

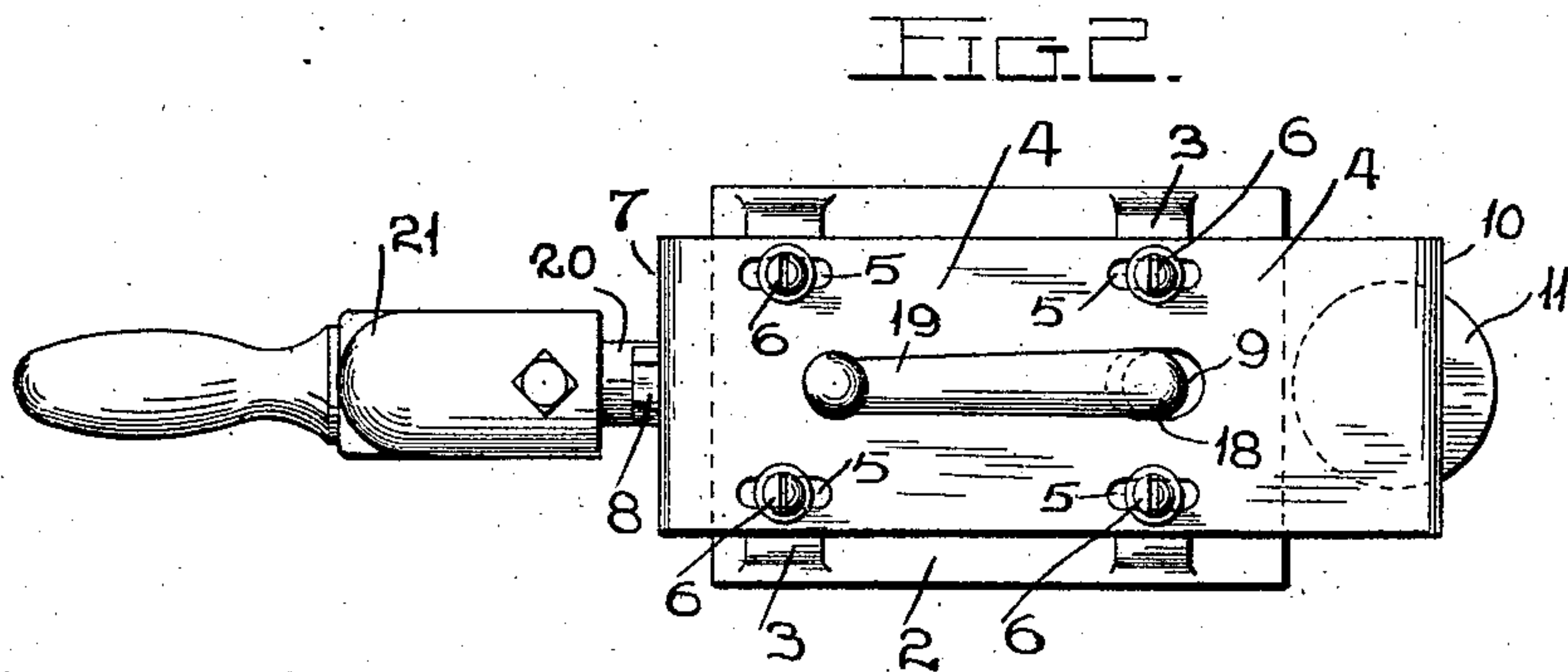
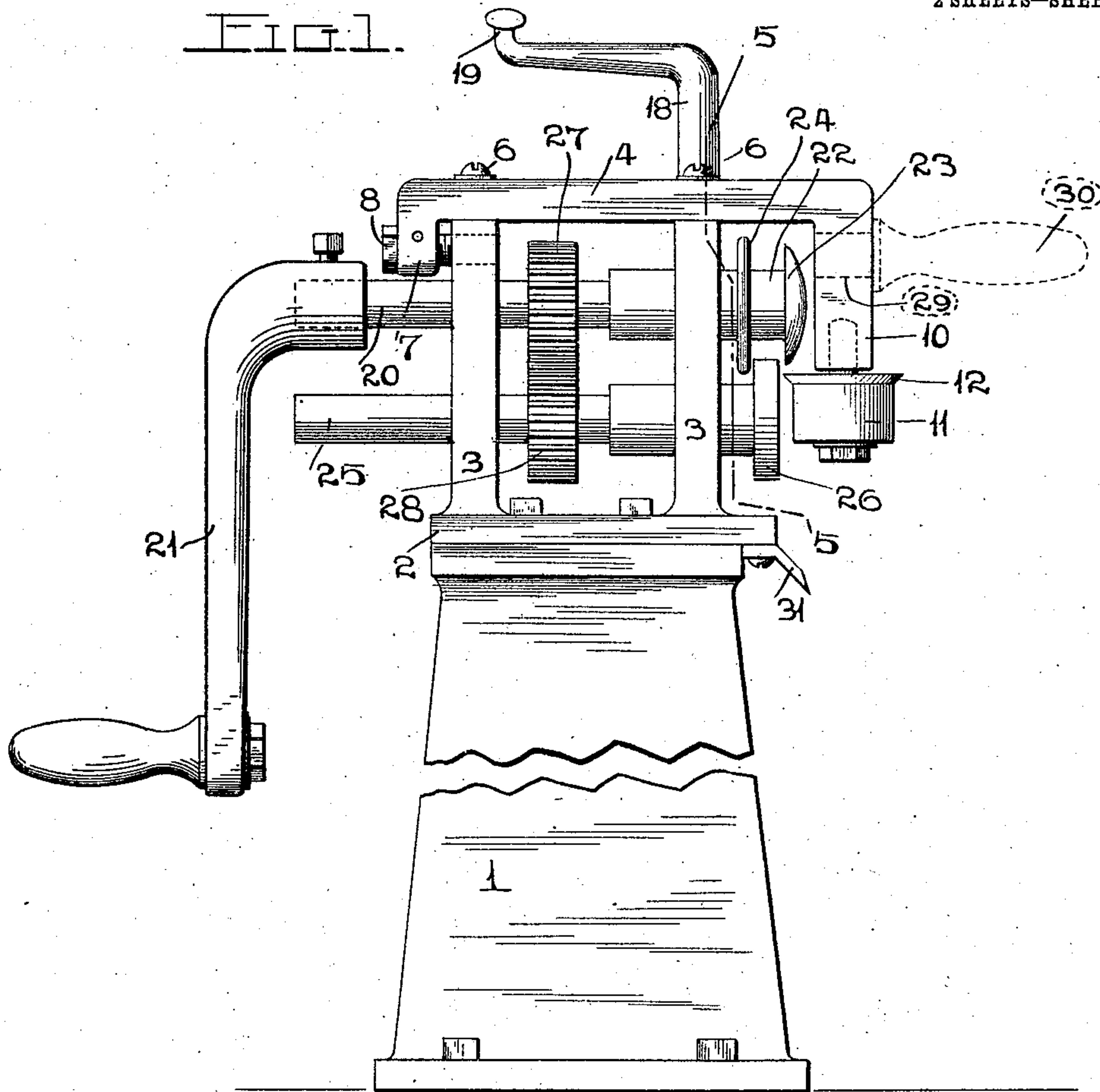
No. 859,838.

PATENTED JULY 9, 1907.

J. P. POWERS & W. J. BOYD.
SHEET METAL SEAM OPENER.

APPLICATION FILED JAN. 30, 1907.

2 SHEETS—SHEET 1.



ATTEST.

L. J. Fletcher.

M. Smith.

INVENTORS.

JAMES P. POWERS.

WILLIAM J. BOYD.

BY *Nicholas Longan.*
ATTY'S.

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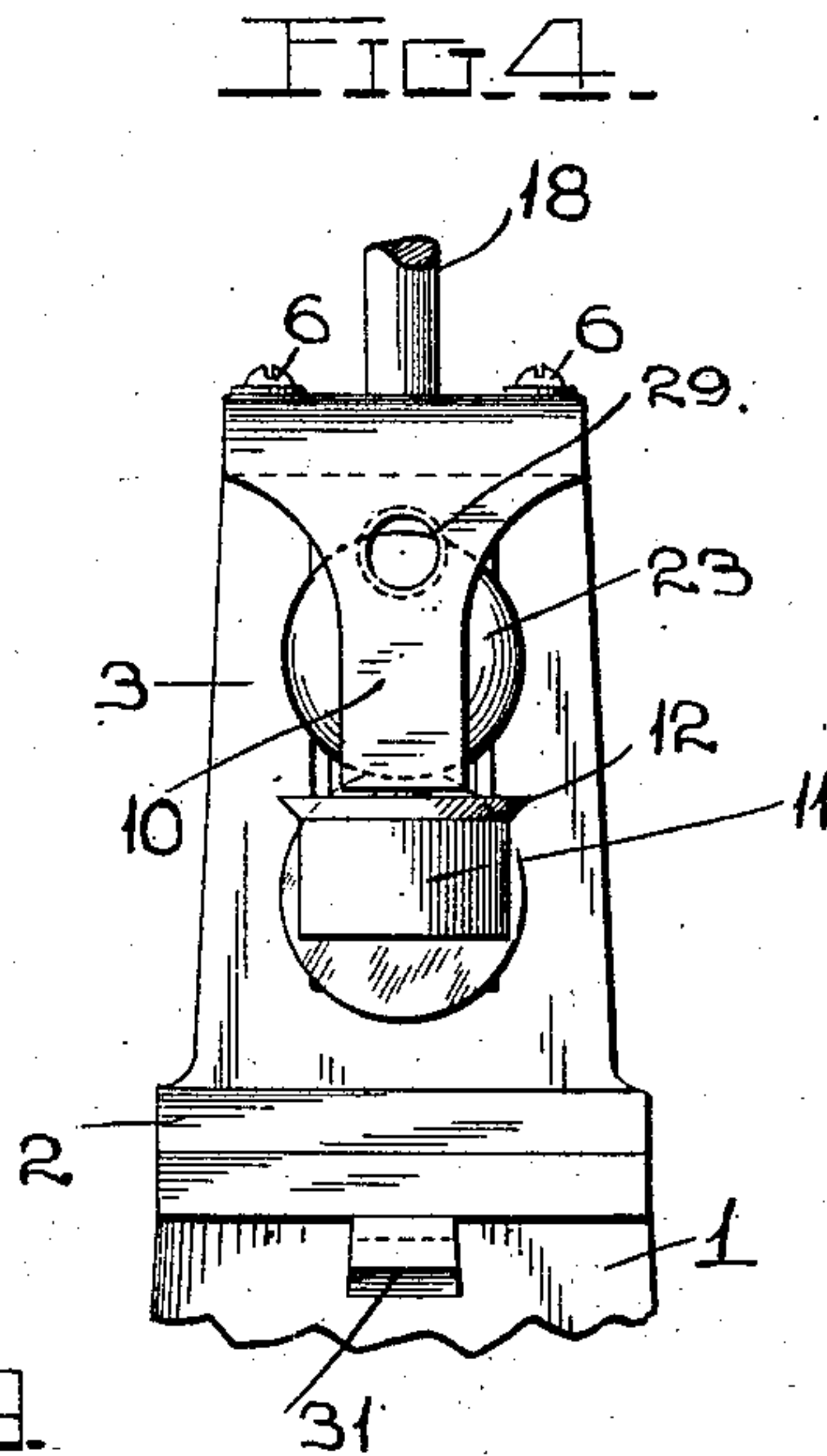
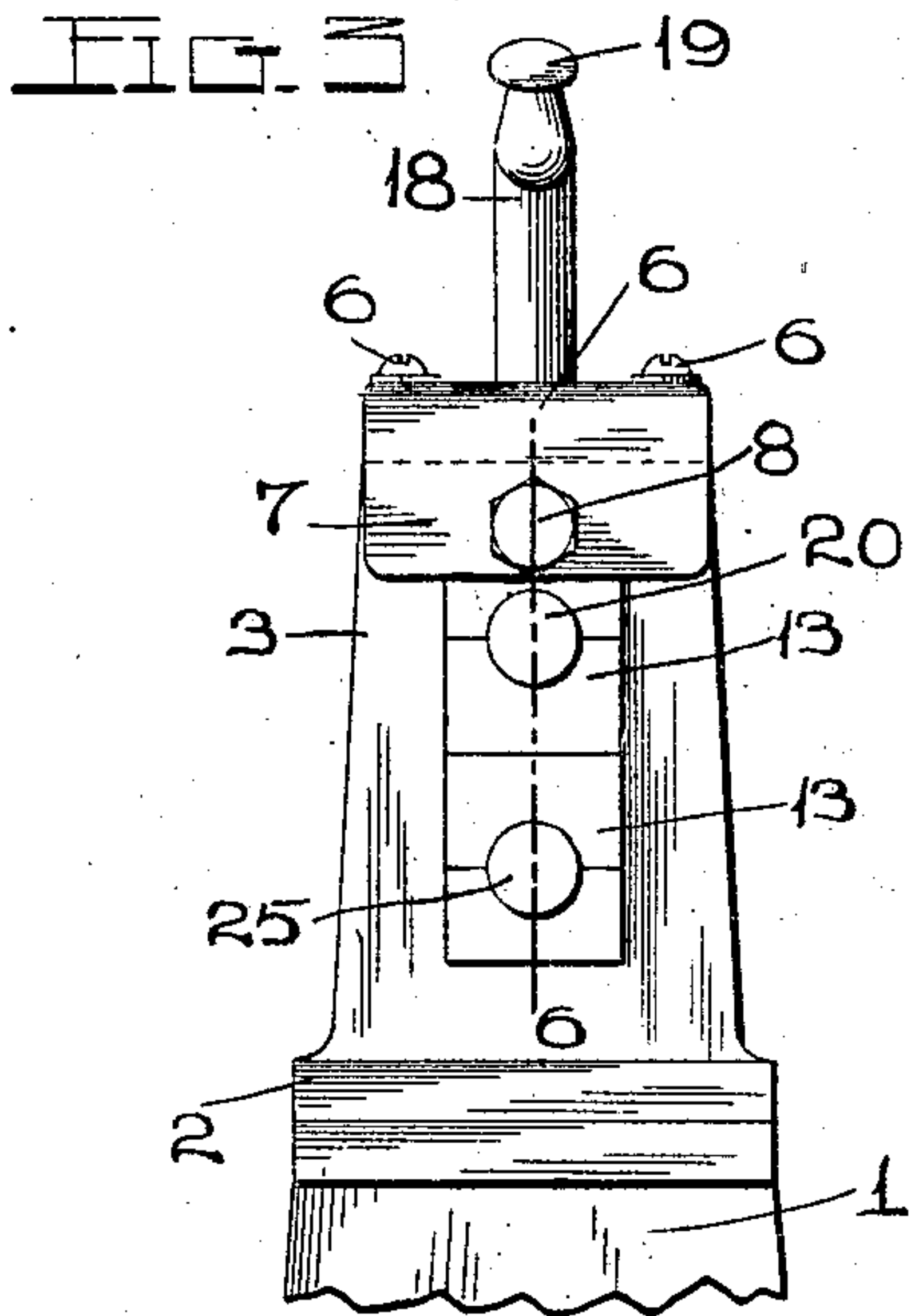
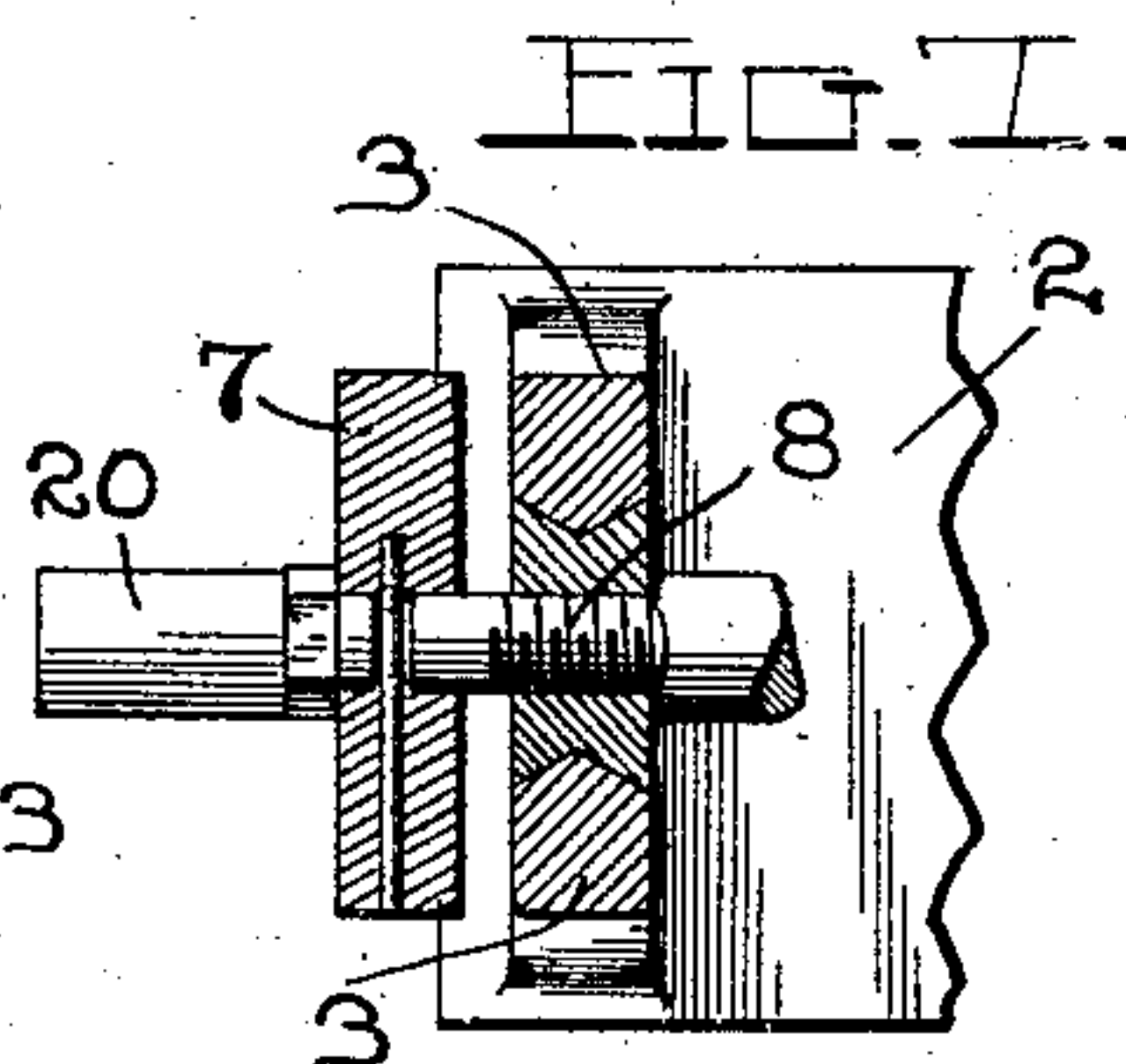
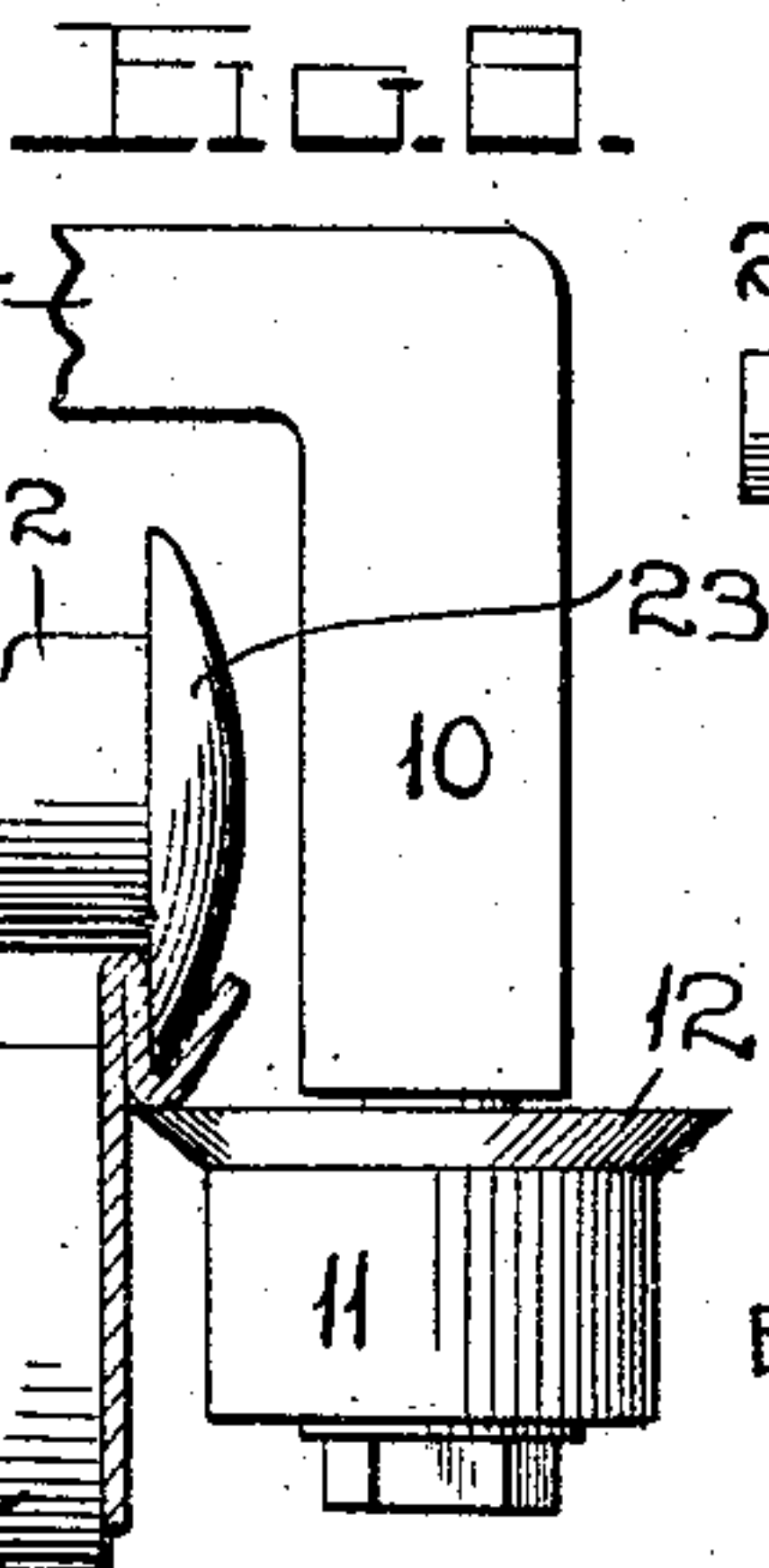
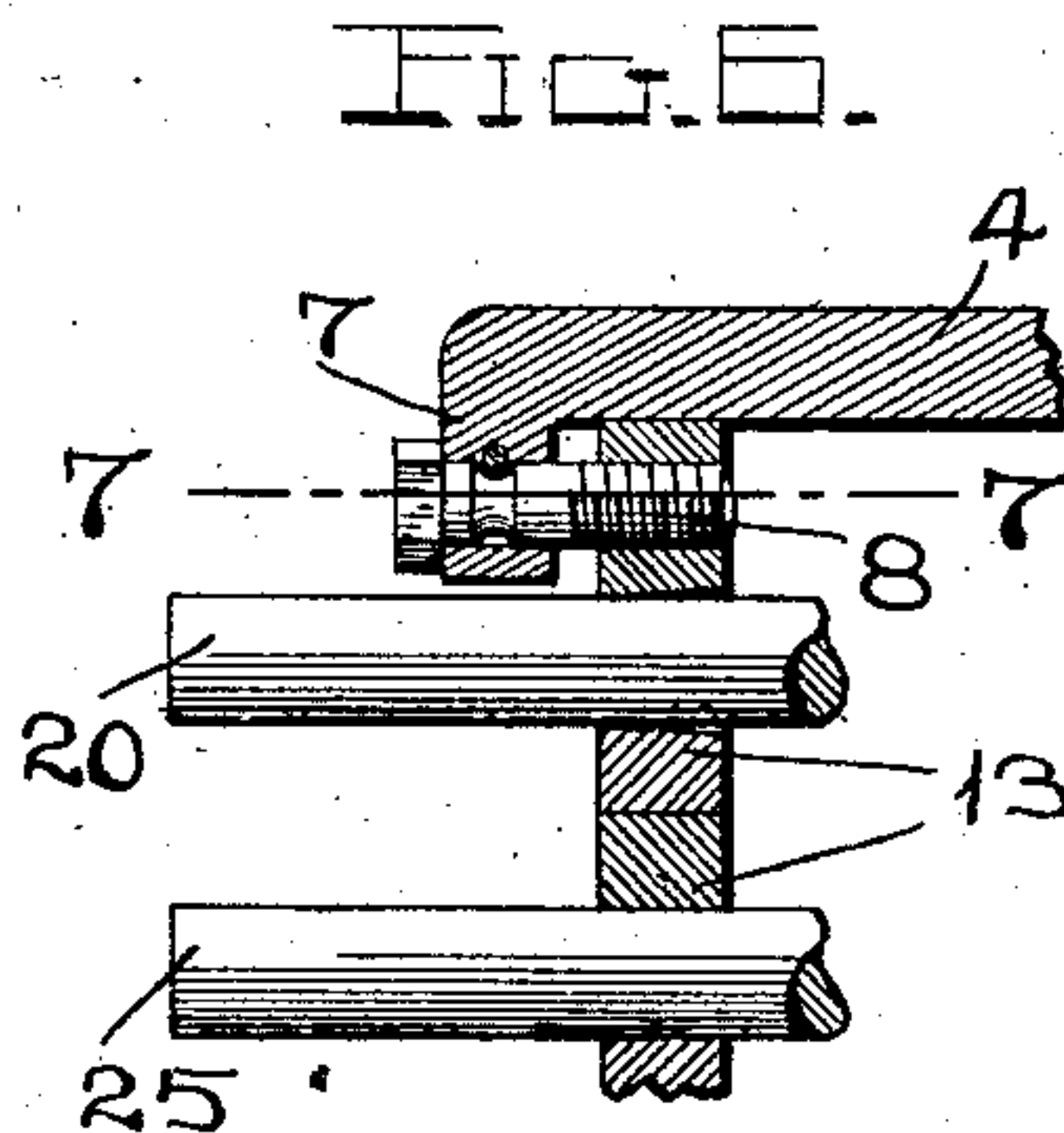
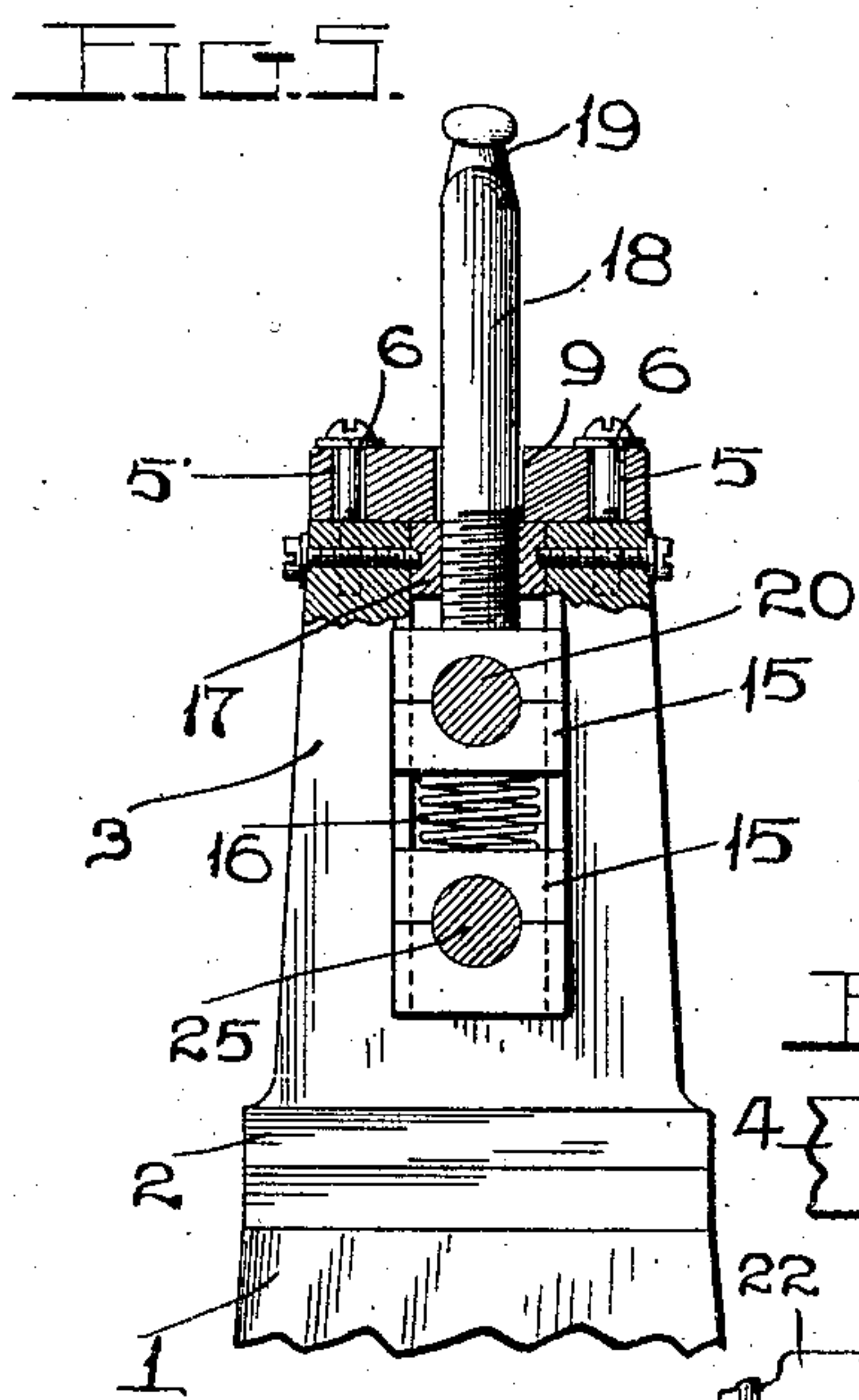


FIG. 9.



ATTEST.
S. J. Fletcher,
W. P. Smith

INVENTORS.
JAMES P. POWERS.
WILLIAM J. BOYD.

BY *Nigdon & Morgan*
ATTY'S.

UNITED STATES PATENT OFFICE.

JAMES P. POWERS AND WILLIAM J. BOYD, OF ST. LOUIS, MISSOURI.

SHEET-METAL-SEAM OPENER.

No. 859,838.

Specification of Letters Patent.

Patented July 9, 1907.

Application filed January 30, 1907. Serial No. 354,940.

To all whom it may concern:

Be it known that we, JAMES P. POWERS and WILLIAM J. BOYD, both citizens of the United States, and residents of St. Louis, Missouri, have invented certain new and useful Improvements in Sheet-Metal-Seam Openers, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to a sheet metal seam opener, and the object of our invention is to construct a simple and easily operated apparatus which will quickly and uniformly open the seams formed on the edges of sheet metal sections, or parts, which are to be joined to one another in the manufacture of large sheet metal pipes, elbows, tanks, and vessels.

It has heretofore been the practice to open the seams by hand, which operation requires much time and labor, and is not uniform; and by the use of a machine of our improved construction, these disadvantages are done away with, and all seams can be quickly and uniformly opened.

To the above purposes, our invention consists of certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a machine of our improved construction; Fig. 2 is a plan view of the machine; Fig. 3 is a rear view of the machine with the operating handle removed; Fig. 4 is a front elevation of the machine; Fig. 5 is a vertical section taken on the line 5—5 of Fig. 1; Fig. 6 is a detail section taken on the line 6—6 of Fig. 3; Fig. 7 is a horizontal section taken on the line 7—7 of Fig. 6; Fig. 8 is a detail elevation showing a section of sheet metal provided with a seam, and which latter is shown in position between the opening rollers; Fig. 9 is a detail section showing a section of sheet metal with a seam on the edge thereof, before the seam is opened.

Referring by numerals to the accompanying drawings:—1 designates a suitable base, on which the framework of our machine is fixed, which frame work comprises a base plate 2, a pair of upright standards 3, which are vertically slotted, and arranged on the top of the uprights is a plate 4. Formed through this plate 4, immediately above the upper ends of the uprights 3 are longitudinally disposed slots 5, and passing there-through and into the upper ends of the uprights 3 are set screws 6, which lock the plate 4 after it has been adjusted longitudinally on top of the uprights 3.

Formed integral with the rear end of the plate 4 is a depending lug 7, in which is held for rotation a screw 8, the forward threaded end of which engages in the upper end of the rear pair of uprights 3, which screw is for the purpose of shifting the plate 4 longitudinally.

Formed through the center of the plate 4, immediately above the forward one of the uprights 3 is a longitudinally disposed slot 9, and formed integral with the forward end of said plate is a depending lug 10, to the lower end of which is journaled a horizontally disposed roller 11, provided on its upper edge with an outwardly projecting flange 12.

Arranged in the slot in the rear one of the uprights 3 is a pair of journal boxes 13, and similarly arranged in the forward one of the uprights 3 is a pair of journal boxes 15, between which is positioned a coil spring 16.

Fixed in the upper end of the slot in the forward one of the uprights 3 is a block 17, and passing therethrough is the screw threaded lower end of a vertically disposed rod 18, the upper end of which is provided with a crank handle 19. The lower end of this rod 18 bears on top of the upper one of the journal boxes 15, and by manipulating said rod, the vertical position of the upper box is varied.

Journaled in the upper pair of the bearing boxes 13 and 15 is shaft 20, on the rear end of which is detachably seated a crank handle 21, and on the forward end of said shaft, in front of the forward one of the uprights 3, is fixed a roller 22, provided on its outer end with a vertically disposed flange 23, the periphery of which is attenuated, and formed integral with the roller 22, a short distance to the rear of the flange 23, is a flange 24, having a rounded edge.

Journaled in the lower pair of bearing boxes 13 and 15 is a shaft 25, on the forward end of which is fixed a roller 26, the rear face of which lies immediately in front of the vertical plane occupied by the front face of the flange 24, and the forward edge of said roller 26 travels in a vertical plane immediately to the rear of the flanges 12 and 23.

Fixed on the shaft 20, inside the rear one of the uprights 3, is a pinion 27, which meshes with a corresponding pinion 28 fixed on the shaft 25. Formed in the lug 10 is a screw threaded aperture 29 which is adapted to receive a handle, such as 30, when the machine is removed from the base 1, and manually engaged upon the seamed edge of work which is too large or cumbersome to be moved through the machine. Fixed to the forward edge of the base plate 2 is a plate 31, which is provided with a depending sharpened lug, by means of which the end of a metal seam is pried open in order that said seam can be properly started through the machine.

The lateral position of the roller 11, carrying the flange 12, is determined by adjusting the plate 4 longitudinally on top of the uprights 3, and which adjustment is accomplished by loosening the screws 6 and manipulating the screw 8. After the proper position of the roller 11 has been obtained the screws 6 are tightened to lock the plate 4 to the uprights 3, and the position of the roller 22 carrying the seam opening flange 23

is adjusted vertically by manipulating the screw rod 18 by means of the crank handle 19, the lower end of which rod bears on top of the upper one of the journal boxes 15 adjacent the roller 22 and forces the same 5 downwardly against the expansive action of the coil spring 16.

When the rollers 11 and 22 have been adjusted as desired, the work provided on its edge with the seam, as shown in Fig. 9, is positioned in front of the machine, 10 and the forward end of the seam is engaged in the sharpened edge of the plate 31 in such a manner as to bend a short portion of said seam open, after which the work is placed against the face of the roller 26, with the V-shaped gutter of the same engaging both sides of the 15 lower portion of the opening flange 23 and with the lower end of said gutter resting on the flange 12 of the roller 11.

By means of the crank handle 21, the shaft 20 is rotated, and the pinion 27, meshing with the pinion 28, 20 correspondingly drives the shaft 25, and the rotation of the rollers 22 and 26 and the frictional engagement of the opening flange 23 in the V-shaped gutter of the seam causes the work to be moved between said rollers, and in doing so the lower end of the gutter or seam bears on 25 top of the flange 12 of the roller 11. Thus the work is properly supported during its movement through the machine, and the flange 23 having the attenuated edge, travels through the seam, and in so doing uniformly and quickly opens said seam.

30 When it is desired to use our improved machine on work which is too large to conveniently handle and move, a handle, such as 30, is inserted in the screw threaded aperture 29, and by means of said handle and the crank handle 19, the machine is moved around the 35 edge of the work on which the seam is formed.

Our improved machine is simple in construction, can be easily operated and quickly adjusted, and very rapidly performs the work of opening sheet metal seams.

We claim:—

1. A machine of the class described, constructed with a frame, a horizontally disposed roller arranged on said frame, flange integral with and projecting outwardly from the top of the roller, means whereby said roller is adjusted 40 horizontally, a shaft arranged for rotation in the frame, a roller arranged on the end thereof above the flange of the horizontally disposed roller, and a seam opening flange integral with the roller on the shaft. 45

2. A machine of the class described, constructed with a frame, a pair of shafts journaled therein, meshing pinions 50 fixed on said shafts, a roller fixed on the end of the upper shaft, a seam opening flange integral with said roller, a roller fixed on the end of the lower roller, a horizontally adjustable roller held for rotation in front of the roller on the lower shaft and below the flange of the roller on the 55 upper shaft, and a horizontally disposed flange integral with the top of the horizontally adjustable roller.

3. A machine of the class described, constructed with a frame, a pair of shafts journaled therein, meshing pinions 60 fixed on said shafts, a roller fixed on the end of the upper shaft, a seam opening flange integral with said roller, a roller fixed on the end of the lower shaft, a horizontally adjustable roller held for rotation in front of the roller on the lower shaft and below the flange of the roller on the 65 upper shaft, an outwardly projecting flange integral with the top of the horizontally adjustable roller, and means whereby the horizontally disposed roller is adjusted horizontally.

4. A machine of the class described, constructed with a frame, a pair of shafts journaled therein, meshing pinions 70 fixed on said shafts, means whereby the upper shaft is vertically adjusted, a roller fixed on the end of the upper shaft, a seam opening flange integral with said roller, a roller fixed on the end of the lower shaft to the rear of the seam opening flange, a horizontally adjustable roller arranged for rotation below the seam opening flange and in 75 front of the roller on the lower shaft, and a horizontally disposed flange integral with the top of the horizontally adjustable roller, and which flange traverses a plane immediately below the seam opening flange.

In testimony whereof, we have signed our names to this specification, in presence of two subscribing witnesses. 80

JAMES P. POWERS.
WILLIAM J. BOYD.

Witnesses:

M. P. SMITH,
E. L. WALLACE.