

No. 671,065.

Patented Apr. 2, 1901.

G. F. FARRAR.
BAND STRETCHER.

(Application filed Dec. 18, 1899.)

(No Model.)

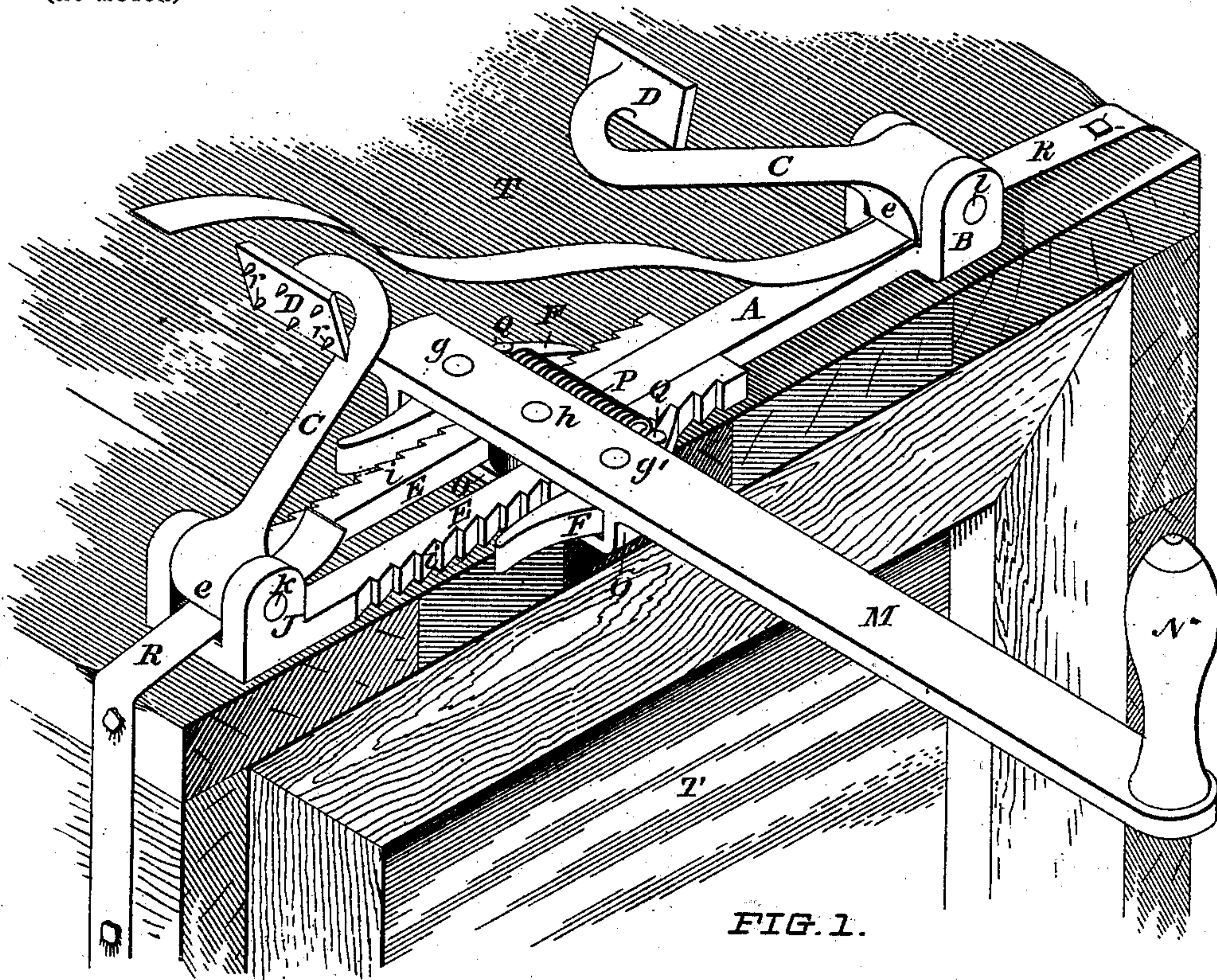


FIG. 1.

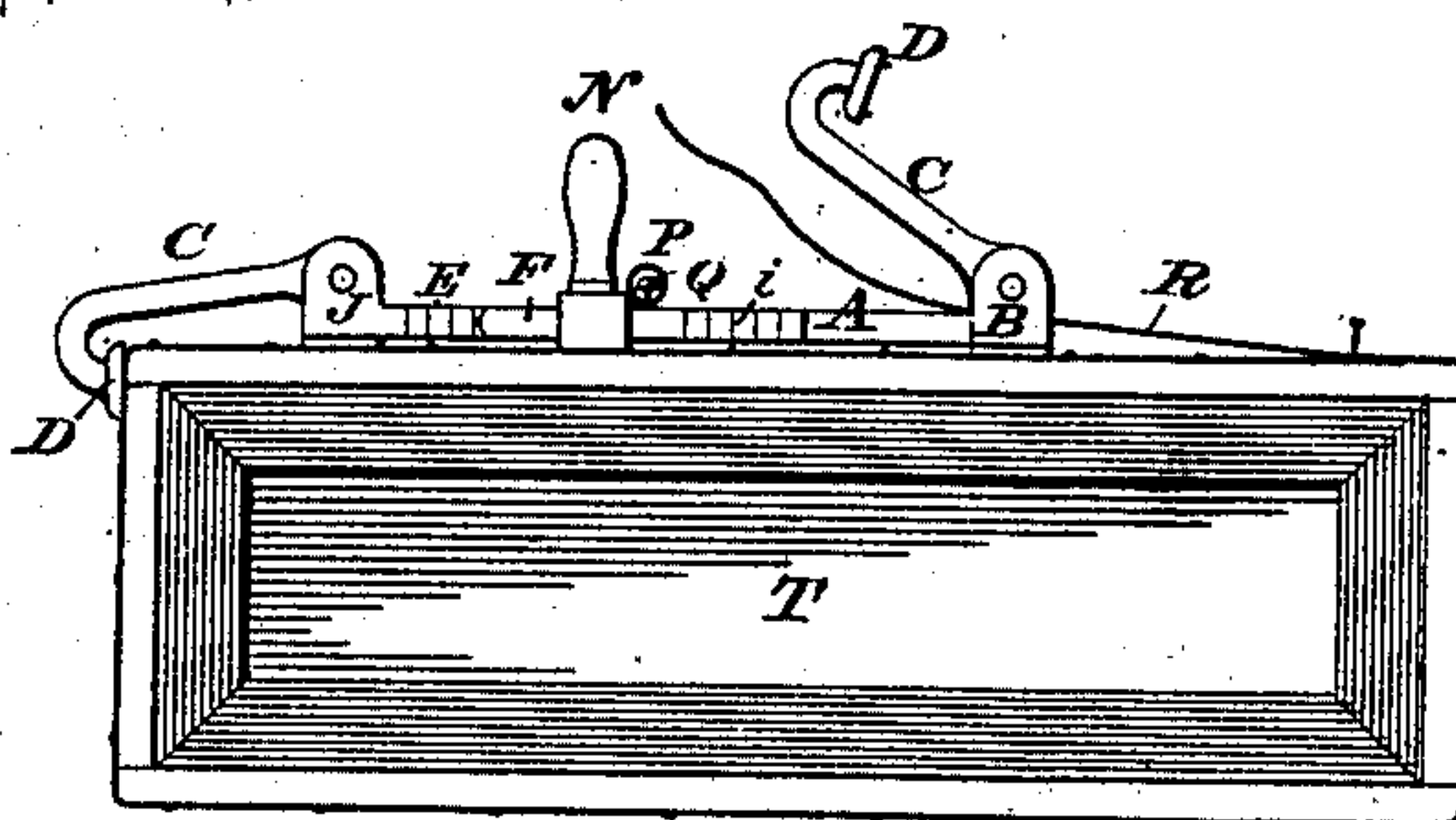


FIG. 2.

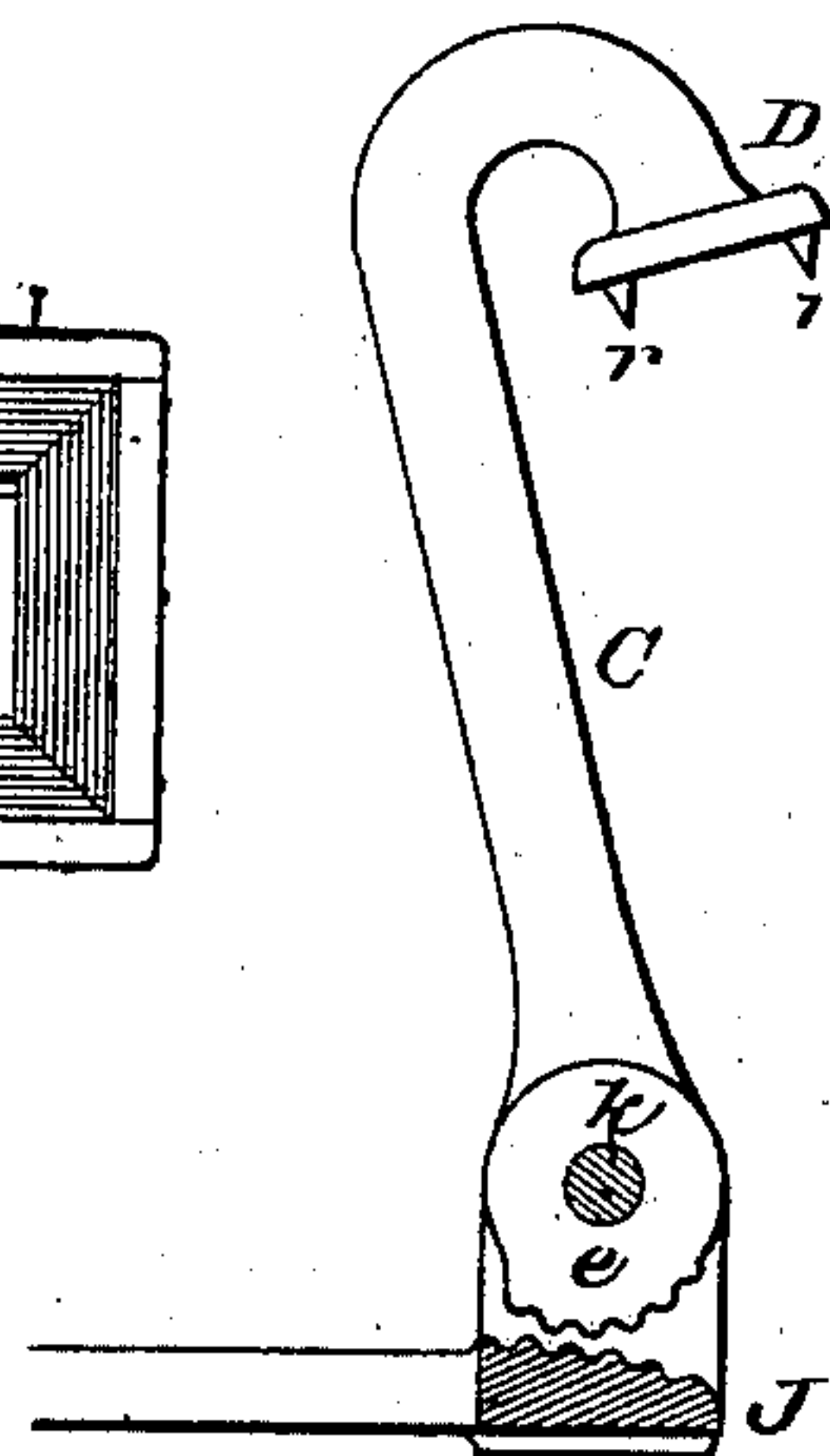


FIG. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE F. FARRAR, OF HOOSICK FALLS, NEW YORK, ASSIGNOR OF ONE-HALF TO JAMES M. MILLER, OF SAME PLACE.

BAND-STRETCHER.

SPECIFICATION forming part of Letters Patent No. 671,065, dated April 2, 1901.

Application filed December 18, 1899. Serial No. 740,645. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. FARRAR, a citizen of the United States, residing at the village of Hoosick Falls, in the county of Rensselaer and State of New York, have invented a new and useful Band-Stretcher, of which the following is a specification.

The structure embodying this invention is a hand implement designed to be used in attaching thin metallic bands to wood packing-boxes and cases for the purpose of straining such bands as taut as practicable before nailing them. It often happens when a packing-case is made of rough unseasoned lumber and is bound with hoop-iron bands nailed on without being strained as tight as possible while the lumber is green after the lumber seasons the bands will be left slack, so that with rough handling the box gets racked so that the joints open, if it does not go to pieces altogether. Bands applied with the aid of this implement are strained so that where they turn the corners of the box they are drawn down so tightly as to be embedded in the wood and always retain their binding-hold on the box.

The invention embraces improved means for manipulating duplex clamping devices for holding both ends of the band while straining it around the box and special means for coupling the implement to the package itself while drawing down and nailing the last end of the band.

The invention is fully shown in the drawings, wherein—

Figure 1 shows in perspective the implement as used in the act of stretching a thin metal band around the end of an ordinary wood packing-case, the band being nailed to the box as closely to the device as possible. Fig. 2 is an end elevation of a box, showing the method of attaching one clamp as a grapnel to engage the corner of the box while the other seizes the free end of the band to stretch and lap it over the fastened end while being nailed. Fig. 3 shows a side elevation of one of the grapnel-clamps.

My apparatus consists of two similar band-clamping jaws B and J, each of which is adapted to cooperate with the other by means of a bar A, which projects from clamp B, and the

two ratchet-bars E E, which project from the clamp J, the bar A being adapted to enter and slide between the ratchet-bars. The bar A has pivoted to it at *h* a vibrating lever M, for which reason it is hereinafter called the "pivot-bar," and is provided with a stirrup O through which the pivot-bar and ratchet-bars slide, and within which are pivoted, as at *g g'*, two pawls F F. These pawls engage the teeth *i i* on the edges of the parallel ratchet-bars E E. The pawls are normally held to their engagement with the ratchet-bars E E by a retractile spring P, attached to said pawls at the points Q Q. The pawls have projecting tail-pieces by which they may be seized by the fingers and pressed out of engagement with the ratchet-bars. The jaws for clamping the ends of the band consist each of two upstanding cheek-pieces, between which is pivoted a serrated rotating cam or eccentric *e*. The bed of the clamping-head between the cheeks is also serrated, as shown in Fig. 3, to cooperate with the serrated face of the rotating-cam jaw *e*. The cam *e* has a projecting arm C, which terminates in a curved grapnel-hook, provided with a pad D, which has a face broad enough to prevent crushing or penetration or indentation of the side of the box when applied as in Fig 2. It may be roughened in any way, as with short points, as at *r r*, to prevent slip on the surface it contacts with when in use as a grapnel, as in Fig 2.

The mode of use is as follows: A band cut to the proper length is passed around the packing-case in the location desired and its ends are brought up around over the top of the box. Each end is then entered in one of the clamps, the cam-jaw being turned back to allow this, and the implement is then located so as to expose as much as desirable of the band at one of its ends, which may be held by a nail. The cams are then turned down, so as to firmly bite the band between the serrated jaw-faces. Then the lever M is vibrated back and forth. In this operation the pawl-pivots *g g'* act alternately as fulcrums for the lever, the power being applied to the handle N and the weight connected at the pivot *h*. The abutment of resistance to the action of the lever as it works in each di-

rection is at the point of contact of the pawl with the ratchet, and if the lever is moved enough to retract either pawl one notch the jaws will be approximated to the extent of
 5 half a notch. Thus by vibrating the lever back and forth a few times the slack in the hoop or band around the box or bale will all be taken up, and the band itself can be so strained as to embed itself deeply into the
 10 material of the box itself at its corners, as shown in the drawings. When sufficiently strained, the pawls and ratchets will stand engaged in a locked condition and the box may be rolled from side to side to permit the
 15 band to be nailed on all sides, except under the stretcher. When so nailed, a slight pressure applied to the handle will ease up one of the pawls, which may then be pressed out of engagement with the ratchet, when the
 20 other can readily be released and the ends of the band be withdrawn from the jaws and the tool be removed. Then the longer of the two free ends may be nailed, after which the stretcher is replaced, resting over the nailed
 25 end of the band, as in Fig. 2, and one of the grapnels is engaged with the corner of the box, as in Fig. 2. The free end is then connected with the other clamp, and this end is then strained taut and nailed as far as prac-
 30 ticable. The implement is then removed and the short end last held by the clamp is folded down and lapped over the other end of the band and nailed through both ends, if desired.

35 I am aware that band and belt stretchers have heretofore been devised employing two clamps and connections between them, whereby the clamps may be drawn toward each other. Hence I do not broadly claim such
 40 constructions.

The pivots g g' and h may either become a fulcrum with reference to the lever, according to which clamp remains stationary during the operation of the lever. If bar A is
 45 stationary by reason of the band being nailed so that it cannot move, then pivot h becomes the fulcrum, and when the lever swings in one direction it becomes a lever of the first class, and when vibrated in the opposite di-
 50 rection it becomes a lever of the second class. The same is true of the other jaw and bars.

It will also be observed that the implement may be used to draw together for nailing the several parts of the cover or side of a box. By throwing one of the grapnel-hooks C D
 55 over each edge of the cover by means of the lever the several parts of the cover may be drawn together, so as to perfectly close the joints between the boards composing the cover. Thus it appears that the implement
 60 can be used by utilizing both grapnels without the clamping devices or by using one of the clamps and one of the grapnels or by using both clamps without the grapnels.

I therefore claim as my invention the fol-
 65 lowing:

1. The described grapnel-hook having at one end a cam-shaped clamping-jaw which is pivoted to a companion jaw, and at the other
 70 end a hook terminating in a pad adapted to catch over the corner of a box, in combination with a band-clamp and means intermediate the clamp and hook for drawing them
 75 together.

2. The combination of the operating-lever
 80 having the retaining-stirrup and two pawls pivoted therein, with the two band-clamps, one provided with the laterally - indented ratchet-bars and the other with the pivot-bar to which the lever is pivoted; the ratchet-
 85 bars being adapted to slide through the retaining-stirrup, one on either side of the pivot-bar, substantially as specified.

3. The combination in a band-stretcher of a bifurcated slide the two limbs of which are
 90 indented along their outer edges to form ratchet-bars, provided at its integral end with a band-clamp; a bar adapted to slide longitudinally between said ratchet-bars provided at its outer end with a band-clamp; and a
 95 vibrating lever pivoted to the latter bar upon which two pawls united by a retractile spring are pivoted and which are adapted to engage said ratchet, substantially as specified.

In witness whereof I have hereto sub-
 100 scribed my name in the presence of two witnesses.

GEORGE F. FARRAR.

Witnesses:

FRANKLIN SCOTT,
 CHARLES H. HOUGHTON.