No. 808,633. PATENTED JAN. 2, 1906.

W. S. BRYANT.

HAY PRESS POWER.

APPLICATION FILED SEPT. 29, 1904.

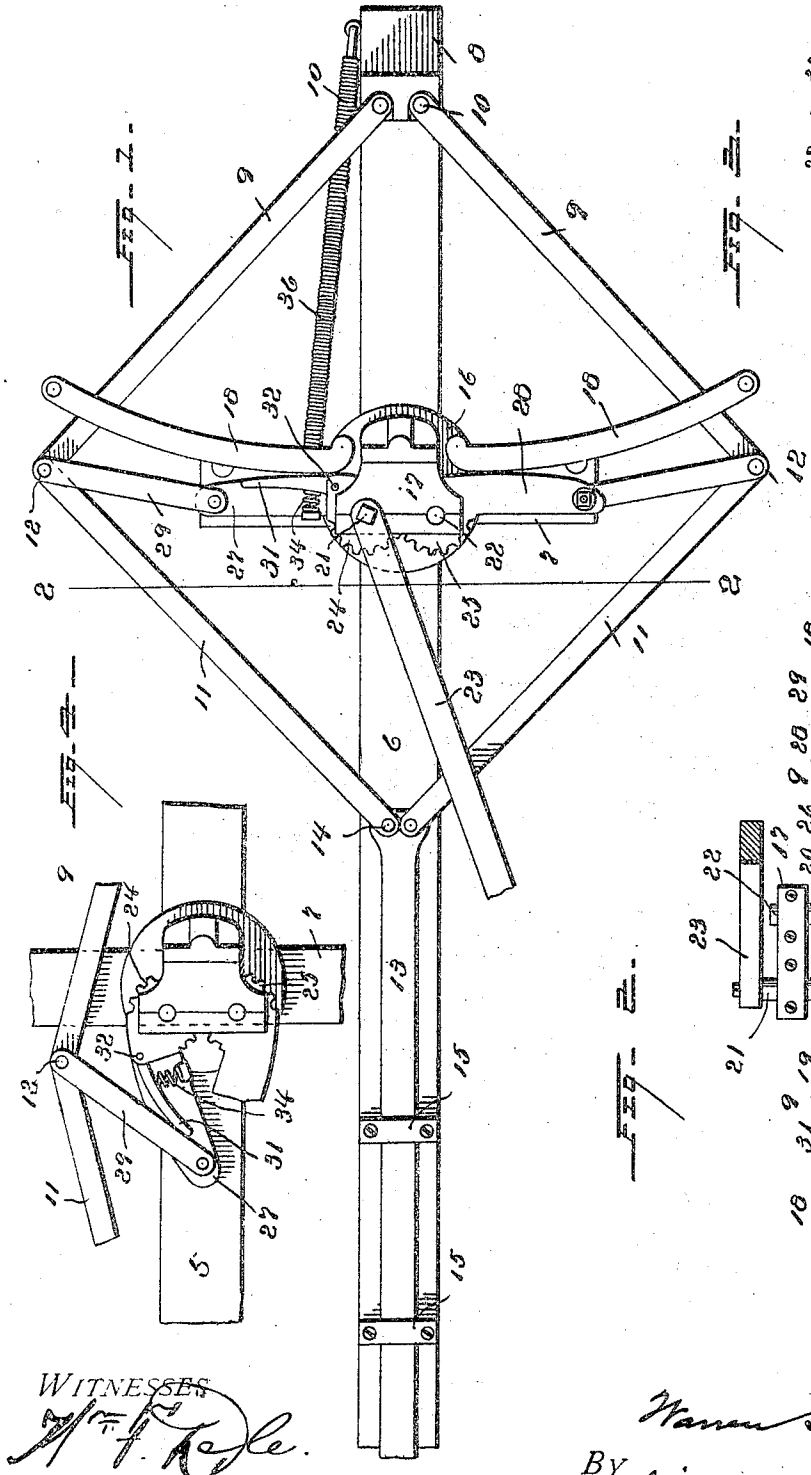

Fig. 1.

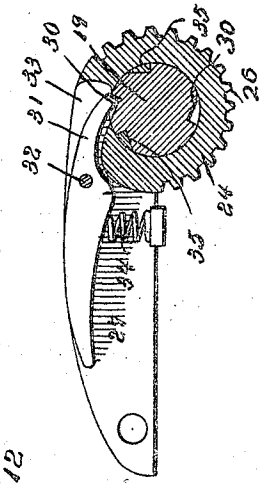

Fig. 3.

Fig. 4.

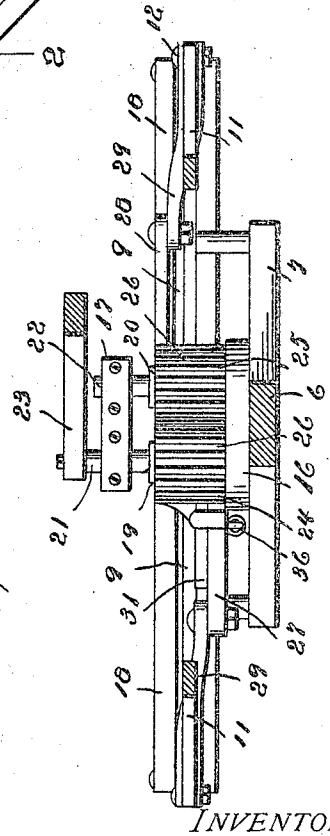

Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

WARREN S. BRYANT, OF ADHALL, TEXAS, ASSIGNOR OF ONE-HALF TO C. C. DOCKERY, OF CAMERON, TEXAS.

HAY-PRESS POWER.

No. 808,633. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed September 29, 1904. Serial No. 226,567.

To all whom it may concern:

Be it known that I, WARREN S. BRYANT, a citizen of the United States, residing at Adhall, Texas, have invented new and useful Improvements in Baling-Presses, of which the following is a specification.

This invention relates particularly to the power used for reciprocating the plunger of a baling-press, and has for its object to provide improved means for converting the rotary motion of the sweep into reciprocating motion of the plunger, with means for varying the number of strokes delivered at each rotation of the sweep.

In the accompanying drawings, Figure 1 is a plan view of the invention. Fig. 2 is a sectional elevation on the line 2 2 of Fig. 1. Fig. 3 is a horizontal section of one of the gears used to convert the motion. Fig. 4 is a detail in plan showing the position when the plunger is advanced.

Referring specifically to the drawings, 6 indicates the longitudinal bed-sill upon which the machine is mounted. This has a cross-sill 7 and at its rear end a block 8, to which the rear arms 9 of the toggles are pivoted at 10. The front arms 11 of the toggles are pivotally connected to the rear arms at 12 and to the rear end of the plunger-beam 13, as at 14. The plunger-beam works through a pair of guide-blocks 15 on the bed-sill. Mounted upon the crossing of the sills 6 and 7 is a plate 16, carrying an overhanging block 17. The plate and block are preferably made as a single heavy casting and have bearings for the gears. The toggles swing in a horizontal plane and are retained in position by slotted guides 18, which are mounted upon the plate 16 and cross-piece 7 and in the slots of which the rear members 9 of the toggles slide.

19 and 20 indicate two elongated hubs the shafts 21 and 22 of which are mounted at opposite ends in bearings in the base-plate 16 and block 17. These hubs stand vertically side by side. The shaft 21 is extended upwardly through its bearings in the block 17 and is squared at the top to receive the sweep 23, to which the team is attached. Mounted to turn freely upon the respective hubs are gear-cylinders 24 and 25, provided with meshing teeth-gear 26 on a part of their circumferences. The gears are wide to give great strength. Projecting laterally from the respective gear-cylinders are lever-arms 27 and 28. The former projects from the bottom of the gear-cylinder 24 and the latter from the top of the gear-cylinder 25, and these arms are connected by links 29 to the pivot-pins 12 at the joints of the toggles.

The hub 19, on the shaft on which the sweep is mounted, is provided on its periphery with a series of longitudinal notches 30, forming a ratchet. These notches are engageable by the head of a pawl 31, which is pivoted at 32 on the side of the gear-cylinder 24. The head of this pawl works through a recess 33 in the side of said cylinder and is adapted to engage in the notches 30. One or more of the notches or grooves 30 may be filled by keys 35, which can be slipped in or taken out at the top of the hub. As shown, the hub has four grooves, two of which are opposite each other and the other two of which are distant from each other one-third of the circumference of the cylinder. The object of this arrangement is to regulate the number of strokes desired at each rotation by withdrawing or inserting certain of the keys. When one groove is open, one stroke is effected at each rotation. The withdrawal of the key in the opposite groove causes a double stroke. By leaving in the key in said opposite groove and withdrawing the other two keys a triple stroke is effected.

The pawl is pressed to engagement by a spring 34. The tail of the pawl extends out above the arm 27 in position to be struck by the link 29 when the toggles are straightened. A spring 36, connected between the arm 27 and the block 8, serves to retract the parts when the pawl is disengaged.

In operation as the team moves around the hub 19 turns until the pawl 31 engages in one of the notches 30, and continuing to turn the hub carries with it the gear-cylinder 24, which meshes with and turns the gear-cylinder 25. This swings the arms 27 and 28 inwardly or toward each other, and by the link connections the toggles are straightened and the plunger advanced. When advanced to the limit, the link 29 strikes the tail of the pawl 31 and turning the pawl on its pivot throws out the head thereof from engagement with the notch 30. The instant effect of this is to disconnect the hub 19 and the gear-cylinder 24, and the spring 36, assisted by the rebound of the plunger, retracts the parts and flexes the toggles, which draws the plunger back.

The team continues moving, and the hub 19 continues to turn, and when the next notch 30 is reached the pawl 31 engages therein and gives another stroke. The number of the strokes may be varied according to the number of notches made in the hub 19 and according to the number of keys placed in the notches. If one or more of the notches be filled by keys, the pawl will not engage in the notches, but will ride over the keys until it reaches an unfilled notch. If only one notch be used, there will be one stroke for each round of the team. If two notches be used, there will be two strokes, and so on, as before described.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a power for baling-presses, of a toggle connected to the plunger, a shaft to which the power is applied, having a ratchet thereon, a cylinder around the ratchet and connected to the toggle-arms, and having a pawl engageable with the ratchet, and means to disengage the pawl.

2. The combination, in a power for baling-presses, of a pair of opposite toggles connected to the plunger, a shaft to which the power is applied, having a ratchet thereon, a pair of meshing gears having arms connected to the respective toggles, one of the gears being mounted around the ratchet and having a pawl engageable therewith, and means to disengage the pawl.

3. The combination, in a power for baling-presses, of a shaft to which the power is applied, having a ratchet thereon, a cylinder extending around the ratchet having an arm connected to the plunger of the press and a pawl engageable with the ratchet, means to disengage the pawl, and keys which may be inserted in the notches of the ratchet, to prevent the pawl engaging therein.

4. The combination, in a power for baling-presses, of a reciprocating plunger, a rotary shaft, and connecting means between the shaft and plunger to convert the rotation of the former into strokes of the latter, including a pawl and ratchet, and means to prevent the engagement of the pawl with part of the ratchet-teeth, to vary the number of strokes delivered during each rotation of the shaft.

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