

(No Model.)

W. H. BLANCHARD.

TENSION DEVICE FOR GRAIN BINDERS.

No. 355,678.

Patented Jan. 11, 1887.

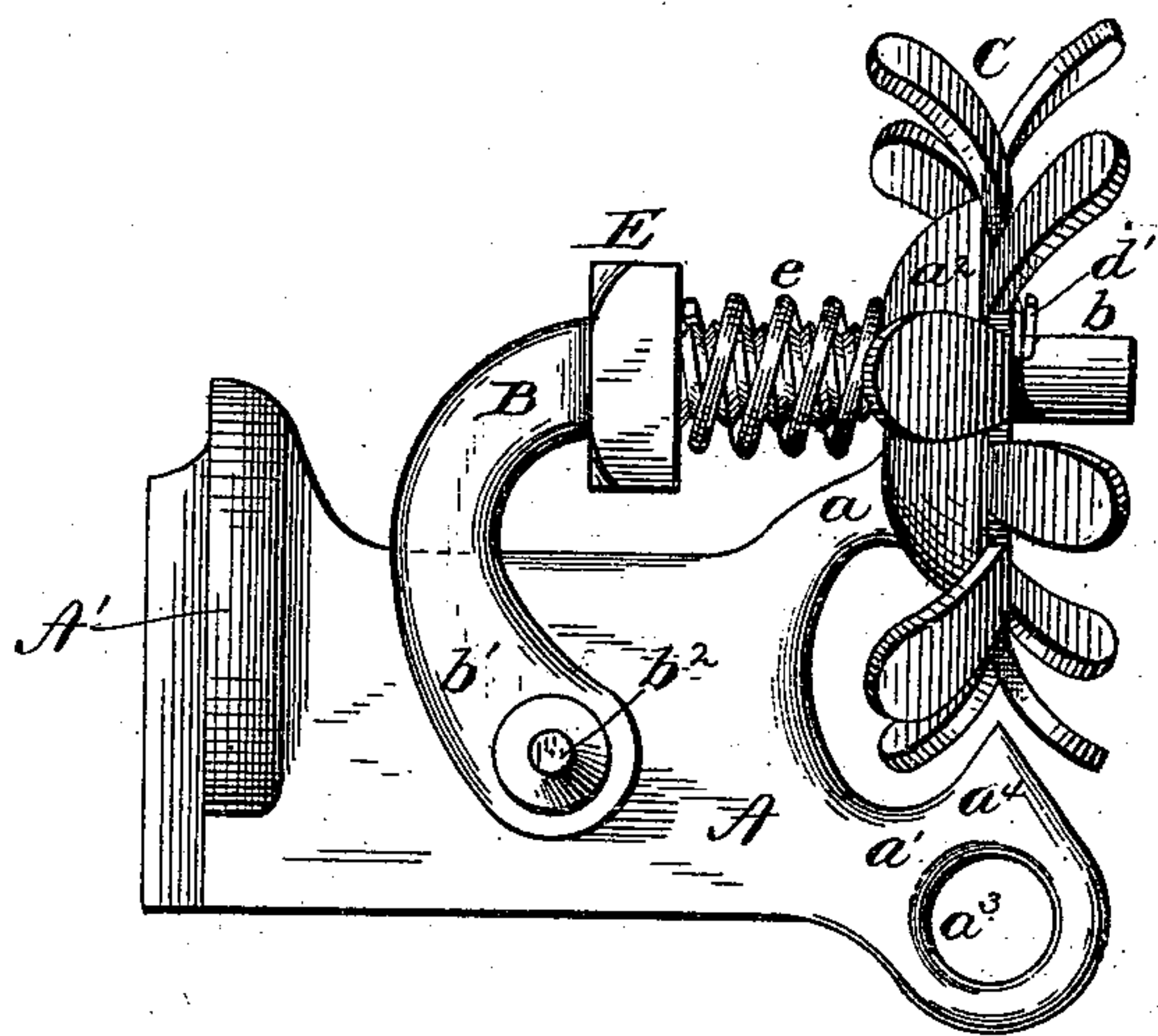


Fig. 1.

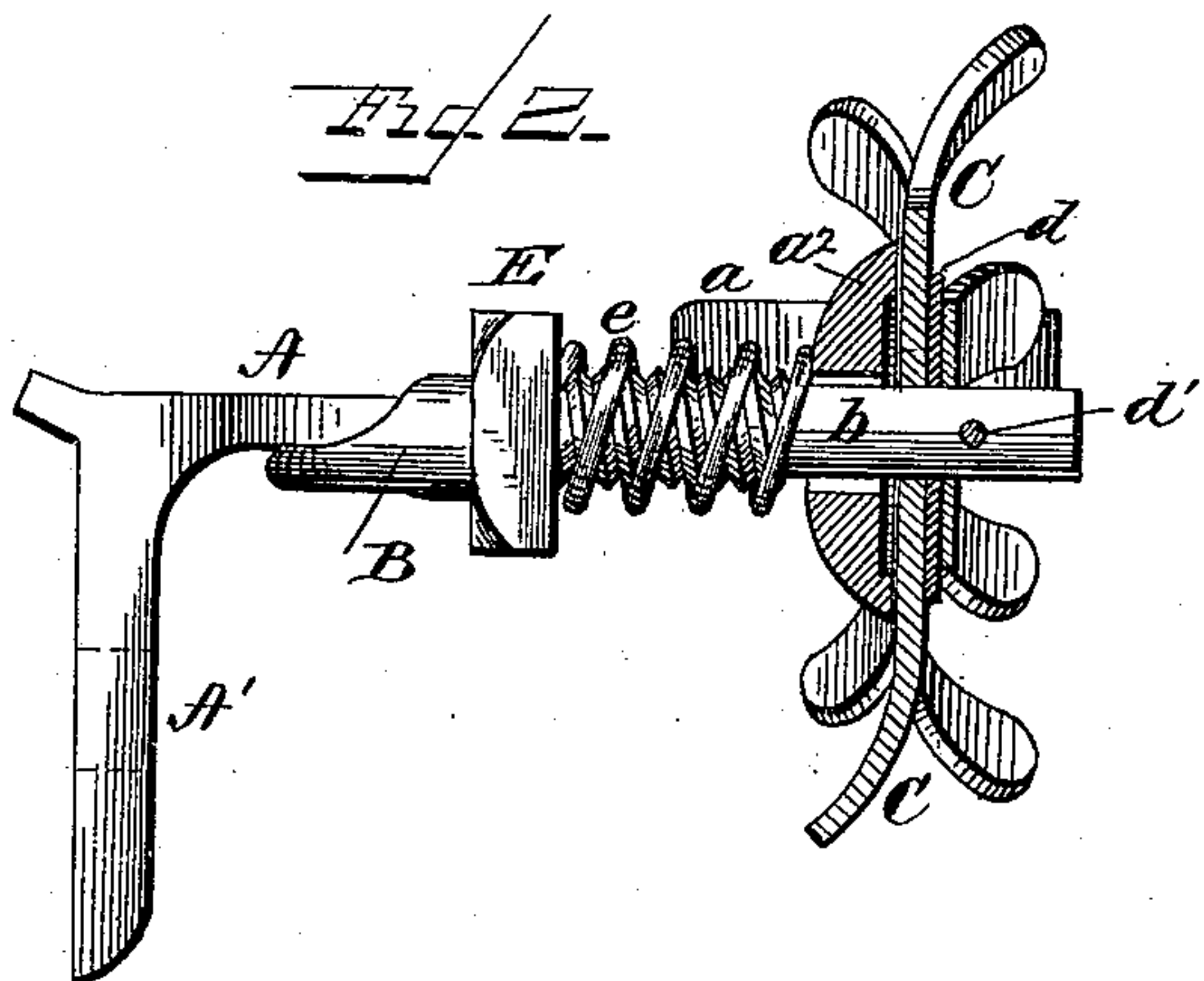


Fig. 2.

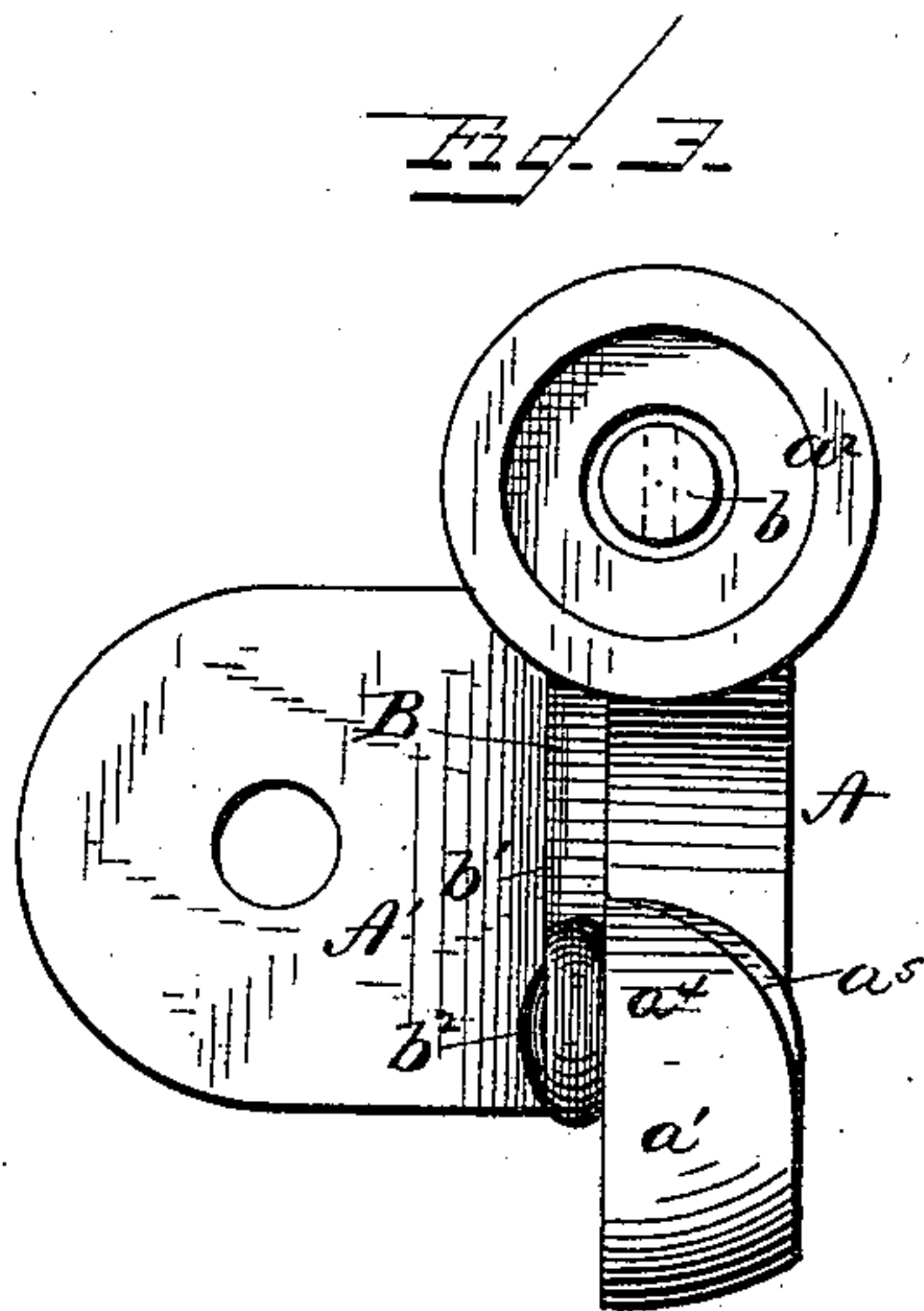


Fig. 3.

WITNESSES

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# UNITED STATES PATENT OFFICE.

WILLIAM H. BLANCHARD, OF POWNAL, VERMONT.

## TENSION DEVICE FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 355,678, dated January 11, 1887.

Application filed September 23, 1835. Serial No. 177,956. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. BLANCHARD, of Pownal, county of Bennington, and State of Vermont, have invented a new and useful Improvement in Tension Devices for Grain-Binders, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification.

My invention relates to a novel device for regulating the tension of the cord fed to the binding mechanism in the process of binding grain; and it consists in mounting a tension-reel upon a yielding shaft or spindle in adjustable frictional contact with a fixed arm or surface, by means of which the resistance to the rotation of the reel is controlled, and from which it is adapted to be relieved under heavy strain by the yielding of the reel shaft or pivot, as will be explained.

In the accompanying drawings, Figure 1 is a side elevation of my improved tension device. Fig. 2 represents a plan view of the supporting stand or bracket, with the tension-reel and the stationary arm or bearing for the shaft thereof in section; and Fig. 3, a face or end view of the supporting-bracket and tension-reel shaft with the reel removed.

A represents a stand or bracket, of suitable shape to be attached to the frame-work of the machine in proper relation to the binding mechanism for directing the cord thereto, and provided with a foot-flange,  $A'$ , through which it may be bolted or otherwise secured to said frame. The outer end of this bracket is bifurcated or provided with two arms,  $a$  and  $a'$ , the upper one of which, as represented, terminates in a transversely-arranged cylindrical disk or hub,  $a^2$ , perforated centrally to form a support for the outer end of the tension-reel shaft or pivot passing through it. The lower arm,  $a'$ , of the bracket is also expanded at its end, and has an eye,  $a^3$ , formed in it at right angles, or nearly so, to the perforation in the arm  $a$ , through which the cord passes to or from the tension-reel, and thence to the binding devices.

The tension-reel shaft or pivot is formed on the arm  $b$  of a bell-crank-shaped piece, B, which has its other arm or end,  $b'$ , pivoted to the bracket A at  $b^2$ . The arm  $b$  passes through the eye or perforation in the hub  $a^2$ , and has

the tension-reel C mounted loosely on its end outside of the hub  $a^2$ , and in frictional contact with the outer face thereof, held in place on said shaft or pivot by means of a washer,  $d$ , and a pin,  $d'$ , passing through the end of the arm or pivot  $b$ , as shown, or in other suitable manner. On the inner side of the hub  $a^2$  the arm  $b$  has a screw-thread formed upon it, and is provided with a screw-threaded nut or disk, E, between which and the hub  $a^2$  is arranged a spiral spring,  $e$ , surrounding the arm  $b$ , as shown, and the tension of which is exerted to force the nut away from the hub  $a^2$ , and thereby to draw the arm  $b$  inward, and thus to clamp the reel C between the washer  $d$  and the hub  $a^2$ . By the adjustment of the nut E the spring  $e$  may be more or less compressed, and the frictional grasp of the washer and hub upon the reel will be correspondingly increased or diminished. The eye or bearing in the hub  $a^2$  for the reel shaft or pivot  $b$  is slightly elongated, or made of somewhat greater diameter than the portion of the arm or pivot  $b$  passing through it, as shown in Figs. 2 and 3, to permit said arm to be drawn downward under undue tension on the cord, and this movement, in consequence of the elbow or crank form of the support B, causes the arm  $b$  to rock or move outward through the hub  $a^2$ , overcoming the tension of spring  $e$  and relieving the frictional grasp of the washer and hub on the reel, thereby obviating any danger of undue strain upon or the breaking of the cord.

The reel is represented as made from a single piece of metal in disk form, with its periphery scalloped and slit between the scallops, and the leaves thereof bent alternately to opposite sides to form a V-shaped peripheral groove between them. This form is found to be very effective in that it causes the arms to "bite" the cord, and thus insures the rotation of the reel under the movement of the cord around or over it, while providing for the free movement of knots or imperfections in the cord over these arms, and thus escape from the reel; but other suitable form of reel or sheave may be used, if desired. The arm  $a'$  is provided with a wedge-shaped lip or projection,  $a^4$ , grooved on its side at  $a^5$ , for guiding the cord in its passage between the reel and eye  $a^3$ , said lip projecting upward between



the oppositely-bent leaves or arms of the reel, as shown in Fig. 1, and serving to hold the latter against displacement, and in proper working relation to the cord-guiding eye  $a^3$ .

The form of the parts may, of course, be varied to adapt them to the location of the device. Their operation will be readily understood without further description.

Having now described my invention, I claim as new—

1. In a tension device, the reel or sheave over which the cord passes, mounted on a laterally-yielding shaft, in combination with a fixed arm or support, relatively to which said shaft or pivot is adapted to yield, substantially as and for the purpose described.

2. The combination, in a tension device, of the reel or sheave, the pivoted and yielding shaft or pivot therefor, and a fixed arm or support for said pivoted shaft, substantially as described.

3. The combination, in a tension device, of the supporting stand or bracket, the yielding reel-shaft pivoted thereto, the reel mounted on said shaft, a fixed arm or support for said yielding shaft, and means, substantially as described, for holding said reel in frictional contact with said fixed arm, substantially as described.

4. The combination, in a tension device, of the laterally-yielding shaft, the reel or sheave mounted thereon, the fixed arm or support for said shaft, the spring on said shaft, and the nut or disk for adjusting the tension of the spring and the frictional grasp on the reel or sheave, substantially as described. 30 35

5. The combination, in a tension device, of the supporting stand or bracket A, the pivoted yielding arm B, the reel or sheave C, mounted on said arm, the fixed arm or support  $a$  for the pivoted arm, the spring  $e$ , washer  $d$ , and nut E, all substantially as and for the purpose described. 40

6. The combination of the reel and the laterally-yielding reel support with a stand or bracket, A, provided with the perforated arm or support  $a$  for said yielding reel-shaft, and a perforated cord-guiding arm,  $a'$ , having the wedge-shaped lip or projection  $a^4$ , substantially as and for the purpose described. 45 50

In testimony whereof I have hereunto set my hand this 10th day of June, A. D. 1885.

W. H. BLANCHARD.

Witnesses:

THOMAS H. HALL,  
C. E. PARKER.