

(No Model.)

2 Sheets—Sheet 1.

W. BUNTING, Jr.
WATER CLOSET AND HINGE THEREFOR.

No. 559,478.

Patented May 5, 1896.

Fig. 1,

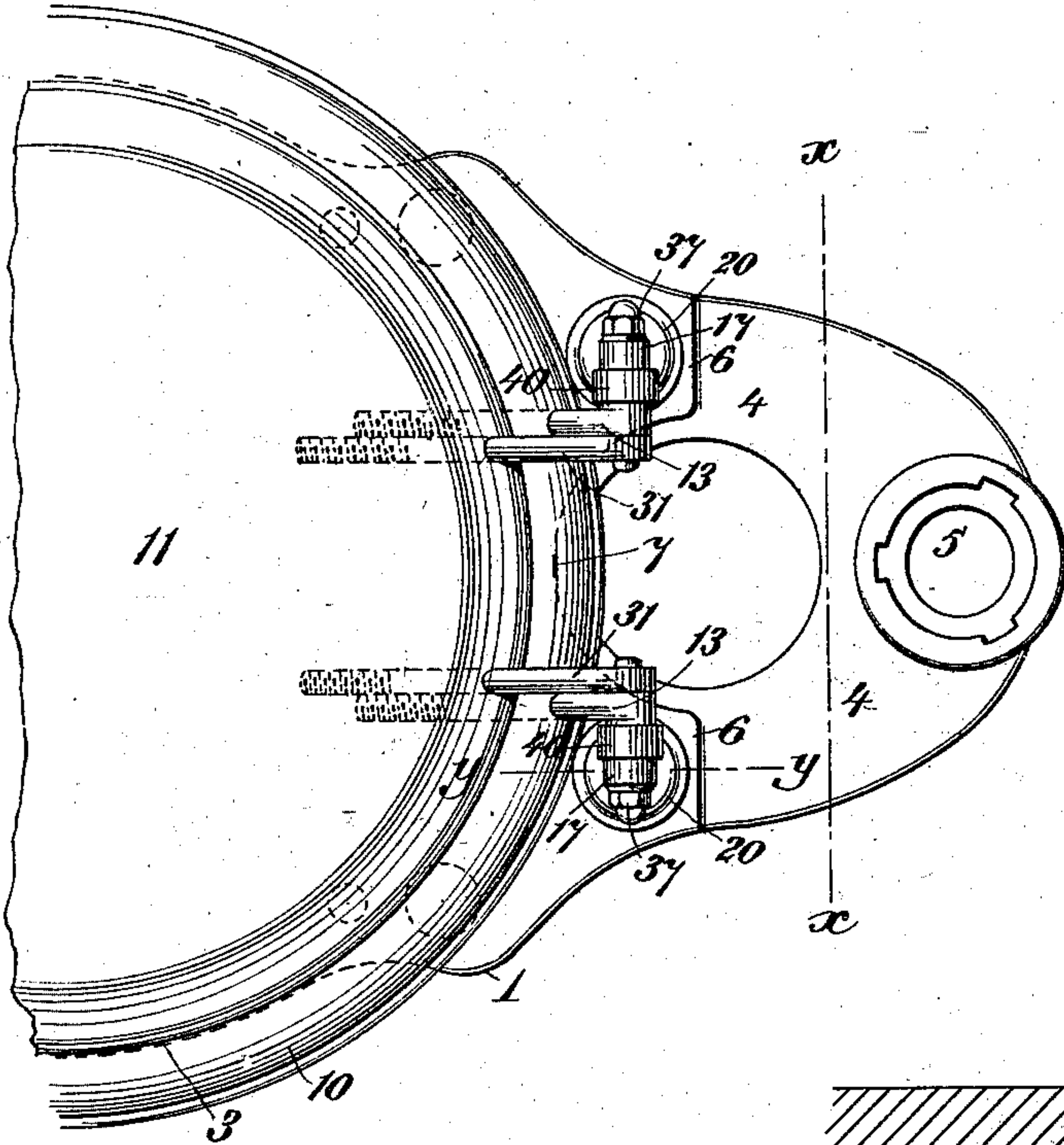


Fig. 4,

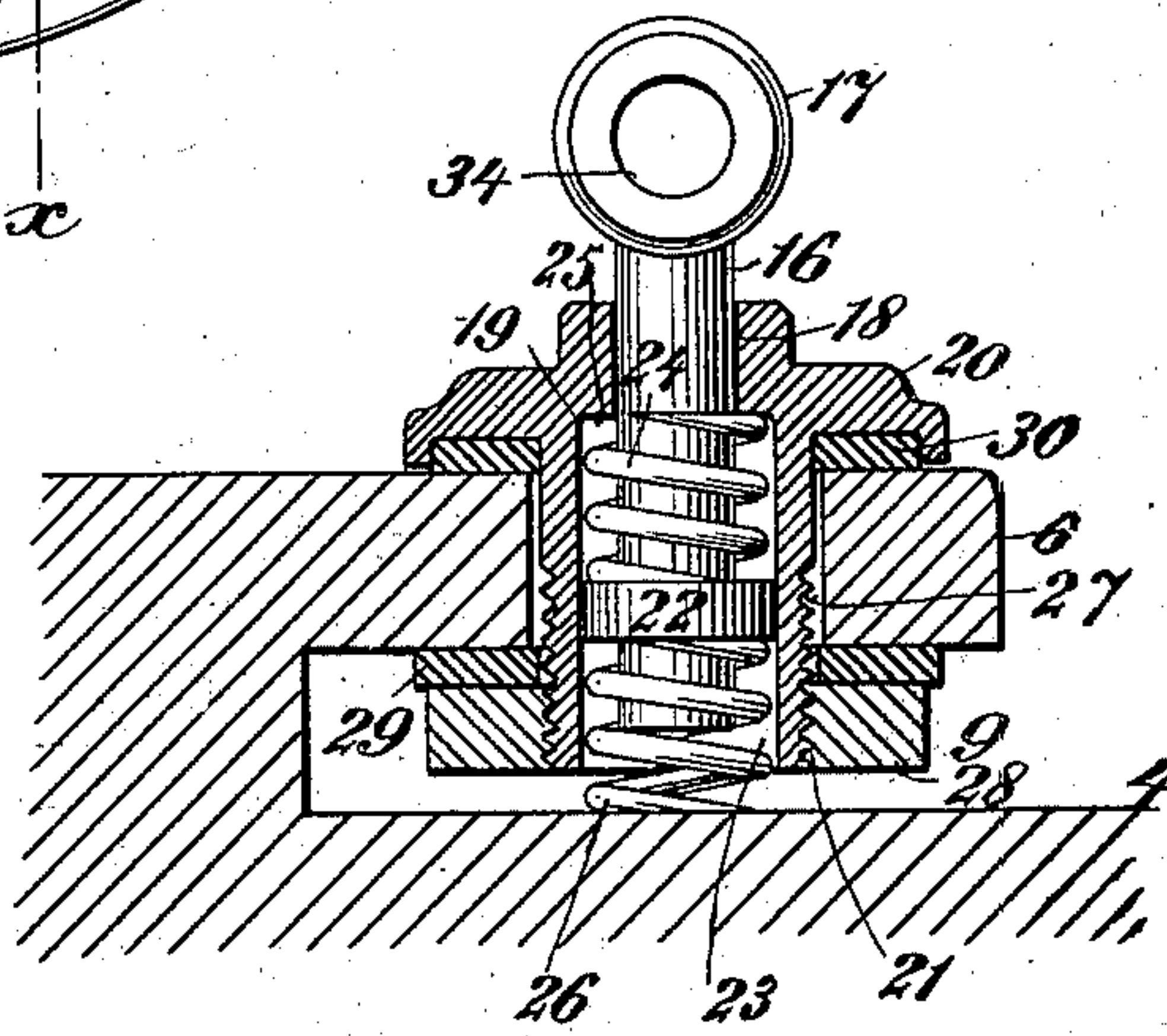


Fig. 2,

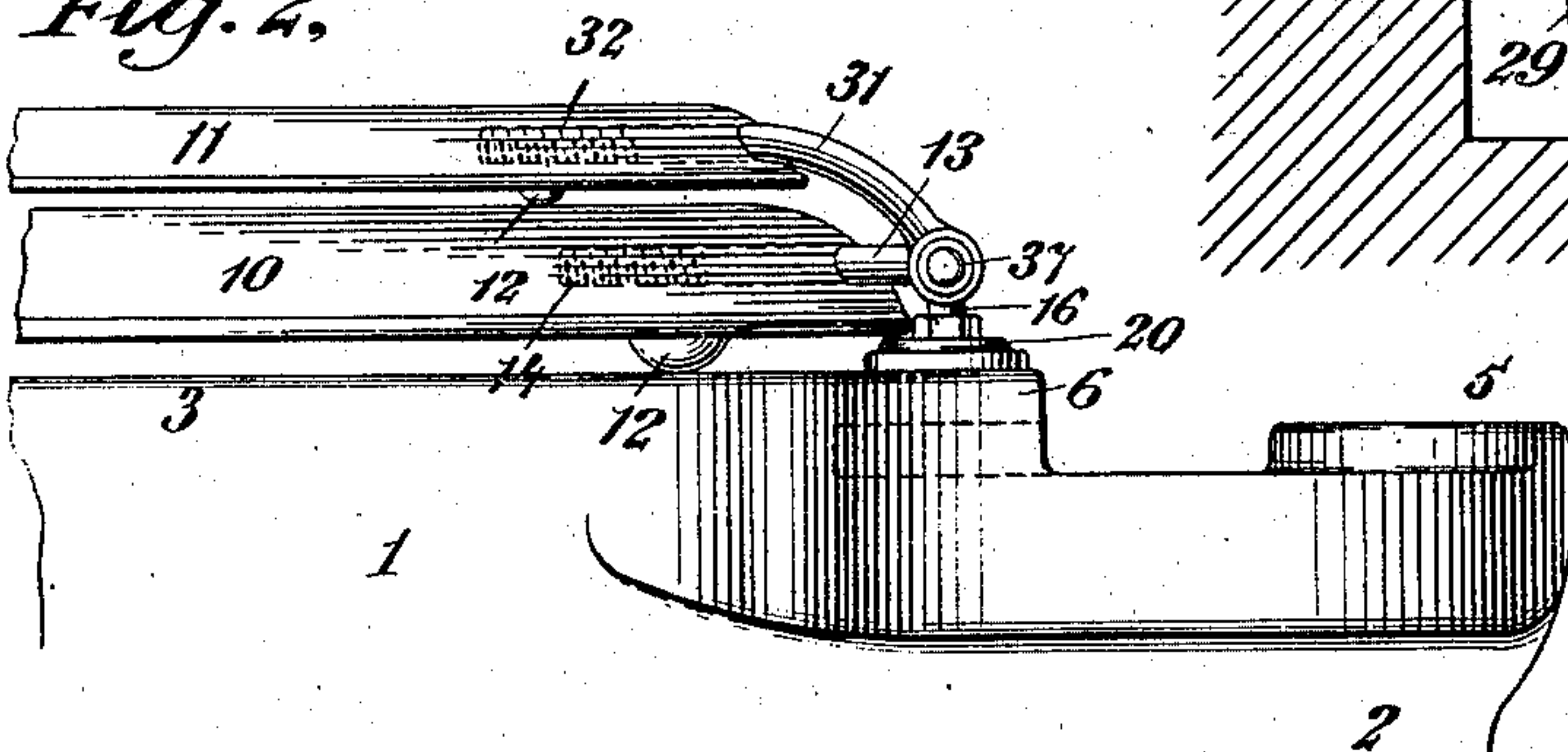
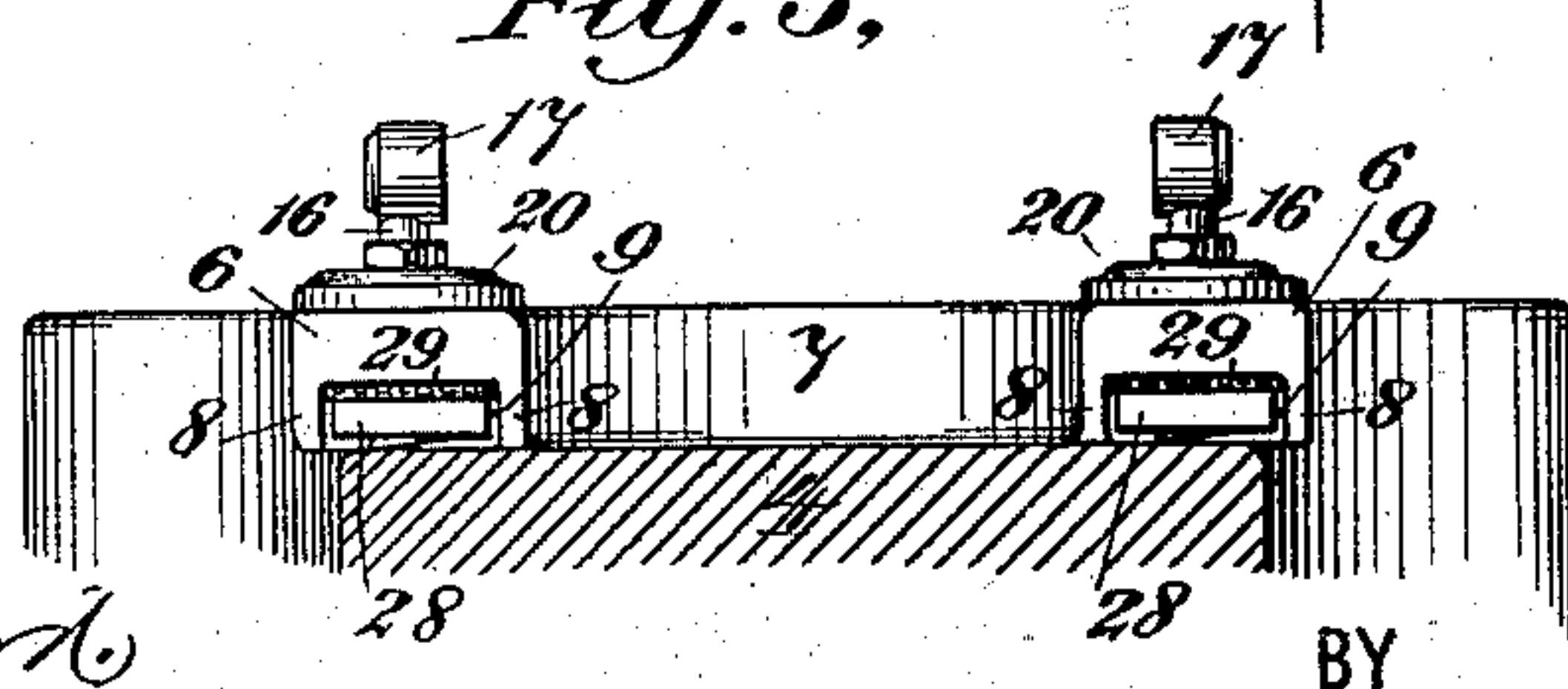


Fig. 3,



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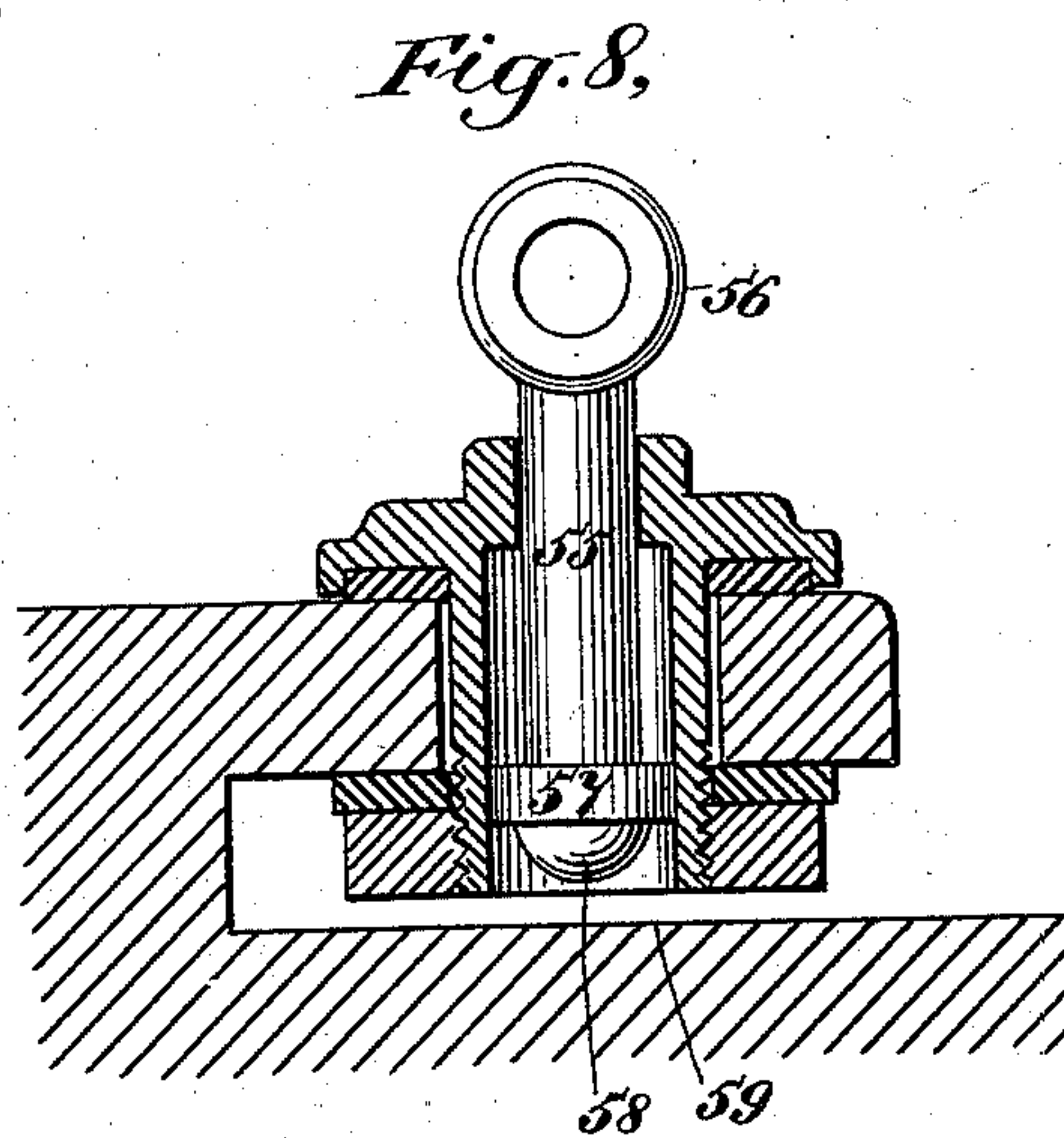
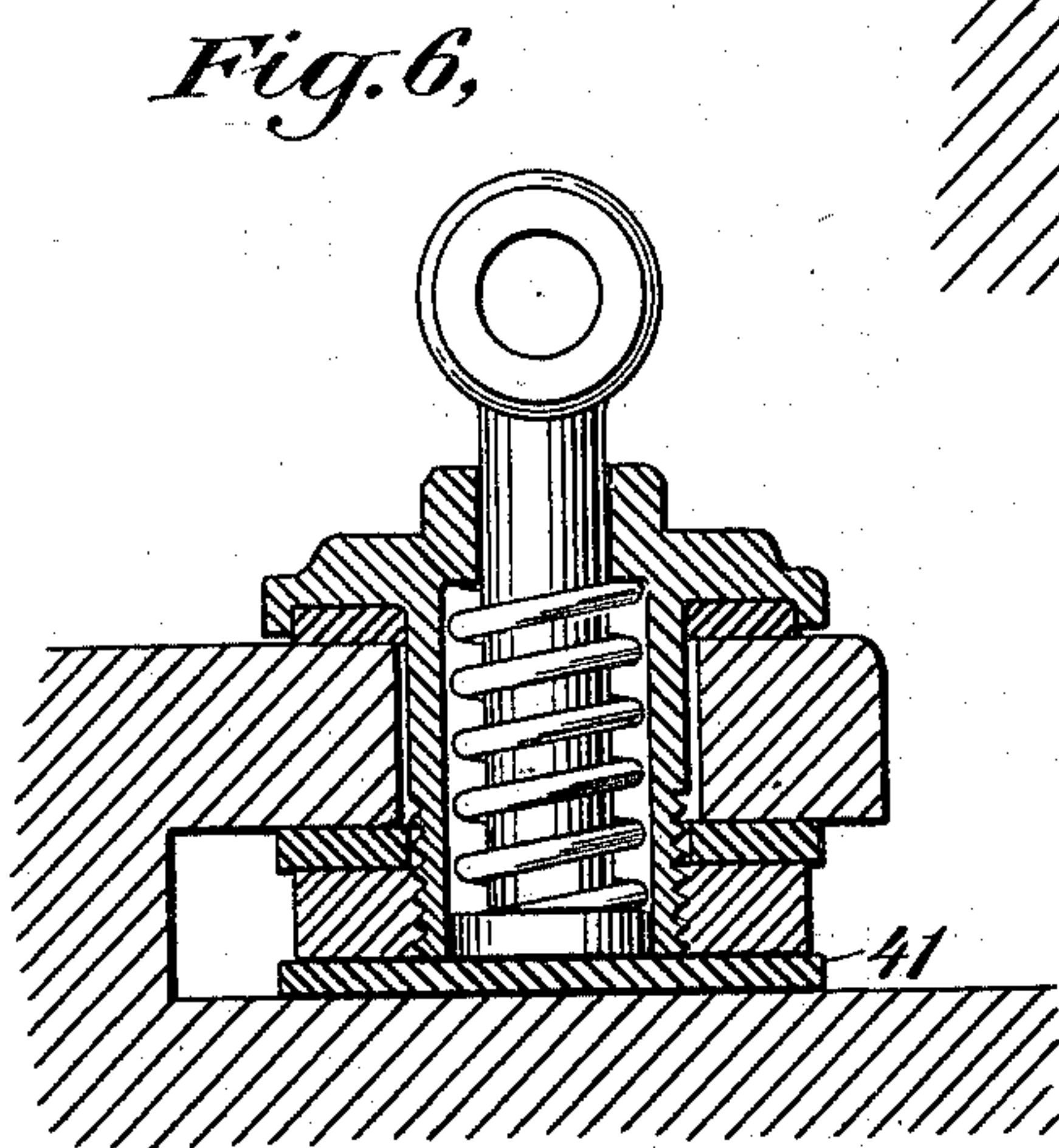
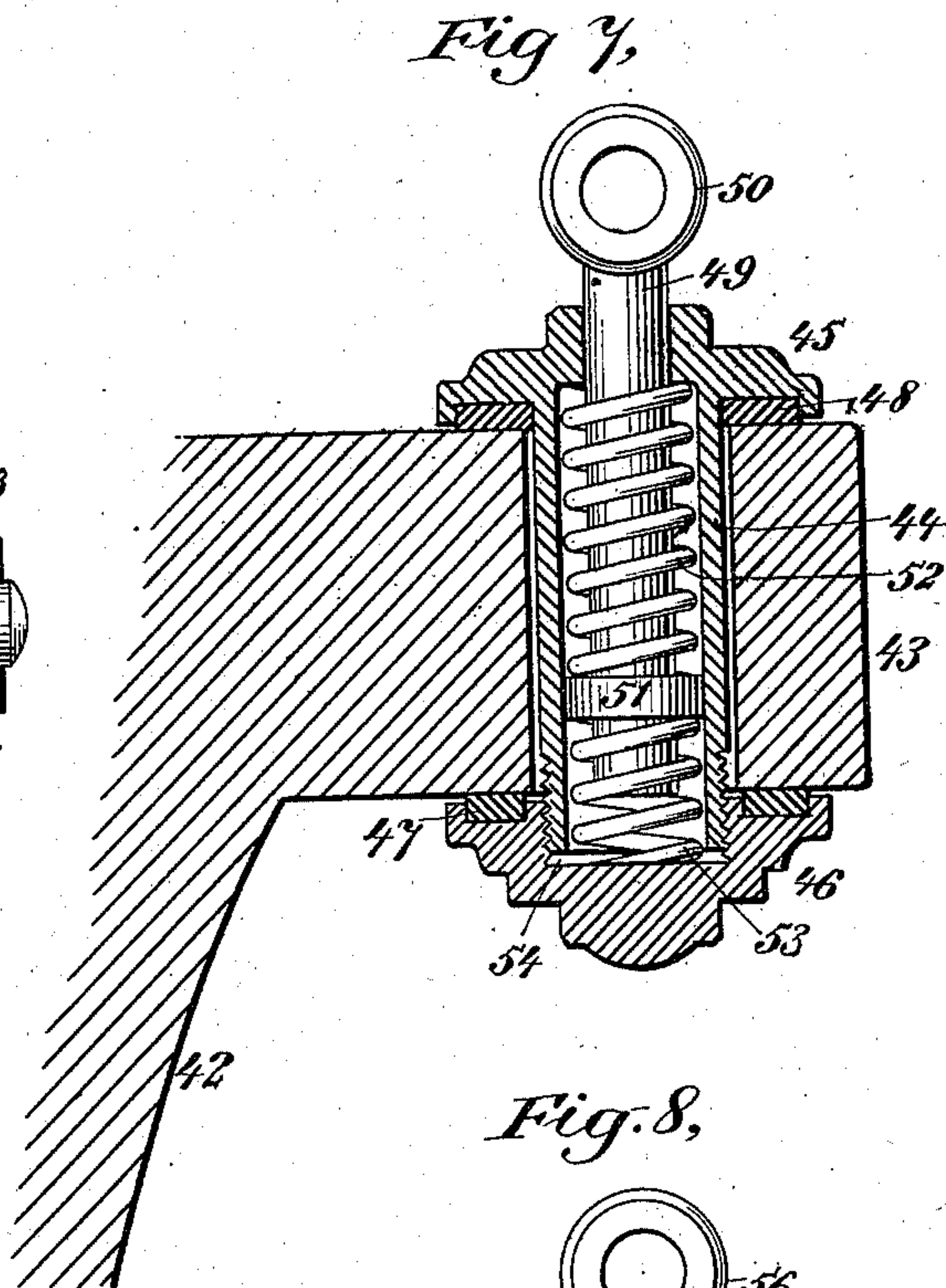
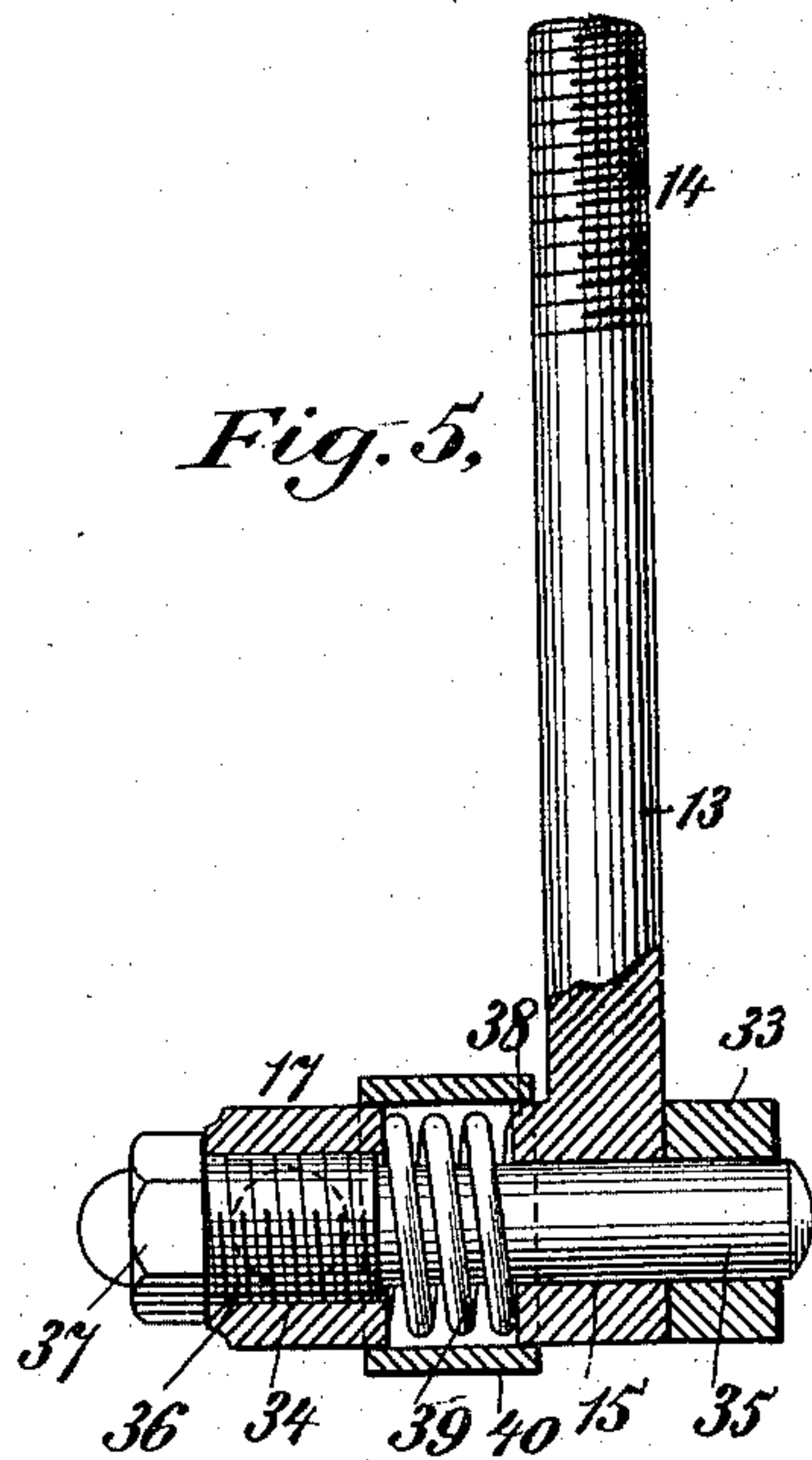
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2 Sheets—Sheet 2.

W. BUNTING, Jr.
WATER CLOSET AND HINGE THEREFOR.

No. 559,478.

Patented May 5, 1896.



WITNESSES:

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WILLIAM BUNTING, JR., OF FLUSHING, NEW YORK, ASSIGNOR TO THE MEYER-SNIFFEN COMPANY, LIMITED, OF NEW YORK, N. Y.

WATER-CLOSET AND HINGE THEREFOR.

SPECIFICATION forming part of Letters Patent No. 559,478, dated May 5, 1896.

Application filed November 21, 1893. Serial No. 491,557. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM BUNTING, Jr., a citizen of the United States, and a resident of Flushing, in the county of Queens and State of New York, have invented certain new and useful Improvements in Water-Closets and Hinges Therefor, of which the following is a specification.

My invention relates more particularly to that class of water-closets in which the seat and the lid are hinged or pivotally connected directly to the bowl or closet structure instead of to wall-brackets or other exteriorly-located supports, and has for its main objects to so connect the seat and the lid (if the latter be used) as to relieve the connecting or hinging devices of all undue strain and to obviate the liability of breakage of the earthenware bowl or any of its integral parts.

To this end my invention consists in certain features of construction and combinations of devices, all as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a plan view showing as much of a water-closet and its seat and lid as are necessary to illustrate my improvements, the latter being also shown in said view. Fig. 2 is a side elevation of the same. Fig. 3 is a back sectional view taken at the line $x x$ of Fig. 1. Fig. 4 is an enlarged vertical section taken at the line $y y$ of Fig. 1, but omitting the seat and the lid, the hinge-arms, and the hinge pin or bolt. Fig. 5 is an enlarged detail sectional view through one of the hinge-joints. Fig. 6 is an enlarged vertical central section showing one part of my invention carried out in another form. Fig. 7 is an enlarged central vertical section showing one part of my invention carried out in another form and on a different style of closet, and Fig. 8 is an enlarged central vertical section showing one part of my invention carried out in still another form.

In Figs. 1, 2, 3, 4, and 5 the same parts will be found designated by the same numerals of reference, while in Figs. 6, 7, and 8 different numerals of reference will be used.

Referring to the first five figures of the

drawings, 1 designates a bowl of that description of water-closet known as the "Brighton" closet, with which is formed integrally a trap 2, a flushing-rim 3, supply-conduits 4, leading to the flushing-rim on both sides, and an inlet-horn or supply-nozzle 5, common to both conduits and centrally arranged at the extreme rear of the closet.

Formed of a piece with the rear side of the flushing-rim or uppermost part of the bowl and with the inner ends of the conduits where they join the flushing-rim are two ledges 6, one on each side, which for strength may be connected together by an intermediate vertical web 7. Each ledge is provided with a downwardly-extending flange 8 on each side, which is connected to the upper surface of the conduits. All of the parts thus far described are made of earthenware or analogous frangible material and are all formed or united together in the molding or building up of the closet as a whole. The ledges 6 and their depending flanges form openings or housings 9 for the accommodation of certain devices to be presently referred to.

10 designates the closet-seat, and 11 the lid or cover thereof, each being provided, preferably, with a soft-rubber button or other buffer 12 on its under side to prevent undue shock or jar to the closet when the seat or lid is carelessly dropped or closed violently.

13 is an arm screw-threaded, as at 14, at one end and provided at its other end with a transverse perforation 15. This arm is screwed directly into the seat centrally of its thickness and from the rear side.

16 designates the stem, and 17 the head, of a vertically-movable hinge member. The stem passes through a hole formed vertically at 18 in a tubular support 19, having an integral flanged cap 20 and threaded at 21 at its lower end. The stem near its lower end is provided or formed with a collar or abutment 22, which preferably substantially fits, but loosely, within the bore 23 of the tubular support. Surrounding the stem between the upper side of the collar or abutment and the cap is a coiled spring 24, which bears at one end against a shoulder 25 on the inner side of the cap and at its other end against the top

of the collar or abutment. Encircling the lowermost portion of the stem is another coiled spring 26, which at its lower end rests upon the earthenware or the top surface of one of the conduits, and its upper end bears against the under side of the collar or abutment.

The tubular support 19 is secured to the ledge 6, after its threaded portion has been passed through a vertical perforation 27 therein, by means of a nut 28, inserted in the housing 9. Between the under side of the ledge and the upper side of the nut is placed a leather, soft-rubber, or other yielding packing-ring 29, and between the upper side of the ledge and the cap is placed a similar packing-ring 30, to enable the tubular support to be firmly attached and at the same time not only prevent any contact of the metallic parts with the earthenware, but also preclude the nut and the tubular support from being screwed together so tightly or to such an extent as to fracture the ledge. The hole in the ledge is made of greater diameter than the threaded portion of the support in order to provide against any contact of this part of the latter with the earthenware.

31 is an arm which is threaded at one end, as at 32, and screwed into the lid or cover at about the middle of its thickness, and which is provided at its opposite rear end with an eye 33. The arm 31 is preferably curved downward in order that its eye may be brought into alinement with the eye 15 in the arm 13 and with an eye 34, formed transversely in the head 17, for the passage through all of said eyes of a hinge pin or bolt 35. The eye 34 is preferably threaded to receive the threaded portion 36 of the bolt, the latter being provided with an integral head or nut 37, by which the bolt may be attached with the aid of a wrench.

Between the head 17 and a boss 38 on the arm 13 is a space for the accommodation of a coiled spring 39, which surrounds the bolt 35 and at one end bears against the head and at the other end against the boss, a sleeve 40 being provided to cover said spring. I have thus far referred to only one set of the hinge and connecting devices; but it will be of course understood, as shown in the drawings, that there are two sets of these devices employed.

If a heavy object be let fall upon either hinge, or if the latter be given a hard blow, the hinge will descend, and being cushioned by the bottom spring the force will be absorbed or neutralized thereby, and thus all liability of breakage of the earthenware from this cause avoided. The said spring acting in opposition to the downward movement of the stem will subsequently operate to restore the hinge to its proper position.

If an article should be carelessly left under the seat which would prevent the proper closing of the same and the weight of a person be applied thereto, the hinge will rise and the

upper spring be compressed to gradually resist the weight, and thus the parts of the hinge and the earthenware will be relieved of all strain which would tend to fracture the same and particularly the ledge or offset portion.

If at any time one or more of the buffers on the underside of the seat should become either detached or unduly worn, the strain on the hinges and the earthenware, which would otherwise result therefrom, is wholly avoided by the capacity of the hinges to rise and fall and accommodate themselves to abnormal conditions of the seat and bowl. The pair of hinges being adapted to act independently in their vertical movements any tipping or inclining of the seat during use, due to an obstruction on either side, or from other cause, is instantly responded to by the movement of at least one of the hinges, and hence the earthenware is prevented from taking the strain and becoming broken.

If the top of the bowl be not entirely level, when the weight of a person is put upon the seat the latter will be tipped, but without injury to the earthenware at the hinge locality on account of the capacity of the seat to rise at this point and assume a position parallel with the plane of the top of the bowl. The upper cushioning-springs which yieldingly oppose the upward movements of the sliding stem also serve to return the hinges to their normal positions on removal of the force which was applied to cause them to rise.

By the employment of the arm 13, screwing directly into the seat, I am enabled to avoid leaf or strap hinges. Such hinges are attached to the under side of the seat and are objectionable because they soon tarnish and are difficult to keep clean and sightly. In my construction there is no hinge member on the under side of the seat, and hence the objections referred to are entirely removed.

In case either the seat or the lid should be subjected to any lateral strain—as a twist, push, or blow—the seat and lid members of the hinge-joints may move sidewise along the hinge-pins to yield to the force, and one or the other of the springs will operate by compression to gradually resist or cushion such force, and thus practically relieve the earthenware of injurious strain.

Referring to Fig. 6, a construction somewhat similar to that shown at Fig. 4 is illustrated, the main difference being in the omission of the lower coiled spring and in the placement, under the nut and collar or abutment, of a soft-rubber or other pad or cushion 41 to relieve the earthenware of any shock due to blows upon the hinge. In this view, as in the previous ones, the hinge is adapted to rise and fall and is provided with a spring having a function similar to that marked 24 in Fig. 4.

Referring to Fig. 7, I have illustrated my improvements applied to the "hopper" style of closets, 42 representing the bowl part and

43 a ledge or offset formed integral therewith at its rear. Through a vertical hole in this ledge is passed the shank of a tubular support 44, having an integral flanged cap 45 at its upper end and threaded at its lower end, the threaded end protruding beyond the hole in the ledge to receive a cap-nut 46 on the under side of the ledge. The said nut is recessed for the accommodation of a soft-rubber or other suitable packing-ring 47, which bears against the under side of the ledge, and a similar packing-ring 48, fitted in a recess in the cap 45, bears against the upper side of the ledge. The vertically-movable stem 49, having a perforated head 50 and a collar or abutment 51, is provided with an upper spring 52 and a lower spring 53, the bottom end of which bears against a seat 54 in the nut.

The main difference between the construction shown at Fig. 7 and that shown at Fig. 4 is that, as there is no earthenware beneath the ledge for the lower spring to bear against, the nut 46 is constructed with a seat 54 to take the place of the earthenware seat. In other respects the construction and operation of the contrivance at Fig. 7 are substantially the same as that shown at Fig. 4.

Referring to Fig. 8, the tubular support is the same in construction as that shown at Fig. 4 and is connected to the bowl in precisely the same manner. The vertically-movable stem 55, having a perforated head 56, is, however, differently mounted in that it is provided with neither an upper nor a lower spring. The stem is provided with a guiding-ring 57, which fits easily the bore of the tubular support, and beneath this ring the stem is provided with a soft-rubber or analogous tip or buffer 58, which may contact with the earthenware at 59 when the stem of the hinge is depressed, to avoid any shock or jar to the earthenware. This stem is adapted to rise and fall in substantially the manner and for the purposes hereinbefore recited with reference to that construction shown at Figs. 1 to 4. Fig. 8 may be said to show the simplest form of my improvements relating to the vertically-movable hinge; but for practical purposes I prefer the construction shown more particularly at Fig. 4 for a Brighton closet and at Fig. 7 for a hopper-closet. Although I prefer to use a lid with the seat it will of course be understood that the lid may be dispensed with.

Various changes in detail construction and arrangement may be made without departing from the gist of my improvements.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with an earthenware water-closet; a seat mounted upon said closet; and a hinge connection between said seat and closet made in three parts one of which is secured in a fixed position to said closet, another is secured to said seat and the third is

fitted to and movable vertically upon the part secured to said closet, and pivotally connected to the part secured to said seat.

2. The combination of an earthenware or analogous water-closet, a tubular support fixedly secured thereto, a hinge-stem vertically movable therein and projecting above the plane of the bowl, and a seat pivoted to said hinge-stem at the projecting end of the latter, and adapted to lie normally in a horizontal position upon said bowl, substantially as set forth.

3. In combination with an earthenware or analogous water-closet, a support fixedly attached thereto, a loosely-connected upwardly-yielding hinge member, and a seat pivotally connected with said hinge member, and adapted to lie normally in a horizontal plane and to be supported upon the bowl at an angle to said support, substantially as set forth.

4. In combination with an earthenware or analogous water-closet, a support fixedly attached thereto, a loosely-connected upwardly-yielding hinge member, a cushion to receive the impact of the upwardly-moving member, and a seat pivotally connected with said hinge member and adapted to lie normally in a horizontal plane and to be supported upon the bowl, substantially as set forth.

5. The combination of an earthenware or analogous water-closet having a perforated ledge, a tubular support having a cap and a threaded end, a nut, packing between said cap and ledge and said nut and ledge, a stem adapted to slide in said support and having a perforated head, a seat, an arm secured to said seat and provided with a perforation, and a hinge pin or bolt.

6. The combination of an earthenware or analogous water-closet having a ledge and depending flanges to form a housing, a tubular support having a cap and threaded at its lower end, a nut within said housing upon said threaded end, packing between said nut and the under side of the ledge and also between the upper side of the ledge and the cap, a sliding stem, and a hinged seat connected to said stem.

7. The combination of an earthenware or analogous water-closet, a seat, a vertically-movable hinge, and two springs acting in opposition to the up and down movements of said hinge.

8. The combination of an earthenware or analogous water-closet, a tubular support connected thereto, a sliding stem provided with a collar, two coiled springs surrounding said stem and acting in opposite directions, and a seat connected to said stem.

9. The combination of an earthenware or analogous water-closet, a tubular support having a cap and a threaded end, a nut, a sliding stem having a collar, two independent springs and a perforated head, a seat having an arm provided with a perforation, and a

hinge pin or bolt connecting said arm and said stem.

10. The combination with a water-closet and its seat, of a tubular support having a cap
5 and a threaded end, a nut, a stem adapted to slide in said support and having a perforated head, a hinge-pin extending horizontally through said head, and an arm provided with a perforation to fit upon said pin and having

at its opposite end a threaded portion which is screwed directly into the seat.

Signed at New York city, in the county of New York and State of New York, this 17th day of November, A. D. 1893.

WILLIAM BUNTING, JR.

Witnesses:

JACOB FELBEL,
D. S. RITTERBAND.