

No. 726,256.

PATENTED APR. 28, 1903.

C. COLAHAN.
GRAIN BINDER.

APPLICATION FILED APR. 1, 1902.

NO. MODEL.

Fig. 1.

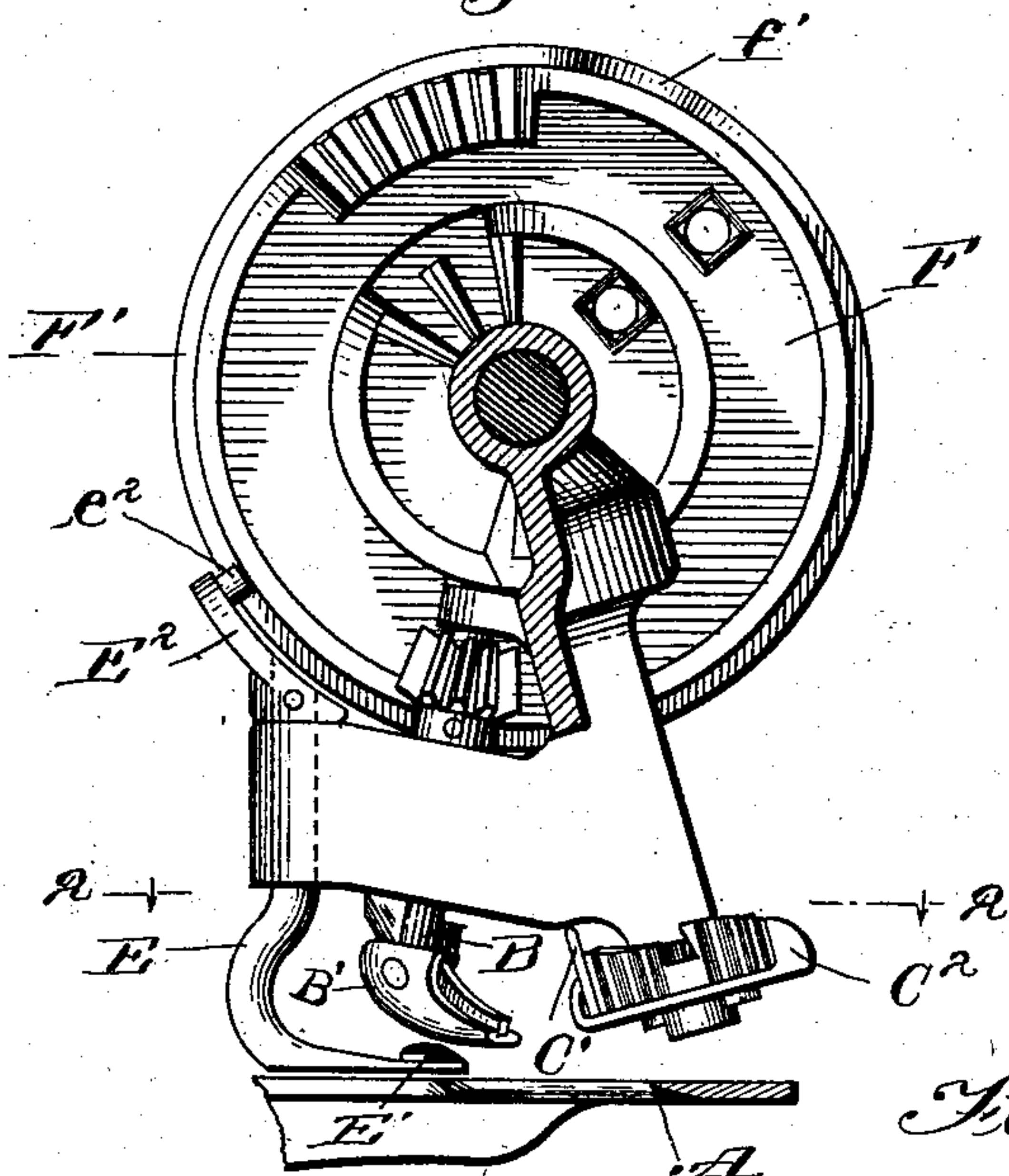


Fig. 4.

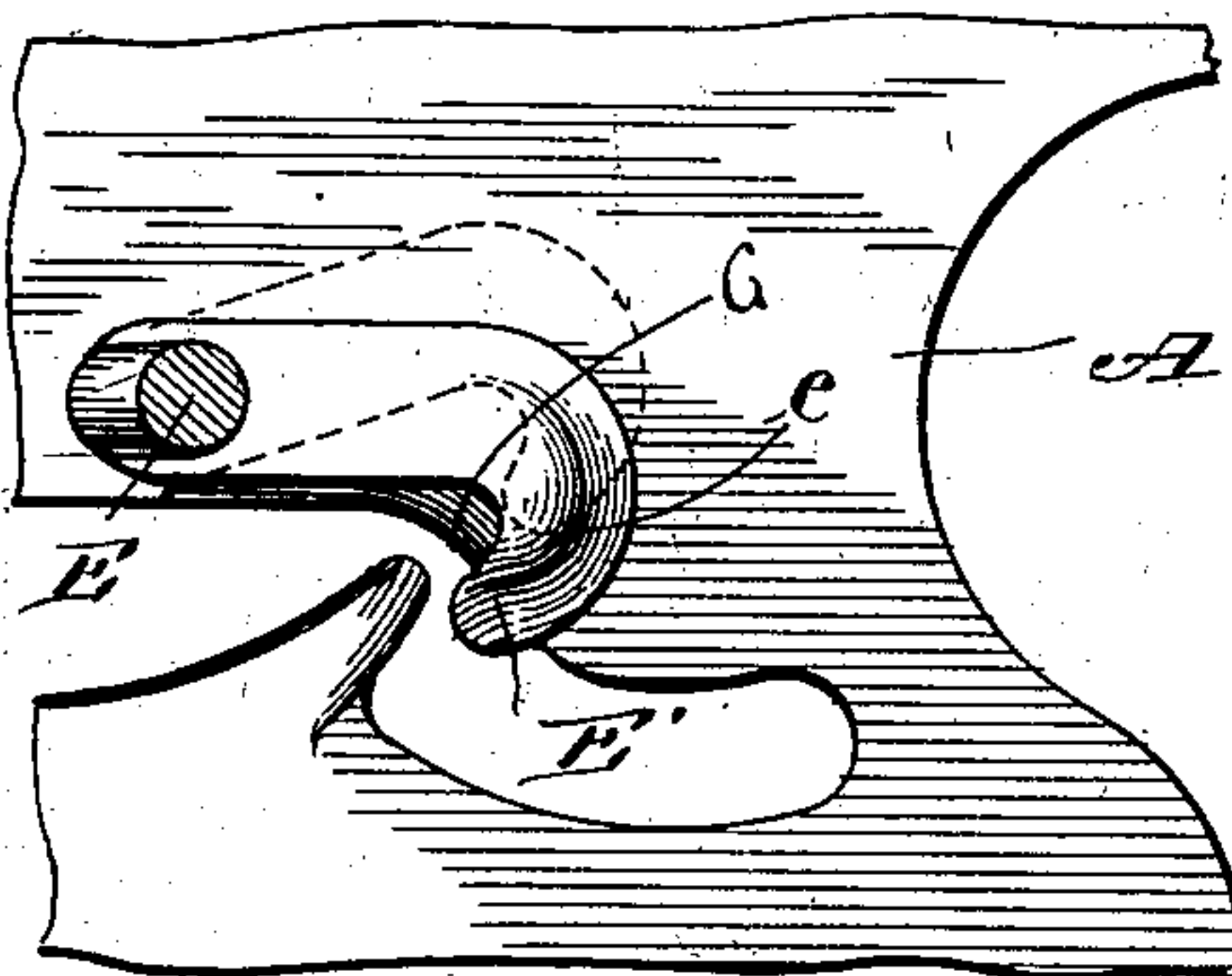


Fig. 2

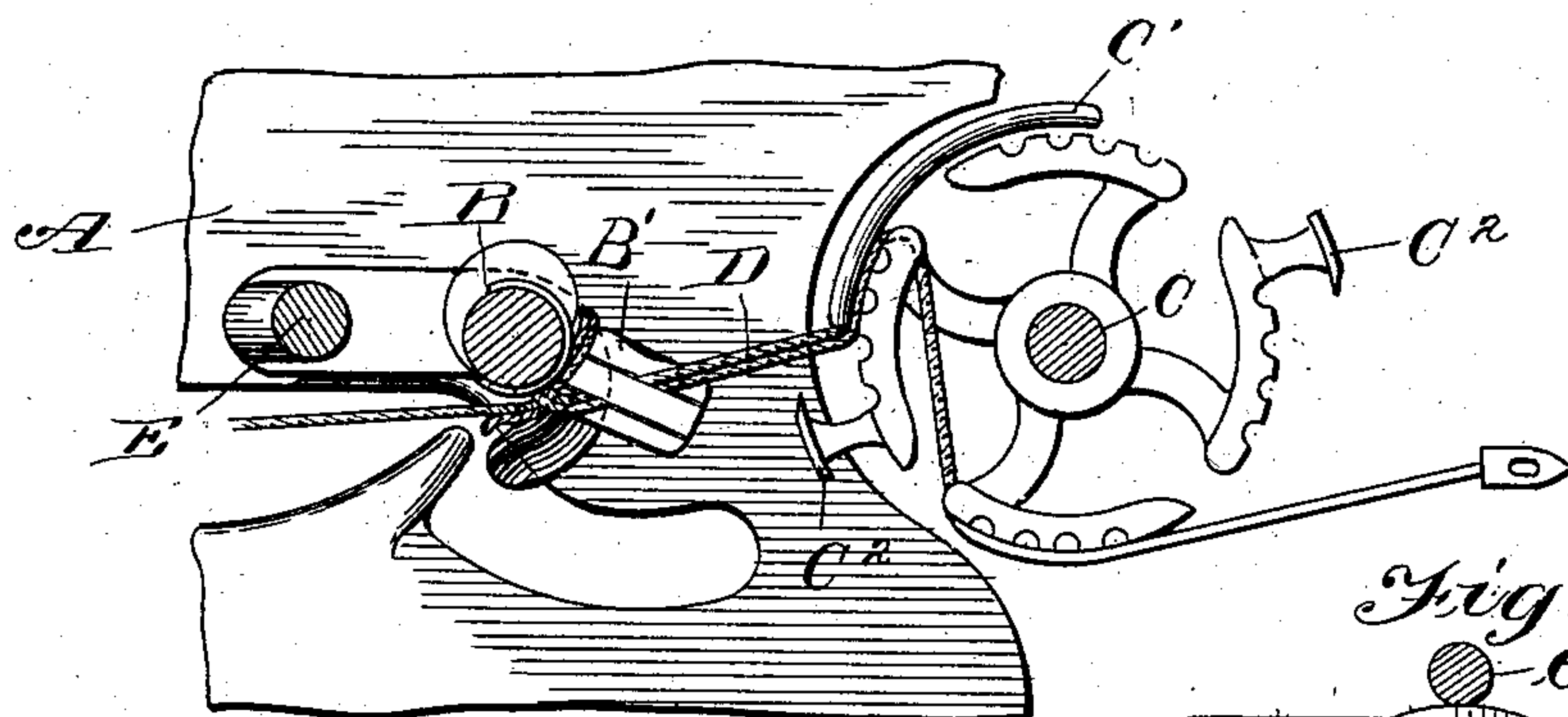


Fig. 5.

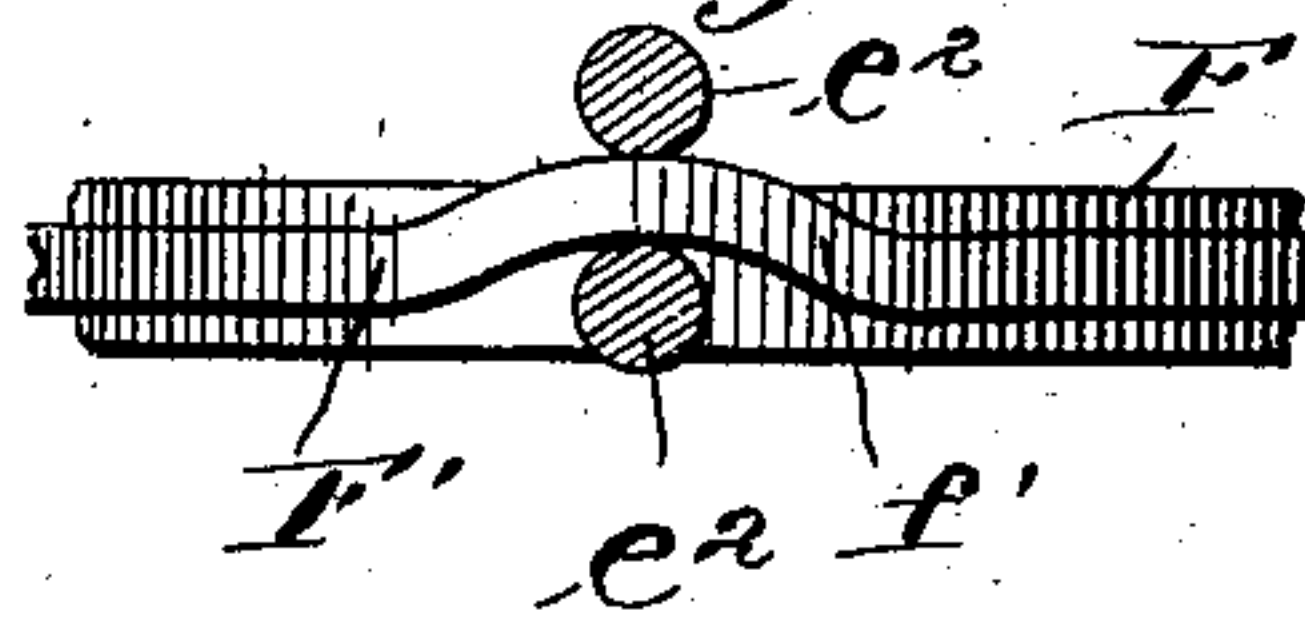
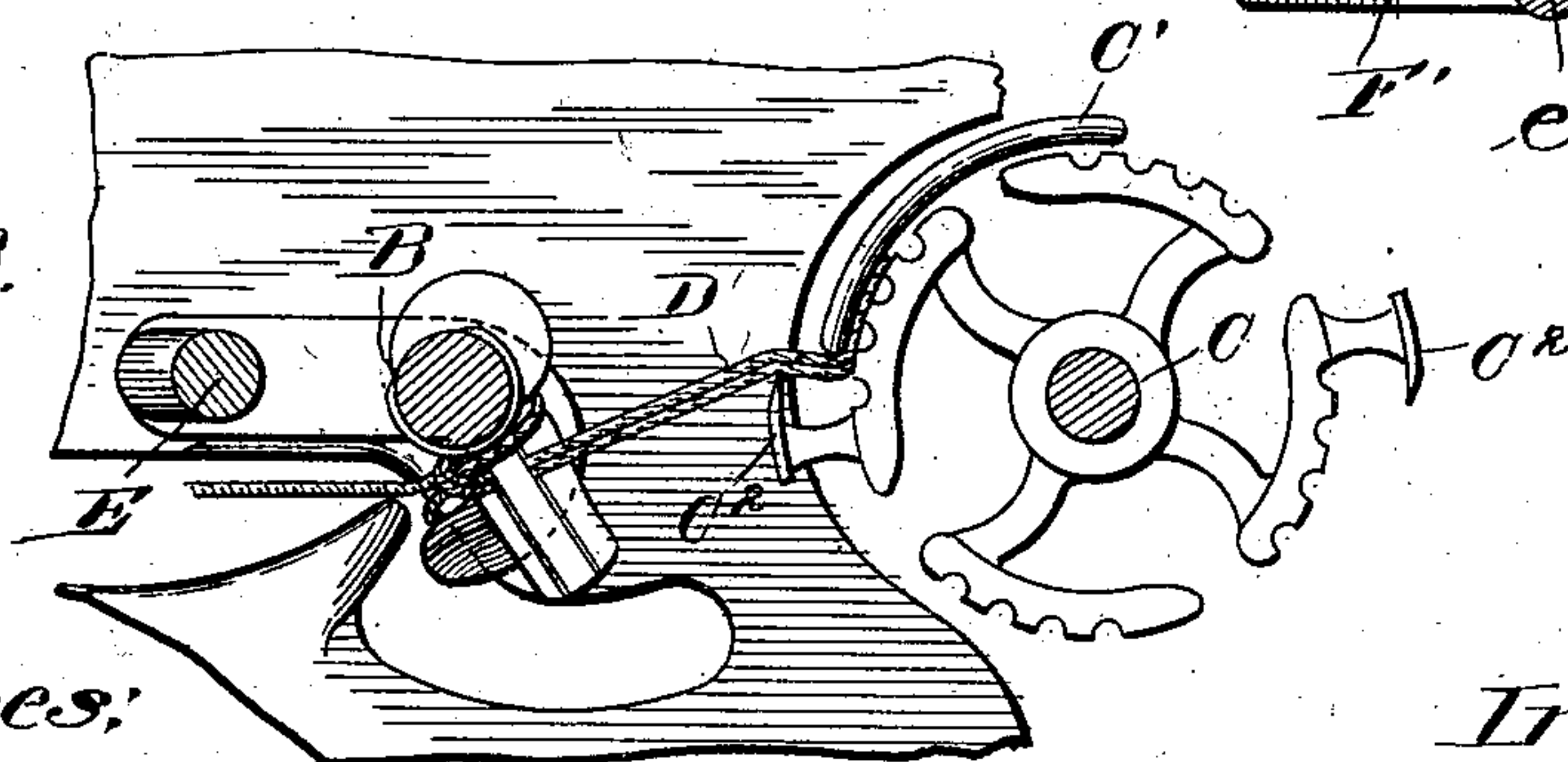


Fig. 3.



Witnesses:

H. S. Gaither
C. C. Cunningham.

Inventor:

Chas. Colahan

UNITED STATES PATENT OFFICE.

CHARLES COLAHAN, OF CHICAGO, ILLINOIS.

GRAIN-BINDER.

SPECIFICATION forming part of Letters Patent No. 726,256, dated April 28, 1903.

Application filed April 1, 1902. Serial No. 100,899. (No model.)

To all whom it may concern:

Be it known that I, CHARLES COLAHAN, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain-Binders, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention has reference to mechanism accessory to the tying of the knot in binders of the Appleby type, and more particularly to that form wherein the cord-slot has an oblique angular jog over the inner inclined edge of which the cord is laid and by which it is guided close up to the spindle of the knotter, the latter normally standing with its bill trending outward in the general direction of the outer or return reach of said jog and past the inclined edge of the inner reach and stopping in such position after each knot-forming revolution. In this construction it sometimes happens that the jarring of the machine or the pressure of straw will cause one or both strands of the cord that are laid over the knotter, particularly the strand at the outer side of the bundle, to slip around the jog in the cord-slot, or, in other words, around the salient finger forming one side of this jog, and displace the two ends leading to the cord-holder, so that they will not be seized by the knotter-jaws as the latter close, and thus the knot fails to be formed. To remedy this, I have heretofore proposed, in Letters Patent No. 690,134, granted to me December 31, 1901, to locate a projecting boss or knob in the slot immediately outside of the aforesaid salient finger to intercept the strand or strands escaping therefrom and guide them by the inner bevel of the knob back into position to be seized by the knotter-jaws. This, however, in some measure obstructs the slot when the completed knot is to be pulled from the knotter by the action of the ejection-arms. Therefore in the present invention I propose to substitute for this stationary boss a movable boss, which is normally projected slightly within the cord-slot immediately beneath the knotter near the reëntrant angle of the slot in the breastplate, the inner curved walls of the projected boss being slightly in advance of the outer

side of the vertical knotter-shaft to provide a suitable deflector adapted to restore or maintain the strands of cord that pass around the bundle in position at the side of the knotter-jaws as the strands extending to the cord-holder are wrapped around them in the revolution of the knotter and seized upon by said knotter-jaws as they come around in grasping position, thus securing a perfect loop, when the movable boss is positively withdrawn by the action of the cam-wheel and the loop pulled over the ends held within the tying-bill as the cord strands extending down around the bundle beneath the breastplate move along the oblique angular face of the breastplate, stripping the cord from the tying-bill by the force of the outgoing bundle as it is ejected from the binder.

In the drawings, Figure 1 is a view, partly in vertical section, showing the horizontal movable boss connected to its vertical actuating-shaft that receives its motion from a cam-surface on the periphery of the knotter-actuating wheel. Fig. 2 is a plan view in section on line 2 2 of Fig. 1, showing the slot in the breastplate, the cord holder and knotter having nearly completed their movement, and the movable arm with a projecting deflecting boss extending within the open slot to prevent the escape of the cord and direct it to the knotter-jaws. Fig. 3 is a plan view of same as the knotter has completed its revolution and the cord is being severed by the knife. Fig. 4 is a sectional view of the breastplate and the vibrating arm with its deflecting boss in its normal position, while the dotted lines show the arm and its boss or deflector withdrawn to permit the discharge of the knot. Fig. 5 is an edge view of the cam on the periphery of the knotter-wheel as it actuates the vertical shaft of the vibrating arm to cause its withdrawal at the moment the knot is being stripped; the straight track on the periphery of the wheel each side of this cam serving to maintain the arm and its projecting boss in its normal position across the extended reach of the cord-slot.

I have found it most convenient to make the movable arm as a horizontally-vibrating arm and the deflector on the end of said arm as an inwardly-beveled knob, such as shown in my aforesaid former patent.

In the drawings, A represents the breastplate; B, the knotter-spindle; B', the knotter or tying-bill, which stops with its jaws trending outwardly in the direction of the discharge of the bundle; C, the cord-holder shaft.

C' is the cord-holder shoe; C², the cord-cutting knife.

F is the main knotter-driving gear-wheel; D, the cord; E, the supporting and actuating shaft of the horizontally-vibrating arm; E', its projecting boss and rounded stop that in its normal position extends within the open slot. At e is represented deflector or convex raised portion of said arm. E² represents the crank of said arm, having the actuating-pins e² e², that contact with the flange F', which is provided with the cam f'.

G represents the oblique reach of the cord-slot.

In operation the band being placed around the bundle and across the knotter-jaws in the usual well-known manner, the knotter will revolve over the breastplate that holds the cord well up on the jaws near the knotter-shaft, and as the end extending to the cord-holder is seized beneath the vibrating jaw the cord extending down around the bundle and supported on the oblique reach or face of the cord-slot or salient finger G of the breastplate is intercepted in case of slipping over the outer corner by the projecting boss or knob and deflected back to tying position until the cord is cut and the ends seized and firmly held beneath the vibrating jaw, when the boss or deflector is withdrawn by its vibrating arm, and then the outward discharge of the bundle will strip the knot from the tying-bill, as shown in my former patent, No. 690,134, December 31, 1901.

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

1. In combination, the breastplate having an angular jog in its slot, an obliquely-extended finger at the salient angle formed by the jog over the inner oblique edge of which the cord is laid, the knotter revolving over said breastplate in proximity to said finger, and stopping with its jaws trending outwardly in the direction of the discharge of the bundle, the movable arm beneath the knotter adjacent the reëntrant angle of the slot and having on its upper surface a raised portion and its end normally projecting into the slot to deflect escaping strands into position to be grasped by the knotter-jaws, and the knotter-driving wheel having means for normally holding said arm beneath the knotter projected within the cord-slot and positively withdrawing it the instant the cord ends are grasped in the knotter-jaws.

2. In combination with the breastplate having an angular jog in its cord-slot, an obliquely-extended salient angle formed by the

jog over the edge of which the cords are laid and by which they are deflected toward the knotter-spindle, the knotter revolving over the breastplate in proximity to said angle and stopping with its jaws trending outwardly in the direction of the discharge of the bundle, the movable arm immediately beneath the knotter, beyond the reëntrant angle of the slot, and having a cord-deflecting boss upon the upper surface of that portion toward the cord-slot, and positive mechanism for normally holding said arm projected within said slot and temporarily withdrawing it the instant the cord ends are grasped in the knotter-jaws.

3. In combination with the knotter revolving over the breastplate and stopping with its point trending outwardly in the direction of the bundle-discharge, the breastplate provided with an angular slot, on the transverse face of which the cord rests in the formation and discharge of the knot, and a horizontally-vibrating arm pivoted in the knotter-frame grainward of the knotter-shaft, and actuated by its cam-wheel, said arm being provided at the upper surface of the portion adjacent the slot beneath the knotter with a raised curved portion and said arm terminating in a knob or boss, that in its normal position extends below the knotter over the oblique slot to hold the cord up to the knotter, and prevent its escape during the formation of the knot, and the knotter-drive wheel provided with means for imparting the movement to the vibrating arm to cause it to withdraw therefrom as the bundle is discharged to permit the band to move over the outer curved face of the oblique slot, to tighten the knot as it is stripped from the tying-bill.

4. In combination with the knotter revolving over the breastplate and stopping with its point trending outwardly in the direction of the outgoing bundle, the breastplate provided with an angular slot and having a horizontal vibrating arm, said arm being provided at the upper surface of the portion adjacent to the slot beneath the knotter with the raised curved portion and terminating in a knob or boss, that is caused to advance within the reëntrant angle of the cord-slot at its outer corner and prevent the escape of the cord that is supported against the oblique angular face of the breastplate in the formation of the knot, and the knotter-drive wheel provided with means for imparting the movement to the vibrating arm to cause it to withdraw and permit the escape of the band over the outer angular face of the preastplate as the bundle is discharged.

CHARLES COLAHAN.

Witnesses:

M. H. COLAHAN,
A. S. HOLMSTED.