

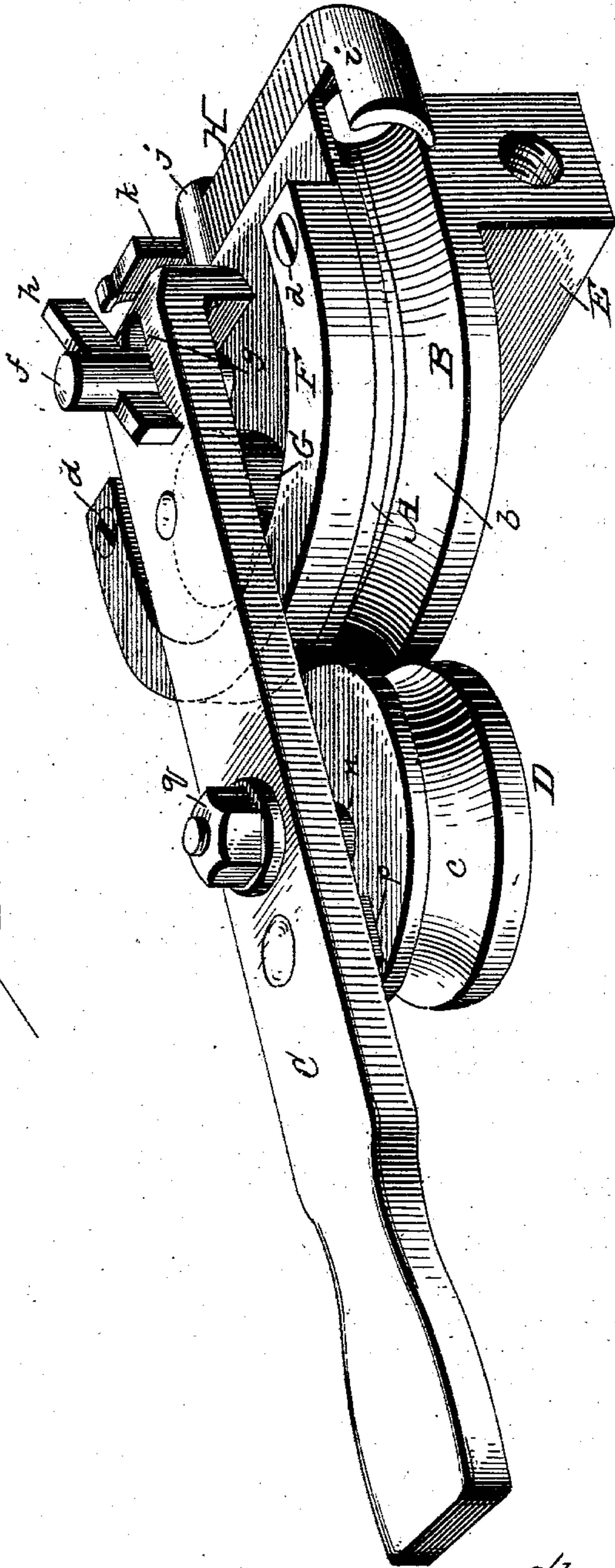
No. 740,803.

PATENTED OCT. 6, 1903.

C. A. BRIIGEL.
TUBE BENDING MACHINE.
APPLICATION FILED JULY 16, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES

Wm. E. Moore

INVENTOR

Charles A. Brizgel,
per Cha. M. Fowler.
Attorney.

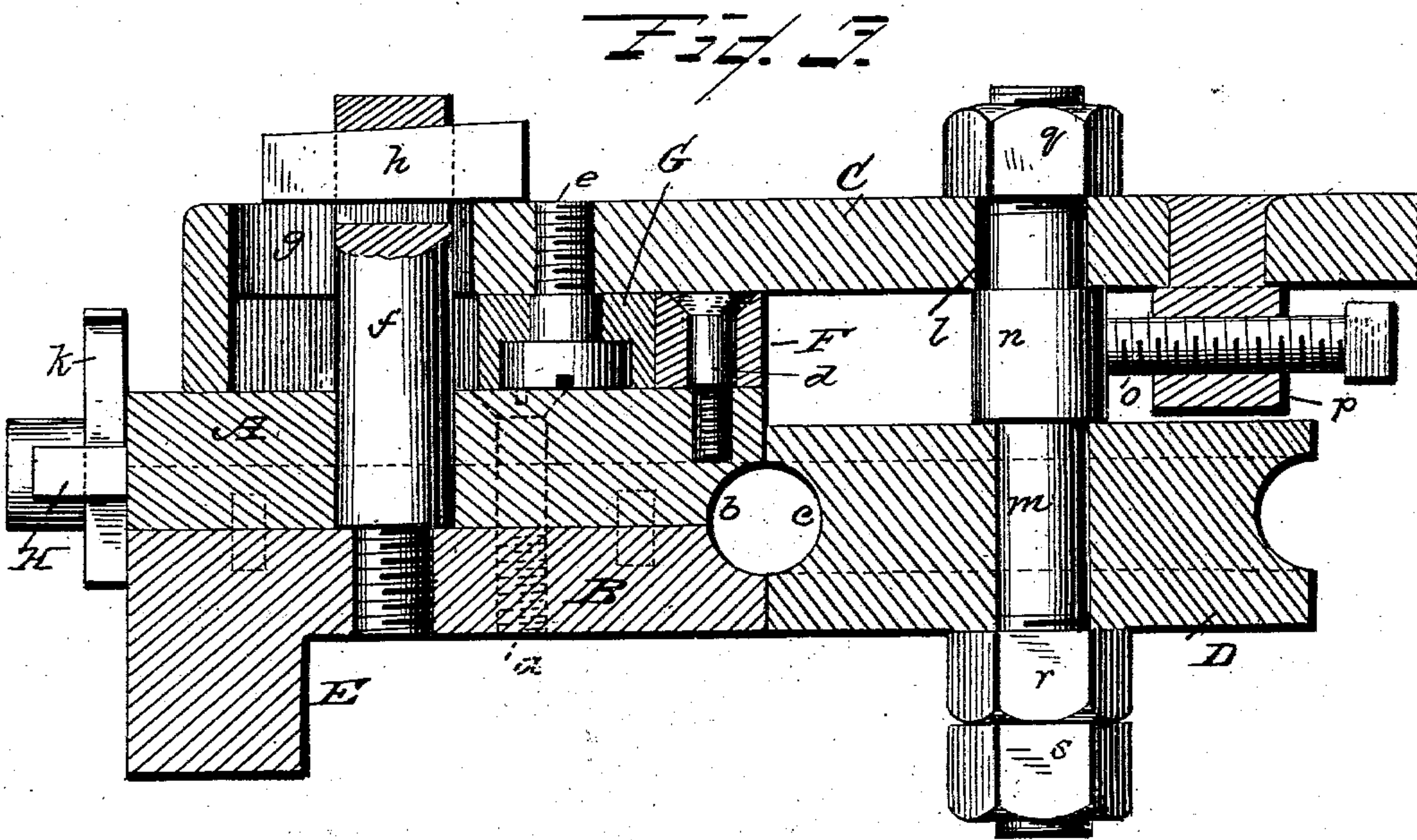
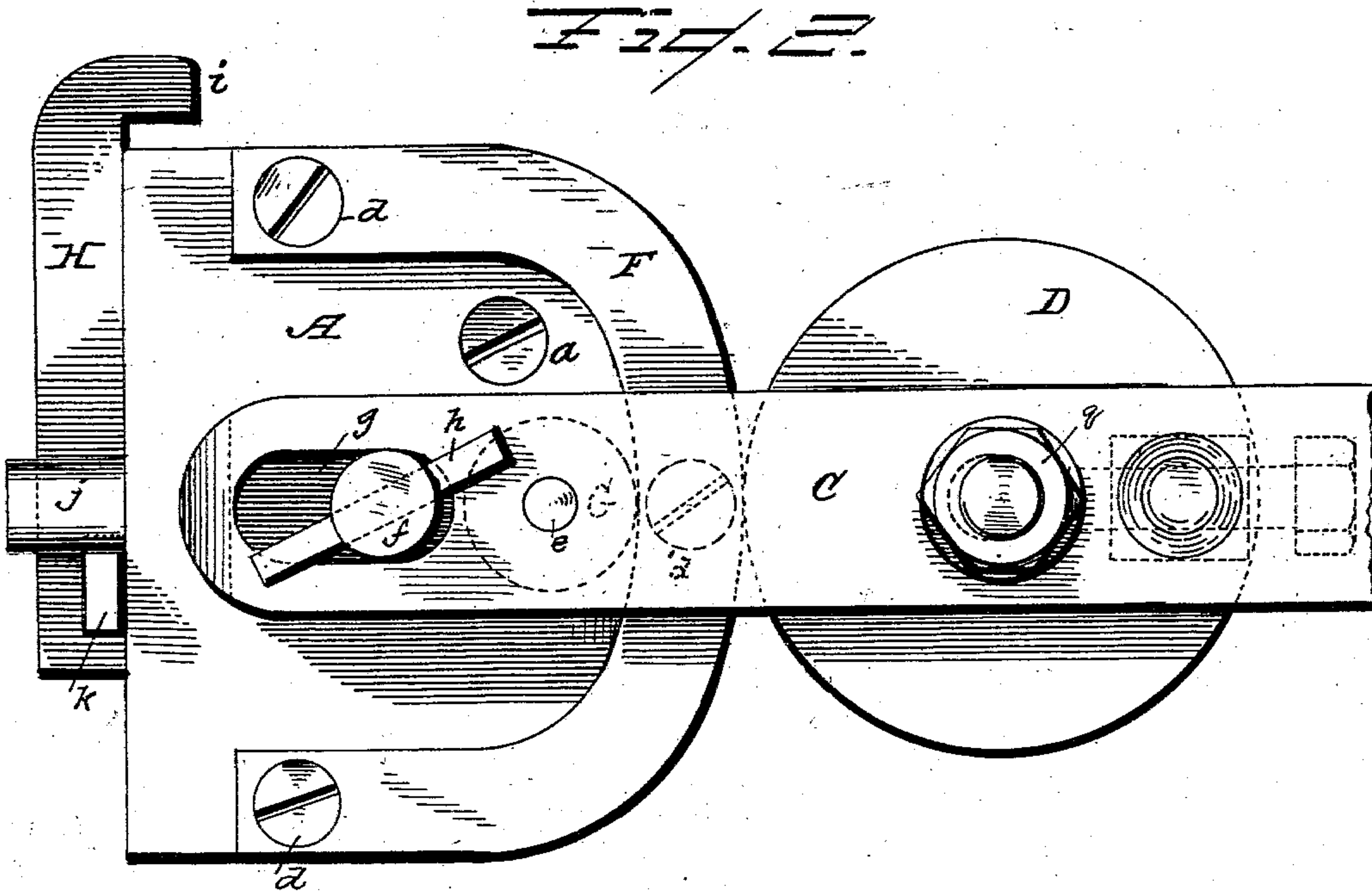
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WITNESSES

W. Williamson
M. E. Moore

INVENTOR

Charles A. Briigel,
per Cha. H. Fowler
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES A. BRIIGEL, OF WILLIAMSPORT, PENNSYLVANIA.

TUBE-BENDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 740,803, dated October 6, 1903.

Application filed July 16, 1903. Serial No. 165,751. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BRIIGEL, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Tube-Bending Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters of reference marked thereon.

The present invention has relation to that class of machines used for bending or forming curves in metal pipes or tubes in which are employed a stationary grooved former and a pivoted hand lever connecting therewith and carrying a grooved roller which presses the pipe or tube around and against the former to give to the pipe or tube the required shape.

The object of the invention is to provide a machine of the above character that will be especially adapted for bending straight or tapering tubing used in the manufacture of musical band instruments, which requires special care in the operation to avoid injury to the tube or in any manner mar its appearance.

The invention consists in a tube-bending machine constructed substantially as shown in the drawings and hereinafter described and claimed.

Figure 1 of the drawings is a perspective view of a tube-bending machine constructed in accordance with my invention; Fig. 2, a top plan view thereof; Fig. 3, a sectional elevation of the machine.

In the accompanying drawings the grooved former, which gives the desired curve to the tube, comprises two separable sections A B, detachably held together by a screw *a* (shown in dotted lines of Fig. 3 of the drawings) or by any other suitable and well-known means. These sections A B have segmental grooves, so that when together a complete hemispherical groove *b* will be formed, to correspond with the groove *c* in the presser-roller D. The lower section B of the former has a downwardly-extending grip-bar E, which extends transversely thereof and upon the under side of the section, to enable the machine to be held by a suitable vise or other grip holding-tool. Upon the upper side of the separable

former-section A is a curved guide-track F, with which engages a guide-roller G, pivotally connected to the under side of a hand-lever C through the medium of a screw or other suitable fastening *e*, the curved track being detachably connected to the former-section by means of screws *d* or other like fastenings.

The hand-lever C is pivotally connected to the former by means of a stationary pivot-pin *f*, which extends up through an elongated slot *g* in the end of the hand-lever, said lever being held in engagement with the pin by a suitable key *h* extending through a key-slot in the end of the pin.

The above construction enables the hand-lever not only to have a movement on the arc of a circle, or, in other words, a pivotal movement, but a movement lengthwise to adapt the guide-roller to the curve in the guide-track, the elongated slot in the end of the lever admitting of this movement.

The feature of the guide-track F and the guide-roller G in connection with the longitudinal movement of the hand-lever C will admit of making the bending of any form of tubing desired. At the back of the former is a clamp H, which is adjustable to adapt it to tubes of varying diameters, said clamp having a concave jaw *i* to grasp the tube to be bent and hold it stationary while the presser-roller D is brought into contact therewith to press it in the groove of the former to give it the required shape.

The clamp H extends through a slot in the end of a stud *j*, projecting from the former and held therein by a tapering key *k*, which engages a slot in the end of the clamp, thereby providing an adjustable clamp that can be adapted to hold the end of the tube of whatever size or diameter, the tapering key drawing the jaw of the clamp tightly down against the end of the tube to hold it while being bent.

The former, comprising the separable sections A B, may be variously changed in shape to adapt it to the form or shape of the tube to be bent, the former being modified or changed as circumstances require without in any manner departing from the principle of the invention, and any such changes as would come within ordinary mechanical judgment

regarding the details of construction may be resorted to and still come within the scope of the invention.

5 The former, as hereinbefore described, is constructed of two separable sections, which enables a circle greater than a half-circle to be bent and removed from the machine, which could not be done were the former made in one piece.

10 The presser-roller D is adjustable on the hand-lever C to adjust its position with relation to the former, and one of many means that may be employed for this purpose is forming in the lever an elongated slot *l*,
15 through which the stationary shaft *m* extends, and providing a bearing *n* on said shaft for the end of a set-screw *o*, said set-screw engaging a stationary screw-nut *p*, depending from the lever, nuts *q r s* engaging
20 the screw-threaded ends of the shaft to hold it to the lever and the grooved roller upon the shaft.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

25 A tube-bending machine, comprising a grooved former consisting of two separable sections each having a segmental groove to form when together a hemispherical groove, a curved track detachably connected to the
30 former, a pivoted hand-lever carrying a guide-roller, said lever having a movement lengthwise to adapt the guide-roller to the curve in the track, a grooved pressure-roller carried by the lever, and a suitable clamp adjust-
35 ably connected to the former to adapt it to hold tubes of different diameters, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES A. BRIIGEL.

Witnesses:

A. L. RANK,
GEORGE TRUEMPE.