(Model.)

J. AUGSPURGER.

Grain Binder.

No. 242,859. Patented June 14, 1881.

Fig. 1

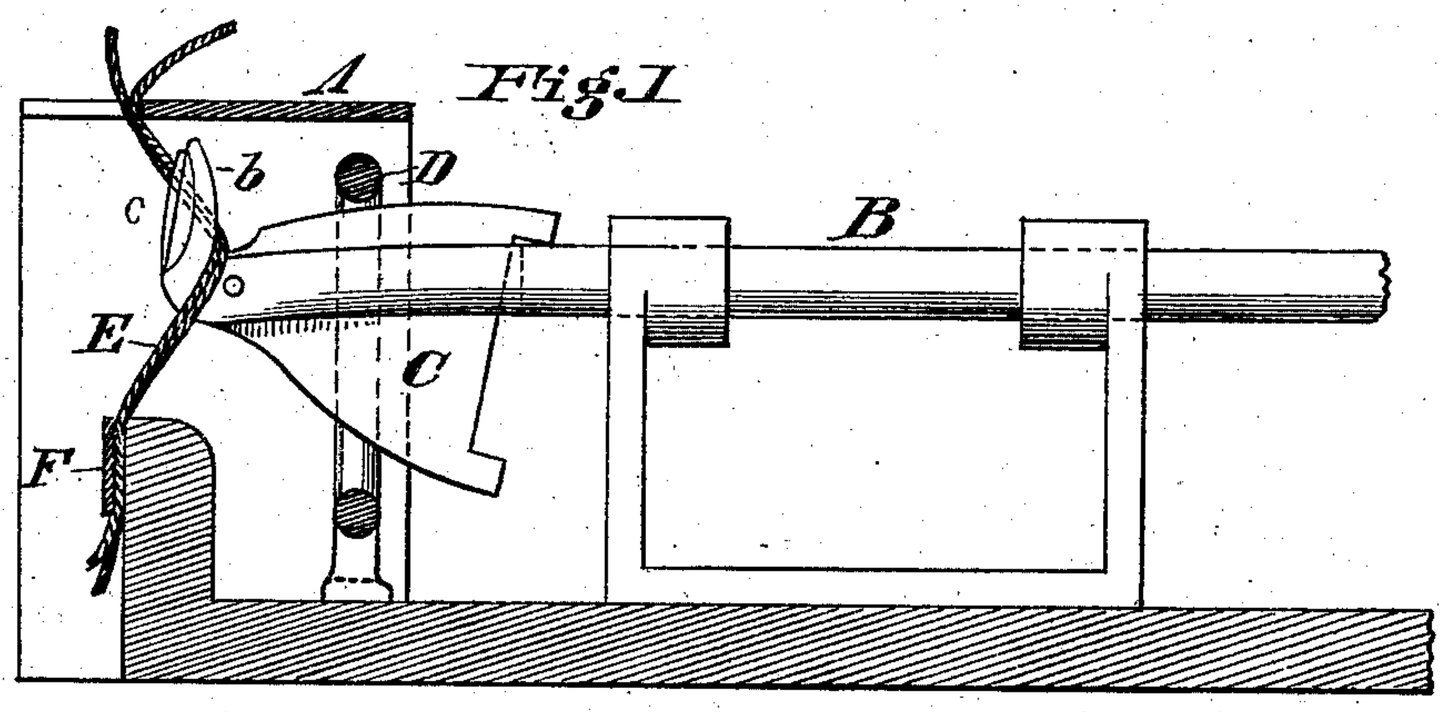


Fig. 2

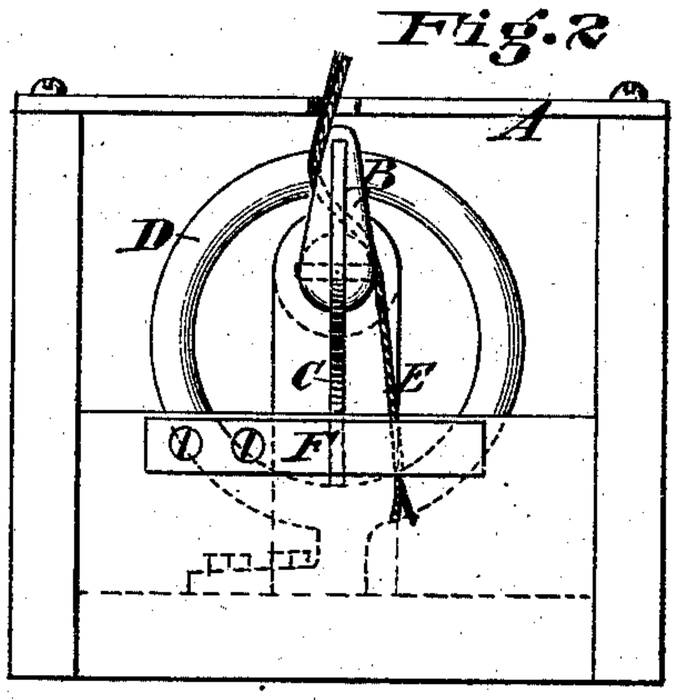


Fig. 3

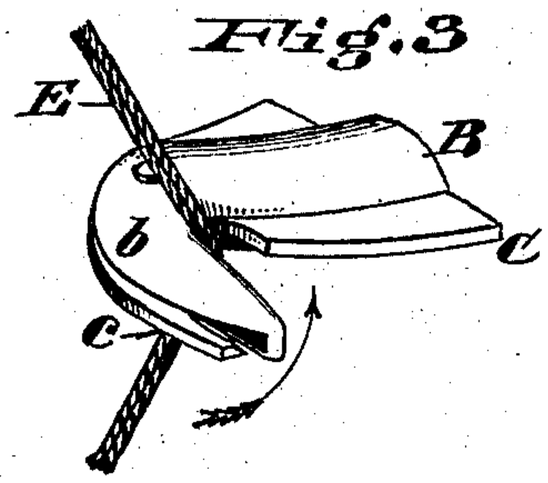


Fig. 4

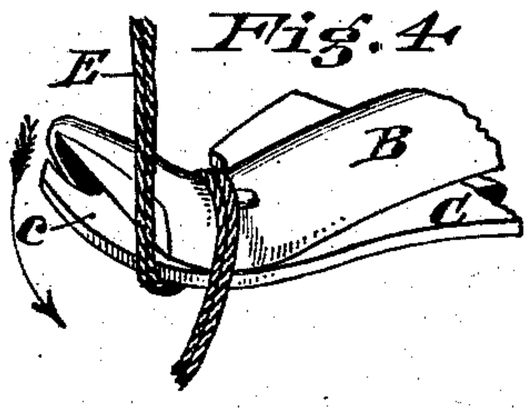


Fig. 5

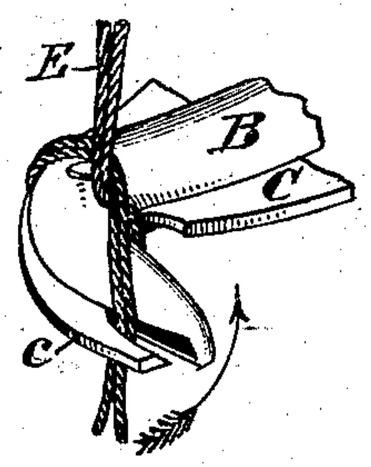
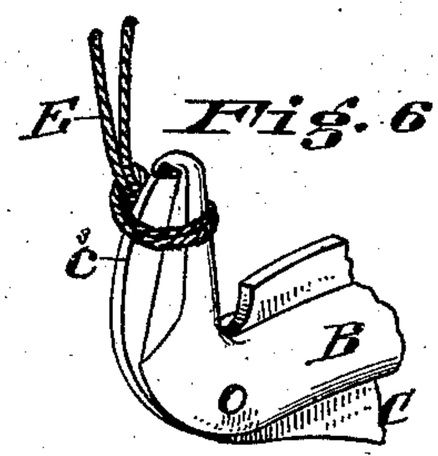


Fig. 6



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UNITED STATES PATENT OFFICE.

JOHN AUGSPURGER, OF TRENTON, OHIO.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 242,859, dated June 14, 1881.

Application filed May 25, 1880. (Model.)

To all whom it may concern:

Be it known that I, JOHN AUGSPURGER, a citizen of the United States, residing at Trenton, Butler county, Ohio, have invented new and useful Improvements in Grain-Binders, of which the following is a specification.

My invention relates to automatic grain-binding attachments for reaping-machines intended for the use of cord; and it consists in the mechanism, hereinafter described and claimed, for tying a knot in the cord looped around the bundle of grain.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a side elevation of the knot-tying device; Fig. 2, an end view of the same; and Figs. 3, 4, 5, and 6 are perspective views of the end of the knot-tying shaft, showing the knot in different stages of formation.

Similar letters indicate similar parts in the several figures of the drawings.

A indicates the grain table or platform, on which the bundle of grain is lodged preparatory to being bound; B, a horizontal shaft secured in bearings beneath the same, turned up at the end into a head or beak, *b*. The end of the shaft, including the head, is slotted longitudinally to a depth sufficient to allow the play of a wing, C, pivoted in the angle between the shaft and its beak. The wing is prolonged into a finger, *c*, corresponding to the beak *b*, and forming with it a griping-jaw and cutting device for the cord, as hereinafter described.

Surrounding the shaft B, adjacent to the wing, is a ring, D, arranged eccentrically to the axis of the shaft, which operates, when the shaft is rotated, to force the wing C to one side and the other, thereby causing the griping device to open and close. The shaft B is provided with suitable gearing or other means for rotating it, and also means for giving it a suitable longitudinal movement, when necessary, as hereinafter indicated.

The operation is as follows: The bundle of grain being upon the grain-table, and the cord E having been looped around it by the action of a needle-bar or other suitable devices, the ends of the twine are brought down through a slot or guide in the table A to a suitable retaining device at F. At the same time the bar B is rotated so as to bring the beak *b* horizontally in front of the twine, when the bar is retracted, drawing the cord taut around the bundle and into the position across the beak in the angle, between it and the bar, as shown in Fig. 3. As the bar B continues its rotation the beak *b* loops the cord about itself, as shown in Fig. 4, at the same time moving slightly forward until the beak is in the vertical plane of the retaining device F. As it continues to rotate in that position the wing C comes in contact with the cam-ring D and opens the griping-jaws *b c*, between which the lower ends of the cord relatively enter, as shown in Fig. 5. The jaw then, by the continued rotation of the wing C in the cam-ring D, closes. One edge of the finger *c* being sharpened, and the adjacent edge of the slot in the beak *b* being also a cutting-edge, the cord is severed at that point, the lower and useless portion being left free, while the upper portion is firmly held between the beak *b* and the finger C, as shown in Fig. 6. As the bar B then continues its rotation it is again withdrawn until the loop is drawn over the point of the beak, the ends of the cord still being retained in the griping device, and thus a knot is formed, and when completed the string is released and the bar moved forward to its first position for similar operation.

The mechanism for giving the proper movement to the bar B may consist of a pulley mounted thereupon, with a feather on the shaft to allow a free longitudinal adjustment in the pulley while rotating, and a cam or lever operating the shaft longitudinally by means of a pin operating in a sheave secured upon the shaft, or any other form of mechanism for producing the desired movements.

Having described my invention, I claim and desire to secure by Letters Patent—

1. The combination, with the rotary and longitudinally movable bar B, having one end centrally slotted and turned up to form a slotted beak or head, *b*, of the wing C, having the finger *c*, and pivoted within the central slot of said bar, the opposite edges of said

wing projecting through the slots beyond the sides of the bar, and a ring, D, surrounding the bar, and fixed in an eccentric position with relation to the same for positively acting on the opposite projecting portions of the pivoted wing, all substantially as described.

2. The combination of the bar B, provided with a central slotted beak, *b*, one side of the slot having a cutting-edge, the wing C, provided with a griping-finger, *c*, having a cutting-edge on one side, said wing being pivoted within the slotted end of the bar, and projecting beyond the opposite sides of the latter, and a ring, D, surrounding the bar, and fixed in an eccentric position with relation to the same, for positively acting on the projecting edges of the wing, substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN AUGSPURGER.

Witnesses:
L. M. HOSEA,
E. KELIHAN.