

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

No. 541,370.

Patented June 18, 1895.

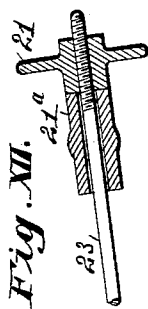
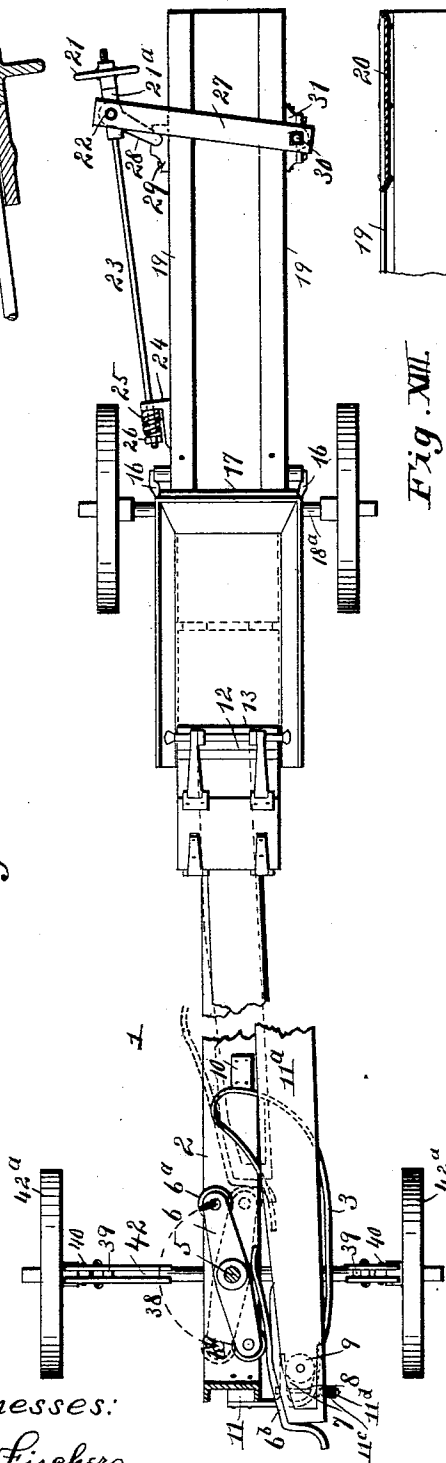


Fig. XIII.

Fig. I.



Witnesses:
F. G. Fischer
Francis A. Head

Fig. XII.

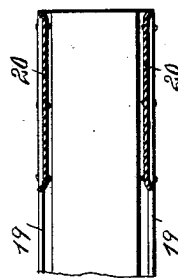
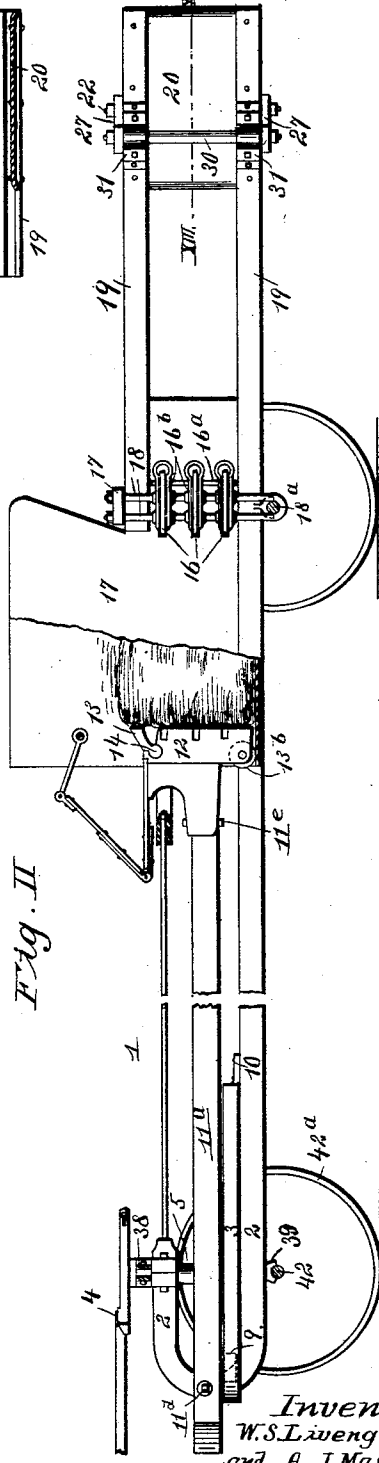


Fig. II.



Inventors.
W. S. Livengood
and A. J. Mason
By *Knicker Bros.*
Attys.

(No Model.)

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Fig. V.

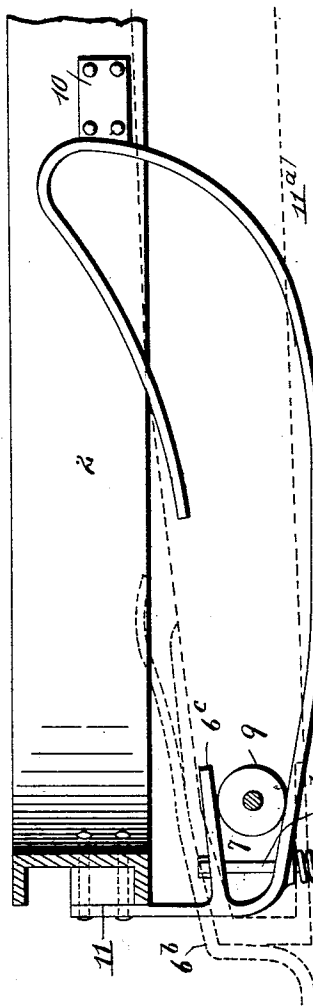


Fig. VII.

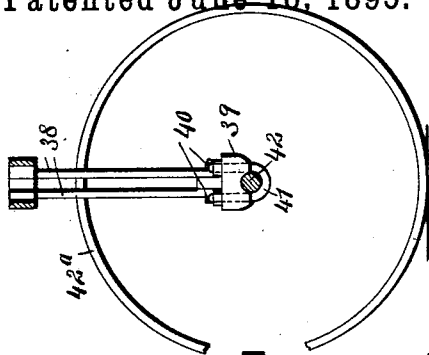


Fig. VI.

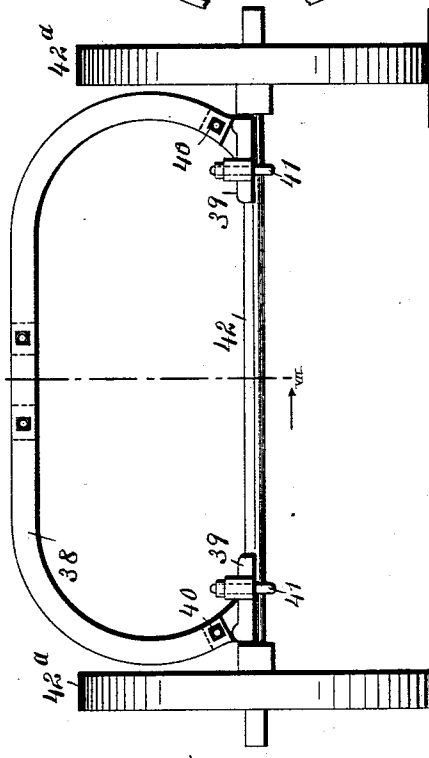
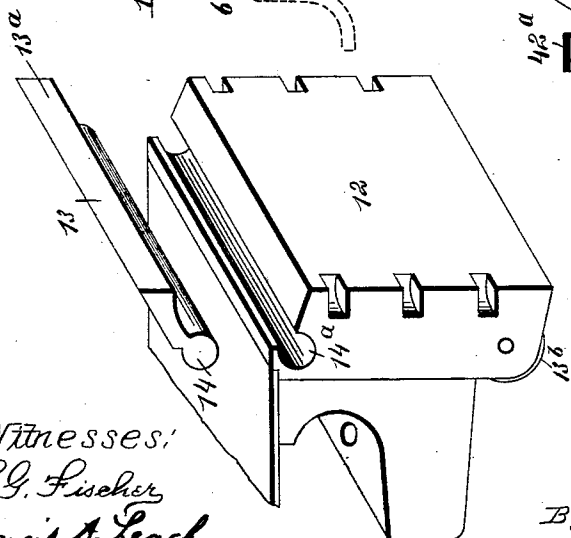
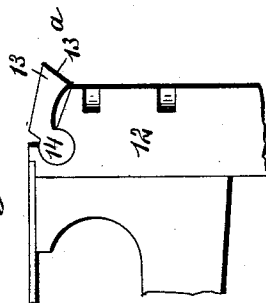


Fig. III.



Witnesses:
F. G. Fischer
Francis A. Leach

Fig. IV.



Inventors:
W. S. Livengood
and A. J. Mason
By *Amiel B. Brown* Attys.

(No Model.)

3 Sheets—Sheet 3.

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Fig. VIII.

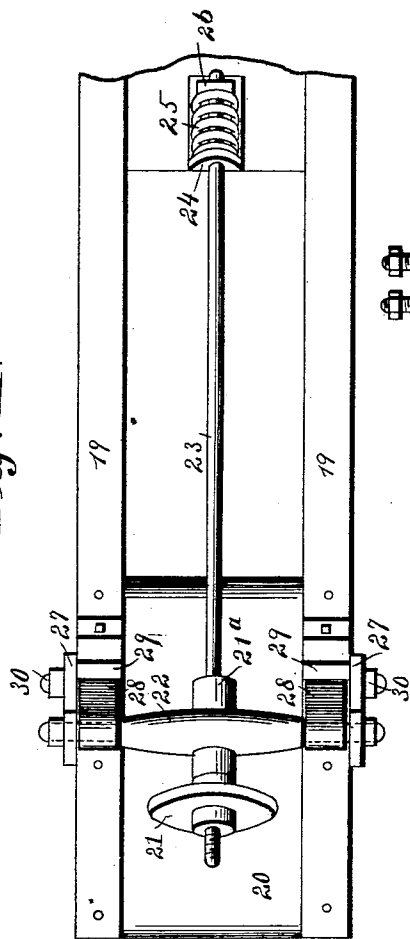


Fig. X.

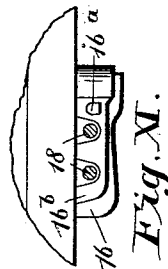
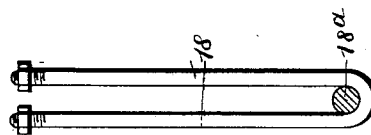
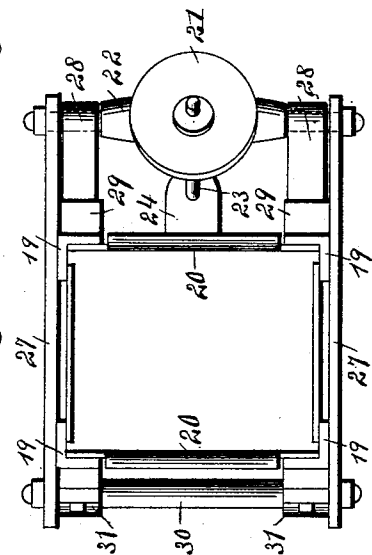


Fig. XI.

Fig. IX.



Witnesses.

F. G. Fischeher
Francis A. Leach

Inventors.

W. S. Livengood
and A. J. Mason

By *Amiel R. R. R.* Attys.

UNITED STATES PATENT OFFICE.

WINFIELD S. LIVENGODD AND ARTHUR J. MASON, OF KANSAS CITY,
MISSOURI, ASSIGNORS TO THE DEVOE-LIVENGODD MANUFACTUR-
ING COMPANY, OF SAME PLACE.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 541,370, dated June 18, 1895.

Application filed August 2, 1893. Serial No. 482,183. (No model.)

To all whom it may concern:

Be it known that we, WINFIELD S. LIVENGODD and ARTHUR J. MASON, of Kansas City, in the county of Jackson and 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 certain new and useful improvements in baling presses, intended more especially for baling hay, but which may be used for baling straw and various other materials; and our invention consists in certain features of novelty hereinafter described and pointed out in the claims.

Figure I represents a plan view of our improved press, showing a portion of the channel-iron frame broken away to more clearly show the construction of the power mechanism. Fig. II is a side elevation of the same, showing the axles in section and a portion of the baling-chamber broken away in order to show the operation of the head-block on the follower. Fig. III is an enlarged perspective view of the head-block of the follower, the rocking plate being removed. Fig. IV is a detailed side elevation of the same, the rocking plate being in place. Fig. V is an enlarged detailed view showing construction of the guiding-bar for controlling the pitman. Fig. VI is a front elevation of the front truck with arched frame attached. Fig. VII represents a vertical section of the front truck, taken on line VII VII of Fig. VI. Fig. VIII is an enlarged detailed view showing the improved tension device for giving tension to the rear end of the baling-chamber. Fig. IX represents a rear end view of the press-chamber with tension device attached. Fig. X is a side elevation of the stirrup by which the rear axle is connected with the body of the press. Fig. XI is a detailed view showing construction of the retainers. Fig. XII is a sectional view of the hand-wheel and sleeve by which tension is applied, showing the tension-rod extending through the sleeve. Fig. XIII is a horizontal section taken on line XIII XIII, Fig. II.

Referring to the drawings, 1, represents the press as a whole, and, 2, a channel iron frame extending from the baling chamber to a point forward of the front axle, then being bent backward over itself, forming a return bend, and providing a bearing for the vertical operating shaft.

3, represents a curved guide bar secured to the frame, 2, said bar forming a bearing for a roller on the bottom of the pitman, as it reciprocates in pressing the charge of material.

5, represents a vertical power shaft, which is operated by a suitable sweep, 4, or other suitable means, said shaft having mounted thereon a cross arm or trip lever, 6, provided with rollers, 6^a, traveling on a bar, 6^b, secured near the outer end of the pitman, and being suitably curved to form an incline for said rollers to travel over, in order to press the pitman backward in pressing the charge, or from the position shown in full lines, Fig. I, to the position shown in dotted lines, in the same figure.

The guide bar, 3, is provided with a short inner extension, 6^c, which joins the main portion of said bar at its forward end, forming a contracted cavity, 7.

9, represents a roller journaled to the under side of the pitman. The guide bar, 3, is secured at its rear end to the frame, 2, by a plate, 10, and bolted to the forward end of the frame, 2, by means of a bracket, 11, extending over to the frame. The pitman, 11^a, when traveling forward, after the charge has been pressed, and the roller, 6^a, has passed out of engagement with the forward end of the pitman, is retarded in its forward movement by the roller, 9, coming in contact with the outer side of the guide bar, 3, and the inner extension, 6^c, thus forming a brake to lessen the rebound of the pitman, the outer portion of the guide bar and the extension forming the contracted space, 7, as above stated. The tension of the bar at this point is regulated by means of a bolt, 11^b, extending through the extension and the main portion of the guide bar having a spring, 11^c, held thereon by means of a nut, 11^d. Thus the tension may be increased or diminished at the will of the operator.

12, represents the head of the follower, se-

cured to the inner end of the pitman, as shown at 11^a.

13, represents a rocking plate, having a forward inclined face, 13^a, and having a rearwardly rounded portion, 14, operating in a round groove, 14^a, in the head, 12, of the follower. The operation of said plate is, as will be seen in Fig. II, to rise upward when the charge of material is being pressed, in the baling chamber, and to rock downward and forward, as shown in Fig. IV, as the follower and pitman travel in the opposite direction, thus affording no resistance to the forward movement of the pitman and preventing any binding between the material and the baling chamber. The face, 13^a, being inclined, when the plate is rocked into a forward position, presents a square surface to the material during the action of pressing the same.

13^b, represents rollers secured to the follower head, on which the same travels in the baling chamber.

16, represents retainers pivoted to a rod, 16^a, and operating in castings, 16^b, which form guides for the same. Said retainers form the usual obstruction and prevent the division boards from traveling backward when the pressure on the charge of material being pressed has been released.

17, represents a cross bar, extending across the press frame at the rear end of the baling chamber, 17^a, said cross bar receiving the upper end of a U-shaped stirrup, 18, said stirrup passing under the rear axle, 18^a, and supporting the same, holding it firmly in connection with the press frame, and also extending through the castings 16^b, in which the retainers, 16, are located.

19, represents angle iron frames, forming the four corners of the body of the press, said angle iron frames being connected at their sides by means of plates, 20, located near the rear end of the press.

21, represents a hand wheel operating on the threaded end of a rod, 23, said rod being secured to a bracket, 24, on the body of the press, and having a spring, 25, thereon, with a nut, 26, on its inner end, to prevent its withdrawal.

21^a, represents a sleeve through which the rod, 23, passes, and to which the cross bar, 22, is secured. The cross bar, 22, is pivoted at its ends to upper and lower arms, 28, having bearings in castings, 29, secured to the side of the press.

27, represents upper and lower arms situated at the top and bottom of the press, said arms being pivoted to the opposite side of the press from the wheel, 21, by means of a rod, 30, passing through journal boxes, 31, the opposite end of said arms being pivoted at the outer ends of the cross-bar, 22; said arms, in conjunction with the arms 28, forming a toggle device located at the top and also at the bottom by which tension may be applied to the rear end of the press, in order to press

the bale of greater or less density. As the sleeve, 21^a, is loosely mounted on the rod, 23, the operation of the hand wheel, 21, will cause the same to travel in the direction desired, thus causing the toggle arms to press the sides of the baling chamber together, or to release the same, as may be desired. In case of any hard obstruction passing through the baling chamber, we provide a spring, 25, on the rod, 23, as above described, which will permit of the backward movement of the rod, 23, and the consequent expansion of the baling chamber, in order to let the obstruction pass without having to manipulate the hand wheel.

38, represents the front axle frame which is arched and bent inward at its lower ends, being connected at 40, to castings, 39, which are secured to the front axle, 42, by means of clamps, 41. By having this frame bent inward at its lower ends, we are enabled to set the front wheels, 42^a, much closer together than we would be able to do otherwise. This front or axle frame embraces the forward part of the iron frame, the pitman and the operating mechanism.

We claim as our invention—

1. In a baling-press the combination of a baling-chamber, a follower, a pitman, means for operating the pitman, a curved guide-bar for guiding the pitman, said guide-bar having a contracted outer end to lessen the shock of rebound of the pitman; substantially as shown and described.

2. In a baling-press the combination with a bed-plate and guide or track-rail carried on the bed-plate at its front end and at its rear end secured to a block on the reach, having at its rear end a reversely curved forwardly extending portion and at its forward end a reversely curved rearwardly extending portion, and a vertical power-shaft having oppositely projecting power-arms having anti-friction rollers in their outer ends, of a pitman provided with an anti-friction roller at its vibratory end to bear against and travel along the guide or track-rail; substantially as shown and described.

3. In a baling-press the combination with a bed-plate, a vertical power-shaft having oppositely projecting power-arms having anti-friction rollers in their outer ends and a pitman provided with an anti-friction roller at its vibratory end of a guide or track-rail carried at its forward end on the bed-plate and at its rear end extending across and secured to the reach and having at its rear end a reversely curved forwardly extending portion arranged to guide the pitman upon its rebound toward and against the guide or track-rail, and at its forward end a reversely curved rearwardly extending portion arranged to form with the guide or track-rail a flaring mouth or opening to receive the anti-friction roller on the vibratory end of the pitman upon the recoil of the pitman and gradually check the

same, and a tension spring to regulate the tension or compression on the anti-friction roller; substantially as shown and described.

4. In a baling-press the combination with a
5 bed-plate, a power-shaft having oppositely
projecting power-arms carrying anti-friction
rollers in their outer ends, and a guide or track-
rail carried at its forward end on the bed-plate
and at its rear end extending across and se-
10 cured to the reach consisting of a central lon-
gitudinal curved portion, a reversely curved
forwardly extending portion at its rear end
and a reversely curved rearwardly extending
portion at its forward end forming with the
15 central curved portion a flaring mouth or open-
ing, of a pitman having its inner edge or side
beveled and terminating in a curved end hav-
ing an extension at its outer corner, and car-
rying an anti-friction roller on its lower side
20 adapted to bear against and travel along the
guide or track-rail and on the rebound of the
pitman to enter the flaring mouth or opening
at the forward end thereof thereby checking
gradually the shock of the rebound substan-
25 tially as shown and described.

5. In a baling-press the combination of a
baling-chamber, a follower, a pitman, means
for operating the pitman, a curved guide bar
having front and rear spring extensions the
30 front extension and the body of the bar form-
ing a contracted end with which the roller on
the pitman engages, a bolt passing through
said extension and body of the bar, with a
spring thereon for limiting the expansion of
35 said contracted end; substantially as shown
and described.

6. In a baling-press the combination of a
baling-chamber, a follower, a pitman, means
for operating the pitman, and a gravity plate
40 consisting of a rock-shaft and head integral
therewith, said rock-shaft being mounted in a
bearing in the head of the follower and adapted
to rock therein substantially as shown and
described and for the purposes set forth.

7. In a baling-press the combination of a
suitable baling-chamber, a follower, provided
with a rounded cavity in its face a pitman,
means for operating the pitman, and a gravity
plate having a rounded portion adapted to op-
50 erate in said rounded cavity in the follower,
substantially as and for the purpose set forth.

8. In a baling-press the combination of a
baling-chamber, an end to said chamber
adapted to be contracted and expanded, arms
55 having their bearings on the frame on one
side of the baling-chamber and extending
across the same, arms having their bearings
on the frame on the other side of the baling-
chamber having pivotal connection with said

first mentioned arms, and a hand-wheel and
suitable connections between said hand-wheel
and said arms, whereby said arms are oper-
ated to contract the end of said baling-cham-
ber; substantially as shown and described.

9. In a baling-press, the combination of a
65 baling-chamber, an end to said baling-cham-
ber and adapted to be contracted and ex-
panded, arms having their bearings on the
frame on one side of the baling-chamber, arms
having their bearings on the frame on the
70 other side of the baling-chamber, said sets of
arms having a pivotal connection at one end,
a rod secured on one side of the baling-cham-
ber, and means on the rod for operating the
arms; substantially as shown and described
75 and for the purposes set forth.

10. In a baling-press the combination of a
suitable baling-chamber, a contractible end
to said chamber, with means for contracting
the same, said means consisting of arms 27 piv-
80 oted to the baling-chamber, arms 28 pivoted
to the arms 27, and having a bearing against
the baling-chamber and a hand-wheel suitably
connected to said arms, for moving said arms
in order to contract said baling-chamber; sub-
85 stantially as shown and described.

11. In a baling-press the combination of a
baling-chamber having a contractible end,
pivoted arms 27 pivoted to the baling-cham-
ber, a rod 23 having a sleeve 21^a operating
90 thereon, a hand-wheel for moving said sleeve,
and toggle-arms 28, connected with said sleeve
for contracting the end of the baling-cham-
ber, substantially as shown and described.

12. In a baling-press the combination of a
95 baling-chamber, toggle-arms 27 connected
therewith, a sleeve 21^a, mounted upon a rod
23, a tension spring 25, a bracket 24, a hand
wheel 21 for moving said sleeve, a cross-bar
22 and toggle-arms 28 by which the baling-
100 chamber may be contracted, substantially as
shown and described.

13. In a baling-press the combination of a
baling-chamber having a contractible end,
and a toggle joint for contracting the same
105 one bar of the toggle having its bearings on
one side of the baling-chamber, the other bar
of the toggle having its bearings on the other
side of the baling-chamber, and means con-
nected with the knee of the toggle for operat-
110 ing the same substantially as shown and de-
scribed.

WINFIELD S. LIVENGOD.
ARTHUR J. MASON.

Witnesses:

R. L. SILVERMAN,
F. E. MULLETT.