G. W. Hart,

Hay Press.

No. 51,043. Patented Nov. 21, 1865.

Fig. 1.

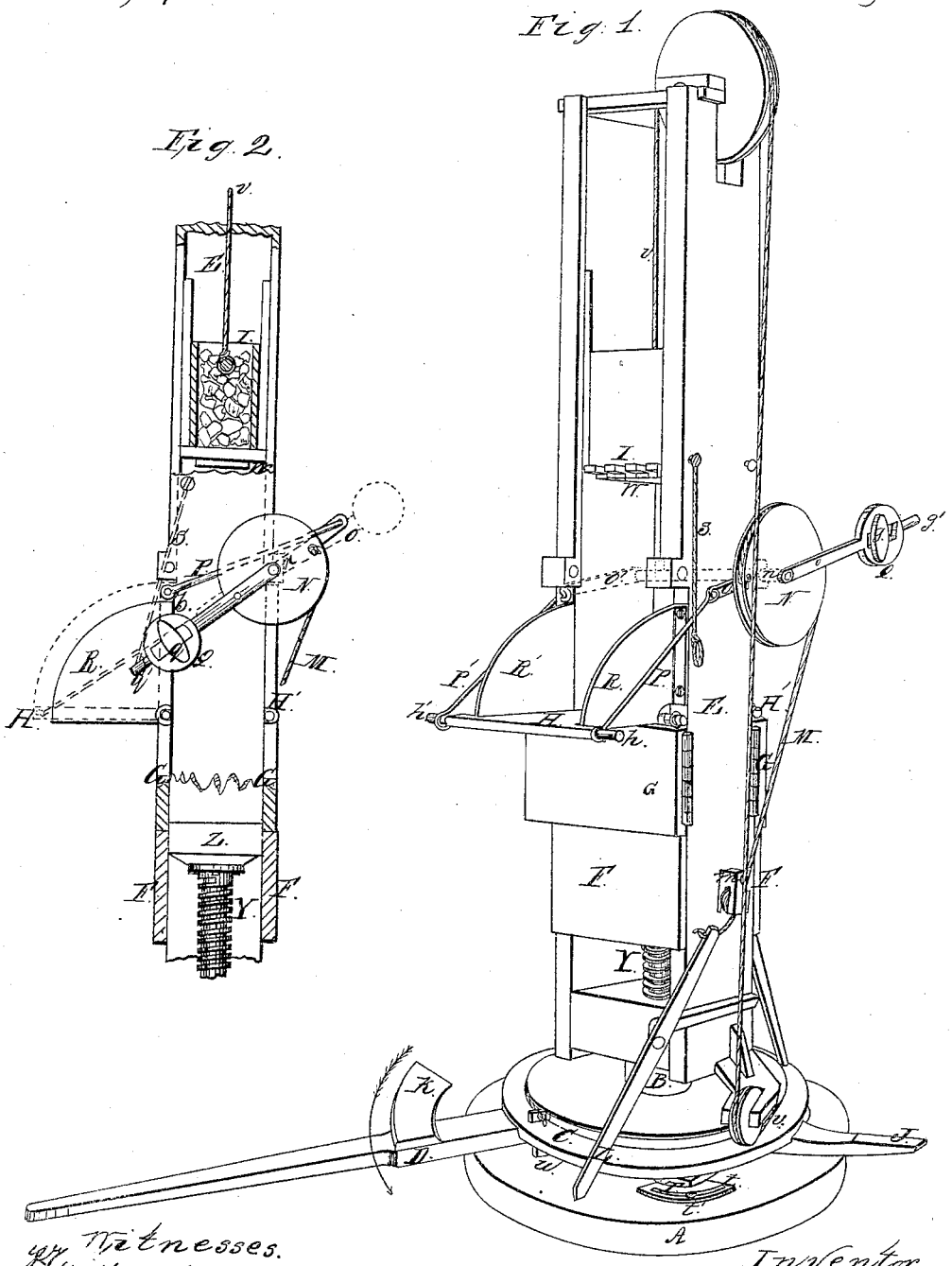

Fig. 2.

Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE W. HART, OF AURORA, INDIANA.

IMPROVEMENT IN BALING-PRESSES.

Specification forming part of Letters Patent No. **51,043**, dated November 21, 1865.

To all whom it may concern:

Be it known that I, GEORGE W. HART, of Aurora, Dearborn county, Indiana, have invented new and useful Improvements in Baling-Presses; 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 baling-presses which employ a packer or beater, and relates chiefly to certain improvements in said packer and in the construction and operation of automatic feed-doors.

Figure 1 is a perspective view of a machine embodying my improvements. Fig. 2 is a side elevation of a portion of the press, the packer being represented by vertical section.

A is a base or pedestal which supports and centers a massive column, B, to which are attached the tripper-wheel C and the sweep or tongue, D. The column B supports the entire frame E. The press-screw Y depends rigidly from the bottom of the follower Z, whose ascending and descending motions are derived from the simple ascent and descent, without rotation, of the said screw within a suitable nut properly secured to or within the column B.

The pressing-box is composed of the usual permanent sides F and doors G.

My feed-door H is automatically opened and closed once or more during the ascent of the packer I by the following means: J and K are arms of unequal breadth extending horizontally from the tripper-wheel C and sweep D, respectively, which arms, at each round or circuit of the team, engage a lever, L, from whose upper extremity proceeds a cord, M, which, being rove through a self-adjusting sheave-block, *m*, is attached to a wheel, N, from opposite ends of whose shaft *n* project two arms, O and O′, which are connected by pitmen P and P′ with wrists *h* and *h′* on the feed-door H. The instant that the packer is lifted from the hay the short arm J commences to close the feed-door H, and a charge of grain being at this moment fed in, the door, in the act of closing, discharges the said grain into the depressions made by the prints hereinafter described, when the door instantly falls open again to permit the introduction of the succeeding charge of hay or other long forage, and is closed and held shut by the comparatively broad arm K, while the packer descends upon the hay.

Q is a counter-balance having the adjustable weight, *q*, which acts to open the feed-door at the instant of relaxing the cord M, and subsequently acts to ease said door down to its lowest position.

R R′ are cheeks or plates in the form of quarter-circle segments, to prevent the escape of hay at the ends of the feed-door.

S is a looped cord, which, receiving the pin *q′* on the end of the counter-balance, serves to hold the feed-door shut during the operation of hooping the bale.

H is an alternative feed-door, which may be used in place of the feed-door H. When the alternative feed-door H′ is used, the feed-door H is closed fast and the parts N, *n*, O O′, P P′, Q, *q*, R R′ and S, are shifted to the other side of the machine.

The packer I is run up and liberated for its descent by means of a tripper, T, trigger *u*, and cord *v*, whose arrangement and construction may be essentially the same as in my patent for improvement in hay and cotton presses patented the 15th day of December, 1863, except that the tripper is made a substantial part of the machine by being attached to the pedestal, and is also made adjustable by the provision of a slot, *t*, and bolt *t′*, so as to enable the release of the packer to take place at the precise instant desired. The packer I is made in the form of a box, so as to be of light weight, and easily transported from place to place, and which, when desired for use, can be made of any desired weight by the insertion of rocks, old castings, or other heavy articles.

W are projections upon the sole of the packer for making depressions in each successive layer of fodder to receive grain, when it is desired to make a mixed bale or one composed both of long and of short forage.

My box-packer may be still further adapted to the formation of mixed bales by converting it into a self-discharging grain box or hopper.

For the manufacture of ordinary bales the packer may be divested of the prints W, so as to leave a flat sole or under surface to the packer.

Operation: A bale having just been released from the press and its place supplied with loose hay, and the follower being at its most ele-

vated position, (see Z, Fig. 2,) the team is started in direction of the arrow, so as to slowly depress the follower, and at the same time to commence to run up the packer. At the juncture the arm J, striking the lever L, acts to momentarily close the feed-door H, so as to conduct into the depressions that have been just made in the hay by the prints W whatever grain may have been deposited by the operator upon the said door. This done, the feed-door again opens, and the packer continuing to ascend and the follower to slowly descend a charge of hay or other long forage is thrown into the box, and the lever L being engaged by the wide arm K the feed-door is thereby a second time closed and held shut a sufficient time for the packer to descend and compress the hay and, by the same act to form depressions for the next charge of grain. A round or circuit of the team having been now made, the above operations are repeated, the follower all the time slowly descending until sufficient material has been inserted. The packer is then secured to its lowest position by any approved keys or latches, and the team being then reversed the main screw Y serves to elevate the follower Z, the packer serving as a fixed abutment. When the bale has been sufficiently compressed the feed-door is closed by hand and is held shut by engaging the pin q' in the loop S, and the doors G G′ being now opened, the bale is hooped. The team is then started a short distance in direction of the arrow, so as to slacken the pressure of the follower Z. The bale is removed preparatory to another fill.

It will be seen that in the open position of the door H, (see Fig. 1,) the counter-balance Q acts to nearly balance the said door, and that the same counter-balance and door, simultaneously approaching a vertical position, lose weight together.

It is also apparent that in the closed position of the door, (see Fig. 2,) the arms O O′ and the rods P P′ are brought nearly coincident or at a dead-point, so as to hold the feed-door H securely and tightly shut without severe strain on the cord M, and so as entirely to supersede the necessity of any latch or other positive fastening whose well-known liability to derangement has proved fatal to the use of self-closing feed-doors for baling presses.

It will also be perceived that the instant that the lever L drops from the arm K the first effect of the counter-balance Q is to start the door H promptly open, and that the said counter-balance then, by its weight acting in the other direction, opposes a too sudden falling open of the door.

The sheave-block m, being pivoted to the frame, accommodates itself to the stress of the rope M on whichever side the press is fed.

The hollow form of the packer I enables the saving of unnecessary weight in transportation, while admitting of any desired weight in use.

I claim herein as new and of my invention—

1. The mode of holding a self-operating feed-door shut by the arms O O, and rods P P′ at or near a dead-center in the described combination with the self-starting and counterbalancig arm Q.

2. The plurality of sweeps J and K of unequal width for operating a self-feeding door H to bale mixed forage, substantially as set forth.

3. The hollow packer provided on its under surface with projections or inequalities W, as specified.

4. The reversible parts M, N, n, O O′ P P′, Q, q q', R R, and S, in combination with the shifting sheave-block m, for operating either feed-door H, as set forth.

In testimony of which invention I hereunto set my hand.

GEORGE W. HART.

Witnesses:
JAMES H. LAYMAN,
GEO. H. KNIGHT.