

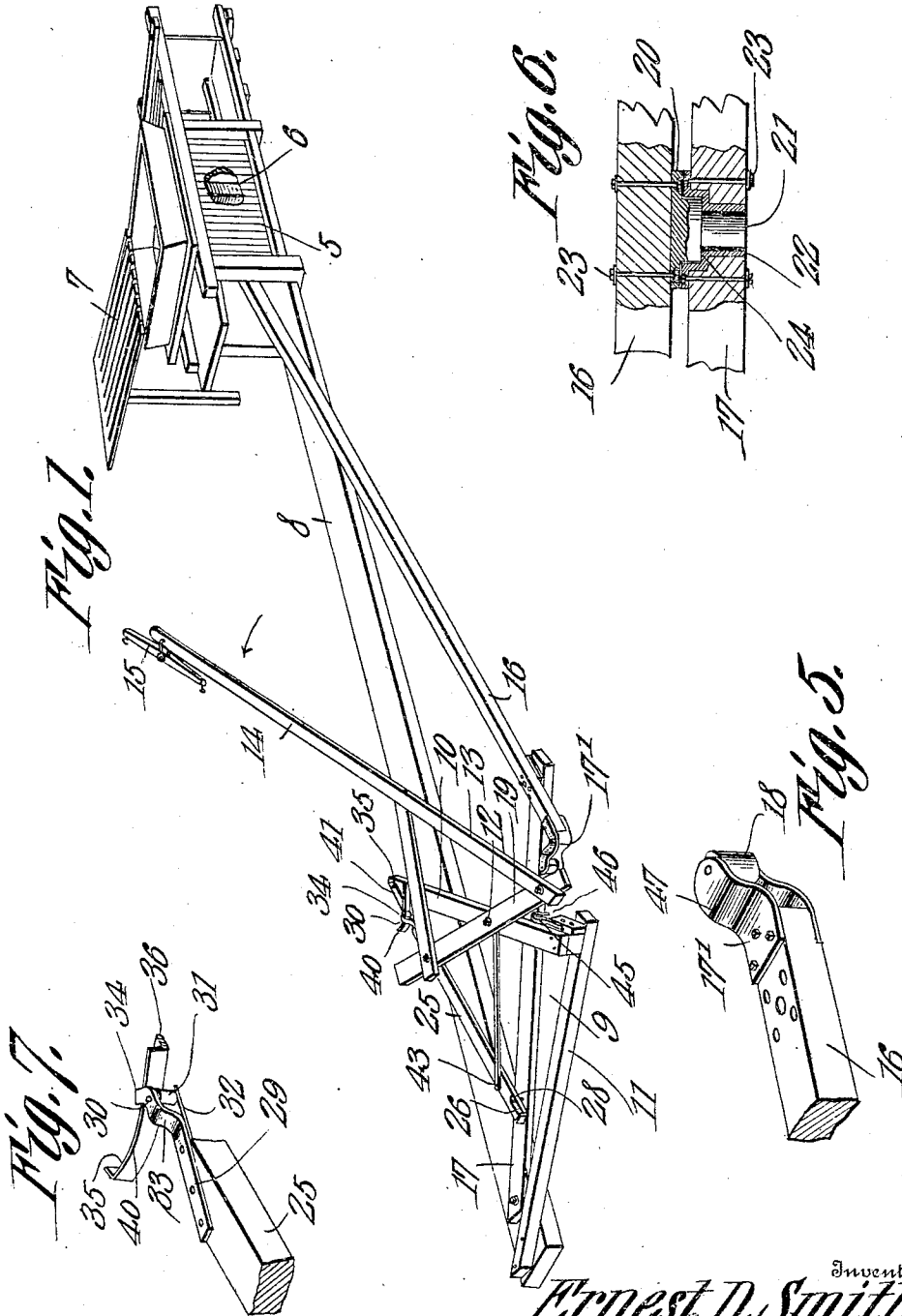
E. D. SMITH.
BALING PRESS.

APPLICATION FILED FEB. 15, 1909.

948,529.

Patented Feb. 8, 1910.

2 SHEETS—SHEET 1.



Witnesses

E. D. Smith
L. H. Smith

Inventor
Ernest D. Smith.

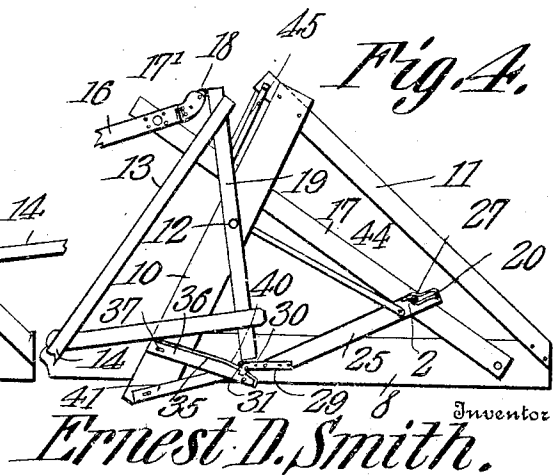
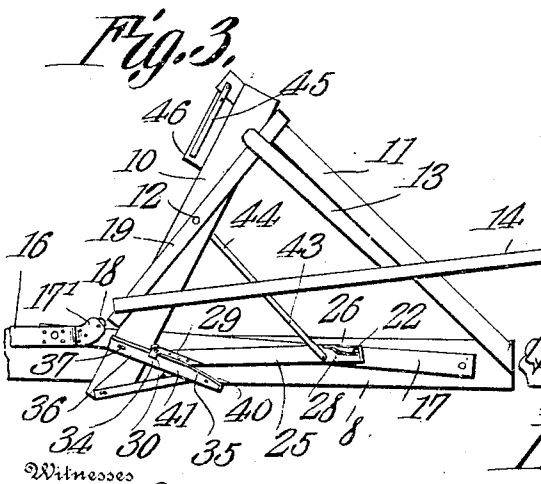
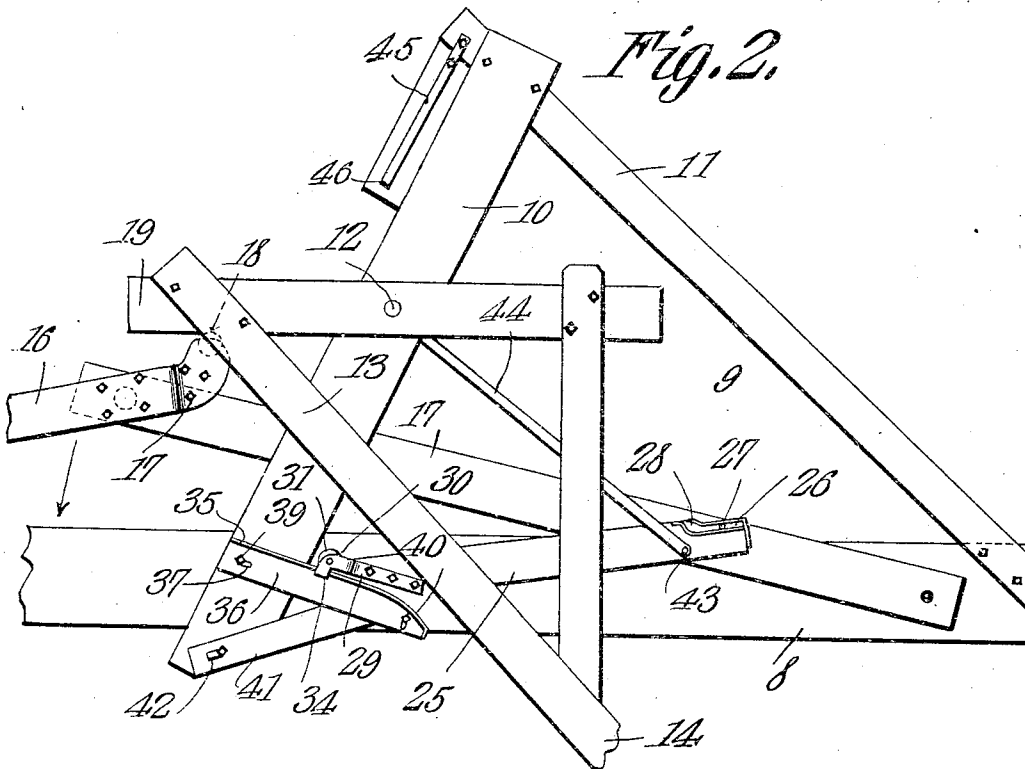
By *C. A. Snow & Co.*
Attorneys

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Witnesses
E. D. Smith
S. D. Macer

Inventor
Ernest D. Smith.
 By *Cadnow & Co.*
 Attorneys

UNITED STATES PATENT OFFICE.

ERNEST D. SMITH, OF LOCKHART, TEXAS.

BALING-PRESS.

948,529.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed February 15, 1909. Serial No. 477,987.

To all whom it may concern:

Be it known that I, ERNEST D. SMITH, a citizen of the United States, residing at Lockhart, in the county of Caldwell and State of Texas, have invented a new and useful Baling-Press, of which the following is a specification.

This invention relates to baling presses of that general class shown and described in United States Letters Patent issued to me on the 19th day of January 1904, under No. 750,232.

The object of the invention is generally to improve and simplify the construction of the plunger operating mechanism, whereby a maximum compression of the hay or other material is obtained with a minimum expenditure of power.

A further object of the invention is to provide improved means for automatically returning the toggle to retracted position after the plunger has been actuated to effect the compression of hay or other material in the press box.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification:—Figure 1 is a perspective view of a baling press constructed in accordance with my invention showing the plunger starting on its working stroke. Fig. 2 is an enlarged plan view showing the position assumed by the toggle as the plunger nears the completion of its working stroke. Fig. 3 is a similar view on a smaller scale showing the position of the operating levers at the completion of the working stroke. Fig. 4 is a plan view showing the toggle in retracted position. Fig. 5 is a detail perspective view of the pivoted end of one of the links of the toggle. Fig. 6 is a vertical sectional view showing the manner of connecting the pivoted ends of the toggle links. Fig. 7 is a detail perspective view of the plunger retracting arm and the guide therefor.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved operating mechanism forming the subject matter of the present invention may be used in connection with any

improved form of baling press and by way of illustration is shown in connection with a baling press of the ordinary construction in which 5 designates the compression box, 6 the plunger and 7 the table for feeding the hay or other material to the compression box.

The lower wall of the compression box 5 is extended beyond one end thereof to form a longitudinally disposed support 8 to the free end of which is rigidly secured a substantially tri-angular stationary frame 9 including intersecting bars 10 and 11.

Pivotally mounted at 12 on the bar 10 of the stationary frame is a horse-power 13, also preferably tri-angular in shape and provided with a sweep 14 carrying a swingletree 15 for attachment to a draft animal. Pivotally connected with the plunger and free end of the support 8, respectively, are co-acting toggle links 16 and 17, the inner end of one of which is projected beyond its adjacent pivot and provided with an offset portion or arm 17' having a roller 18 journaled therein and arranged in the path of movement of the projecting ends or arms 19 of the horse-power 13, thereby to move the toggle to projected position and effect the compression of the hay or other material in the box 5 when the horse-power is rotated. The inner or over-lapped ends of the links 16 and 17 may be pivotally connected in any suitable manner, but it is preferred to connect the same in the manner shown in Fig. 6 of the drawings in which one of said links is shown provided with a plate 20 having a depending pin 21 arranged to enter a socket 22 in the adjacent link. The plates 20 are secured to the adjacent faces of the links 16 and 17 by bolts or similar fastening devices 23, while the pin 21 is provided with an offset portion or shoulder 24 which bears against a correspondingly shaped seat formed in the socket member 22, thereby to limit the downward movement of the pin. Thus it will be seen that as the sweep 14 is revolved the projecting portions or arms 19 will successively engage the roller 18 and project the toggle to effect the compression of the material in the box 5.

As a means for returning the toggle to retracted position after each compression of the material in the box 5, there is provided a lever or arm 25 having a casting secured to one end thereof and provided with an elongated slot 26 adapted to receive a pin

27 carried by the link 17, the walls of the slot 26 being bent laterally to form an offset pocket 28 adapted to receive the pin 17 when the toggle is moved to retracted position, as best shown in Fig. 4 of the drawings. To the other end of the plunger retracting arm or lever 25 is rigidly secured a plate 29 having its free end bent upwardly and provided with a bearing 30 for the reception of the adjacent end of a roller 31, the opposite end of said roller being journaled in a plate 32 disposed in spaced relation to the extension 30.

The free end of the plate 29 is bent downwardly to form a depending guide lip 34 which bears against the inner face of a guide flange 35 of an adjustable plate 36. The plate 36 is provided with elongated slots 37, preferably disposed at right angles to each other and which receive bolts or similar fastening devices 39 by means of which the plate may be adjustably secured to the bar 10 and support 8, respectively. The free end of the flange 35 is curved or deflected laterally at 40 so as to permit the roller 31 to assume the position shown in Fig. 4 of the drawings, when the toggle is moved to retracted position. The plate 36 is preferably reinforced and strengthened by the provision of an auxiliary plate 41 which extends laterally from one side of the plate 36 and is adjustably secured to the member 10 of the stationary supporting frame, the slots 37 in the main plate 36 and the slots 42 in the auxiliary plate 41 serving to permit adjustment of the flange 35 so that the roller 31 will always be in the path of movement of the arms 19 of the horse-power or sweep. Pivotally connected at 43 with the outer end of the plunger retracting arm 25 is a second plunger retracting arm 44, the opposite end of which is pivotally connected with the bolt or stud 12. In order to prevent unnecessary jar or vibration of the machine when the toggle is returned to retracted position a buffer 45 is provided, this buffer being preferably in the form of a spring, the free end of which is provided with a downwardly inclined hook 46 which extends in the path of movement of the toggle link 17 and which acts as a cushion or buffer to prevent unnecessary jar, as before stated. Thus it will be seen that when the parts are in the position shown in Fig. 1 of the drawings and an initial rotary movement is imparted to the sweep in the direction indicated by the arrow in said figure, the arm 19 will engage the roller 18 and force the toggle links 16 and 17 inwardly in the direction of the support 8 and to the position shown in Fig. 2 of the drawings, a further rotary movement causing the arm 19 to move the links to a position substantially in alinement with each other, as best shown in Fig. 3 of the drawings, thereby

to effect the compression of the hay or other material in the box 5.

As the horse-power or sweep approaches the position shown in Fig. 3 of the drawings, the roller 18 will be disengaged from the adjacent arm 19, while the latter will bear against the roller 31 and move said roller together with the arm 25 to the position shown in Fig. 4 of the drawings, thus exerting a lateral pressure on the toggle and moving the latter to retracted position and in the path of movement of the adjacent arm 19 of the sweep or horse-power so as to be again actuated to compress the material in the press-box when a further rotary movement is imparted to the sweep.

From the foregoing description it is thought that the construction and operation of the device will be readily understood by those skilled in the art and further description thereof is deemed unnecessary.

Having thus described the invention what is claimed is:—

1. The combination with a baling-press including a compression box and plunger, co-acting toggle links, one of which is pivotally connected to a fixed point and the other operatively connected with the plunger, the plunger carrying link being extended laterally beyond its pivotal connection with the adjacent link to form an arm having a roller journaled thereon, a horse-power having a plurality of arms arranged to engage the roller to project the toggle links and effect the compression of the material in the box, co-acting plunger retracting arms, means carried by one of said arms for retracting the toggle links after the compression of the material has been effected, and a buffer adapted to receive the impact of the adjacent toggle link when the latter is moved to retracted position.

2. The combination with a baling-press including a compression chamber and plunger, of a support, a stationary frame secured to the support, co-acting toggle links, one of which is pivotally connected with the support and the other pivotally connected with the plunger, one of said toggle links being provided with a laterally extending arm beyond the pivotal connection of the links, a horse-power mounted for rotation on the stationary frame and arranged to engage the said arm and project the toggle links to effect the compression of the material in the chamber, pivotally connected plunger retracting arms, one of which is operatively connected with one of the toggle links, the other retracting arm being connected with the pivotal axis of the horse-power, and means carried by one of said arms and actuated by the horse-power for moving the toggle links to retracted position.

3. The combination with a baling-press including a compression chamber and plun-

ger, of a support, toggle links operatively connected with the support and plunger, respectively, one of said links being provided with a laterally extending arm, a substantially tri-angular horse-power arranged to engage the said arm and project the toggle links to effect the compression of the material in the chamber, a guide, pivotally connected plunger retracting arms operatively connected with one of the toggle links, one of said retracting arms being connected with the horse-power, and means carried by the other retracting arm and bearing against the guide for engagement with the horse-power, thereby to move the toggle links to retracted position.

4. The combination with a baling-press including a compression box and plunger, of a support, toggle links pivotally connected with the support and plunger, respectively, a horse-power mounted to engage and move the toggle links to projected position, a plunger retracting arm having a slot formed in one end thereof, a pin carried by one of the toggle links and extending within the opening in the slot, a second retracting arm pivotally connected with the first mentioned arm and pivotally connected with the horse-power, and means carried by the first mentioned retracting arm and actuated by the horse-power to return the toggle links to retracted position.

5. The combination with a baling-press including a compression box and plunger, of a support, co-acting toggle links pivotally connected with the frame and plunger, respectively, a horse-power mounted to engage and move the toggle links to projected position, a guide plate secured to the support and provided with a flange, a plunger retracting arm having a slot formed in one end thereof, a plate secured to the other end of said arm and having a roller journaled thereon, said plate being provided with a depending lip arranged to bear against the flange on the guide plate, a pin extending laterally from one of the toggle links and operating within the slot, and a

second retracting arm pivotally connected with the first mentioned arm and pivotal axis of the horse-power, respectively.

6. The combination with a baling-press including a compression box and plunger, of a support, co-acting toggle links pivotally connected with the support and plunger, respectively, a horse-power arranged to engage and project the toggle links, a guide provided with a laterally curved portion, a plunger retracting arm having one end thereof provided with a slot and its other end provided with a roller arranged to bear against the guide, and a second plunger retracting arm pivotally connected with the first mentioned arm and the horse-power, respectively.

7. The combination with a baling-press including a compression box and plunger, of a support, toggle links connected with the support and plunger, respectively, a guide plate adjustably mounted on the support and having one edge thereof bent to form a vertically disposed flange having a laterally curved portion, a horse-power arranged to engage the toggle links and move the latter to projected position, a plunger retracting arm having a casting secured to one end thereof and provided with an elongated slot, the walls of which are offset at one end thereof, a pin secured to one of the toggle links, and operating within said slot, a casing secured to the opposite end of the retracting arm and provided with a depending lip bearing against one side of the flange of the guide plate, a roller journaled in said casing and bearing against the opposite side of said flange, and a second retracting arm pivotally connected with the first mentioned arm and the pivotal axis of the horse-power, respectively.

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

ERNEST D. SMITH.

Witnesses:

J. S. SMITH,
GEO. W. BAKER.