

No. 651,018.

Patented June 5, 1900.

S. M. NEELY.
BALING PRESS.

(Application filed Aug. 3, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

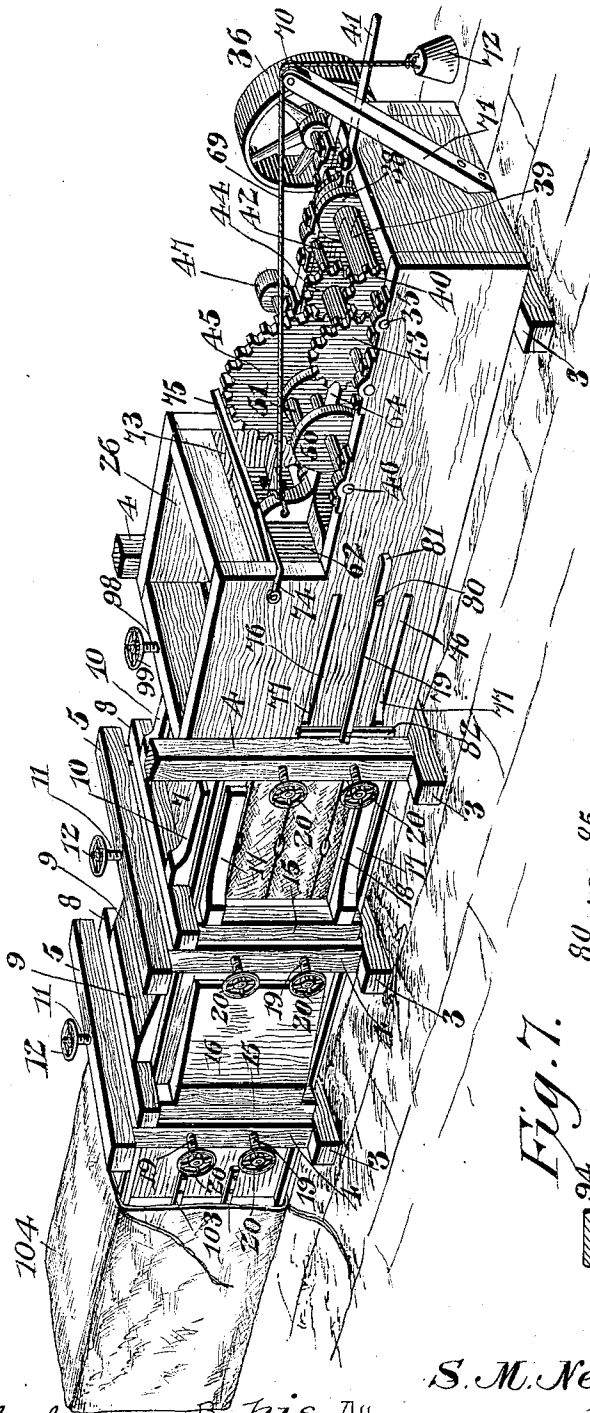


Fig. 8.

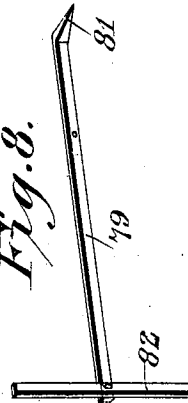
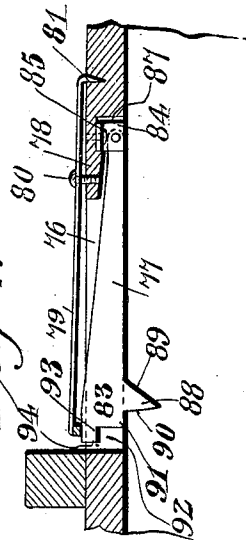


Fig. 7.



Witnesses

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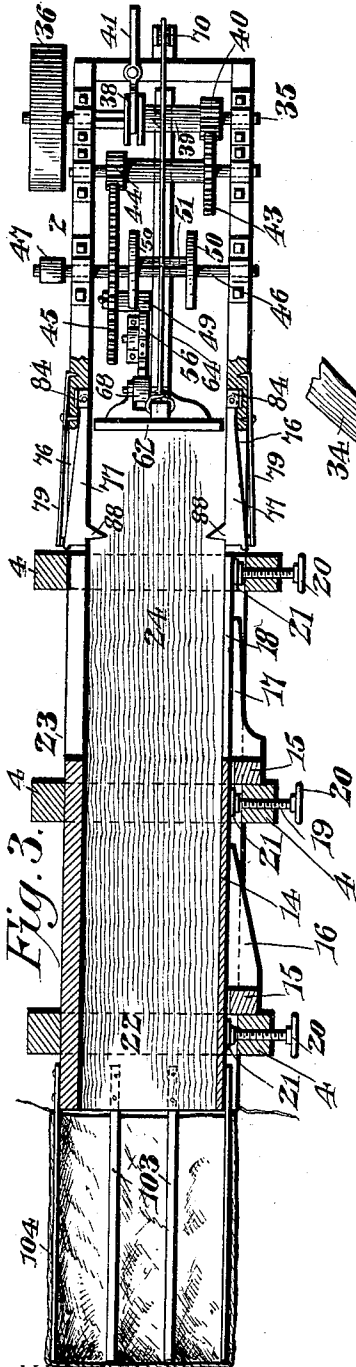


Fig. 3.

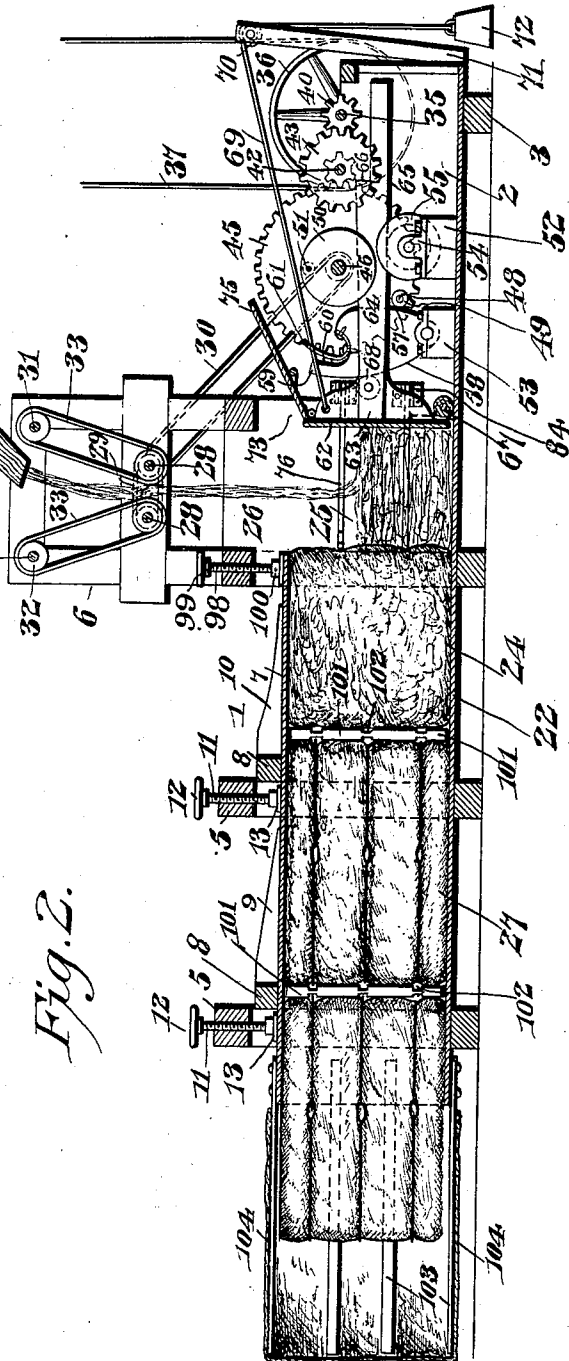


Fig. 2.

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3 Sheets—Sheet 3.

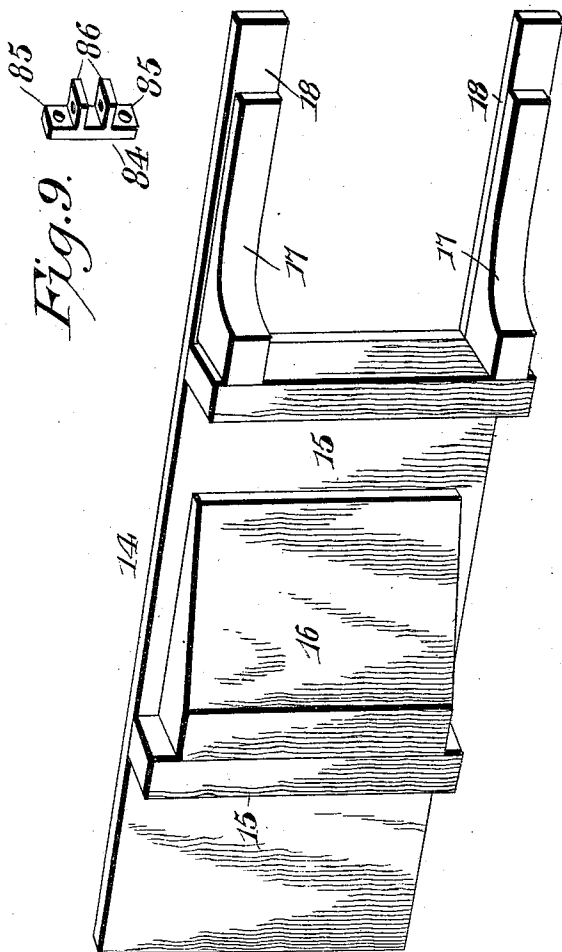


Fig. 4.

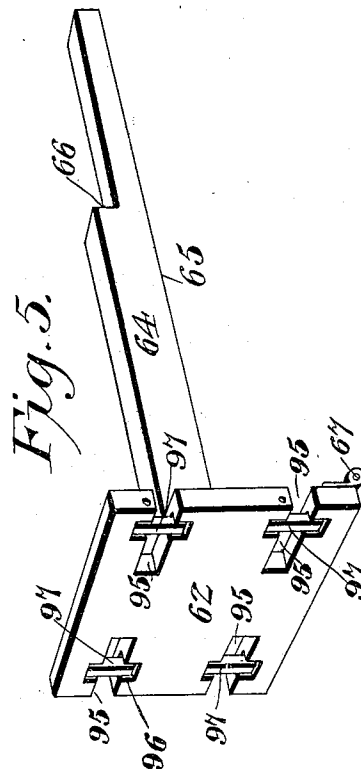


Fig. 5.

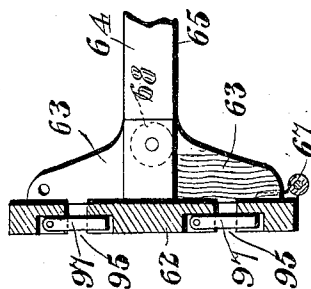


Fig. 6.

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UNITED STATES PATENT OFFICE

SAMUEL M. NEELY, OF CHESTER, SOUTH CAROLINA.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 651,018, dated June 5, 1900.

Application filed August 3, 1899. Serial No. 726,013. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. NEELY, a citizen of the United States, residing at Chester, in the county of Chester and State of South Carolina, have invented a new and useful Baling-Press, of which the following is a specification.

This invention relates to baling-presses particularly adapted for baling cotton, but also applicable for likewise treating other materials; and it has for its object to provide an improved device of this character having a compact and efficient construction and arrangement of parts for expeditiously carrying on a baling operation in a positive and invariable manner and wherein reside adjustable features for regulating the pressure or size of the bale formed and also including mechanism having a partial automatic operation to facilitate the return of the plunger to a normal position after a pressure thrust of a predetermined extent, and, further, to supply a yielding bale-receiving attachment on which is fitted a bale-inclosure removable simultaneously with the bale and in condition for securement.

Other objects and advantages will be hereinafter descriptively disclosed and the novelty pointed out in the claims, the preferred embodiment of the invention being illustrated in the accompanying drawings, but susceptible of such changes in the proportions, size, and minor details as are within the scope of the claims.

In the drawings, Figure 1 is a perspective view of a baling-press embodying the invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a horizontal section showing the driving mechanism in plan view. Fig. 4 is a detail perspective view of one of the sides of the baling-box. Fig. 5 is a detail perspective view of the plunger and plunger-bar. Fig. 6 is a section through a part of the plunger. Fig. 7 is a horizontal section through a part of the baling-box, showing one of the retainers. Fig. 8 is a detail perspective view of a spring-arm for the retainers. Fig. 9 is a detail perspective view of one of the pivotal bearings for the retainers.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a baling-box having at its front end an extension 2 for the reception of driving mechanism and of less height than the remaining parts of the box. The baling-box is divided by the baling operation carried on in the present instance into several chambers and when the bale is formed arrives at certain locations, which will be more fully hereinafter explained. The dimensions of the box approximate those of similar devices of this character, and a stable support is acquired through the medium of cross-sills 3, arranged at regular intervals and adapted to be disposed upon a suitable base-rest. Rising from the said sills 3, adjacent their opposite ends, are posts 4, which stand away at one side from the adjacent portions of the box and are connected at the top by cross-ties 5. The forward posts 4 are elongated and support a superstructure 6, in which feeding devices are located. The greater part of the top side of the baling-box is in the form of an adjustable compressing-plate 7, which is freely movable and has secured thereto cross-arms 8, which are spaced apart and bear against the front edges of the rear posts 4 to prevent longitudinal movement of the said plate and also strengthen it. From the rear cross-arm 8 a solid brace 9 extends forwardly over the said plate and has an upper downwardly-inclined surface to reduce the same adjacent the cross-tie 5 in advance thereof. This brace 9 reinforces the plate 7 at a point where considerable strain is brought to bear thereon, and in advance of the forward arm 8 of the said plate longitudinal brace-arms 10 are secured on the latter. Both the brace 9 and brace-arms 10 prevent the plate 7 from splitting or warping, and centrally located in the cross-ties 5 are adjusting-screws 11, having upper turn-heads 12 and lower pressure-feet 13, which bear directly upon the plate 7 in rear of but close to the cross-arms 8. For the same length of the baling-box as that over which the plate 7 extends a side plate 14 is similarly applied in a loose manner and freely adjustable, having vertically-disposed stops 15 at opposite points thereon, which have their upper ends under the opposite projecting extremities of the arms 8 of the plate 7, and to prevent longitudinal move-

ment of the said side plate the stops 15 are brought to bear against the front edges of the rear pairs of posts 4 at one side. On the side plate at the rear is a solid brace 16, similar
 5 in form and disposition to the brace 9, and in advance of said brace are upper and lower brace-arms 17, corresponding to the arms 10 of the plate 7 and located at the upper and lower side walls of an opening 18, cut through
 10 or otherwise formed in the plate 14 at this point and extending entirely through the front end of said plate, as shown by Fig. 4, the rear wall of this opening being in alignment with the front edge of the vertical stop
 15 15 adjacently situated thereto. Extending transversely through the posts 4 on one side of the baling-box are pairs of adjusting-screws 19, having outer turn-heads 20, of any preferred form, and inner feet 21, bearing
 20 against the said side plate slightly in rear of the stops 15 and at points above and below the upper and lower side walls of the opening 18.

When the baling-box is empty, the plates
 25 7 and 14 will fall inward, as they have no support, and when the baling operation is commenced a dummy or former is run into the machine and holds the said side plates in operative position relatively to the station-
 30 ary bottom 22 and opposite fixed side 23 of the baling-box. The opening 18 in the side plate affords communication with what may be termed a "compression-chamber" 24, which opens directly into a feed-chamber 25
 35 under the superstructure 6. The feed-chamber 25 will have a vertical extent in practical operation about equal to the similar dimension of the plunger, the latter forming the front wall thereof, and above the same
 40 is a hopper 26, extending upwardly to the lower portion of the superstructure 6. Following the compression-chamber 24 is a baling-chamber 27, where the bales are completed, and at its rear end the baling-box is
 45 open.

In the lower part of the superstructure 6 are two closely-arranged horizontal shafts 28, connected at their outer ends for united operation by a band or belt 29, one of said shafts
 50 being driven by a belt 30 from the driving mechanism. Above the shafts 28 are a pair of separated shafts 31, and both sets of shafts have rollers or drums 32 fixed thereon, and over which travel belts 33, which serve as
 55 feeders and have a converged arrangement toward the feed-chamber, owing to the close position of the shaft 28. A feeding-chute 34 from a suitable form of condenser is projected into the upper part of the superstructure and
 60 between the upper shafts 31. By this means cotton can be taken directly from a condenser and fed downwardly into the feed-chamber 25 through the hopper 26, the converged feeders acting to centrally direct the bat and prevent
 65 choking of the same and also assist in preserving its intact condition.

As previously indicated, the driving mechanism

is supported on the extension 2 of the baling-box in advance of the feed-chamber and comprises a drive-shaft 35, having on one
 70 projected end thereof a band-pulley 36 to receive a band 37 from any suitable driving source. On the shaft 35 a clutch member 38 is mounted to turn therewith and slidably adjustable, being adapted to interlock with a
 75 clutch-sleeve 39, loose on said shaft and to which is fastened a pinion 40. The clutch member 38 is operated by a shifting lever 41, fulcrumed on an adjacent part of the front end of the extension 2 and whereby the motion
 80 of the shaft 35 may be imparted to the pinion 40 or the latter permitted to remain inactive by unshipping the said clutch member from engagement with the clutch-sleeve 39. In advance of the shaft 35 is a transmitting-shaft 42, having a spur-gear 43 thereon,
 85 meshing with the pinion 40, and at an opposite point on said shaft 42 is a pinion 44, which meshes with a gear 45 of large dimension and fast on an advance-shaft 46. The
 90 one extended end of the shaft 46 has a band-pulley 47 fixed thereto and receives the belt 30, which runs to one of the shafts 28, heretofore referred to. The gear 45 has a wrist-pin 48 thereon adjacent its periphery, which
 95 is supplied with an antifrictional roller 49, and on the shaft 46 an impelling device is mounted, consisting of opposite disks or heads 50, having a rod 51 running from one to the other adjacent their peripheries and in parallel
 100 relation to the said shaft. The bottom 22 of the baling-box is continued forwardly under the feeding-chamber 25 and the extension 2, and disposed thereon are pillow-blocks 52 and 53, the block 52 being higher than the block
 105 53 and having journal-bearings 54 fastened thereto to receive the studs of a grooved anti-frictional roller 55. The lower reduced end of a cam 56 is pivotally mounted in the pillow-block 53, said cam having front and rear
 110 elongated curved cam-faces 57 and 58. The rear cam-face 58 is lengthened by the formation of a stop-finger 59 at the upper part of the cam and in advance of which is a recess 60, having one end of a yielding or spring
 115 guard 61 fastened therein, the opposite end of said guard being in advance of and extending above the finger 59. The cam-faces 57 and 58 diverge toward the upper extremity of the cam and the function of the recess 60
 120 and guard 61 is to permit the said cam to have a yielding engagement with the shaft 46 when the said cam is suddenly driven forward by the return stroke of the plunger, the finger 59 preventing the fall of the cam below
 125 a predetermined point and thereby always holding the same in operative position.

A plunger 62 is operated by the mechanism just explained and is disposed vertically with relation to the feed-chamber 25, forming, as
 130 before stated, a front wall of said chamber when in normal inactive position. The working face of the plunger is substantially smooth or unbroken, as in other similar devices, and

extending across the opposite side thereof nearest the driving mechanism are strengthening-battens 63, arranged in planes at right angles to each other, and centrally thereinto
 5 extends the front end of a plunger-bar 64, which has a lower straight edge 65, resting on the roller 55 and movable through the groove in the latter. The upper part of the plunger-bar from its point of attachment
 10 gradually toward the front is widened until a shoulder 66 is reached, which is formed by recessing the upper part of the front end of the said bar. On the lower edge of the plunger 62, adjacent the driving mechanism, an
 15 antifrictional roller 67 is applied and extends entirely across the width of said plunger, the object of the roller being to support this part of the plunger and ease its movement. The said roller 67 bears on the adjacent bottom
 20 portion of the baling-box and by its use and application in the manner stated permits the lower edge of said plunger to stand clear of the said bottom of the box without detracting from the equality of pressure over the entire
 25 working face of the said plunger. Rotatably mounted in the transverse batten 63, near one end thereof and in working alinement with the edge 58 of the cam, is an antifrictional roller 68, which is more clearly shown
 30 by Fig. 3. The upper extremity of the vertical batten 63 has one end of a cable, chain, or analogous device 69 secured thereto and passes up over a grooved sheave or pulley 70 in the upper end of an inclined post 71, at-
 35 tached to the front end of the extension 2, and to the opposite end of the said cable, chain, or analogous device a weight 72 is connected and is sufficiently heavy to automatically draw the plunger 62 back to its normal
 40 position.

In the end of the hopper 26 adjacent the driving mechanism a slot 73 is formed, and extending across such part of the hopper, near the upper edge of the plunger when the lat-
 45 ter is in normal position, is a guide-rail 74, upon which rests a cover 75, having one edge hinged to the upper part of the said plunger. The free edge of the cover 75 is movable through the slot 73, and when the plunger is
 50 given a forward thrust, the cover follows the same and gradually closes the feed-chamber and prevents the material to be baled, which is fed into the hopper 26, from falling behind that part of the plunger to which the plunger-bar is connected. The opposite side of the feeding-chamber 25 has elongated slots
 55 76 formed therein in parallel pairs, in which retainers 77 are operatively mounted. The slots 76 have at their front ends outer guards 78, which limit the outward throw or movement of the retainers, and to hold the latter normally pressed inward an elongated flat spring 79 is secured on each side between the slots and on the exterior. These springs are
 60 of the particular form illustrated by Fig. 8 and are secured in place by single fastenings 80, passed therethrough near their front ends,

the latter being formed into spikes 81, which are driven into an adjacent part of the extension 2 of the baling-box. By this means 70 the springs are prevented from working loose, and by locating the fastenings near their front ends the greater portions thereof are left free for service in the manner desired. The rear end of each spring is centrally attached to a
 75 cross-arm 82, which is vertically disposed when its spring is applied and bears equally on the outer edges of the heads 83 of the adjacent pair of retainers 77.

The retainers 77 are movably connected to 80 pivot-bearings 84, which receive their front ends, as clearly shown by Fig. 9. These bearings comprise securing-plates 85, having inwardly-projecting parallel lugs 86, between which the front ends of the retainers are held. 85 These bearings are seated in slots 87, formed in the inner portions of the opposite side walls of the feed-chamber and continuous with the slots 76. In their normal position the retainers 77 have their inner edges flush 90 with the inner surfaces of the side wall of the feed-chamber, so as to avoid inward projection of the said retainers and operation of the latter by the plunger until after a certain position has been reached in the feed-chamber 95 by said plunger. The heads 83 of the retainers are each provided with an inwardly-projecting nose 88, having a front rearwardly-inclined edge 89 and a rear slightly-curved edge 90, terminating at a shoulder 91, parallel 100 with the greater portion of the inner edge of the retainer and continuing from the inner terminal of a recess 92 in a plane at right angles thereto and which also terminates at a shoulder 93, formed by a projecting lip 94, 105 near the outer edge of the retainer on which the arm has bearing. The plunger 62 has upper and lower transversely-extending slots 95 opening out through the opposite side edges, and on the working-face side of the 110 plunger, on opposite sides, above and below each of the said slots 95, recesses 96 are formed and have a vertical direction, the upper ends of dogs 97 being pivotally secured in the said recesses above the slots and normally depend- 115 ing into the similar recesses below the slots. Both the upper and lower recesses open into the slots 95, and by this means the said dogs 97 are permitted to extend across the slots. When the plunger 62 is thrust through the 120 feeding-chamber to compress a quantity of material that may have been fed into the latter, the dogs 97 strike the rearwardly-beveled front edges 89 of the noses 88, projecting inwardly from the heads of the retainers 77, and 125 a resistance being set up by the said dogs in this direction the retainers are forced outwardly until the apexes of the noses 88 pass the outer sides of the said dogs and slip through the outer open terminals of the said 130 slots. The retainers are pressed outwardly against the resistance offered by the springs 79, and as soon as the noses 88 pass the dogs the springs force the retainers inwardly and

they fall behind or on the opposite side of the said dogs, and on the return movement of the plunger the said dogs swing open toward the compressing-chamber, and the inwardly-projecting portions of the heads of the retainers slip through the slots 95 and hold up the compressed material in the said compressing-chamber until the plunger is again thrust toward the noses 88 with a succeeding charge of material to be compressed.

From the foregoing it will be observed that the inwardly-projecting noses of the retainers do not contact with the material being compressed by the plunger until after the full force of the plunger has been expended, and the feed-chamber is thus kept clear for successive charges without danger of rebound of a charge that may have been compressed.

Through the upper portion of the rear side of the hopper 26 an adjusting-screw 98 has movement and is provided with an upper turn-head 99 and a lower foot 100, which bears upon the front end of the top plate 7 and is employed for adjusting the latter similarly to the screws 11. In the baling operation followers 101 are used between the bales and have in their opposite faces transverse grooves 102 for convenience in applying the baling-wire or other bonding devices.

Around the rear open end of the baling-box 1 are a plurality of yielding arms 103, which are of a length about equal to that of a bale as formed by the press and provide a yielding rack for the reception of a bale, and around the said arms is placed a bag or other inclosing device, as at 104, which is held distended by the arms 103. After the bale has passed into the rack completely it will be entirely covered by the bag 104, and the weight of the bale causes the said arms to spring downwardly and results in an automatic release of the bag and bale simultaneously from the rack, and the only operation necessary to complete the inclosure of the bale is to tighten the draw-strings of the bag or gather the latter and apply any other suitable fastening.

In starting the press for operation a dummy is employed and placed in the compressing-chamber 24 and finally in the rear part of the baling-box or final baling-chamber, the plates 7 and 14 being loose enough at such time to permit free disposition of the dummy bale, as specified. After the dummy bale has been so located the plates 7 and 14 are then adjusted to conform to the said bale, and, as understood, said adjustment will be accomplished through the top adjusting-screws 11 and 98 and the side screws 19. In using the press for baling cotton the upper end of the superstructure 6 is arranged close to a condenser in operative relation to a gin or number of gins. The cotton-bat comes from the chute 34 in between the belts 33 in any thickness that may be desired and regulated in accordance with the compressing speed of the press. The operation of the gin and condenser mechanism will be regulable relatively

to the speed of the press, and if the speed of the press is lessened the weight and thickness of the bat will be increased, and, conversely, if the speed of the press is increased the weight and thickness of the bat are decreased, or the weight and thickness of the bat will vary, according to the number of gins the press is required to accommodate. Under all these varying conditions the cotton in bat form is fed to the chamber 25, the driving mechanism being set in motion through the clutch devices. The parts being in timed relation, the plunger 62 will not start to apply a compressing thrust on the contents of the feed-chamber until the latter shall have received a prearranged or predetermined quantity of the cotton. The plunger 62 is started through the medium of the antifrictional roller 49 on the wrist-pin 48 of the gear 45 bearing against the cam-face 57 of the cam 56, which causes the face 58 of said cam to be thrown against or brought to bear with forcible pressure on the antifrictional roller 68, and with easy movement the said plunger is pushed toward the compressing-chamber 24 and the plunger-bar 64 drawn under the impelling device in a similar direction. At about the time the antifrictional roller 49 will have ceased to have contact with the cam-face 57 the rod 51 of the impelling device will immediately bear against the shoulder 66 and continue to shove the plunger toward the compressing-chamber. When the rod 51 of the impelling device shall have become clear from the shoulder 66 by the rotation of the disks 50, the plunger will have passed the retainers 77 in the manner heretofore set forth and be clear to assume its normal position, as shown by Figs. 2 and 3. When the plunger has passed beyond the limit of the operation of the cam, the latter will drop toward the bottom 22 of the baling-box, and in its return movement the plunger is given considerable impetus by the weight 72 through the medium of the connecting cable, chain, or analogous device 69. The cam 56 is given a sudden blow or is quickly thrown over in advance of the plunger when the latter is making its rapid return movement, and the yielding guard 61 over the recess 60 strikes the part of the shaft 46 in line therewith, and the blow of the cam on the shaft is thereby cushioned and in all probability will be, at times, at least, as suddenly thrown toward the plunger. If the cam does not assume the position shown, it will be gradually brought thereto when the gear 45 rotates sufficiently to bring the antifrictional roller 49 against the cam-face 57 and which will be the initial step in a succeeding operation of the plunger after a second charge of cotton has been deposited in the feeding-chamber. These successive operations of the plunger will continue proportionate to the deposit of the material being baled in the feeding-chamber and until the compressing-chamber will have been sufficiently filled, and at each thrust of said plunger the retainers will be

similarly operated and perform their function. It will be understood that at the beginning of the compressing operation or just previous to the start of the same one of the followers 101 will be placed against the rear end of the dummy, and after the compressing-chamber has been sufficiently charged a second follower will be adjusted or disposed in a similar position against the outer end of the compressed cotton. The baling-wires or other bonding devices are initially threaded through the transverse recesses of the follower next to the bale to be tied and against the rear end of the latter, such operations being carried on through the opening 18 in the plate 14 and also through slots in the opposite sides of the baling-box adjacent the compressing-chamber, which is an obvious construction and well known in the art of baling-presses. The succeeding charges of cotton are forced against the second follower, or that nearest the plunger, and the pressure thereby exerted gradually forces the preceding compressed charges between the two followers toward the rear end of the baling-box, and as soon as the new-formed bale has been driven into the rear or finishing chamber and while a part of said bale is exposed sufficiently the baling-wires or other bonding devices are then threaded through the foremost follower and the ends connected. The material being compressed against the foremost follower in forming the second bale will be compressed against the resistance of the first or preceding bale and the latter will have a slow movement owing to the adjustment of the plates 7 and 14, and bales of corresponding size will thus be formed until the rear part of the baling-box is enlarged by loosening the several adjusting-screws or permitting the plates 7 and 14 to expand. The first-formed bale will continue to work against the dummy until the latter passes out the end of the baling-box, and the entire baling-box from the end of the compressing-chamber adjacent the feeding-chamber to the said open rear end is always completely filled, and great pressure can thereby be attained without applying the same on one part only of the baling-box, and at any time during the baling operation if it is desired to change the size of the bale or increase the pressure such operations can be conveniently carried on through the mechanism heretofore set forth. The driving mechanism can be stopped at any time by operating the clutch on the shaft 35. Furthermore, as the plunger 62 returns to its normal position and ready to exert a subsequent compressing-thrust the shoulder 66 on the plunger-bar is accurately disposed relatively to the impelling device, and so that it will be properly drawn under the latter just at the time the antifrictional-roller 49 on the wrist-pin 48 of the gear 45 will have passed away from the cam-face 57 of the cam 56. As the said plunger returns the cover 75 is gradually brought up an incline, owing to the po-

sition of the guide-rail 74, and by this means clears itself of any cotton or other material that may have deposited thereon during its closing movement over the feeding-chamber. The angle of the said cover is such that the fed material dropping thereupon will be directed and fall into the feeding-chamber. The antifrictional engagement of the opposite faces of the cam with the devices operating therewith, the movement of the plunger-bar on the grooved roller 55, and the roller 67 at the lower portion of the plunger make the movement of the plunger and the cam exceptionally easy and without jar or jolt, as the vibration is reduced to a minimum.

Instead of using the press for baling cotton other materials could be equally well compressed in bulk therein, and any preferred form of feeding device might be used and adapted to the kind of material desired to be baled. Owing to the intermeshing gears the speed of the press is very rapid, and substitution for said gears of other devices having a slower or faster relation might be readily made to vary the rapidity of operation of the machine irrespective of any feeding mechanism that might be employed therewith. If desired, there can be one or more of the said adjusting-screws 11 placed on said cross-ties 5. When only one is used, it is placed on the cross-ties 5, so that the pressure will come in the center of the top wall of the chamber. If more than one be required, they will be located at any desired point on said cross-ties 5, so as to produce a uniform pressure on the said top or plate of said chamber; also, antifrictional devices can be applied at the points found necessary. Other changes might also be made, and the innumerable advantages arising from the construction set forth will make the press a valuable acquisition to the art.

Having thus described the invention, what is claimed as new is—

1. A baling-press having a baling-box with top and side loosely-disposed adjustable plates and also having posts on opposite sides thereof, rear solid braces and front brace-arms on the said plates, and stop devices extending across the plates for limiting the movement thereof longitudinally and adapted to bear against posts of the baling-box.

2. In a baling-press, having a baling-box with a fixed bottom and one side, loosely mounted adjustable plates forming the greater portion of the top and remaining side of said baling-box, and means for producing an equal baling-pressure on the extremities of said plates in accordance with their adjustment.

3. A baling-press, having a baling-box with a fixed bottom and one side, unconnected top and side plates extending over a greater portion of the box in a loose and adjustable manner, and means for producing an equal baling-pressure on the extremities of said unconnected top and side plates in accordance with their adjustment and initially held out-

wardly to a predetermined extent by a dummy or bale filling within the box.

4. In a baling-press, the combination of a baling-box having feed, compressing and baling chambers arranged in succession, the feed-chamber having pairs of slots in the opposite walls thereof, retainers movably mounted in the said slots and having shoulder ends and a plunger working in said feed-chamber having an automatic return operation and provided with slots in the opposite side edges with loosely-mounted devices extending thereacross, the said loosely-mounted devices being adapted to contact with the free ends of the retainers and force them outwardly and also pass the same.

5. In a baling-press, the combination of a baling-box having feed, compressing and baling chambers arranged in succession, pairs of retainers disposed on opposite sides of the feed-chamber, and a plunger having an automatic return operation and provided with slots in the opposite side edges over which stop devices are movably mounted and free to open in one direction, whereby the free ends of the retainers may be passed by the plunger, held in a definite position and released for return movement.

6. In a baling-press, the combination of a baling-box comprising feed, compressing and baling chambers arranged in succession, pairs of retainers movably mounted in the opposite sides of the feed-chamber, a plunger working in the feed-chamber and having upper and lower slots opening out through the opposite side edges, and dogs movably connected to the plunger and adapted to extend across the said slots to contact with the retainers.

7. A baling-press comprising a baling-box having feed, compressing and baling chambers therein, a plunger working in the said feed-chamber, a cam movably engaging the plunger, a rotatable device carrying a projection to engage an opposite edge of the cam, a plunger-bar having a shoulder, an impelling device adapted to engage the said shoulder, and means for automatically returning the plunger and plunger-bar to a normal position.

8. In a baling-press, the combination of a baling-box having a feed-chamber, and a relative baling-chamber, a plunger working in the feed-chamber and having a plunger-bar with a shoulder, a cam adapted to bear against a part of the plunger, a rotatable projection for contact with an opposite portion of the cam, an impelling device to bear on the shoulder of the plunger-bar, and means for automatically returning the plunger and plunger-bar to a normal position.

9. In a baling-press, the combination with a baling-box, of a plunger movably mounted in a part thereof and having a plunger-bar extending therefrom and provided with a receptive projection, driving mechanism for the

said plunger and bar, including an impelling device adapted to operate against the said receptive projection of the plunger-bar, a cam adapted to bear against the plunger and operate the driving mechanism to impart a thrust to the plunger previous to the operation of the impelling device on the plunger-bar, and means for automatically returning the plunger and bar to a normal position.

10. In a baling-press, the combination of a baling-box, a plunger movable in a part of the said baling-box and having an antifrictional roller on the side thereof opposite the working face, a plunger-bar extending from the plunger and provided with a shoulder, driving mechanism adjacent the plunger and plunger-bar and including a gear carrying a projection to bear against the cam and work the same in contact with the antifrictional roller on the plunger, an impelling device to engage the shoulder of the plunger-bar, and means for automatically returning the plunger and plunger-bar to a normal position.

11. In a baling-press, the combination of a baling-box having a plunger working in a part thereof, a plunger-bar attached to the plunger and having a shoulder, a cam for initially moving the plunger and having a recess in its upper extremity, driving mechanism adjacent the plunger and plunger-bar, with a part of which the upper recessed extremity of the cam is adapted to engage, an impelling device to contact with the shoulder of the plunger-bar, and means for automatically returning the plunger and plunger-bar to a normal position.

12. In a baling-press, the combination of a baling-box, a plunger working in a part thereof, a plunger-bar connected to the said plunger and having a shoulder, driving mechanism for the plunger and plunger-bar, and including a shaft having a gear with a wrist-pin, a cam pivoted at its lower end and located between the shaft and adjacent side of the plunger and having a recess in the upper extremity, and a stop-finger, a guard-spring secured in the said recess, an impelling device on the said shaft to engage the shoulder of the plunger-bar, and means for automatically returning the plunger and plunger-bar to a normal position.

13. In a baling-press, the combination of a plunger and plunger-bar therefor, driving mechanism to operate said plunger and plunger-bar, and a cam for partially operating the plunger and bar, and having a recess in its upper extremity with a spring therein for bearing against a part of said mechanism.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

SAMUEL M. NEELY.

Witnesses:

J. L. GLENN,

SAML. E. MCFADDEN.