

J. O. PANGBURN.
KNOTTER FOR GRAIN BINDERS.
APPLICATION FILED MAR. 22, 1912.

1,038,637.

Patented Sept. 17, 1912.

Fig. 1.

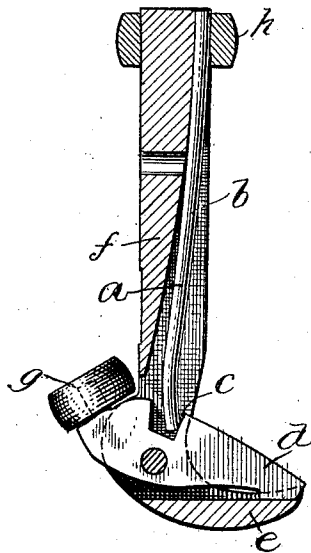
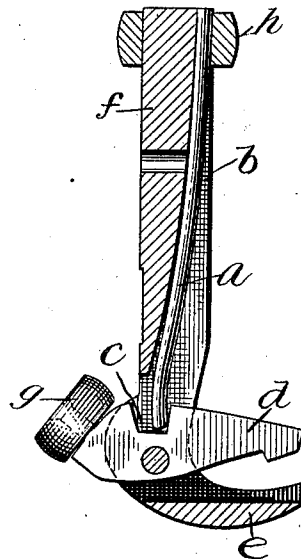


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES O. PANGBURN, OF HECTOR, NEW YORK.

KNOTTER FOR GRAIN-BINDERS.

1,038,637.

Specification of Letters Patent.

Patented Sept. 17, 1912.

Application filed March 22, 1912. Serial No. 685,606.

To all whom it may concern:

Be it known that I, JAMES O. PANGBURN, a citizen of the United States, residing at Hector, in the county of Schuyler and State of New York, have invented certain new and useful Improvements in Knotters for Grain-Binders, of which the following is a specification.

My invention relates to that part of a knoter known as the knotting bill in which a rotary stem is provided at its lower end with a rigid laterally projecting bill member and also a pivoted and movable bill member actuated by a spring and coöperating with the rigid member to seize and hold the twine while forming the knot.

My invention consists in the novel construction of the spring controlling the movable member of the knotting bill and in the construction and arrangement, in connection with the spring, of the rotary stem and the movable member of the knotting bill to accommodate said spring, as will be hereinafter more fully described with reference to the drawing, in which:

Figure 1 represents a view of the knotting bill in closed position, with the rotary stem and stationary member of the knotting bill in section. Fig. 2 is a similar view, showing the same parts with the knotting bill open.

In the drawing *f* represents the rotary stem, to the lower end of which is rigidly attached the laterally projecting and relatively stationary member *e* of the knotting bill. To the latter is pivoted the movable clamping member *d* of the knotting bill, which seizes between it and the stationary member the twine pending the operation of twisting and looping the twine and forming the knot by the rotary movement of the stem *f* in the well known way, the bill member *d* being opened and closed by the alternate action of a cam acting on an anti-friction roller *g* in one direction and a spring acting on it in another direction, which general principle of action in gripping and releasing the twine is already well known.

In my invention the rotary stem *f* is formed on one side, next to the stationary bill member *e*, with a longitudinal groove or channel *b* extending from the bill to a point some distance above, and in the groove is seated a substantially straight bar spring *a* whose lower end is entered into a notch *c* formed in the upper part of the

movable bill *d* and which spring lies in the groove within the circumference of the rotary stem, so as to be housed therein and at its upper end is rigidly secured to the stem. In the present instance this upper end is secured within an encompassing collar *h*, which may be either an independent collar or which may be the gear wheel by which the rotary stem is turned. Any other means for securing the upper end of the spring may be employed, such as a screw, rivet, socket, or any other device which will make it fast while the lower end is free to coöperate with the movable member of the bill. The spring is a stout and laterally deflectable spring bar and is so located and constructed as to bring pressure to bear on the movable jaw of the bill to keep it closed, except when opened to receive the twine by proper mechanism for that purpose.

This device may be employed in the knotters of any of the ordinary types of binders, such as the Johnson, McCormick, Acme, or Deering binders.

The advantages of my invention are, first, that the spring, being entirely housed within the circumference of the rotary stem, is perfectly protected and not liable to injury; secondly, that the spring is always in lateral tension with the movable jaw, bringing pressure to bear thereon at all times, thus making the action of the knoter more absolute and positive than it would be if the pressure of the spring were intermittent; thirdly, that the mechanism of my invention is all within the knoter itself, and, whatever may happen to the binder outside of the knoter, will not affect the integrity of the knoter; fourthly, that one end of the twine is not likely to slip away after it is cut and allow a loose gavel while the end of the twine is tied to the knoter, but the ends will be firmly held until the knot is tied and the ends stripped by the forward movement of the bundle.

I would have it understood that I do not confine my invention to the specific construction and arrangement of the parts shown and described, but my invention may be varied in many details without departing from the scope of the same as set forth in the claims.

I claim:

1. A knoter for grain binders, comprising a rotary stem with fixed bill member, a

movable bill member, and a laterally deflectable spring acting upon said movable bill member and arranged longitudinally in relation to the rotary stem.

- 5 2. A knotter for grain binders, comprising a rotary stem with fixed bill member, a movable bill member, and a laterally deflectable spring acting upon said movable bill member and arranged longitudinally in
10 relation to the rotary stem inside the outer circumference of the rotary stem.

3. A knotter for grain binders, comprising a rotary stem with laterally projecting fixed bill member, a movable bill member
15 pivoted thereto and having a notch in its upper side, and a laterally deflectable spring arranged longitudinally to the rotary stem and having its lower end entered into the notch of the movable bill member.

- 20 4. A knotter for grain binders, comprising a longitudinally grooved rotary stem with rigid laterally projecting bill member

at its lower end, a movable bill member pivoted thereto, and a laterally deflectable spring located within the groove of the rotary stem in longitudinal position thereto
25 and having its lower end connected in operative relation to the movable bill member.

5. A knotter for grain binders, comprising a rotary stem with fixed bill member, a
30 movable bill member pivoted thereto, and a laterally deflectable spring acting upon said movable bill member and arranged longitudinally in relation to the rotary stem, and an encompassing collar for the rotary stem
35 also inclosing and retaining the upper end of the spring.

In testimony whereof, I have signed my name in the presence of two witnesses.

JAMES O. PANGBURN.

Witnesses:

ALEX. SCOTT,
DANIEL W. EDELIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."