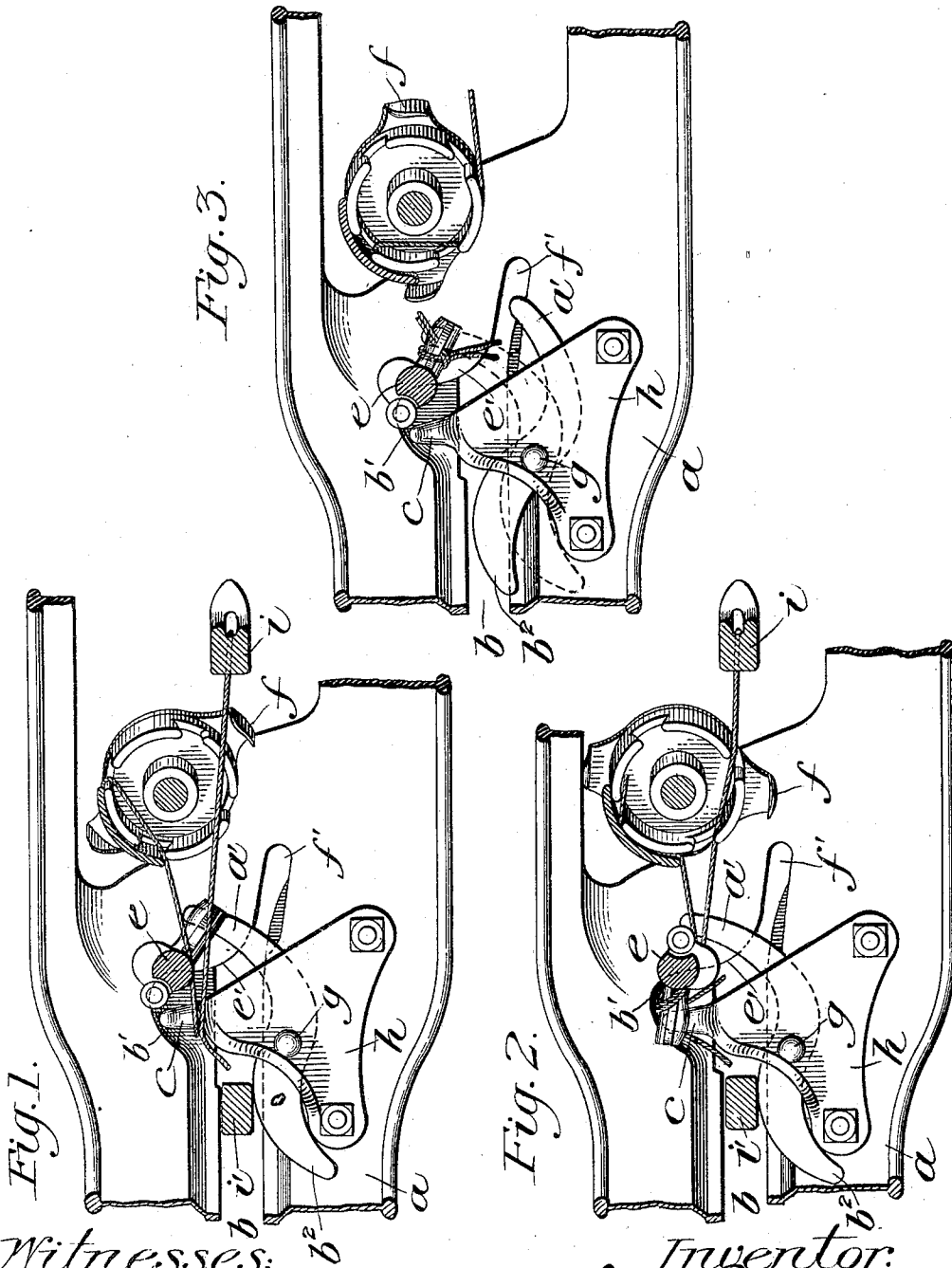


J. W. PRIDMORE.
GRAIN BINDER.

(Application filed Nov. 5, 1900.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN W. PRIDMORE, OF CHICAGO, ILLINOIS.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 697,750, dated April 15, 1902.

Application filed November 5, 1900. Serial No. 35,515. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. PRIDMORE, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Grain-Binders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to the knotting mechanisms of binders for grain, corn, and the like; and it has to do more especially with that type of knotters where the bill has only a single revolution in the act of tying the knot and stops with its jaws trending outwardly in the general direction of the discharge of the bundle, while the ejectors throw the bundle out of the binder and pull the completed knot off the tier-jaws.

The invention has been designed with a view to enhancing the efficiency of the knotter mechanism illustrated and described in the patent granted December 9, 1890, to the McCormick Harvesting Machine Company, as the assignee of Henry E. Pridmore, No. 442,544, when employed in machines for cutting and binding corn in the stalk. In these corn-binders, as is now well understood, the needle works in a horizontal plane and the corn goes into the binder with the stalks standing on end. Owing to these among other reasons, there is much greater liability of the outer strand being displaced and failing to be caught by the bill-jaws as the loop is completed than in machines for binding grain where the patented arrangement operates satisfactorily without the use of any device for closing the outer reach of the breastplate-slot.

The particular advantage of the present improvement lies in the fact that the supplemental finger closes the slot beyond the knotter when the needle lays the second strand of cord on the fixed supporting-finger and holds it closed until the knotter-jaws have gripped the ends of the cords and the loop is ready to be stripped. The outer strand is thereby prevented from slipping down the slot so far as to get beyond the reach of the jaws and is held well up on the shank of the bill until

such time as the jaws have securely gripped both ends leading to the holder, when the knot is ready to be stripped and the slot ought to be open.

The improvement will be best understood in connection with the accompanying drawings, forming part of this specification, where—

Figures 1, 2, and 3 are elevations looking at that portion of the breastplate adjacent to the knotter, the fixed cord-supporting finger and the knotter and holder being shown complete and the action of the supplemental finger being illustrated in different positions of the needle and other parts concerned in the tying of the knot.

Referring to the views, *a* denotes the usual breastplate, having the slot *b* and the fixed cord-supporting finger *c* of the Pridmore patent above referred to. The knotter is denoted by *e*, and the cord holder and cutter by *f*. The slot *b* has an outwardly-extending reach *f'*, which stands at an angle to that portion of the slot inside of the knotter, the deflection beginning just under the knotter and on the outer side of the supporting-finger *c*.

As will be readily understood from the accompanying drawings, as well as upon reference to the patent above referred to, the point of the finger *c* projects beyond the edge of the slot *b*; but a depression *b'* is formed in the breastplate at the point where the finger crosses, so as to provide a space under and around the point of the finger for the cords to be drawn by the revolution of the knotter, whose jaws turn in a direction from butt to point of the finger.

So far as above described the present construction is or may be identical with that of the former patent, wherein the edge *e'* of the slot *e* beyond the finger *c* has been relied on to prevent the strand of cord on the outer side of the bundle from getting away from the open jaws as they come around ready to seize the crossed ends. The present improvement, however, contemplates safeguarding this point by the addition of a supplemental finger *a'*, which is conveniently pivoted at *g* to the casting *h*, that carries the finger *c* and which is bolted or otherwise secured to the breastplate. The finger *a'* has a tail-

piece or extension b^2 , which projects inwardly along the breastplate, and the finger proper is curved, as shown in all the views, so as to stand when closed in a position well up under the knotter-jaws. The finger is curved reversely, as shown, so that when the point is closing the slot the tailpiece is to one side of the inward reach of the slot. The closed position of the finger is illustrated in full lines in Figs. 1 and 2 and in dotted lines in Fig. 3, and the open position is shown in full lines in the latter figure.

In Figs. 1 and 2 the needle is shown in section, i denoting the point and i' the shank. The location and shape of the supplemental finger above described permit the opening and closing of the outer reach of the breastplate slot to be timed and effected by the movements of this needle. The finger, as will be seen from the drawings, is located near the edge of the slot on the side away from the knotter, and its reverse curvature is such that when one part projects into or across the slot the other is withdrawn, so as to leave that part of the slot open.

The construction and arrangement being as above described it will be understood that when the needle rises to lay the inner strand of cord onto the knotter the shank i' will strike the tailpiece b^2 and cause the finger a' to move from the position shown in full lines in Fig. 3 (where it was left at the discharge of the previous bundle) into that indicated in full lines in the other figures, thus closing completely the outer reach f' of the slot and practically forming a continuation of the edge e' . The knotter completes its revolution before the needle recedes, and of course until the needle does recede the finger a' is held across the slot. When the open jaws of the knotter come around and are about to grasp the ends of the cord, the strands are gaped apart, as illustrated in Fig. 2, and at this moment the stalks of corn pressing on the outer strand sometimes deflect it out of its proper plane and it fails to be caught by the jaws; but the position of the finger a' is such, and the fact that at this particular time the slot is closed well up under the knotter, that the seizure of both strands is insured, and when the needle recedes, the tailpiece being released, there is no longer any obstacle to the outward passage of the strands, and the discharge of the bundle pulls the loop over the cord ends in the usual way, and the completion of one knot is effected and the parts and

the cord are left in the proper position for the next.

Having thus described my invention, what I claim, and desire to secure, is—

1. The combination with a knotter having only a single revolution to each knot, and which stops with its jaws trending in the direction of discharge of the bundle, of a stationary cord-supporting finger in front of the knotter, and a supplemental movable finger operated by the needle to close the slot and when so operated being located beyond the knotter but within the range of movement of its jaws, so as to prevent the outer or lower strand from escaping the knotter-jaws in the formation of the loop.

2. The combination with a knotter having only a single revolution to each knot, and which stops with its jaws trending in the direction of discharge of the bundle, of a stationary cord-supporting finger in front of the knotter, and a supplemental pivoted finger on one side of the slot, with its point in proximity thereto, having a tailpiece normally extending partially over the slot whereby it is adapted to be struck by the needle as it rises and cause its point to close the slot, said point when so operated being located beyond the knotter, but within the range of movement of its jaws, thereby preventing the outer or lower strand from escaping the knotter-jaws in the formation of the loop.

3. The combination with a knotter having only a single revolution to each knot, and which stops with its jaws trending in the direction of discharge of the bundle, of a stationary cord-supporting finger, a breastplate having a slot continuous around the end of the finger, and a supplemental finger pivoted at one side of the slot with its point in proximity thereto and having a tailpiece normally extending partially over the slot whereby it is adapted to be struck by the needle as it rises and cause its point to close the slot and when so operated being located beyond the knotter but within the range of movement of its jaws, thereby preventing the lower or outer strand from escaping the knotter-jaws in the formation of the loop.

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

JOHN W. PRIDMORE.

Witnesses:

LEWIS H. WILLIAMS,
WILLIAM WEBBER.