

No. 632,169.

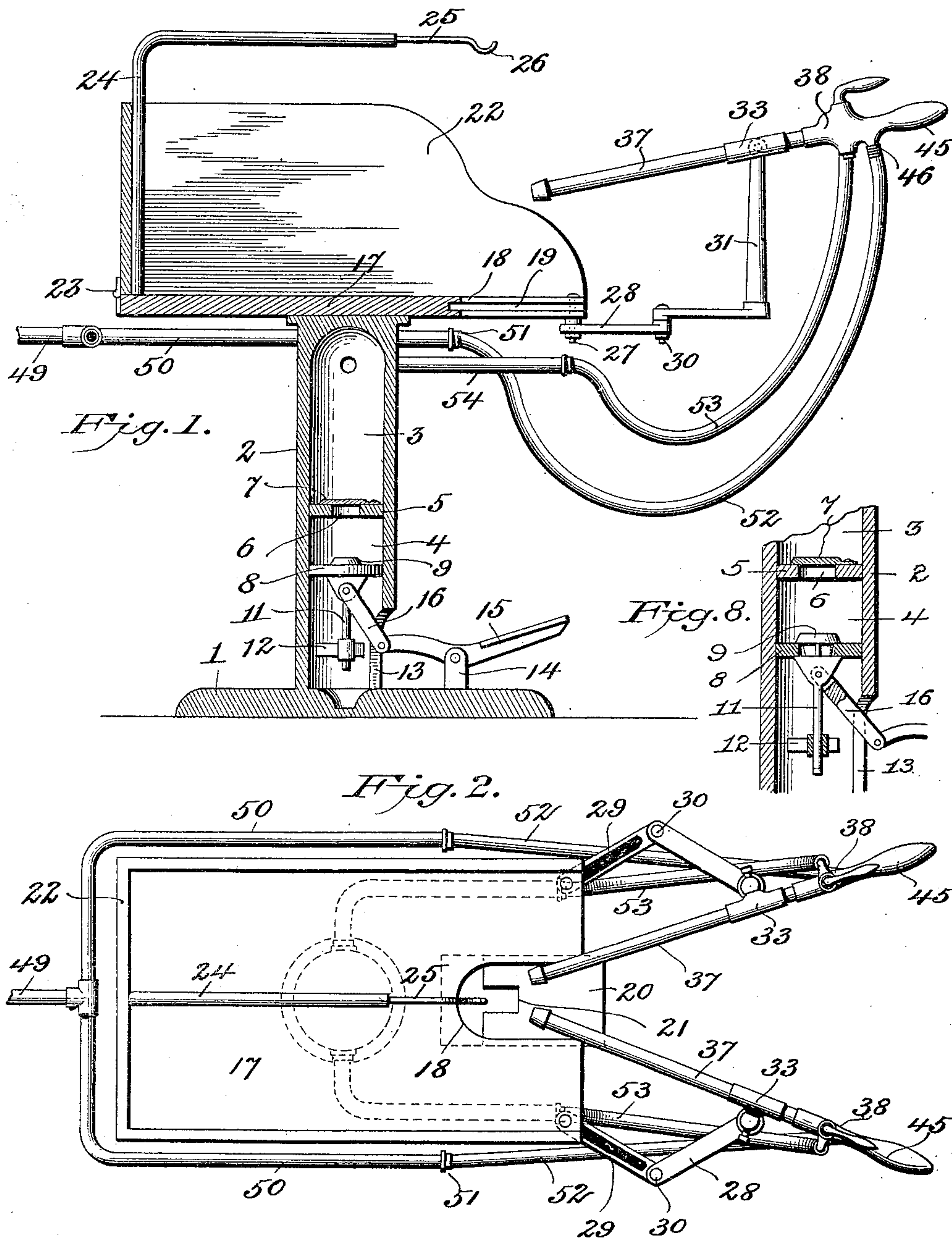
Patented Aug. 29, 1899.

B. A. BLENNER.
BRAZING MACHINE.

(Application filed Feb. 28, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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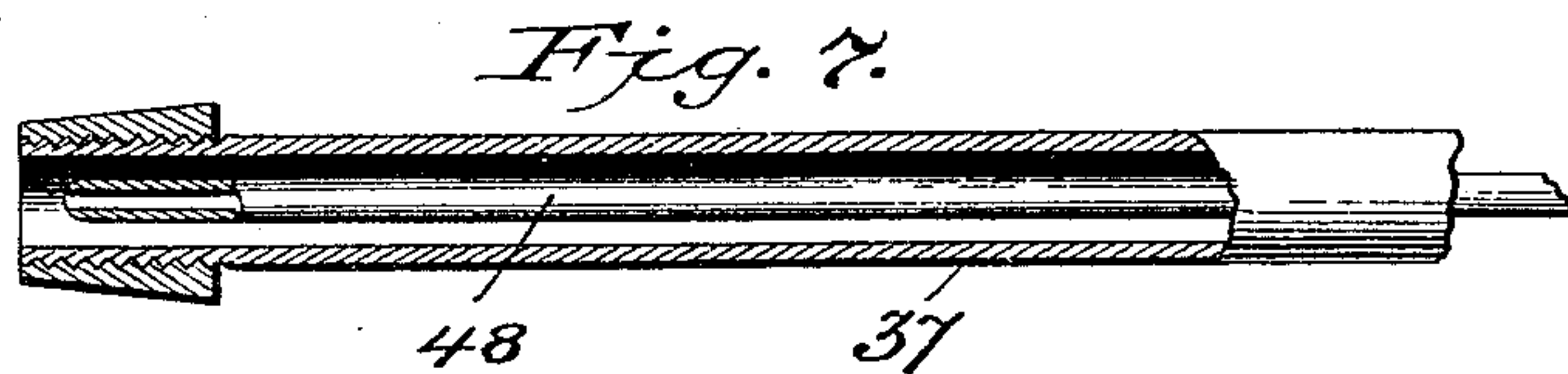
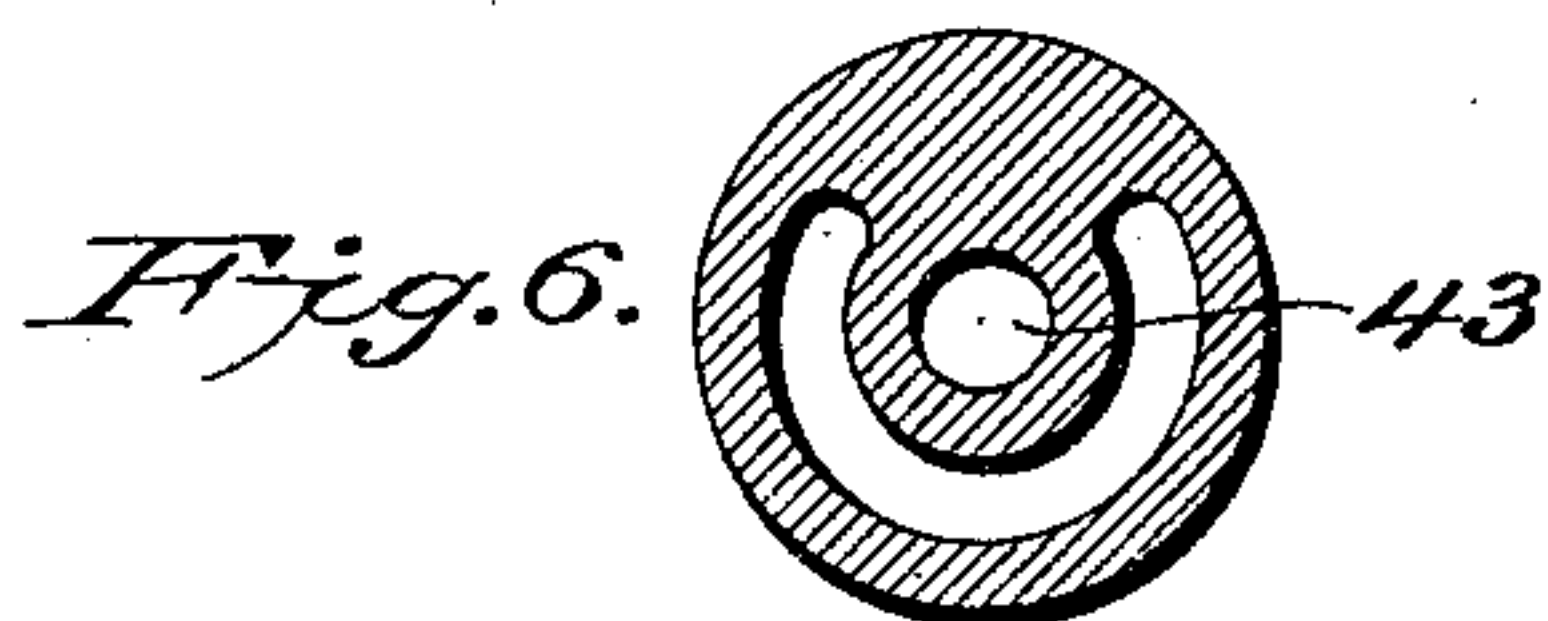
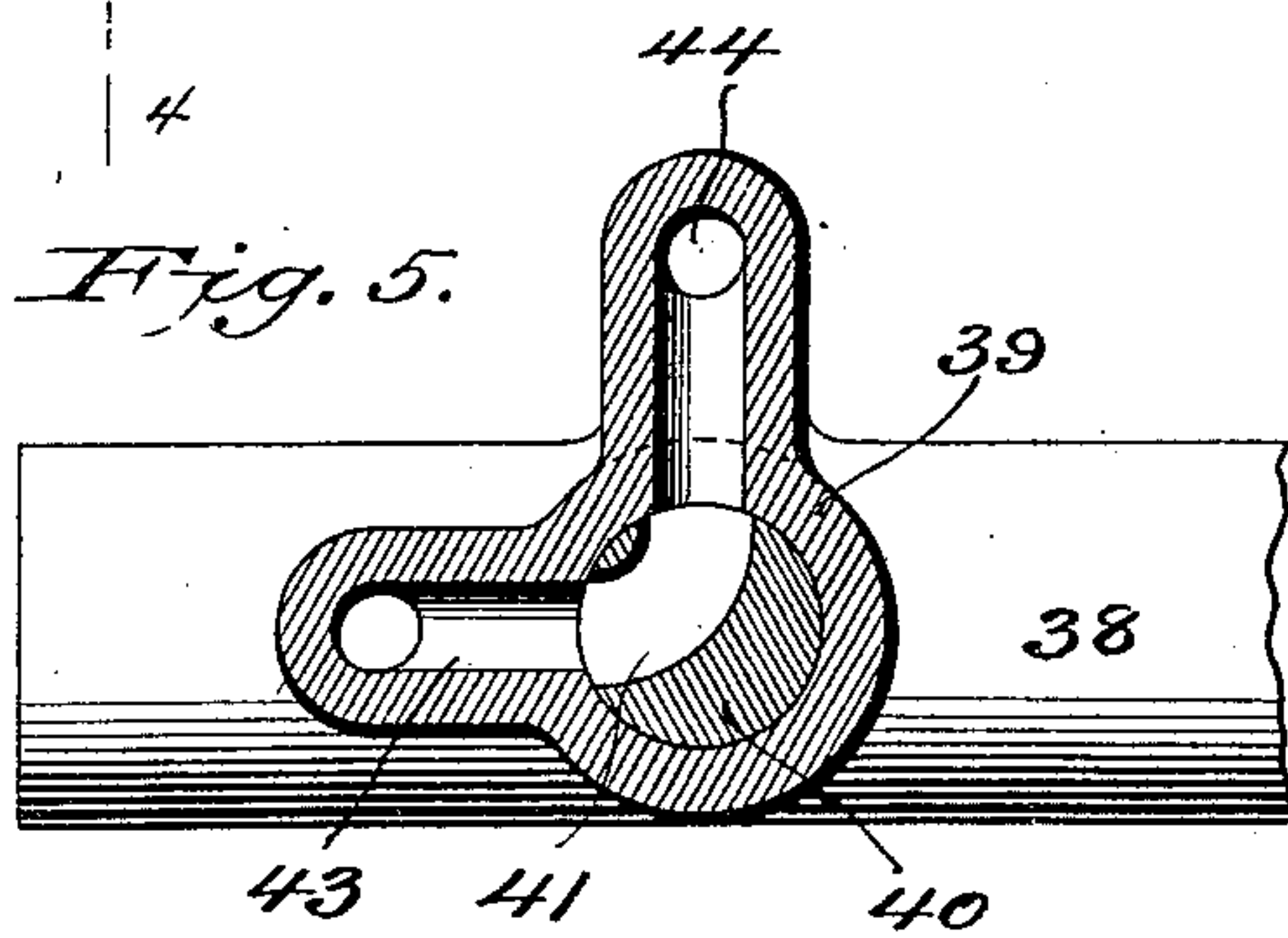
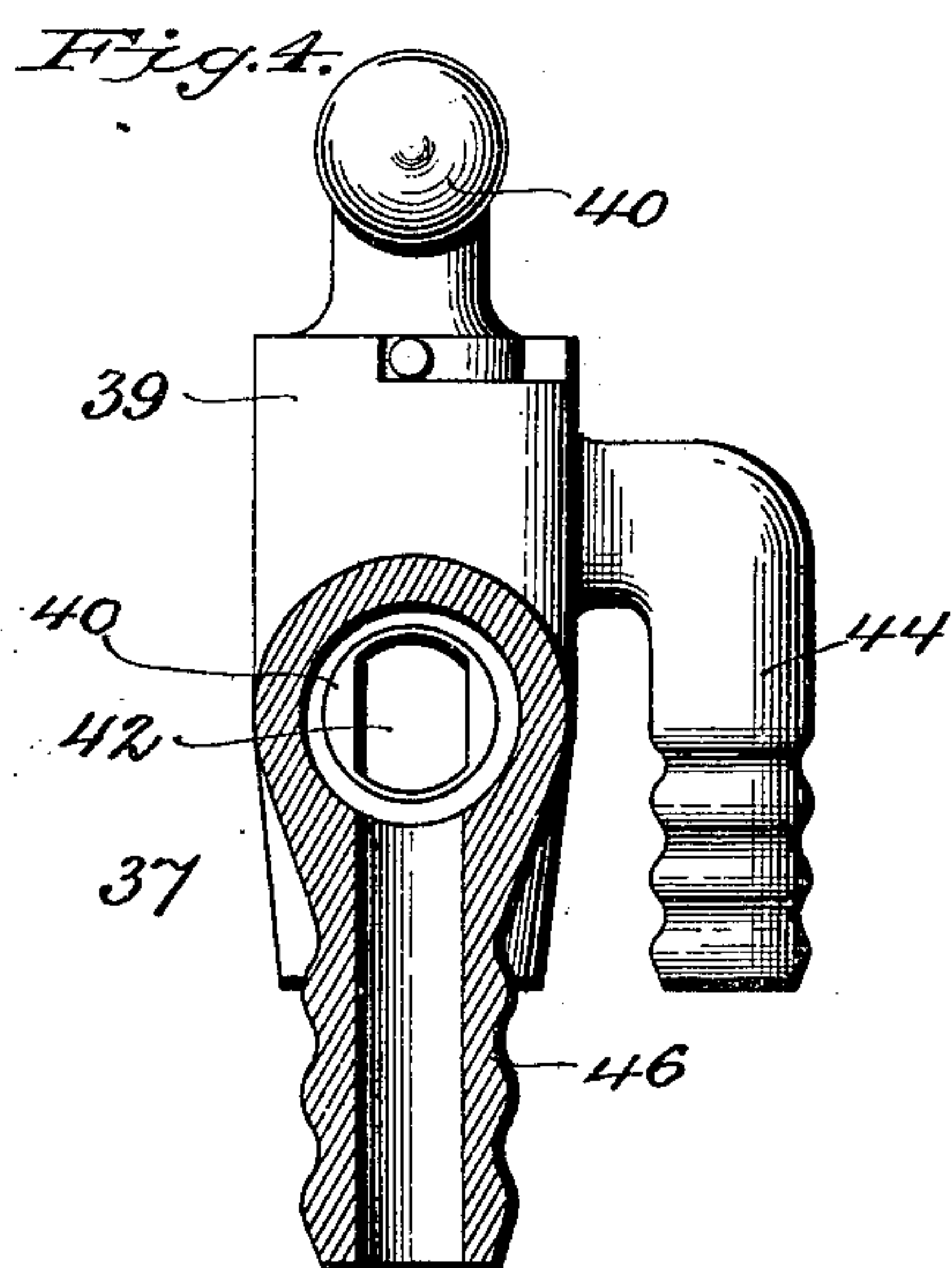
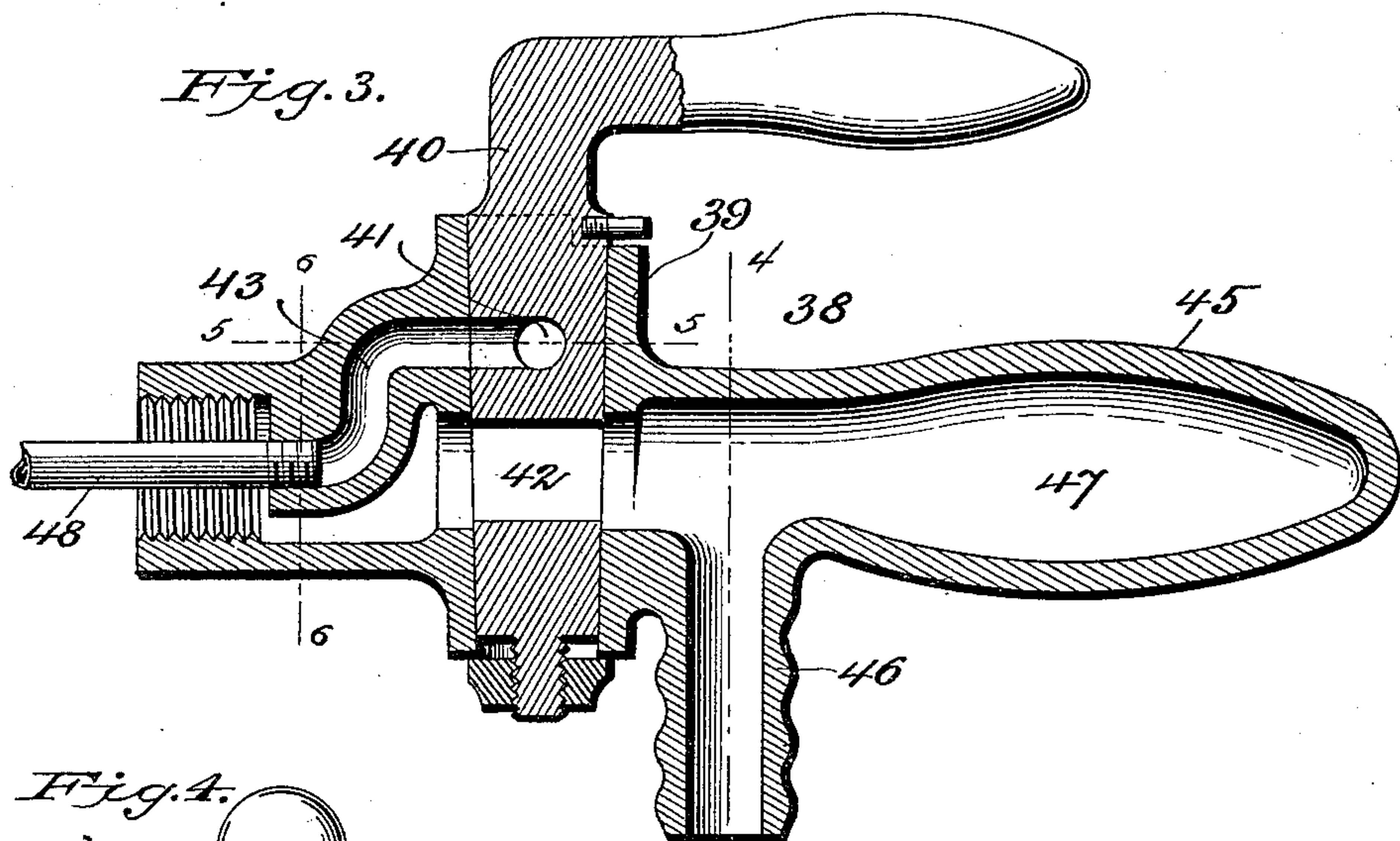
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UNITED STATES PATENT OFFICE.

BENJAMIN A. BLENNER, OF RICHMOND, VIRGINIA.

BRAZING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 632,169, dated August 29, 1899.

Application filed February 28, 1898. Serial No. 671,878. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN A. BLENNER, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Brazing-Machines; 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 invention relates to improvements in brazing-machines; and the objects and advantages of the invention will hereinafter appear and be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a vertical longitudinal sectional view of a brazing-machine embodying my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a longitudinal sectional view of the combined air and gas cock employed therein. Fig. 4 is a transverse sectional view on the line 4 4 of Fig. 3. Fig. 5 is a horizontal sectional view on the line 5 5 of Fig. 3. Fig. 6 is a transverse vertical sectional view on the line 6 6 of Fig. 3. Fig. 7 is a longitudinal sectional detail of the burner-tube, parts being shown in side elevation. Fig. 8 is an enlarged sectional view of the lower portion of the hollow standard of the brazing-machine.

Like numerals of reference indicate similar parts in all the figures of the drawings.

Upon a suitable base 1, sufficient to lend stability to the machine, there is cast or otherwise mounted a hollow standard 2, the interior of which is subdivided into upper and lower chambers 3 and 4, respectively, by means of an intermediate horizontal partition or diaphragm 5. The diaphragm has an opening 6, which is covered by an upwardly-opening valve 7.

In the lower chamber 4 is mounted for movement a piston head or plunger 8, the same having an opening covered by a valve 9, designed to open upwardly as the head descends and to close when the head ascends. A guide-rod 11 is connected to a lug on the under side of the said head 8 and at its lower end passes through an eye formed in a transverse stationary guide-yoke 12, located in the chamber 4 below the piston-head, by means

of which the aforesaid piston-head is guided in its movements.

The front lower side of the hollow standard 2 is formed with an opening 13, and in advance of the same in bearing-standards 14 there is pivotally supported a treadle 15, the inner end of which enters the opening 13 in the hollow standard 2 and is loosely connected to the lug on the under side of the piston-head by means of a link 16.

The hollow standard 2 supports a horizontal table 17 of suitable size, in front of which is formed an opening 18, the edges of the opening having guide-grooves 19 formed therein for the accommodation of a sliding closure-plate 20. The inner end of the opening 18 is preferably rounded, as shown, while the corresponding end of the closure-plate 20 is recessed, as at 21, the two edges combining to clamp a depending article to be brazed and which is of such length as to extend above and below the table—such, for instance, as a portion of the frame of a bicycle, for the brazing of which my invention is primarily intended. A three-sided hood 22 is mounted upon and hinged, as at 23, to the rear end of the table 17 and is therefore capable of being swung to the rear when not in use. Rising from the table near its rear edge is a hollow inverted-L-shaped standard 24, which extends to a point about midway over the table, and located therein is a telescoping shank 25 of a hook 26. In the present instance headed studs 27 depend from the under side of the table 17 at opposite sides of its opening, and swiveled on said studs are arms 28, which are slotted, as at 29, to receive the studs, so that they are capable of lateral as well as longitudinal movement. The studs may be rotated so as to temporarily retain the arms at any point of their adjustment. The arms are jointed at or about their middles, as indicated at 30, so that their outer halves may be swung laterally. The outer ends of these arms 28 are provided with openings and receive rotatable standards 31. The standards terminate at their upper ends in bored swiveled heads 33, and therein are mounted the burner-tubes 37, the same being capable of longitudinal as well as vertical horizontal movements. Threaded on the rear end of each burner-tube 37 is the front end

of a combined air and gas cock 38. The shell of this air and gas cock is provided with the usual key-seat 39, in which is swiveled the key 40. Opposite the neck of the key-seat 5 the key is provided with a horizontal quadrant-shaped port 41, and the same, when the key is rotated so that its ordinary port 42 is open or in alinement with the bore of the cock, is in communication with a forwardly 10 and downwardly disposed reduced internal passage 43, formed or cast integral with the shell of the cock in advance of the key-seat, and with an external laterally and downwardly disposed nipple 44, that projects from 15 the side of the upper end of the key-seat. In rear of the key-seat the shell is extended longitudinally and externally shaped to produce a convenient hand-grip or handle 45, the same being made hollow, and inasmuch as it 20 communicates direct with a threaded depending nipple 46 it constitutes, in addition to the handle, a gas chamber or reservoir 47. Within the burner-pipe 37 and terminating near the front end thereof is a reduced tube 25 48, the rear end of which is threaded to the passage 43.

From any suitable source of supply leads the gas-pipe 49, the same in the present instance extending to the rear of the hollow 30 standard, where it is provided with opposite branches 50, which terminate at opposite sides of the table and in rear of its front end. By means of ordinary couplings 51 flexible hose 52 are connected to the branches, the opposite or outer ends of such hose being coupled 35 to the depending nipples 46 of the cocks 38. Branch flexible hose 53 communicate with the opposite branch-pipes 54, that lead from the sides and near the upper end of the air-chamber 3 of the hollow standard 2. 40

This completes the description of the construction of my improved brazing-machine, which, as before intimated, is especially designed for the brazing of joints in bicycle-frames and other light machinery or work 45 where great nicety is requisite.

In operation the bicycle-frame, for instance, is hung from the hook 26, the opening in the table receiving that portion thereof which 50 will depend below the table. By bringing the hood and closure-plate to the operating position drafts of air for the most part will be excluded. The parts carrying the burners are of course adjusted in a manner to suit 55 the work to be operated upon and it merely remains for the operator to turn on the gas, light the same, and occasionally depress the treadle, which, operating in the manner of an ordinary air-pump, fills the air-chamber 3, 60 the flow of air being regulated by the cocks 38. The air is thus forced into the nipples 44, ports 41, and passages 43 and tubes connected thereto, and issues therefrom in a small but continuous jet, the gas issuing from the 65 burners in an annular flame, the heat of which is of course greatly intensified by the jet of air. By locating the air-jets in this relation

with the burners a uniform heating takes place and a perfectly-brazed joint results. The ports 41 and 42 of the gas and air cocks 70 are so relatively disposed that the keys 40 may be turned so as to entirely cut off the escape of air and yet leave a sufficient escape of gas to maintain small jets ignited and ready for instant subsequent use. 75

It will be seen that the blowpipes or burners are high compression in that the air is compressed through very much reduced tubes that terminate about one-eighth of an inch 80 from burners, thus serving to force the gas to its highest degree of heat and not suck the same and discharge it at low pressure. Thus it will be apparent that a comparatively small amount of gas expenditure takes place.

Having described my invention, what I 85 claim, and desire to secure by Letters Patent of the United States, is—

1. In a brazing-machine, the combination with a hollow standard forming an air-pump, and a work-support mounted thereon, of a 90 brazing-burner, a gas-supply connected thereto, and an air-pipe leading from the air-chamber to the burner.

2. In a brazing-machine, the combination with a hollow standard forming an air-pump, 95 a work-support mounted thereon, a brazing-burner adjustably mounted on said work-support, a gas-supply leading to the burner, and an air-pipe leading from the air-chamber to the burner. 100

3. In a brazing-machine, the combination with an air-pump, the cylinder of which constitutes a standard, of a work-support mounted thereon, opposite adjustable arms extending 105 from the said support, brazing-burners adjustably supported on the outer ends of the arms, gas-supply pipes leading thereto, and air-supply pipes leading thereto and to the air-tubes contained within the burner-pipes.

4. In a brazing-machine, the combination 110 with a work-supporting table and means for supporting the same, of headed studs depending from the table, arms supported adjustably thereby and jointed at their centers, vertical standards terminating in bored sleeves 115 or eyes adjustably mounted in the outer ends of the arms, burner-tubes mounted in the sleeves, cocks located in rear of the sleeves, gas-supply pipes connected to the cocks, air-tubes located in said burner-pipes, and air- 120 supply pipes leading to the rear ends of said tubes.

5. In a brazing-machine, the brazing-table and support for the same, said table being provided with an opening at its front end, and 125 a slide for covering the opening supported by the edges thereof and provided at its advance end with an opening, in combination with a support arranged adjustably over the table, and a brazing-burner. 130

6. In a brazing-machine, the brazing-table and its support, in combination with the three-sided hood hinged to the table, the burner-tubes and their supply-pipes.

7. In a brazing-machine, the combination with the hollow standard having the opening at its lower front side, and above the same provided with the diaphragm having an opening and the upwardly-opening valve, the valve-plunger or piston-head located in the standard below the diaphragm, the treadle for operating the same, and the work-support mounted on the standard, of the burner-tube, means for adjustably supporting the same on the work-support, and air and gas supply pipes leading to the burner-pipes.

8. In combination with the burner-tube of a brazing-machine, a cock comprising a shell, the rear end of which is extended and externally shaped to form a hand-grip and which is hollow forming a gas-chamber, and the gas-pipe connected to said shell and communicating with said chamber.

9. In combination with a burner-tube of a brazing-machine, a cock secured to the rear end thereof and comprising a shell having a transverse key-seat and in rear thereof having a port to which is connected the gas-supply pipe, a key swiveled in the seat and having a lower transverse port for gas and an up-

per curved port out of line therewith, a nipple communicating with the shell at the upper end of the key-seat and in line with the curved or segmental port of the key, a constricted passage in the front part of the shell in line with the segmental port, and an air-tube located in and smaller than the burner-tube and connected to the constricted passage, and an air-supply pipe connected to the nipple.

10. The combination with the burner-tube, 37, of the shell, 38, having the chambered handle, 47, and the key-seat, 39, having the lateral nipple, 44, and in front thereof provided with the curved constricted passage, 43, the tube connected thereto and extending within the burner-tube, the key, 40, having the segmental port, 41, and lower transverse port, 42, and the gas and air supply pipes leading to the nipple and chambered handle.

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

BENJAMIN A. BLENNER.

Witnesses:

D. A. RITCHIE,

J. W. SAUNDERS.