G. W. NORTH.

BALING PRESS.

APPLICATION FILED JUNE 23, 1915.

1,197,532.

Patented Sept. 5, 1916.

3 SHEETS—SHEET 1.

Fig. 1.

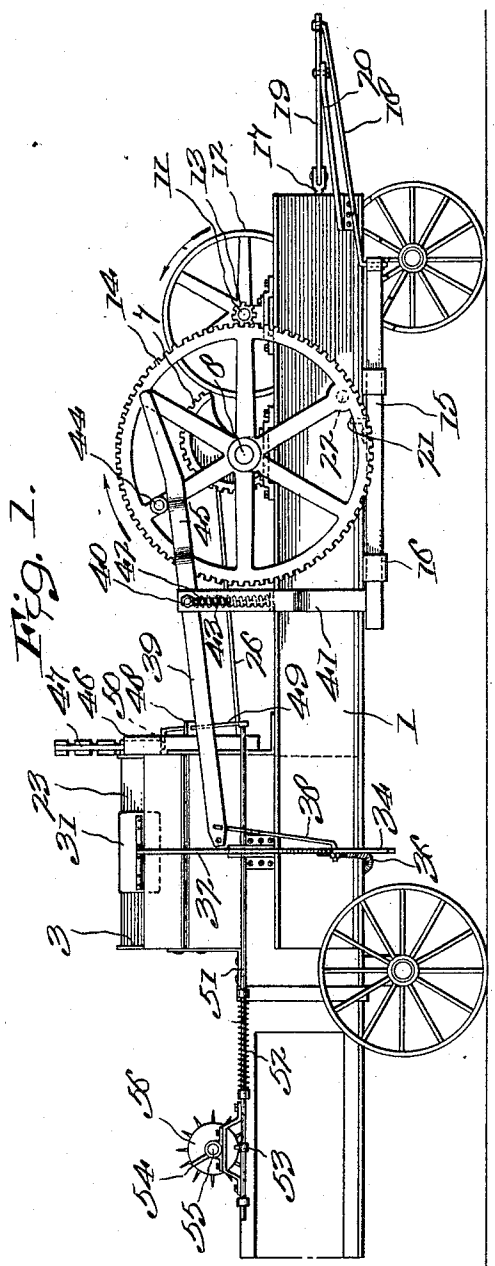
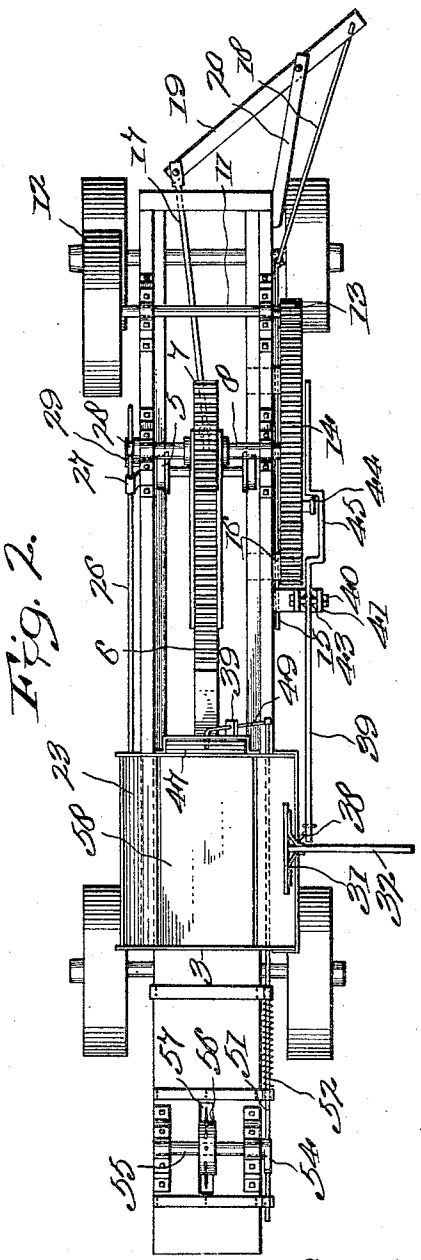


Fig. 2.



Witnesses

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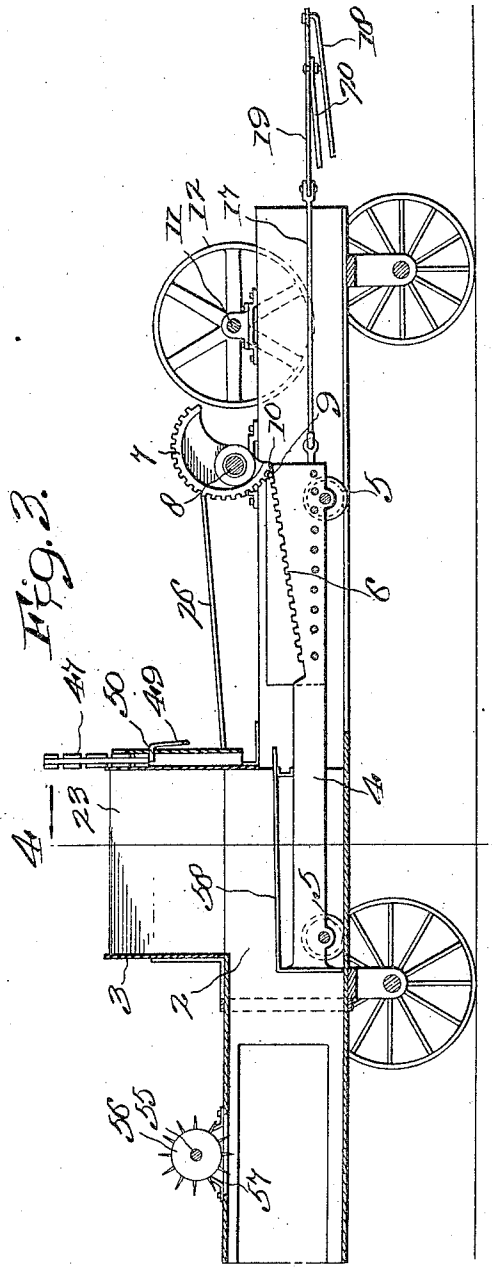


Fig. 3.

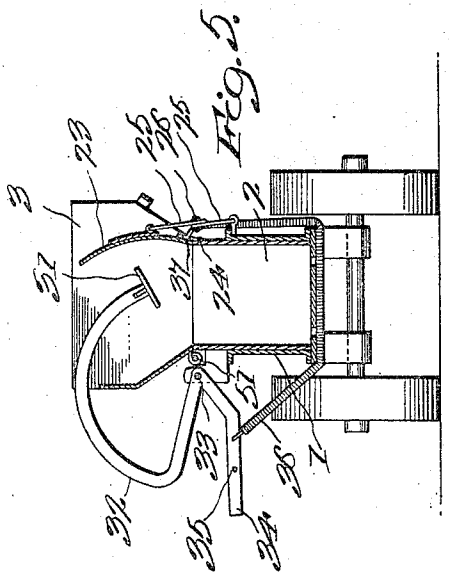


Fig. 5.

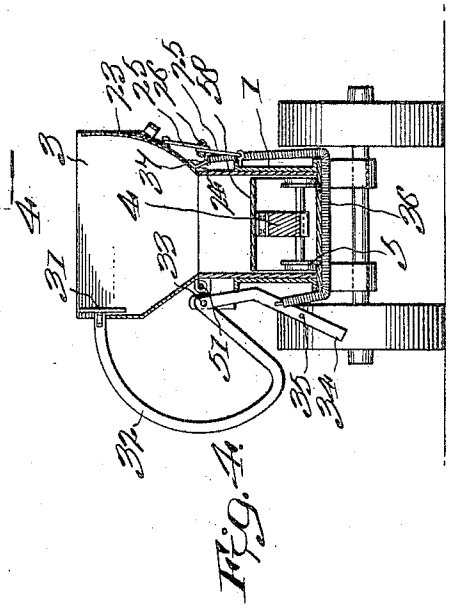


Fig. 4.

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3 SHEETS—SHEET 3.

Fig. 6.

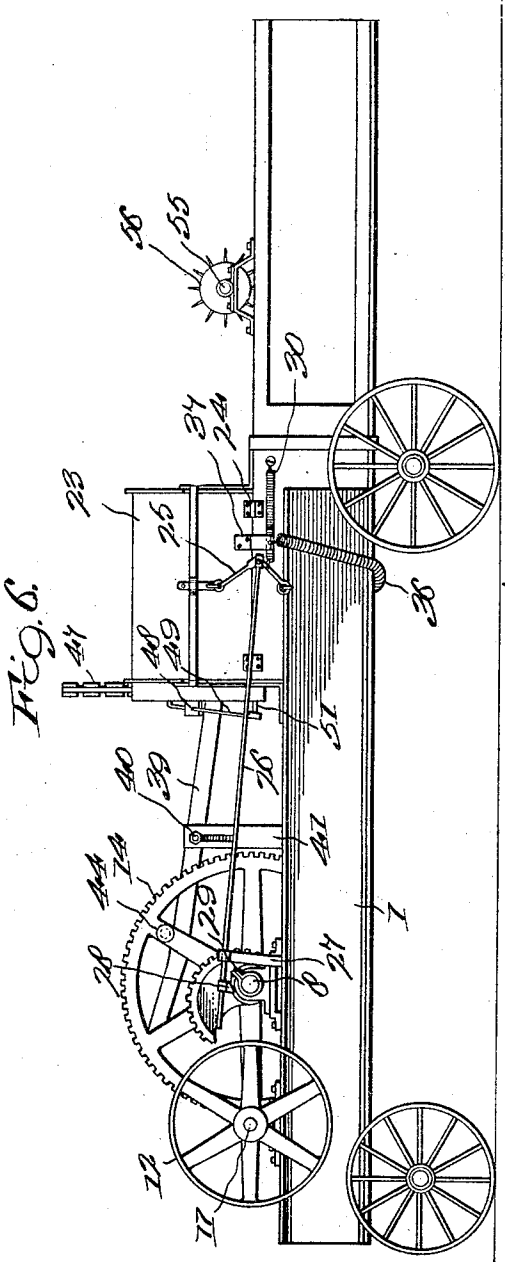
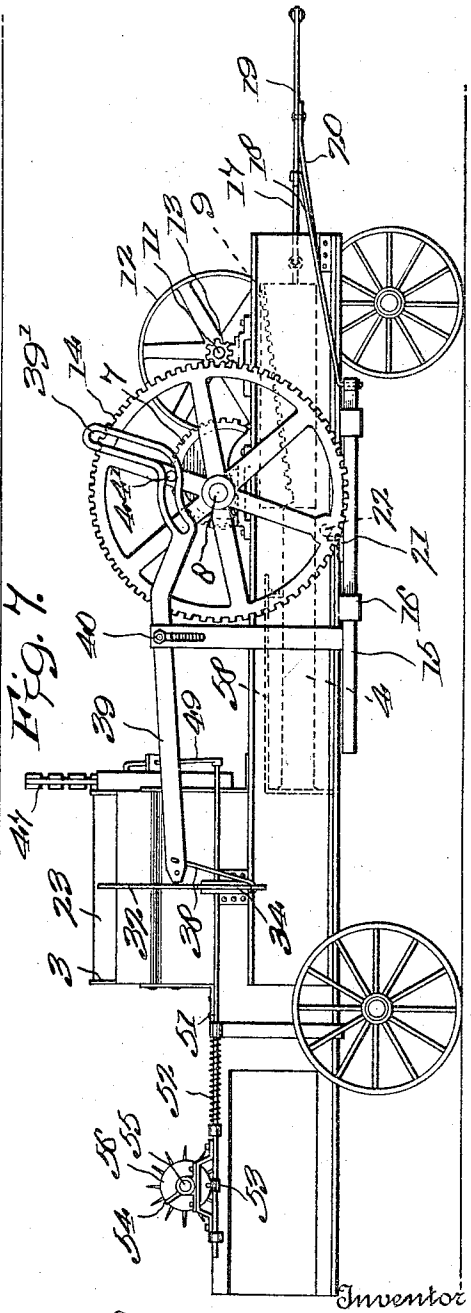


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE W. NORTH, OF LA TUNA, TEXAS, ASSIGNOR OF ONE-HALF TO H. M. ANDREAS, OF EL PASO, TEXAS.

BALING-PRESS.

1,197,532. Specification of Letters Patent. Patented Sept. 5, 1916.

Application filed June 23, 1915. Serial No. 35,944.

To all whom it may concern:

Be it known that I, GEORGE W. NORTH, a citizen of the United States, residing at La Tuna, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Baling-Presses; and I do hereby 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.

The present invention relates to improvements in baling presses, and has for an object to provide an improved baling press mounted on a wheeled structure and adapted to be transported by a traction engine, from which the same may receive its power when in operation.

It is another object of the present invention to provide an improved baling press wherein are grouped together the compressor, feeder, and plunger-actuating mechanisms, all of which are controllable from a single agent, together with means for returning the plunger to initial position after each actuation.

A further object of the present invention resides in providing an improved baling press of the above character which will be equipped with a block-dropping mechanism, the block receiving and delivering pocket being located at the rear end of the hopper for inserting the blocks at a point where there will be no interference from the material baled, and which will insert the blocks in front of the plunger as the same begins its compressing movement, thus eliminating the necessity for clearing the baling chamber to admit the block, usually accomplished at the present time by operating the plunger through several false strokes.

With these and other objects in view the invention consists in the novel details of construction and combinations of parts more fully hereinafter disclosed and particularly pointed out in the claims.

In the accompanying drawings forming a part of this application, and in which similar reference symbols indicate corresponding parts in the several views: Figure 1 is a side elevational view of an improved baling press constructed in accordance with the present invention. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal sectional view of the improved press. Fig. 4 is a cross sectional view taken on the line 4—4 in Fig. 3, and looking in the direction of the arrows. Fig. 5 is a cross sectional view similar to Fig. 4, and showing the compressor and feeder in forward positions. Fig. 6 is a side elevational view of the improved press from the side opposite that shown in Fig. 1; and Fig. 7 is a side elevational view, similar to Fig. 1, and illustrating the parts in initial position.

Referring more particularly to the drawings, 1 designates a wheeled frame, upon which the various mechanisms of the improved press are mounted, and which may be drawn by animal power but is preferably drawn by a traction engine, from which power may be derived for operating the several instrumentalities.

The frame 1 is arranged to provide a baling chamber 2, above which is a hopper 3 for receiving the hay or other material to be baled, and delivering the same to the chamber 2 in a manner which will be well understood. In the baling chamber 2 a plunger 4 is fitted to reciprocate, the same moving on rollers 5 running over a track supplied by the structure of the framework 1. At its rear end the plunger 4 is produced with an inclined rack 6, adapted to mesh with a cam gear 7 mounted on a shaft 8 journaled transversely in the frame 1. The rear terminal tooth 9 of the rack 6 is advantageously constituted by a roller, as more particularly seen in Fig. 3; while the corresponding terminal tooth 10 of the gear 7 is, in practice, constructed enlarged over the remaining teeth to add power to the final stage of the throw of the plunger 4, and to take up the wear imposed thereon.

The shaft 8 is driven from a drive shaft 11 journaled transversely of the frame 1, the latter being provided with a pulley 12 for receiving a belt from the traction engine from which the power is derived. On the drive shaft 11 is a pinion 13, meshing with a gear wheel 14 mounted on the shaft 8, and through which the latter is driven.

A bar 15 is mounted to reciprocate in brackets 16 depending from the frame 1, and said bar 15 is arranged to be connected to the plunger 4 for returning the same to initial position after each actuation by the cam gear 7. To the plunger 4 and reciprocating bar 15 are connected links 17 and 18, respec-

tively, coupled at their outer ends to opposite ends of a lever 19 fulcrumed on an arm 20 projecting forwardly from the frame 1. The reciprocating bar 15 is provided with a lug 21 arranged in the path of a projection 22 on the gear wheel 14.

Referring more particularly to Figs. 1 and 7, it will be understood that the projection 22 will, upon revolution of the gear wheel 14, encounter the lug 21, moving the bar forwardly, and through the interconnected links 17 and 18 and the lever 19, return the plunger 4 to initial position in readiness to be reëngaged and moved forwardly on its compression stroke by the cam gear 7. One wall, 23, of the hopper 3 is hinged, as indicated at 24 in Figs. 4, 5 and 6, to constitute a compressor. Between the compressor 23 and frame 1 is arranged a toggle lever 25, connected to be actuated by a rod 26 fitted to reciprocate in a bracket 27 and provided with a lug 28 in the path of a projection 29 on the shaft 8. The compressor 23 is restored to the initial position shown in Fig. 4, by a spring 30, illustrated in Fig. 6 as being connected between the frame 1 and toggle lever 25, although the same may be arranged between any of the other several parts for accomplishing the same purpose.

In the hopper 3 is also arranged a feeder, comprising an oscillating foot 31 carried at one end of a curved lever 32 pivoted at 33 on the frame and provided with an arm 34 having a series of perforations 35 for engagement, one by a coil spring 36. The coil spring 36 is passed beneath the hopper and frame, and is connected at its opposite end to a strap 37 secured to the compressor 23 for assisting to return the latter to initial position.

Through another of the perforations 35 in the arm 34 is connected a link 38, coupled at its opposite end to a lever 39 fulcrumed at 40 in a bracket 41 mounted on the framework 1. The bracket 41 is slotted, as indicated at 42, for permitting the pivot bolt 40 to ride vertically therein, the latter being held in elevated position by a yielding coil spring 43. The free end of the lever 39 is adapted to be engaged by a roller or projection 44 on the gear wheel 14, said lever being formed with an offset 45 for permitting the passage of the projection on its upward movement. As indicated in Fig. 1, the projection 44 is adapted to encounter the free end of the lever 39, depressing the same and operating to move the feeder foot 31 from the position shown in Fig. 4 to that shown in Fig. 5.

At the rear end of the hopper 3 is provided a pocket 46 for receiving the spacing blocks 47. To the pocket 46 is secured a bearing 48, in which is fulcrumed the lever 49 provided with an inturned end 50 for engaging beneath the spacing blocks 47, and holding the same in elevated position. The lever 49 is connected to be actuated from a rod 51 journaled in bearings on the frame 1, and encircling the rod 51 is a coil spring 52 for normally moving the same to return the lever 49 to position with its end 50 in the pocket 46. The rod 51 is provided with a projection 53 arranged in the path of an arm 54 on a shaft 55, rotated by a toothed disk 56 projecting through a slot 57 in the framework and encountered and actuated by the movement of the baled material.

The pocket 46 delivers the blocks 47 onto a false bottom 58 secured to the plunger 4, and the blocks fall by gravity in front of said plunger, when the same is retracted, slightly to the rear of the position shown in Fig. 7.

In the operation of the improved baling press as above described, power being applied to the drive shaft 11 from any suitable source, and hay or other material to be baled being supplied from time to time to the hopper 3, the several mechanisms are shown to be so timed to first operate the compressor 23, thereupon the feeder 31, and lastly the plunger 4, the block-dropping mechanism being tripped at proper intervals to provide bales of a predetermined length. As the drive shaft 11 revolves, through the pinion 13 and gear wheel 14, rotation is imparted to the actuating shaft 8, which as shown in Fig. 6, initially carries the projection 29 into engagement with the lug 28, moving the arm 26 to operate the toggle lever 25 and force the compressor 23 inwardly. Immediately following upon this movement the roller 44 will engage the free end of the lever 39, depressing the same to actuate the feeder foot 31 to force the material from the hopper into the baling chamber 2. During this interval the cam gear 7 is out of engagement with the rack 6, and the lug and projection 21 and 22 are coöperating to shift the reciprocating bar 15 from the position shown in Fig. 1 to that shown in Fig. 7, and return the plunger 4 to initial position. Thereupon the roller 44 moves out of engagement with the lever 39 and the projection 29 out of engagement with the lug 28, permitting the feeder 31 and compressor 23 to be returned by their respective springs. The cam gear 7 now moves into engagement with the rack 6 and advances the plunger to the position shown in Fig. 3, where it compresses the material, forcing the same along beneath the toothed disk 56, which is revolved by the material engaging with the teeth, and at each revolution automatically operates through the rod 51 and trip lever 49 to release the block 47 and deliver the same upon the false bottom 58 of the plunger 4. After the advance movement of the plunger 4 has been effected, the cam

gear 7 moves out of engagement with the rack 6 and the operations of compressing, feeding, and retracting the plunger are repeated, as above described, the blocks 47 falling by gravity, as they are released, in front of the plunger 4, to be driven by the same with the material through the compressing chamber 2 and forming the bales into the required length, which may be determined by the diameter of the toothed disk 56.

It will be understood that I have grouped the several compressing, feeding, and plunger-actuating mechanisms to be operated from a single shaft 8, and have built up and combined the same in a novel and simple arrangement. It will further be appreciated that by locating the block-dropping device at the rear end of the hopper 3, the spacing blocks 47 may be delivered without interference from the congested material, which latter is now usually cleared from the baling chamber 2 by a series of false strokes of the plunger 4, which is a needless waste of time and power.

The spring 36 may be dispensed with and the lever 39 provided with a cam slot 39′ engaged by a pin 44′ on the gear wheel 14. As the gear wheel 14 rotates, the pin 44′ will travel in the slot 39′ and positively actuate the lever 39 in both directions, insuring the proper operation of the feeder 31. (See Fig. 7.)

It is obvious that those skilled in the art may vary the details of construction and arrangements of parts without departing from the spirit of my invention, and therefore I do not wish to be limited to such features except as may be required by the claims.

I claim:

1. In a baling press, the combination of a baling chamber, a delivery hopper mounted above said chamber, a plunger mounted to reciprocate in said chamber, a shaft, gear connections between said shaft and plunger for advancing the same, a reciprocating bar, connections between said bar and plunger, and means associated with said shaft for engaging and shifting said bar to return said plunger, substantially as described.

2. In a baling press, the combination of a baling chamber, a delivery hopper mounted above said chamber, a plunger fitted to reciprocate in said chamber, a drive shaft, a driven shaft, gear connections between said drive and driven shafts, means on said driven shaft for engaging said plunger to advance the same, a bar mounted to reciprocate parallel with said plunger, connections between said plunger and bar, and means associated with said gear connections for engaging and moving said bar to retract said plunger, substantially as described.

3. In a baling press, the combination of a baling chamber, a hopper for delivering material to said chamber, a plunger fitted to reciprocate in said chamber, a drive shaft, a driven shaft, intermeshing gear wheels on said drive and driven shafts for transmitting movement from the former to the latter, means on said driven shaft and engaging with said plunger for advancing the same, a reciprocating bar mounted to slide parallel with said plunger, connections between said plunger and bar, a lug on said bar, and a projection on the gear wheel on said driven shaft for engaging said lug and moving the bar to retract said plunger, substantially as described.

4. In a baling press, the combination of a frame arranged to provide a baling chamber, a hopper for delivering material to said chamber, a plunger fitted to reciprocate in said chamber, an actuating shaft journaled on said frame, gear connections between said actuating shaft and plunger for advancing the same, a compressor associated with said hopper, means for operating said compressor from said actuating shaft, a reciprocating bar, connections between said bar and plunger, and means associated with said actuating shaft for engaging and moving said bar to retract the plunger, substantially as described.

5. In a baling press, the combination of a frame, a baling chamber provided on said frame, a hopper for delivering material to said baling chamber, a plunger fitted to reciprocate in said chamber, an actuating shaft journaled on said frame, connections between said actuating shaft and plunger for advancing the latter, a feeder associated with said hopper, means for operating said feeder from said actuating shaft, a reciprocating bar mounted on said frame, connections between said bar and plunger, and means for moving said bar from said actuating shaft to retract the plunger, substantially as described.

6. In a baling press, the combination of a frame providing a baling chamber, a hopper for delivering material to said baling chamber, a plunger fitted to reciprocate in said chamber, an actuating shaft journaled in said frame, a gear wheel mounted on said actuating shaft for receiving power to rotate the same, connections between said actuating shaft and plunger for advancing the same, a reciprocating bar mounted in said frame, connections between said bar and plunger, means on said gear wheel for engaging and moving said bar to retract the plunger, a compressor associated with said hopper, a rod for operating said compressor, means associated with said actuating shaft for moving said rod to operate the compressor, a feeder operating in said hopper, a lever fulcrumed on said frame, connections between one end of said lever and

said feeder, and means on said gear wheel for engaging the opposite end of said lever to depress the same and actuate said feeder, substantially as described.

7. In a baling press, the combination of a frame providing a baling chamber, a hopper for delivering material to said baling chamber, a plunger fitted to reciprocate in said baling chamber, an inclined rack provided on said plunger, an actuating shaft journaled in said frame, a cam gear mounted on said actuating shaft and arranged in engagement with said inclined rack for advancing said plunger, a reciprocating bar mounted in said frame, connections between said bar and plunger, and means associated with said actuating shaft for engaging and moving said bar to retract the plunger after each advance movement by said cam gear, substantially as described.

8. In a baling press, the combination of a frame providing a baling chamber, a plunger fitted to reciprocate in said baling chamber, a hopper for delivering material to said baling chamber, a false bottom for said hopper provided on said plunger, an actuating shaft journaled in said frame, a gear wheel mounted on said actuating shaft for receiving motion from a driver, connections between said actuating shaft and plunger for advancing the same, a bar mounted to reciprocate in said frame, connections between said bar and plunger, means on said gear wheel for engaging and shifting said bar to retract the plunger, a compressor associated with said hopper, a rod for actuating said compressor, a projection on said actuating shaft for operating said rod, a feeder operating in said hopper, a lever fulcrumed on said frame, connections between one end of said lever and said hopper, means on said gear wheel for actuating said lever to operate the feeder, a block-receiving pocket secured to the rear of said hopper, means for normally holding said blocks in said pocket, and automatic means for tripping said block-holding means, substantially as described.

In testimony whereof, I affix my signature.

GEORGE W. NORTH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."