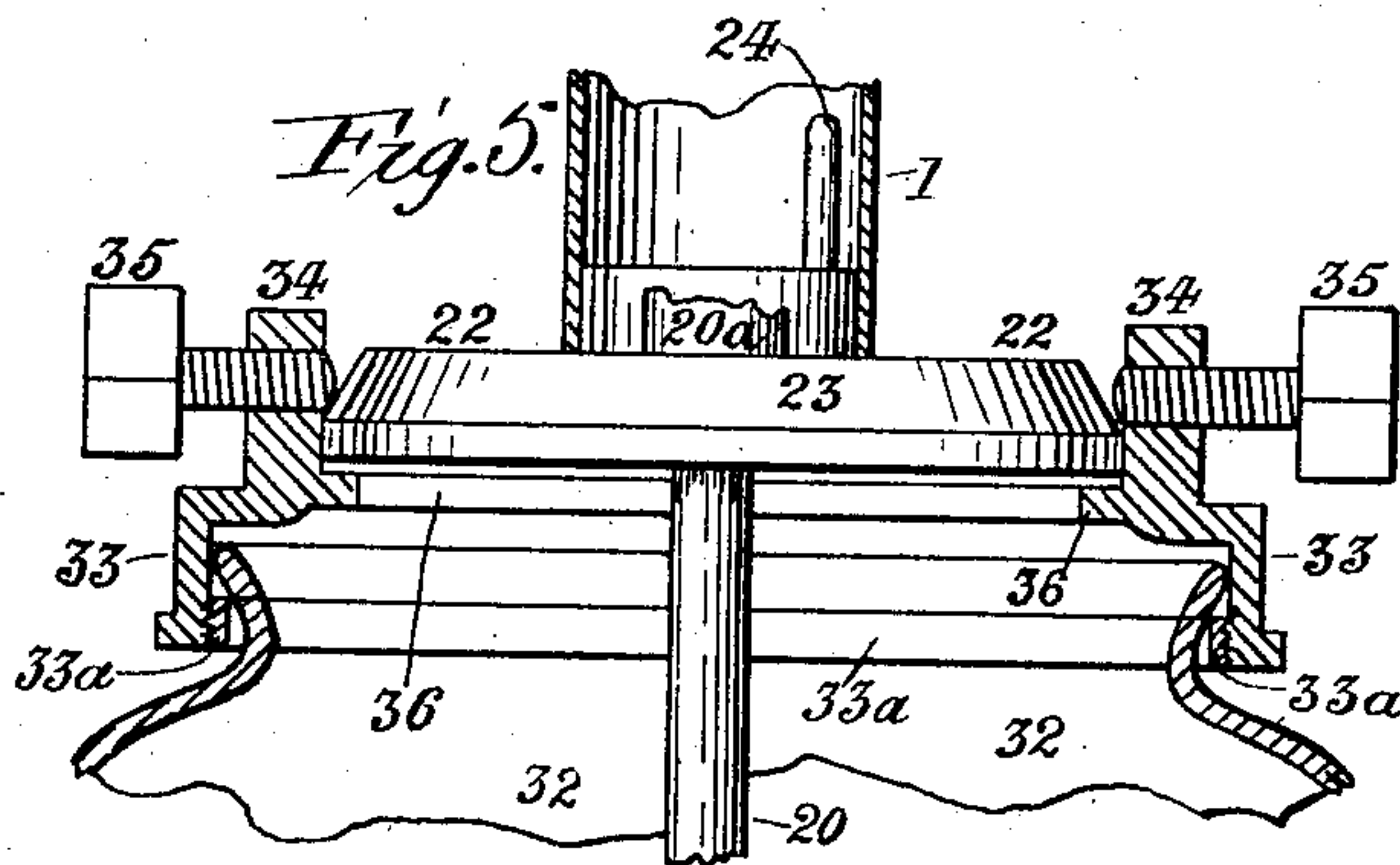
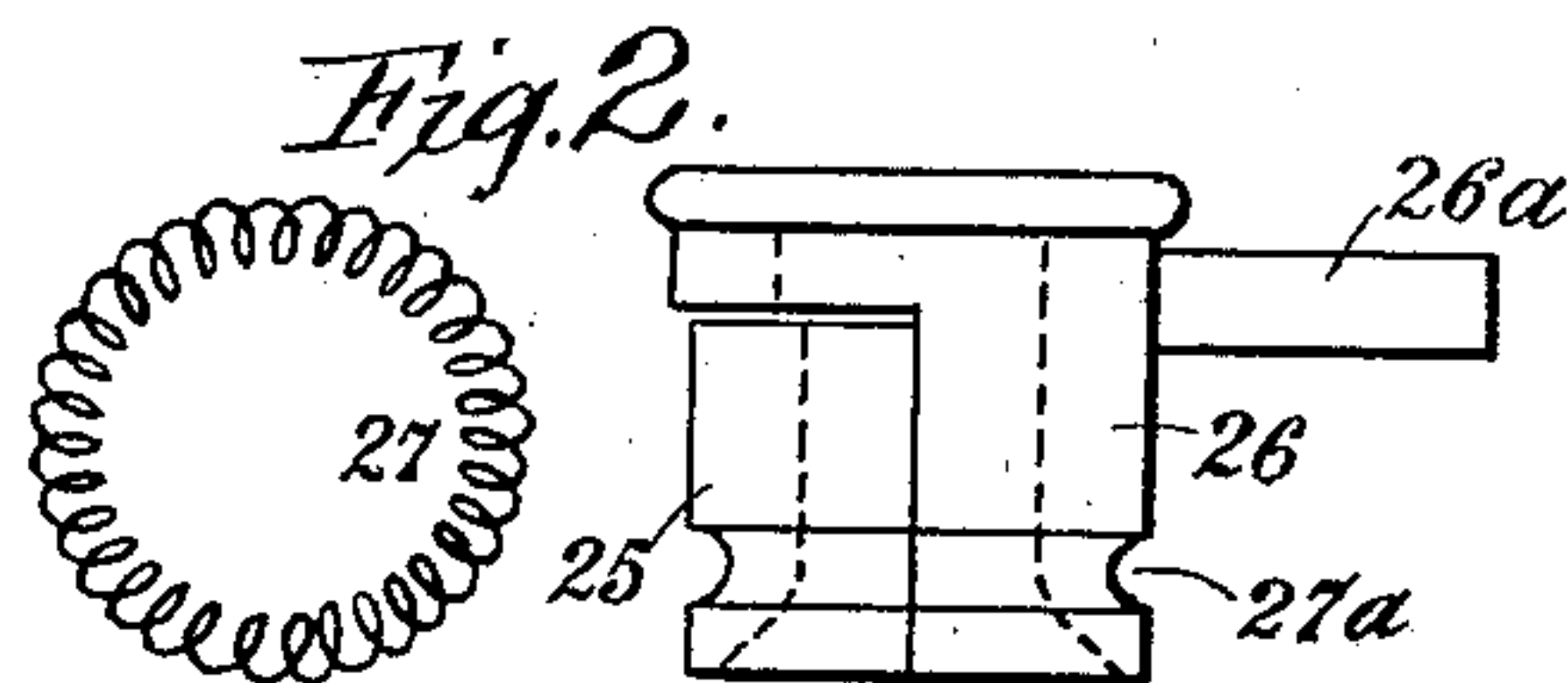
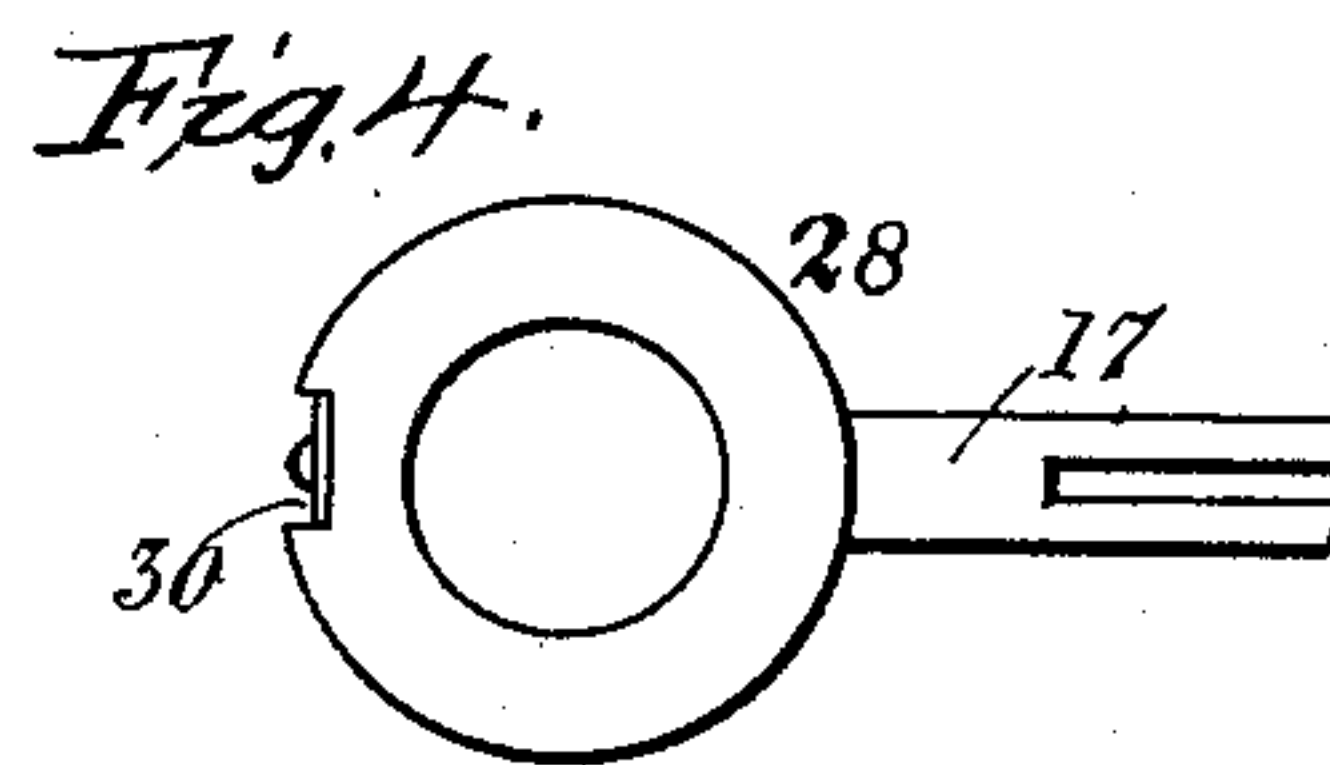
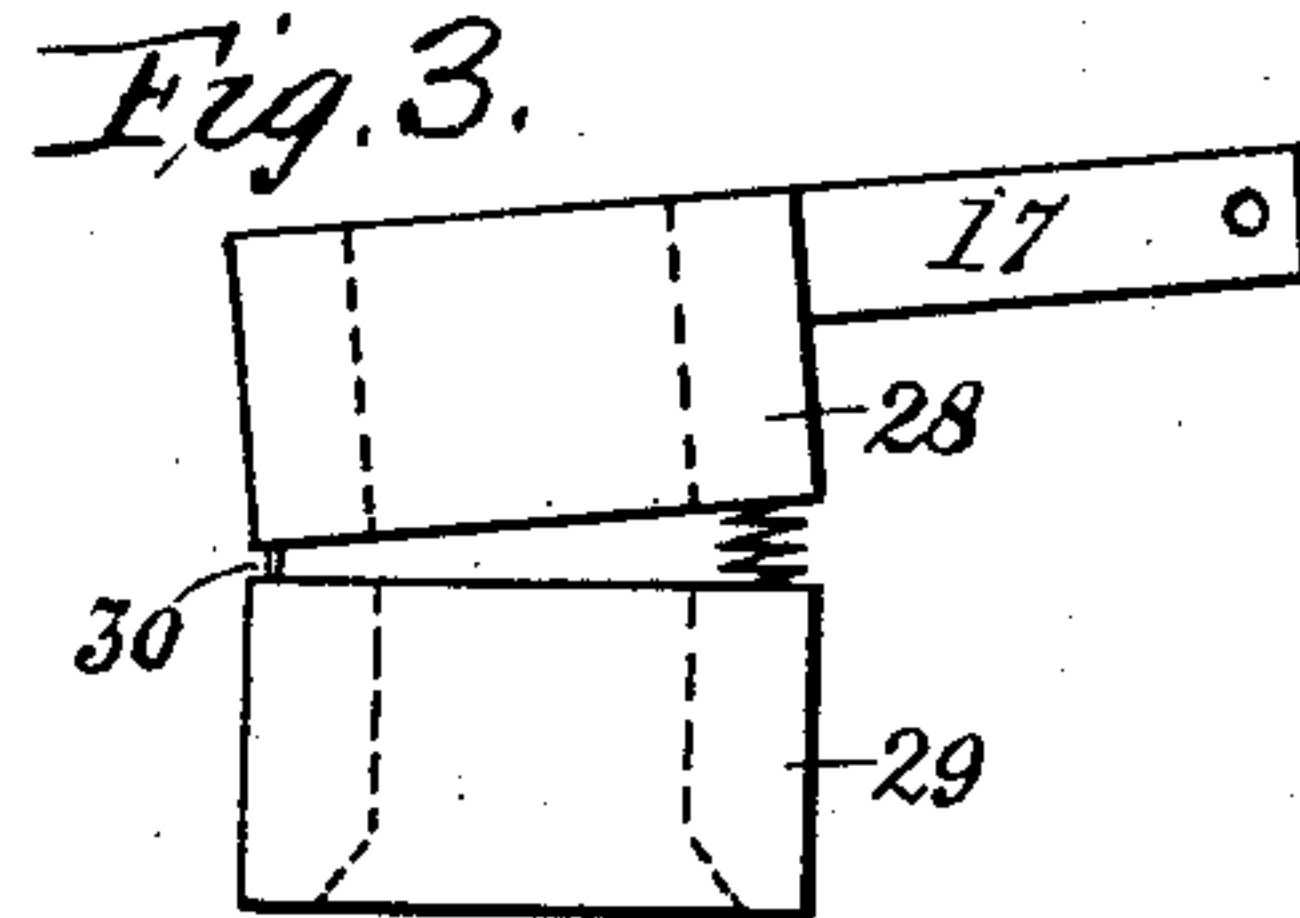
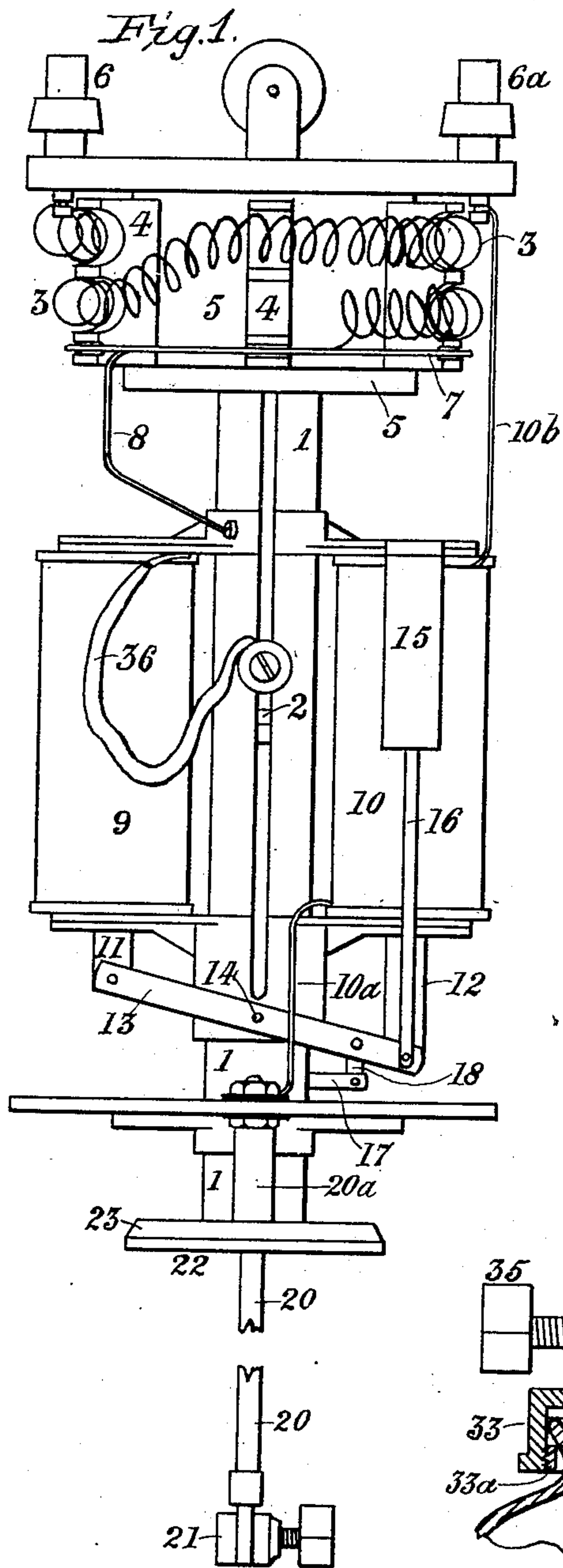


H. BAGGETT.
ELECTRIC ARC LAMP.
APPLICATION FILED NOV. 22, 1902.

NO MODEL.



Witnesses

Lillian T. Sparks.
William H. Stein

Inventor

Henry Baggett,

By Willis Fowler,
His Attorney

UNITED STATES PATENT OFFICE.

HENRY BAGGETT, OF LONDON, ENGLAND.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 720,312, dated February 10, 1903.

Application filed November 22, 1902. Serial No. 132,376. (No model.)

To all whom it may concern:

Be it known that I, HENRY BAGGETT, a subject of the King of Great Britain, and a resident of London, England, have invented certain new and useful Improvements in Electric-Arc Lamps, of which the following is a specification.

My invention relates to improvements in electric-arc lamps by means of which certain advantages are obtained.

In order that my invention may be more readily understood, I shall proceed to describe one typical form thereof which gives good results in practice, and in order that the said description may be more readily understood I have appended hereto a sheet of drawings, in which—

Figure I is a lamp constructed under my invention. Fig. II is a detail elevation of the carbon-holder. Fig. III is a detail elevation of the clutch. Fig. IV is a plan of the said clutch. Fig. V is a view of the means for sealing the globe when it is desired that the lamp shall have the arc inclosed.

Referring now to Fig. I, the mechanism of the lamp is arranged about the insulated and longitudinally-slotted central tube 1, in which slide the upper carbon and its holder 2. This carbon-holder is shown separately on a larger scale in Fig. II, and it consists of two pieces of metal 25 and 26, which when placed together form a tube capable of receiving and gripping the carbon-rod. The two pieces are held together by a spring-ligature 27, (consisting of a coiled spring, the ends of which are fastened together,) placed around them in the groove 27^a, the said spring-ligature serving at the same time to give the necessary pressure for retaining the carbon in the holder. The lower end of the opening in this carbon-holder is made of conical shape, as shown by the dotted lines, and to introduce a carbon it is only necessary to place the end thereof in the conical portion and press the carbon upward into the holder. By this movement the carbon enters the holder without it being necessary for the operator to touch the latter, and the operation is therefore very simple.

Around the upper part of the central tube 1 is arranged the lamp-resistance 3, supported on insulators 4, carried by the tube 5, one end of the said resistance being connected to the

lamp-terminal 6 and the other to the tube 1 by the wires 7 and 8.

Two sucking-coils 9 and 10 are fixed on opposite sides of the central tube 1, the former being the shunt-coil and the latter the series coil. The two cores 11 and 12 of these coils are pivoted to the ends of the rocking lever 13, which is itself pivoted at 14 to the tube 1. A dash-pot 15, whose piston is connected by rod 16 to one end of the rocking lever, is provided for the purpose of damping the movements of the latter.

17 is an arm projecting from the clutch for the upper carbon, the said clutch sliding within the lower part of the central tube 1. The arm 17 projects through a slot in the side of the said central tube and is attached by a link 18 to the series-coil end of the rocking lever. The clutch is shown on a larger scale in Figs. III and IV. It consists of two hollow cylinders or tubes 28 and 29, placed in alinement and whose interior diameter is slightly greater than that of the carbon to be clutched. The two tubes are held together on one side by a strip of elastic metal 30, which serves as a hinge, and are forced apart on the opposite side by the spring 31 and also by the elasticity of the strip 30.

To the circular plate 19 and insulated therefrom are fixed two rods 20, (only one of which is seen in the figure, it being considered unnecessary to show another elevation of the lamp,) carrying the lower-carbon holder 21. To the lower part of the central tube 1 is attached another circular plate 22, having a beveled or cone-shaped edge 23. This plate is provided with a central aperture, through which the upper carbon can pass freely, and has in addition two holes situated one on each side of the central aperture, through which pass the rods 20, the said rods being insulated from the plate 22 by porcelain tubes 20^a. A pin 24, fixed to the upper part of the coned plate 22, (see Fig. V,) projects upward into the interior of central tube 1 and serves as a stop to arrest the downward motion of the clutch, as will be presently explained. The coned plate 22 serves as a support and seal for the globe 32, which surrounds the arc. The globe is attached in any convenient manner to a ring 33—as, for example, by means of a divided ring 33^a,

screwed into the inside of ring 33—so as to prevent the globe being withdrawn therefrom. The ring 23 is furnished with projections 34, provided with thumb-screws 35, and the upper part is turned out so that disk 22 will just enter easily. In order to place the globe in position and seal it, the screws 35 are unscrewed until their points do not protrude beyond the projections 34 and the globe then placed over the rods 20, so that the plate 22 enters the ring 23, as shown in Fig. V. The ends of screws 35 will then be opposite the coned edge 23 of the plate 22, and on screwing them against this the ring 33 and globe 32 will be lifted until the rim 36 is brought tightly against the under side of plate 22, thus closing or sealing the globe.

The action of the lamp is as follows: Assuming no current to be passing, the rocking lever will occupy the position shown, the series-coil end being depressed to its lowest position, and the upper and lower carbons will be in contact. When current is passed through the lamp, it enters by terminal 6 and passes through the resistance 3 to tube 1 and the upper-carbon holder 2 in contact with it. To insure a good connection, a flexible lead 36, joining the arms 26^a of the carbon-holder 2, which projects through the longitudinal slot in tube 1, and the said tube may also be employed, as shown. The current then passes from the upper to the lower carbon and back through one of the insulated rods 20, thence by wire 10^a, series coil 10, and wire 10^b to the other terminal 6^a of the lamp. The series coil is thus energized and sucks in its core 12. By this action the arm 17 of the clutch is first lifted, thus tilting the upper part 28, Fig. III, and gripping the carbon, which is then lifted, together with the clutch, thus striking the arc. When the arc becomes too long, the action of the series coil 10 becomes weaker and that of the shunt-coil 9 becomes stronger, thus lifting the shunt-coil side of the rocking lever 13 and lowering the series side and causing the clutch to descend. When the clutch has descended so far that the under side of it touches the top of pin 24, any further lowering of the series-coil end of the rocking lever lowers arm 17 of the clutch, but not the clutch as a whole. The upper tube 28 of the clutch is thus turned about the hinge 30 and closed down upon the lower tube 29, and the tubes being thus more in line no longer grip the carbon, but allow it to slip, and thus feed the arc.

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

1. A feed-clutch for the carbon of an electric-arc lamp, the same comprising two superimposed vertically-movable members connected or hinged together by an elastic piece so that they may be opened and closed vertically on each other, the said clutch members being adapted to loosely engage the carbon when closed on each other and when open to

grip the carbon, a spring acting to force the clutch members open, feed-regulating mechanism and connections between the same and the upper member of said clutch by which the clutch is raised and lowered, and a stop for limiting the downward movement of the lower clutch member to close the clutch, substantially as and for the purpose set forth.

2. A feed-clutch for the carbon of an electric-arc lamp, the same comprising two superimposed vertically-movable members connected or hinged together so that they may be opened and closed vertically on each other, the said clutch members being adapted to loosely engage the carbon when closed on each other and when open to grip the carbon, means normally tending to hold the clutch members open, a tube in which said clutch members move up and down and having a longitudinal slot therein, feed-regulating mechanism connected with the upper clutch member through the slot in said tube and by which the clutch is raised and lowered, and a stop for limiting the downward movement of the lower clutch member to close the clutch, substantially as and for the purpose set forth.

3. The combination of an upper carbon and a carbon-holder for an electric-arc lamp, the same comprising two separable pieces together forming a depending ring or tube adapted to receive and clamp the carbon between them, and a spring device for holding the said two pieces together under spring tension, substantially as and for the purpose set forth.

4. A carbon-holder for an electric-arc lamp, the same comprising two separable pieces together forming a ring or tube adapted to receive and clamp the carbon between them, an annular groove formed around the exterior surface of the two said pieces, and an elastic or yielding band encircling the said two pieces and lying within the groove, substantially as and for the purpose set forth.

5. The combination of an upper carbon and a carbon-holder for an electric-arc lamp, the same consisting in a depending tubular clamp composed of a main piece having an annular portion with a curved part projecting therefrom, and a second curved piece fitting against said annular portion and its curved projection therefrom and together with said portions constituting a tube, and a spring device for holding the two said pieces together, substantially as and for the purpose set forth.

6. A carbon-holder for an electric-arc lamp, the same comprising two separable spring-actuated pieces together forming a tube adapted to receive and clamp the carbon between them, the lower end of said tubular clamp having its interior formed conical for easy insertion therein of the carbon, substantially as and for the purpose set forth.

7. The combination of an electric-arc lamp having a globe-holder provided with adjustable fastening devices, a part secured to the said lamp and over which said holder fits,

the said part being formed with a beveled edge upon which said adjustable fastening devices bear and act to draw the holder and said part securely together, substantially as 5 and for the purpose set forth.

8. The combination of an electric-arc lamp provided with an annular globe-holder having a fixed part projecting inwardly, a circular plate or disk secured to said lamp having 10 its edge beveled or formed conical and adapted to fit within the said holder and to bear against the said fixed projection thereon, adjustable fastening devices or set-screws mounted in said globe-holder and adapted to 15 engage and act upon the said bevel edge of the circular plate to draw the same and holder together, substantially as and for the purpose set forth.

9. The combination of an electric-arc lamp 20 having a circular plate or disk mounted in fixed position near the lower part thereof and above the arc and having its edge beveled upwardly and inwardly and formed at its center with an opening for the upper carbon to 25 pass through, and a depending globe-holding ring provided with an inwardly-projecting part or flange adapted to fit snugly over the said circular plate and provided with inwardly-projecting set-screws adapted to en-

gage and act upon the said beveled edge of 30 the plate to draw the holder and the plate together, substantially as and for the purpose set forth.

10. The combination of an electric-arc lamp having a circular plate or disk mount- 35 ed in fixed position near the lower part thereof and above the arc and having its edge beveled upwardly and inwardly and formed at its center with an opening for the upper carbon to pass through, and a depending globe- 40 holding ring provided with an inwardly-projecting part or flange adapted to fit snugly over said circular plate and provided with inwardly-projecting set-screws adapted to en- 45 gage and act upon the said beveled edge of the plate to draw the holder and the plate together, a globe mounted in said holder, and a divided ring interposed between the exterior of the globe and the interior of the globe- 50 holder for securing the globe therein, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

HENRY BAGGETT.

Witnesses:

EDWIN BROOM,

CHARLES ARTHUR TAYLOR.