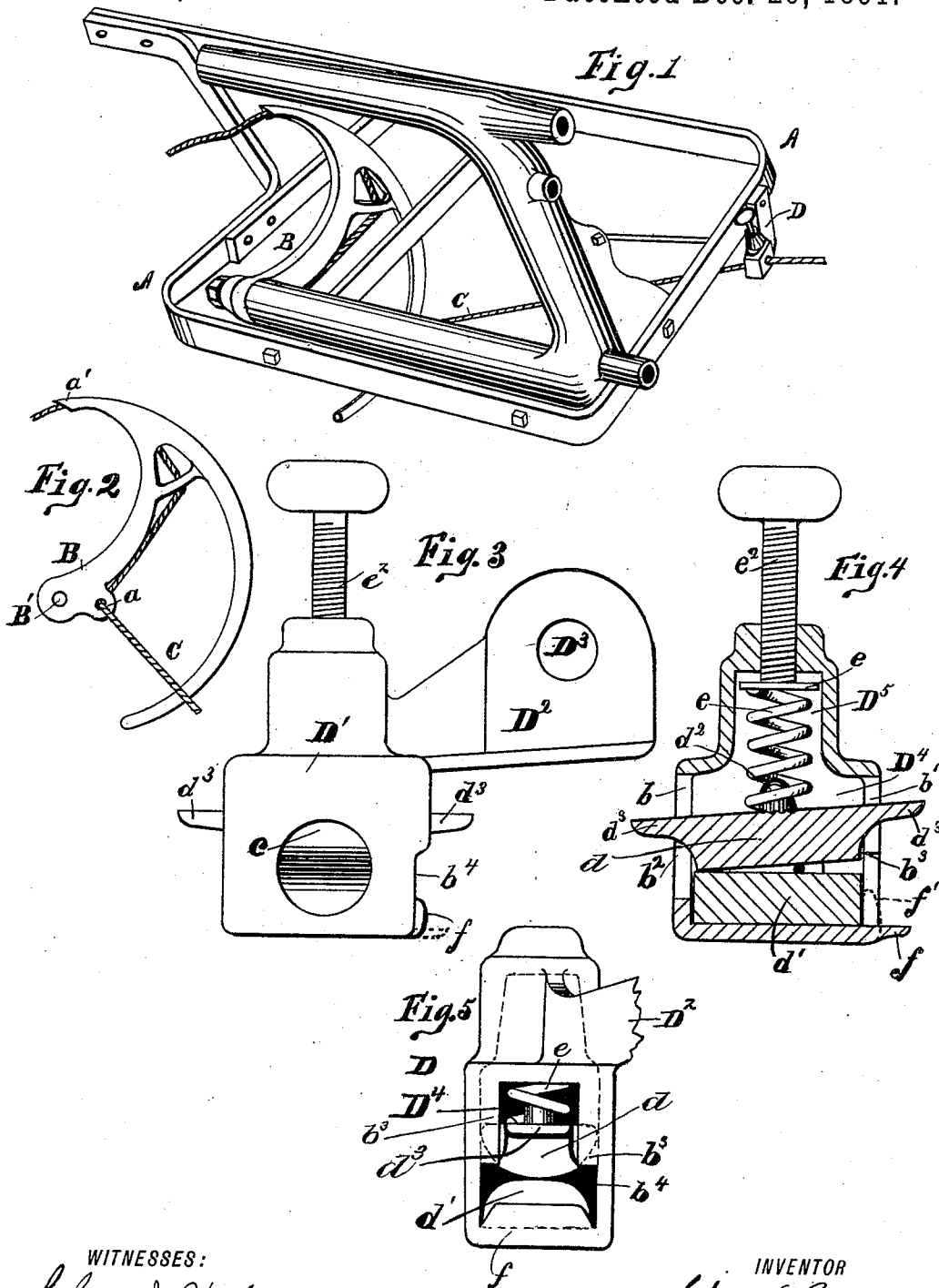


(No Model.)

C. A. BAUER.  
CORD ATTACHMENT FOR GRAIN BINDERS.

No. 466,088.

Patented Dec. 29, 1891.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES A. BAUER, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE WARDER,  
BUSHNELL & GLESSNER COMPANY, OF SAME PLACE.

## CORD ATTACHMENT FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 466,088, dated December 29, 1891.

Application filed April 20, 1891. Serial No. 389,562. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. BAUER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Cord Attachments for Grain-Binders, of which the following is a specification.

The object of my invention is to provide a simple and efficient cord attachment for grain-binders, adapted to permit the cord to pass freely to the needle-arm and at the same time furnish sufficient tension thereon to secure the proper binding of the grain.

My invention consists, essentially, in the constructions and combinations of parts hereinafter described, and set forth in the claims.

Figure 1 is a perspective view of a portion of the binder-frame, showing the needle-arm and the manner of applying my improved cord attachment. Fig. 2 is a side elevation of the needle-arm removed. Fig. 3 is a side elevation of my improved tension device in detail. Fig. 4 is a longitudinal sectional view; and Fig. 5 is a partial end view of the same.

Like parts are indicated by similar letters of reference in the several views.

In the said drawings, A represents the binder-frame, and B the needle-arm, supported on an operating-shaft in suitable bearings in a well-known manner.

C is a cord which passes through my improved tension device D to the needle-arm.

The needle-arm B, I provide with a cord supporting and guiding eye *a*, arranged in proximity to the supporting-shaft B', or, in other words, to the center of rotation. From the eye *a* the cord passes in the usual way through guides to the end *a'* of the needle-arm.

My improved tension device consists, essentially, of an outer frame D', having an extended arm D<sup>2</sup>, adapted to be connected to the binder-frame by means of a bolt or other fastening device passing through a suitable opening D<sup>3</sup>, provided for this purpose. The frame D' is cored or hollowed out and is enlarged at the bottom to form a housing D<sup>4</sup> with an extended neck or chamber D<sup>5</sup>. The housing D<sup>4</sup> is provided at each end with longitudinal openings *b b'* and with inwardly-projecting shoulders

or flanges *b<sup>2</sup> b<sup>3</sup>*, the flanges *b<sup>2</sup>* being adapted to extend along each side of the opening *b* throughout the entire length thereof, the flanges *b<sup>3</sup>* being formed throughout a portion only of the length of the opening *b'*, the said opening *b'* being enlarged below the flanges *b<sup>3</sup>*, as shown at *b<sup>4</sup>*. The housing D<sup>4</sup> is also provided on each side with a transverse opening *c*, preferably circular in form, with their axes at right angles to the plane of the openings *b b'*. Arranged within the housing D<sup>4</sup>, so as to extend across the opening *c*, are bearing or tension plates *d d'*, the plate *d'* being located at the bottom of said housing with the plate *d* above and resting in contact with the same. Within the housing D<sup>4</sup> and extending into the neck or chamber D<sup>5</sup> is a spring *e*, resting at one end in contact with the plate *d* and at the other against a shoulder or washer *e'* on an adjusting-screw *e<sup>2</sup>*, which is screwed into the neck D<sup>5</sup>, the plate *d* being preferably provided with a projection *d<sup>3</sup>* to hold said spring centrally in said plate. The plate *d* is provided at each end with projections *d<sup>3</sup>*, which pass through the slotted openings *b b'*, respectively, and permit said plate to rise and fall in said slotted openings, the main part of said plate being of increased size and held in the housing D<sup>4</sup> by the flanges *b<sup>2</sup> b<sup>3</sup>*.

In forming and assembling the parts of my improved tension device the outer frame or housing may be of a malleable substance, preferably malleable iron, with a projecting finger or lug *f*, forming a continuation of the bottom of the housing, immediately below the enlarged opening *b<sup>4</sup>*. Through this opening the plate *d* is inserted and is pushed into the upper part of the housing with the projections *d<sup>3</sup>* in the elongated openings, as before described. The lower plate *d'* is then inserted and the projecting finger *f* bent up, so as to form a projecting flange at the bottom of the enlarged opening *b<sup>4</sup>* sufficient to retain the plate *d'* within the housing. The plate *d*, resting on the plate *d'*, is also retained therein.

The plates *d* and *d'* are formed of hardened metal, preferably of white iron, and rounded on their respective faces, as shown in Fig. 5, so that the cord passing through the transverse openings *c c* on opposite sides therefrom passes between the rounded adja-

cent edges of the respective plates  $d$  and  $d'$ , where it is held at the desired degree of tension by the spring  $e$ , which may be adjusted by the adjusting-screw  $e^2$ . Should the plates become worn, as they do more or less from constant use, the finger  $f$  can be bent down, permitting the lower plate  $d'$  to be removed, after which the upper plate may be removed and the worn parts ground to present new surfaces or renewed, as the case may be.

If preferred, the housing  $D^1$  may be cast without the finger or lug  $f$ , and instead thereof the lower side of the opening  $b^4$  can be provided with a vertical projection, as shown by dotted line  $f'$  or other suitable device for retaining the lower plate  $d'$  in position.

When the rigid vertical projection is used, sufficient space is left between the top of said projection and the bottom of the flanges  $b^3$  to permit the plates to be inserted. The upper plate is inserted first and is compressed to its position, after which the lower plate is inserted and drops in behind the projection, the tension-spring holding the parts in position, as before. The plates may be removed in the reverse order.

Having thus described my invention, I claim—

1. The combination, with an outer casing or housing having elongated openings and guiding-flanges and a transverse opening at right angles to said elongated openings, of tension-

plates arranged in said housing, one of said plates having guiding projections extending into said elongated openings and the other plate being held in position by a malleable flange, substantially as specified.

2. The combination, with a housing having longitudinal and transverse openings, as described, one of said longitudinal openings being provided with an enlarged portion to permit the insertion and removal of tension-plates into said housing, and an extended flange or finger adapted to be bent so as to partly close said enlarged opening, substantially as specified.

3. The combination, with the housing having elongated openings and transverse openings, as specified, of hardened plates located in said housing and provided with rounded faces adjacent to said transverse openings, and guiding projections on one of said plates extending into said longitudinal openings, a projecting flange on said housing for retaining the other plate, a spring arranged in contact at one end with one of said plates and at the other with an adjusting-screw in said housing, substantially as specified.

In testimony whereof I have hereunto set my hand this 14th day of April, A. D. 1891.

CHARLES A. BAUER.

Witnesses:

PAUL A. STALEY,  
CHAS. I. WELCH.