

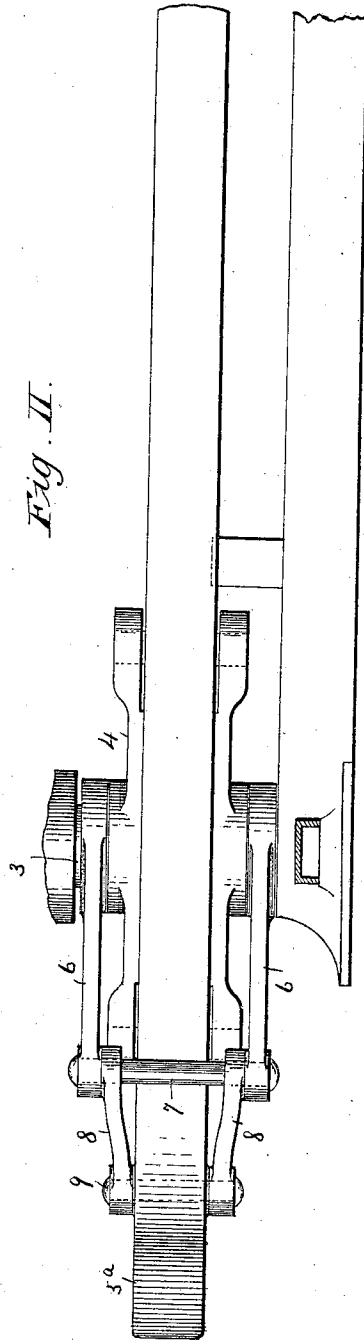
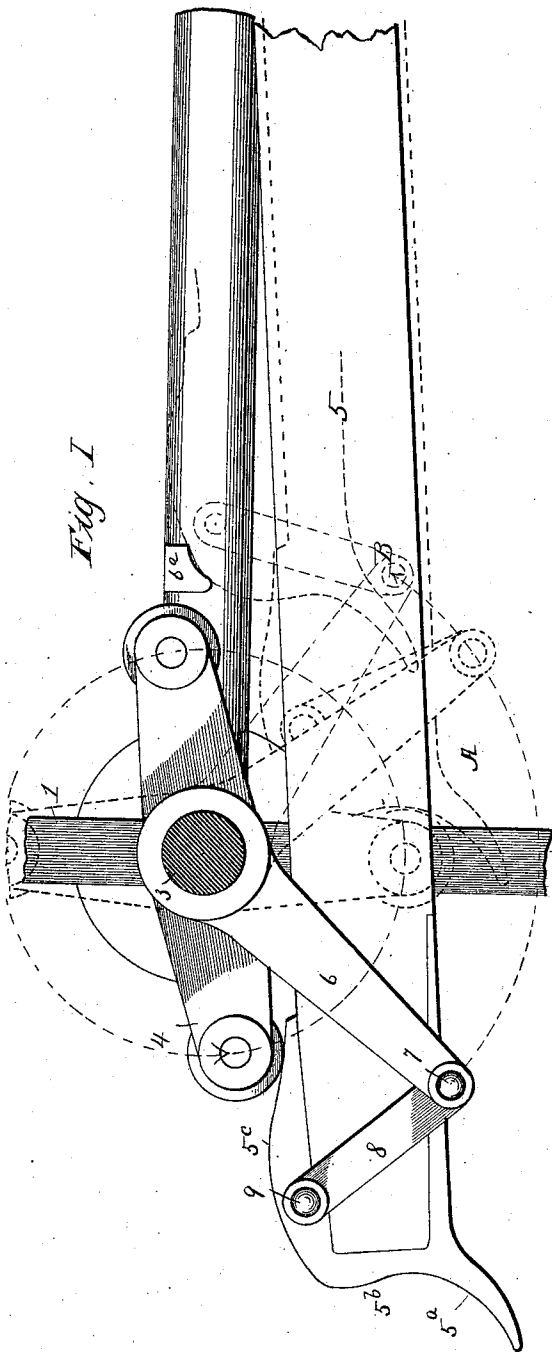
(No Model.)

2 Sheets—Sheet 1.

W. S. LIVENGOOD & A. J. MASON.
BALING PRESS.

No. 575,001.

Patented Jan. 12, 1897.



Witnesses:

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Atty.

(No Model.)

2 Sheets—Sheet 2.

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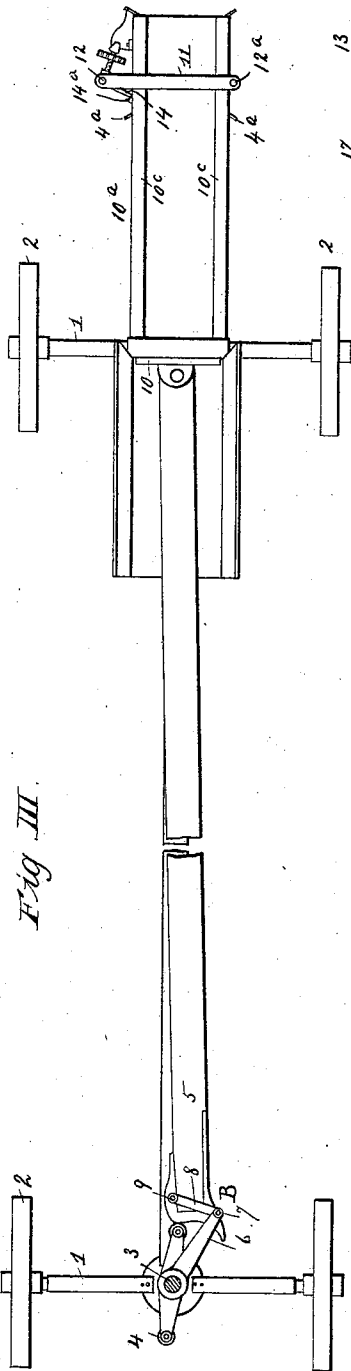


Fig. III.

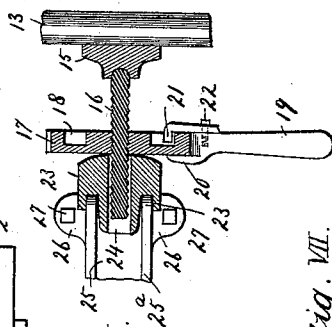


Fig. VI.

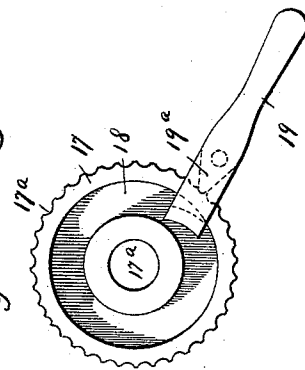


Fig. VII.

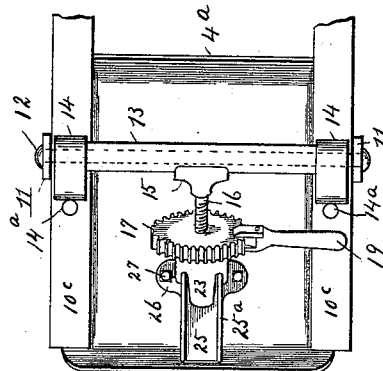


Fig. V.

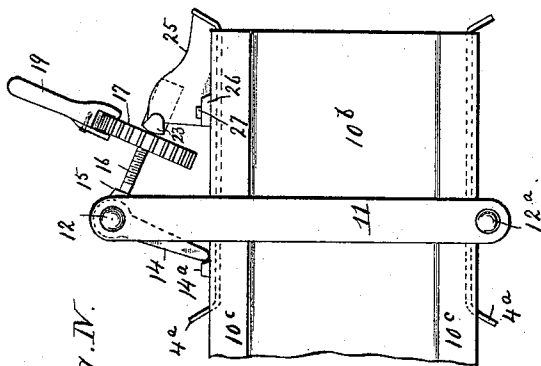


Fig. IV.

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UNITED STATES PATENT OFFICE.

WINFIELD S. LIVENGOD AND ARTHUR JOHN MASON, OF KANSAS CITY,
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BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 575,001, dated January 12, 1897.

Application filed February 11, 1896. Serial No. 578,840. (No model.)

To all whom it may concern:

Be it known that we, WINFIELD S. LIVENGOD and ARTHUR JOHN MASON, of Kansas City, in the county of Jackson, in the State of Missouri, have invented certain new and useful Improvements in Baling-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to improvements in baling-presses designed more particularly for baling hay, straw, and like material; and our invention consists in certain features of novelty hereinafter described, and pointed out in the claims.

Figure I represents a plan view of the pitman of a baling-press and its immediate operating mechanism. Fig. II represents a side elevation of the same. Fig. III represents a plan view of a baling-press provided with our improvements. Fig. IV represents a plan view of the expansible end of the delivery portion of the baling-chamber, showing our improved device for regulating the expansion and compression thereof. Fig. V represents a side elevation of the same. Fig. VI represents a view in cross-section of our improved device for regulating the expansion and compression of said expansible end. Fig. VII represents in detail views of the pawl and ratchet-wheel for operating said regulating device.

Similar numerals refer to similar parts throughout the several views.

1 represents the axles on which the press is carried mounted upon the wheels 2.

3 represents the power-shaft mounted in a foot-step carried on the front axle in the usual manner.

4 represents the trip-lever provided with the usual antifriction end rollers and turning with the power-shaft in the usual manner.

5 represents the pitman terminating in the curved end 5^b and having the extended outer corner 5^a and the convex inner face 5^c.

6 represents arms pivoted on the power-shaft and extending beyond the outer edge of the pitman.

8 represents short arms pivotally connected

with the arms 6 by the rod 7. The other ends of said arms 8 are pivotally connected with the pitman by the rod 9.

In the initial forward movement of the pitman the pressure of the trip-lever against the side of the pitman tends to press the end of the pitman outward, but, being restrained by the arm 6, by the revolution of the opposing forces the pitman is carried forward in the arc of revolution of the arm 6, the relation of the arms 6 and 8, as shown in full lines, being maintained during the initial movement by the convexity of the face presented to the trip-lever roll until the roll reaches the summit of the curve 5^c, the form of said convex face serving also to equalize the draft during such initial forward movement. The outer edge of the pitman during this movement bears against the rod 7, when as the roll descends the face toward the end of the pitman the arm 8 will be carried forward until, as the roll enters the pocket formed by the curved end of the pitman, said arms will assume the relation shown in dotted lines at A, and as the pitman is still carried forward to the end of the stroke they assume the relation shown at B in Fig. III, at which point, the pitman impinging against the stop-block 6^a, the trip-lever is released therefrom and by the expansive force of the material being baled the pitman is returned to its initial position. The primary advantages gained by this construction and action lie in the fact that the compound hinged arms retain the pitman within the least possible distance of the power-shaft during its stroke, enabling a longer stroke without increasing the length of the trip-lever, a more parallel action of the pitman in its reciprocation, and consequently compact and close construction of the supporting members at the forward axle; also, a simple, strong, and economical construction.

10 represents the baling-chamber. 10^a represents the delivery portion of the baling-chamber, having the expansible outer end 10^b, provided with the angle-irons 10^c, to which are secured the side plates 4^a by the bolts or rivets 14^a.

11 represents arms pivoted on the rod 12^a on one side of said expansible end and, ex-

tending across the same, are pivoted upon the rod 12 on the other side thereof. 14 represents short arms, also pivoted on said rod 12, forming with said arms 11 a toggle-joint having said rod 12 for its knee. Said arms 14 bear against the angle-irons, being retained by the bolt-heads 14^a, or any suitable protuberance, forming a bearing therefor.

13 represents a collar carried on the rod 12. 25 represents a bracket having the flanges 25^a, secured to the side plates 4^a by the bolts or rivets 27 through the ears 26 thereon. 23 represents a rocking head bearing against and adapted to rock on said flanges 25^a.

16 represents a screw-threaded rod having at one end a bearing 15 against the knee of the toggle and at the other end entering the opening 24 in the head 23. Said rod carries the ratchet-wheel 17, bearing against the head 23, correspondingly threaded, having the peripheral indentations 17^a and in its face the annular recess 18. To operate said wheel we preferably apply the pawl 19, consisting of a handle portion having an extension 20, embracing one face of the wheel, a keeper 21, secured to the handle at 22 and engaging the annular recess 18 in the wheel, and the detent or tooth 19^a, adapted to engage the indentations in the periphery of the wheel as the handle is drawn up or down to turn the wheel, as shown in Fig. VI, and released to permit the same to be carried around the wheel. It is apparent that as said wheel 17 is turned in one direction the rod 16 will be forced against the knee of the toggle and the toggle shortened, contracting said end of the delivery portion, and if turned in the opposite direction the rod will be retracted and said end expanded.

It will be seen that this is a modification and improvement of the toggle device set out in our Letters Patent on baling-presses, No. 541,370, issued June 18, 1895.

Having thus fully described our improvements, what we claim as our invention, and desire to secure by Letters Patent, is—

1. In a baling-press the combination with the pitman, the power-shaft and a trip-lever for operating the pitman, of compound hinged arms, one of said arms pivotally mounted on the power-shaft and the other arm pivotally connected with the pitman, substantially as shown and described.

2. In a baling-press the combination with the pitman, the power-shaft, and a trip-lever for operating the pitman, of compound hinged arms so disposed that the hinge is adapted to bear against the pitman during the initial forward movement; one of said arms pivoted on the power-shaft, the other arm pivotally connected with the pitman, substantially as shown and described.

3. In a baling-press the combination with the power-shaft, the trip-lever having anti-friction end rollers and a pitman having a convex inner face at its vibratory end, of compound hinged arms so disposed that the hinge

is adapted to bear against the pitman during the initial forward movement, one of said arms pivoted on the power-shaft, the other arm pivotally connected with the pitman, substantially as set forth.

4. In a baling-press the combination with the power-shaft, the trip-lever having anti-friction end rollers, and a pitman having at its vibratory end a convex inner face, a curved end forming a pocket for the reception of the trip-lever roll, and an extension at its outer corner, of compound hinged arms so disposed that the hinge is adapted to bear against the pitman during the initial forward movement, one of said arms pivoted on the power-shaft, the other arm pivotally connected with the pitman, substantially as shown and described.

5. In a baling-press a pitman having at its vibrating end a convex inner face, a power-shaft, compound hinged arms connecting the pitman with said power-shaft, and a trip-lever adapted to act upon said convex inner face of the pitman during the initial movement of the instroke of the pitman, substantially as and for the purpose set forth.

6. In a baling-press a pitman having at its vibrating end a convex inner face, a curved end forming a pocket to receive the roller on the trip-lever, and an extension at its outer corner, a power-shaft, compound hinged arms connecting the pitman with said power-shaft, and a trip-lever provided with anti-friction end rollers substantially as shown and described.

7. In a baling-press having a suitable baling-chamber, the combination with a delivery portion connected with said baling-chamber having an expansible end, of arms pivoted on one side of said expansible end, extending across the same and having pivotal connection on the other side of the baling-chamber, short arms pivotally connected with said arms forming therewith a toggle-joint and having a bearing against the side of said expansible end, a bracket secured to said end, a rocking head having a rocking bearing in said bracket, a threaded rod engaging said head and having a bearing against the knee of the toggle, and a wheel threaded on said rod bearing against said head, substantially as and for the purpose set forth.

8. In a baling-press having a suitable baling-chamber, the combination with a delivery portion connected with said baling-chamber having an expansible end, of a toggle-joint one arm of which has a bearing on one side of said expansible end, and the other arm a bearing on the other side of said end, a bracket secured to said end, a threaded rod having at one end a bearing on the knee of the toggle, and a wheel threaded on said rod provided with a rocking bearing in said bracket, substantially as and for the purpose set forth.

9. In a baling-press the combination with the power-shaft and the pitman, of compound hinged arms, one of said arms pivotally mounted on the power-shaft, the other of said

arms pivotally connected with the pitman, said arms being so proportioned that the arm pivoted to the power-shaft under restraint of the other arm acts as a single arm to control the path of the pitman during a portion of the instroke and in conjunction with the other arm controls the path of the pitman during the remainder of the stroke, substantially as shown and described.

10 10. In a baling-press the combination with the power-shaft, a trip-lever, and the pitman of a pair of arms pivotally mounted on the power-shaft and a pair of arms pivotally connected with the pitman and having a hinged
15 connection with said arms mounted on the

power-shaft substantially as and for the purpose set forth.

11. In a baling-press the combination with the power-shaft, a trip-lever, a pitman and a convex inner face on the pitman, of a pair of arms pivotally mounted on the power-shaft and a pair of arms pivotally connected with the pitman and having a hinged connection with said arms mounted on the power-shaft substantially as and for the purpose set forth.

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