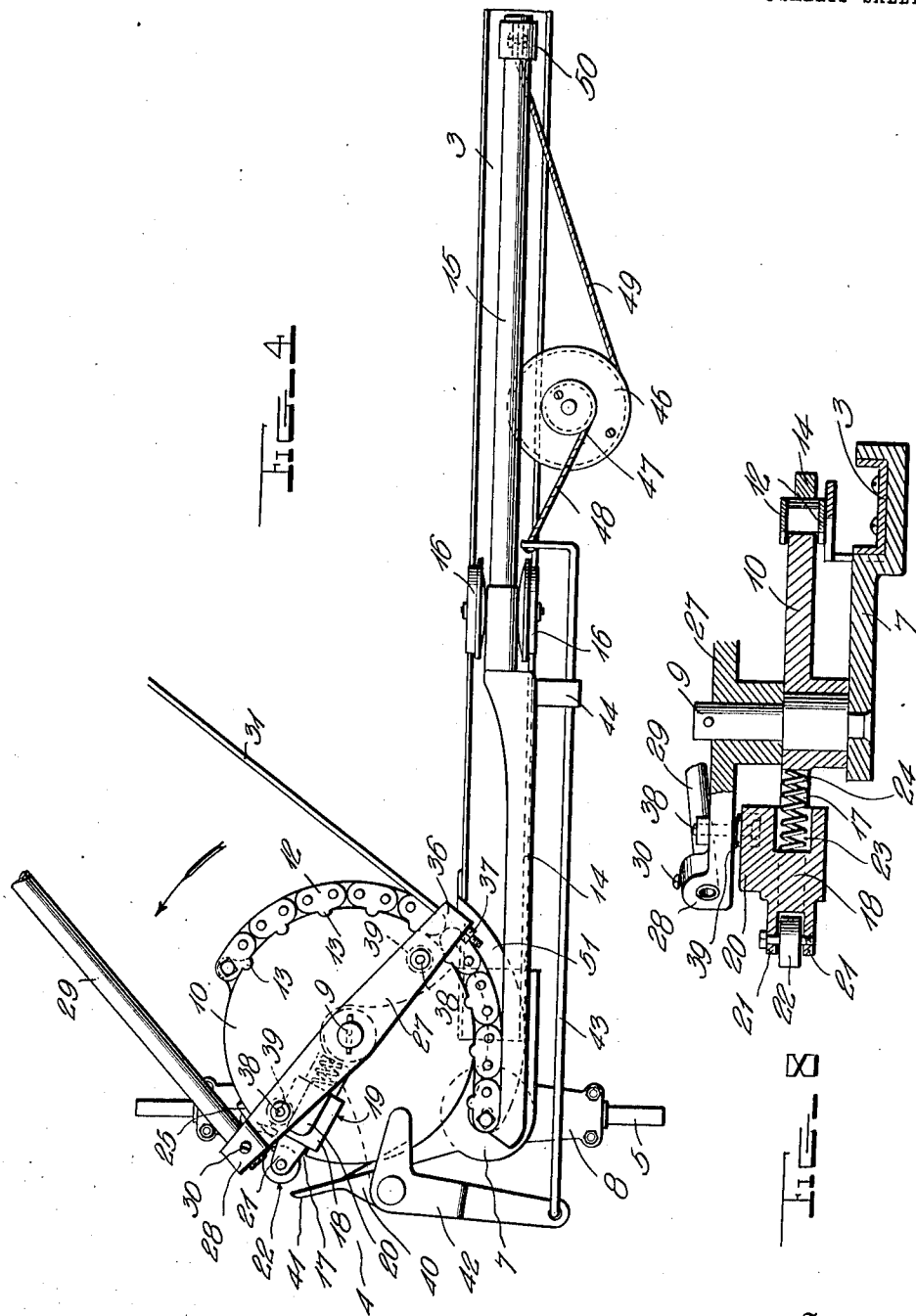
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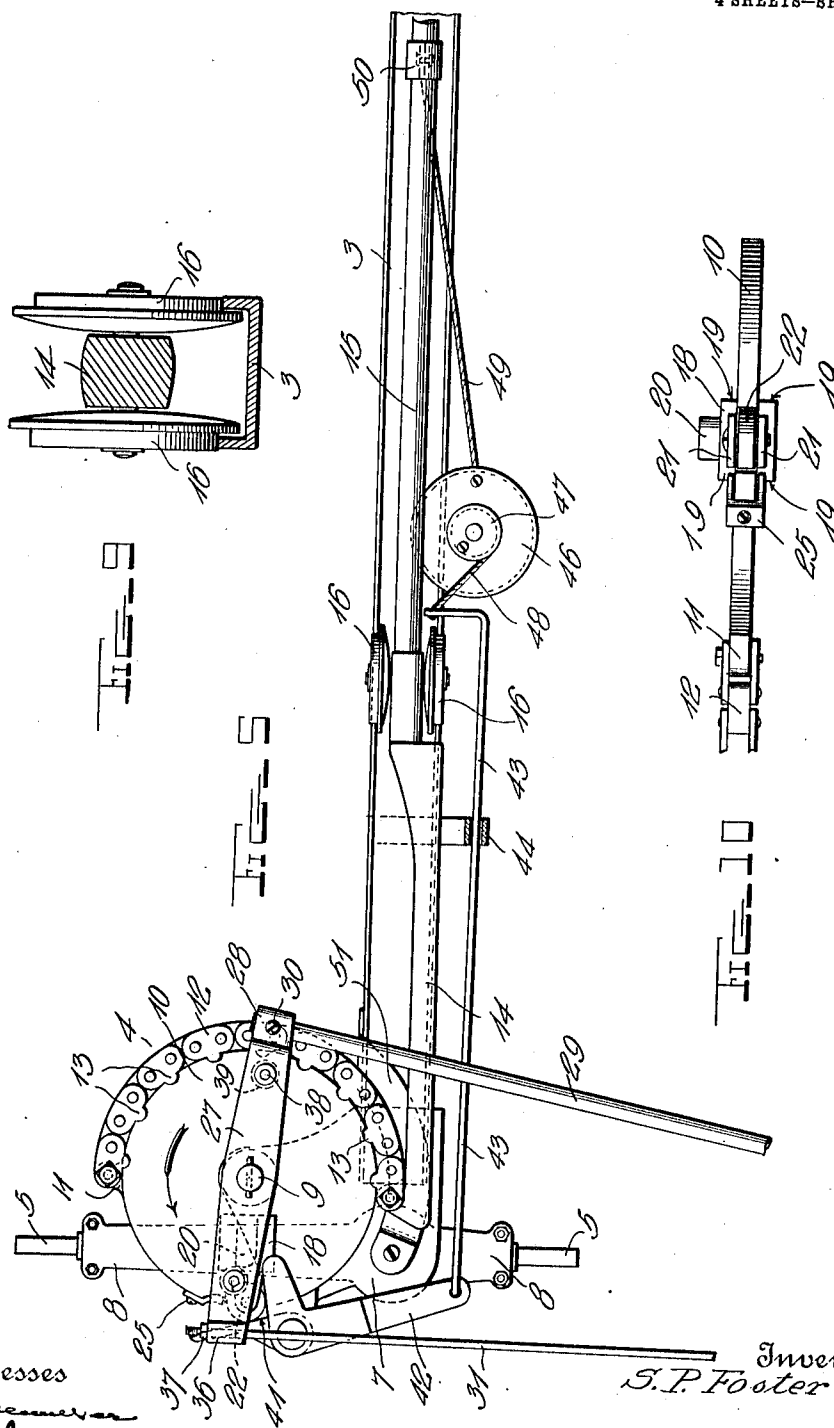
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UNITED STATES PATENT OFFICE.

SAMUEL P. FOSTER, OF EAST CHATTANOOGA, TENNESSEE.

BALING-PRESS.

1,019,626.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, SAMUEL P. FOSTER, a citizen of the United States, residing at East Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Baling-Presses; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in baling presses.

One object of the invention is to provide a baling press having an improved construction of plunger projecting mechanism whereby the plunger is forced into the baling chamber of the press and means whereby the projecting mechanism is released at the proper time, and the plunger quickly retracted.

With this and other objects in view, the invention consists of certain novel features of construction and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings: Figure 1 is a plan view of the plunger operating mechanism and front end of the baling chamber of a hay press constructed in accordance with the invention; Fig. 2 is a side view of the same partly in section; Fig. 3 is a plan view of a portion of the plunger operating mechanism on an enlarged scale showing the position of the parts when the plunger is retracted; Fig. 4 is a similar view showing the position of the parts when the plunger is partly projected. Fig. 5 is a similar view showing the position of the parts when the plunger is entirely projected and is about to be retracted; Fig. 6 is an end view on a larger scale, of the plunger operating mechanism; Fig. 7 is a plan view of the base plate and the adjacent parts; Fig. 8 is a detail vertical section on the line 8—8 of Fig. 3; Fig. 9 is a detail section on the line 9—9 of Fig. 3; Fig. 10 is a detail edge view of the plunger projecting wheel.

Referring more particularly to the drawings, 1 denotes the baling chamber of the machine which may be of any suitable construction and has slidably mounted therein a baling plunger 2. Connected to the baling chamber 1 by a channel iron bar or beam 3 is a plunger operating mechanism 4. The machine is provided with front and

rear axles 5 upon which when the machine is not in use are mounted suitable supporting wheels whereby the machine may be drawn from place to place.

The plunger operating mechanism comprises a base plate 7 to which is pivotally connected the bolster 8 of the front axle 5. To the rear edge of the plate and in line with the pivotal connection thereof with the bolster 8 is connected the outer end of the channel iron track bar 3. Formed on the base plate 7 is an upwardly projecting bearing stud 9 on which is revolubly mounted a plunger operating wheel 10.

On one edge of the wheel 10 is formed a laterally extending lug 11 to which is connected one end of a plunger projecting chain 12 which is adapted to be drawn around or wound on the edge of the wheel 10 when the latter is revolved. The outer links of the chain are provided on their inner edges with inwardly extending guide lugs 13 which engage the opposite sides of the wheel and hold the chain in engagement therewith. The opposite end of the chain is connected to the outer end of a plunger projecting bar 14, the inner end of which is integrally connected with or otherwise secured to the outer end of the plunger rod 15. To the outer end of the plunger rod where the same joins the bar 14 are pivotally connected flanged plunger rod supporting wheels 16 which engage and are adapted to travel on the flanges of the channel iron track bar 3 when the plunger is projected and retracted.

Formed in the plunger projecting wheel 10 is a radially disposed notch or recess 17 with which is slidably engaged a sweep engaging block 18, said block having on its opposite side edges guide flanges 19 which slidably engage the opposite edges of the notch 17. On the upper side of the block is formed a roller engaging lug 20 while on the outer end of the block is formed a pair of parallel apertured bearing lugs 21 between which is revolubly mounted a block retracting roller 22 which is adapted to be brought into engagement with a suitable block retracting mechanism hereinafter described. In the inner end of the block 18 is formed a socket 23 with which is engaged a block projecting spring 24 the outer end of which engages the inner end of the notch or recess and forces the block outwardly and normally holds the same in a projected position. The outward movement of the block in the notch 17 is

limited by means of a bifurcated stop plate 25 secured to the outer edge of the plunger projecting wheel 10 as shown.

Arranged above the wheel 10 is a sweep 26 to which the draft animals are hitched in the usual or any suitable manner, said sweep comprising a cross head 27 which is pivotally mounted on the outer end of the bearing stud 9 and is secured thereon by a retaining pin or other suitable fastening means. On one end of the cross head 27 is formed an apertured lug 28 with which is engaged the inner end of the sweep rod 29, said rod being detachably and adjustably secured in said lug by a set screw 30. The outer end of the sweep rod is connected to the opposite end of the cross head and securely braced by a brace rod 31, the outer end of which is secured in a casting 34 arranged on the outer end of the sweep rod while the inner end of the brace rod is engaged with an apertured lug 36 formed on the end of the cross head opposite to the lug 28. The ends of the brace rod 31 are threaded and have screwed thereon fastening nuts 37 which are adapted to be screwed up on the brace rod thereby keeping the sweep rod rigidly braced. Secured to the cross head adjacent to its opposite ends and projecting below the same are bearing studs 38 on which are revolubly mounted wheel operating rollers 39 which, when the sweep is drawn around by the draft animals are adapted to be successively brought into engagement with the lug 20 on the sweep operating block thereby turning the plunger projecting wheel in the proper direction for winding the chain 12 thereon and thus forcing the plunger into the baling chamber. The wheel when thus engaged by the sweep will be turned until the block 18 is brought into engagement with a suitable retracting mechanism hereinafter described and which forces said block back out of engagement with the roller.

The retracting device for the block 18 comprises a bracket 40 formed on the outer end of the base plate 7 and projecting upwardly therefrom as shown. On the bracket 40 is fixed a plate or lug 41 which is disposed at an angle or obliquely to the adjacent edge of the wheel 10 whereby when the roller 22 on the block 18 is brought into engagement with said lug, the block will be gradually forced back until the lug 20 thereon is disengaged from the roller on the cross head of the sweep thus preventing further operation of the wheel and projection of the plunger until the cross head of the sweep has been brought around in position to engage the opposite roller thereon with the lug 20 on the wheel operating block.

As soon as the rollers 39 on the cross head are disengaged from the lug 20 on the block 18, said rollers come into engagement with a bell crank plunger retracting lever 42 pro-

vided with a bifurcated head which is pivotally mounted on a bracket 40 and has its inner arm arranged in the path of movement of the rollers 39 whereby when the rollers leave the lug 20 on the block 18 they immediately engage said inner member as the sweep continues in its movement thereby actuating the lever 42 in the proper direction for retracting the plunger. To the outer arm of the bell crank lever 42 is connected the outer end of a plunger retracting rod 43 the inner end of which is slidably mounted in a guide bracket 44 fixed on the track bar 3 adjacent to the inner end of the rod 43 is a bearing bracket 45 on which is revolubly mounted a double cable winding drum or pulley comprising a lower member 46 and an upper member 47. The upper member 47 is of considerably less diameter than the lower member and to said upper member is connected one end of a short cable 48 the opposite end of which is connected to the rod 43. To the lower larger member 46 of the pulley at a point on the opposite side thereof from the point in the smaller member 47 at which the cable 48 is attached is connected the outer end of a main plunger retracting cable 49 the opposite end of which is connected by a clip 50 to the plunger rod 15 as shown.

The ends of the cables 48 and 49 may be secured to the members of the pulley in any suitable manner but preferably have their ends inserted in apertures formed in the grooved peripheries of the members and secured therein by set screws or other suitable fastening devices. By thus fastening the ends of the cables 48 and 49 to the pulley members 46 and 47 it will be seen that when the plunger is projected by the plunger projecting mechanism herein described that the main cable 49 will be unwound from the lower member 46 of the drum or pulley thus turning the latter and winding the shorter cable 48 on the upper or smaller pulley member. When the plunger is retracted by the engagement of the sweep with the bell crank lever 42 and the rod 43 thus retracted the shorter cable 48 will be unwound from the upper member 47 of the pulley thus revolving the latter in a reverse direction and winding up the main cable 49 on the lower pulley member thus causing said cable to retract the plunger. When the plunger is thus retracted the plunger operating bar 14 will be forced back by the plunger rod and will pull on the end of the chain 12 connected therewith thus unwinding the chain from the wheel 10 and turning the latter in an opposite direction from the movement of the sweep thus bringing the block 18 back to the proper position to be engaged by the approaching roller on the cross head of the sweep. The chain 12 when being wound on

and off the wheel 10 during the projecting and retracting movements of the plunger is adapted to slide over a segmental supporting plate 51 secured to the base plate 7 and adjacent end of the track bar whereby the chain is prevented from slipping out of place and whereby the links thereof are caused to properly engage the edge of the wheel.

By arranging the sweep and plunger projecting and retracting mechanism as herein shown and described it will be readily seen that when one or the other of the rollers 39 on the cross head of the sweep leaves the lug 20 of the wheel operating block 18 at the end of the forward or working stroke of the plunger that said roller immediately engages the plunger retracting mechanism so that a further movement of the sweep will retract the plunger rod and plunger in the manner described, which movement will bring the plunger to an inoperative position in the baling chamber where the plunger will remain until a fresh charge of hay is thrown into the baling chamber or until the other roller of the cross head on the sweep is brought into engagement with the spring projected wheel operating block 18 whereupon the plunger projecting operation will be repeated.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention claimed.

Having thus described my invention, what I claim is:

1. In a baling press, a horizontal wheel, a baling chamber, a plunger slidably mounted therein, a plunger operating rod connected with said plunger and tangentially located with reference to the wheel, a peripheral chain connecting said plunger operating rod with said wheel whereby said rod and the plunger will be projected in said tangential line into said baling chamber, a plunger retracting mechanism, a sweep, and means whereby said sweep is operatively engaged with said wheel and with said plunger retracting mechanism at the proper time to project and retract the plunger.

2. In a baling press, a baling chamber, a plunger slidably mounted in said chamber, a plunger projecting rod, a plunger projecting mechanism, said mechanism comprising a revolubly supported wheel, a plunger projecting chain connected to said plunger rod and adapted to be wound on said wheel whereby the plunger is projected, an operating block slidably mounted in said wheel,

a revolubly mounted sweep, wheel operating rollers carried by said sweep and adapted to be successively brought into engagement with said block whereby the wheel is turned in the proper direction to wind said chain thereon and thereby project said plunger rod and plunger, means whereby said block is disengaged from said rollers of the sweep and means whereby the plunger is retracted.

3. In a baling press, a baling chamber, a plunger slidably mounted therein; a plunger operating rod, a plunger projecting mechanism, said mechanism comprising a revolubly supported wheel, a plunger projecting chain secured at one end to and adapted to be wound upon said wheel, a plunger projecting bar arranged on the outer end of said plunger rod and connected to the free end of said chain whereby when the latter is wound on said wheel, said plunger will be projected, a spring projected wheel operating block slidably mounted in said wheel, a sweep comprising a revolubly mounted cross head, wheel operating rollers revolubly mounted on said cross head adjacent to its ends and adapted to be successively brought into engagement with said block whereby said wheel is turned, a block retracting plate adapted to disengage said block from said rollers at the end of the inward or working stroke of the plunger, a plunger retracting lever adapted to be engaged by said rollers when disengaged from said block, double pulley and plunger retracting cables connected to said plunger rod and to said lever and adapted to be wound on and off said pulley whereby said plunger is retracted by said plunger retracting lever.

4. In a baling press, a baling chamber, a plunger slidably mounted therein, a plunger rod connected with said plunger, a plunger operating mechanism, said mechanism comprising a revolubly mounted wheel having formed in one side a radially disposed notch, a wheel operating block slidably mounted in said notch, said block having on its opposite edges guiding and supporting flanges adapted to engage the edges of said notch and having in its inner end a socket, a coiled block projecting spring arranged in said socket and adapted to engage the inner end of said notch whereby the block is projected and held in a projected or operative position, a stop plate arranged on said wheel and adapted to limit the outward movement of said block, a lug formed on the upper side of said block, a roller revolubly mounted in the projecting outer end of the block, a plunger projecting chain connected at one end to said wheel and adapted to be wound thereon to project the plunger, a plunger projecting bar arranged on the outer end of said plunger rod and having its outer end connected with the free end of said chain, a revolubly mounted sweep, wheel operating

rollers carried by said sweep and adapted to be successively brought into engagement with said lug whereby the plunger projecting wheel is turned and a block retracting plate adapted to be engaged by the roller on the outer end of said block whereby the latter is retracted, and the rollers thus disengaged therefrom, and released from the wheel, and a plunger retracting mechanism operated by said sweep.

5. In a baling press a baling chamber, a plunger slidably mounted therein, a plunger rod connected with said plunger, a plunger operating mechanism, said mechanism comprising a revolubly mounted plunger projecting wheel operatively connected to said plunger rod, a revolubly mounted sweep, wheel operating rollers carried by said sweep, means whereby said rollers are engaged with and disengaged from the wheel, a plunger retracting mechanism, said mechanism comprising a pivotally mounted bell crank lever, one arm of which is disposed in the path of movement of the rollers on said sweep whereby said lever is actuated by said rollers as soon as the same are disengaged from said plunger projecting wheel, a slidably mounted plunger retracting rod connected at one end with one arm of said bell crank lever, a double pulley, said pulley comprising large and small members, a short cable connected at one end to the inner end of said plunger retracting rod and having its other end connected to one side of the smaller member of said pulley and adapted to be wound thereon, a main plunger retracting cable connected to the larger member of said pulley on the opposite side thereof to the point where the shorter cable is connected with said smaller member of the pulley and having its opposite end connected to said plunger rod, said short cable

being adapted to be wound on the smaller member of the pulley when the plunger is projected whereby when the plunger is retracted, said short cable will be unwound from said smaller member of the pulley and the main cable wound on the larger member of the pulley thereby retracting the plunger rod.

6. In a baling press a baling chamber, a channel iron track bar connected at one end to the inner end of said chamber, a base plate secured to the outer end of said track bar, a front axle bolster pivotally connected to said base plate, a front axle secured to said bolster, a rear axle secured to said baling chamber, supporting wheels mounted on said axles, a plunger slidably mounted in said baling chamber, a plunger rod connected to said plunger, supporting wheels revolubly mounted on the outer end of said rod and adapted to travel on said track bar, a plunger projecting bar arranged on the outer end of said plunger rod, a sweep actuated operating mechanism comprising a vertical bearing stud, a horizontal wheel thereon, and a chain partially around the wheel and having one end connected thereto and the other end connected to the plunger projecting bar whereby the plunger is projected and a sweep actuated plunger retracting mechanism connected with said plunger rod whereby the plunger is retracted immediately upon reaching the limit of its inner or working stroke.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL P. FOSTER.

Witnesses:

FRED. S. SHEPHERD,
N. B. FETZER.