

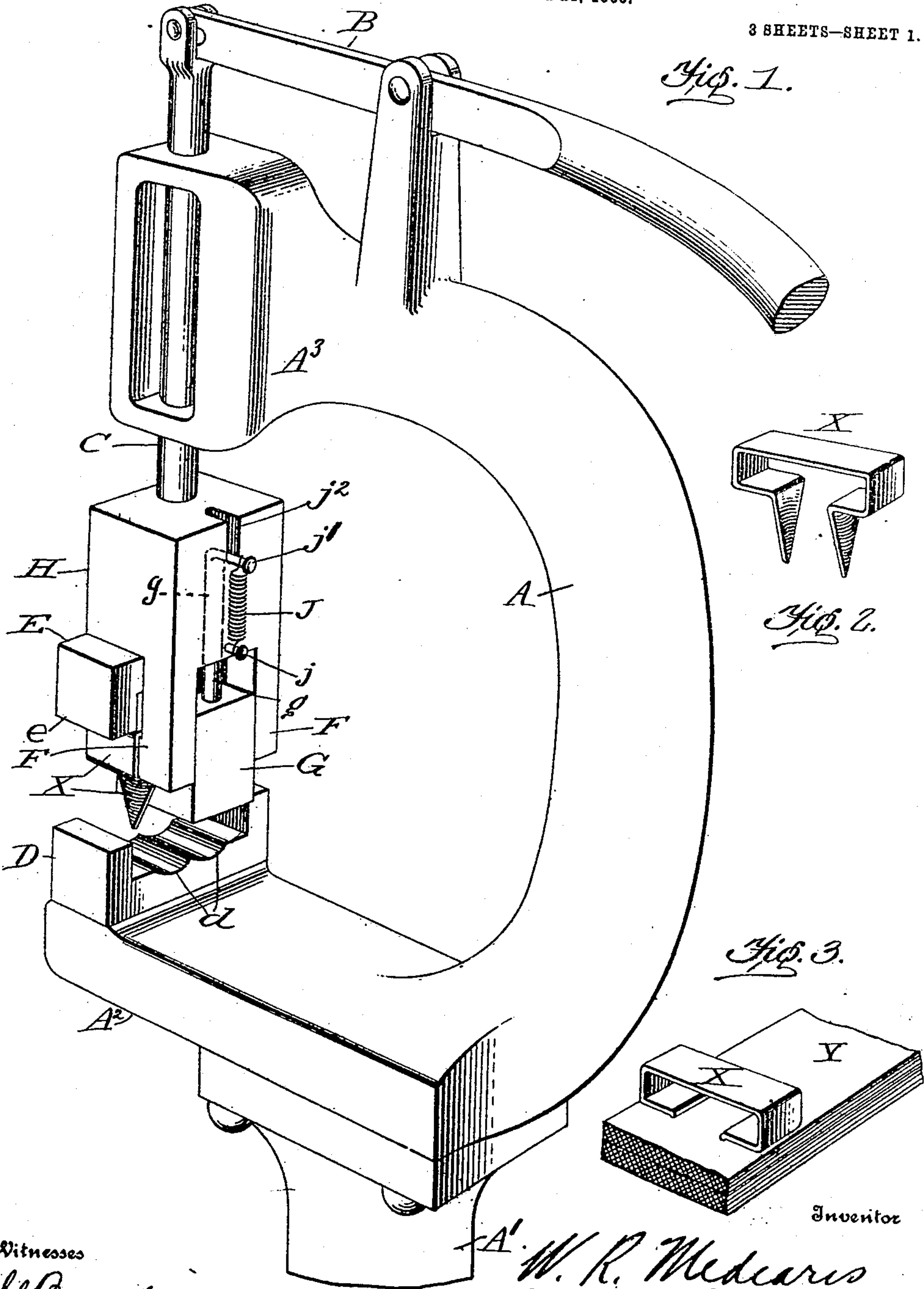
No. 849,847.

PATENTED APR. 9, 1907.

W. R. MEDEARIS.
MACHINE FOR SETTING OR AFFIXING PRONGED LOOPS TO LEATHER
OR OTHER MATERIAL.

APPLICATION FILED MAY 24, 1906.

3 SHEETS—SHEET 1.



Witnesses
W. R. Medearis
O. W. Holmes

Inventor
W. R. Medearis
By John C. Powell For
his Attorneys.

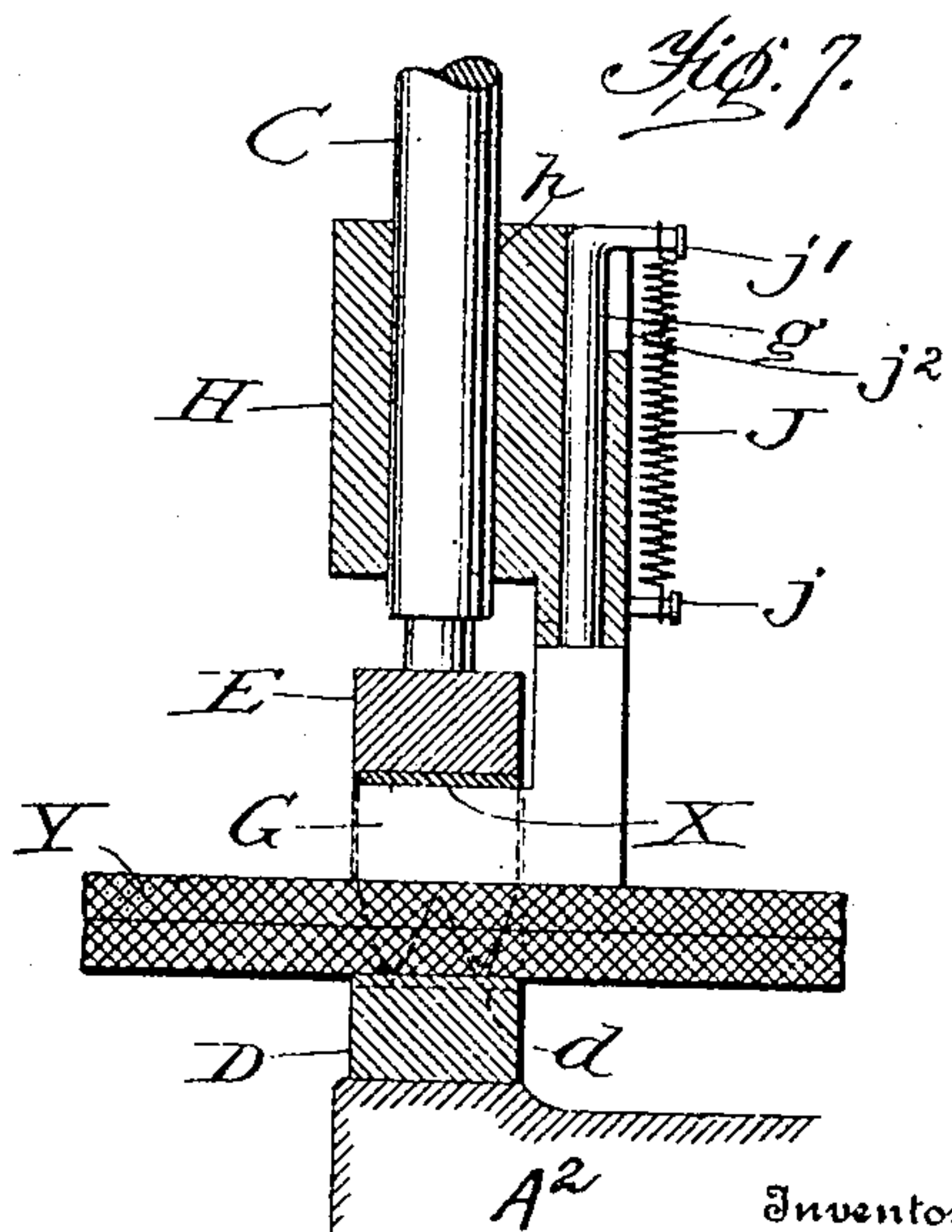
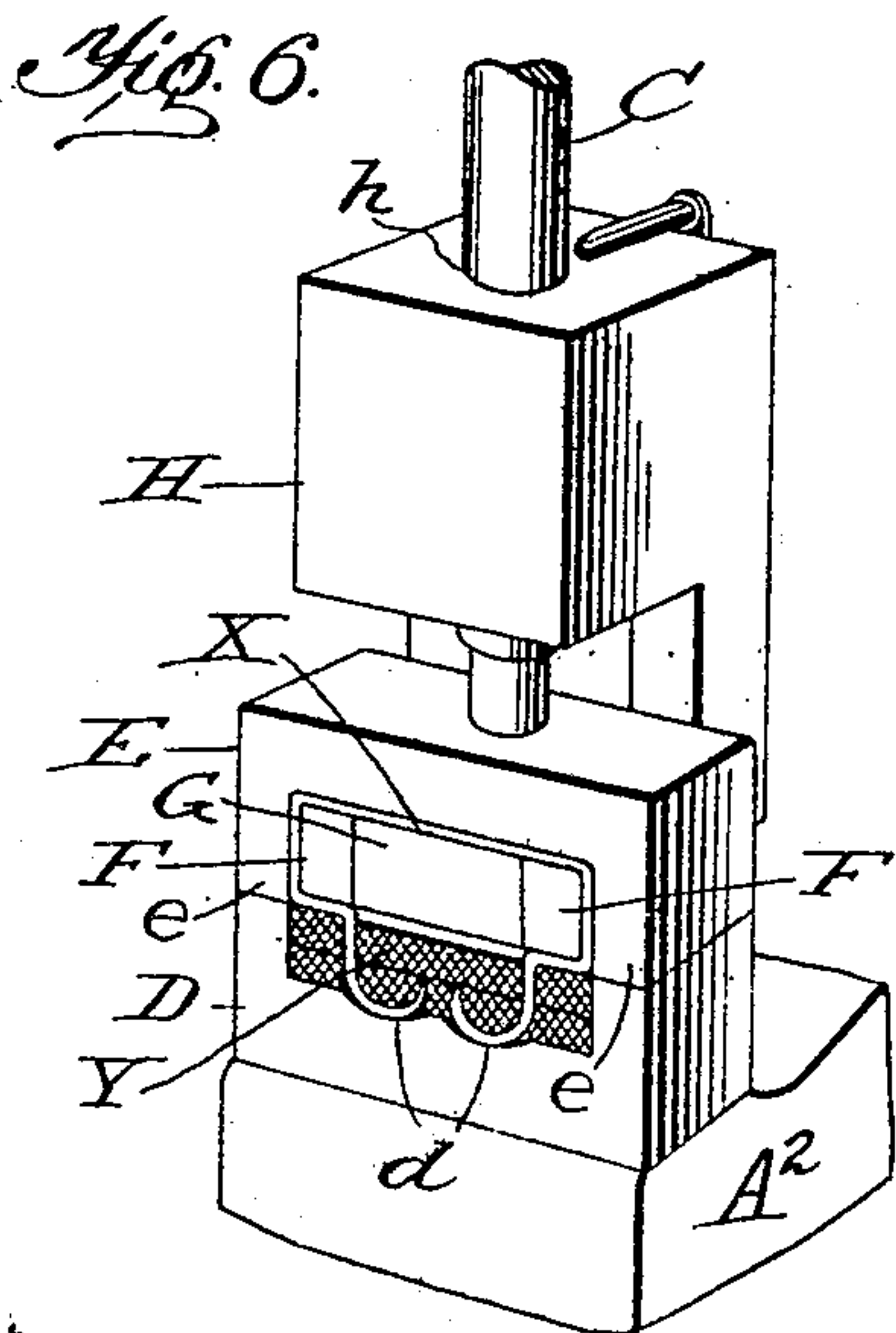
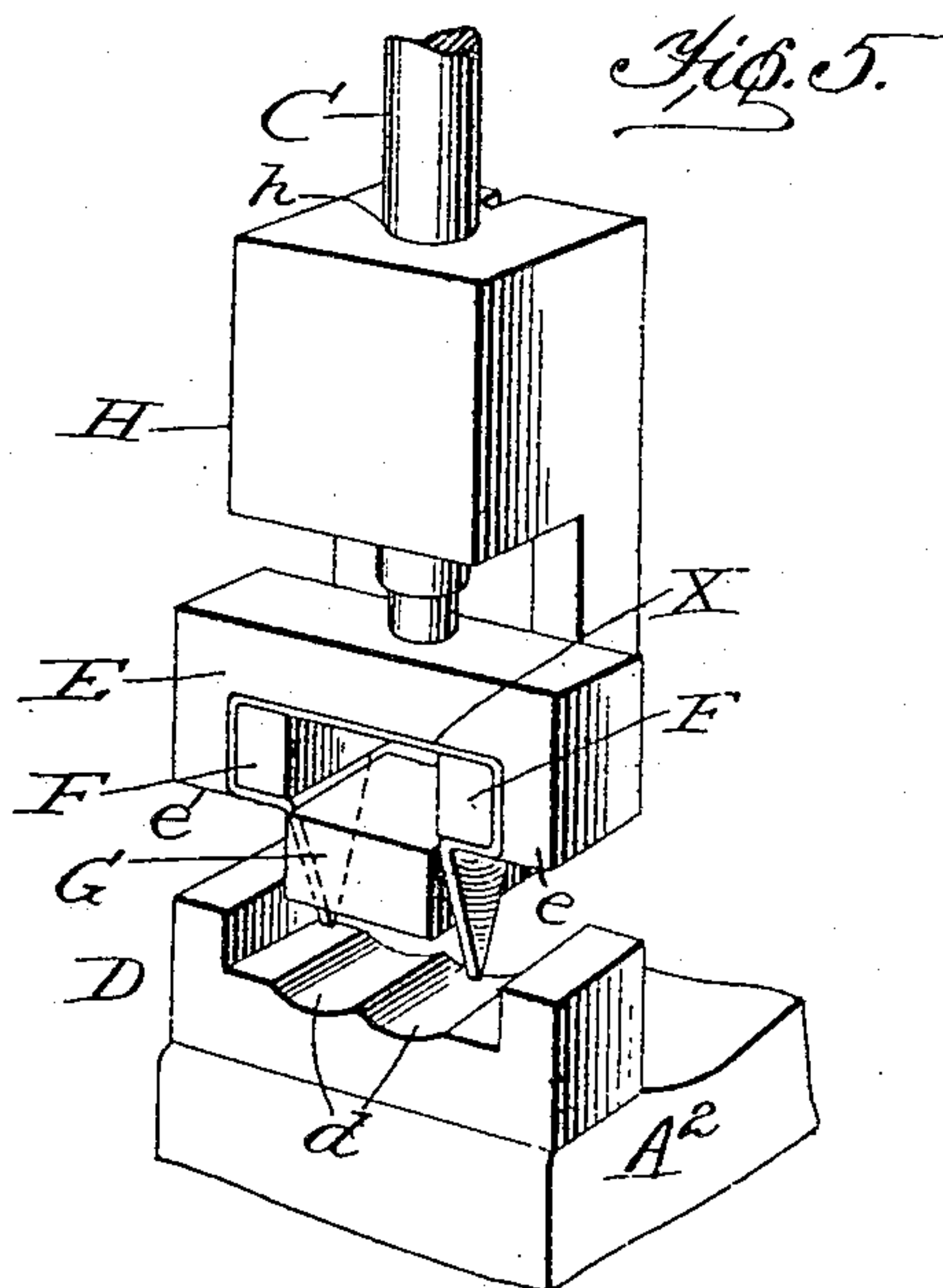
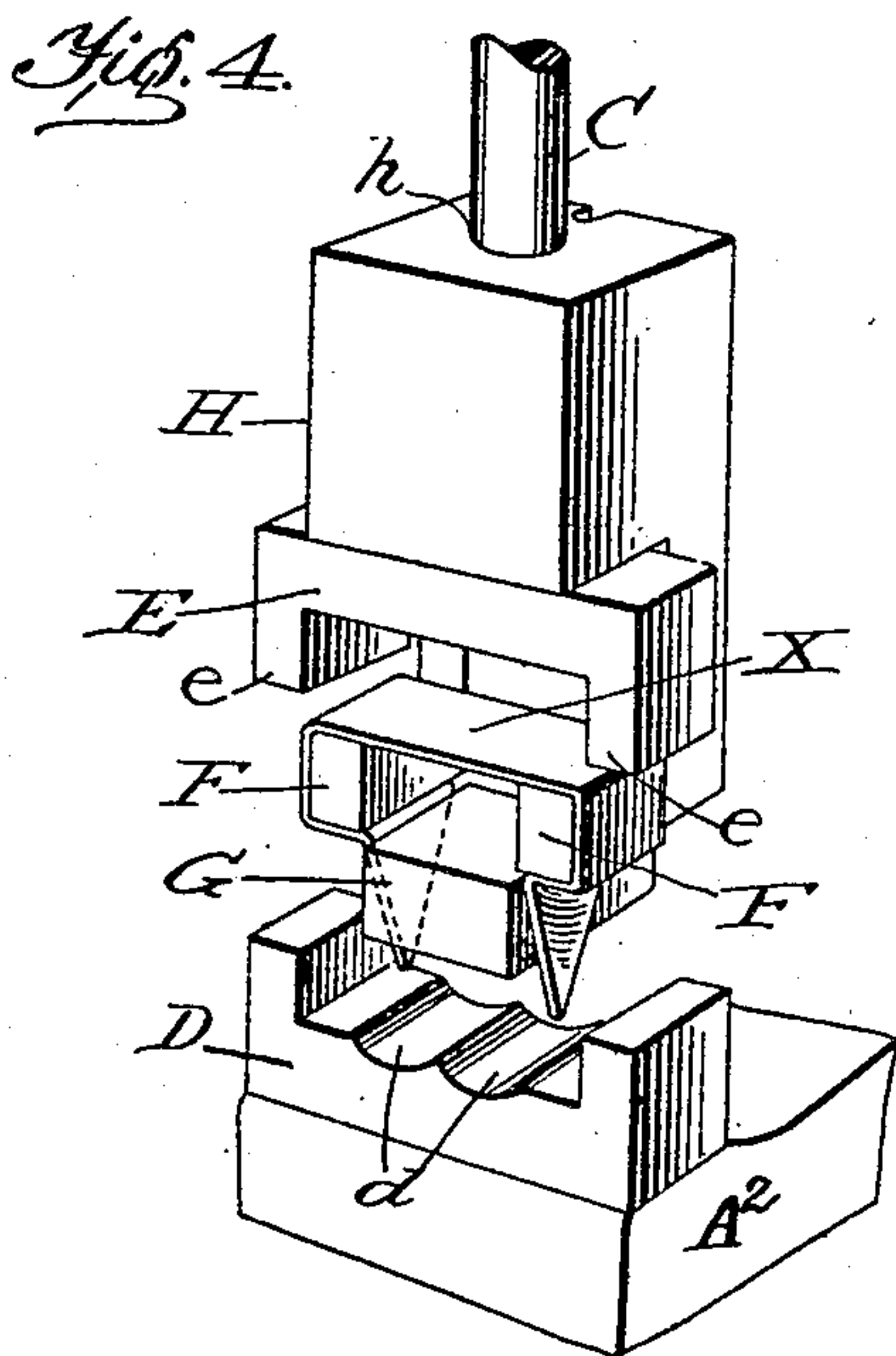
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Julian C. Powell
his Attorneys

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3 SHEETS—SHEET 3.

Fig. 8.

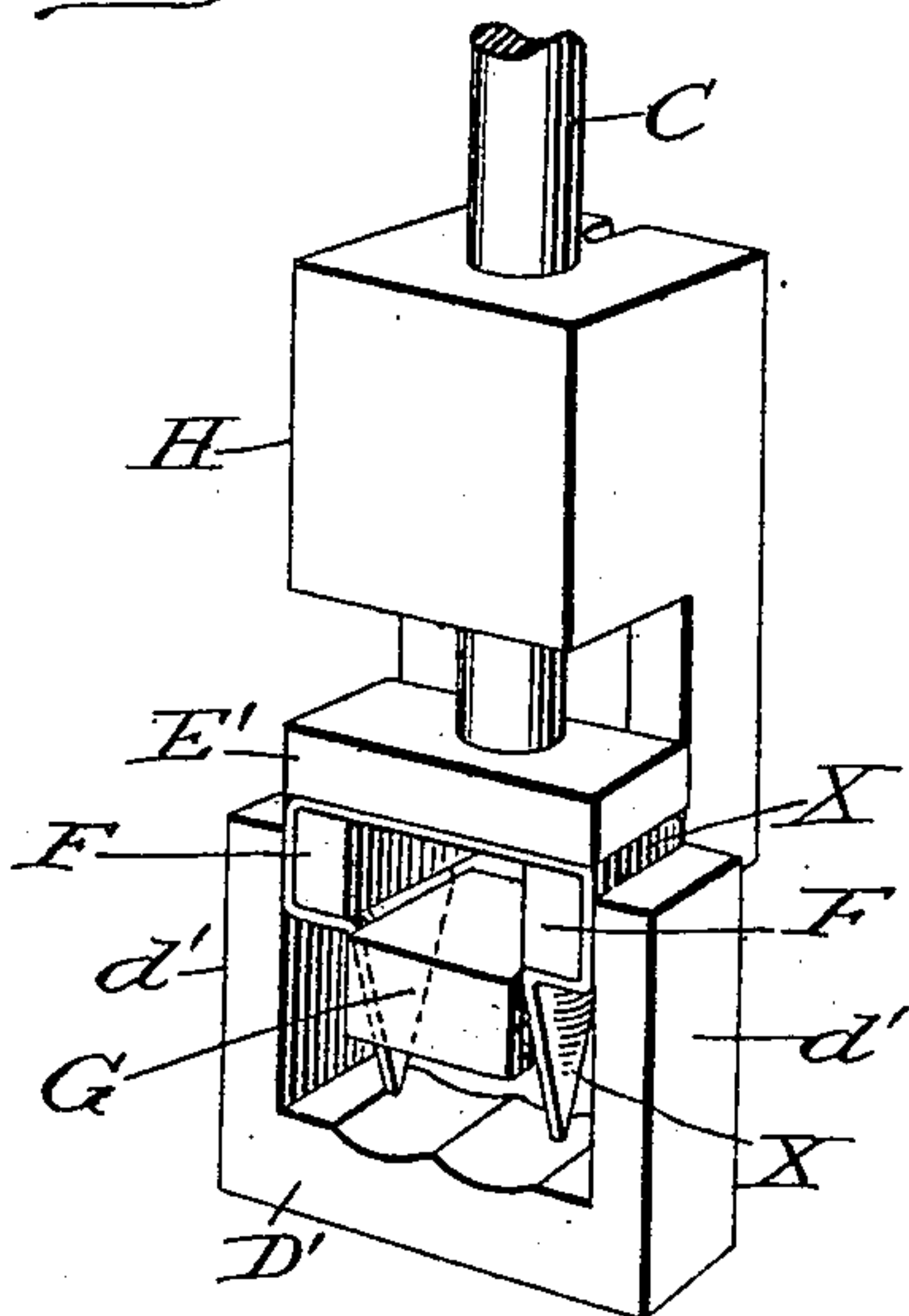


Fig. 9.

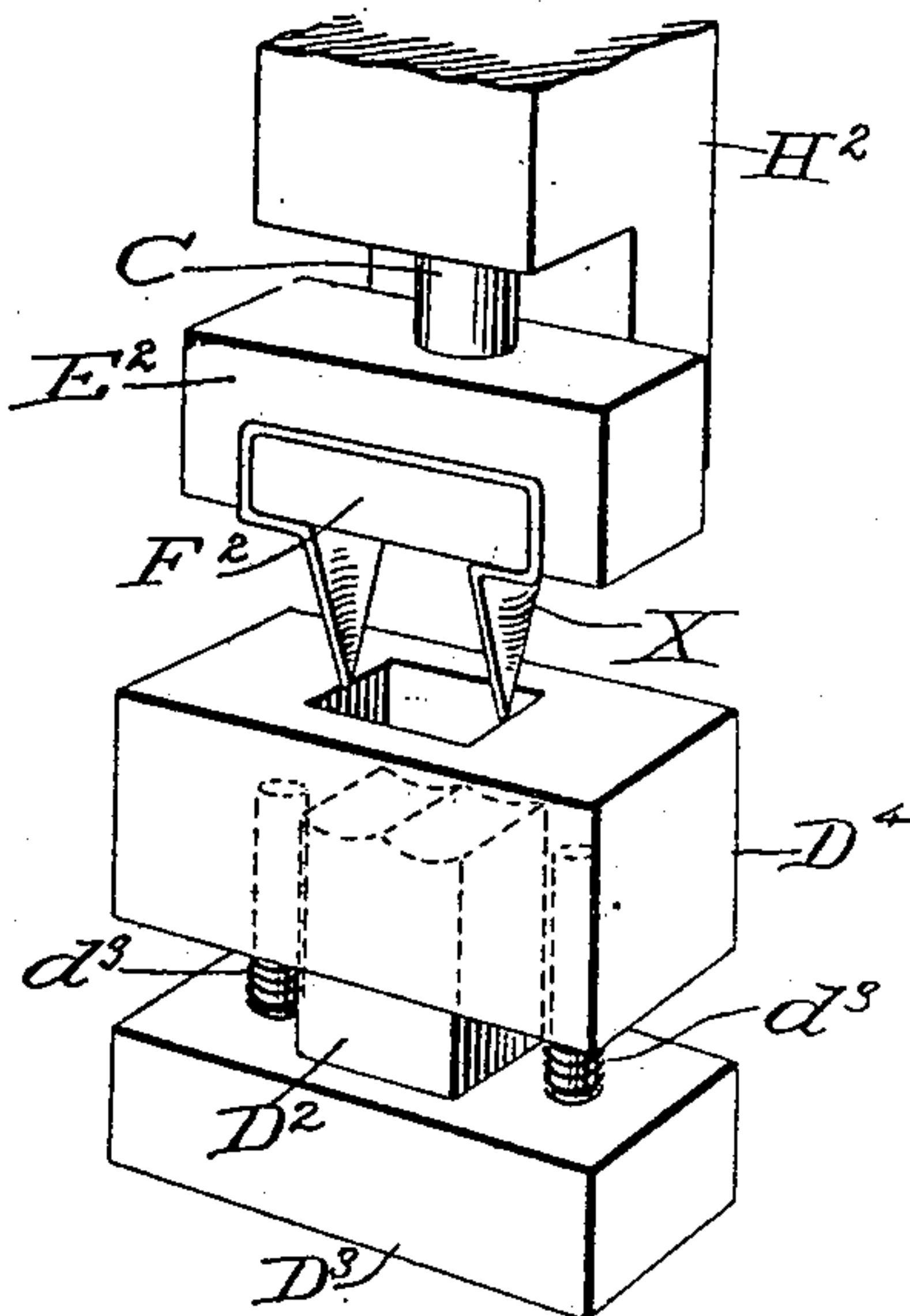


Fig. 10.

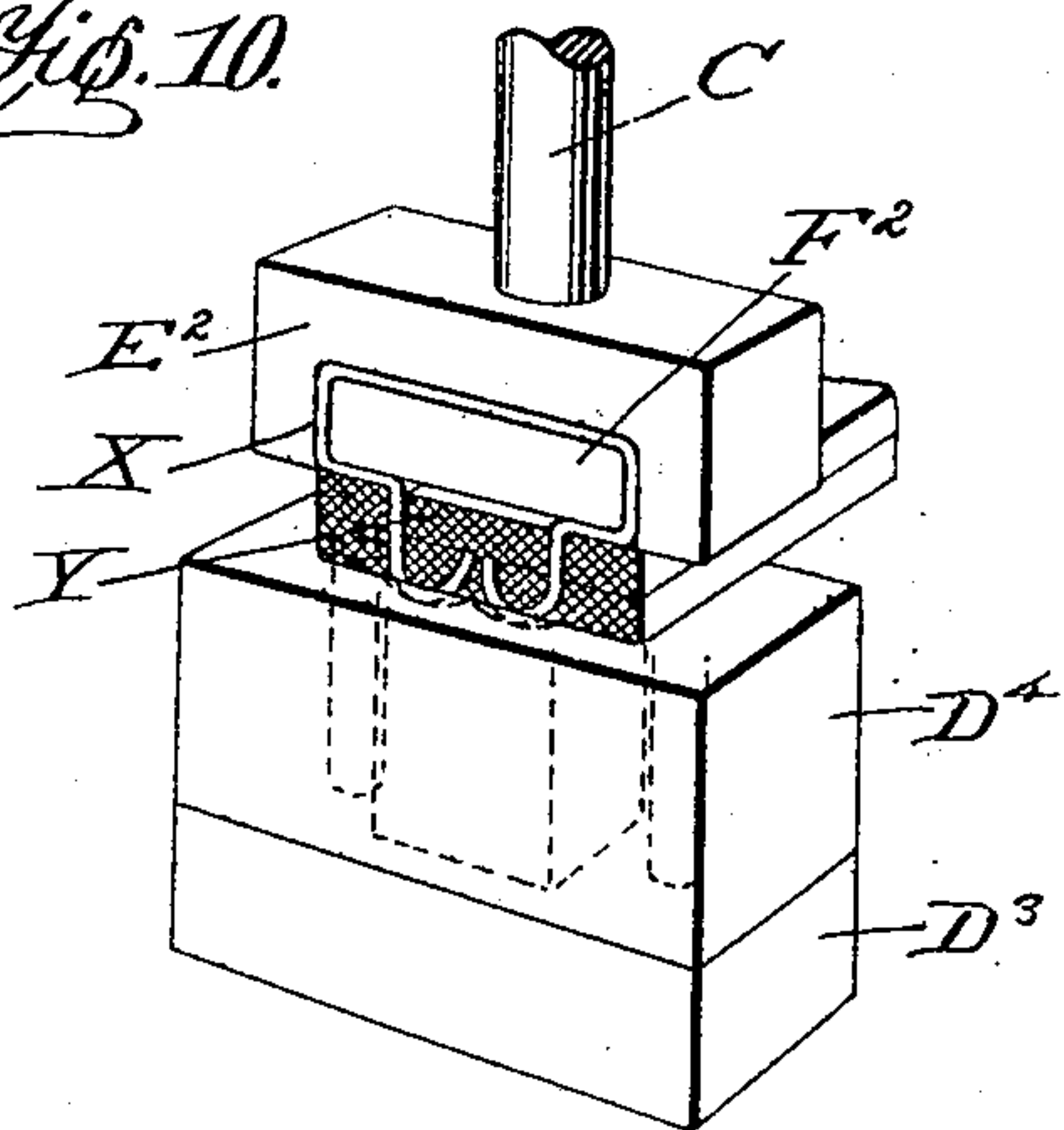


Fig. 11.

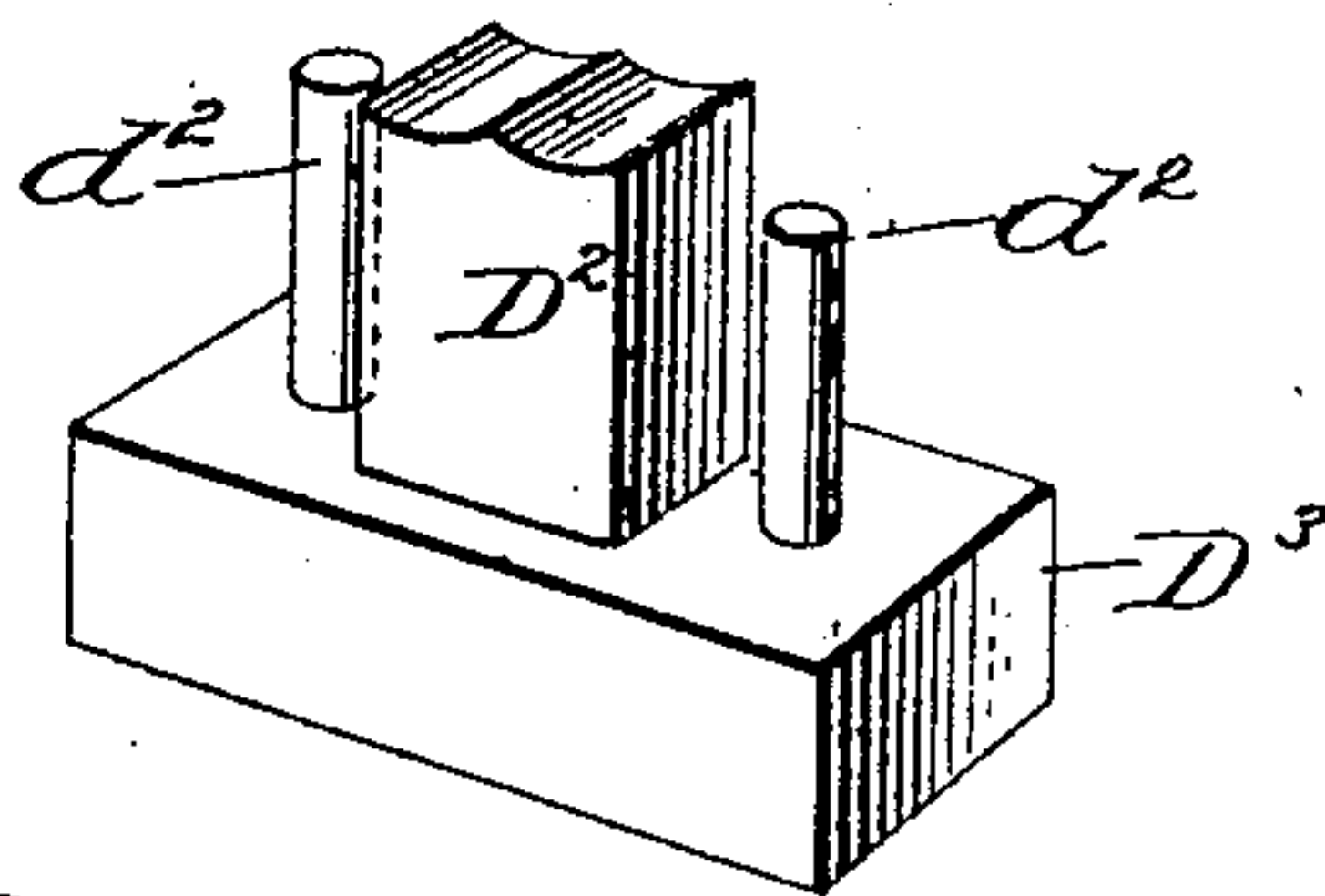
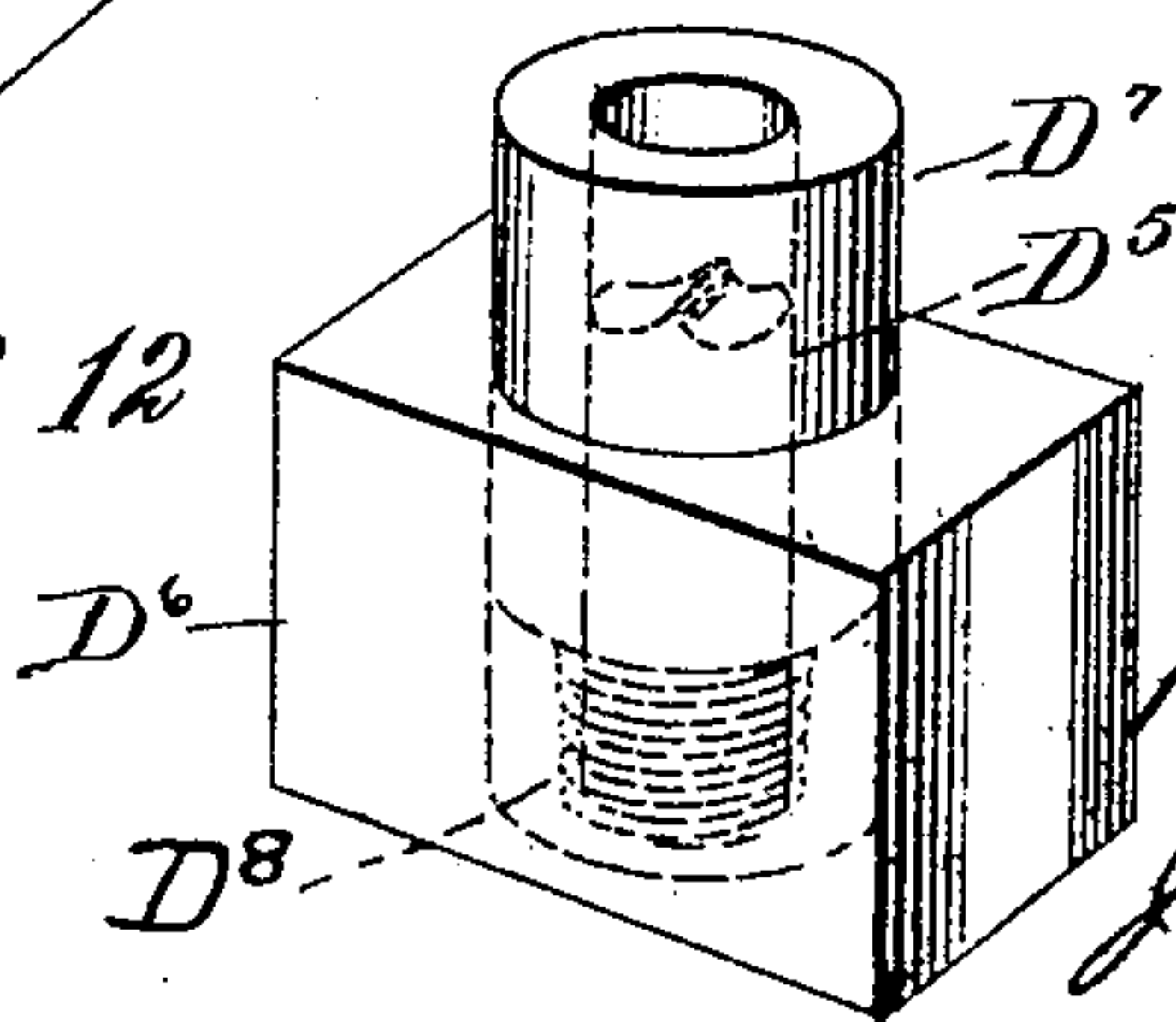


Fig. 12.



Witnesses

W. R. Medearis
O. W. Holman

Inventor

W. R. Medearis

By
Julian C. Powell
his Attorney

UNITED STATES PATENT OFFICE

WILLIAM ROBERT MEDEARIS, OF NASHVILLE, TENNESSEE, ASSIGNOR OF ONE-THIRD TO J. M. GRAY, JR., AND ONE-THIRD TO H. A. ELLERS, OF NASHVILLE, TENNESSEE.

MACHINE FOR SETTING OR AFFIXING PRONGED LOOPS TO LEATHER OR OTHER MATERIAL.

No. 849,847.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed May 24, 1906. Serial No. 318,532.

To all whom it may concern:

Be it known that I, WILLIAM ROBERT MEDEARIS, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Machines for Setting or Affixing Pronged Loops to Leather or other Material; 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.

This invention is a machine for attaching pronged loops of the character hereinafter stated to leather or other material where strap-loops or keepers are employed for the end of strap to rest under when buckled, such as various parts of harness, straps of all kinds and sizes, trunks, valises, and other articles.

The main object of the invention is to effectively set and clench the prongs in the leather or other material, while preserving the perfect shape of the loop.

The character of loop referred to is made from a sheet-metal blank or strip bent or formed into the shape of a rectangular loop, with its ends turned inwardly and downwardly to provide tangs or prongs, the said prongs being desirably curved to increase their strength and stiffness and cause them to upset or clench in the leather somewhat in the manner of a split tubular rivet.

In the accompanying drawings, which form a part of this specification, several specific forms or embodiments of the invention are illustrated, it being understood that the invention is susceptible of embodiment in different mechanical organizations and that the details of construction and arrangement of parts may be variously modified. Without essential limitation, therefore, to any particular construction the invention will hereinafter be fully described with reference to said drawings and will then be more particularly pointed out and defined in the appended claims.

In said drawings, Figure 1 is a perspective view of a machine embodying my invention looking at the side and back of the loop-setting mechanism and showing the same mounted in a suitable frame. Fig. 2 is a per-

spective view of one of the pronged metal loops which it is the function of this machine to attach to the leather or other material. Fig. 3 shows the loop attached to a strap, or rather in this instance affixed to two straps, which are united by the prongs of the loop inserted through the straps and clenched. Fig. 4 is a front perspective view of the machine open and having a loop fitted on the shape-retainer or pattern-form. Fig. 5 is a similar view showing the loop gripped in the machine and the parts ready for affixing the loop to the leather strap or other article. Fig. 6 is a similar view showing the machine at the completion of a setting operation, the leather straps being indicated in cross-section. Fig. 7 is a central vertical section taken transversely of the front of the machine. Fig. 8 is a perspective view of a different construction of machine embodying my invention, showing the loop in place and the machine in position to begin the setting operation. Fig. 9 is a perspective view of another construction of machine embodying my invention, also showing the loop in place and the mechanism ready to start the setting operation. Fig. 10 is a view of the machine of Fig. 9 at the completion of its operation. Fig. 11 is a detail view of the anvil of the machine in Figs. 9 and 10. Fig. 12 is a detail view of a modification of the anvil shown in Fig. 11.

The machine may be arranged in a suitable frame, as indicated by the letter A, which is shown in Fig. 1 mounted on a standard or pedestal A'. This frame is a curved or yoke-like frame, such as ordinarily employed for rivet-setting machines, providing a bed A² for the anvil D and an overhanging arm A³, having a guideway for the vertically-reciprocatory plunger-rod C. Said plunger-rod C may be actuated by a setting-lever B, which may be manipulated by hand or to which power may be applied by a treadle or foot-lever or by other appropriate means. It is understood, of course, that the particular style or construction of supporting-frame and power-applying mechanism is immaterial to the present invention.

Before describing the loop-setting mechanism in detail it will be well to refer briefly to the pronged loop or fastening which the machine is intended to affix to the leather.

This loop is designated throughout the drawings by the letter X. Its general form is that of a headed bipronged or staple-like device, the rectangular loop portion proper constituting the head and extending oppositely beyond the prongs, which latter depend from the extremities of the lower side of the loop or head, leaving a break or space between the prongs. In the operation of setting this device in the leather or other material its prongs must be driven into the leather or material and upset or clenched in the usual manner of setting a rivet, while at the same time the prongs must be held stiff and kept from bending or deflecting out of their proper relative position, and the shape of the loop or head must be preserved, so that when the operation is completed the loop will be firmly attached to the leather and present a neat appearance, without dents or bends, and be in correct shape to receive the strap which is to be inserted therethrough; or in case the prongs are not pointed and are designed to be inserted through the material and upset or clenched after the manner of a split tubular rivet the prongs must likewise be forced against the anvil and upset, while retaining the shape of the loop.

Referring to Figs. 4, 5, 6, and 7, the principal operative elements as therein illustrated are the anvil D and the coöperative plunger, which is carried and operated by the plunger-rod C. The plunger is a compound mechanism, consisting of the shoe or presser E, rigidly attached to the foot of the plunger-rod, and the pattern-form or loop-holding and shape-retaining feet F and prong-bracing foot G, this latter device being carried by a holder H, which is connected with the plunger-rod and is normally supportable by the presser. These parts will now be described in detail.

The presser or shoe E, carried by the lower end of the plunger-rod C, is a block adapted to bear upon the head of the loop and drive the prongs into the leather and against the anvil when the plunger-rod is depressed. The presser has depending or downwardly-extended sides e, adapted to straddle the loop and fit closely against the opposite sides thereof to prevent them from springing or separating outwardly in the setting operation.

The holder H is slidably secured on the plunger-rod C above the presser E. It is shown provided with a vertical hole or guideway h, in which the plunger-rod is slidably fitted, whereby said holder can be lifted and supported by the presser when the plunger-rod is raised. Said holder H is provided with depending L-shaped legs whose forwardly-extending feet F constitute the pattern-form or loop-holding and shape-retaining devices F, before mentioned. Between the legs and feet F is an intermediate L-

shaped leg whose forwardly-extended foot G constitutes the prong-bracing device above referred to. Said intermediate foot G is slidably arranged between the feet F and is actuated by a suitable spring, as indicated at J, to press the foot G yieldingly downward. In the specific arrangement shown for this purpose the spring J is a tension-spring having its lower end secured to a stud or pin j at the back of the holder and having its upper end connected to a pin or stud j', carried by an upper extension g of the leg G, said extension g being slidably or movably arranged in a vertical hole or guideway therefor in the holder H. To allow vertical movement of the foot G and its shank g, a slot j² is shown to accommodate the pin j'. This arrangement may of course be variously modified or other suitable means adopted.

The feet F (which constitute the pattern-form or the loop-holding and shape-retaining devices) are adapted to fit closely within the loop X and fill up the spaces between the vertical sides of the loop and its depending prongs, so that the two feet F are rigidly embraced by the loop. When the loop is placed on these feet in this manner, the presser E is adapted to descend and straddle or closely embrace the outer sides of the loop, and thus the loop will be firmly braced both inwardly and outwardly as the presser continues to descend in effecting the setting operation. The feet F, besides holding the loop in proper position, preserve its form and prevent mashing in, bending, or indenting thereof, thus constituting a form or shape-retainer fitting within the loop, while the depending sides of the presser E clamp the sides of the loop outwardly and prevent spreading or outward bending thereof, due to the strain of the setting operation.

The intermediate foot G, which is the prong-bracing device, is normally held by the spring J below the feet F and is adapted to fit closely between the prongs of the loop, thereby bracing the prongs. In the setting operation the foot G rests upon the surface of the leather strap or other article, (indicated in the drawings by the letter Y,) and as the presser E descends, driving the prongs into the leather and clenching them, said foot G recedes into the medial space between the feet F, thus maintaining a gradually-receding brace until the prongs have completely entered the leather and clenched. At the completion of the operation the presser E and feet F will have passed down and completely straddled the foot G, as shown in Fig. 6.

The anvil D is a steel or hard-metal block designed to hold the leather strap or straps Y or other article to which the loop X is to be affixed, and the upper surface of said anvil is formed with concave recesses or grooves, as indicated at d, to deflect the points of the prongs and cause them to upset or bend up-

wardly, so as to effectively clench in the leather or other material, or in the case of a loop having blunt prongs the anvil causes the prongs to upset and clench on the under side of the leather. The points of the prongs of the loop may be deflected either inwardly or outwardly, as desired, the grooves d in the anvil being formed to govern this matter, it being usually desirable, however, to form the grooves so as to cause the prongs to turn inwardly and clench in the leather in the manner illustrated in Fig. 6. The anvil D is shown having upwardly - extending sides, which are merely to hold the strap or straps exactly in position when setting the loop. These sides are not necessary, though they are usually desired for holding the strap or straps in correct position, as stated; but where the loops are to be affixed to wide or large flat surfaces an anvil must be employed without such extended or rising sides.

The operation of the said machine shown in Figs. 4, 5, 6, and 7 is as follows: To receive the loop, the plunger-rod C is lifted, thereby raising the presser E and holder H and opening or separating the presser, the pattern-form or loop-holding and shape-retaining feet F, and the prong-bracing foot G, which latter is of course pressed downwardly by its spring J. In this position the loop is slipped over and fitted on the form or the feet F in the manner shown in Fig. 4, so that the prongs of the loop depend at opposite sides of the intermediate foot G, while the spaces in the loop between its opposite vertical sides and the prongs are filled up by the feet F. Then upon depressing the plunger-rod the points of the prongs come in contact with the leather or other material to which the device is to be attached, and the presser E descends over the head of the loop and comes down flatwise thereon, straddling the sides of the loop, as shown in Fig. 5. The continued downward movement of the plunger-rod now forces the entire plunger down on the material, driving the prongs into the leather or material and against the anvil D, which is of course properly positioned to receive the prongs and to upset or clench the same, as shown in Fig. 6. In this operation the head or loop is firmly held and braced by the pattern-form or feet F and by the depending sides of the presser E as the presser bears forcibly down upon the crown or top of the loop, while the prongs are firmly braced by the intermediate foot G, which gradually recedes into the space between the feet F as the plunger descends and completes its movement, thus preventing said prongs from bending inward while being set. In this manner the loop is firmly set, clenched, and fastened to the leather or material without liability of spreading or bending out of position and without impairing the perfect shape of the loop. After the operation of setting the loop

the plunger-rod C is lifted to raise the presser E off the head of the loop, and the strap or material is then pulled lengthwise to slip the loop off of the pattern-form or feet F, which thus disengages the loop from the machine.

Referring to Fig. 8, the machine illustrated in this figure is substantially similar in construction and operation to that already described, except that it is modified in the following particular: The presser E is made without the depending side pieces employed in the machine first described, and in lieu thereof the anvil D' has its sides d' extended upwardly high enough to embrace or engage the opposite sides of the loop in the setting operation and preventing the sides of the loop from spreading or springing out while being set. In other words, the small upright sides d' of the anvil D' in this modified construction perform the same function as the depending sides e of the presser E in the machine shown in Figs. 4 to 7. The remaining elements of this machine are the same as in the machine first described and are designated by the same reference-symbols.

Referring to Figs. 9, 10, and 11, the machine illustrated in these figures is likewise similar in general construction and operation to the machines previously described, but is modified by the omission of the prong-bracing foot, (designated by the letter G in the preceding figures,) and in lieu thereof a compound anvil of peculiar construction is employed. A brief description of this figure is as follows: The plunger, carried by the plunger-rod C, comprises the presser E², holder H², and pattern-form or loop-holding and shape-retaining foot F². The presser is of the same form as that shown in Figs. 4 to 7. The foot or pattern-form F², carried by the holder H², is adapted to fit within the loop and corresponds to the feet F in Figs. 4 to 7, performing the same function of bracing the loop internally in the setting operation. This foot or pattern-form F² may comprise a single oblong block adapted to fill up the whole loop, as shown, or it may comprise two feet similar to the feet F already described in Figs. 3 to 7. The intermediate prong-bracing foot (designated by letter G in Figs. 4 to 7) is omitted as a separate part, though in this particular instance the foot F², being solid, includes such a part. The anvil (designated by the letter D²) is shown as an upright mounted on a block D³, the anvil being preferably of just sufficient width approximately to receive and upset or clench the ends of the loop-prongs. Rising from the block D³ at opposite sides of the anvil D² are two pins d^2 , on which are arranged coiled compression-springs d^3 . Above the block D³ is a movable block D⁴, having a central hole slidably fitted on the anvil D², said hole extending from the bottom to the top of said block D⁴. Said block D⁴ also has opposite

sockets or holes extending a suitable distance from the bottom of the block, which receive the pins d^2 and springs d^3 . In this manner the block D^4 is held yieldingly upward, the springs d^3 being strong enough to hold up the block while the prongs of the loop are being forced or inserted through the leather or material to which the loop is to be set. In the operation of this machine the leather or material is placed upon the block D^4 and the plunger is lowered by the plunger-rod, thereby driving the prongs of the loop into the material, and as the plunger-rod continues to descend the presser E continues to go down, carrying or pressing the material and the block D^4 down with it, forcing the points of the loop-prongs against the anvil D^2 , on which they are clenched. This form of anvil is preferably only for setting or attaching loops to large flat pieces of soft material, but not for general use, the forms represented and described in Figs. 3 to 8 being preferable for setting loops to leather straps and the like. A modification of this latter style of anvil is shown in Fig. 12, where D^5 represents an upright anvil-post arranged in a socket in the block D^6 , and D^7 indicates a movable sleeve or centrally-apertured block slidably fitted on or around the anvil-post D^5 and slidably arranged in said socket in the block D^6 . A coiled spring D^8 , arranged around the anvil-post D^5 between the bottom of the socket and the lower end of the movable tubular block D^7 , holds the latter yieldingly upward in the same manner and for the same purposes as already explained with reference to the preceding Figs. 9, 10, and 11.

The invention is also capable of various other embodiments and of modifications in details of structure and arrangement, as previously pointed out. It will be understood, moreover, that the forms of the anvil-presser and pattern-form or loop-holding, shape-retaining, and bracing devices may be variously modified in accordance with the dimensions and configuration of the particular loop to be attached by the machine to the leather or the material. The loop is of course made in different sizes and may be made in other forms than the specific form herein illustrated. For example, in addition to changes in the relative dimensions of the loop its sides may be curved more or less instead of perfectly square or angular, as shown in Figs. 2 and 3, in which case the pattern-form, loop-holding, or shape-retaining feet F would of course be correspondingly formed to fit within the loop, while the presser or anvil, as the case might be, would be formed to fit around or embrace the sides of the loop outwardly.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

65 1. In a loop-setting machine, the combina-

tion of a presser for operating on the head of a pronged loop to drive its prongs into material, and a pattern-form adapted to receive and fit within the head of the loop, said form being carried by and under said presser and movably connected therewith, whereby said presser descends independently until it bears upon the head of the loop fitted on said form, and then the form descends with and under the action of the presser to effect the setting operation, said form being confined within the head of the loop until completion of said operation and thereby preserving its conformation. 70 75

2. In a loop-setting machine, the combination of a presser arranged to operate on the head of a pronged loop, a movable pattern-form adapted to receive and fit within the loop, said form being movable with the presser in the setting operation, and means for bracing the outer sides of the loop. 80 85

3. In a loop-setting machine, the combination of a presser arranged to operate on the head of a pronged loop and having extensions or projections at its sides for embracing the sides of the loop between them, and a form arranged to receive and fit within the loop to prevent bending or distortion thereof in the setting operation, said form being movable with the presser. 90 95

4. In a loop-setting machine, the combination of a presser arranged to operate on the head of a pronged loop, a movable pattern-form adapted to receive and fit within the loop, said form being movable with the presser in the setting operation, and a gradually-receding prong-bracing device for bracing the prongs in the setting operation. 100

5. In a loop-setting machine, the combination of a presser arranged to operate on the head of a pronged loop, a movable pattern-form adapted to receive and fit within the loop, said form being movable with the presser in the setting operation, and means for bracing the prongs and outer sides of the loop. 105 110

6. In a loop-setting machine, the combination of a presser arranged for operating on the head of a pronged loop, an anvil arranged to receive and clench or upset the points of said prongs, one of the said parts having side projections or extensions arranged to embrace the outer sides of the loop and prevent spreading thereof, and a movable form arranged to receive and fit within the loop and descend with the presser to prevent bending or distortion of the loop. 115 120

7. In a loop-setting machine, the combination of a plunger-rod, a presser affixed to the end thereof, said presser arranged for operating on the head of a pronged loop, a holder movably connected with said rod above the presser and having two pendent L-shaped legs whose feet are arranged to receive the loop and fit within opposite sides thereof to 125 130

preserve its shape, and an intermediate foot movably connected to and carried by the holder and yieldingly spring-pressed downward, said intermediate foot arranged to fit
5 between the loop-prongs and to recede into the space between the outer feet in the loop-setting operation.

8. In a loop-setting machine, the combination of a form comprising two parts arranged
10 to receive a loop of the character described and to fit within said loop at opposite sides of the space between its prongs, an intermediate part yieldingly held below said form ar-

ranged to fit between the loop-prongs and adapted to recede into the medial space be- 15
tween the parts of the form as the latter descends, and a presser arranged to operate on the loop when fitted on said form to force said form with said loop downwardly and drive the loop-prongs into the material. 20

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

WILLIAM ROBERT MEDEARIS.

Witnesses:

JOHN W. CATO,
W. ARTHUR LEE.