

920,457.

3 SHEETS—SHEET 1.



Fig. 1.

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E. Batchelder

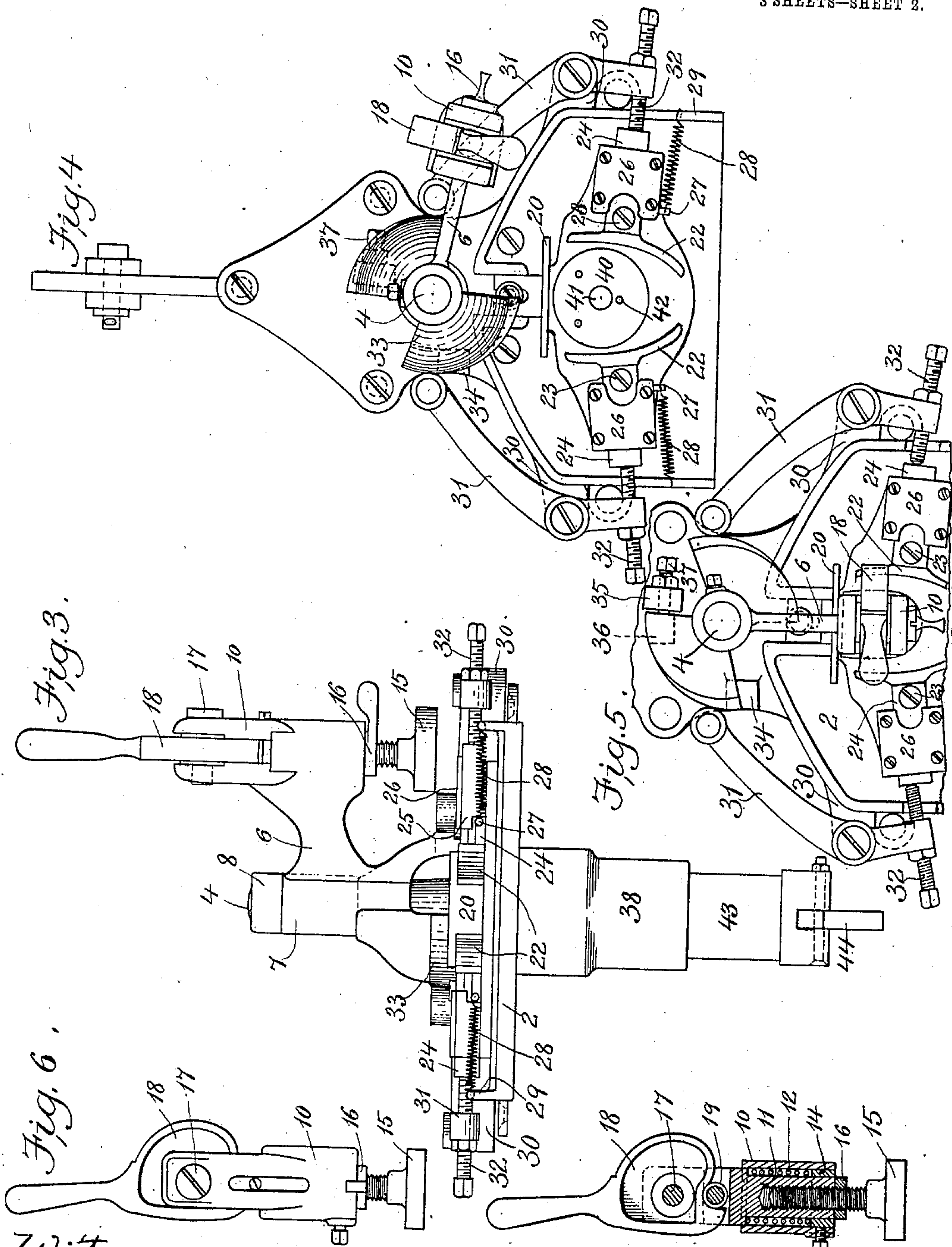
*Inventor.*

George B. Grover.  
by Night & Day Truly May  
Atty's

G. B. GROVER.  
MACHINE FOR ASSEMBLING HEEL BLANKS.  
APPLICATION FILED MAY 18, 1907.

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Patented May 4, 1909.  
3 SHEETS—SHEET 2.



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Fig. 7

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3 SHEETS—SHEET 3.

Fig. 8.

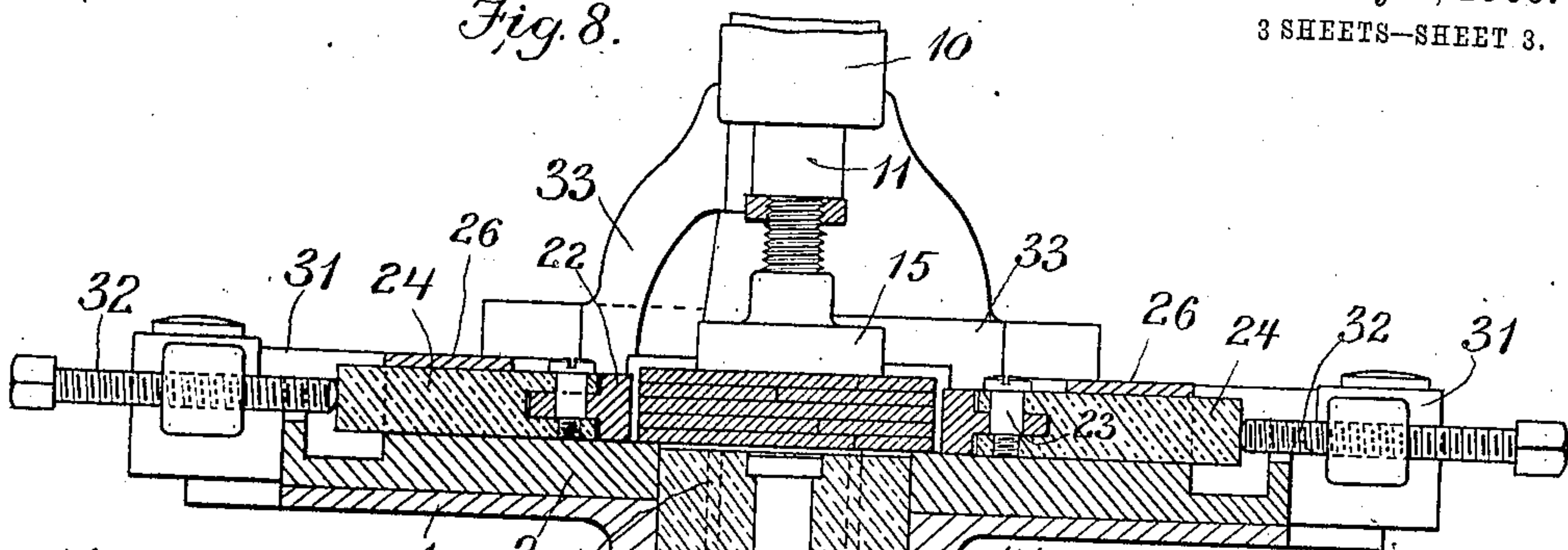


Fig. 9.

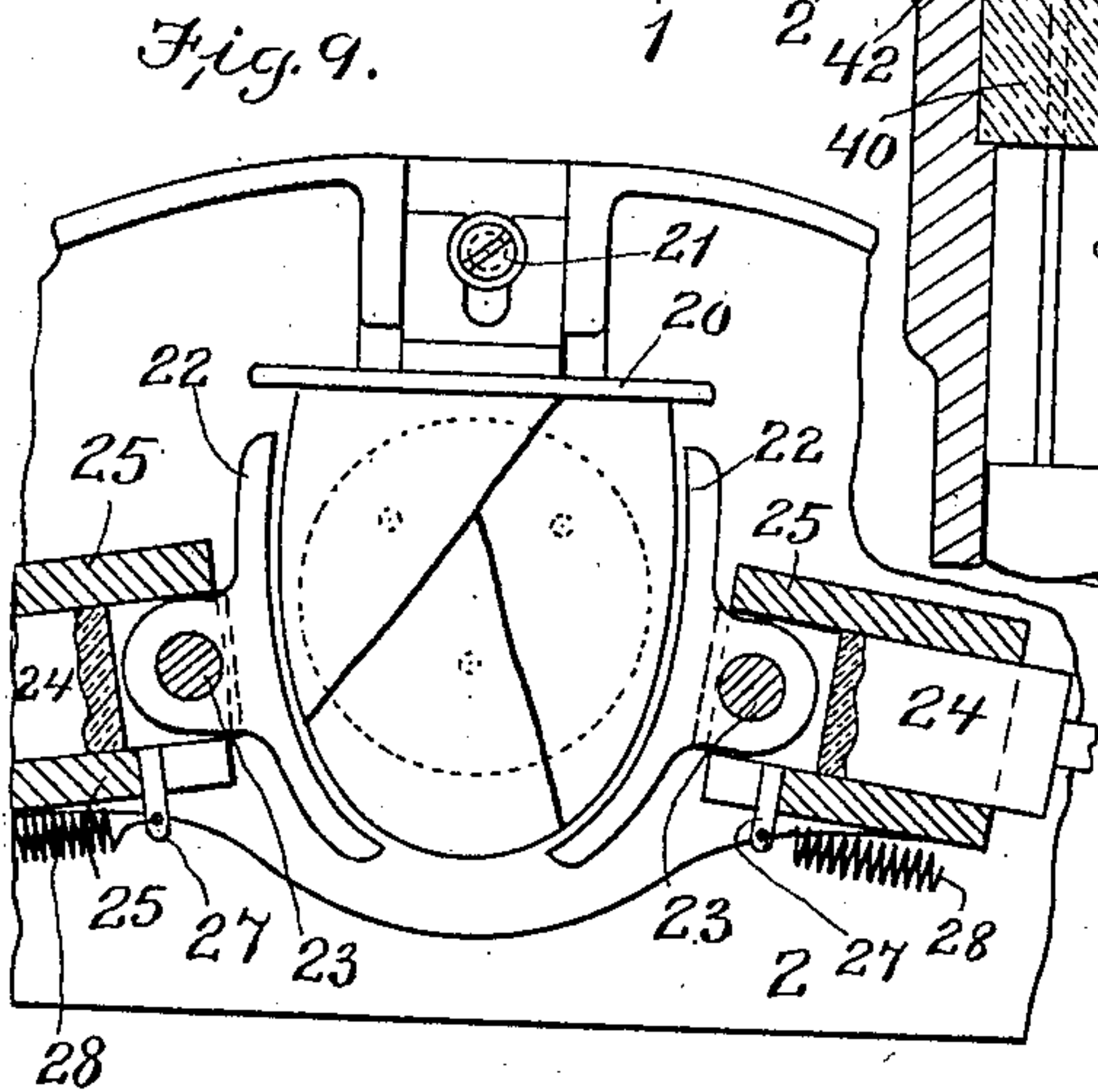


Fig. 10.

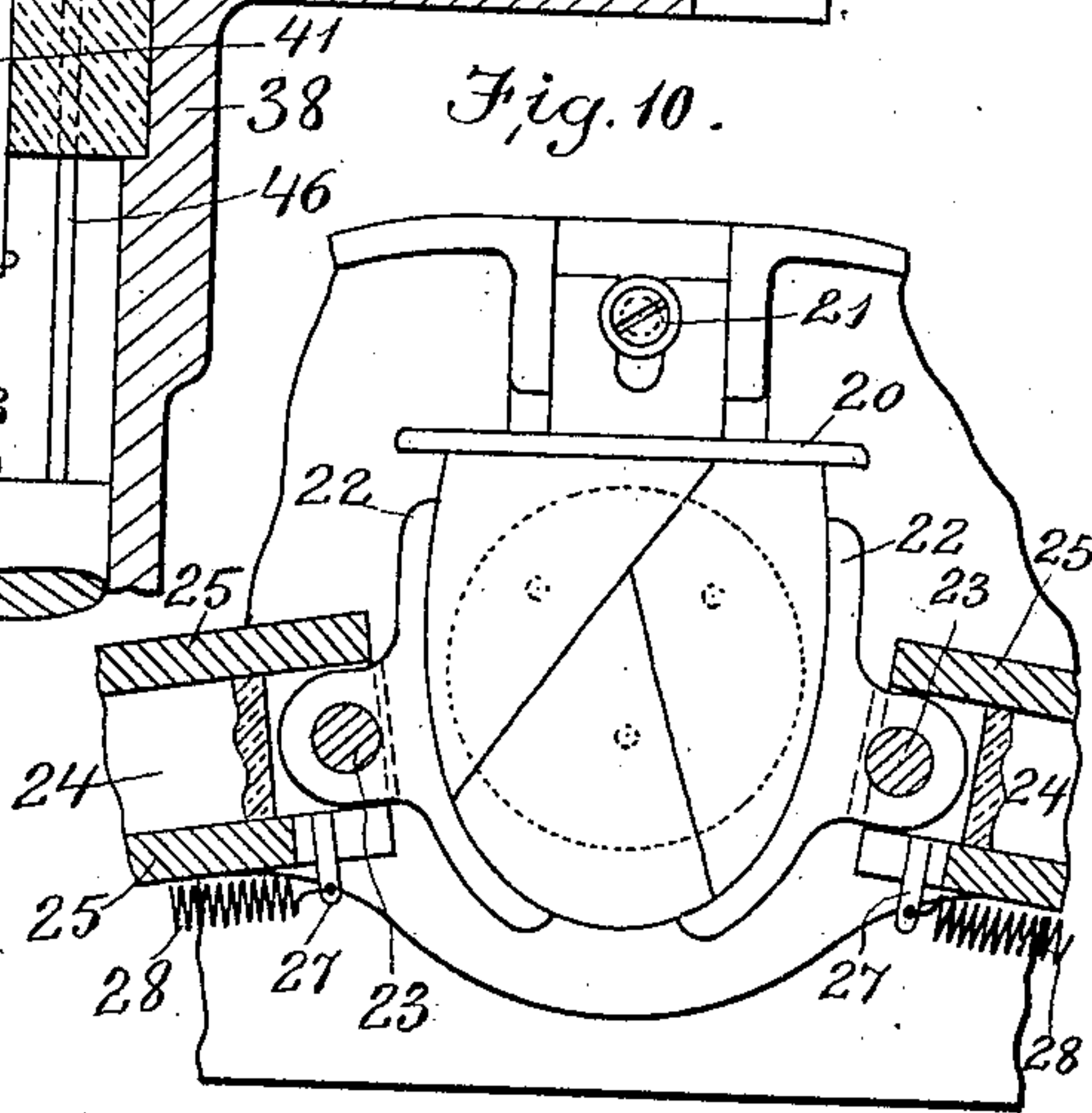


Fig. 12.

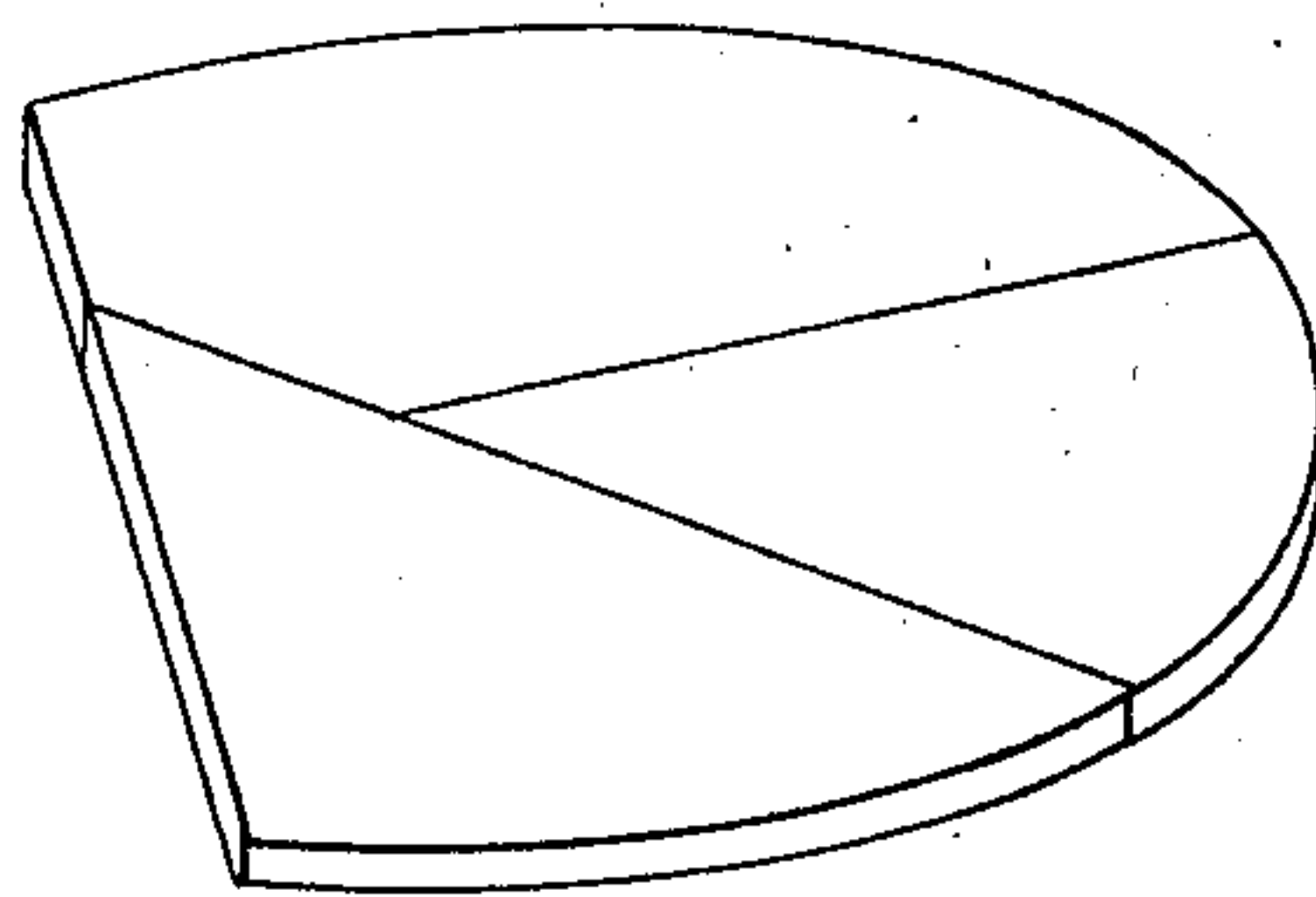
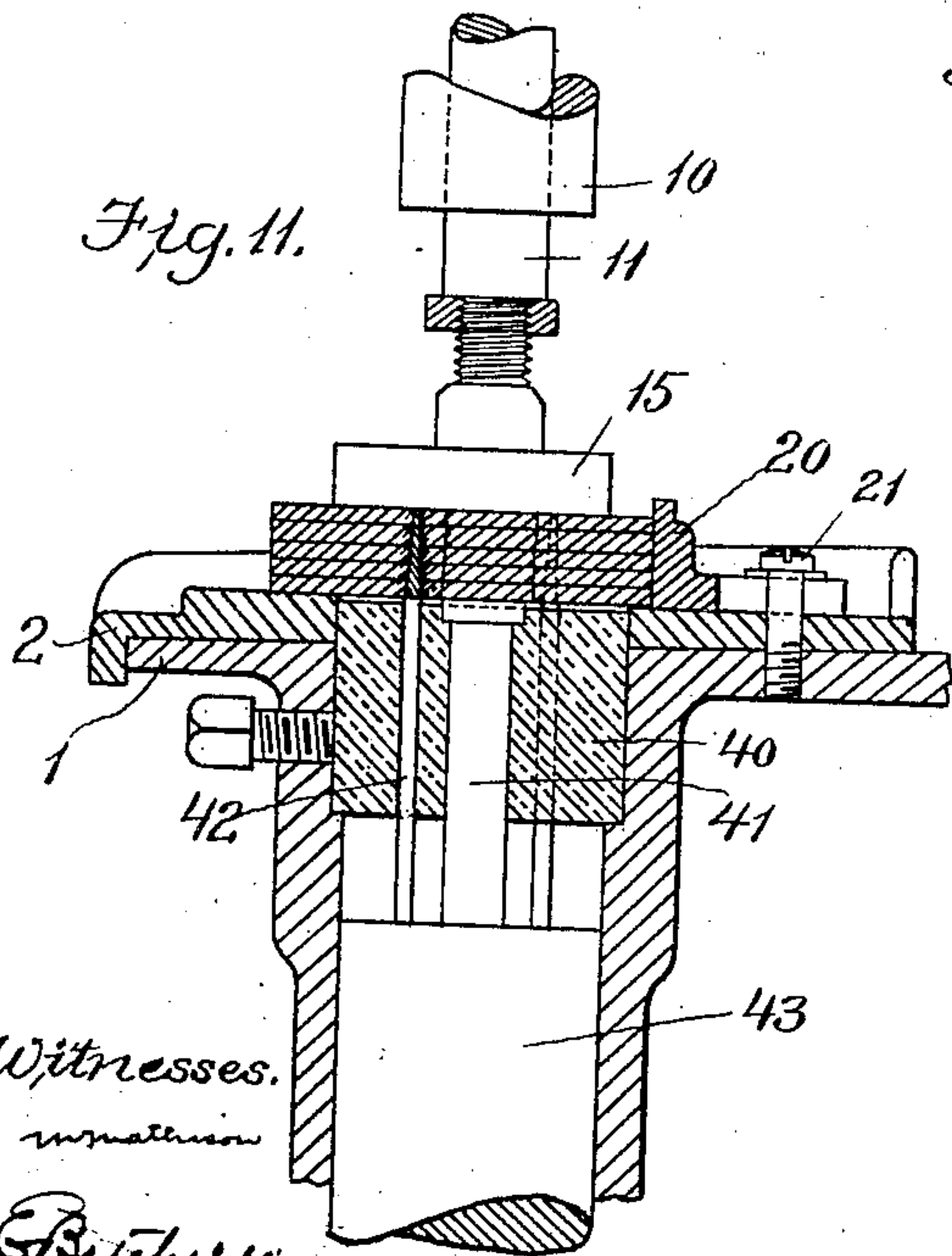


Fig. 11.



Witnesses.  
in presence of  
G. B. Grover

Inventor.  
George B. Grover  
by Hight Brown Limbly May  
Atty's.



# UNITED STATES PATENT OFFICE.

GEORGE B. GROVER, OF LYNN, MASSACHUSETTS.

MACHINE FOR ASSEMBLING HEEL-BLANKS.

No. 920,457.

Specification of Letters Patent.

Patented May 4, 1909.

Application filed May 18, 1907. Serial No. 374,430.

*To all whom it may concern:*

Be it known that I, GEORGE B. GROVER, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Assembling Heel-Blanks, of which the following is a specification.

This invention relates to machines by which heel blanks are built up from small pieces or scraps of leather which are fitted together so that two or more pieces together form one complete lift.

The objects sought in the use of this machine are the same as those obtained by the machine for assembling heel blanks patented to me January 19, 1904, and numbered 749,788.

In addition to the objects sought and secured by the machine of the above-noted patent, I further have for an objective to make the devices which position the sides of the heel blank so that they will be automatically adjustable and caused to press inward upon opposite sides of the blank so as to compact the same laterally whenever the device for compressing the heel vertically is applied.

A further object is to combine in the same machine, mechanism for driving nails into the completed blank, and making such nail-driving means adjustable so as to vary the position in different blanks of the nail or nails for temporarily holding the parts of the blank together.

The accompanying drawings show the preferred embodiment of a machine for carrying out the above objects.

Figure 1 represents a side elevation. Fig. 2 represents a central longitudinal section. Fig. 3 represents a front elevation. Fig. 4 represents a plan with the compressing and holding clamps in their withdrawn or inoperative positions. Fig. 5 represents a fragmentary plan view showing these parts in their operative positions preparatory to exerting downward pressure upon the blank. Figs. 6 and 7 represent respectively, an elevation and longitudinal section of the top clamp and head in which the same is mounted. Fig. 8 represents on a larger scale, a vertical transverse section of the blank-supporting and nailing means. Figs. 9 and 10 represent detail plan views showing the lateral clamp in different positions. Fig. 11 represents a fragmentary sectional view, showing the top clamp and nail-driving means at the end of a

nail-driving operation. Fig. 12 represents a heel lift built up of several pieces.

The same reference characters indicate the same parts in all the figures.

In the drawings,—1 indicates a base plate or table of considerable lateral extent, on which is secured a brass or composition plate 2 on which the material of the heel is laid while being assembled. In rear of this plate is a boss 3 which receives a pivot post 4 secured by a set-screw 5. An arm 6 has a boss 7 which pivotally surrounds the post 2 and rests upon the fixed boss 3. A collar 8 secured by a set-screw 9 holds the boss 7 against removal from the post. The arm 6 can therefore swing about the pivot 4, and it carries on the outer end a tubular head 10 within which is mounted so as to reciprocate, a plunger 11. This plunger is normally held elevated by a spring 12 bearing at its upper end against an integral shoulder 13 on the plunger, and at its lower end against a sleeve 14 set into the head. A top clamp 15 is adjustably screwed into the plunger 11 and is secured by a clamping nut 16. The upper end of the head 10 is bifurcated, and carries on a pivot 17 a cam lever 18 bearing against an anti-friction roll 19 carried by the plunger, whereby the top clamp 15 may be depressed. At the rear portion of the plate 2 is a back rest 20 adjustably secured by a bolt 21 passing through a slot in the clamp into the plate 1. This clamp is for positioning the breast of a heel blank, and is adjustable for blanks of different sizes.

At each side of the central part of the blank support is a lateral or side clamp 22 which are curved in approximate conformity with the sides of a boot or shoe heel, and are detachably united by pivots 23 to sliding blocks 24. The latter are held between guides 25 so that they can travel only in straight lines toward and from each other, and are retained between the guides, by cover plates 26. On each block is a pin which projects through a slot in the neighboring guide 25, and has connected to it a spring 28, of which the farther end is fastened to the lip 29 at one of the sides of the supporting frame. These springs always tend to draw back the sliding blocks, and to separate the side clamps.

Pivoted to brackets 30 at the sides of the plate 1 are levers 31 of which one end of each lies outside of and near the outer end of a



block 24, and carries a screw 32 adapted to bear on the adjacent end of the block and to be adjusted. The other ends of the levers lie near and on opposite sides of the pivot post 4, and are engaged by flanges 33 which project from the boss 7 of the swinging arm, and have eccentric cam surfaces. These surfaces are so arranged that when the head 10 is swung into place over the blank-holding space between the side clamps, the ends of the levers engaged with the cams are pushed outward, and the other ends which carry the screw abutments are forced inward, thereby moving the blocks 24 and side clamps toward one another to compress the sides of the heel blank. This position is illustrated in Fig. 5. Upon the head being swung to one side, however, as illustrated in Fig. 4, the levers 31 are released from the pressure of the cams, and the clamps 22 are separated by the springs 28. By this mechanism, it is possible to leave a wide enough space between the clamps to place the pieces forming the heel, but when the top clamp is brought into position where it can compress the blank, the side clamps are caused to move the pieces laterally and bring their edges into close contact.

For limiting the swing of the arm 6 and head, I provide fixed lugs 34 and 35 on the base plate 1, and a projection 36 between such lugs on the boss of the swinging arm. This projection strikes one of the lugs at either limit of its swing, and is arrested. The rearward lug 35 is threaded and contains an adjustable set-screw 37 which stops the arm when the top clamp is directly over the center of the blank-holding space. As the end of the set-screw is diminished by wear, it can be turned further so as to maintain the adjustment always exact.

Extending downward from the base plate 1 is a tube 38 which has a shoulder 39 to support a cylindrical block 40 which is set into the base substantially flush with the blank-supporting surface thereof, and in the space comprised between the back and side clamps. This block has a central passage containing a pin 41 for removing the built-up blank, and around the central space it has a number of nail-guiding passages 42. In the lower part of the sleeve 38 is a plunger 43 which reciprocates vertically and is operated by a lever 44 from which a link 45 extends to connect with a suitable treadle (not shown). Between the nail block 40 and plunger 43 are driving pins or rods 46 which enter the nail passages 42. Before the parts of the heel are assembled, nails are dropped into the passages 42 with their points upward, the plunger being then at its lowest position. After the heel has been built up and the parts coated with cement or glue and the top clamp forced down to compress the same, the plunger 43 is forced upward, and through the drivers 46,

drives nails into and through the blank toward the top clamp 15, as illustrated in Fig. 11. The pin 41 stops the plunger when the nails have been forced sufficiently far. Upon removal of the top clamp, a further upward movement of the plunger raises the pin 41, and lifts the blank out from between the side clamps so that it can be removed. The block 40 can be shifted to alter the positions of the nail passages, the drivers being moved with it, and is held in any position of adjustment by a set-screw 47. The side clamps 22 can be removed from the blocks 24 and others substituted having a greater or less curvature, or more or less width, so as to fit heels of all sizes, shapes and heights.

I claim:—

1. In a machine for assembling heel blanks, a base for supporting the elements of the blanks, a tubular head having extended therefrom a horizontal arm, a boss on said arm pivotally mounted on the base whereby the arm may have a swinging movement to bring the tubular head over a heel blank on the base, a top contained in said tubular head, a cam-lever mounted on said head for pressing said top clamp against a blank, lateral clamps movable toward each other for pressing the pieces composing a blank laterally together, levers for so moving said lateral clamps, and cams movable with the arm for operating said levers when the head is swung into position over the blank.

2. In a machine for assembling heel blanks, a base for supporting the elements of the blank, laterally movable clamps for embracing the blank, a pivotally mounted arm, a head mounted on said arm capable of swinging therewith over a blank contained between said clamps, a top clamp carried by the head for compressing the blank, and means movable with the arm for bringing said laterally movable clamps toward each other when the head is swung over the blank.

3. In a machine for assembling heel blanks, a base for supporting the elements of the blank, laterally movable clamps for embracing the blank, a pivotally mounted arm, a head mounted on said arm capable of swinging therewith over a blank contained between said clamps, a top clamp carried by the head for compressing the blank, actuating levers engaged with said laterally movable clamps, and means movable with the arm for operating said levers when the head is swung over the blank to cause approach toward one another of the lateral clamps.

4. In a machine for assembling heel blanks, a base for supporting the elements of the blank, laterally movable clamps for embracing the blank, a pivotally mounted arm, a head mounted on said arm capable of swinging therewith over a blank contained between said clamps, a top clamp carried by the head for compressing the blank, actuat-



ing levers engaged with said laterally movable clamps, and a boss formed upon the arm and surrounding the pivot of the latter and carrying eccentric cam surfaces arranged to press against said levers and operate them to cause approach of the lateral clamps toward one another when the head is swinging over the blank.

5. In a machine for assembling heel blanks, a base for supporting the elements of the blank, a tubular head having extended therefrom a horizontal arm, a boss on said arm pivotally mounted on the base whereby the arm may have a swinging movement to bring the tubular head over a heel blank on the base, a top clamp contained in said tubular head, a cam lever mounted on said head for pressing said top clamp against a blank, lateral clamps movable toward each other for pressing the pieces composing a blank laterally together, levers for so moving said lateral clamps, cams on the boss for operating said levers for the purpose described, a stop shoulder on the boss, and stops on the base for limiting the swinging movement of the arm in each direction, one of said stops being adjustable to arrest the arm when the head is exactly over the blank.

6. In a machine of the character described, a base for supporting the parts of the heel blank, lateral clamps arranged to embrace the blank, sliding blocks on the outer sides of the clamps and to which the latter are pivoted, guideways for the blocks in which the latter may slide to carry the clamps toward and from one another, springs acting on the separate blocks tending to move them apart, operating levers arranged to bear on the outer ends of the blocks, a swinging arm carrying a tubular head arranged to swing over and away from the blank-con-

taining space, a top clamp movably contained in said head with means for forcing it down to compress a blank, and cam members connected with said arm in engagement with the block-operating levers, so arranged as to cause the levers to press the blocks inward when the head is swung over the blank-containing space.

7. A machine for assembling heel blanks, comprising a base adapted to support the parts of the blank, lateral clamps for positioning such parts, a swinging head, a top clamp carried by said head for pressing down on the blank, a cylindrical block, having nail-guiding passages, set into the base flush with the supporting surface thereof and rotatable to shift the positions of such passages, and means for driving nails through such passages into a blank held by the clamps.

8. A machine for assembling heel blanks, comprising a base adapted to support the parts of the blank, lateral clamps for positioning such parts, a swinging head, a top clamp carried by said head for pressing down on the blank, a cylindrical block, having nail-guiding passages, set into the base flush with the supporting surface thereof and rotatable to shift the positions of such passages, driving rods contained in the passages of said block and movable transversely with the rotation thereof, and a plunger bearing against the ends of said driving rods to force nails placed in said passages into a blank held by the clamps.

In testimony whereof I have affixed my signature, in presence of two witnesses.

GEORGE B. GROVER.

Witnesses:

H. ASHLEY BOWEN,  
STAN PARSONS.