

(No Model.)

2 Sheets—Sheet 1.

J. A. STOKELY.
HAY PRESS.

No. 524,771.

Patented Aug. 21, 1894.

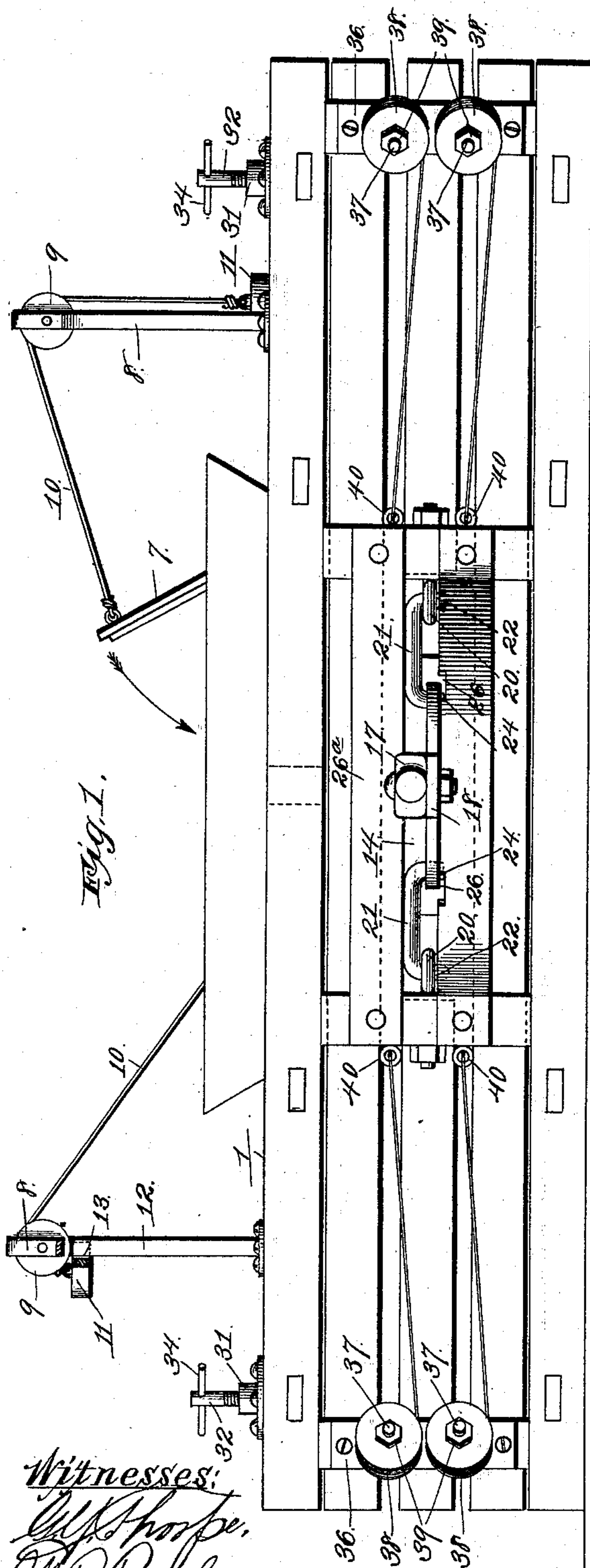


Fig. 1.

Witnesses:
W. P. Thorpe,
M. R. Remley.

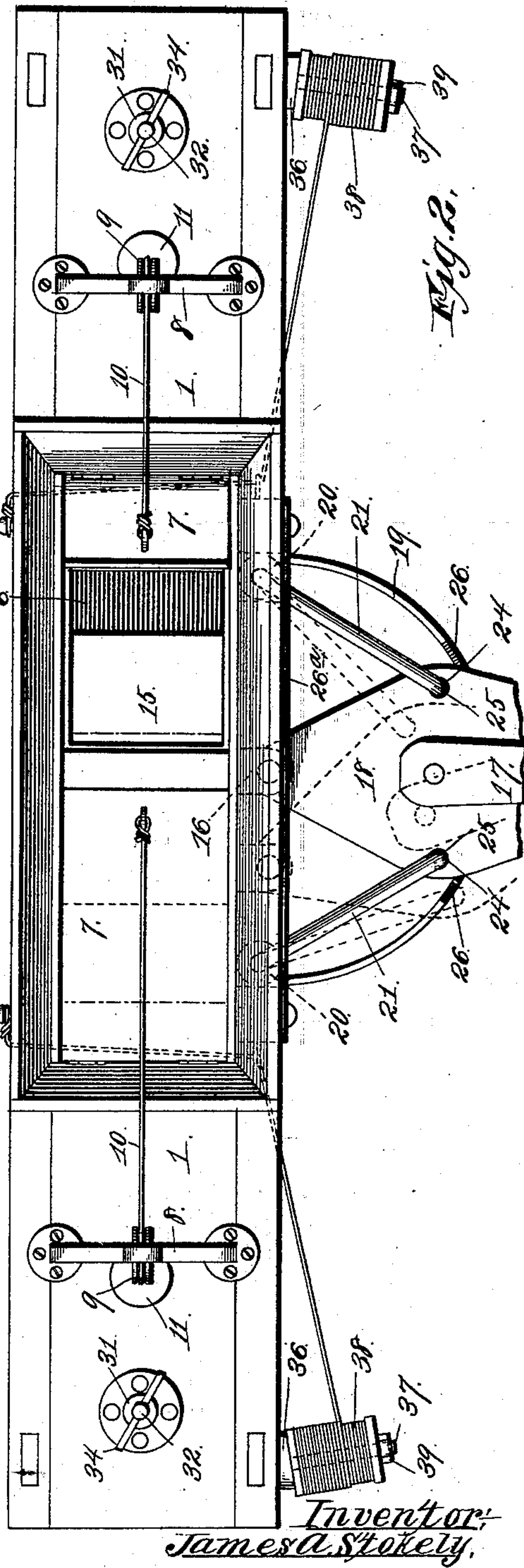


Fig. 2.

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By *Higdon & Higdon*
Attys.

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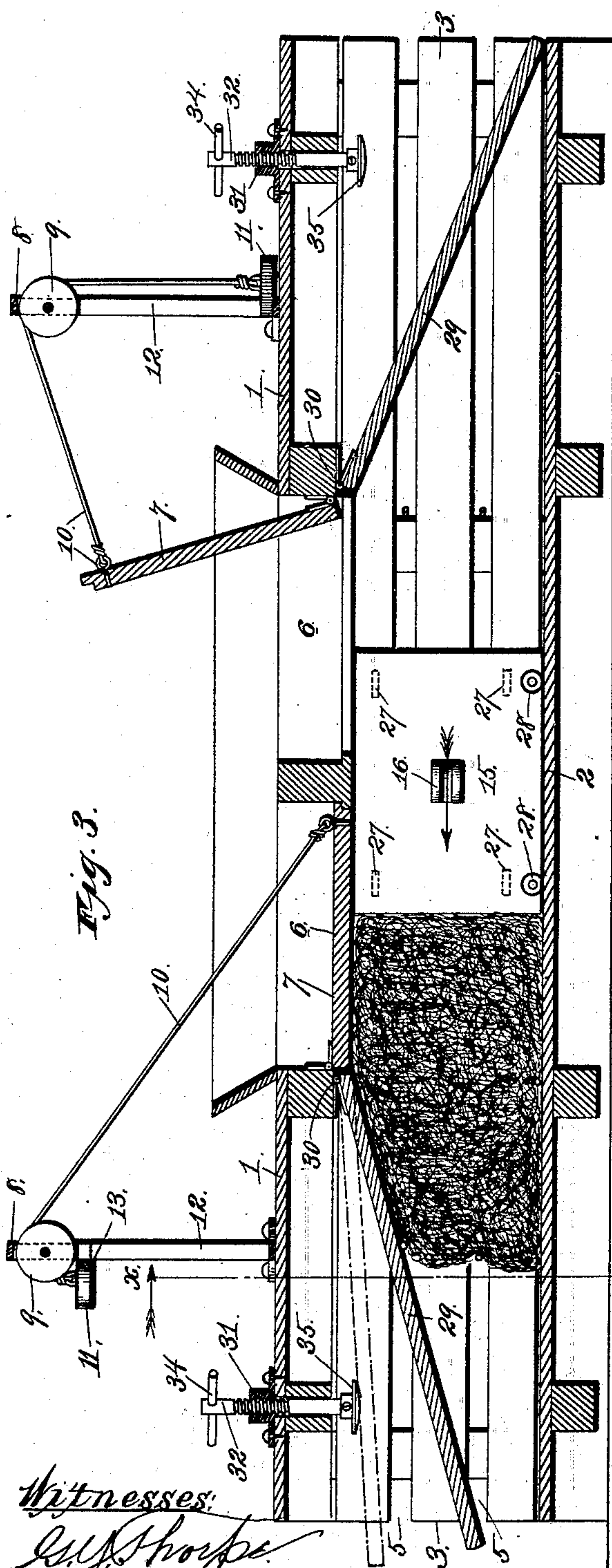


Fig. 3.

Witnesses:
C. J. Thorpe
M. R. Remley

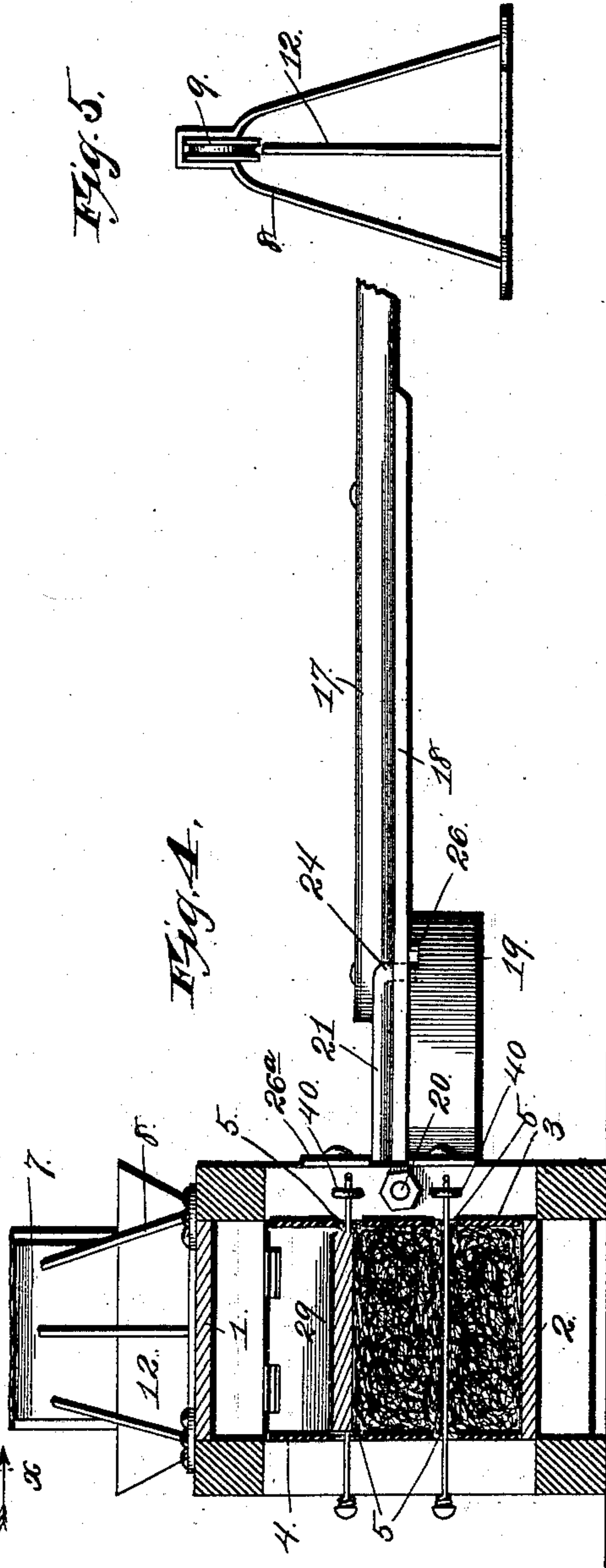


Fig. 4.

Inventor:
James A. Stokely.
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UNITED STATES PATENT OFFICE.

JAMES A. STOKELY, OF KANSAS CITY, MISSOURI.

HAY-PRESS.

SPECIFICATION forming part of Letters Patent No. 524,771, dated August 21, 1894.

Application filed January 19, 1894. Serial No. 497,371. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. STOKELY, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Hay-Presses, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to that class of hay-presses in which a plunger is reciprocated to form a bale at each movement, and has for its primary object to produce a machine of this character wherein the full stroke and greatest power of the plunger is obtained with the minimum movement of the lever; thus economizing in time and labor by lessening the distance to be traveled by the draft-animal attached to the lever.

Other objects of the invention appear in the following description, and are pointed out particularly in the appended claims.

Referring to the drawings which illustrate this invention: Figure 1. is a front side elevation of a hay-press constructed in accordance with my invention. Fig. 2. is a top plan view of the same. Fig. 3. is a central vertical longitudinal section of the same, showing the plunger in elevation. Fig. 4. is a vertical transverse section, taken on the line $x-x$ of Fig. 3, and looking in the direction indicated by the arrows. Fig. 5. is a detailed view of one of the guide-roller supporting brackets.

In the said drawings, a hay press of the usual elongated rectangular form comprises the top 1, the bottom 2, and the front and rear sides 3 and 4, respectively. These sides are skeleton in form, being composed of a series of metallic strips or bars arranged or spaced so as to form the longitudinal and parallel slots 5, the object of which is hereinafter explained.

The press comprises two baling-chambers, and is provided with two openings 6, in its top, through which the hay to be pressed is introduced into the baling-chamber. These openings are provided with the hinged doors 7, which are alternately closed and opened during the operation of the machine, as hereinafter referred to. Secured vertically upon the top of the doors and outward of each door-opening, are brackets, 8, and journaled in the upper end of the same are grooved guide-pul-

leys 9. A cord 10 is attached to each door 7 near its free margin and extending upwardly and outwardly over their respective guide-pulleys 9, carry upon their outer ends the counterbalance weights 11. These weights are adapted to hold the doors 7 in an opened position, normally. In order that these weights 11 may be guided in their movements, the brackets 8 are each provided with the centrally located and vertical guide-bar 12, and these guide-bars 12, are embraced by the bifurcation 13 of the weights 11.

For a suitable distance each side of the center of the press, the middle strip or bar, of the series forming the front side, is dispensed with, so as to form a longitudinal and horizontal slot 14, between the middle portion of the upper and lower strips or bars of the said series, and projecting forwardly through this slot 14, is the bifurcated casting 16, of the plunger 15, which reciprocates to the right and left of the center of the press.

17 designates the lever, to which the draft-animal is attached, and the rear portion 18 of this lever, comprising a flat plate or bar, is pivotally connected to the bifurcated casting 16, of the plunger. In order to provide a support for this lever, a segmental guide-plate 19 is provided, and this segmental guide-plate is bolted or otherwise rigidly secured to the front side of the press, and below the portion 18 of the lever. Secured to the press at each end of the slot 14, is an eye-bolt 20, and these eye-bolts are pivotally engaged by vertically depending hooks 22 of the horizontally arranged rods 21. These rods converge outwardly, and are provided at their outer ends with depending hooks 24, and these hooks 24, pivotally engage apertures 25, formed at equal distances from the longitudinal center of the lever. These rods 21 perform alternately the functions of a movable fulcrum and a guide, as hereinafter explained.

In order that the operation may be free, the segmental guide 19 is formed at equal distances each side of its center, with the notches or recesses 26, which allow of the passage therethrough of the lower ends of the hooks 24, which project below the portion 18 of the lever. If desired, however, these notches or recesses may be dispensed with, as it is not essential to project the ends of the hooks 24,

below the portion 18 of the lever: If desired, also, the hooks upon the rods 21 may be dispensed with, and the eye-bolts 20, and any ordinary pivotal connection may be substituted therefor. This construction is shown because it is about the cheapest and strongest connection that can be made. In order that the rods 21 may not become disengaged accidentally at their pivotal points, the plate 26^a is secured to the outer side of the press, and slightly above the said rods.

In order to have as little friction as possible, the rear side of the plunger is provided with antifriction rollers 27, which bear against the inner side of the upper and lower strips or bars. The plunger is also mounted upon a series of antifriction rollers 28, which travel upon the floor or bottom 2 of the hay press.

In order to increase or diminish the tension upon the bale being formed, the friction-plates 29 are provided, and these friction-plates are hinged at their inner ends at 30, adjacent to the outer or hinged ends of the doors 7. When the friction-plates 29, occupy a horizontal position, they lie in the same plane as the doors 7 when closed. A casting 31, is secured upon the top 1, of the press, a suitable distance from each end, and is provided with a vertical threaded passage, which is engaged by the threaded portion of a vertical rod 32. In order that these rods 32 may be turned, they are provided with handle-bars 34, at their upper ends, and are also provided at their lower ends, which project vertically downward into the baling-chambers, with stop-plates 35. These stop-plates, however, may be dispensed with if desired.

In the operation of forming a bale, the hay is forced outwardly by the plunger, and coming in contact with the under side of the friction-plate 29, causes the same to swing vertically upward, until its limit of movement in that direction is reached by contact with the stop-plate 35. It will be seen that this movement may be increased or diminished by the proper manipulation of the adjustable rod 32.

Secured vertically to the front side of the press, at each end, is a casting 36, and projecting outwardly from each casting, and in the same horizontal plane as the slots 5, are cylindrical rods 37.

A spool of wire 38 is mounted rotatably upon each rod 37, and is retained thereon by a nut 39. The wire from these spools is carried inwardly and passed through the guide-loops or eyes 40 at the inner end of the slots 5. It is thence carried transversely through the baling chambers, and also through the oppositely disposed slots 5 at the rear side of the machine, and is secured to a pin or other suitable projection. By this arrangement an automatic or self feed of the baling-ties is obtained because, as the hay is forced outward by the plunger to form a bale, it first comes in contact with the transversely extending

portions of the wire, as shown clearly in Fig. 3, and, forcing the same outward, causes the spools to rotate upon the rods 37 to pay out sufficient wire to form a complete tie.

In the operation of the machine, one of the doors 7 is depressed or closed, and the operator standing thereon forks the hay through the other opening and in advance of the plunger. As soon as a sufficient quantity of hay is placed therein, and the plunger starts in the direction of the same, the operator closes the door and steps thereon, leaving the door upon which he previously stood free to be opened by its counterbalance weight. As the bale is being formed in said chamber the hay is forked through this open door into the opposite chamber. This operation is kept up until the desired number of bales has been formed.

The object in having the doors arranged to close and open thus is to prevent the hay forked into the chamber striking against the opposing shoulder at the outer end of the feed opening, or against the inner end or shoulder of the corresponding friction-plate 29.

In the operation of the machine it will be seen that the full stroke and a great leverage are obtained with the minimum amount of lever movement, because said lever is provided with a movable fulcrum. As the plunger moves toward the left, it fulcrums upon the hook 24 at the outer end of the rod 21 to the right of the lever, and the hook 24 of the companion rod 21, at the left of the lever, performs the function simply of a guide, and holds the lever against its fulcrum. As the plunger moves to the right, the hook 24 at the outer end of the rod 21, at the left of the lever, becomes the fulcrum, and the hook 24 of the rod to the right becomes the guide. As the plunger moves to the left, the rods 21 pivotally operate in the same direction; and as the plunger moves to the right the rods 21 also follow the same course.

Because the fulcrum of the lever moves in the same direction as the plunger, it will be apparent that the distance traversed by the lever will be less than if the fulcrum point were permanently fixed.

From the above description, it will be seen that I have produced a hay press that is simple, strong, durable and inexpensive of construction, wherein the power mechanism is direct and positive in action, and obtains the maximum movement of the plunger with the minimum of lever movement.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a hay press, the combination with a suitable frame a plunger, and a lever pivotally connected thereto, and a support for said lever carried by the machine, of a rod pivotally connected to the machine and pivotally connected to the lever to form a fulcrum for the same, substantially as set forth.

2. In a hay-press, the combination with a

5 suitable baling-frame having a longitudinal slot in its front side, a plunger having a casting projecting through said slot, and a support carried by the frame, of a lever resting upon said support and pivotally connected to the casting of the plunger, and a pair of rods pivotally connected to said frame at opposite sides of its center, and converging forwardly, and pivotally connected to the said lever at

opposite sides of its longitudinal center, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES A. STOKELY.

Witnesses:

G. Y. THORPE,
M. R. REMLEY.