

(No Model.)

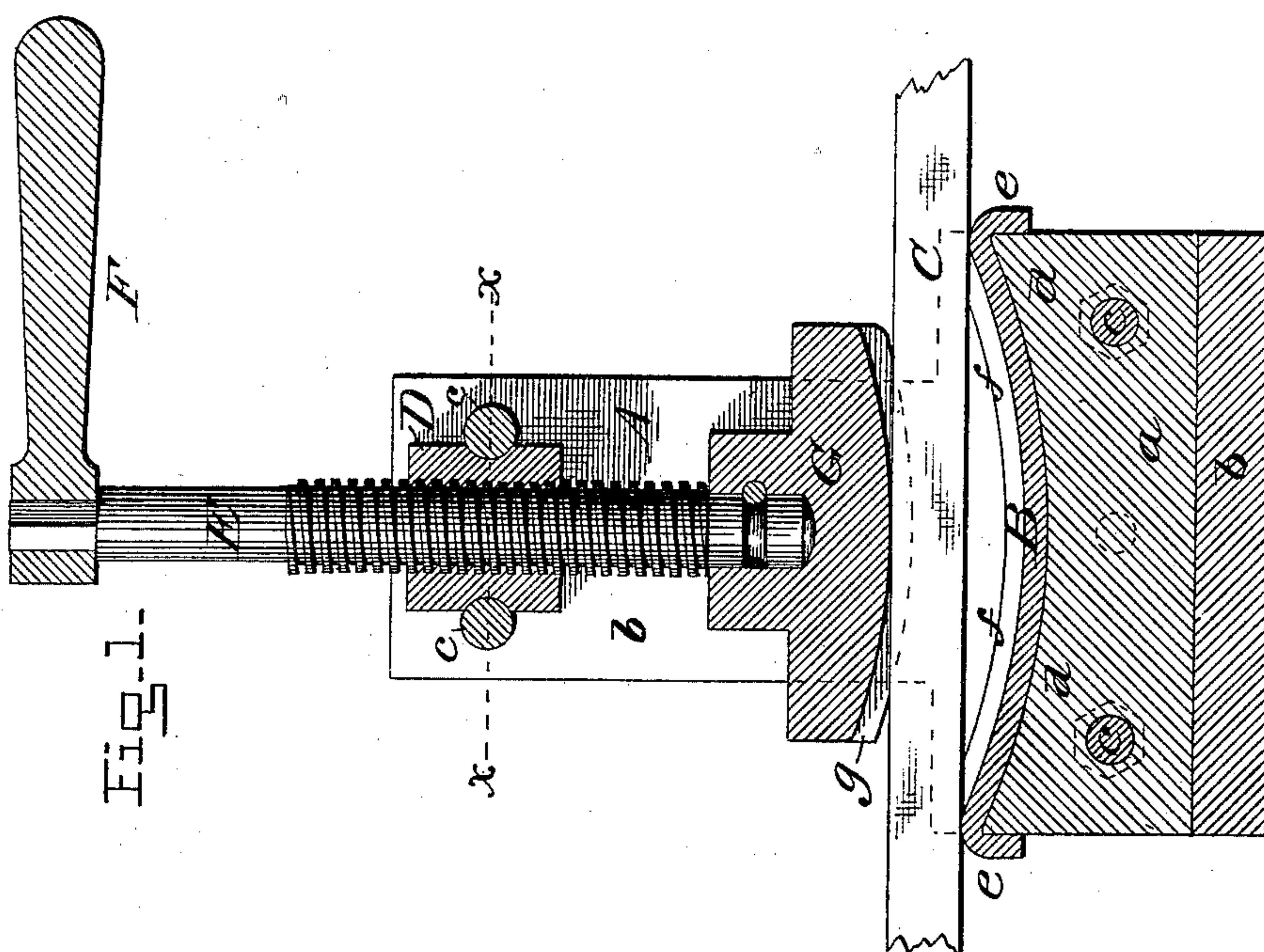
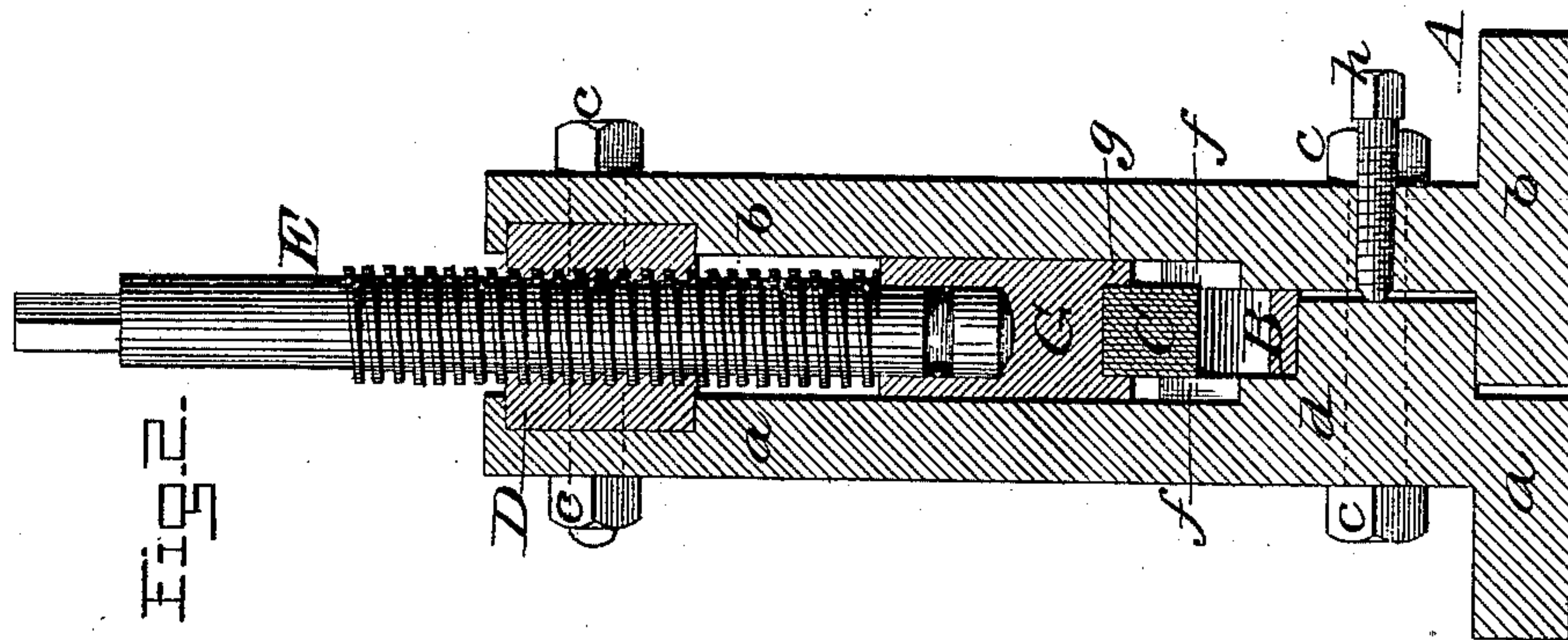
2 Sheets—Sheet 1.

M. SCHLUMM & P. ACKERMANN.

MACHINE FOR BENDING METALLIC HOOPS.

No. 300,140.

Patented June 10, 1884.



WITNESSES:

Jas F. Duffamel.
Walter S. Dodge.

INVENTORS:

Michael Schlumm,
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

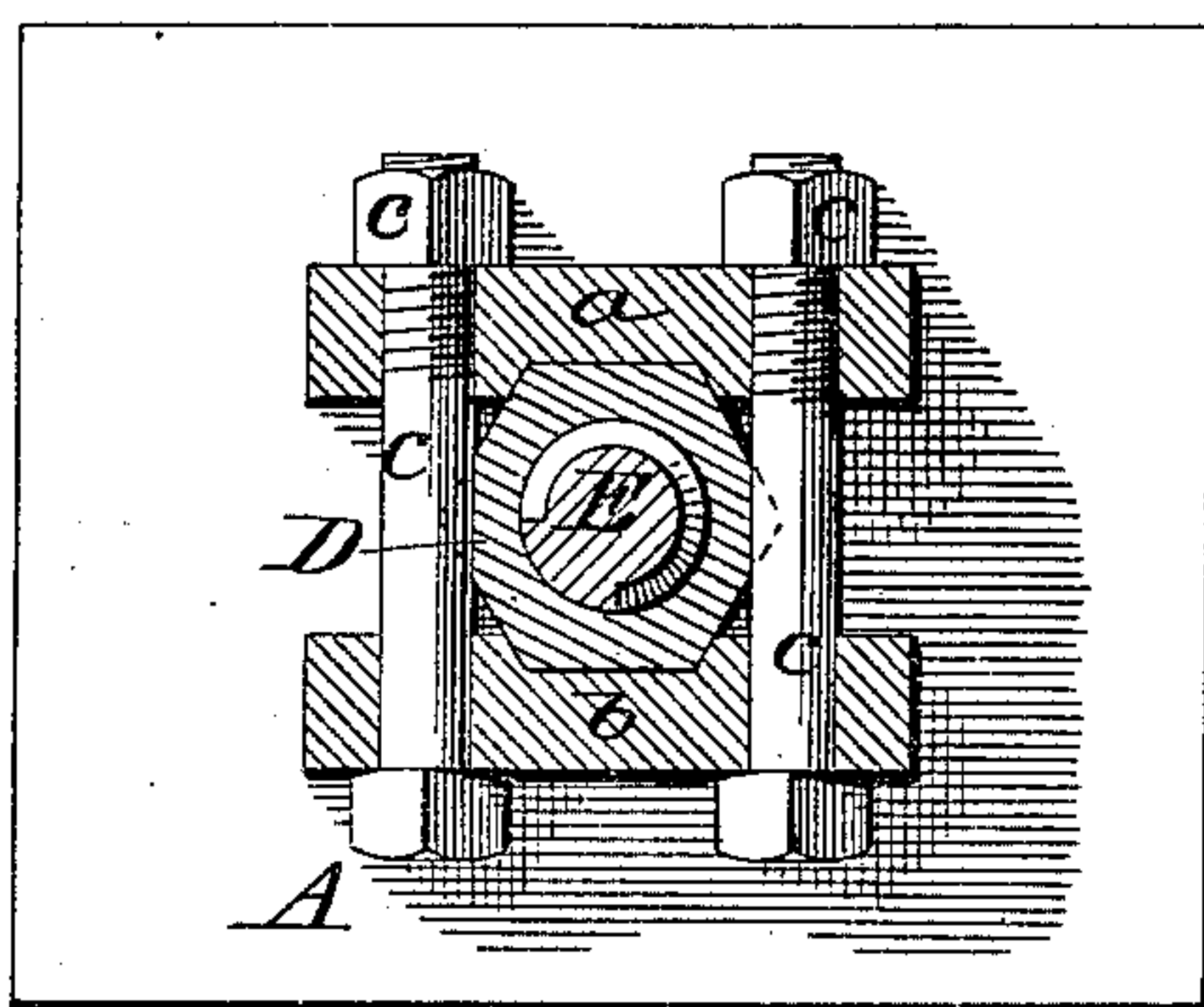


Fig. 4.

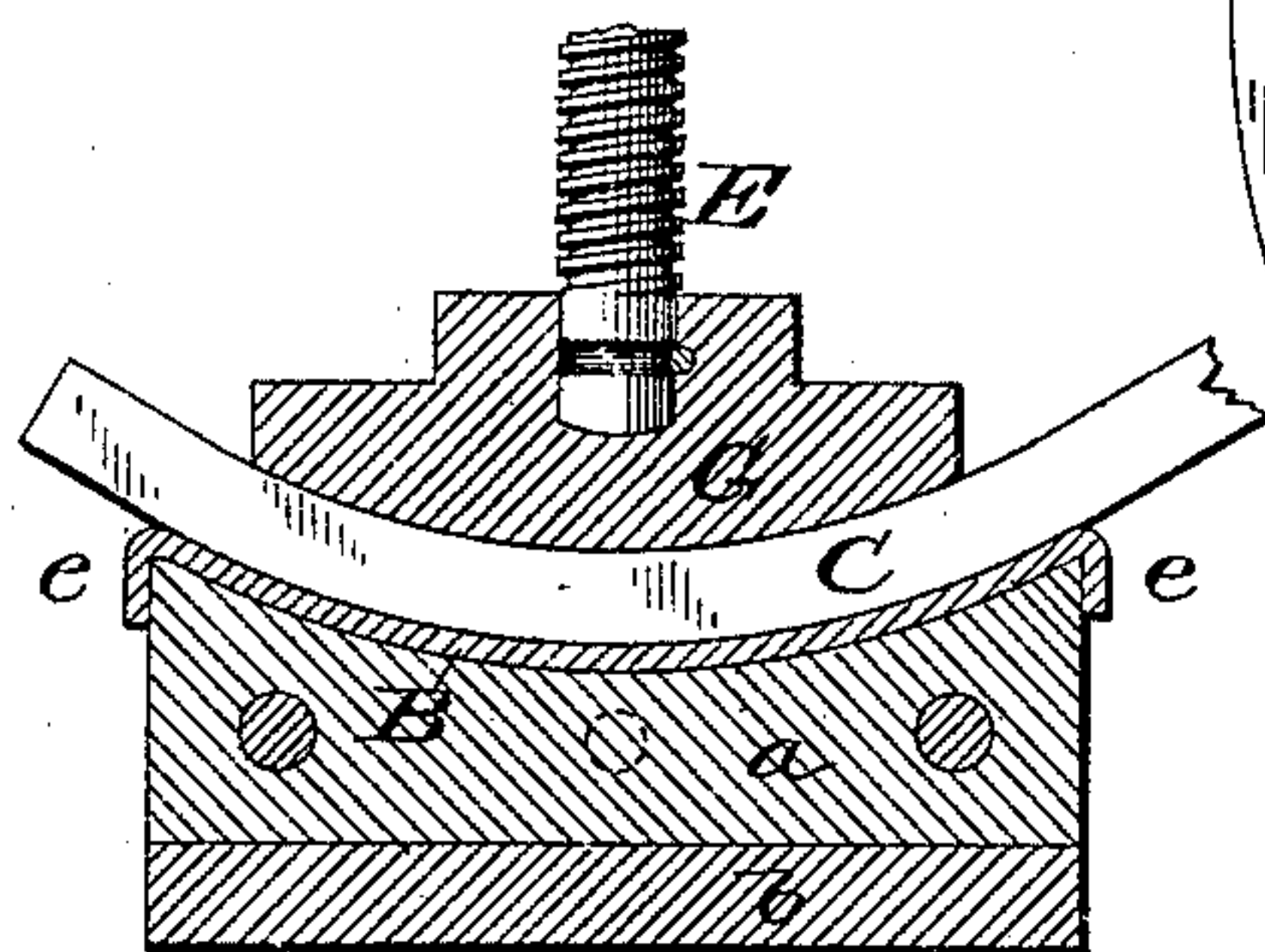


Fig. 5.

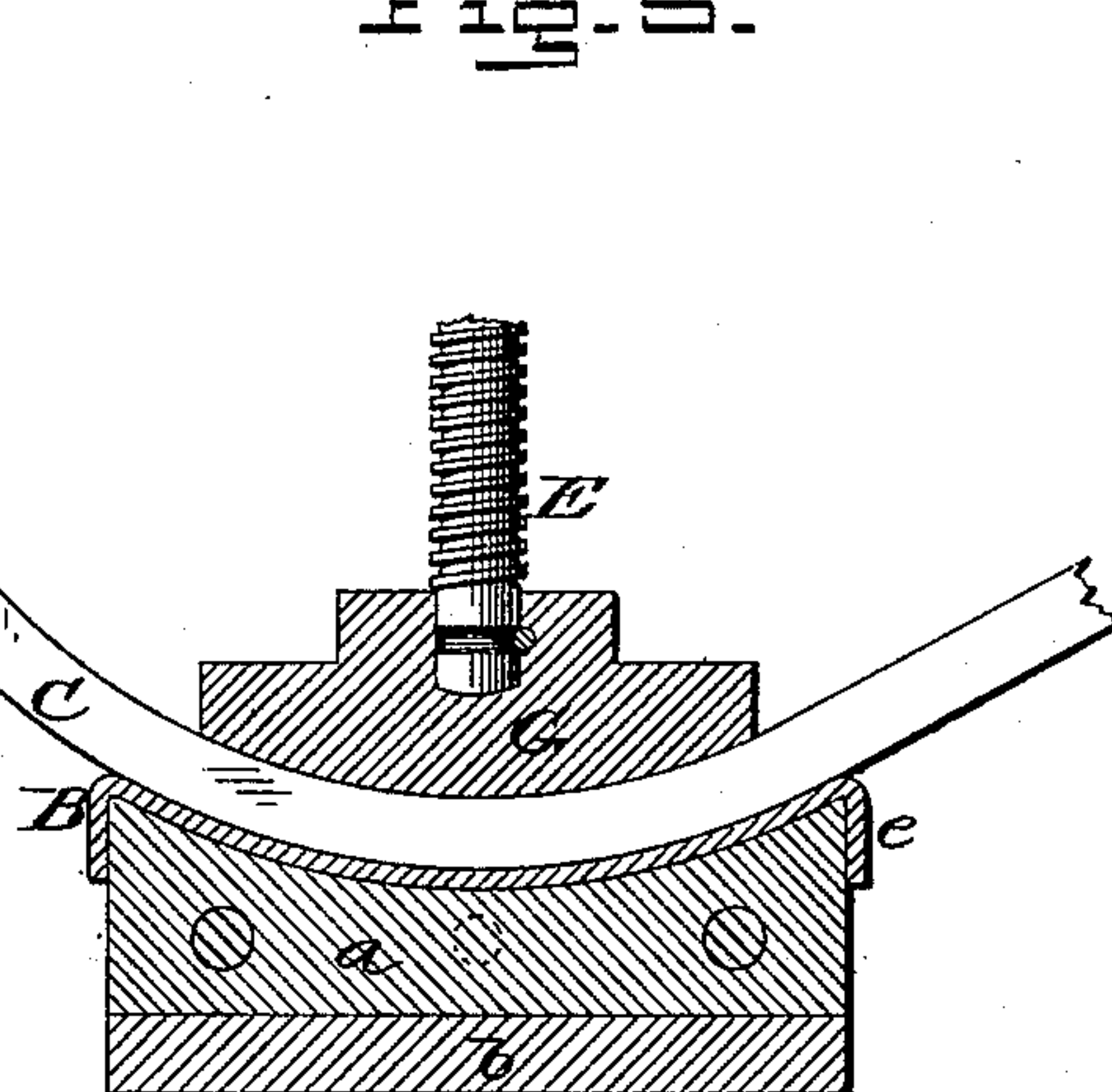
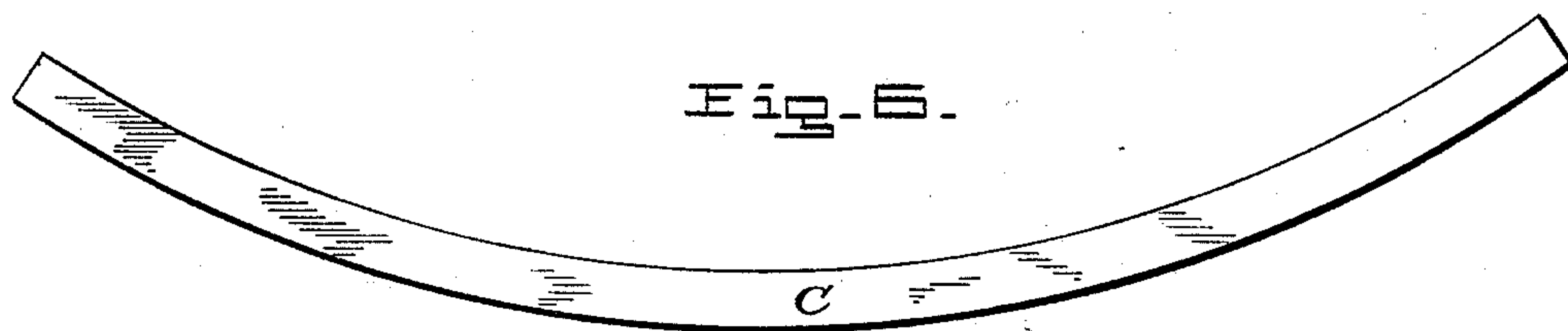


Fig. 6.



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UNITED STATES PATENT OFFICE.

MICHAEL SCHLUMM AND PHILIPP ACKERMANN, OF MILWAUKEE, WIS.

MACHINE FOR BENDING METALLIC HOOPS.

SPECIFICATION forming part of Letters Patent No. 300,140, dated June 10, 1884.

Application filed August 24, 1883. (No model.)

To all whom it may concern:

Be it known that we, MICHAEL SCHLUMM and PHILIPP ACKERMANN, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain Improvements in the Method of and Apparatus for the Manufacture of Flared Metal Hoops, of which the following is a specification.

Our invention relates to a method of and apparatus for manufacturing blanks for metallic hoops for casks and vessels, the method consisting in placing band or hoop iron on edge, advisably several strips or layers together, in a press capable of bending the strips in the direction of their width, and subjecting them to the required pressure, and the machine being merely a press of the character indicated, specially designed to support and operate upon such strips, all as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section through our press; Fig. 2, a vertical transverse section; Fig. 3, a horizontal section on the line x of Fig. 1; Figs. 4 and 5, views illustrating the action of the apparatus; Fig. 6, a face view of the band ready for riveting.

Hitherto it has been customary to form metal hoops for casks by uniting the ends of a piece of band or strap iron, placing the ring or straight hoop thus formed upon an iron cone and pounding it down equally over the circumference of the cone until such distance toward the base of the cone was reached as would give the hoop its proper shape—that is to say, the proper flare to correspond with the swell of the cask for which it was intended. Such plan is slow and tedious, permitting but one hoop to be made at a time, impairs the strength and integrity of the metal, requires iron of very good quality, and can only be successfully carried out by experienced workmen. By our plan all the difficulties or objections are overcome, the required flare is produced by an even drawing out or elongation of the fibers of the metal at one edge of the band and a simultaneous compression thereof at the other edge, the action is uni-

form throughout, and a number of bands can be simultaneously and speedily operated upon.

For the purpose of carrying out our invention we construct a press, as represented in the annexed drawings, in which A represents a strong frame, which may be conveniently cast in two parts or side plates, a and b , and bolted together by bolts c , as indicated in Fig. 2. The side plate a , is formed with a projecting portion, d , which, at the lower side, rests upon and is firmly supported by the projecting bed or base of side plate b . The ledge d is curved at its upper side, to support a face plate or die, B, curved on the arc of a circle the radius of which is determined by the size and required flare of the hoop to be produced. The face plate or die B is formed with downwardly-turned ends e , which bear against the ends of supporting-ledge d , and thereby prevent longitudinal movement of said die. The side plates, a and b , are formed with upright parallel faces f , which extend upward from the die or plate B, and form side supports for the strips C of band or strap iron, which are laid closely together, side by side, resting upon opposite ends of die or plate B, as in Fig. 1, with their width in a vertical plane, as in Fig. 2. The side plates, a and b , are carried upward a suitable distance above the plate B, and are recessed in their inner faces to receive a large nut, D, which is firmly clamped therein and held against turning by the bolts c , which are seated in or pass through grooves or notches in the sides of the nut to further hold it firmly in place. By this arrangement we are enabled to use a cheap cast-metal frame with a steel die, and a nut of steel, brass, or other suitable material, and to renew the wearing parts when required.

E represents a strong screw-stem passing through nut D, provided at its upper end with a hand-wheel, F, a lever or equivalent means for turning the screw, and carrying at its lower end a head-block or bunter, G, curved on an arc of a circle having a radius equal to that of die or plate B, less the width of the strap or band iron to be acted upon. The head-block is formed with depending longi-

tudinal flanges *g* at each side, which serve to prevent the lateral separation of and to form a firm support for the upper edges of the strips *C*, in the same manner that the faces *f* sustain the lower edges thereof. Thus sustained against lateral displacement, and supported at the ends of die *B*, the bands or strips are subjected to pressure by screwing down the stem *E*, which is swiveled in the head-block or bunter *G*, and consequently turns freely therein without moving said block otherwise than vertically downward, the head-block or bunter bearing upon the bands *C* first opposite the middle of the die, and consequently midway between the two points of their support, where the pressure will produce the greatest effect or meet with the least resistance. As the downward movement of the head-block or bunter continues, the bands are pressed down into the die until they bear upon its face from end to end, when the head-block or bunter will similarly bear upon the upper edges of the strips throughout its length. This action draws out or elongates the fibers of the strips at their lower side or edges, and compresses them at their upper edges, giving to that portion of the strips acted upon such lateral curvature as will produce the required flare in such part when the strip is bent about a cask. The head-block is then raised, the strips moved along the length of the die and bunter, and again subjected to pressure in the same manner as the first section, and so on, until the strips have been acted upon from end to end, the number of operations depending, of course, upon the length of the die and bunter and the required circumference of the hoop. It is possible to make the parts long enough to act upon the entire length of the strip at once, though in that case a series of screws or equivalent pressure devices would be advantageous. The width of the curved faces is usually such as to accommodate from five to ten strips at a time, but may be varied as circumstances require or suggest.

In order to accurately adjust the width of the space between the walls *ff* to the thickness of the bundle of strips or bands to be operated upon, we provide one or more set-screws, *h*, to limit the approach of the side plates, *a b*, as shown in Fig. 2.

The blanks formed as above explained are bent into circular form and riveted at their lapping ends, to form loops.

The invention consists, broadly, in the method of forming hoop-blanks by bending strap or band iron laterally, by subjecting it to pressure upon one edge from a properly-curved bunter while sustained at its sides or faces; and it is obviously immaterial whether the bunter moves toward the die, the die toward the bunter, or each toward the other, all of which plans are common in bending and stamping presses. It is likewise immaterial whether the movement be produced by a screw or by

a lever or system of levers, as these are the well-known and recognized equivalents of each other; hence we do not limit ourselves to the employment of a stationary die and movable head-block or bunter, nor to the use of a screw for producing the required pressure.

The curved die is not essential, the two supporting-points, together with the curved bunter giving good results, though the die is preferred.

We are aware that it has been proposed to pass hoop-iron or band-iron edgewise between three grooved rollers—one above and midway between the other two—for the purpose of curving or bending the metal edgewise to produce the necessary flare. Such plan is, however, unsatisfactory for the reasons, first, that in order to enter the iron between the rolls the upper one must first be raised and then returned to its first position each time a new strip or bar is inserted, the exact position being difficult to regain; second, because that portion of the iron from the middle roll to the rear roll cannot be bent to proper form by such means, and is therefore wasted and must be subsequently cut off; and, third, because it is customary to give to the hoops, or to many of them, an unequal flare in different parts, to correspond with the form of the end of the cask for which it is designed, which end is commonly arched or bowed in cross-section, as is well understood by all familiar with such matters, and this unequal flare cannot be produced by rolls. These considerations have caused the rolls to remain unused for this purpose, and the ordinary and laborious hammering operation to be universally adopted in its stead. We therefore disclaim the operation of flaring band or hoop iron by the use of rolls acting upon its edges.

Having thus described our invention, what we claim is—

1. In a machine for forming blanks for flared metal hoops, the combination of a frame, a die curved on the arc of a circle corresponding to the required flare of the hoop, perpendicular bearing-faces at each side of the die, a bunter having a curved face parallel with that of the die, and flanges perpendicular to the curved face, and means, substantially such as shown and described, for causing the approach of one of said parts (the die and bunter) toward the other.

2. In combination with frame *A*, having faces *ff*, die *B*, bunter *G*, having flanges *g*, and screw *E*, swiveled in the bunter and passing through a nut in frame *A*, all substantially as shown.

3. The herein-described press, consisting of side plate *a*, provided with ledge *d*, side plate *b*, nut *D*, seated in recesses in the side plates, tie-bolts *c*, screw *E*, bunter *G*, and die *B*, said parts being combined and arranged to operate substantially as explained.

4. In a press substantially such as de-

scribed, the combination of side plates, *a b*, die B, and bunter G, the bolts *c*, and set-screw *h*, as and for the purpose set forth.

5 In a machine for flaring metal hoop-blanks, the combination of a die or support, means, substantially as shown, for holding strips of band-iron on edge upon said die or support, and a curved bunter movable to and from said support, arranged to bear against

the opposite edges of the strips, and to bend to said strips in the direction of their width.

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