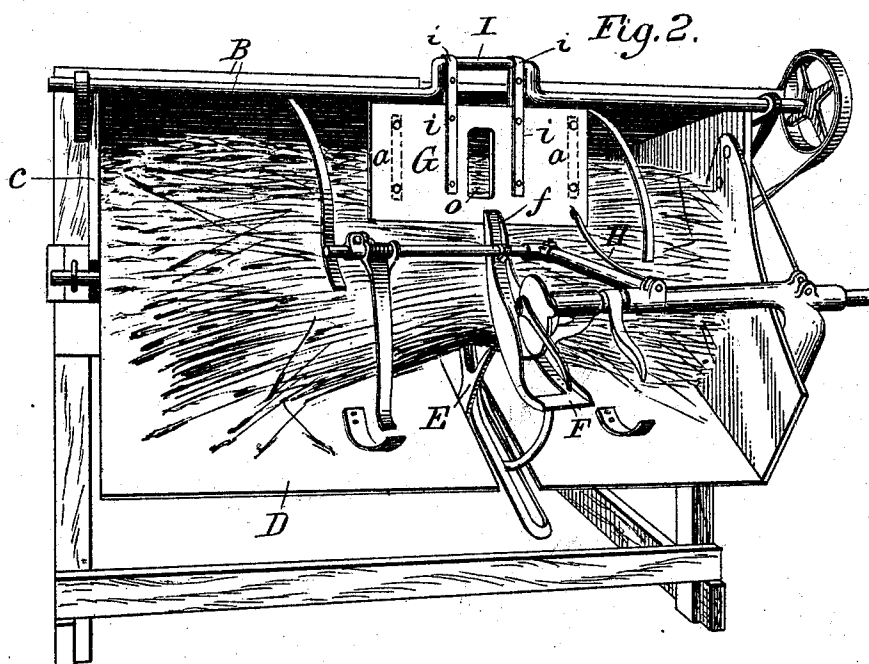
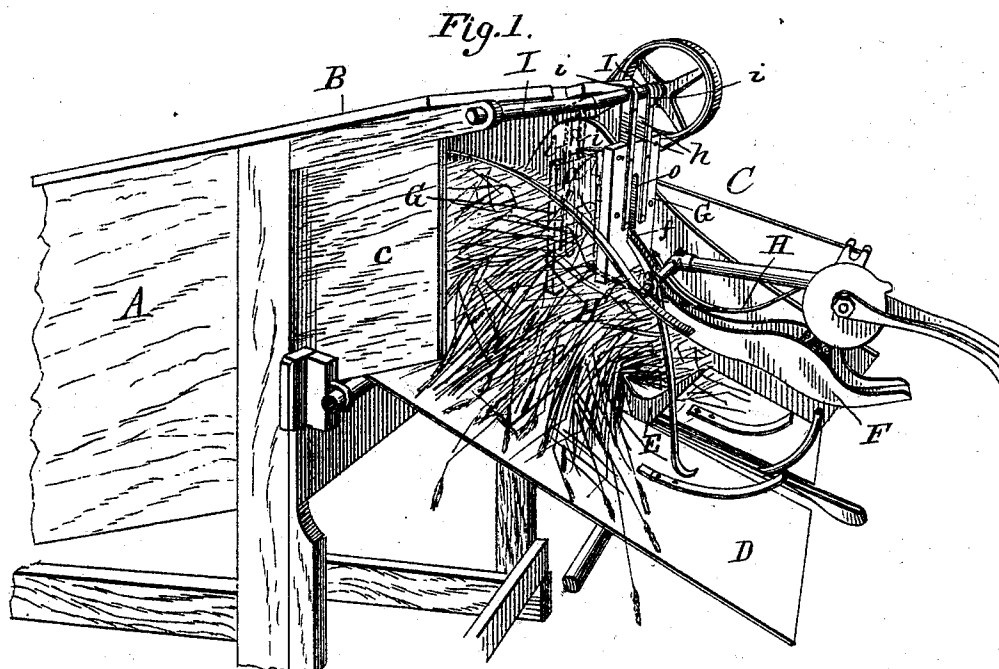


(No Model.)

A. L. GILL.
COMBINED THRASHER AND BINDER.

No. 500,709.

Patented July 4, 1893.



Witnesses:
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UNITED STATES PATENT OFFICE.

ALBERT L. GILL, OF TRENTON, NEW JERSEY.

COMBINED THRASHER AND BINDER.

SPECIFICATION forming part of Letters Patent No. 500,709, dated July 4, 1893.

Application filed October 20, 1892. Serial No. 449,487. (No model.)

To all whom it may concern:

Be it known that I, ALBERT L. GILL, a citizen of the United States, residing at Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in a Combined Thrasher and Binder; 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.

My invention relates to combined thrashers and binders, wherein the grain is thrashed and the straw is delivered to a binding mechanism and bound into bundles and discharged therefrom automatically.

Prior to my invention combined thrashers and binders have usually been constructed with an overhanging top or cover projecting from the mouth of the elevator chute over the rear end of the machine, and concealing and inclosing the inner part of the elevator chute from view and rendering it inconvenient of access. The lower end of this overhanging cover is brought down to the level of the upper end of the breast-plate of the binder attachment; and the binder attachment has been arranged in a nearly vertical position. Several disadvantages result from this construction. The straw as it works out of the thrasher chute falls down between the overhanging cover and the deck of the binder attachment until it gets between the packers and the overlying breast-plate, being then forced by the packers outward between the deck and the breast-plate against the trip-arm and the cord. When sufficient straw has accumulated to trip the binder, the needle arm rises and encircles the bundle, a knot being tied in the band and the bundle being ejected by automatic mechanism now well understood in connection with grain binders. The straw being loose and light, and in a more or less tangled condition, fails to fall freely down between the cover and the deck within reach of the packers, and frequently becomes choked up so that it has to be cleared away by hand, which is a dangerous operation, and causes frequent and considerable delays, often requiring the stoppage of the entire thrasher. The nearly vertical position of the binder, above referred to, brings the

point of discharge of the bundles from the binder so near the ground that the accumulated bundles have to be removed frequently in order to prevent their piling up and clogging the machinery and gearing of the binder. By my improvement these disadvantages are entirely obviated, the binder attachment being arranged in a more nearly horizontal position, and an improved feeding mechanism being employed to take the straw from the discharge end of the elevator chute and deliver it to the packers.

In the accompanying drawings forming part of this specification, Figure 1 is a perspective view of the rear end of a combined thrasher and binder showing the discharge end of the elevator chute and the binder attachment in place. Fig. 2 is an end elevation looking into the mouth of the chute from the outer side of the binder attachment.

A indicates the elevator chute of the thrasher, having the usual bottom and sides and the top B. This top or cover, instead of being extended over the end of the elevator and hanging down in front of the same, as heretofore, terminates at the end of the elevator or chute frame sides *c, c*, thereby leaving the mouth of the chute and the inside of the elevator exposed to view and readily accessible.

C denotes the binder attachment, similar in all essentials to those employed in connection with self-binding harvesters. As this binder attachment forms no part of my present invention, I do not deem it necessary to describe the same further than to say that D indicates the inclined deck or table upon which the straw is delivered from the mouth of the elevator chute. E are the packers working from the under side of the table, and F is the breast-plate overlying the deck or table. This breast-plate is supported by the overhanging arm of the binder frame, as is well understood, and has an inwardly extending arm *f*. The supports for the binder attachment are the same as heretofore, but the inclination of the table is such that the outer end of the binder attachment is elevated so as to leave more space beneath its delivery side and the ground for the accumulation of the bundles. This raising of the outer end of the binder elevates the inner end of the

breast-plate F to a point slightly above the level of the point of discharge of the straw from the mouth of the elevator chute.

I denotes a crank shaft mounted in suitable bearings in the frame of the elevator at the end of the frame at the apex of the angle formed by the oppositely inclined elevator and binder parts. This shaft is provided with a band wheel, and is driven by a belt from any convenient part of the thrasher.

G denotes a feeder, in this illustration of the invention being in the form of a flat board, which is preferably provided on its inner side with hooks or projections *a* to catch the straw and assist in throwing it down upon the deck. The crank of the shaft is arranged about opposite the center of the mouth of the elevator chute, and the feeder board G is hung on the crank portion directly opposite the inside of the discharge opening. This board is connected to the crank by suitable arms, composed in this instance of straps *i* inclosing the shaft and secured to opposite faces of the board, small blocks *h* being interposed between the upper edge of the board and the crank portion of the shaft. This feed board has no other support than the shaft, and is oscillated by the revolution of the shaft as indicated in dotted lines in the drawings. Were not some stop or button provided to prevent the lower end of the board from swinging outwardly under the action of the accumulated straw, as the shaft turns so as to force the board down, it would probably ride over the accumulated straw and would but imperfectly perform the function of a feeder. I utilize the inner projecting arm of the breast-plate as a stop for preventing this outward movement of the board, and I prefer to form a slot or opening *o* in the board about centrally of its length, into which the inner arm of the breast-plate is received. In the revolution of the shaft the board swings closely up against the breast-plate, and as it descends it swings outwardly from the machine and presses the straw down upon the inclined deck of the binder within reach of the packers. In order to prevent the board from swinging in toward the mouth of the elevator chute, I connect its lower end with the binder frame at any convenient point by means of a flexible connection H, in this instance a strap hooked on to the lower edge of the board near one corner and connected to the overhanging arm of the binder attachment.

In the operation of the machine the revolution of the crank on the shaft I causes the board to move in the general direction indicated by the dotted lines in Fig. 1. It will thus be seen that it subserves the function of the old curved cover in preventing the escape of the straw over the top of the binder, and in addition acts as a feeder, taking the straw from the mouth of the elevator chute and delivering it positively within reach of the packers. The hooks on the inner side of the

board serve to catch the straw and throw it down so that at the next revolution of the crank shaft it is caught by the under side of the board and carried more certainly within reach of the packers.

Having thus described my invention, what I claim is—

1. In a thrasher and binder, the combination of the thrasher elevator chute, the table or deck of the binder, an overhead crank-shaft, an oscillating feeder board connected with said shaft at its upper edge, and supported and operated entirely by the same, and means for preventing the lower free edge of the board from being pushed outward by the straw, substantially as described.

2. In a thrasher and binder, the combination of the thrasher elevator chute, the table or deck of the binder, the breast-plate overlying the deck, an overhead crank-shaft, and an oscillating feeder-board depending from the shaft and arranged to contact with the inner end of the breast-plate at its lower side, substantially as described.

3. In a thrasher and binder, the combination of the thrasher elevator chute, the table or deck of the binder, the underneath packers, the breast-plate overlying the deck and packers, an overhead crank-shaft, an oscillating feeder-board depending from and operated by the shaft and arranged to contact with the inner end of the breast-plate at its lower side, and a flexible connection between the lower part of the feeder-board and the binder frame to limit the inward movement of the board, substantially as described.

4. In a thrasher and binder, the combination of the thrasher elevator chute, the table or deck of the binder, the breast-plate overlying the deck, the overhead crank-shaft journaled at the mouth of the elevator chute, and the oscillating feeder-board depending from the shaft, said feeder-board having an opening or slot for the engagement of the inner end of the breast-plate therewith, substantially as described.

5. In a thrasher and binder, the combination of the thrasher elevator chute, the table or deck of the binder, the underneath packers, the breast-plate overlying the deck and packers, and having an inwardly extending arm, an overhead crank-shaft journaled in the thrasher framing at the mouth of the chute, an oscillating feeder-board depending from the shaft and having a slot or opening for engaging the inner arm of the breast-plate, and a flexible connection between the lower side of the feeder-board and the binder frame, substantially as described.

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

ALBERT L. GILL.

Witnesses:

SYMMES B. HUTCHINSON,
F. C. LOWTHROP.