H. F. Hicks,

Hay Press.

No. 48,487. Patented June 27, 1865.

Fig. 1.

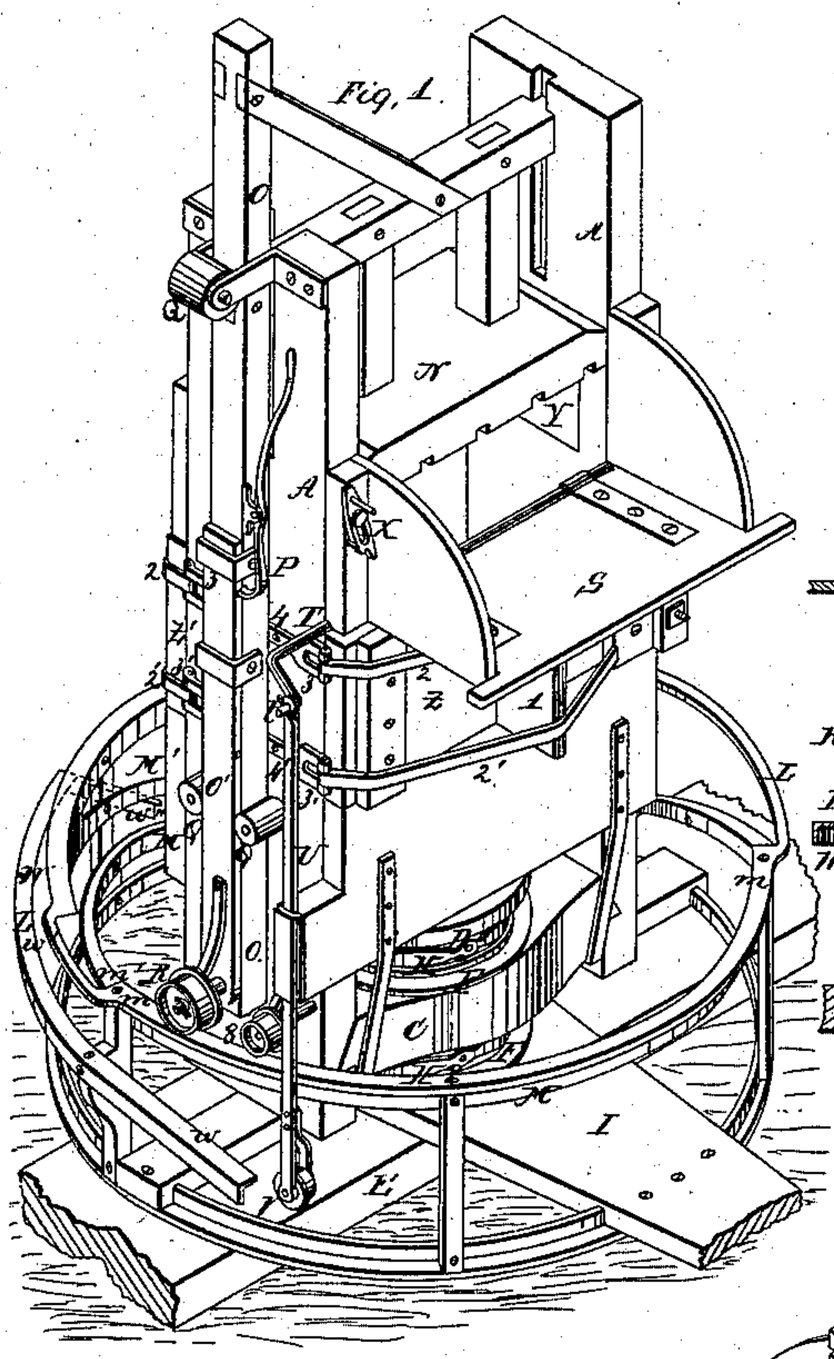


Fig. 2.

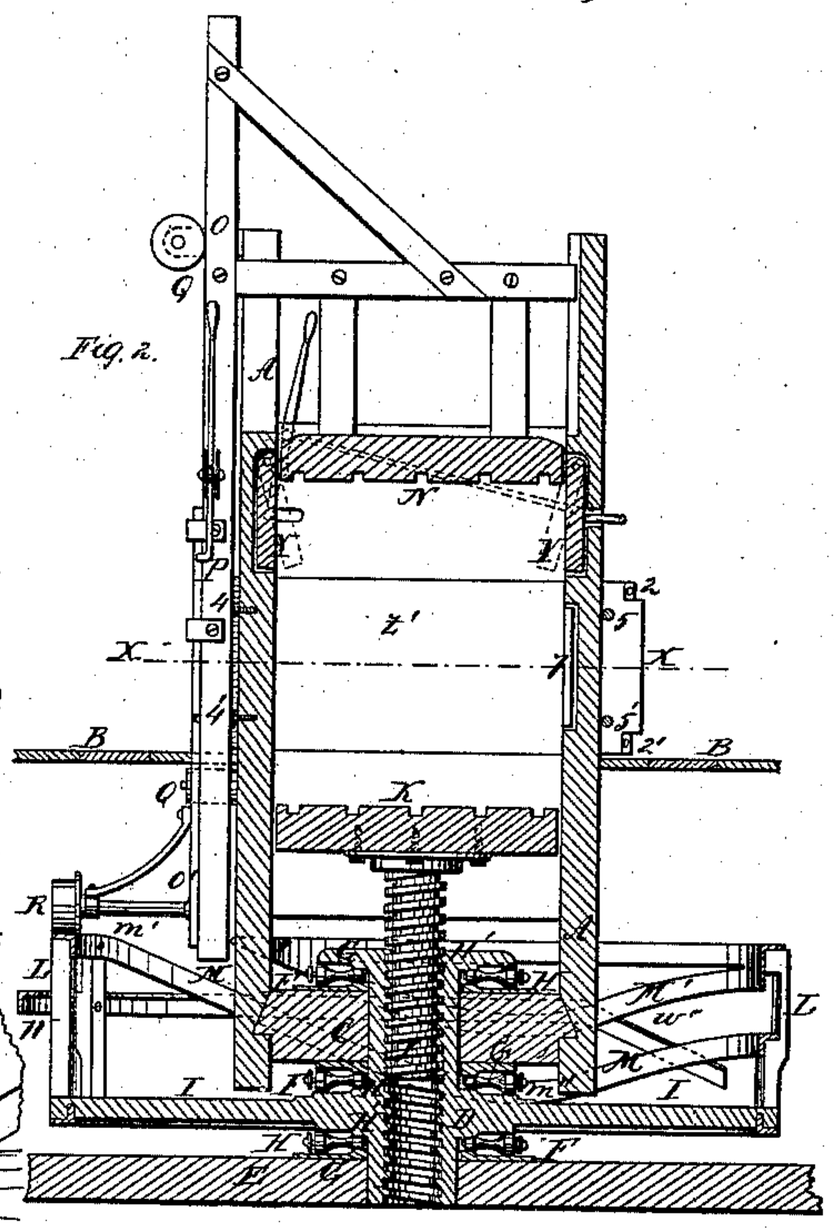


Fig. 4

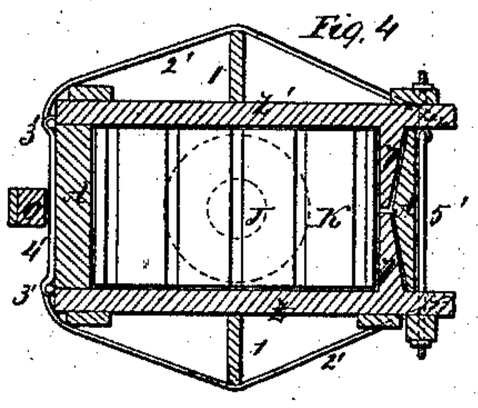
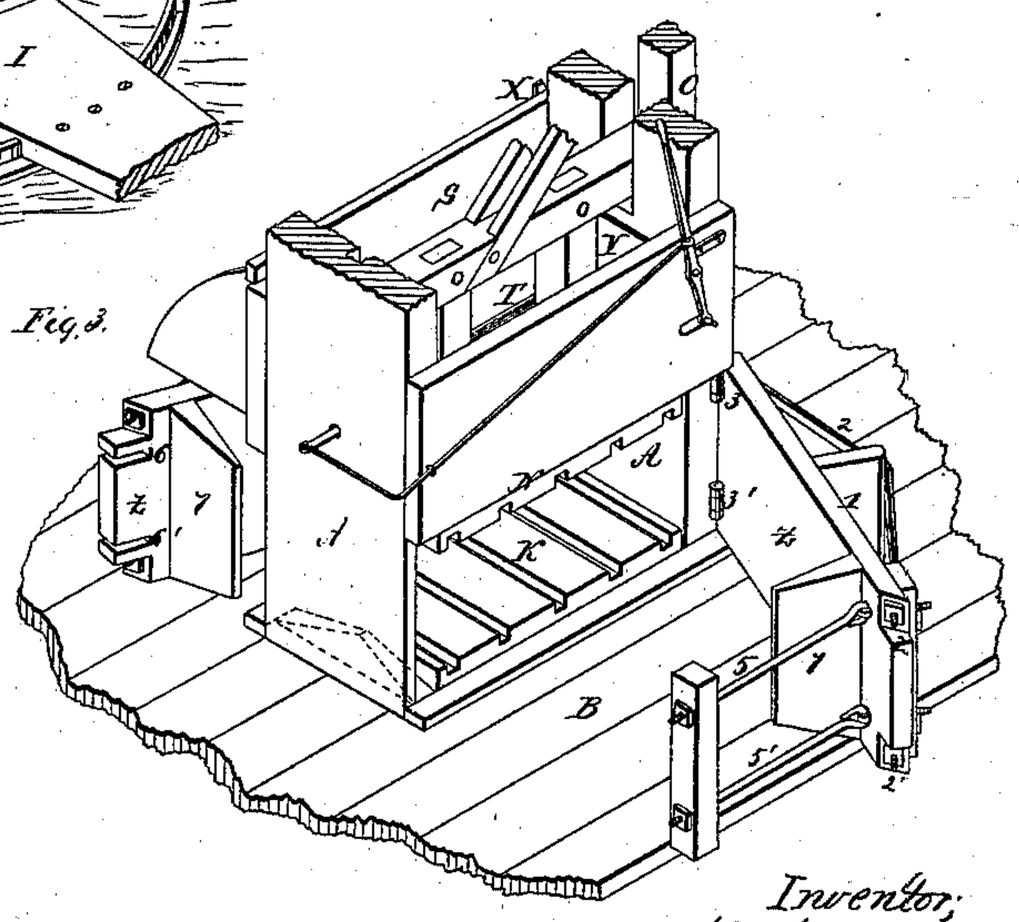


Fig. 3.



Witnesses;
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UNITED STATES PATENT OFFICE.

HORATIO F. HICKS, OF GRANDVIEW, INDIANA, ASSIGNOR TO HICKS BROTHERS, OF SAME PLACE.

IMPROVEMENT IN BALING-PRESSES.

Specification forming part of Letters Patent No. **48,487**, dated June 27, 1865.

To all whom it may concern:

Be it known that I, HORATIO F. HICKS, of Grandview, Decatur county, Indiana, have invented a new and useful Baling-Press; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to the class of presses represented in patents granted me on the 20th of September, 1859, and on the 24th of July, 1860, which comprise a vertical baling-trunk whose upper head or packer is, during the operation of charging the trunk, elevated and depressed by a positive motion acting independently of the gravity of said head; and my present improvements consist, chiefly, in provisions for insuring greater efficiency, coupled with economy of power and labor in the acts of packing and baling, together with increased strength and the absolute rigidity of those portions of the trunk which impart to the bale its final form and dimensions.

Figure 1 is a perspective view of a press embodying my improvements, the same being in condition for packing. Fig. 2 is an axial section through the same. Fig. 3 represents a portion of my press viewed from the rear, the packer and follower being at their greatest approximation and the doors being thrown open. Fig. 4 is a horizontal section through that portion of the trunk in which the bale receives its final form and dimensions, indicated by the line *x x*, Fig. 2.

The trunk A is preserved from overturning and also from rotating on its axis by means of any customary platform, B, which platform may be a floor of a building. The trunk A has at its lower end a stout transom, C, having a circular aperture which receives a nut, D, whose lower end is guided and supported by a proper mud-sill and bed-plate, E. The said nut, transom, and sill have circular stepped collars or bosses F, between which are interposed double-headed rollers G, journaled in rings H and H′.

The nut D is rotated by means of a sweep or pole, I, and contains a main screw, J, which is firmly bolted to the under side of the lower head or follower, K, with which it rises and descends without revolving.

Attached to and revolving with the nut D is a cylindrical cage or frame, L, having a guide rail or cam, M, which for about one-third of the circuit of the cage is level, as at *m*, whence at *m′* it descends at first rapidly, gradually decreasing in its rapidity of descent until, from its greatest depression at *m″*, it winds upward with a steep acclivity to rejoin the level portion. Situated over the undulating portions of the rail M, and parallel therewith, is a second rail, M′.

The upper head or packer, N, has a stem, O O′, whose two sections, O and O′, are capable of being locked fast to each other, so as to form a single rod, by means of a catch, P. The stem O O′ is guided to a vertical path by means of rollers Q, journaled to the trunk-frame.

The stem O O′ carries at its lower end a roller, R, which, in course of the circuit of the nut D and cage L, reaching the declined portion *m′* of the rail M, permits the packer N to drop at first by its own gravity until, reaching a point where its continued descent would be arrested by the body of hay, the said roller R, passing underneath the rail M′, receives thereafter a positive propulsion downward, so as to compel the packer to descend by a force independent of its weight and to move farther and with greater force than would be obtainable from the mere momentum of the descending packer.

Having reached the bottom of its stroke, the roller R, at first slowly and afterward rapidly, ascends under the action of the cam M M′ until it reaches the level portion *m*, which acts to sustain the packer in an elevated position long enough to permit charging of the trunk with a fresh batch of hay.

The feed-door S is hinged to the trunk by means of a crank-shaft, T, from whose wrist *t* depends a rod, U, having a roller, V, at its lower extremity, which, at a portion of the circuit of the cage corresponding to the descent of the roller R, impinges on the ascending portion *w* of a cam, W, and acts to close the feed-door, its level portion *w′* holding said door shut while the packer is descending, and its descending portion *w″* permitting the said door to quietly reopen.

During the above-described movements the main screw J operates to slowly and uniformly depress the follower K until the latter reaches the bottom of the trunk. The attendant now

closes the feed-door by means of the catch X and disengages from each other the parts O and O of the packer-stem and secures the packer N by means of the keys Y, which preparations having been made, the sweep is rotated in the reverse direction, causing the follower K to ascend and to compress the bay into the form and dimensions of a bale.

I avoid the irregular bulging contour of ordinary pressed bales, and by the same means increase the durability of my press, by providing the baling-doors Z Z′ with struts 1 at their mid-lengths, which struts support bridge-rods 2 2′, whose rear ends become parts or members of the hinges 3 3′, whose stationary portions or members 4 4′ are secured to and extend entirely athwart one side of the trunk, and become at their other ends the corresponding members of the hinges of the other bale-door, Z′. Similar rods, forming a stirrup, 5 5′, are hinged to the free end of the said bale-door Z′, and, engaging in notches 6 6 in the free edge of the bale-door Z′, operate to entirely surround with a cordon of hoops or bands the portion of the trunk which is subjected to the greatest strain, while the system of struts and bridging effectually prevents any bulging of the doors Z Z′, because the greater the bursting or bulging force the more tightly the rods become drawn.

In order to enable the hooped bale to be easily removed from the press, I provide on the free ends of the bale-doors wings 7, whose upper and lower edges and sides next the trunk taper inward. The effect of the wings 7 is to leave a space between the end of the bale and the trunk side by the mere act of throwing open the bale-doors, so as to facilitate the removal of the bale when hooped.

8 is a roller to receive the upward stress of the revolving cage as the packer reaches its extreme pressure.

I claim herein as new and of my invention—

1. The revolving cage or cam operating to automatically open and close the feed-door and to elevate and depress the packer by a force independent of its gravity, substantially as set forth.

2. The arrangement of nut D, sill E, transom C, collars F, rings H H′, and rollers G, for the support and easy operation of the press, as set forth.

3. The provision of the parts 1 1, 2 2, 3 3, 4 4, 5 5, and 6 6, or their equivalents, for the purpose explained.

In testimony of which invention I hereunto set my hand.

HORATIO F. HICKS.

Witnesses:

JAMES H. LAYMAN,

GEO. H. KNIGHT.