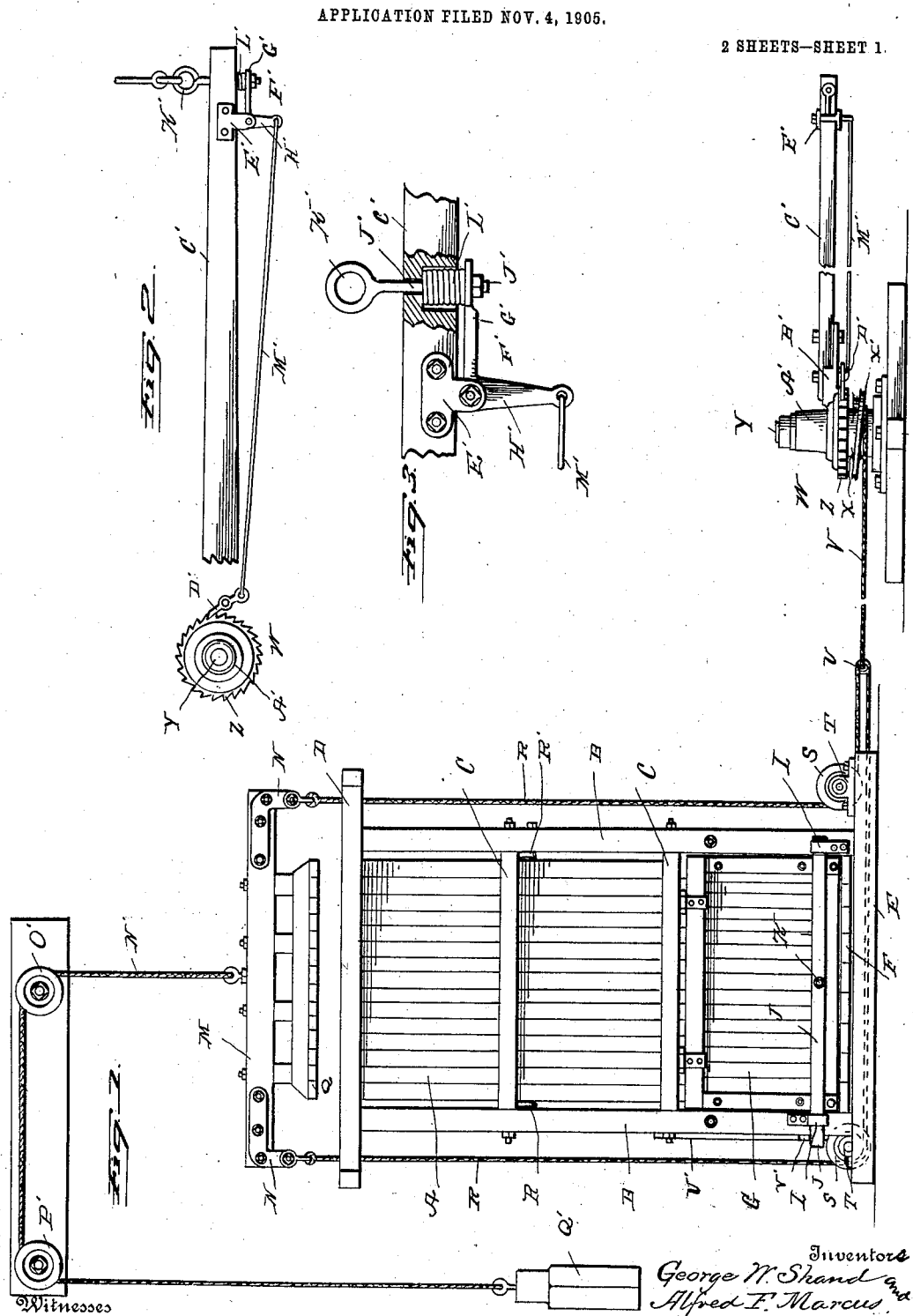
No. 833,753. PATENTED OCT. 23, 1906.

G. W. SHAND & A. F. MARCUS.

BALING PRESS.

APPLICATION FILED NOV. 4, 1905.

2 SHEETS—SHEET 1.



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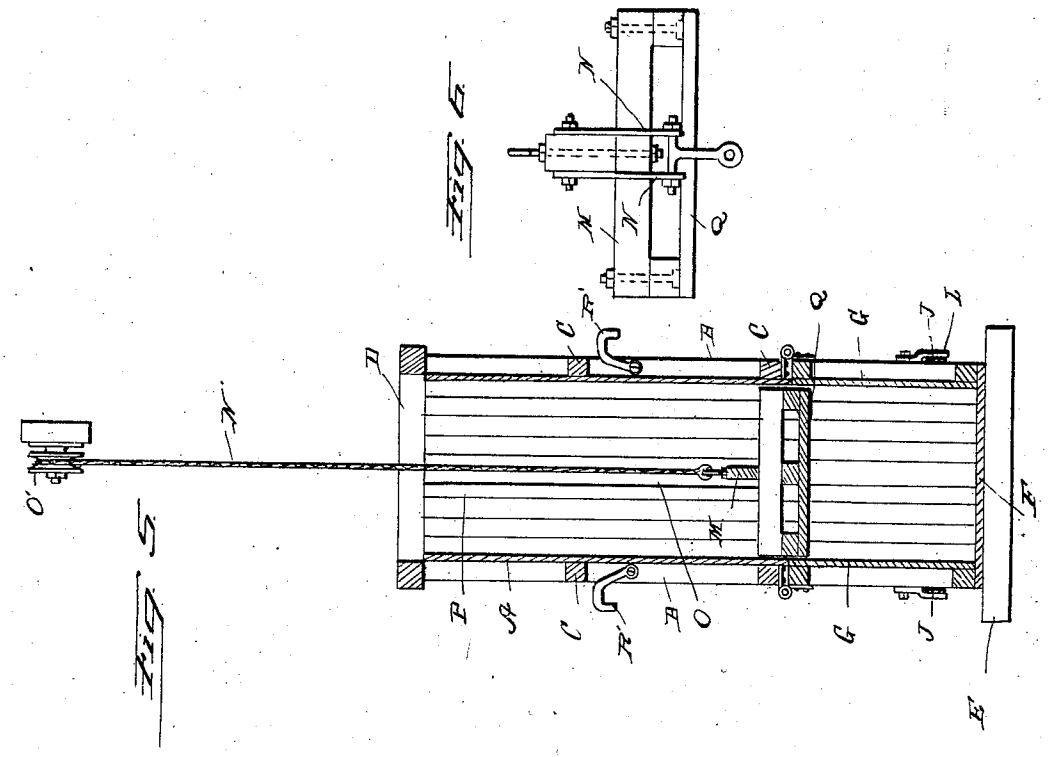


Fig. 5.

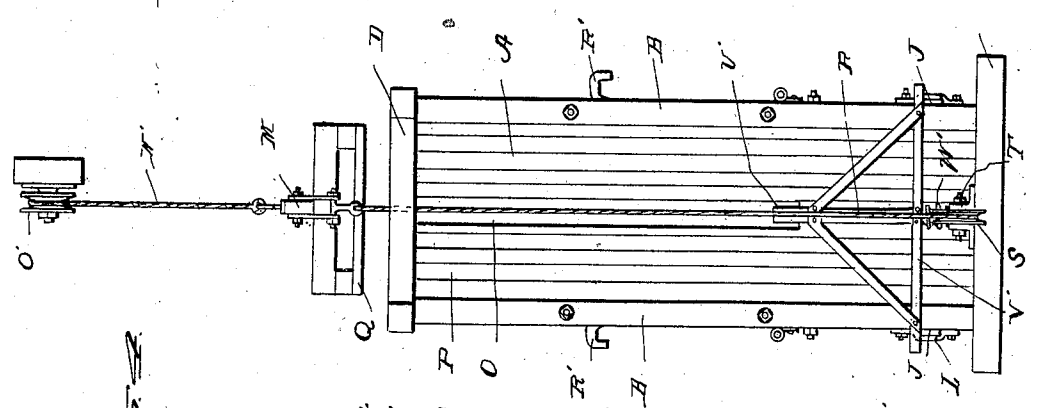


Fig. 3.

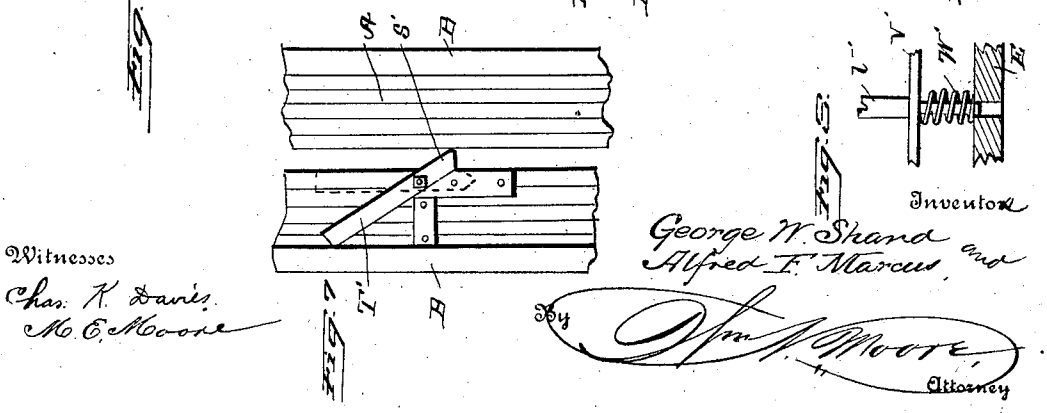


Fig. 4.

Fig. 7.

Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE W. SHAND AND ALFRED F. MARCUS, OF SALEM, OREGON.

BALING-PRESS.

No. 833,753. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed November 4, 1905. Serial No. 285,848.

To all whom it may concern:

Be it known that we, GEORGE W. SHAND and ALFRED F. MARCUS, citizens of the United States, residing at Salem, in the county of Marion and State of Oregon, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

Our invention relates to improvements in baling-presses, and refers to a press particularly adapted to the baling of hops and similar products.

The object of our invention is the provision of a baling-press which will be compact and very powerful in operation, and by the construction and arrangement of our device it will be shown that we provide a press in which a force on the follower of slight exertion produces a comparatively powerful pressure on the contents of the press.

With this and other objects in view our invention consists of a press having hinged doors on each side at the bottom thereof to allow removal of the bale, a follower adapted to reciprocate in said press, means for pulling the follower down in the press to form the bale, and means for automatically raising said follower when the bale is completed.

Our invention further consists in certain other novel features of construction and combination of parts substantially as disclosed herein.

Figure 1 is a side elevation of the complete apparatus embodying our novel features of invention. Fig. 2 is a broken top plan view of windlass and tongue with attachments. Fig. 3 is an enlarged broken detail view of connection of draw-bar and ratchet-operating lever. Fig. 4 is an end elevation of the device, showing the automatic door-releasing mechanism. Fig. 5 is a vertical central sectional view of Fig. 4 with the follower in position for pressing. Fig. 6 is an enlarged end view of the follower detached. Fig. 7 is a detail view of the automatic latch for holding the follower down. Fig. 8 is a detail view of the cushioning-spring for the door-releasing mechanism.

Our invention comprises the press proper, A, having the corner-posts B, and the cross-braces C, and at the top of the press is provided a framework D, forming a guideway for the follower. The corner-posts are secured upon parallel bars or strips E, which form a base to the structure, and between the corner-posts a platform F is provided, which forms the floor to the press.

At the bottom of the press doors G are secured by hinges H, and these doors cover the whole width of the press. The doors are hinged downward, and a bar J is centrally pivoted at K to the lower edge of the door and is adapted to have its ends engaged by the oppositely-disposed brackets L, secured to the corner-posts, and by this construction a simple and effective means for locking the door is provided.

The follower consists of the beam M, provided at its ends with the downward extensions N, and this bar is longer than the width of the press and is adapted to have its ends project through the longitudinal slots O, formed in the end walls P of the press. Centrally secured upon the follower-bar is the platform Q, which fits snugly in the press.

To the extensions on the ends of the follower-bar are secured the ropes or cables R, which pass over the pulleys S, mounted in journal-bearings T, secured to the base of the press. These pulleys are so placed that there is a straight downward pull on the cables. The cables pass over the pulleys and are led out at one side of the press and the double cable is joined at U to a single cable V.

A windlass W is secured at the proper distance from the press and is provided with a drum X, around which the single cable V is wrapped. This drum is loosely mounted upon the spindle Y, secured to the base of the windlass, and is provided at its upper portion with ratchet-teeth Z. A collar or sleeve A′ is mounted above the drum and independent thereof, and this collar is formed with an extension or arm B′, to which is fastened the sweep or tongue C′. Pivotally secured upon the under side of this extension is the ratchet-pawl D′, adapted to engage the ratchet-teeth Z of the drum. At the outer end of the lever or tongue a bracket E′ is secured, in which is pivoted the bell-crank F′, having the one arm G′ extending substantially parallel to the lever or tongue and having the other arm H′ projecting substantially at right angles thereto. To the arm G′ of the bell-crank is secured the eyebolt J′, having the eye K′ formed in the end thereof adapted to receive fastenings from the harness of the horse or other animal. The eyebolt J′ passes through the tongue, and

a spiral spring L′ is mounted on the rod and exerts its tension outward, tending to force the arm G′ of the bell-crank away from the tongue. A rod M′ is secured at one end to the arm H′ of the bell-crank and at the other end to the pawl D′, and from this construction it will be seen that when a pull is exerted on the eyebolt the pawl is brought into engagement with the ratchet-teeth, and the drum is revolved in the direction of pull; but as soon as the pull is released the spring forces the pawl out of engagement with the ratchet-teeth and the drum is free to unwind.

The drum of our windlass is of peculiar construction and is formed on the lower end with an extension X′, which forms a single rope-sheave of larger circumference than the rest of the drum, and this sheave is capable of holding only one convolution of cable and tapers down to the smaller circumference of the drum, as shown in the drawings. By means of this construction the follower is given a quick motion during the first part of the pull; but when the bale is nearly formed and the pressure becomes greatest the rope, winding on the smaller portion of the drum, imparts a slower movement to the follower, but gives it a greater force.

A cable N′ is secured to the follower so as to evenly balance the same, and this cable passes upward over a pulley O′ and thence downward over a pulley P′, and to the end of the cable a counterweight Q′ is attached.

From the foregoing description it will be evident that when a pull is exerted on the eyebolt the pawl is brought into engagement with the ratchet-teeth, and the drum may be rotated and the follower drawn down into the press until the hops or other material has been compressed into the proper-sized bale. As soon, however, as the pull is relieved the pawl automatically becomes disengaged and the counterweight returns the follower to its first position, and the operation of filling the press and forming the bale is repeated.

When the follower-bar has been drawn down far enough to make the bale the required size, it strikes the end of the upright bar U′, which has secured to its lower end the transverse rod V′. This rod engages the protruding ends of the locking-levers J and forces them downward, thereby releasing the doors. A spiral spring W′ is secured on the lower extended end of the bar U′ and serves to return it to its former position, when pressure is released on the bar. Latches R′ are secured to the press at the proper height above the doors, so that the doors may be secured in the open position.

The follower-bar in its descent engages the lower end S′ of the pivoted lever T′. It will be noted that the lower end of this lever projects over the slot in which the follower-bar fits, and the upper longer end of the lever rests against the corner-post of the press. When the follower-bar strikes this lever, it swings it to an upright position and allows the follower to pass, and when the follower has passed the lever falls back and forms a latch to hold it down. The follower is released by pressing on the upper end of the lever.

The ends of the follower-bar are provided with downward extensions, and the cables are attached to the lower ends of these extensions, thus insuring a pull which will be applied comparatively near the center of gravity of the follower. The force thus applied will cause the follower to move in a true vertical direction and compel the follower to exert its pressure uniformly over the contents of the press, thus forming a compact and evenly-constructed bale.

From the foregoing description, taken in connection with the drawings, it will be obvious that we provide a baling-press which will be simple and durable in construction, which may be operated with speed and efficiency, which accomplishes the objects herein set forth, and which is efficient and practical in every particular.

We claim—

1. A baling-press consisting of an inclosed pressing-chamber provided with hinged doors, a follower adapted to reciprocate in said chamber, a windlass adapted when operated to impart downward movement to said follower, connections between said windlass and follower, and releasing means on said windlass constructed so that when pull is released on the windlass, the tension is relieved on the connections, and a counterweight attached to and adapted to raise said follower.

2. The combination with a baling-press, of a reciprocating follower therein, of a windlass, a drum on said windlass provided with ratchet-teeth, connections between said follower and drum, a lever on said windlass, a pawl carried by the lever and adapted to engage with the ratchet-teeth when a pull is exerted on the lever, and means for raising said follower.

3. The combination with a baling-press, of a reciprocating follower therein, a windlass having a loosely-mounted drum provided with ratchet-teeth, connections between said follower and drum, a lever on the windlass carrying a pawl adapted to engage the ratchet-teeth, a rod carried by the lever and connected with the pawl for throwing said pawl into and out of engagement with said teeth.

4. A baling-press consisting of a pressing-compartment, a follower adapted to reciprocate in said compartment and means for operating the same, a door hinged to said press, and a cross-bar pivoted to said door, and means for locking the bar and door in closed position, means mounted on the press in en-

gagement with the locking means adapted to be contacted by the follower to release the locking means.

5. A baling-press consisting of a pressing-compartment having doors near the bottom thereof, means for locking said doors, a follower adapted to reciprocate in said compartment, means for releasing the locking means for the doors, said releasing means adapted to be operated by the downward movement of the follower.

6. A baling-press consisting of a pressing-compartment provided with lower doors, a follower adapted to reciprocate in said compartment, means for raising and lowering said follower, automatic means for securing the follower after it has compressed the bale and means operated by the follower to release the doors.

7. The combination with a pressing-compartment provided with hinged lower doors and having a follower therein, of a windlass connected with the follower provided with ratchet-teeth, a sweep carried by the windlass, a dog secured on the sweep and a trip-lever mounted on the sweep operating the dog to engage the ratchet-teeth.

8. The combination with a pressing compartment and a plunger adapted to reciprocate therein, hinged doors to the compartment, locking means on the doors, means for automatically releasing the doors when the plunger is lowered, and means for locking the plunger after it has descended.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE W. SHAND.
ALFRED F. MARCUS.

Witnesses:
GEORGE WATT,
N. B. BROWN.