

No. 720,572..

PATENTED FEB. 17, 1903.

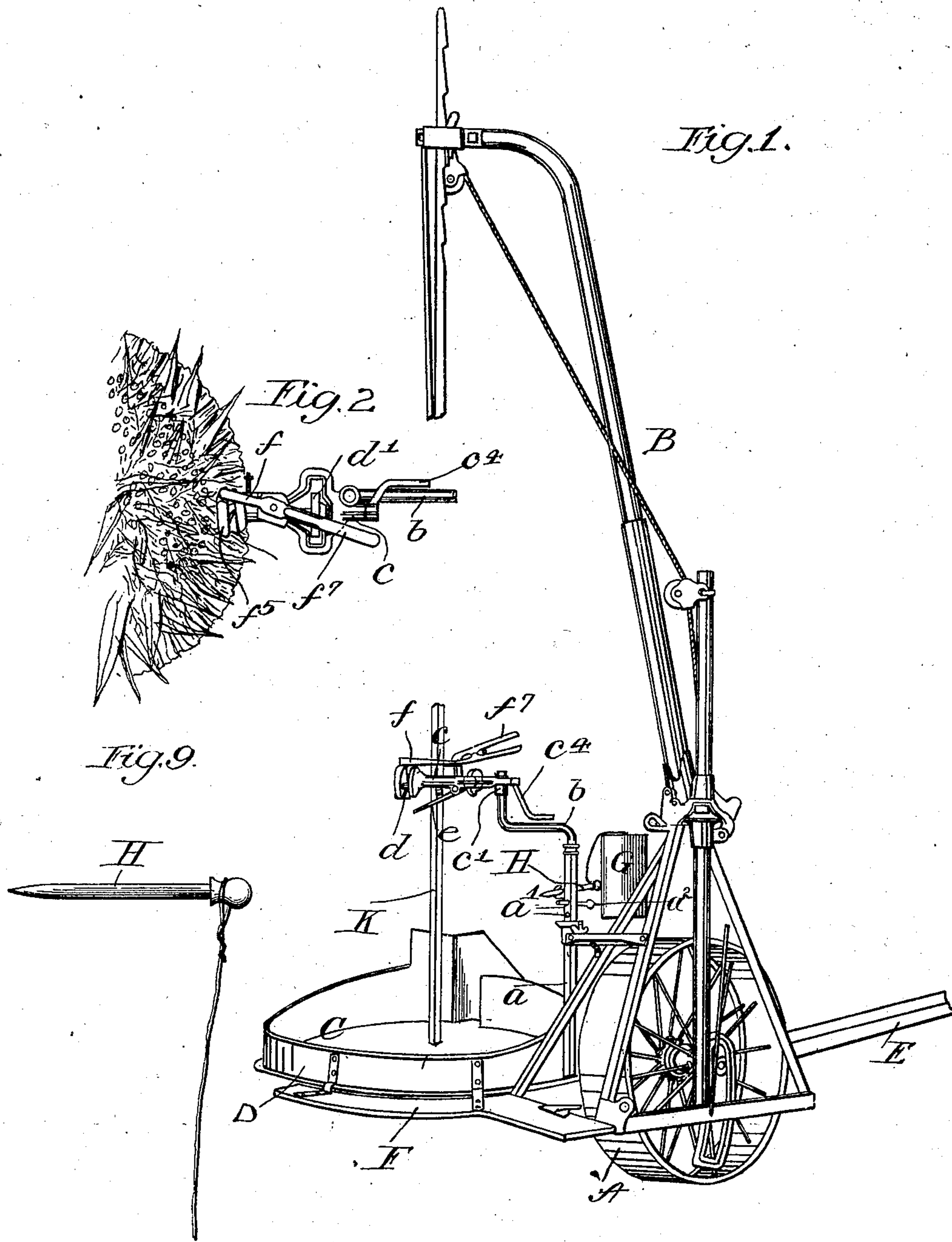
O. S. ELLITHORP.

KNOT TYING DEVICE FOR CORN SHOCKING MACHINES.

APPLICATION FILED JULY 21, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
Edward Barrett.
J. C. Warrner.

Inventor:
Orren S. Ellithorp

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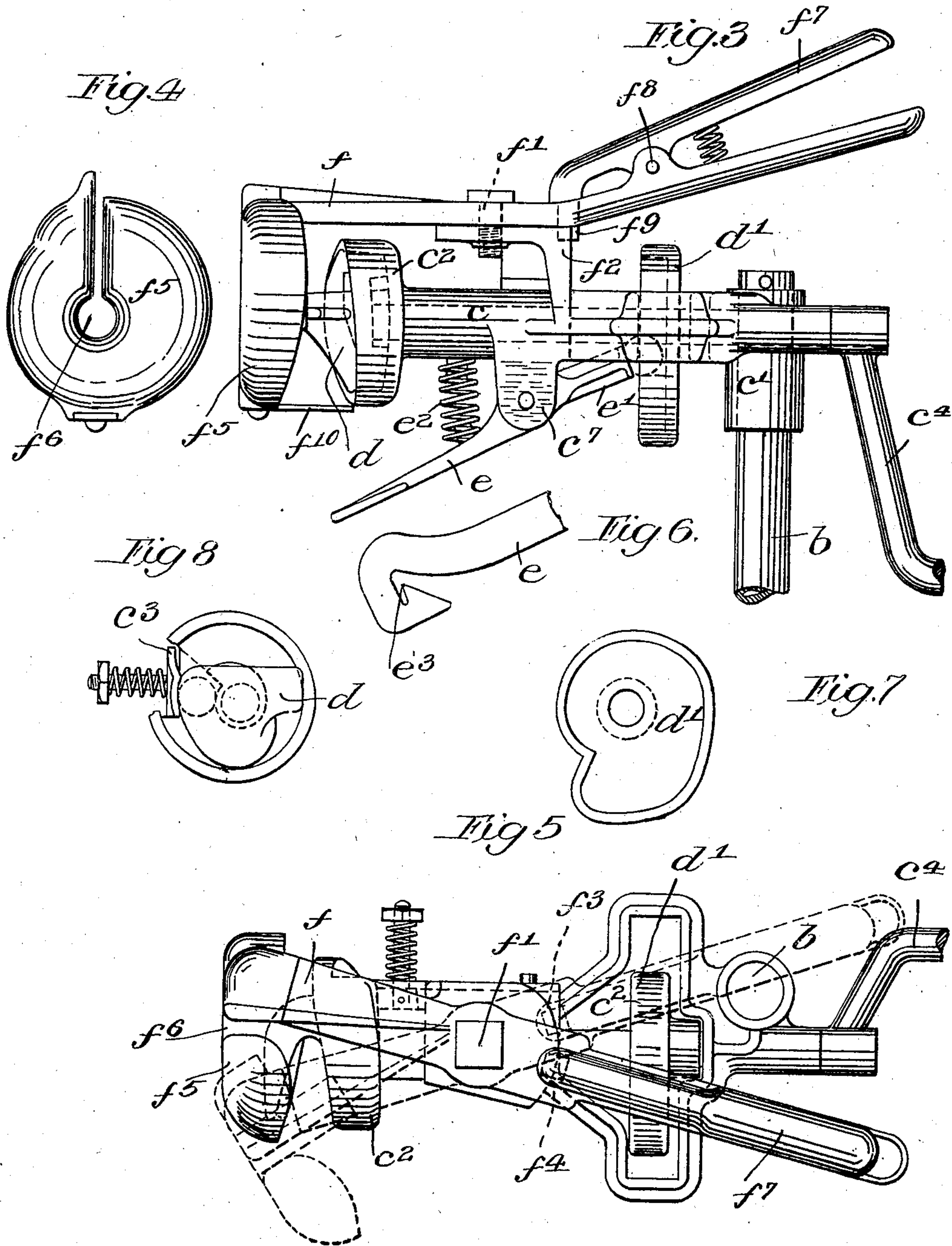
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2 SHEETS—SHEET 2.



Witnesses;
Edward R. Barrett
J. C. Barnes.

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UNITED STATES PATENT OFFICE.

ORREN S. ELLITHORP, OF CHICAGO, ILLINOIS, ASSIGNOR TO DEERING HARVESTER COMPANY, OF CHICAGO, ILLINOIS.

KNOT-TYING DEVICE FOR CORN-SHOCKING MACHINES.

SPECIFICATION forming part of Letters Patent No. 720,572, dated February 17, 1903.

Application filed July 21, 1902. Serial No. 116,380. (No model.)

To all whom it may concern:

Be it known that I, ORREN S. ELLITHORP, of Chicago, in the county of Cook and State of Illinois, have invented a Knot-Tying Device for Corn-Shocking Machines, of which the following is a full description, reference being had to the accompanying drawings.

The object of my invention is to provide means for mechanically tying shocks of corn, thereby facilitating the operation of this step, and the invention is especially applicable to that class of corn-harvesters which cut and form the shocks in a vertical position on a rotating shock-forming table.

Figure 1 shows so much of a corn-shocker as necessary to show the location of my tying device relative to the other parts of the machine, the way of mounting it, and the way of supporting it; Fig. 2, its position relative to the shock of corn being operated upon and the position of the band around the shock some distance above the base thereof; Fig. 3, a side elevation of the tying device. Fig. 4 shows the slot by which the ends of the twine are held in proper position to the knotter to be tied thereby. Fig. 5 is a top view of the knotter. Fig. 6 is a detail of the cord-holder. Fig. 7 shows the cord-holder cam; Fig. 8, an end elevation of the knot-tying device, showing the cam-like groove which opens and closes the knotter-jaw. Fig. 9 represents the pin for carrying the end of the binding-cord around the shock.

My knot-tying device may be used on any form of grain-shocking machine; but it is here shown on the type of machine represented in the patent granted to A. N. Hadley, No. 432,750 and dated July 22, 1890, and Joseph M. Shively, No. 559,754 and dated May 5, 1896.

A is the main supporting-wheel of a corn-shocking machine, and B the lifting-crane.

C is the table upon which the shock rests and by which it is rotated while being formed, having the standard K.

D is the inclosing wall within which the butts of the stalks are confined while the shock is being formed.

E is the ordinary draft-tongue.

F is the footboard upon which the operator rides and stands while tying the band around the shock.

Rising from the main frame is the standard *a*. It is preferably of gas-pipe and forms a socket at its upper end, into which the crank-like support *b* is adjustably placed and free to turn. In order that it may be held in any elevated position in which it is adjusted, the tubular support *a* is provided with the holes *a'*, in which the pin *a²* passes. Upon this the end of the shaft of the crank *b* can rest. Upon what may be termed the "wrist" portion of this crank is supported the knotter-frame *c*, which is provided with the sleeve *c'*. Not only the crank-like support is free to turn, but the knotter-frame is also free to turn on the wrist of the crank-like support. This way of sustaining the knotter permits it to be moved to the shock, whatever the size of the latter, and also swing to a radial position relative to the shock. In the knotter-frame is journaled the knotter *d*, which may be considered to be of the usual kind as used in grain-binders—such, for instance, as the one described in the United States Patent, No. 208,137, on grain-binders, issued to John F. Appleby September 17, 1878.

Upon the frame *c* is the cam-like chamber *c²*, which opens the jaw of the knotter, and upon the frame is also the spring-held cam *c³*, which closes the knotter-jaw. Upon the shaft of the knotter is the crank *c⁴*. Between the knotter-frame and the shock is the disk-like shield *f⁵*, having the eye *f⁶* with a slot passing down thereto. Within a recess in the knotter-frame *c* upon the knotter-shaft is secured the grooved cam *d'*, and pivoted to the lug *c⁷* is the holder *e*, which is lever-like and operated by the cam *d'*, the short end of the lever *e'* being provided with an anti-friction-roller, which rides within the cam-groove. Between the knotter-frame and the arm of the holder is the spring *e²*. The holder is provided with the notch *e³*. The shield *f⁵* is as one piece with the lever *f*, pivoted at *f'* to a lug *f²*, projecting upward from the knot-

ter-frame. Within the lug f^2 are the notches f^3 and f^4 . (Shown in dotted lines in Fig. 5.)

f^7 is a spring-latch pivoted at f^8 to the lever f , having a catch f^9 adapted to engage the notches f^3 and f^4 .

Upon the machine is the usual twine-receptacle G.

The operation of the device is as follows:

The end of the twine extending from the twine-receptacle is secured to the pin H. When the shock is nearly completed, this pin, having the twine secured to it, is thrust into the shock, and the rotation of the latter carries the pin and twine with it around the shock. When the twine is brought around, the operator takes it from the pin, ties a knot at the end of it, then places the strand in the eye f^6 through the upwardly-extending notch in the shield f^5 leading thereto, after which the end of the strand is secured in the notch e^3 of the holder e , the said knot in the end thereof preventing the strand from being drawn through the said notch e^3 in the said holder e . The operator then swings the knotter to position close to the shock and radial therewith and draws the other portion of the twine that extends around the shock and thence to the box and lays it by hand in the notch extending upward from the eye f^6 . The operator carries this portion of the twine also to the notch e^3 and holds it therein with one hand and turns the crank c^4 a complete revolution, which lays the knot. During the revolution of the crank the cam d' has permitted the holder e to move upward in order that the knotter may have sufficient twine to wrap itself without producing undue strains. When the knot is laid, the operator grasps the handle portion of the lever f and the latch portion f^7 and moves the whole to the position shown by dotted lines in Fig. 5. This carries the knife f^{10} in a direction to sever the twine and also moves the portion of the band lying in the eye f^6 in a direction to strip the knot from the knotter proper. When the knot is thus completed, the knotting device is swung away from the shock by moving it upon its support and the shock may be lifted from the table.

I do not claim the means for carrying the twine around the shock, for that is shown and described in the patent granted to John F. Steward, No. 702,602 and dated June 17, 1902.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a corn-shocker, means for rotating the shock, a device adapted to be carried by said rotating shock and to which the end of the cord may be secured, and automatic means for tying the two ends of the cord, substantially as described.

2. In a corn-shocker a rotary table, a shock-forming standard on said table, a knotting device vertically adjustable in its position relative to the said table and standard all combined, substantially as described.

3. In a corn-shocker, a rotary shock-forming table, an upright support, and a knotting device sustained upon said support and adapted to be moved toward or away from the shock formed on said shock-forming table, all combined substantially as described.

4. In a corn-shocker, a knot-tying device pivotally sustained upon a support, and a support pivotally sustained upon a rigid upright post, the articulation between said support and upright post admitting of a vertical adjustment between said support and knotter-frame thereupon and said upright post, all combined substantially as described.

5. In a corn-shocker, a rotary table, a knotting device supported upon the frame of said shocker, means for carrying the end of the twine around the shock by the rotation of the shock itself, and automatic means for tying the twine forming the band of said shock, substantially as described.

6. In a corn-shocker, a shock-forming table, a crane for lifting the shock from said table, a knotting device supported upon said frame and adapted to move toward the shock to tie the band, and away from the shock to permit the latter to be lifted from the machine, all combined substantially as described.

7. In a corn-shocker, a rigid tubular support, a knotting device, a flexible support for the said knotting device consisting of a member interposed between and pivotally jointed to the said rigid tubular support and the said knotting device, a knotting-hook, a crank upon the shaft of said knotting-hook, and a knot-discharging and twine-cutting device, all combined substantially as described.

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Witnesses:

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