

No. 679,495.

Patented July 30, 1901.

A. C. BOWER.
BOX OPENING TOOL.

(Application filed Apr. 21, 1899.)

(No Model.)

Fig. 1.

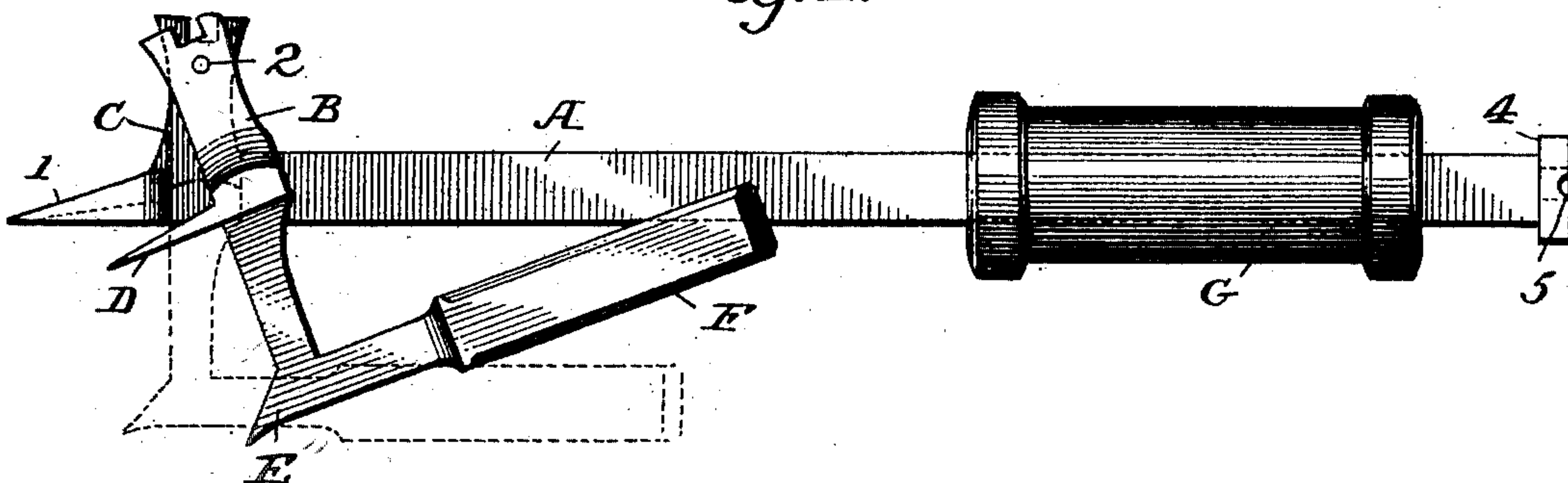


Fig. 2.

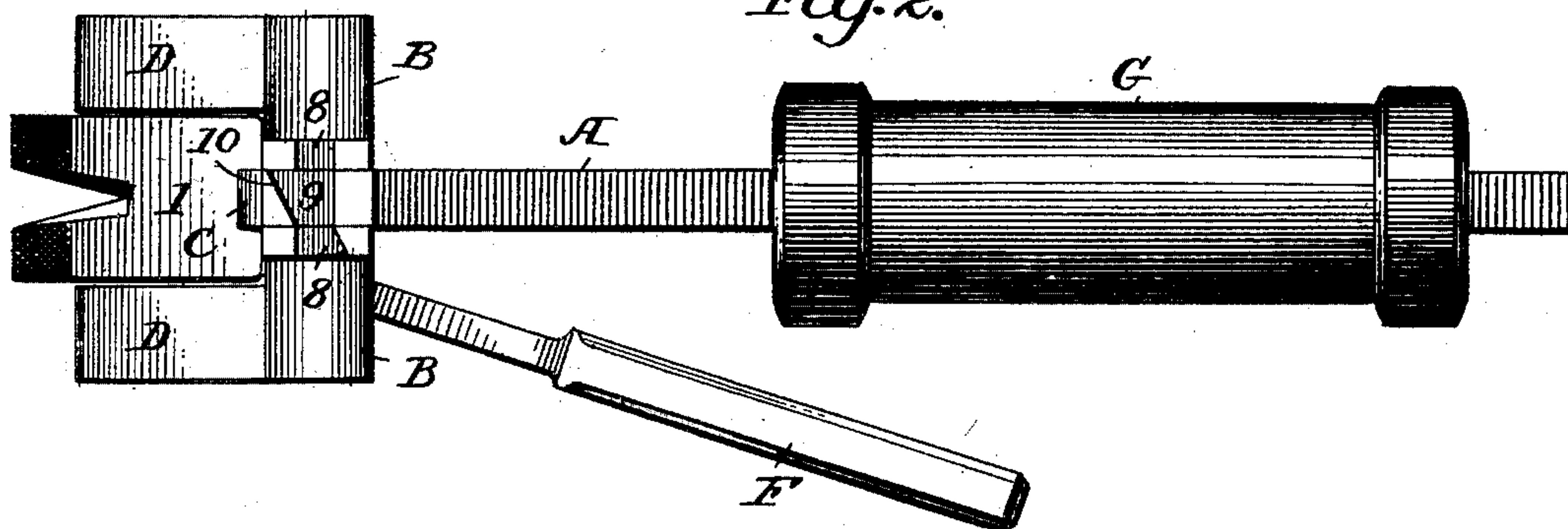


Fig. 3.

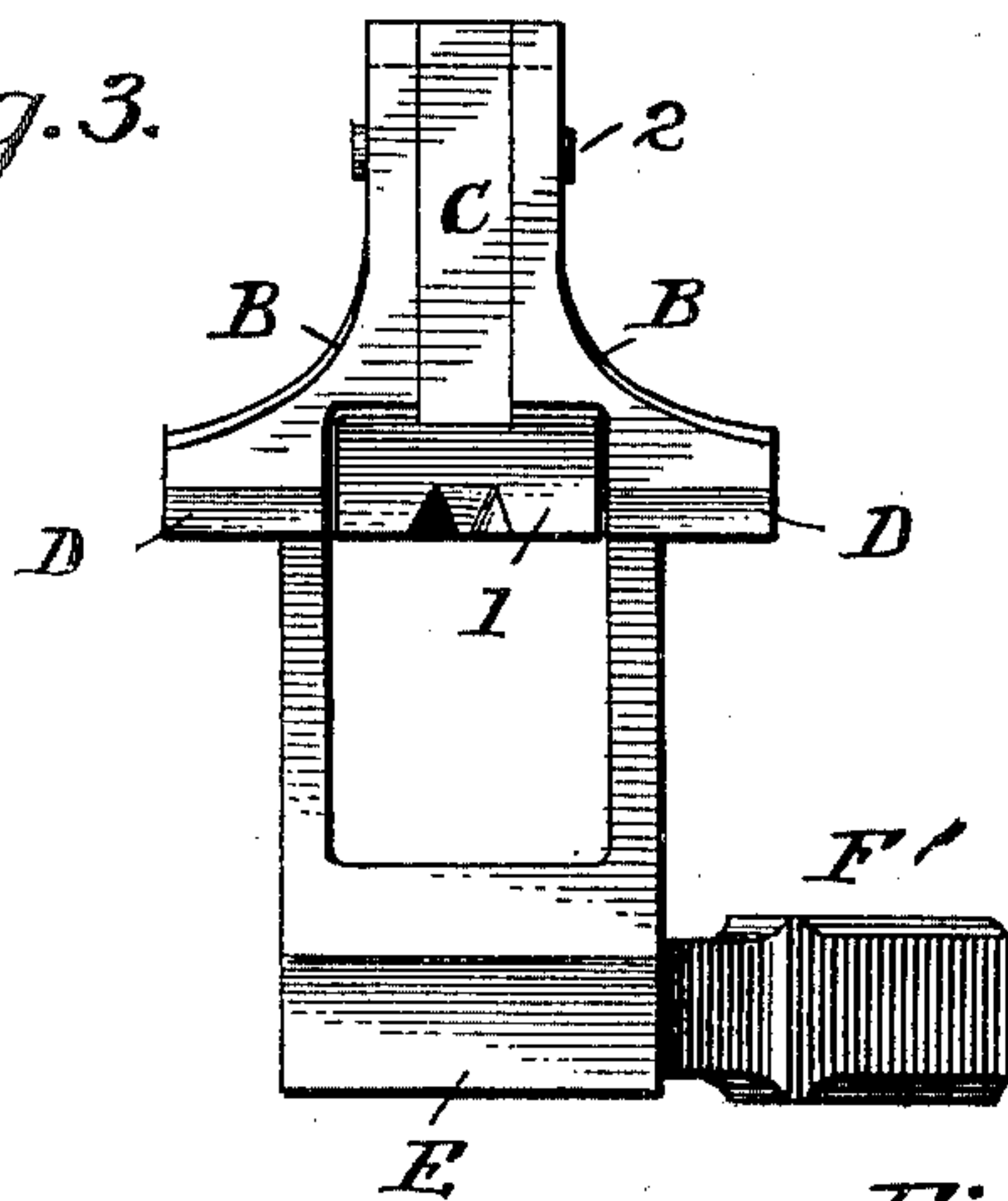


Fig. 4.

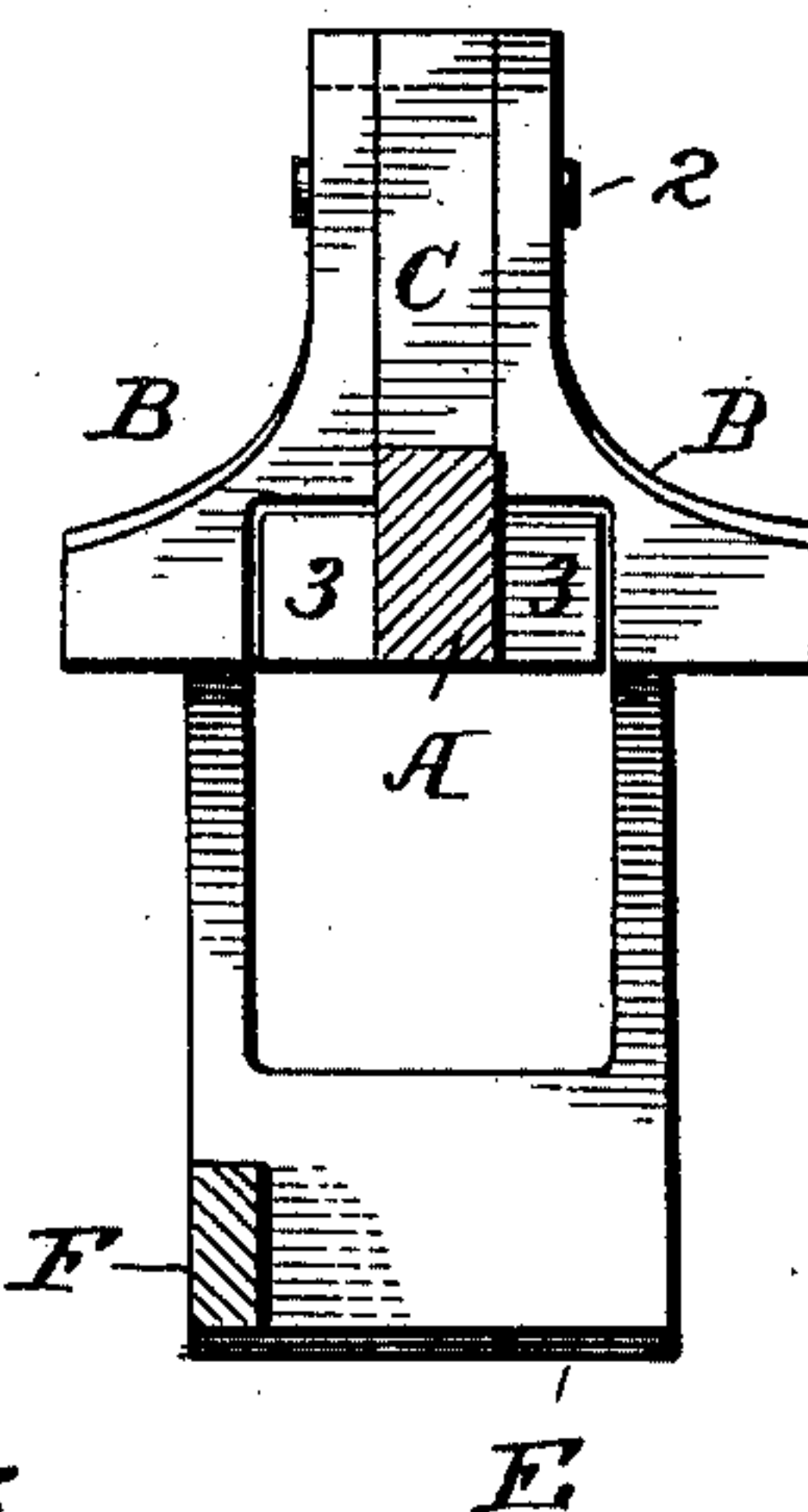
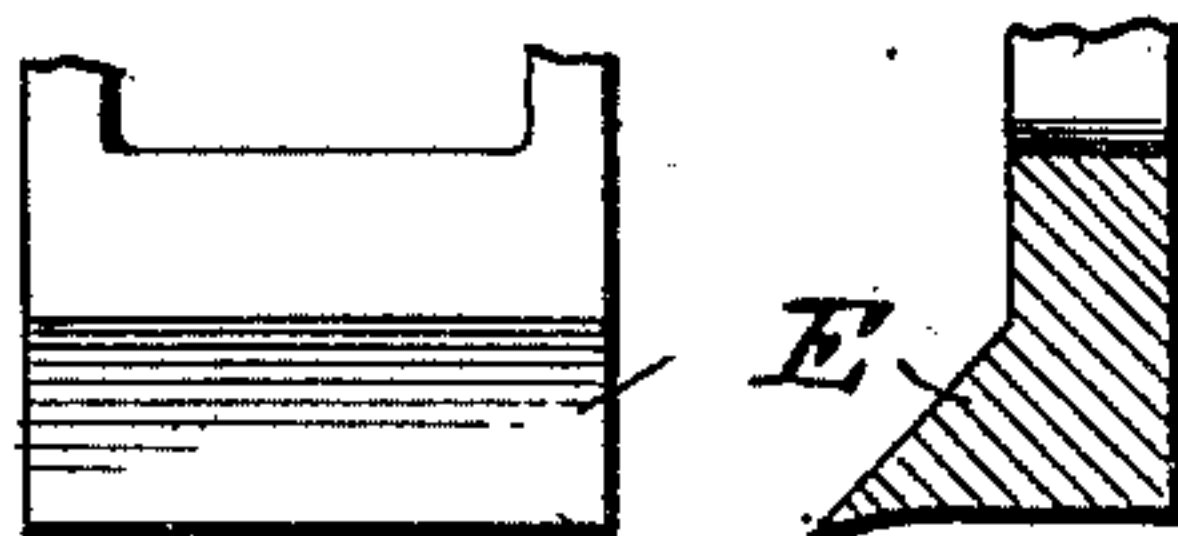


Fig. 5.



Witnesses

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ADOLPHUS C. BOWER, OF NEWKIRK, OKLAHOMA TERRITORY, ASSIGNOR
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BOX-OPENING TOOL.

SPECIFICATION forming part of Letters Patent No. 679,495, dated July 30, 1901.

Application filed April 21, 1899. Serial No. 713,911. (No model.)

To all whom it may concern:

Be it known that I, ADOLPHUS C. BOWER, a citizen of the United States, residing at Newkirk, in the county of Kay and Territory of Oklahoma, have invented certain new and useful Improvements in Box-Opening Tools, of which the following is a specification.

This invention relates to an improved tool adapted for opening packing-boxes and for similar uses.

The tool consists, broadly, of a lifting-lever and a fulcrum-bar hinged together, an independent ram mounted on the handle end of the lifting-lever, and means whereby the ram is adapted to force the operating parts into engagement in or upon the box to be opened.

The objects of the invention are, first, to provide a tool with a lifting-lever having a maximum range of lift for removing the cover from a box and having a small extension of its operating parts thereunder; second, to provide a tool with a fulcrum-lever adapted to support a great pressure by bearing upon or against parts of the box without injury to the same and adapted to be forced into engagement with the box simultaneously with the lifting-lever; third, to provide a tool for opening boxes having its lifting-lever and fulcrum-bar adapted to shear wire while the wire is bound tightly about a box.

Of the accompanying drawings, Figure 1 is a side elevation with the fulcrum-bar in an abnormal position in order to show the parts more clearly. Fig. 2 is a plan view of the tool; Fig. 3, a front end view of the same; Fig. 4, a rear end view, partly in section; Fig. 5, a detail of the fulcrum-bar teeth.

The lifting-lever is represented by the letter A and is provided at its operating end with a cloven lifting-chisel 1, adapted to straddle a nail.

B is the fulcrum-bar, which is hinged to A at a point 2, hereinafter determined, to permit the lifting-chisel the largest operative range of movement with respect to the other parts of the tool. This point must not be high enough above the chisel nor sufficiently near in a horizontal line to the end of the chisel to enable the lifting-lever or any part

thereof to be arrested in its lifting movement by contact with the side of the box-cover; but it should be located as near these limits as possible in order to provide the most advantageous range of movement for the fulcrum-bar. With this construction the chisel will move in an arc of a circle substantially the middle point of which lies at substantially the middle of the operative lifting range. Hence during the first part of the lift the tendency of the chisel will be to enter farther beneath the box-cover and during the latter half of the stroke it will tend to move outwardly. It will readily be seen that the higher up the hinge-point can be put above the chisel the greater will be the radius of the circle whose arc is described by the chisel, and therefore the more nearly perpendicular will that arc be. It will be necessary to determine by experiment the best location for the hinge-point in tools of varying proportions. In my preferred construction this hinge-point 2 is located in an upright extension C of the lever A, and the handle of the lever is continued in line with the chisel; but it is evident that any other suitable construction may be adapted, the handle being arranged in any relation with respect to the forward part of the lever to enable it to permit the lever to be swung on the hinge-point.

The fulcrum-bar B is preferably constructed double or forked to embrace the lever A and its extension C and is provided with forward horizontal projections D, adapted to enter between the box and the lid in a manner similar to that of the lifting-chisel 1. These projections may not extend so far under the lid as the chisel, since their office is chiefly to act as a support while bearing on the top of the side of the box. They may be extended, however, if desirable. The chisel and the projections D have their surfaces which engage with the box roughened in a suitable manner to prevent slipping, and it is especially advisable to have the lower surface of the projections D treated for this purpose. On the forward side of the fulcrum-bar below the fork are one or more teeth E, adapted to be inserted in the side of the box to assist in supporting the fulcrum-bar, more especially

before the bar is entirely inserted beneath the box-cover. These teeth are arranged so that they are inserted but a short distance into the side of the box when the projections D have
 5 been forced entirely under the box-cover. The projections D also prevent the teeth from being forced downwardly when pressure is applied at the hinge-point and in that way tearing and defacing the side of the box. Each
 10 tooth is broad to engage with a wide extent of the side of the box and has a sharp forward edge, with a blunt forward bottom part. To the rear of the lower part of the fulcrum-bar a handle F is attached to be used generally
 15 in guiding the tool in its operation, and especially when it is used to cut wire bound about the box.

An independently-constructed ram G is mounted on the handle end of the lever A and
 20 is adapted to be reciprocated thereon and impinge upon the rear faces of the branches of the fulcrum-bar B and forward enlargements 3 3 of the lifting-lever, as shown in Fig. 4, thereby forcing the parts into operative en-
 25 gagement with the box. These ramming-surfaces are preferably and most advantageously formed in a line between the lifting-chisel and fulcrum-bar projections D and the ram G. A nut or block 4 is rigidly attached to
 30 the free end of the lifting-lever and is provided with a die or cavity 5, adapted to serve as a guide for a nail. The ram G is adapted also to impinge on this block 4 for the purpose of driving nails out of the removed box-
 35 cover, or for driving them in again, or for any similar purpose. The block 4 serves also to prevent the ram G from slipping from the lever-handle.

The preferable construction of the lever A
 40 and bar B, whereby they are adapted for shearing wire which is tightly wrapped about a box, is shown in Figs. 1 and 2. Each branch of the forked fulcrum-bar B has an opening 8 at its upper edge above the hinge-point,
 45 and these openings register with each other. A third opening 9, registering with the openings 8, is made in the upper edge of the extension C of lever A. The openings 8 and 9 have one or more of their sides suitably ar-
 50 ranged and formed to serve as shears, as shown, for example, in Fig. 2. The upper edges of the bar and extension C adjacent to the openings 8 and 9 are suitably curved to prevent the tool being forced away from
 55 the side of the box when the lever or bar is operated to shear the wire. In operation either the lever or the fulcrum-bar is held tight against the box, the registering-openings 8 and 9 being over the wire which is to
 60 be sheared. Then the fulcrum-bar or lever is moved on the hinge, and the wire is readily sheared.

I do not limit myself to the above construction of the tool or its various parts, as the in-
 65 vention may be embodied in various structures; but

What I claim, and desire to secure by Letters Patent, is—

1. In a box-opening tool, the combination with a lifting-lever extending in the plane of
 70 the box-cover and provided at its operative end with a lifting-chisel forming a horizontal extension of the lever, and with a pivoted support extending upwardly adjacent to the
 75 chisel at substantially right angles to the lever and chisel, of two dependent fulcrum members pivoted on opposite sides of said support, and horizontal forwardly-extending
 80 chisels carried by said members respectively, said chisels extending on opposite sides of the lifting-chisel to equalize the strains and extending in the same direction and substantially
 85 coextensively with the lifting-chisel so that they can be inserted beneath the box-cover simultaneously with the said lifting-chisel, and said pivot-support being by its location on the end of the lifting-lever, adapted
 90 to lie close to the box-cover when the chisels are inserted thereunder, whereby when the outer end of the lifting-chisel is depressed the pressure will be exerted directly downward upon the fulcrum-chisels and the top of the box.

2. In a box-opening tool, the combination with a lifting-lever extending in the plane of
 95 the box-cover and provided at its operative end with a lifting-chisel forming a continuation of the lever, and with a pivot-support extending upwardly adjacent to the chisel at
 100 substantially right angles to the lever and chisel; of two dependent fulcrum members pivoted on opposite sides of said support; and horizontal forwardly-extending chisels carried by said members respectively, said chisels
 105 extending on opposite sides of the lifting-chisel to equalize the strains and extending in the same direction and substantially coextensively with the lifting-chisel so that they can all be simultaneously inserted beneath
 110 the box-cover; portions of the lifting-lever having their rear surfaces in substantially the same plane with the rear surfaces of said fulcrum members when all three chisels are in alinement, whereby they can all be simulta-
 115 neously forced between the box and its cover.

3. In a box-opening tool, the combination with a lifting-lever extending in the plane of
 120 the box-cover and provided at its operative end with a lifting-chisel forming a continuation of the lever, and with a pivot-support extending upwardly adjacent to the chisel at
 125 substantially right angles to the lever and chisel; of two dependent fulcrum members pivoted on opposite sides of said support; and horizontal forwardly-extending chisels carried by said members respectively, said chisels
 130 extending on opposite sides of the lifting-chisel to equalize the strains and extending in the same direction and substantially coextensively with the lifting-chisel so that they can all be simultaneously inserted beneath
 the box-cover; portions of the lifting-lever

having their rear surfaces in substantially the same plane with the rear surfaces of said fulcrum members when all three chisels are in alinement, whereby they can all be simultaneously forced between the box and its cover; and a ram mounted on the lever and adapted to be reciprocated to impinge against the rear surfaces of the lever and fulcrum members.

4. A box-opener, which comprises a lifting-lever having a projection adapted to be inserted beneath the box-cover, a fulcrum-bar hinged to said lever and having a projection adapted to be inserted beneath the box-cover simultaneously with the lever, the rear faces of the projections on such lever and bar being so located with respect to each other that a blow can be delivered to both at the same time to drive them simultaneously beneath the box-cover.

5. A box-opener, which comprises a lifting-lever adapted to be grasped by the hand of the operator, and to have one end inserted beneath a box-cover, a fulcrum-bar pivoted at one end to the lifting-lever at a point which is above the box-cover when the lever is inserted thereunder, said bar being adapted to be inserted beneath the box-cover at the same

time as the end of the lifting-lever, and means carried by said bar for engaging in the side of said box.

6. In a box-opening tool, the combination with a lifting-lever extending in the plane of the box-cover and provided at its outer end with a lifting-chisel, a projection extending upwardly from the portion where the chisel and lever meet so as to lie adjacent to the box-cover, fulcrum members pivoted to hang freely from the outer part of said extension, and chisels carried by said members in alinement with the lifting-chisel, so that all three can be inserted beneath the box-cover, and so that when the outer end of the lever is depressed the chisels of the hanging fulcrum members will press down on the top of the box, and the lifting-chisel will press upwardly against the box-cover.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ADOLPHUS C. BOWER.

Witnesses:

O. R. BURNHAM,
H. S. BRAUCHT.