

No. 754,235.

PATENTED MAR. 8, 1904.

C. M. PITEL.

EXTENSION FIXTURE FOR INCANDESCENT ELECTRIC LAMPS.

APPLICATION FILED MAY 6, 1903.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1

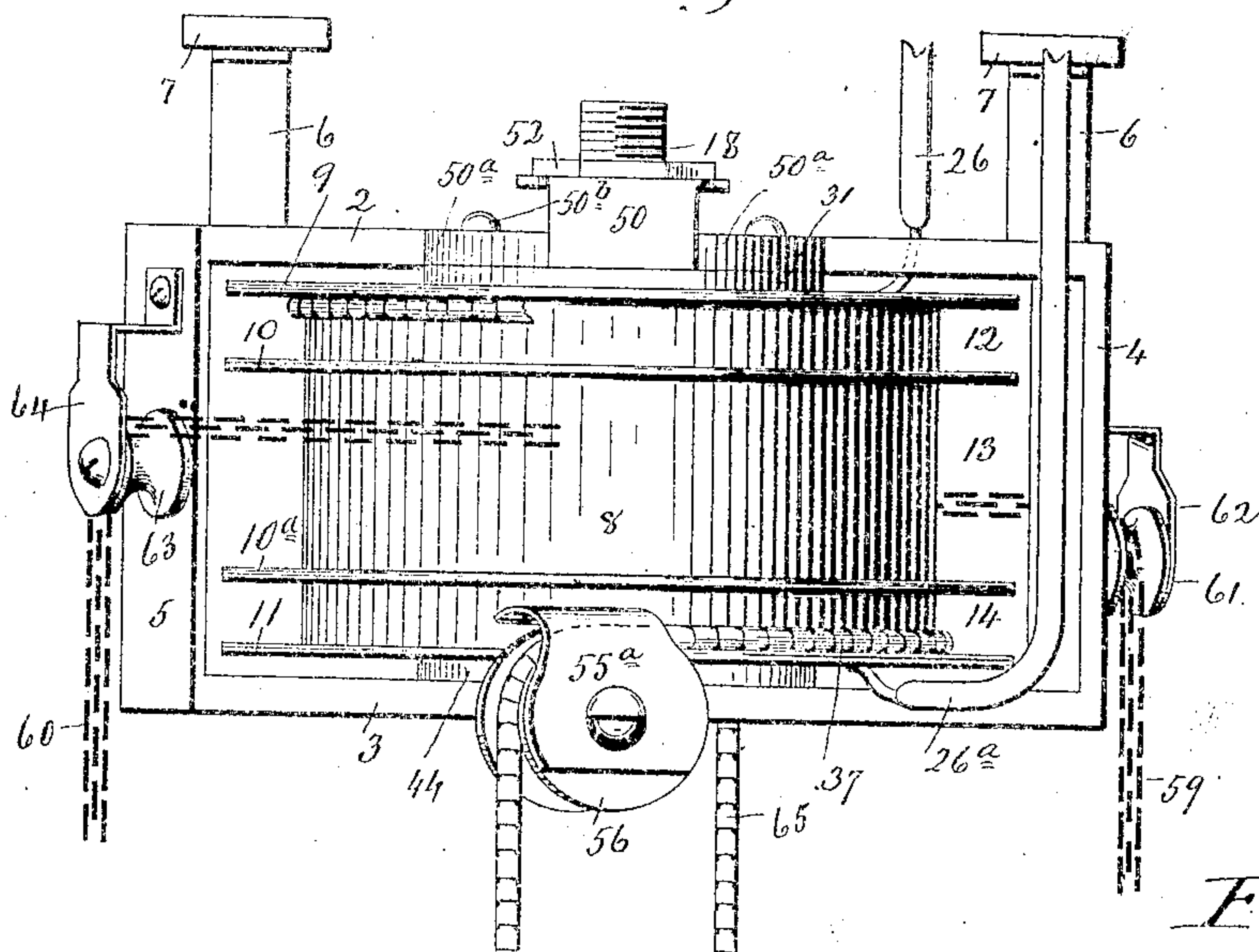


Fig. 13

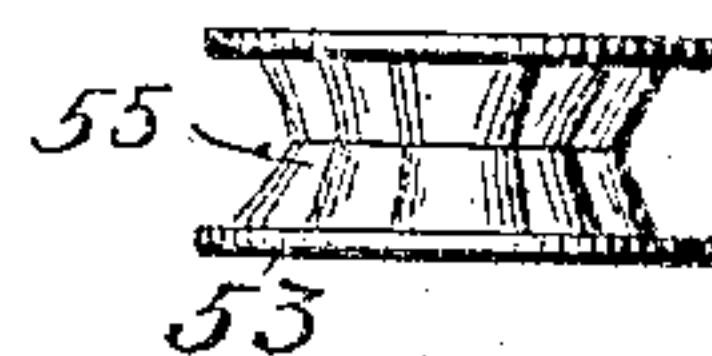


Fig. 2

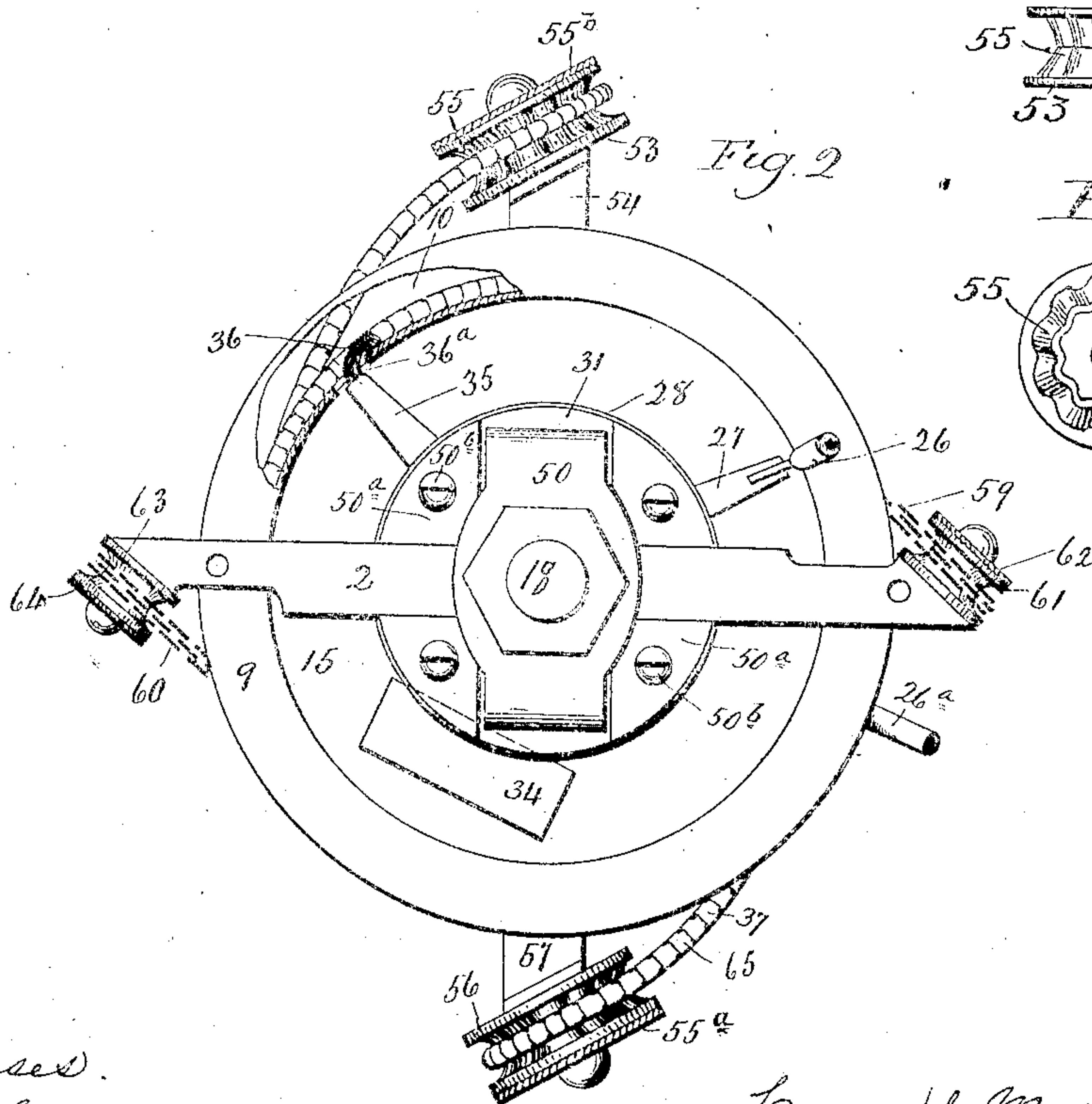
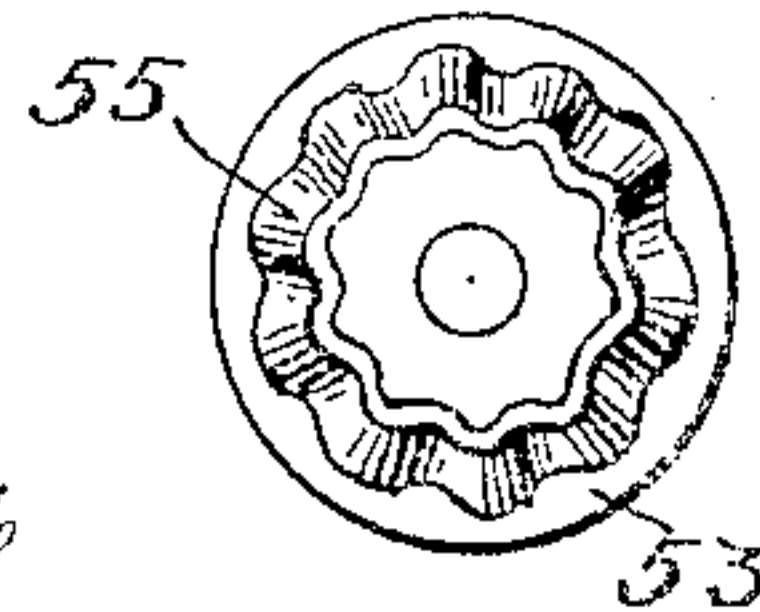


Fig. 14



Witnesses.

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3 SHEETS—SHEET 2.

Fig. 3

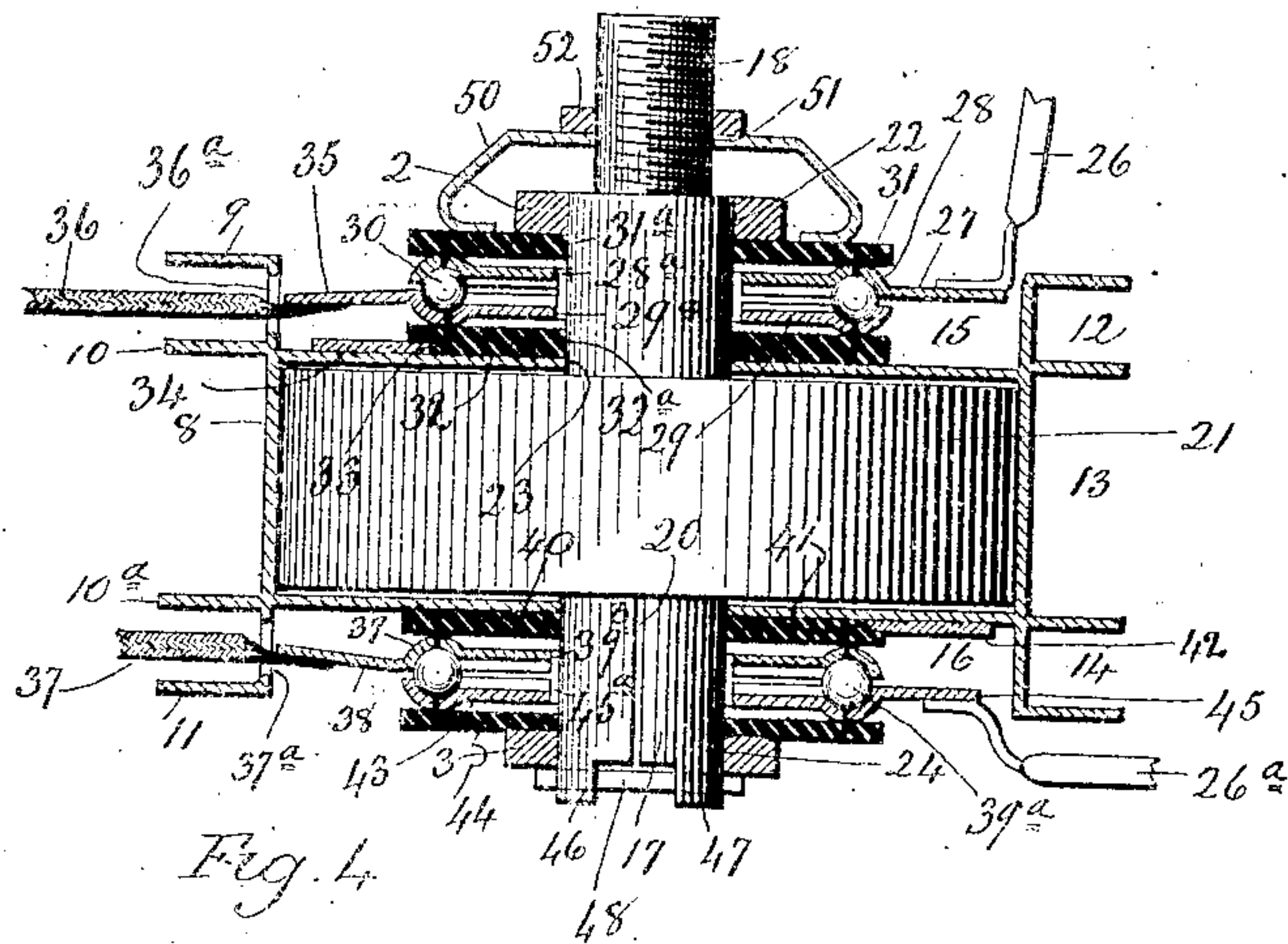


Fig. 4

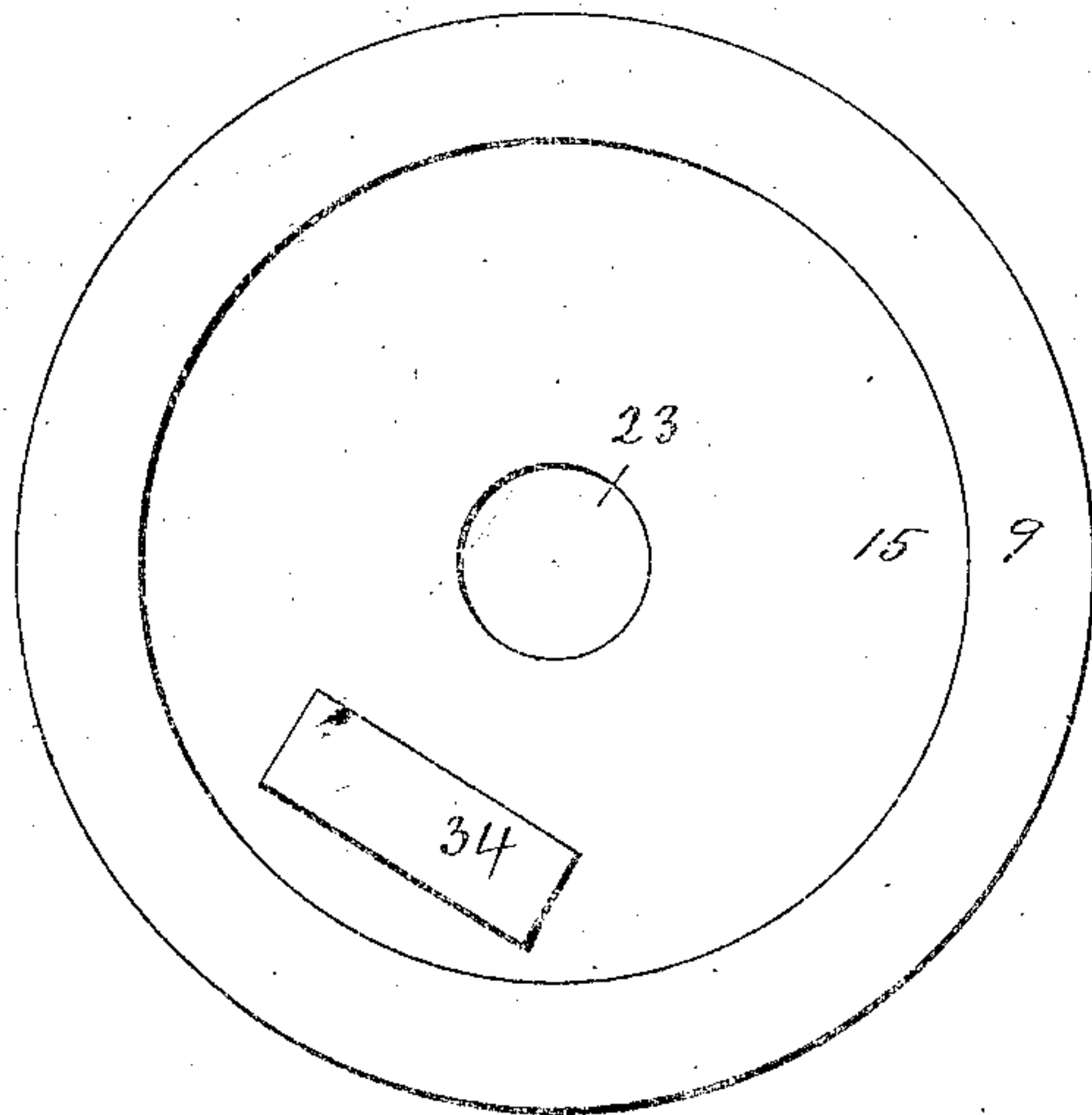


Fig. 5

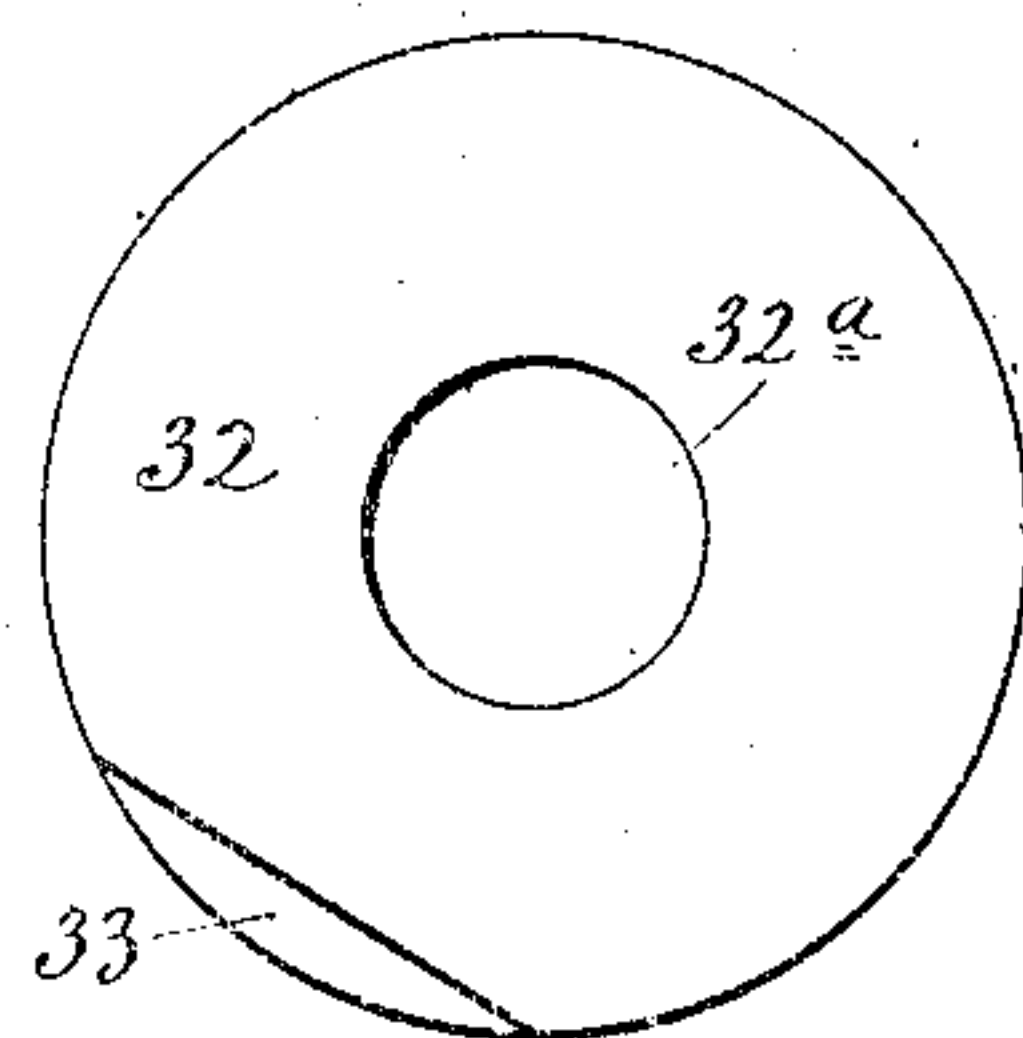


Fig. 6

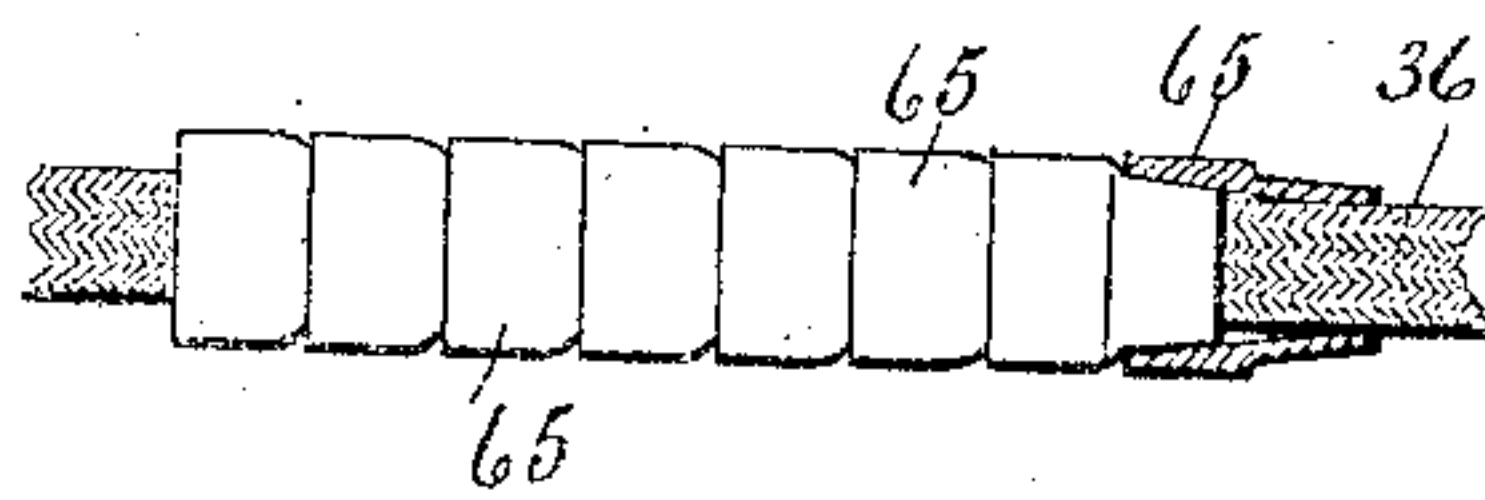
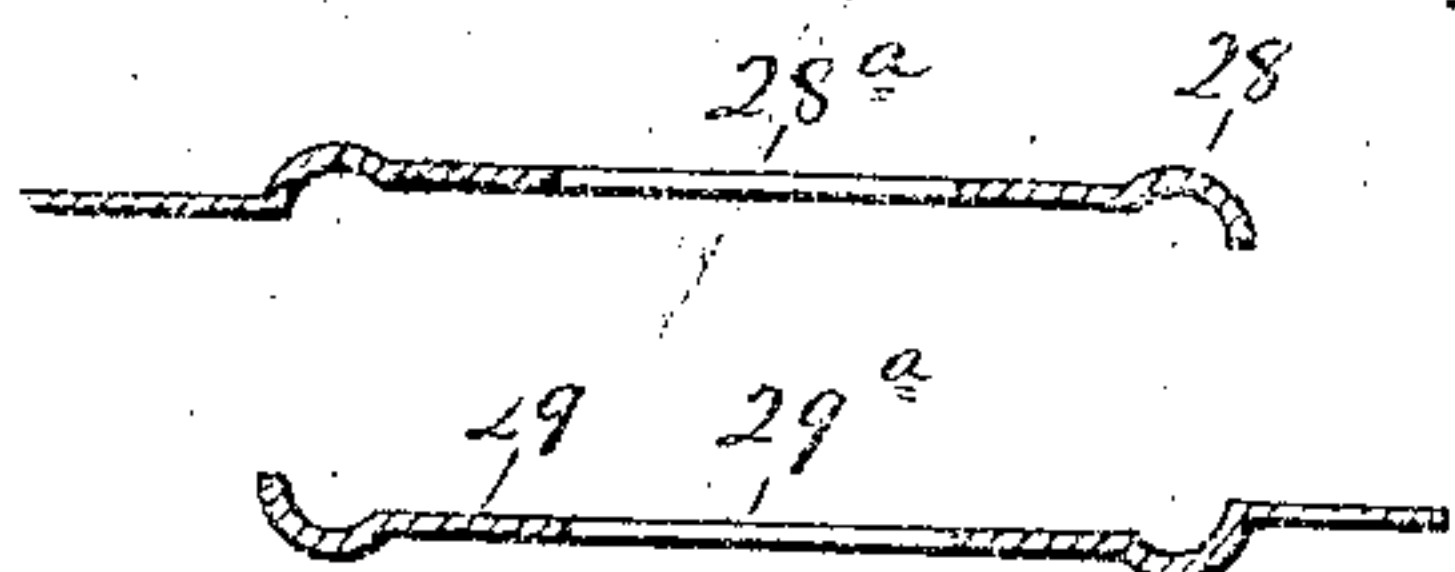


Fig. 7



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3 SHEETS—SHEET 3.

Fig. 8

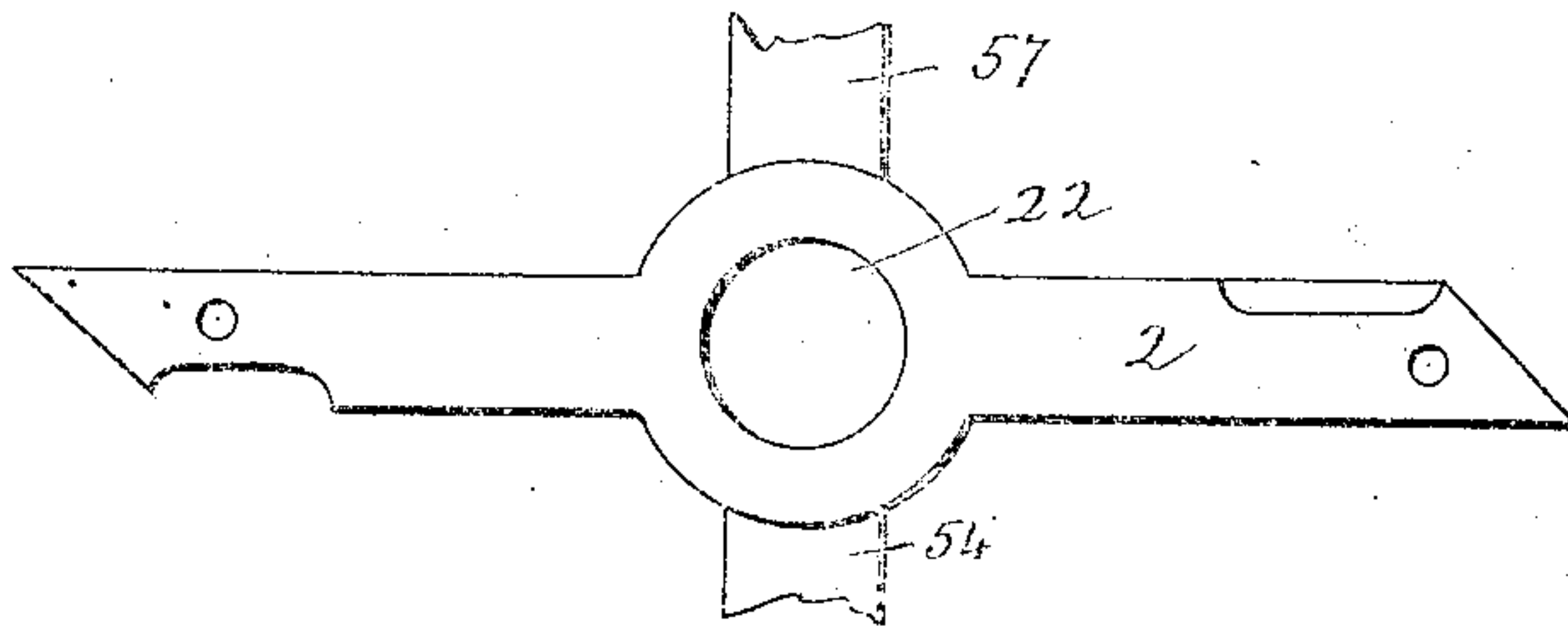


Fig. 9

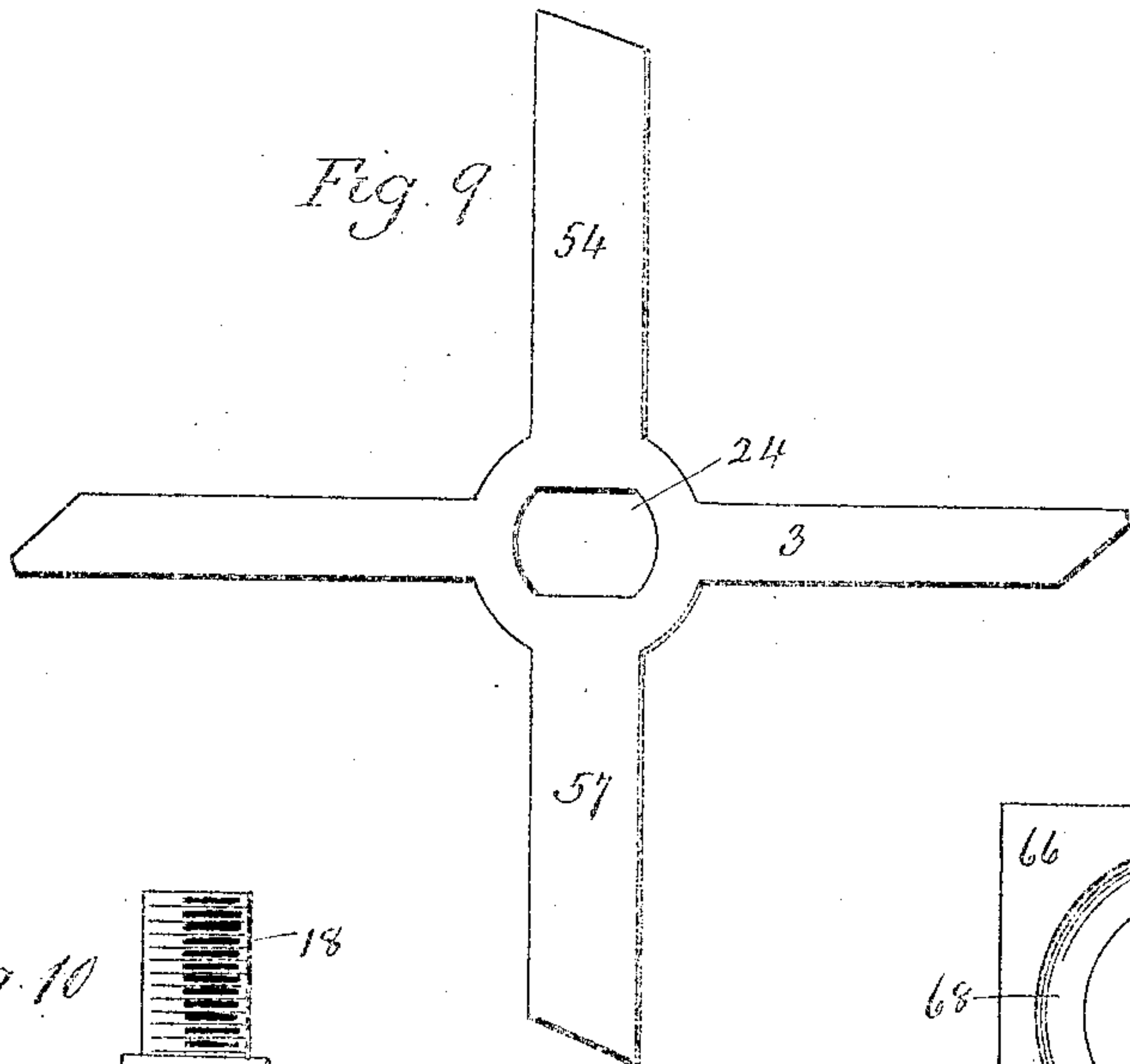


Fig. 10

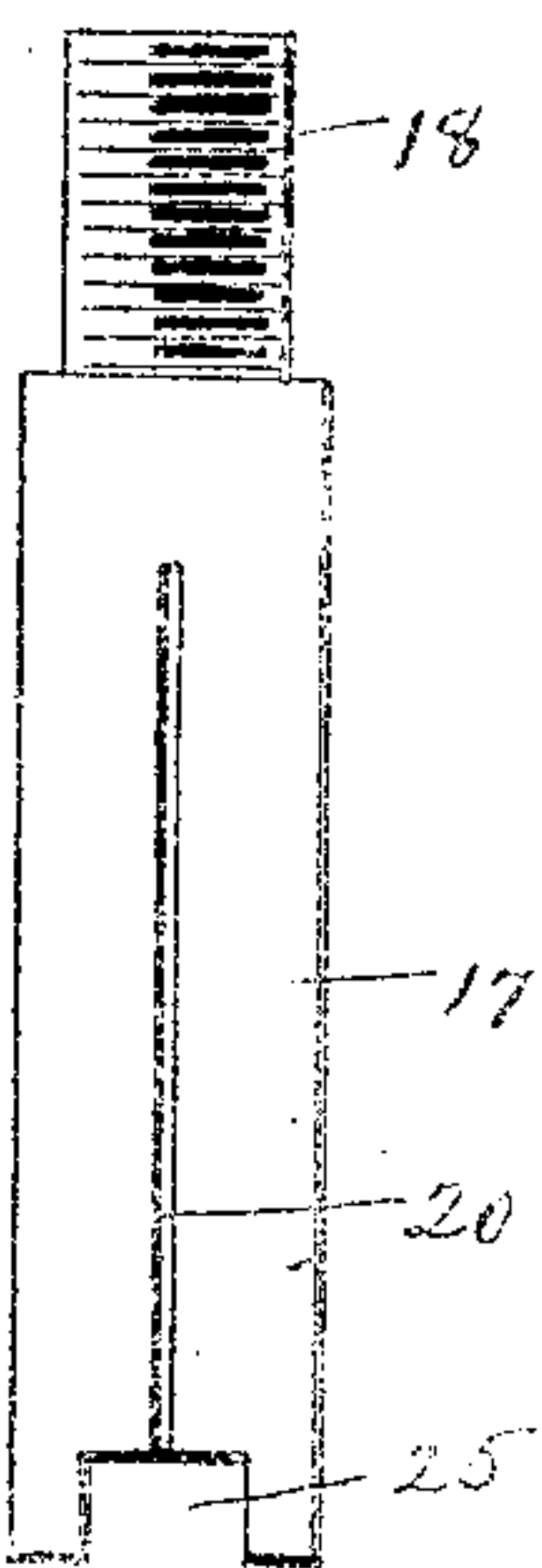
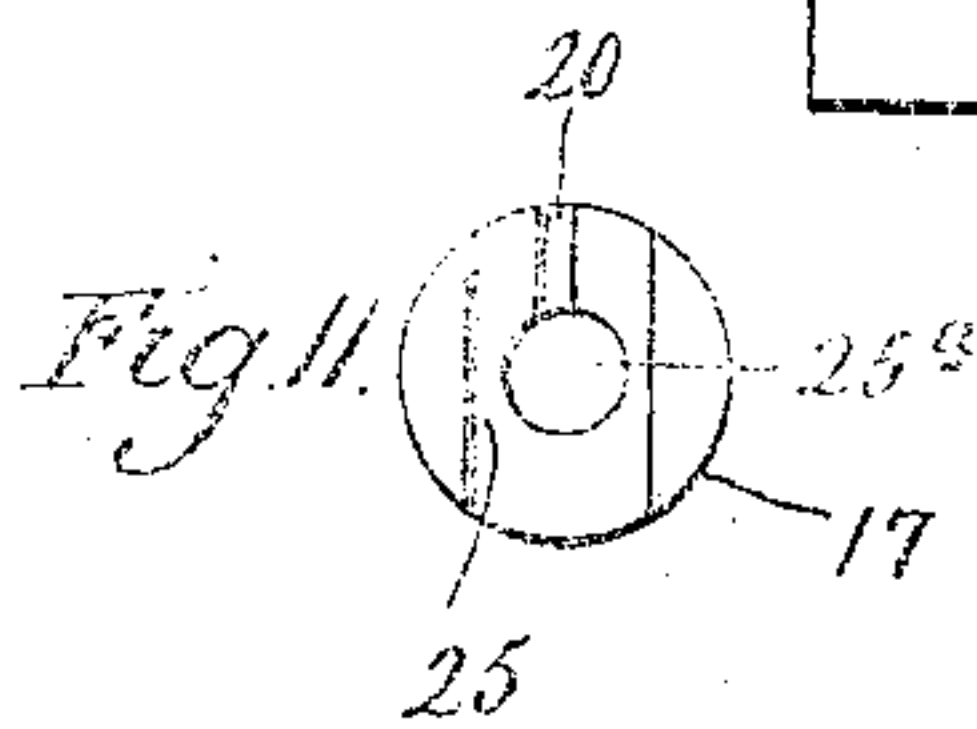
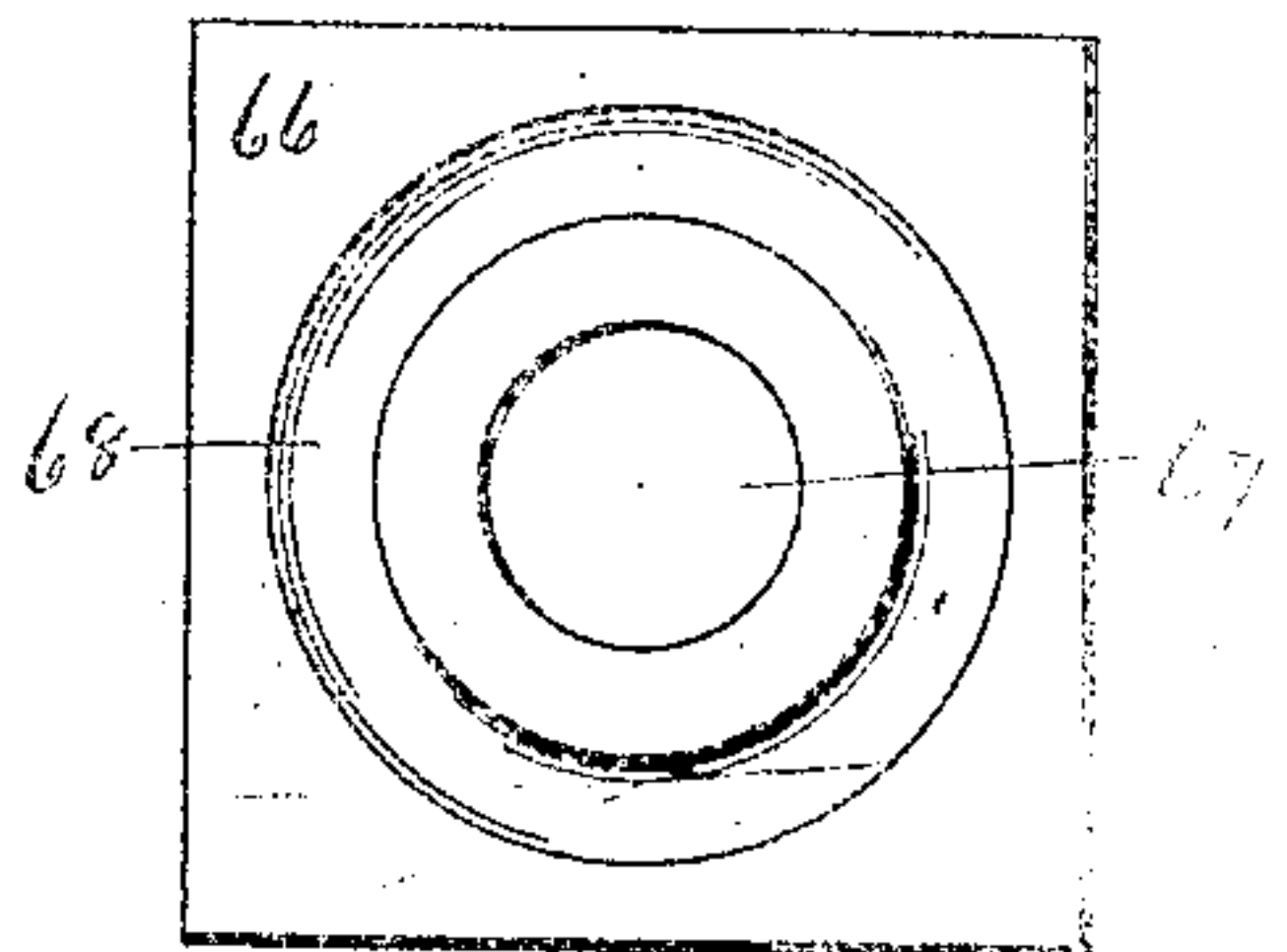


Fig. 12



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UNITED STATES PATENT OFFICE.

CONRAD M. PITEL, OF MERIDEN, CONNECTICUT.

EXTENSION-FIXTURE FOR INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 754,285, dated March 8, 1904.

Application filed May 6, 1903. Serial No. 155,831. (No model.)

To all whom it may concern:

Be it known that I, CONRAD M. PITEL, of Meriden, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Extension-Fixtures for Incandescent Electric Lamps; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a view in side elevation of one form which an extension-fixture for incandescent electric lamps constructed in accordance with my invention may assume; Fig. 2, a plan view thereof with a portion of the upper flange of the drum broken away to show the connection between the upper rotatable contact-cup and the upper braid-covered conductor on the drum; Fig. 3, a view of the device in the nature of a vertical section, but not a true section, this view being diagrammatic in its character and designed to illustrate the electric connections of the device; Fig. 4, a detached view of the drum; Fig. 5, a reverse plan view of the upper rotatable insulator-disk; Fig. 6, a broken view, partly in section, showing how the braid-covered conductors wound on the drum may be protected and insulated; Fig. 7, a detached sectional view of one pair of contact-cups; Fig. 8, a detached plan view of the frame with the arms on its lower cross-bar broken away; Fig. 9, a detached reverse plan view of the frame; Fig. 10, a detached view in elevation of the drum-arbor; Fig. 11, a reverse end view thereof; Fig. 12, a detached plan view of such a ball-receiving contact-piece as may be used in place of the contact-cups shown and described; Fig. 13, a detached plan view of one of the two-part corrugated pulleys; Fig. 14, a detached view in inside elevation of one part of one of the corrugated pulleys.

This invention relates to an improvement in extension-fixtures for incandescent electric lamps, the object being to produce a compact, convenient, durable, and effective device whereby an electric lamp suspended from overhead may be raised or lowered, as desired.

With these ends in view my invention consists in an extension-fixture having certain details of construction and combinations of parts as will be hereinafter described, and pointed out in the claims.

In carrying out my invention as herein shown I employ a rectangular drum-frame, preferably made of cast-brass or bronze metal and comprising an upper cross-bar 2, a corresponding lower cross-bar 3, and upright side bars 4 and 5. To the ends of the upper cross-bar 2 I attach brackets 6, provided with porcelain cross-pieces 7, through which the fixture is secured to the ceiling and insulated therefrom. This frame receives a drum 8, which may be made of porcelain or other non-conducting material or of sheet metal, such as iron or copper, and enameled. It is formed with an upper flange 9, two intermediate flanges 10 10^a, and a lower flange 11, whereby its exterior surface is divided into three grooves or annular compartments 12, 13, and 14. Its upper surface is sunk to form a deep concentric recess 15, while its lower surface is shaped to form a corresponding recess 16. The said drum is mounted to rotate upon an arbor 17, formed at its upper end with a screw-threaded stud 18, which may be used, if desired, for the suspension of the fixture from a hook, (not shown,) in which case the brackets 6 and porcelain cross-pieces 7 will be dispensed with, or the device might be suspended by entering the said stud into an internally-threaded sleeve applied to a gas-pipe in the ceiling in the usual way. The said arbor 18 is formed with a longitudinal slot 20, receiving the inner end of a coiled spring 21, located within the drum and having its outer end attached to the inner periphery thereof and proportioned in power to the weight of the lamp-fixture, which is not shown, but which is substantially balanced, so to speak, with the power of the spring which winds up the drum and lifts the lamp-fixture, including the lamps. The arbor 18 passes through a circular opening 22 in the upper cross-bar 2, through a circular opening 23, formed in the drum, and at its lower end enters an elongated or flat-sided locking-opening 24, formed in the lower cross-bar 3, whereby the arbor is held against rotation in the frame.

The lower end of the arbor has its sides cut away, as at 25 in Fig. 11, to adapt it to fit into the opening 24. A hole 25^a, drilled into the lower end of the arbor, receives a screw 5 which holds the canopy in place. The canopy may be of any ordinary construction and is therefore not shown.

The electric current is brought to the extension-fixture through a wire or connection 10 26, which terminates in an arm 27, projecting outwardly from a stationary ball-receiving contact-piece in the form, as shown herein, of a cup 28, the fellow 29 of which is rotatable with the drum 8, the two contact-cups constituting a pair of contact-pieces. Their edges 15 are not in contact; but they are kept in electric connection with each other by a series of contact-balls 30. The said cup 28 is secured to the lower face of an insulating-piece 31 in the form of a disk and connected with the upper cross-bar 2 of the frame and having a central opening 31^a, through which the upper end of the arbor projects. The two cups 28 and 29, it will be observed, have central openings 28^a and 29^a, larger in diameter than the 25 diameter of the arbor 17, as clearly shown in Fig. 3, whereby the said cups are insulated from the arbor. The cup 29 is secured to an insulating-piece 32 in the form of a disk and 30 located below it and connected with the drum 8 for rotation therewith. For this purpose the disk is formed in its lower face, as shown, with a cut 33 for the reception of a coupling-plate 34, secured to the top of the drum. The 35 said disk is also formed with a central opening 32^a for the reception of the arbor 17. The cup 29 is provided with an outwardly-extending arm 35, to which one of the braid-covered electric conductors 36 is secured through an 40 opening 36^a, formed in the body of the drum, as seen in Fig. 2. This conductor is wound in and unwound from the upper compartment 12 of the drum, as shown in Fig. 2; though for the sake of convenience it is shown straight in 45 Fig. 3, which is diagrammatic in its character, as already explained. It leads to the incandescent electric-lamp bulb or bulbs, and passing through it or them the current is led into a corresponding braid-covered conductor 37, 50 which is wound in and unwound from the lower compartment 14 of the drum. The said conductor 37 is connected at its inner end through an opening 37^a in the body of the drum with the radially-projecting arm 38 of a contact-cup 39, also connected with the drum 8 55 for rotation therewith. For this purpose it is secured to an insulating-disk 40, which in turn is formed, as shown, with a notch 41, receiving a coupling-plate 42, secured to the bottom of 60 the drum; but of course other means may be resorted to for causing the rotatable contact-cups 29 and 39 to rotate with the drum. The said cup 39 has a non-rotatable fellow 43, attached to an insulating-disk 44, rigidly con-

nected with the lower cross-bar 3 of the frame, 65 these two cups having their edges out of contact, but being kept in electric connection by means of contact-balls 39^a. The said disk 43 is formed with a radial arm 45, with which a 70 wire or connection 26^a is connected, the current entering the fixture through the wire 26 aforesaid and leaving it through the said wire 26^a. It will also be noted that the rings 39 43 have central openings 39^b and 45^a, larger in diameter 75 than the diameter of the arbor 17, from which they are thus insulated, as seen in Fig. 2. It will thus be seen that as a means of electrically connecting the braid-covered conductors 36 and 37 on the drum with the wires 26 and 26^a, 80 leading the electric current into and from the fixture, I employ, as shown, two pairs of cups, themselves connected by contact-balls, one cup of each pair being stationary with the frame and the other rotatable with the drum. At its 85 extreme lower end the arbor 17 is formed with transverse holes 46 and 47 for the reception of a retaining-pin 48, by which it is confined in place. The insulating-disks 29, 32, 40, and 44 may be made either of rubber, porcelain, or any 90 other suitable non-conducting material.

The rotation of the drum 8 under the influence of the spring 21 may be controlled, if desired, by means of a sheet-metal friction-spring 50, having a central opening 51, adapting it to be set down over the screw-threaded 95 stud 18, forming the upper end of the arbor 17. The ends of this spring are turned inward to form feet which rest upon the upper insulating-disk 31, and the greater their downward pressure upon it the greater the friction developed 100 between the contact-cups of the respective pairs of contact-cups and their interposed balls, and vice versa. The friction developed by this spring is regulated by a nut 52, which engages with its upper face and which is applied to the stud 18. The ends of the said 105 spring 50 are confined in place by means of four segmental insulating-blocks 50^a, secured by screws 50^b to the upper face of the insulating-disk 31, as shown by Fig. 2. 110

As shown, the braid-covered conductor 36 is run over a two-part corrugated pulley 53, the corresponding members of which are provided with corrugations causing the pulleys 115 to bite the braid-covered conductor and prevent the same from slipping. This pulley is mounted in the upturned end of an arm 54, formed integral with the lower cross-bar 3 of the frame, and provided with a housing 55. The lower braid-covered conductor 37 passes 120 over a corresponding two-part pulley 56, mounted in the upturned end of an arm 57, located in line with the arm 54 aforesaid and also formed integral with the lower cross-bar 3 of the frame. This pulley is provided with 125 a housing 55^a like that before mentioned.

In order that too great a strain may not be imposed upon the conductors 36 and 37, I pre-

fer to provide the fixture with two chains 59 and 60, these chains having their inner ends attached to the drum and being wound thereupon in the central compartment 13 thereof.

5 The chain 59 runs over a pulley 61, secured to the upright 4 of the frame and having a housing 62, and the chain 60 runs over a pulley 63, mounted upon the upright 5 of the frame and having a housing 64. In case the electric-lamp fixture itself is comparatively light it will not be necessary to use these reinforcing-chains, in which event the braid-covered conductors 36 and 27 will be relied upon to support the weight. Then the pulleys 63 and 66 will be transferred to the uprights 4 and 5 and take the place of the pulleys 61 63, and the arms 54 57 of the frame will be dispensed with, as well as the intermediate flanges 10 and 16 of the drum 8. It will of course be understood that the said conductors and chains pass downward through openings formed in the canopy. If desired, the braid-covered conductors may be protected against wear by chafing and also insulated by inclosing them in a flexible armor of insulating glass, rubber, or porcelain beads 65, each having, so to speak, a tenon at one end and a socket at the other, so as to fit into each other and form a series of joints, permitting the conductor to bend as though not so protected. These beads when used will be adapted to fit into the corrugations of the corrugated pulleys, whereby the armored conductors will be prevented from slipping thereupon, the beads by entering into the corrugations of the pulleys operating, as it were, to lock the conductors thereto. Furthermore, the pressure of the beads upon the two-part pulleys causes the members thereof to separate, the outer member being moved outwardly against a washer 55, forming a part of each pulley structure, with the development of enough friction to assist in controlling the operation of the device. Instead of using contact-pieces in the form of cups I may employ square or round plates having central arbor-openings and annular ball-receiving grooves. Such a plate of square form is shown by Fig. 12, in which the plate 66 is formed with an arbor-opening 67 and a ball-receiving groove 68. Contact-pieces in the form of plates will perhaps be more convenient to assemble than cups. If rectangular in form, they would be combined with insulating-plates of similar form instead of with disks, as shown herein.

In view of the modifications suggested and of others which may obviously be made I would have it understood that I do not limit myself to the exact construction shown and described, but hold myself at liberty to make such alterations therefrom as fairly fall within the spirit and scope of my invention. Thus, if desired, the fixture may be arranged so that the drum will turn in a vertical rather than in a horizontal plane. If desired, also, the

electric conductors wound on the drum may be brought together within one braid-cover.

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

1. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum located therein, electric connections, flexible electric conductors wound upon the drum, and means for electrically connecting the respective electric connections and flexible conductors, the said means including stationary and rotatable ball-receiving contact-pieces, and contact-balls interposed between and establishing electric connection through the same.

2. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum located therein, electric connections, flexible electric conductors wound upon the drum, and means for electrically connecting the respective electric connections and conductors, including two pairs of ball-receiving contact-pieces having annular grooves, and balls therefor, one member of each pair being stationary with the frame and the other revolving with the drum.

3. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum located therein, an arbor on which the drum rotates, a pair of ball-receiving contact-pieces located at the upper end of the said arbor, a corresponding pair of contact-pieces located at the lower end thereof, one member of each pair being stationary with the frame and the other rotatable with the drum, balls interposed between and electrically connecting the contact-pieces of each pair, electric connections leading to the stationary member of each pair, and electric conductors wound upon the drum and having their inner ends connected with the rotatable member of each pair of contact-pieces.

4. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum located therein, electric conductors wound upon the drum, electric connections, means including stationary and rotatable ball-receiving contact-pieces and contact-balls for connecting the said connections and conductors, and a friction device for controlling the rotation of the drum.

5. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum located therein, a drum-arbor, a pair of ball-receiving contact-pieces located at the upper end of the arbor, means for insulating them from the frame and drum, a corresponding pair of ball-receiving contact-pieces located at the lower end of the arbor, means for insulating them from the frame and drum, contact-balls for the said pairs of contact-pieces, electric connections respectively connected with the stationary members of each pair of contact-pieces, and electric conductors

wound upon the drum and connected through the walls thereof with the rotatable members of each pair of contact-pieces.

6. In an extension-fixture for incandescent electric lamps, the combination with the frame thereof, of a drum located therein and having its top and bottom recessed, a pair of ball-receiving contact-pieces located in each recess of the drum, one member of each pair being stationary and the other rotatable, with the drum and connected at their inner ends through the walls thereof with the rotatable member of each pair of contact-pieces.

7. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a hollow drum, a drum-arbor extending through the drum and projecting at each end beyond the same, a drum-spring located within the drum and having its outer end connected with the drum, and its inner end connected with the said arbor, a pair of insulating contact-pieces located at each end of the arbor, one member of each pair being stationary with the frame and the other being rotatable with the drum, electric connections leading to the stationary member of each pair of contact-pieces, electric conductors wound upon the drum and respectively connected through openings therein with the rotatable member of each pair of contact-pieces and pulleys mounted in the said frame for the said conductors to run over.

8. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a hollow drum, a drum-arbor extending through the drum, a drum-spring located within the drum and having its outer end connected therewith and its inner end connected with the arbor, electric conductors wound upon the drum, electric connections leading to the device, contact means between the said conductors and connections, one or more chains or flexible supports wound upon the drum for assisting the said conductors in bearing the weight of the electric-lamp fixture, and pulleys mounted in the said frame and arranged to have the said conductors and the said chain or chains run over them.

9. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum provided with three annular grooves or compartments, electric conductors wound in the upper and lower grooves or compartments, and one or more chains wound in the middle groove or compartment, electric connections, and contact means between the said connections and conductors, whereby the same are maintained in electric connection when the drum is at rest and when it is rotating.

10. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a hollow drum, a drum-arbor extending through the drum, a drum-spring located within the drum and connected at its outer end therewith and at its inner end with the said arbor, electric conductors wound upon the drum and having their inner ends passed through openings therein, electric connections leading to the device, contact means for maintaining the connection and conductors in circuit, a sheet-metal friction-spring having a central opening adapted to be mounted upon one end of the arbor and having its ends arranged to ride upon a part connected with the drum, whereby friction for controlling the operation of the same is developed and pulleys mounted in the frame for the said conductors to run over.

11. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum, a pair of upper and a pair of lower ball-receiving contact-pieces each formed with an outwardly-extending finger, and one member of each pair being stationary with the frame, and the other being rotatable with the drum, electric connections leading to the fingers of the stationary members, and electric conductors wound upon the drum and connected with the fingers of the rotatable members.

12. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum mounted therein, corrugated pulleys supported by the frame, a braid-covered electric conductor wound upon the drum, running over the said pulleys and provided with a flexible armor or beads which take into the corrugations of the pulleys upon which the conductors are thus prevented from slipping.

13. In an extension-fixture for incandescent electric lamps, the combination with a frame, of a drum mounted therein, pulleys mounted in the said frame and each comprising two corrugated parts and a friction-washer, a braid-covered electric conductor wound upon the drum and provided with an armor of interlocking protecting and insulating beads which take into the corrugations of the pulleys and press the members thereof apart to bring their friction-washers into play.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

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Witnesses:

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