(Model.)

E. L. BRACKEN.

KNOTTING MECHANISM FOR GRAIN BINDERS.

No. 270,378. Patented Jan. 9, 1883.

Fig. 2.

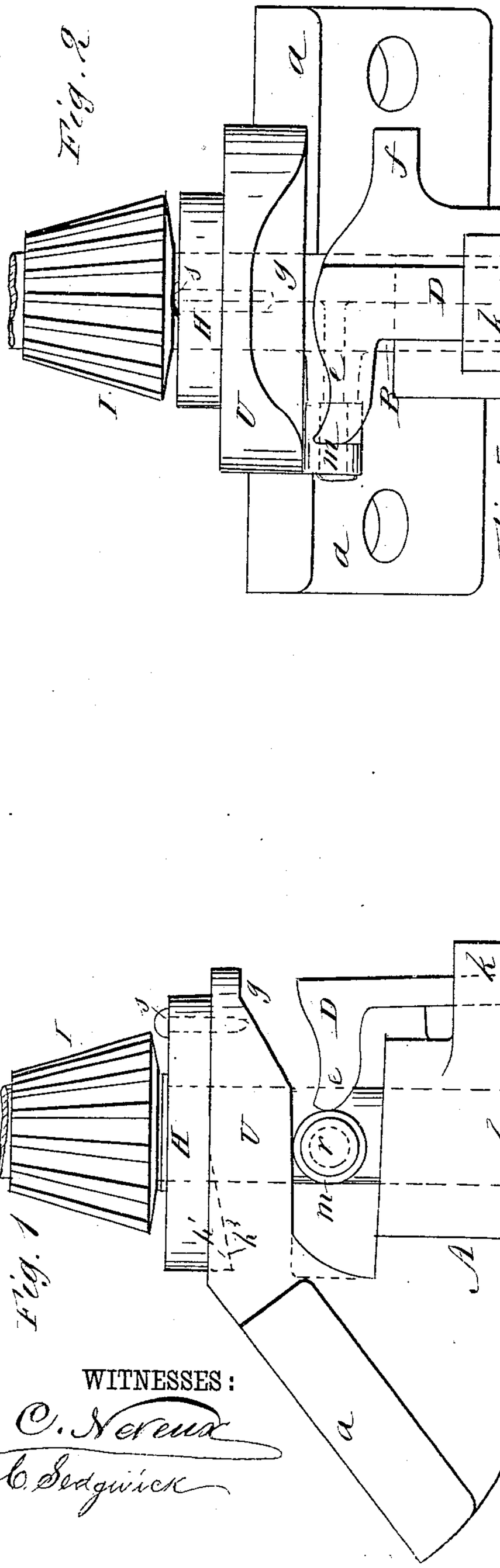

Fig. 3.

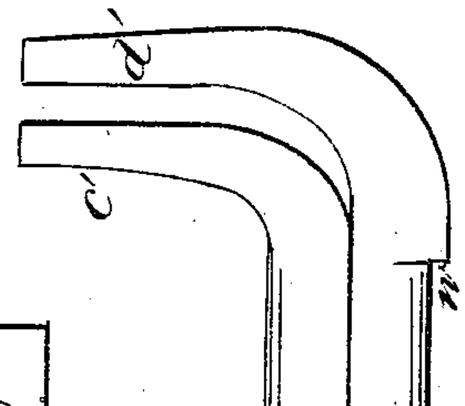

Fig. 5.

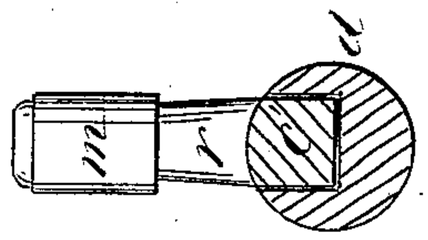

Fig. 4.

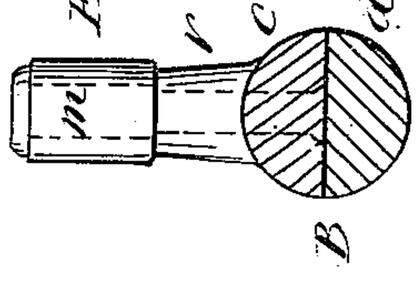

Fig. 1.

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KNOTTING MECHANISM FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 270,378, dated January 9, 1883.

Application filed November 26, 1881. (Model.)

To all whom it may concern:

Be it known that I, EDSON L. BRACKEN, of Dawson, Sangamon county, Illinois, have invented an Improvement in Knotting Mechanism for Grain-Binders, of which the following is a specification.

The invention relates to knotting mechanism having certain parts thereof combined and arranged as hereinafter described.

Figure 1 of drawings is a side view of the knotter and an under side view of the disk, and Fig. 2 an end elevation of the knotter. Fig. 3 shows the spindle detached and in side elevation. Fig. 4 is a cross-section of the spindle on line *x x* of Fig. 4. Fig. 5 shows a modified form of spindle in cross-section.

In the drawings, A represents the frame, having flanges *a a* on the upper part, with holes by which it may be attached to the binder-frame.

b represents a bearing for the knotting-shaft, and *k k'* rear flanges, apertured to receive the cord-clamping slide. *f* is an inclined cam-flange on the upper side of the bearing *b;* and U, a cam-flange above the bearing *b*, with a recessed cam-surface, as shown.

B represents the knotting-shaft, extended through the bearing *b* and flange U, and having a bevel-pinion, I, above the flange. This pinion rests upon a cam-disk, H, secured on flange U by a screw, *s*. The shaft B consists of two semi-cylindrical spindles, *c d*, formed at their lower ends with bills *c' d'*, extending therefrom at right angles. At *r*, on the spindle *c*, is a stud carrying a friction-roller, *m*, that travels beneath the cam-surface of the flange U. The pinion I is secured to the upper end of the spindle *d*, and a shoulder, *w*, on the spindle *d*, beneath the bearing *b*, serves, in connection with the pinion, to prevent endwise movement of the spindle, while the spindle *c* is free to move endwise for opening and closing the bills *c' d'*. The spindle *d* is tightened to take up wear by the disk H, which is formed on its lower face with a beveled projection, *h'*, working in a recess, h^2, in the upper face of flange U, so that by turning and setting the disk any desired adjustment may be obtained.

D represents a slide, movable endwise in flanges *k k'*, and having a right-angled arm at its upper end, and at its lower end an angular foot or projection, *t*. The arm *e* of the slide D lies beneath the recess *g* of the cam U and in the path of the roller *m*, while the projection *t* is shaped to act with a shoulder on the flange *k'*, and a shear-blade, *n*, also fixed on flange *k'* of the frame A to sever the cord and hold the end. *l* is a U-shaped spring, fixed on frame A, and engaging the slide D to hold up and raise it after the roller *m* has passed the flange *e*.

In starting the operation the bills stand as shown in Fig. 1 of the drawings, and the cord, as shown at *p*, passes from the holder *t*, where the end is held over the bills *c' d'*, and the usual guide, *o*, to and around the bundle, thence back over the guides and bills, and then over the holder *t*. As the shaft B revolves, the bills are retained closed by the contact of roller *m* with the cam-flange U, and the cords being at the angle shown in Fig. 1, the bills pass over them and thus loop the cords around the bills. When the shaft B has made about a half-revolution the roller *m*, having reached the inclined cam-projection *f*, is moved up into the recess *g* and the bill *c'* is raised or opened, and by the continued movement of the shaft the bills pass one above and one below the cords. At about three-fourths of a revolution of shaft B, the roller *m* being forced down again by the cam-surface of flange U, the cords are nipped between the bills, and at the same moment the roller, by contact with arm *e*, forces the slide D downwardly, thereby releasing the end which is held by holder *t* and receiving the band portion, and on the roller leaving arm *e* the slide springs up, the band portion of the cord is thereby carried against the fixed spear and severed, and the end of the supply caught as the old end was. When the pressure on the bundle is released the loop is drawn from the bills by the expansion of the bundle and its removal. The loop is drawn over the ends held by the bills and the knot is tightened. The bills hold the ends until, the knot being tight, the strain releases them. The bills may be roughened, if desired, to prevent the ends from slipping of until the loop is drawn tight.

In Fig. 6 of the drawings I have shown a

tyer-shaft with its principal spindle *d* grooved lengthwise to receive the sliding spindle *c*.

Having thus described all that is necessary to a full understanding of my invention, what I claim as new is—

1. In a knotting mechanism for grain-binders, the revolving shaft B, composed of a relatively fixed and movable spindle carrying respectively a fixed and a movable bill, the movable spindle having a lug, *r*, in combination with the spring-pressed slide D, having catch *t* and flange *e*, the cam-disk U, and cam-projection *f* of the supporting-frame, as and for the purpose specified.

2. In knotting mechanism, the disk H, having cam-projection *h'*, in combination with shaft B, having shoulder *w* and pinion I, and flange U, having recess h^2 and bearing *b*, as and for the purpose specified.

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Witnesses:
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