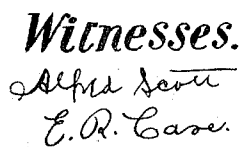


(No Model.)
L. MELVIN-JONES, W. F. JOHNSTON & W. J. CLOKEY.
HARVESTER BINDER.

Patented Mar. 30, 1897.



Inventors.
 Lyman Melvin Jones,
 William F. Johnston,
 William John Clokey
 by Gethustonhaugh & Co. Attys.

UNITED STATES PATENT OFFICE.

LYMAN MELVIN-JONES, WILLIAM F. JOHNSTON, AND WILLIAM JOHN CLOKEY, OF TORONTO, CANADA, ASSIGNORS TO THE MASSEY-HARRIS COMPANY, OF SAME PLACE.

HARVESTER-BINDER.

SPECIFICATION forming part of Letters Patent No. 579,585, dated March 30, 1897.

Application filed May 18, 1896. Serial No. 592,053. (No model.)

To all whom it may concern:

Be it known that we, LYMAN MELVIN-JONES, manufacturer, WILLIAM F. JOHNSTON, manufacturer, and WILLIAM JOHN CLOKEY, pattern-maker, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Harvester-Binders, of which the following is a specification.

Our invention relates to improvements in harvester-binders; and the object of the invention is, first, to improve the operation of the elevating-aprons for carrying the grain to the binding-table, so that they will with equal facility elevate different thicknesses of swaths of grain, and, secondly, to provide a simple device whereby the grain, which usually passes up between the aprons with the heads in advance of the butts, may be delivered horizontally upon the binder-deck; and it consists of a narrowing device placed in the path of the butts of the grain and adapted to press the same against the upper apron.

Figure 1 is a perspective view of portion of the binder to which our invention relates. Fig. 2 is a longitudinal section through the elevating aprons or canvases and portion of the binder-deck. Fig. 3 is a side elevation showing the peculiar arrangement of the slots for receiving the end spindle of the upper roller of the uppermost apron. Fig. 4 is a perspective view of an alternative form of carrier device for the butts of the grain.

In the drawings like letters of reference indicate corresponding parts in each figure.

A are the side-boards of the elevator-frame.

B is the upper endless apron, which is supported on the lower end by the minor roller C and major upper roller D at the discharge end, which is of much greater diameter than the lower roller.

E is the lower endless apron, which is supported upon the upper and lower rollers F and G, respectively, journaled in the side boards A.

H is a bridge extending from the upper roller F over onto the binder-deck I.

Both the upper and lower aprons are caused to travel in the direction indicated by arrow

by a suitable sprocket-gearing preferably secured on the ends of the spindles of the rollers C and G, respectively.

The upper roller D is provided with end spindles *d*, which extend through slots *a* in the side-boards A. The spindles *d* are journaled in bearing-blocks J, supported in arc-shaped metal guideways K, secured to the outside of the side-boards. The guideways K have formed at one end sockets K', in which fit the spiral springs *k*, which are designed to exert a pressure on the bearing-blocks and consequently upon the major upper roller D, so as to keep the endless upper apron B taut and yet allow of it giving on the side adjacent to the lower apron to suit the inequalities of the thicknesses of the swaths of grain. By this means the swaths of grain, no matter of what thickness, will always be readily fed over onto the binder-deck without any danger of choking.

L is the endless apron of the grain-table.

M is a flat finger made, preferably, of spring-steel of sufficient thickness and temper as to allow such finger to bend under pressure.

The finger M has a curled lower end *m*, which grips the lower end *h* of the bridge H. A bolt M' with the head uppermost passes through holes in the carrier-finger and the bridge, such bolt being provided with a nut at its lower end, so as to securely hold the carrier-finger in position.

In the construction of our invention the side-boards hereinbefore referred to are preferably made of sheet-steel, and we locate the bearing-boxes of the spindles of the upper roller of the upper apron to the outside of the boards, so that the boxes will not become clogged and thus interfere in any way with the roller giving when a pressure upon the side of the apron adjacent to the lower apron occurs. It will also be noticed that the slots are slightly arc-shaped, and are set, preferably, obliquely to the longitudinal edges of the side board. By means of the slots and springs hereinbefore referred to the under portion of the endless apron is allowed to bulge upwardly upon an excess of grain crowding between the aprons, and the drive is thereby relieved without increasing the tautness

of the belt and the resulting draft on the machine. By making the slots oblique, as described, the approach of the major roller to the minor of the upper apron is curtailed to
 5 such an extent that the apron, although allowed to recede upwardly, will yet preserve its tautness and thereby greatly facilitate the discharge of the grain upon the binder-deck.

In the drawings we have represented the
 10 grain by light free-hand lines, showing that it usually ascends between the aprons obliquely—that is to say, with the heads of the grain in advance. In ascending thus it would naturally in machines as at present constructed be delivered upon the binder-deck
 15 obliquely and even more so sometimes than at the slant shown. In order to overcome this oblique delivery upon the binder-deck, which is seriously detrimental to the proper binding
 20 of the sheaves, we provide the flat finger or its equivalent device hereinbefore described. The effect of this finger is that when the heads have been carried as far as they can be over the bridge the butts would be caused
 25 by the upper elevator-apron to travel up and over the end of the flat finger K and will then drop directly upon the binder-deck, so that they lie parallel to the upper edge of such deck.

30 We find in practice that the delivery upon the deck is perfect, the grain passing down parallelly to the packers and needle to be formed into a sheaf.

In Fig. 3, in which we show the alternative
 35 form, it will be noticed that we form the bridge H at the front end with an inclined or raised portion *h'*, which extends at the side of the binder-deck completely over such deck. The bridge H in this instance should be formed
 40 of preferably light spring-steel of good quality, so that the portion *h'* will depress and

deliver the grain similarly to the carrier-finger shown in Fig. 1.

Although we describe one alternative form, it will be understood that various other forms
 45 may be devised by which we could obtain the same result; but we prefer the form shown in Fig. 1. Again, although we show the flat carrier-finger as attached to the bridge, it will be understood that in binders which the ele-
 50 vating-apron extends up into proximity with the binder-deck and no bridge is used in any device of suitable construction might be provided to accomplish in a partial manner the same result.
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What we claim as our invention is—

1. The combination in a harvester-binder, having the obliquely-extending upper and lower carrying-aprons, the binder-decks and the bridge, of a narrowing device fixed to said
 60 bridge and extended in proximity to said upper apron, substantially as described.

2. In combination in a harvester, the upper and lower elevating-aprons having a discharge-opening between them, and a station-
 65 ary finger extending into proximity to said aprons for reducing one end of the discharge-opening, substantially as described.

3. In combination in a harvester the upper and lower elevating-aprons, the binder-deck,
 70 the bridge extending from the lower apron over the binder-deck, and a spring-finger secured to said bridge at one end and having its opposite end projecting into proximity to the upper apron, substantially as described.
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Witnesses:

GEO. A. WHITAKER,
 W. J. MCLEAN.