

(No Model.)

2 Sheets—Sheet 1.

J. GREEN.
MANUFACTURE OF DRAW BARS.

No. 491,480.

Patented Feb. 7, 1893.

Fig 1

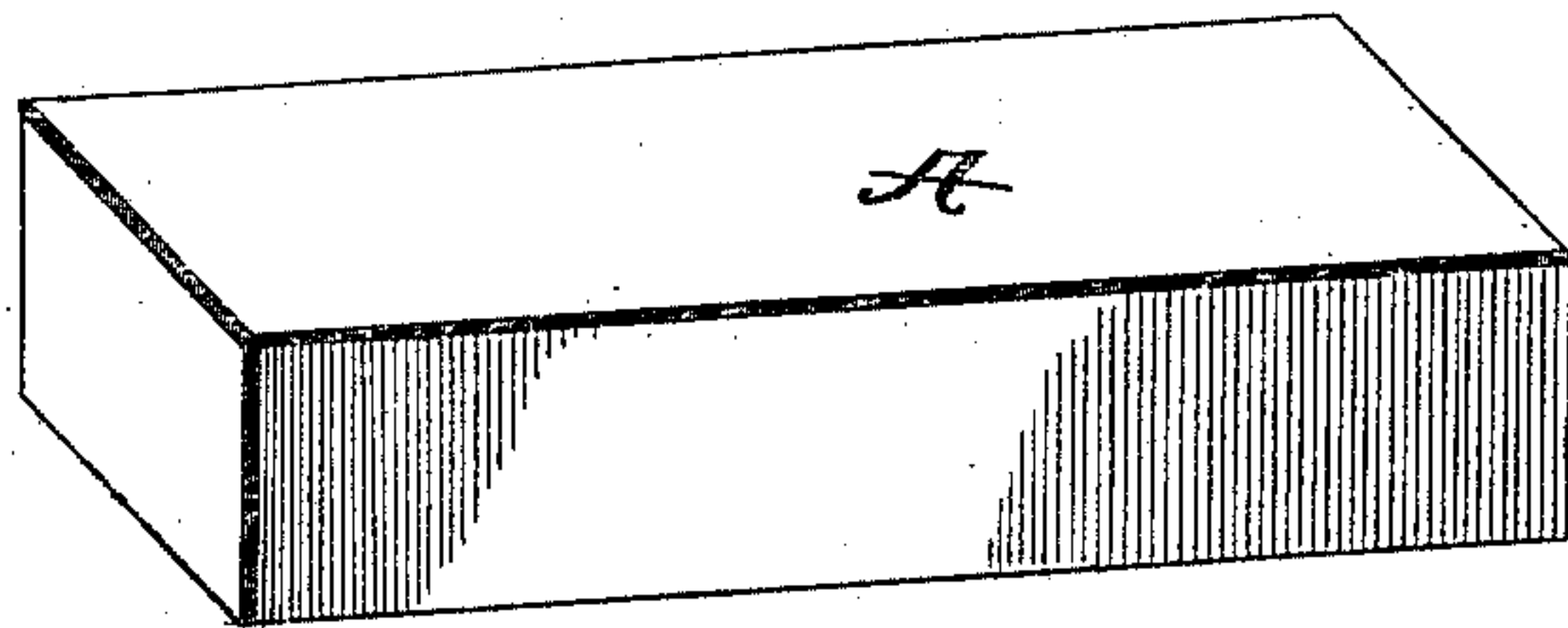


Fig 2

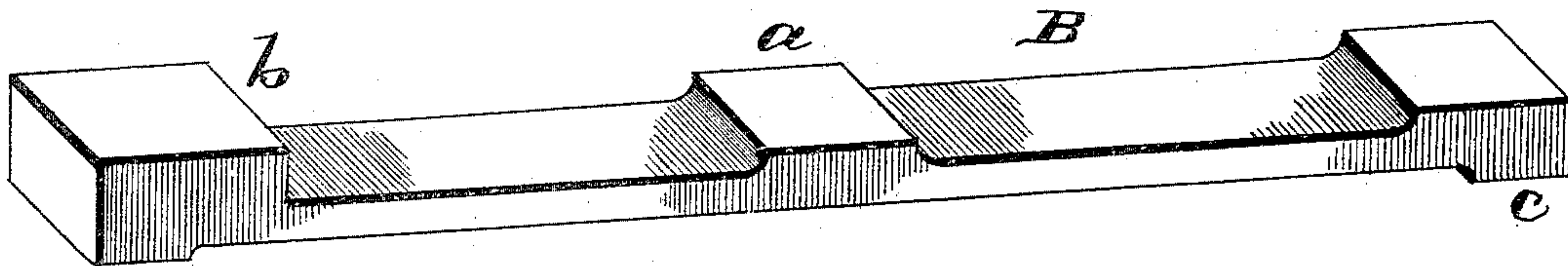


Fig 3

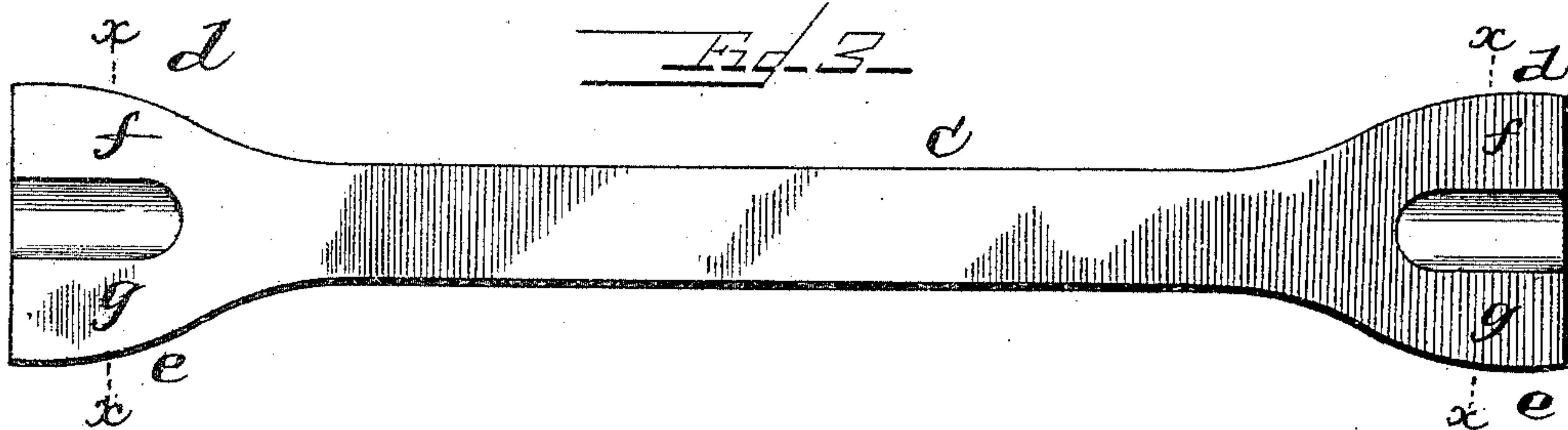


Fig 5

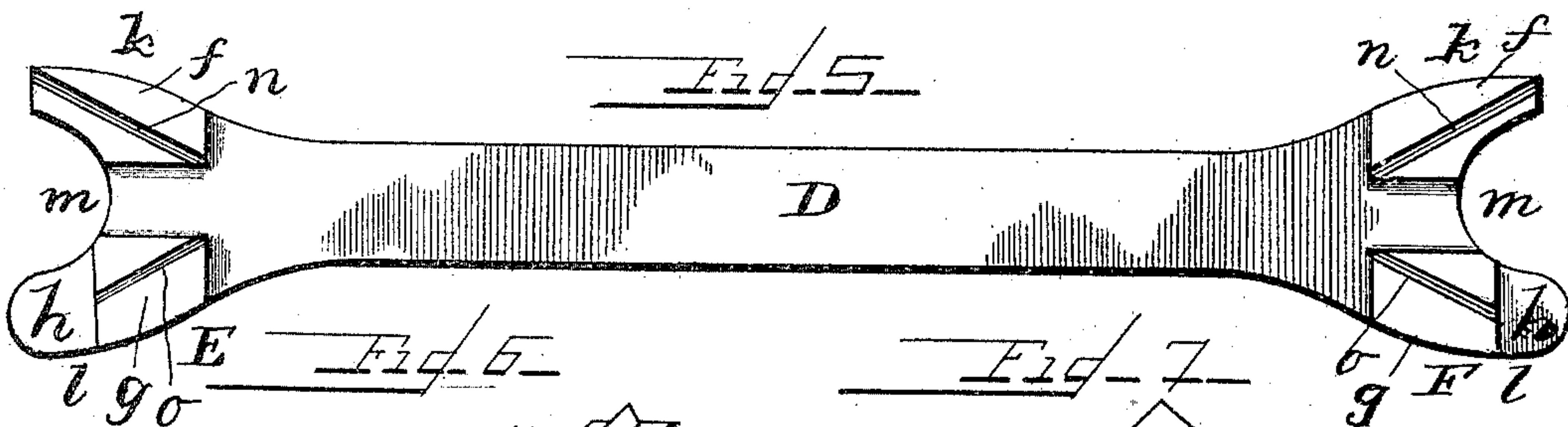
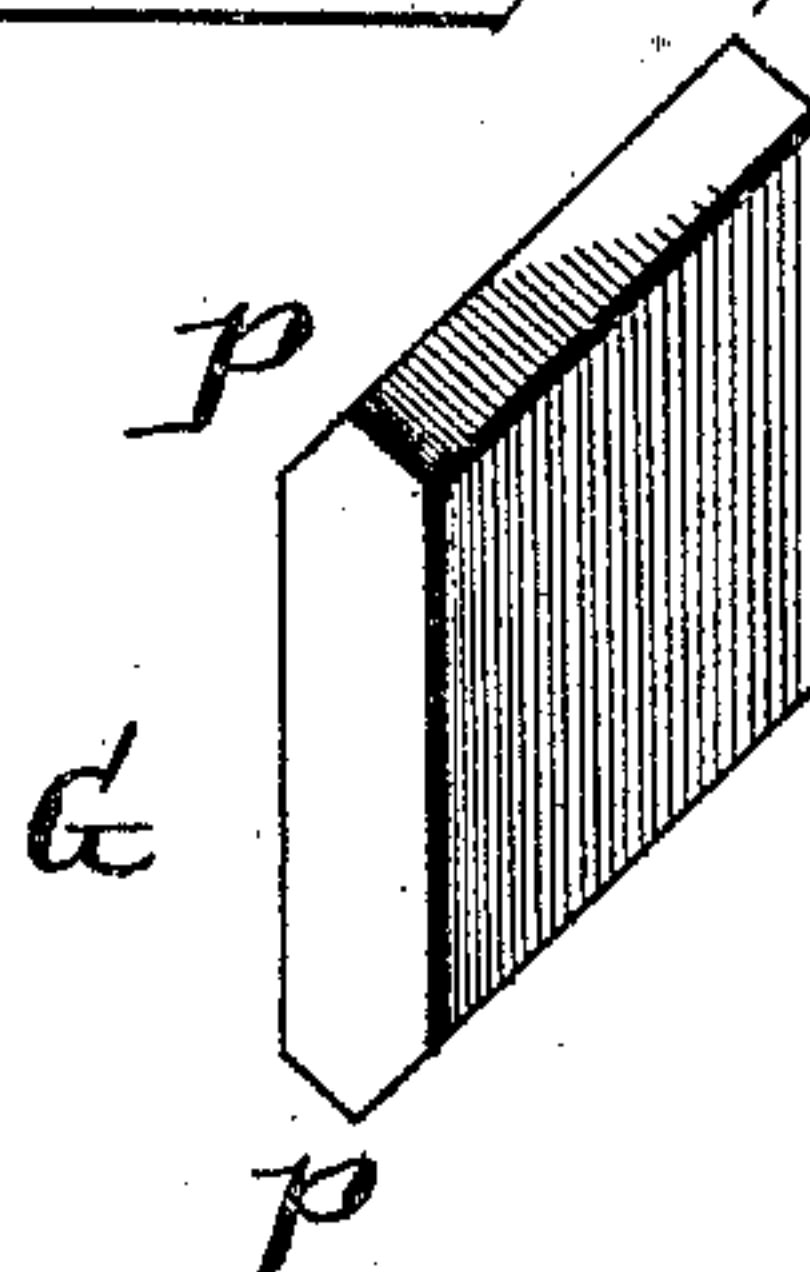
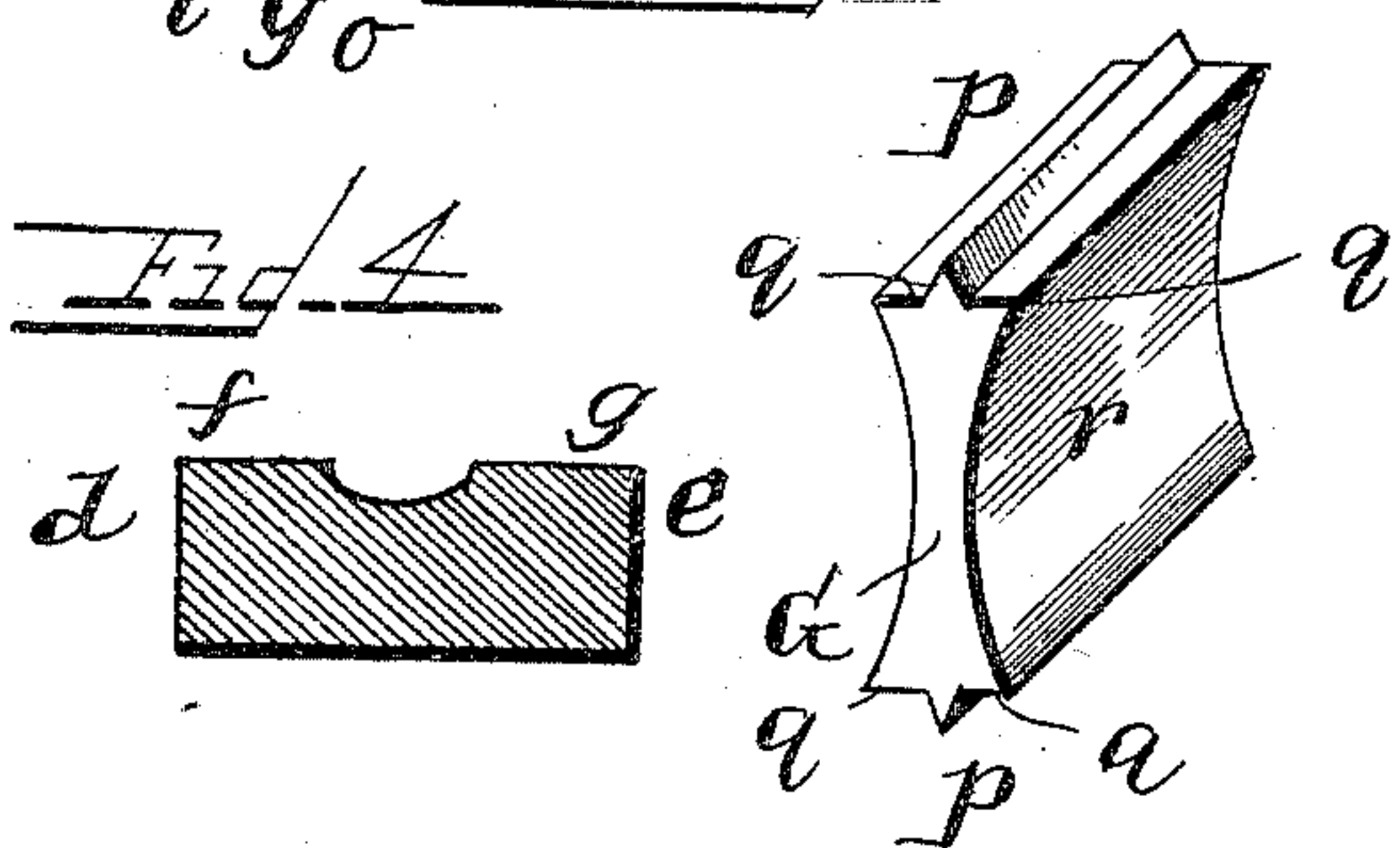


Fig 6

Fig 7



Witnesses

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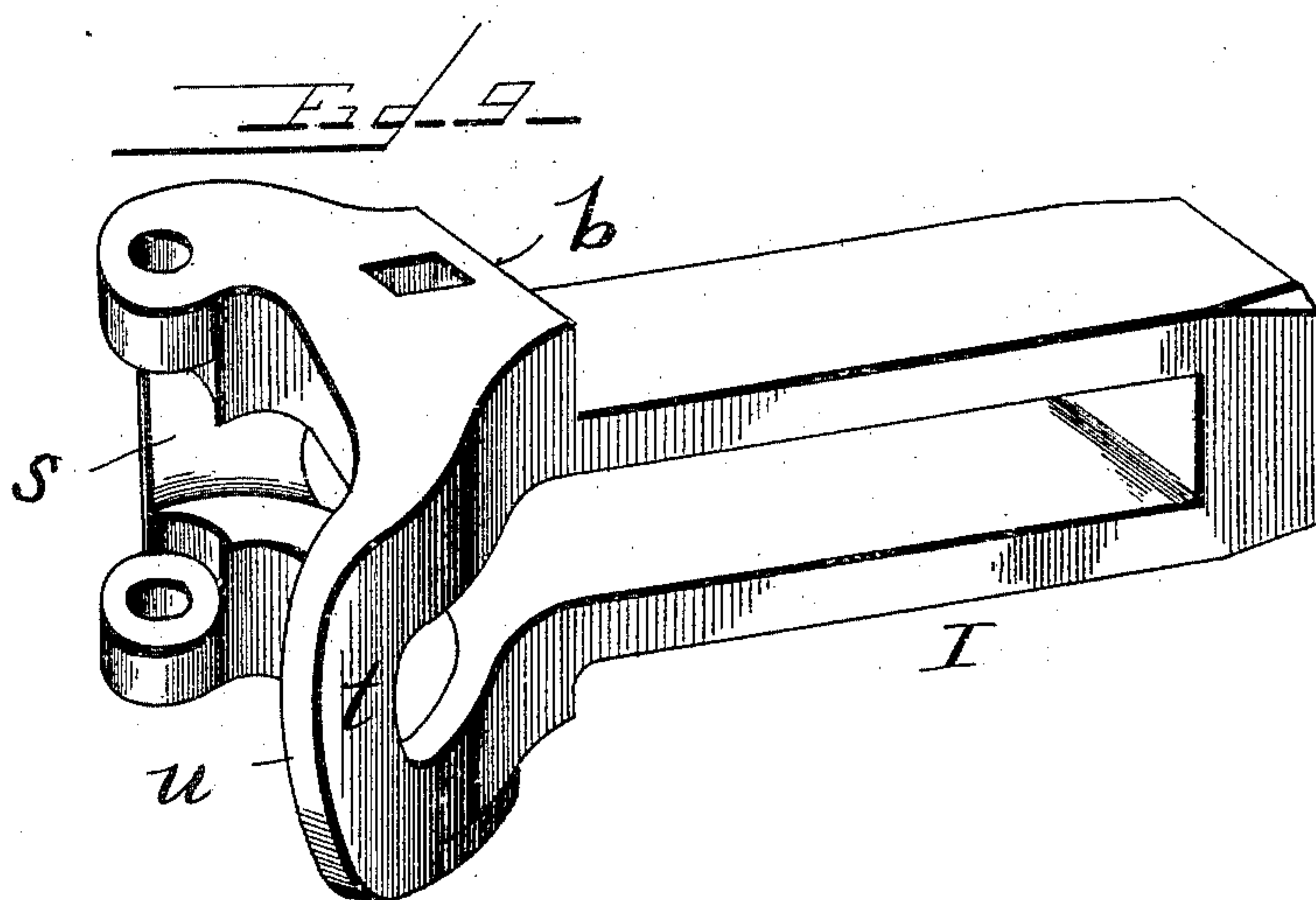
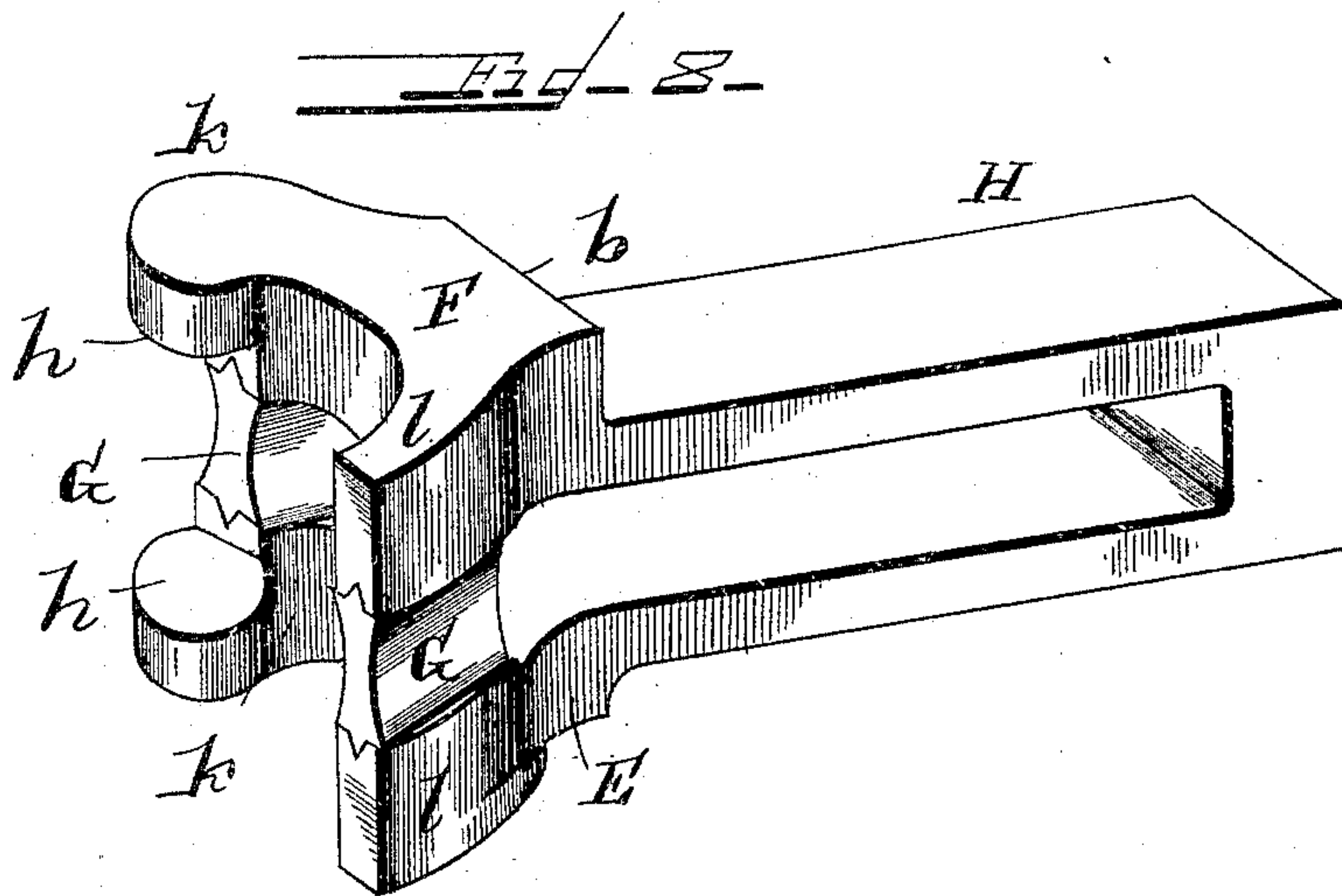
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UNITED STATES PATENT OFFICE.

JOHN GREEN, OF RENOVO, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO
WILLIAM L. HOLMAN AND JOHN McCORD, OF SAME PLACE.

MANUFACTURE OF DRAW-BARS.

SPECIFICATION forming part of Letters Patent No. 491,480, dated February 7, 1893.

Application filed August 17, 1892. Serial No. 443,297. (No model.)

To all whom it may concern:

Be it known that I, JOHN GREEN, a citizen of the United States, residing at Renovo, in the county of Clinton and State of Pennsylvania, have invented certain new and useful Improvements in the Manufacture of Draw-Bars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to the manufacture of draw-bars and has for its object certain improvements in the method of operation which will be fully disclosed in the following specification and claims.

In the accompanying drawings, which form part of this specification, Figure 1 represents a perspective of a billet. Fig. 2 a similar view of the billet forged into a partly formed blank for a draw-head. Fig. 3 a plan view of the blank further forged. Fig. 4 a transverse section on the line *x, x*, Fig. 3. Fig. 5 a plan of the blank with the semi-heads forged on the ends and ready to be bent. Fig. 6, a perspective of a filling piece or binder on an enlarged scale. Fig. 7 a similar view of a modification of the filling-piece. Fig. 8 a perspective of the blank bent, with the filling pieces inserted and ready to weld and finish in dies, and Fig. 9, a similar view of a completed forged draw-bar.

Reference being had to the drawings and the letters thereon, A indicates a billet forged in the usual manner of forging billets and for my present purpose is about two feet long and six by eight inches in cross section. The billet after having been properly heated is forged into a blank B, with a projection *a* in the center, a shoulder *b* at one end to bear against the dead-wood of a car-frame, and a projection *c* to work into the under side of the head of the draw-bar. The blank B is then forged into the blank C, by applying a fuller in the center of the outer ends and spreading the metal as at *d* and *e* and forming raised portions *f* and *g* on the inside thereof, which form seats to receive filling-pieces or binders, and rabbets *h* to form lugs on the completed head,

between which the coupling hook (not shown) is supported. After the ends of the blank have been spread a suitable cutting tool is applied to the heads of the blank D and the metal cut out, forming the arms *k, l* and the concave surface *m* constituting semi-heads E, F. A suitable tool is then applied and kerfs or grooves *n o* cut in the raised portions *f* and *g*, to receive the outer ends of the filling-pieces or binders.

G indicates a filling-piece or binder and is preferably made in the form shown in Fig. 6, in which each edge is provided with a V shaped projection *p* to enter the kerfs *n o*, and adjacent thereto on each side of the body of the filling-piece is a laterally extending flange *q* to afford metal to fill out in the dies. The body *r* of the filling-piece may be concave on its sides as shown in said Fig. 6, when the flanges *q* are provided; but the flanges may be dispensed with and the filling-piece formed with plain parallel sides as shown in Fig. 7. In this latter form, sufficient metal is left in the body of the filling-piece to supply all the metal required. In either form the filling pieces supply metal to form the rear portion of the head at *s* and the middle portion *t* of the horn *u* of the head. The blank is now bent in the center and the semi-heads E, F, brought opposite each other as shown in Fig. 8, forming blank H, when the filling-pieces G are inserted. The head of the blank is then placed in a furnace and heated to a welding heat, and the semi-heads set on the filling-pieces, by a blow or blows from a hammer, on the outer sides thereof when the heated blank is placed in suitable dies, preferably such as are shown in Patent No. 448,612 granted March 17, 1891, and the forging and shaping of the head of the draw-bar I completed in the manner described in said patent.

The filling-pieces or binders G, may be rolled in bars and cut into pieces of suitable lengths, or they may be formed in dies in lengths ready for use. When the blank H is placed in the aforesaid dies, the tongue or projection of the upper die enters the head of the blank between the filling-pieces G, and the inner face of said die bears upon the outer ends

thereof, and displaces the metal to fill the die and wedges the filling-pieces between the semi-heads and forms a homogeneous mass of metal and the completed forged draw-head I
5 produced.

I am aware that it has heretofore been proposed to forge semi-heads in right and left dies on opposite ends of a bar, bend the bar in the center and bring the semi-heads opposite each other, then to insert a guard-block
10 between the ends of the guard arm and a brace-block between the semi-heads and secure the whole by welding or by rivets, but in contra-distinction to this method, in which the
15 semi-heads are completely formed in dies before the bar is bent, I make the forming of the entire head in dies the last step in the operation of forging, and after the bar has been bent.

20 Having thus fully described my invention, what I claim is:—

1. The method of manufacturing draw-bars, which consists in forging a billet, drawing or forging said billet into a blank, spreading the
25 ends of the blank, bending the blank in the center and bringing the two sides opposite each other, then inserting the herein described filling pieces between the spread ends of the blank, heating the head end of the blank and
30 forging and shaping said head end of the blank

and filling pieces in suitable dies to form a draw-bar head.

2. The method of manufacturing draw-bars, which consists in forging a billet, drawing or forging said billet into a blank, spreading the
35 ends of the blank and removing a portion of the metal, bending the blank in the center and bringing the two sides opposite each other then inserting filling pieces between the free ends of the blank, heating the head end of
40 the blank and forging and shaping said head end of the blank and filling pieces in suitable dies to form a draw-bar head.

3. The method of manufacturing draw-bars, which consists in forging a billet, forging the
45 billet into a blank, spreading the ends of the blank, cutting out a portion thereof and forming semi-heads thereon, forming kerfs or grooves in said semi-heads, then bending the blank and bringing the semi-heads opposite
50 each other, inserting filling-pieces between the semi-heads in said grooves, heating the head end of the blank and completing the forging and shaping.

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

JOHN GREEN.

Witnesses:

D. C. REINOHL,
S. BRASHEARS.