

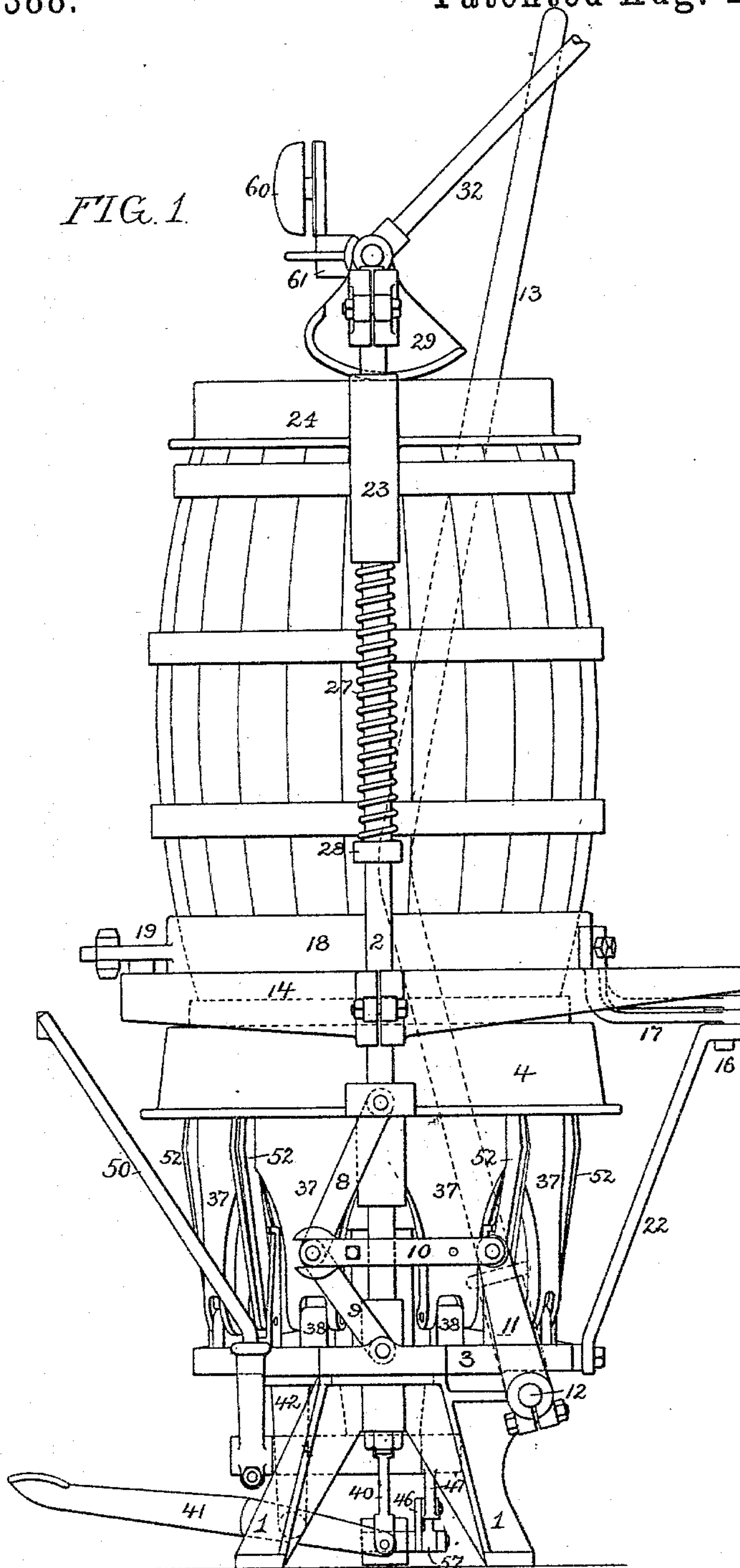
(No Model.)

4 Sheets—Sheet 1.

J. B. STANHOPE.
BARREL HEADING MACHINE.

No. 545,388.

Patented Aug. 27, 1895.



Witnesses:
Hamilton D. Turner
Frank E. Bechtold

Inventor:
John B. Stanhope
by his Attorneys
Housner & Housner

(No Model.)

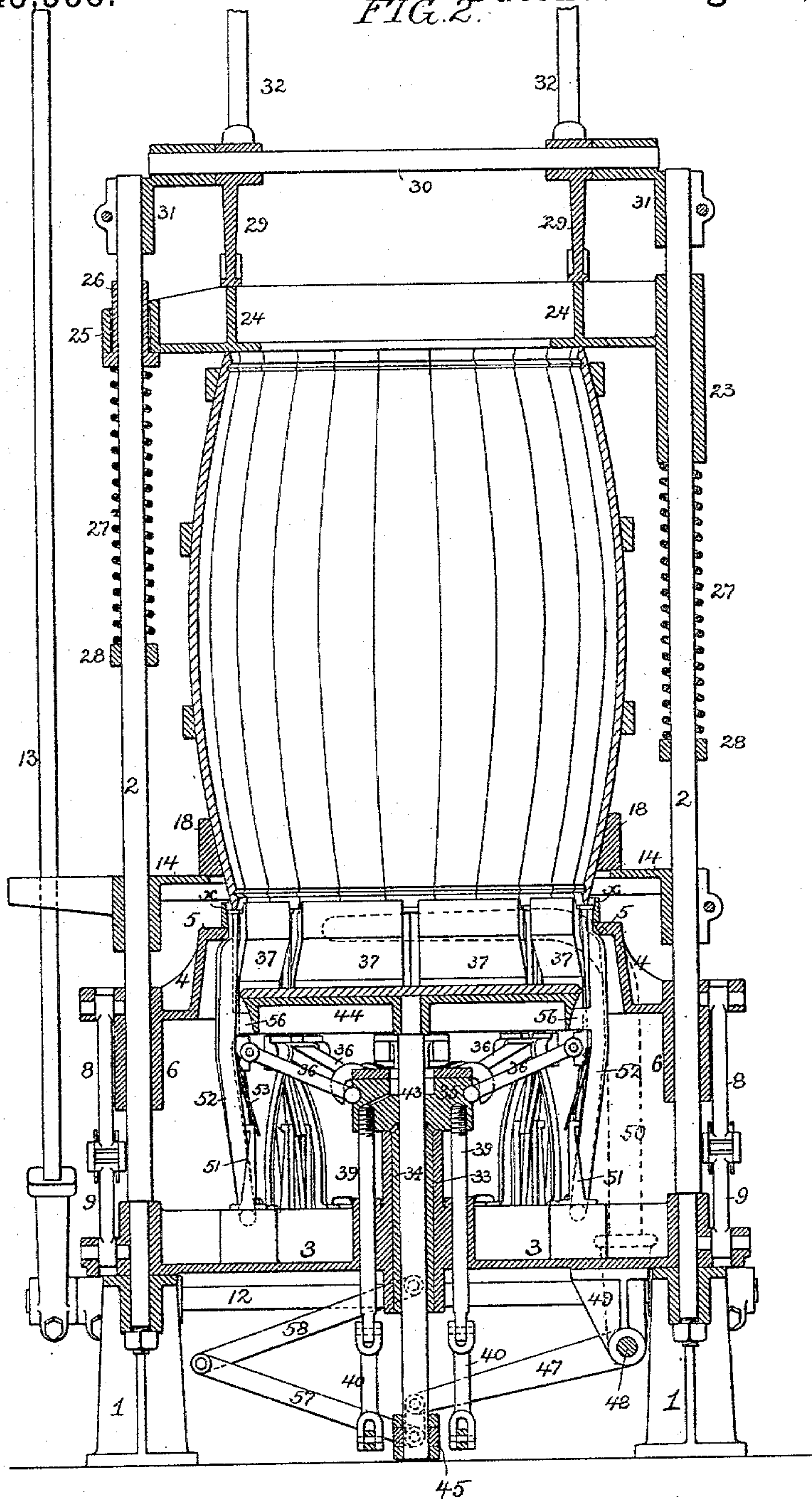
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FIG. 2.



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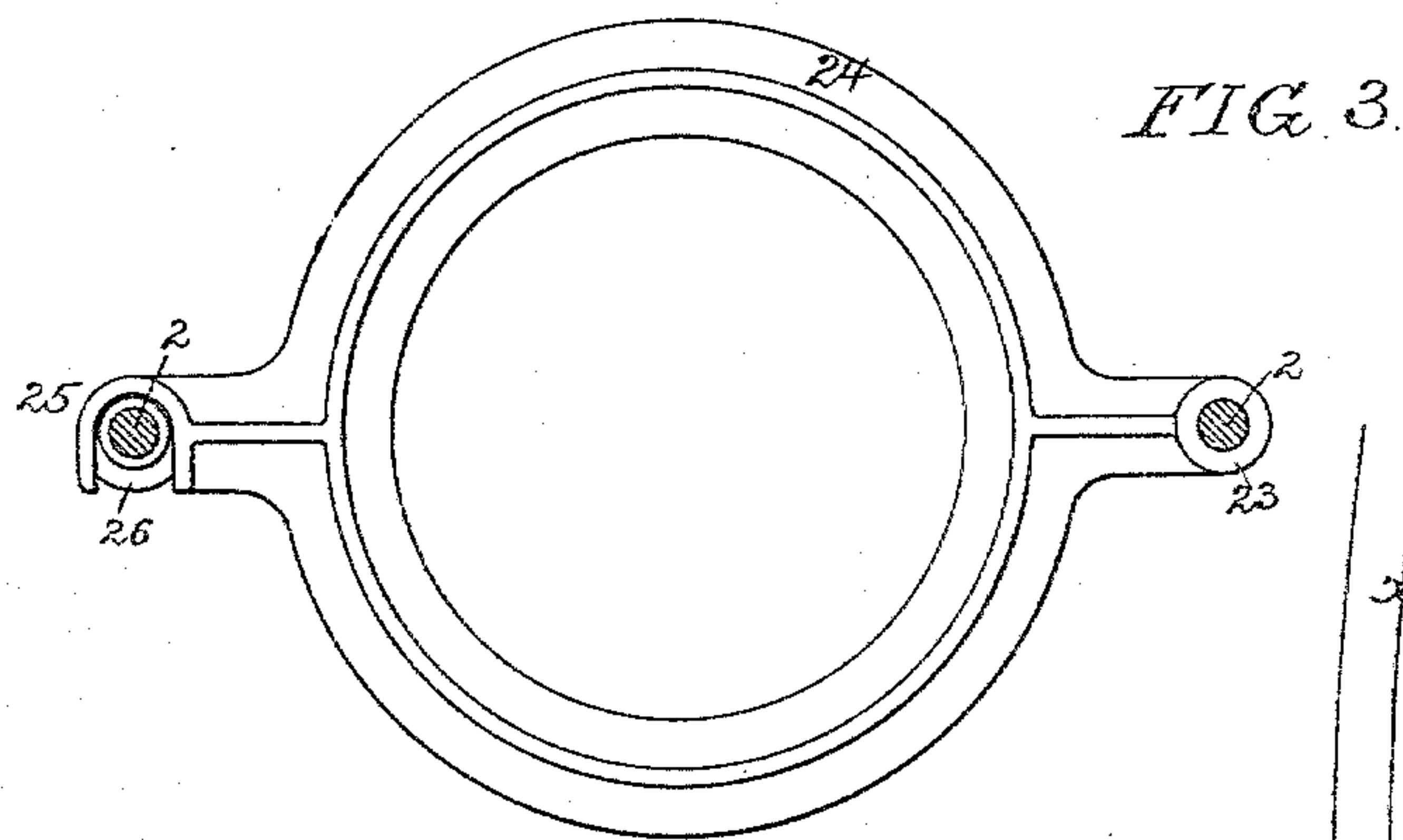


FIG. 3.

FIG. 7.

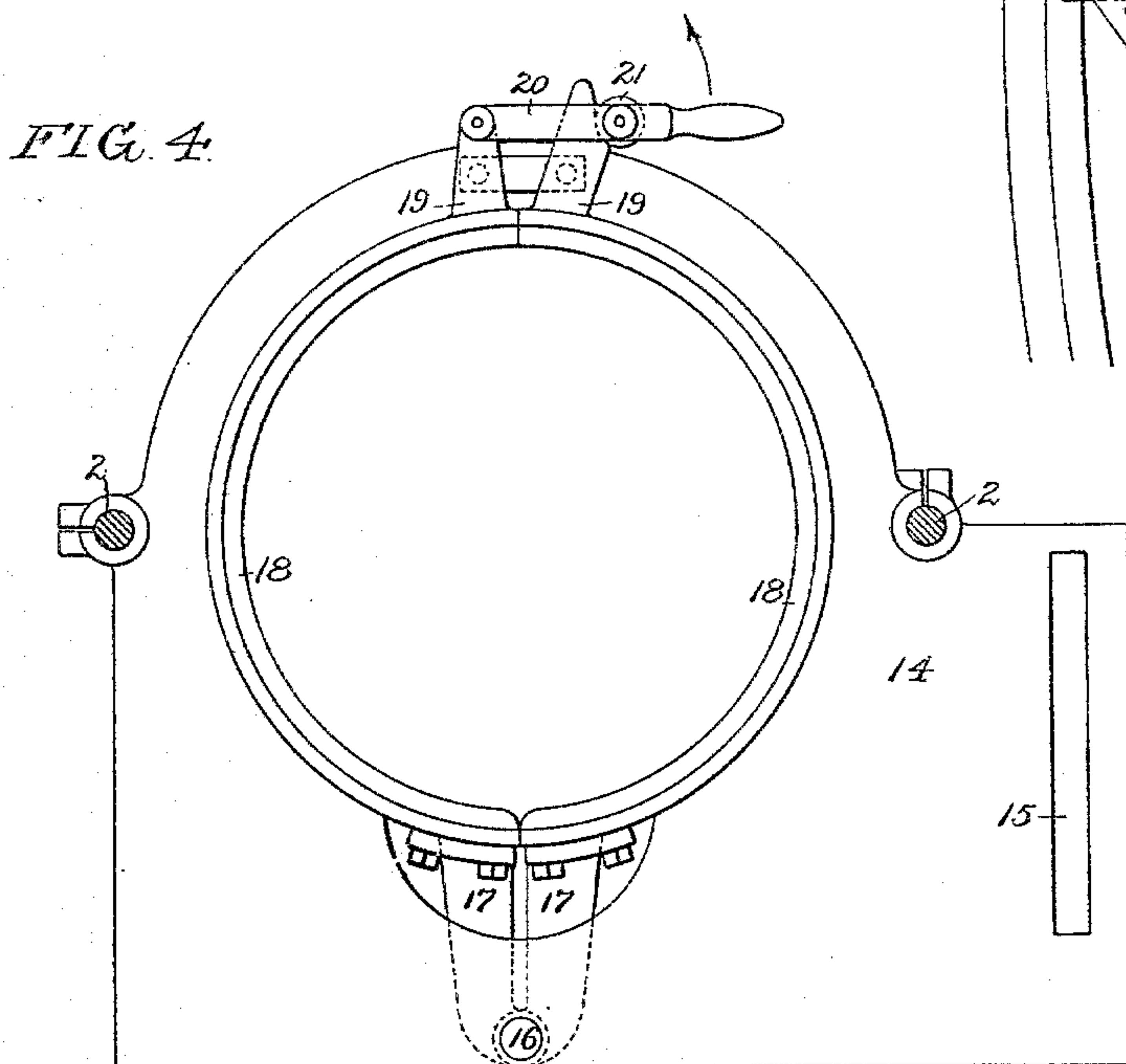
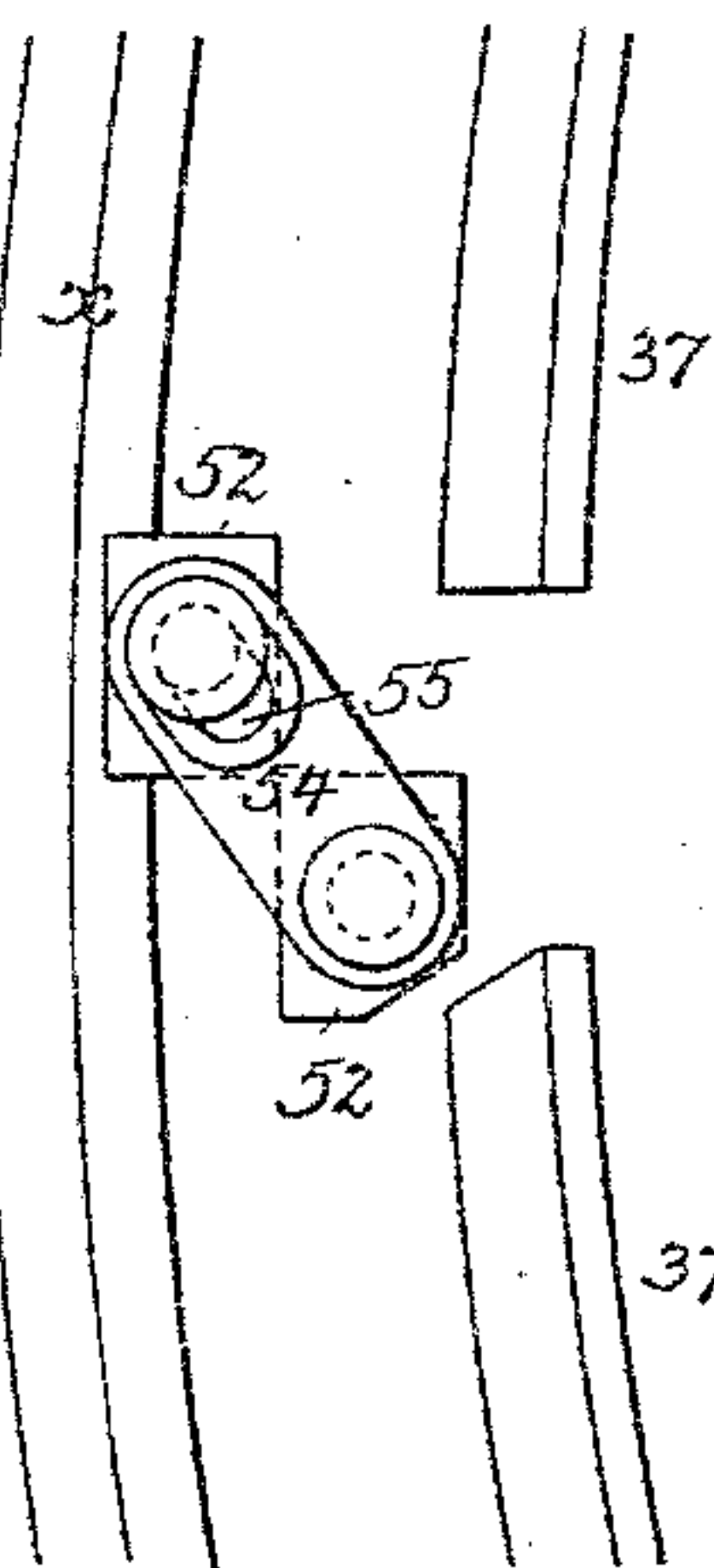


FIG. 4.

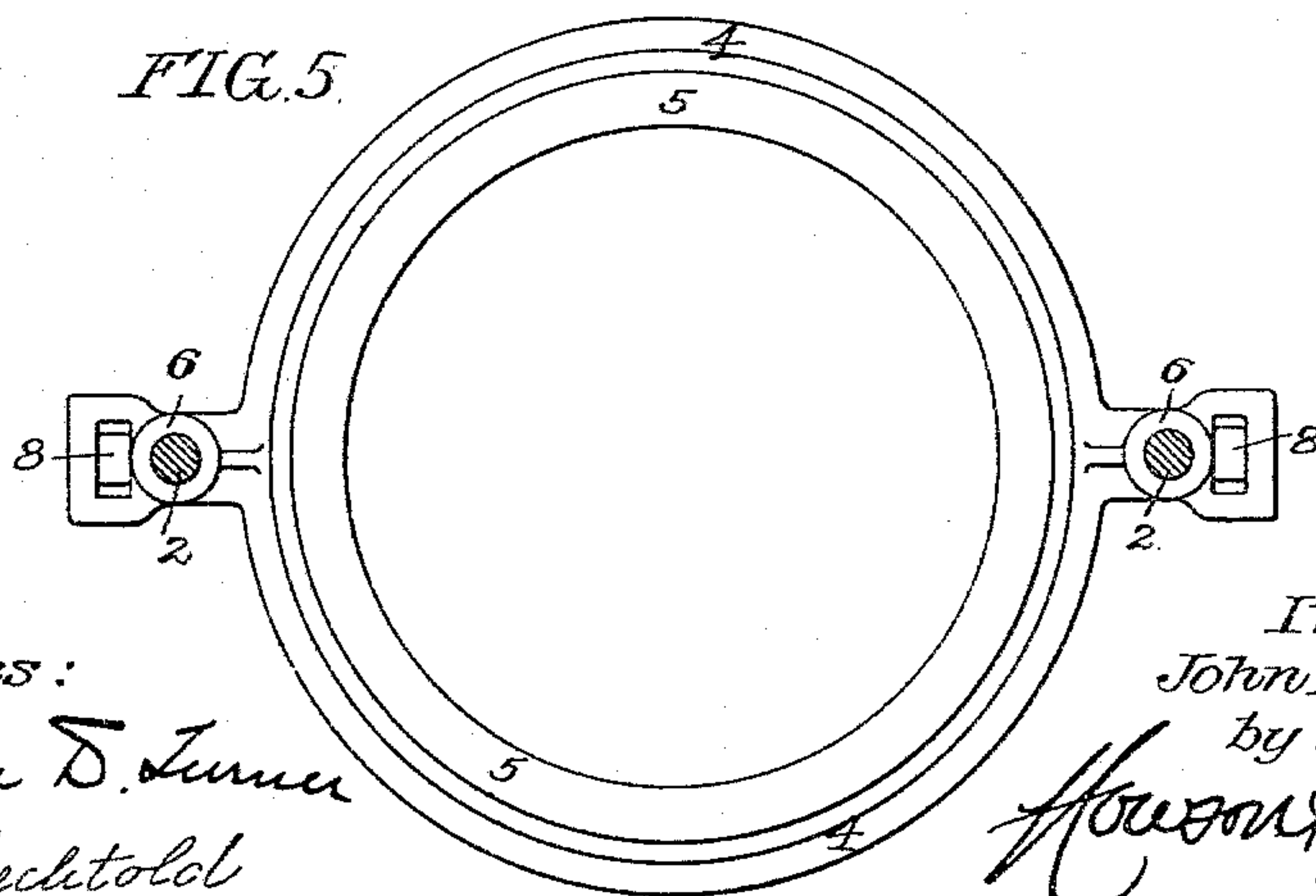


FIG. 5.

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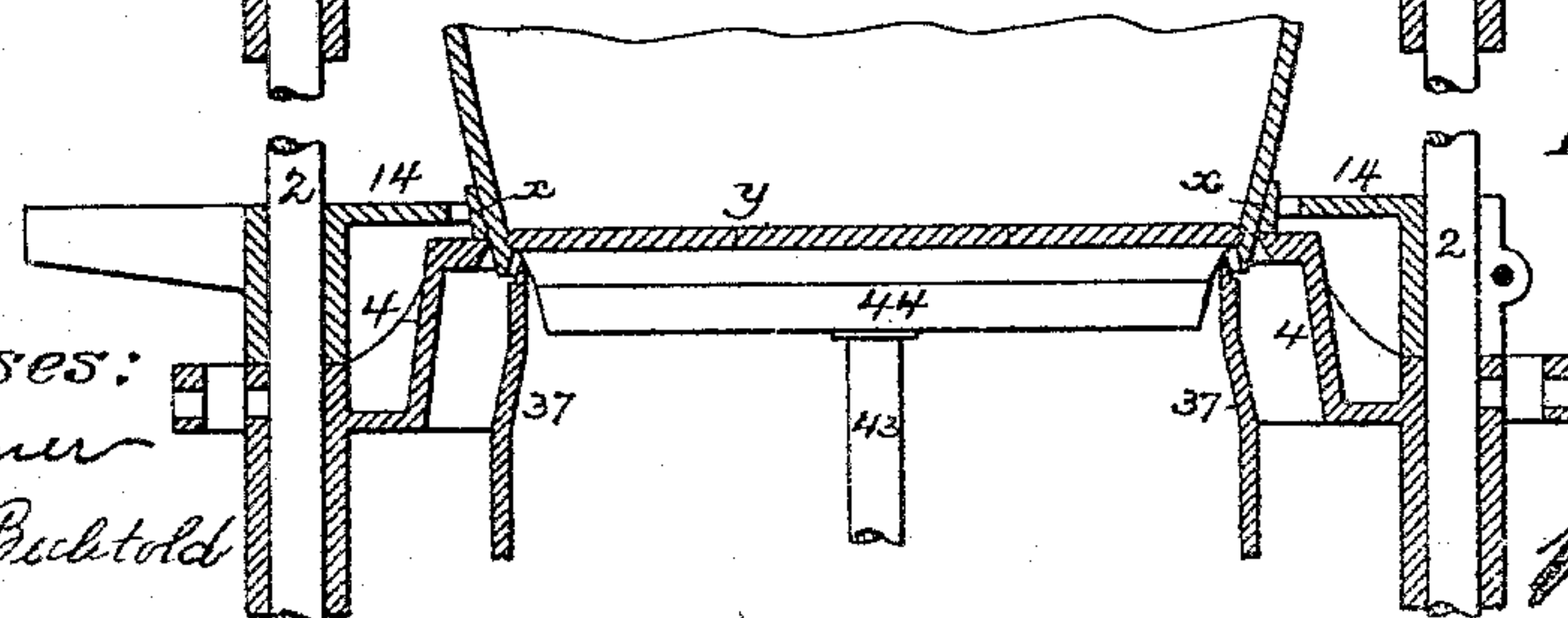
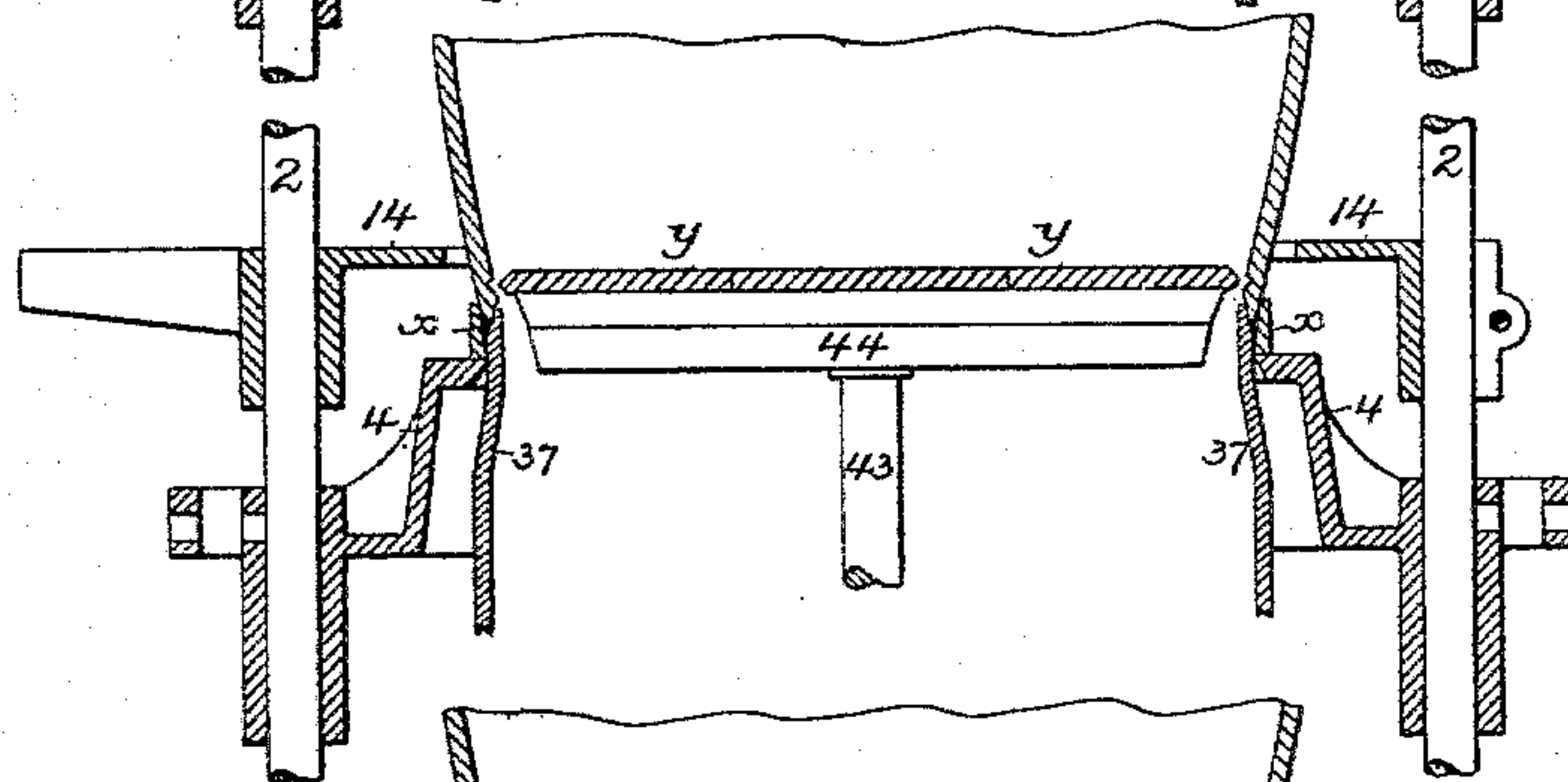
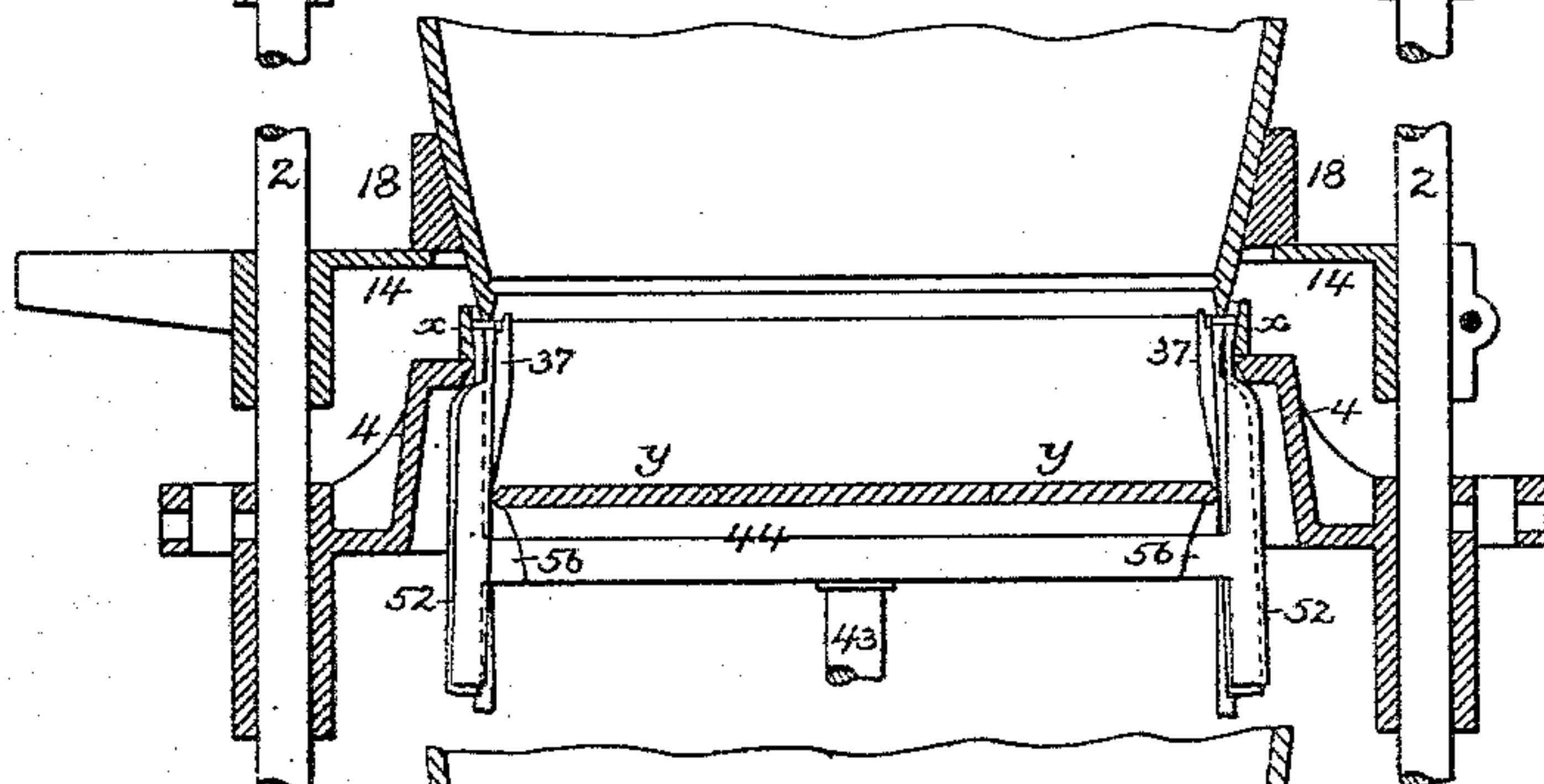
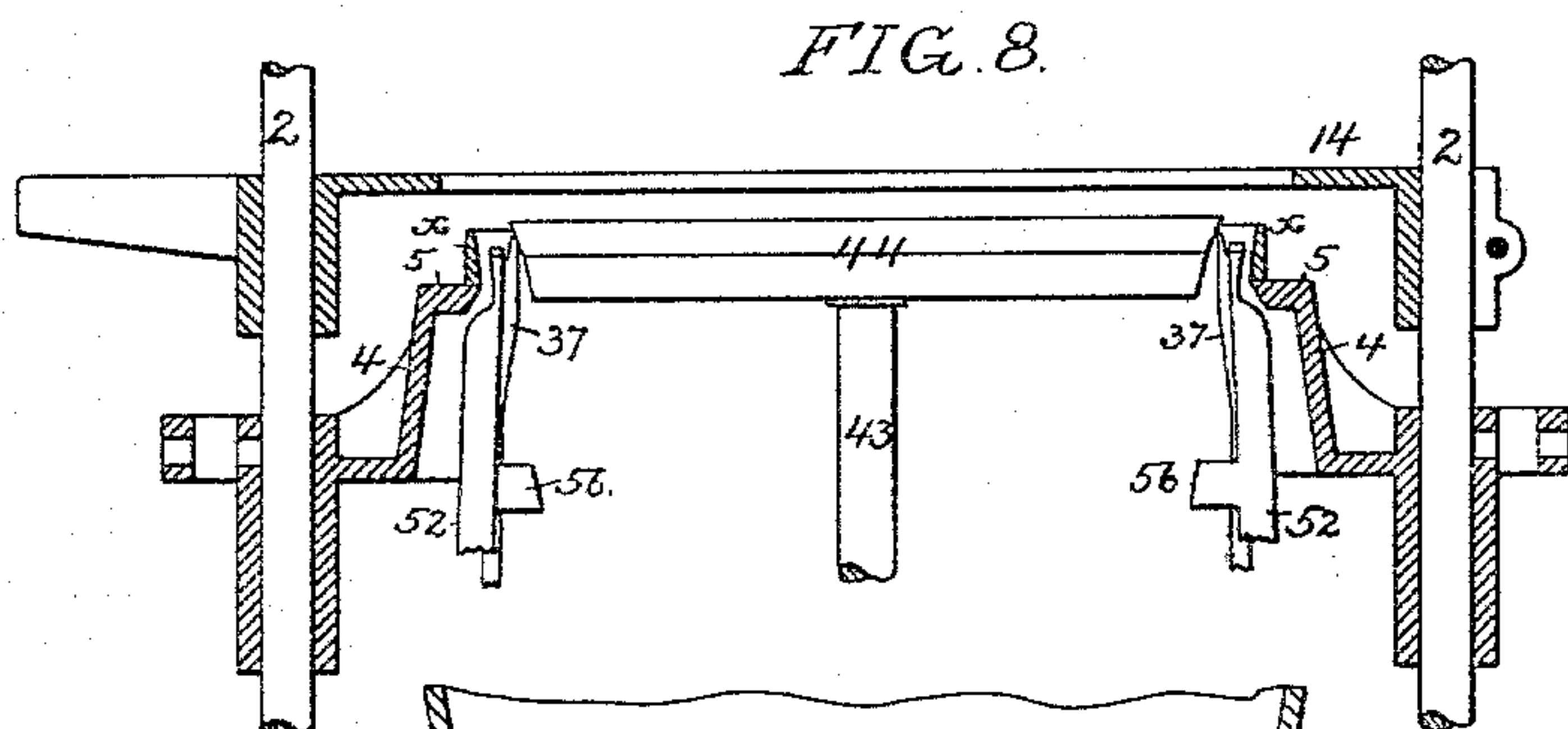
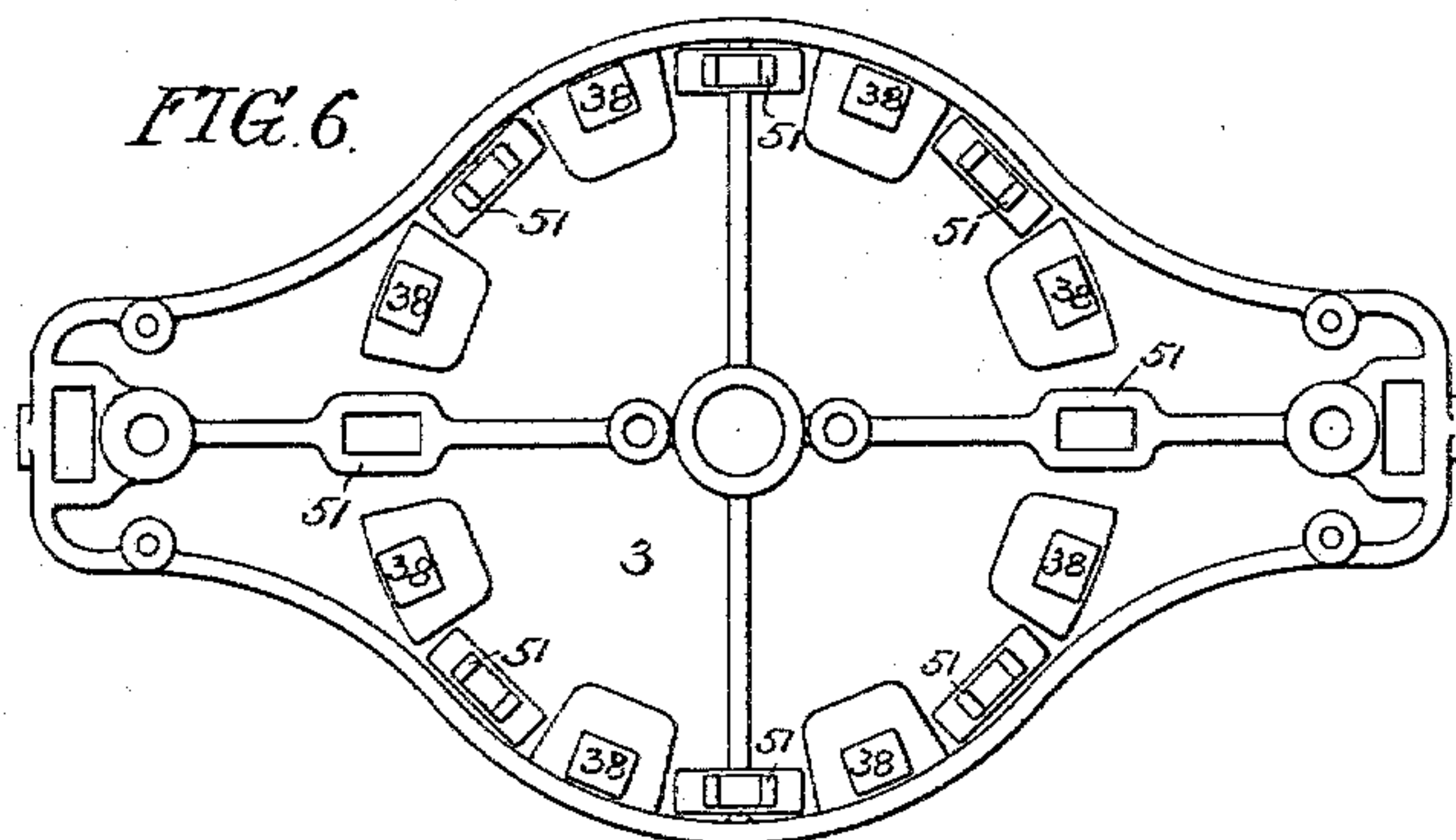
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4 Sheets—Sheet 4.

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No. 545,388.

Patented Aug. 27, 1895.



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UNITED STATES PATENT OFFICE.

JOHN B. STANHOPE, OF PHILADELPHIA, PENNSYLVANIA.

BARREL-HEADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 545,388, dated August 27, 1895.

Application filed March 8, 1895. Serial No. 540,941. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. STANHOPE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain
5 Improvements in Barrel-Heading Machines, of which the following is a specification.

The object of my invention is to construct a machine for inserting the heads in that class of barrels termed by the trade "slack" barrels—such as are used for sugar, flour, cement,
10 &c.—the heads consisting of loose pieces which are not doweled or otherwise fastened together. My improved machine centers or trues up the staves, spreads the latter to receive the head, and then permits the staves
15 to close onto the head, and drives on a hoop to hold the staves and thus retain the head with sufficient firmness to permit the necessary subsequent handling of the barrel.

20 In the accompanying drawings, Figure 1 is a side view of a barrel-heading machine constructed in accordance with my invention. Fig. 2 is a longitudinal sectional view of the machine. Figs. 3, 4, 5, 6, and 7 are plan views
25 of different parts of the machine; and Figs. 8, 9, 10, and 11 are diagrams illustrating the operation of the machine.

The permanent base-frames 1 of the machine are rigidly secured to a suitable foundation and support opposite vertical rods 2,
30 upon which are mounted various cross-heads referred to hereinafter, said base frames also supporting a bottom plate 3, as shown in Fig. 2.

35 The lower cross-head 4, Fig. 5, has an inwardly-projecting top flange 5 for supporting the hoop α , which is to be driven onto the barrel, said cross-head having opposite bosses 6, guided upon the rods 2, and each boss being
40 connected to the uppermost of a pair of toggle-levers 8 9, the lower lever of each pair being hung to a lug on the bottom plate 3. Each pair of toggle-levers is connected by a link 10 to an arm 11 on a shaft 12, mounted
45 in suitable brackets on the base-frame 1, one end of said shaft having an operating arm or lever 13 extending to the upper part of the machine, so that by moving this lever in one direction the toggle-levers will be contracted
50 and the cross-heads 4 caused to descend, while by movement of the lever in the opposite di-

rection the toggle-levers will be expanded and the cross-head 4 will be caused to rise.

Secured to the rods 2 at a point above the cross-head 4 is the supporting cross-head 14, 55 shown in plan view (at Fig. 4,) said cross-head having a slot 15 for the guidance of the lever 13, and having at one side a depending pin 16, to which are hung arms 17 on the two halves of a compression-ring 18, the front ends of which
60 are provided with arms 19, one of said arms carrying a pivoted link 20, with antifriction-rollers 21 bearing against the cam-shaped outer end of the other arm 19, so that when said link occupies the position shown in Fig. 65
4 the two halves of the compression-ring are firmly locked together, but by moving the link in the direction of the arrow, Fig. 4, the two halves of the compression-ring will be
70 unlocked, so as to be permitted to separate one from the other. When the two halves of the ring are brought together, the arms 19 bear upon a block 19^a on the upper face of the cross-head 14. Hence both of the arms
75 must be in the same horizontal plane, and the two halves of the ring are thus caused to register with each other. The lower end of the pivot-pin 16 is braced by a bar 22, extending therefrom to the bottom plate 3, as shown in
80 Fig. 1.

Upon one of the vertical rods 2 is hung the pivot-hub 23 of an annular presser-plate 24, the free end of which has an open jaw 25, Fig. 3, adapted to engage with a sleeve 26, mounted upon the rod 2, opposite that to which the
85 presser-plate is hung.

The hub 23 and sleeve 26 are supported upon springs 27, interposed between the same and collars 28 on the rods 2, so that the presser-plate 24, while normally supported by the
90 springs, is free to move vertically on the rods 2 when subjected to such pressure as to compress said springs.

Downward movement of the presser-plate is effected by means of cams 29, carried by a
95 shaft 30, mounted in bearings 31, secured to the upper ends of the rods 2, each cam being provided with an operating-handle 32, whereby it may be manipulated.

The bottom plate 3 has a central tubular
100 boss 33, in which is guided a tubular spindle 34, having at the upper end a head 35, to which

are pivoted the inner ends of a series of links 36, the outer ends of the latter being hung to segmental plates 37, pivoted at their lower ends to lugs 38, projecting upward from the bottom plate 3, each of the segments 37 having its upper edge rabbeted, so as to act upon the chamfered ends of the barrel-staves, in order to spread the same, when desired. The head of the tubular stem 34 has depending rods 39, guided in the central portion of the bottom plate 3, and the lower ends of these rods are connected by links 40 to the forked inner end of a treadle 41, suitably hung to some available support—such, for instance, as a bracket 42, depending from the bottom plate 3. By this means the stem 34 and its head 35 can be raised, so as to cause the projection of the segments 37, or can be permitted to descend, so as to effect the retraction of said segments, the weight of the head 35 and the parts connected thereto being sufficient to cause such descent when pressure is removed from the treadle 41.

Through the tubular shaft 34 extends a rod 43, which has at the upper end a circular table or platform 44 and is provided at the lower end with a collar 45, connected by means of links 46 to an arm 47, carried by a rock-shaft 48, adapted to a bearing in a bracket 49, depending from the bottom plate 3, said rock-shaft having an operating arm or lever 50, running up along one side of the machine, movement of this lever in one direction causing the rise of the table 44 and movement in the other direction causing the descent of said table.

Hung to fixed lugs 51 on the bottom plate 3 are a series of pairs of arms 52, which are normally drawn inward by means of springs 53, carried by the arms and bearing upon said lugs 51, the upper ends of each pair of arms being connected by a plate 54, Fig. 7, pivoted to each arm, one end of the plate having a slot 55 for the reception of the pivot-pin, so that the plate can either assume the inclined position shown in Fig. 7 when one of the arms is projected and the other retracted or a straight position when both of the arms are projected.

The projection of one of each pair of arms is effected by the flaring edge of the table 44 acting upon a lug 56 on the arm, as shown in Fig. 2, and the projection of the other arm is effected by contact of the same with the end of the adjoining segmental plate 37, which is beveled, so as to overlap a beveled portion of the arm, as shown in Fig. 7.

In order to prevent lateral deflection of the lower end of the rod 43 in its vertical movement, the collar 45, at the lower end of said rod, is connected to a link 57, which is pivoted to a link 58, the latter being hung to the lower depending end of the tubular boss 33 of the bottom plate 3. By lateral deflection is meant deflection in a direction transversely to the plane of the arm 47 and links 57 and 58.

The attendant whose duty it is to introduce the barrel into the machine and manipulate the presser-plate 24, lever 13, and cams 29 stands upon an elevated platform above the attendant who manipulates the compression-ring and the treadle and levers at the lower part of the machine, and in order that one of these attendants may signal to the other a gong 60 is mounted upon a connecting brace-bar 61 at the upper end of the machine.

The operation of the machine is as follows: The parts, in the first instance, are in the position shown in Fig. 8, it being understood that the compression-ring 18 is open and the presser-plate 24 swung around out of the way. The table 44 is elevated and the segments 37 and arms 52 are contracted, so as to interpose no obstacle to the laying of the hoop α upon the supporting-flange 5 of the cross-head 4, which is depressed below the tops of the segments 37 and arms 52. The segments 37 are then expanded by pressure upon the treadle 41, so as to force outward the upper end of one of each pair of arms 52, so as to cause it to bear firmly against the hoop, and thus properly center and hold the latter, the outward movement of the segment 37 permitting the table 44 to fall, and thus act upon the lugs 56 in order to expand the other arms 52. The sections of the head γ are then deposited upon the table 44, as shown in Fig. 9, and pressure is removed from the treadle 41, so as to permit the segments 37 to move inward, one of each pair of arms 52 likewise moving inward, so as to cause the plates 54 to assume the inclined position shown in Fig. 7, and thus provide a proper laterally-extended support for the staves of the barrel and prevent any of the same from slipping downward to too great an extent below the tops of the segments 37. The two halves of the compression-ring 18 are then closed together and locked by means of the link 20, and the barrel is inserted in the machine until the lower ends of the staves rest upon the supporting-plates 54, the ring 18 serving to true up the staves in case any of them happen to be displaced, it being understood, of course, that before the barrel is thus introduced into the machine the end truss-hoop has been knocked off of the same. The presser-plate 24 is now swung around over the top of the barrel until its jaw 25 engages with the sleeve 26, and the cams 29 are then operated so as to press said plate downward and force the barrel firmly into the compression-ring 18 and onto the stave-supporting plates 54. The compression-ring 18 is now opened, and the segments 37 are expanded by pressure upon the treadle 41, so as to spread the lower ends of the staves, as shown in Fig. 10, and permit the raising of the table 44, and of the sections of the head γ mounted thereon, until the latter are in line with the crozed portions of the staves. The stave-spreading segments 37 are then permitted to contract by removing the pressure from the treadle 41,

so that the staves can close inward upon the head, and the lever 13 is then manipulated so as to cause the lifting of the cross-head 4 and the forcing of the hoop α tightly onto the barrel in order to retain the head in place, as shown in Fig. 11, the cross-head 4 being then lowered, the presser-plate 24 released from the pressure of the cams 29 and swung around to one side, and the barrel removed prior to a repetition of the cycle of operations for the purpose of inserting a head into the opposite end of the barrel or into another barrel.

Although I prefer to construct the machine in the manner shown and described, various modifications of the machine within the scope of the main features of the invention can be made. For instance, the stave-supporting plates and their arms may be omitted if the segments 37 are so constructed as to support as well as spread the staves, and the bottom plate 3, with the parts carried thereby, might be capable of vertical movement instead of the top presser-plate 24.

My invention is, as will be apparent, distinct from that class of machines in which the head is forced into the barrel, as this mode of operation is entirely impracticable when the head is composed of loose pieces, as in a slack barrel, and it is also distinct from that class of machines in which attempts are made to spread the staves while the end hoop is on, and from that other class in which the pieces of the head are held together by spurs or barbs on the head-carrier, as the time cannot be spared to impale the pieces of the head upon such spurs, and the use of the same mars the appearance of the head.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A barrel heading machine in which are combined a hoop driver, means for supporting the staves, a table or platform carrying the pieces of the barrel head, and movable so as to introduce said head into the open end of the barrel, and stave spreaders whereby the open end of the barrel can be expanded prior to the introduction of the head, and then permitted to contract so that the staves engage with and retain said head.

2. A barrel heading machine in which are combined means for supporting and for truing the barrel staves, a platform or table carrying the pieces of the barrel head, and movable so as to introduce said head into the open end of the barrel, stave spreaders for expanding the end of the barrel, prior to the introduction of the head, and a hoop driver whereby a hoop is driven onto the staves after the introduction of the head.

3. A barrel heading machine in which are combined means for supporting the barrel staves, a table or platform carrying the pieces of the barrel head, and movable so as to introduce said head into the open end of the barrel, stave spreaders whereby the end of

the barrel is expanded before the introduction of the head, a hoop driver for forcing the hoop onto the staves after the introduction of the head, and a presser plate acting upon the end of the barrel opposite that which receives the head.

4. A barrel heading machine in which are combined a hoop driver, means for supporting the staves of the barrel, a table or platform carrying the pieces of the head, and movable so as to introduce said head into the open end of the barrel, stave spreaders and a split compression ring whereby the staves are centered.

5. A barrel heading machine in which are combined a hoop driver, stave supporting plates on which the ends of the staves rest, a table or platform carrying the pieces of the barrel head, and movable so as to introduce said head into the open end of the barrel, and stave spreaders whereby the end of the barrel is expanded for the introduction of the head, and then permitted to contract so as to cause the staves to engage with and retain the head on the driving of the hoop.

6. A barrel heading machine in which are combined stave supporting plates on which the ends of the staves rest, means for supporting and driving the hoop, a table or platform carrying the pieces of the barrel head, and movable so as to introduce said head into the open end of the barrel, a series of stave spreaders, and arms carrying the stave supporting plates and acted upon by said table or platform so as to center the hoop.

7. A barrel heading machine in which are combined supporting plates for the ends of the staves, means for supporting and driving the hoop, a table or platform carrying the pieces of the barrel head, and movable so as to introduce said head into the open end of the barrel, a series of stave spreaders, and a series of pairs of arms, the arms of each pair carrying one of the stave supporting plates, and said arms being independently movable so as to change the position of said plates.

8. A barrel heading machine in which are combined plates for supporting the ends of the staves, means for supporting and driving the hoop, a table or platform carrying the pieces of the barrel head, and movable so as to introduce the said head into the open end of the barrel, a series of stave spreaders, a series of pairs of arms each carrying one of the stave supporting plates, the arms of each pair being independently movable, and means whereby one of the arms is actuated by the head carrying table and the other by a stave spreader.

9. A barrel heading machine in which are combined means for introducing the head into one end of a barrel, a presser plate acting on the other end of the barrel, guide rods upon which said presser plate can slide vertically, and upon one of which it can swing laterally

so as to be withdrawn from above the barrel,
springs for supporting the presser plate, and
a shaft having cams for acting upon said
presser plate when the latter is swung into
5 position over the end of the barrel, substan-
tially as specified.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

JOHN B. STANHOPE.

Witnesses:

WILL. A. BARR,

JOSEPH H. KLEIN.