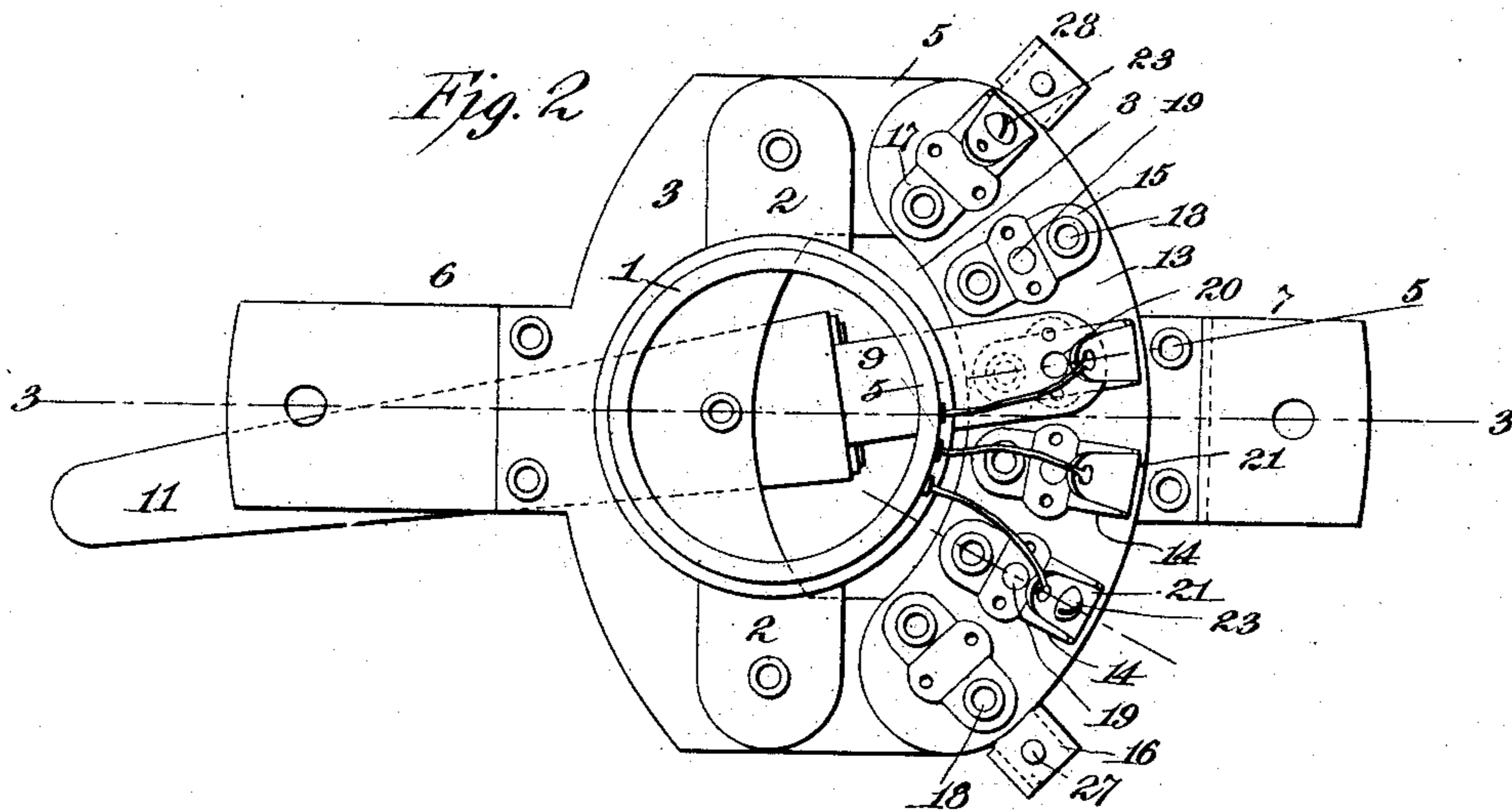
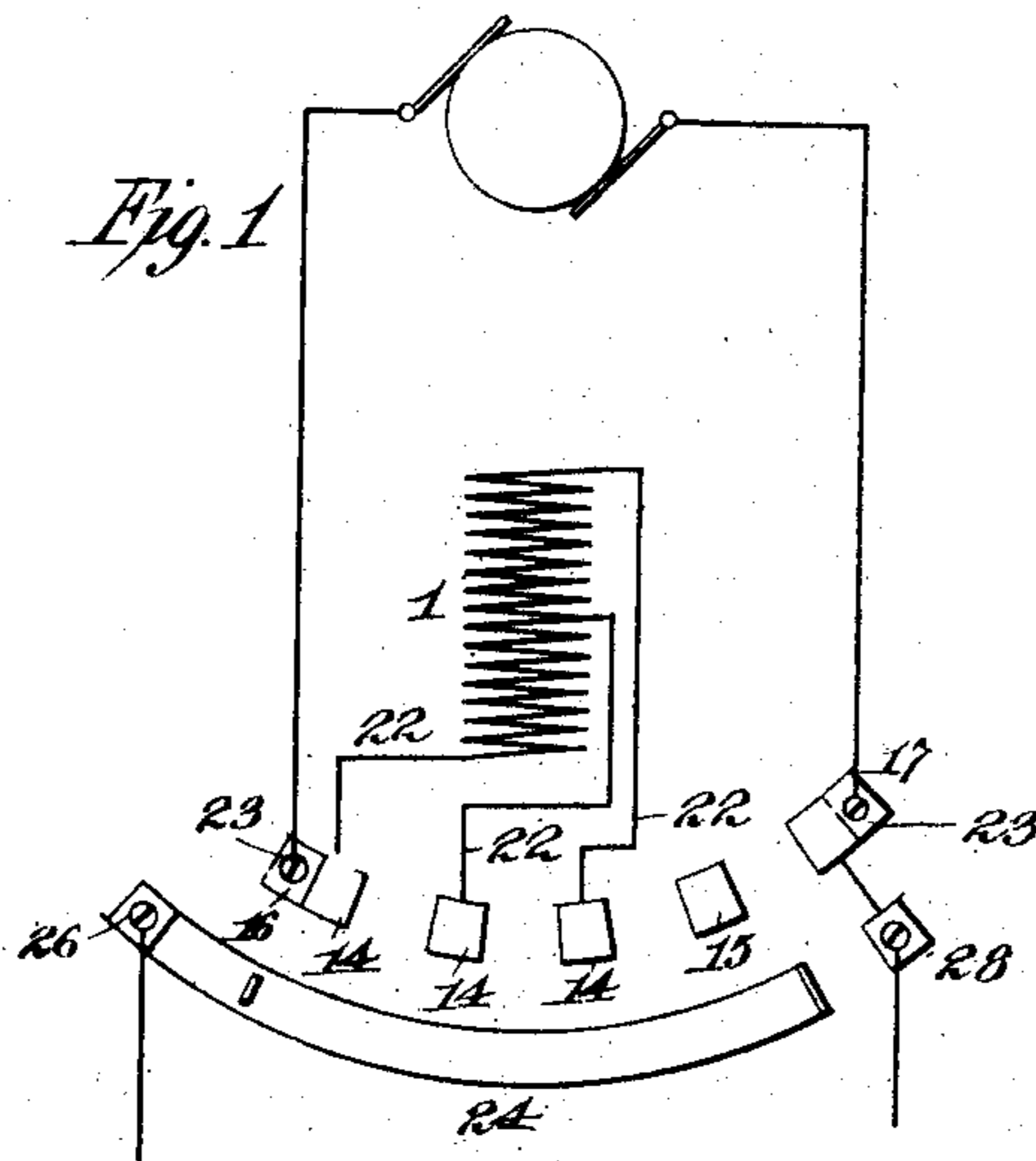


H. E. REEVE.
COMBINED SWITCH AND RHEOSTAT.

(Application filed July 2, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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(No Model.)

2 Sheets—Sheet 2.

Fig. 3

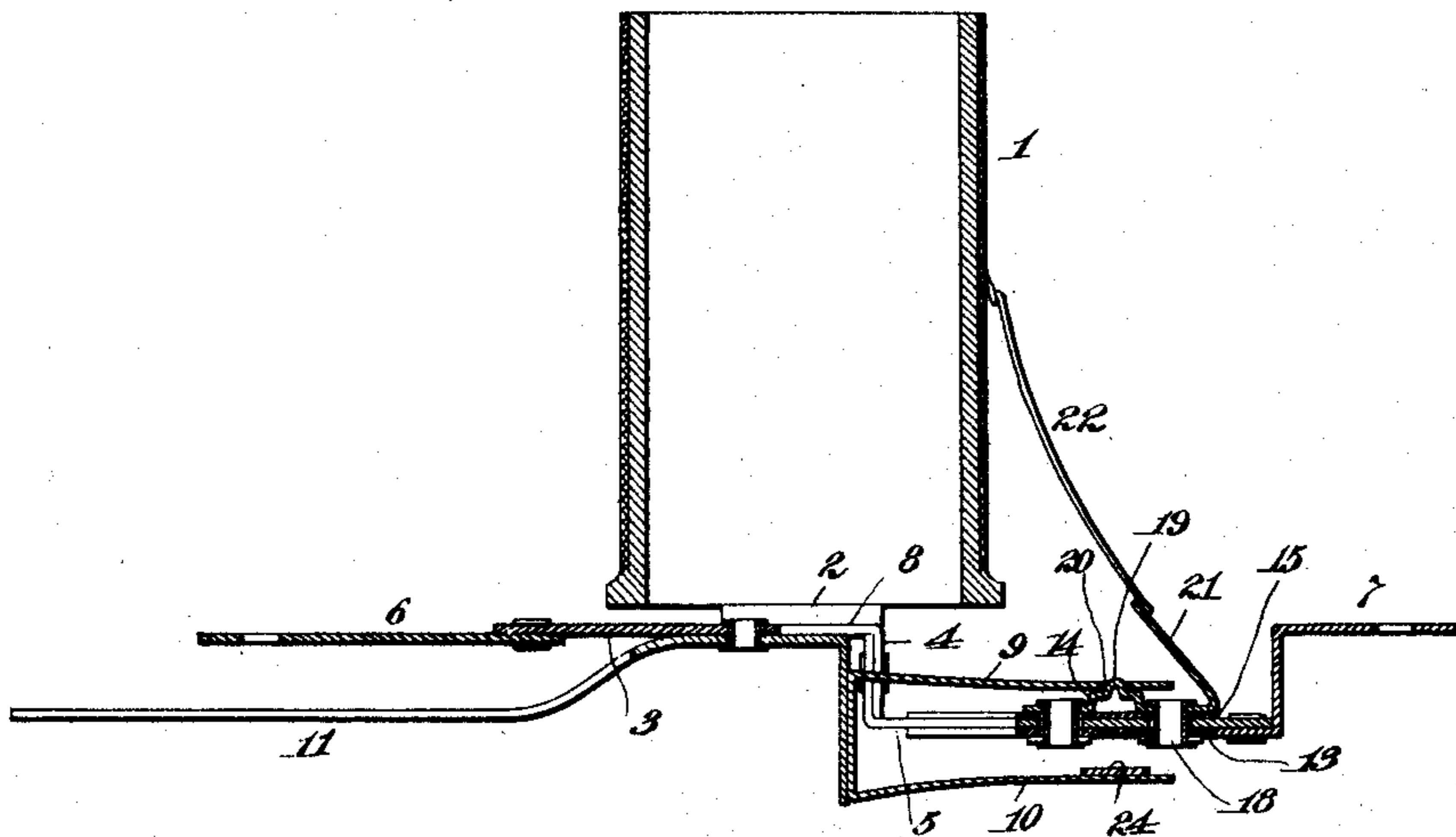


Fig. 4

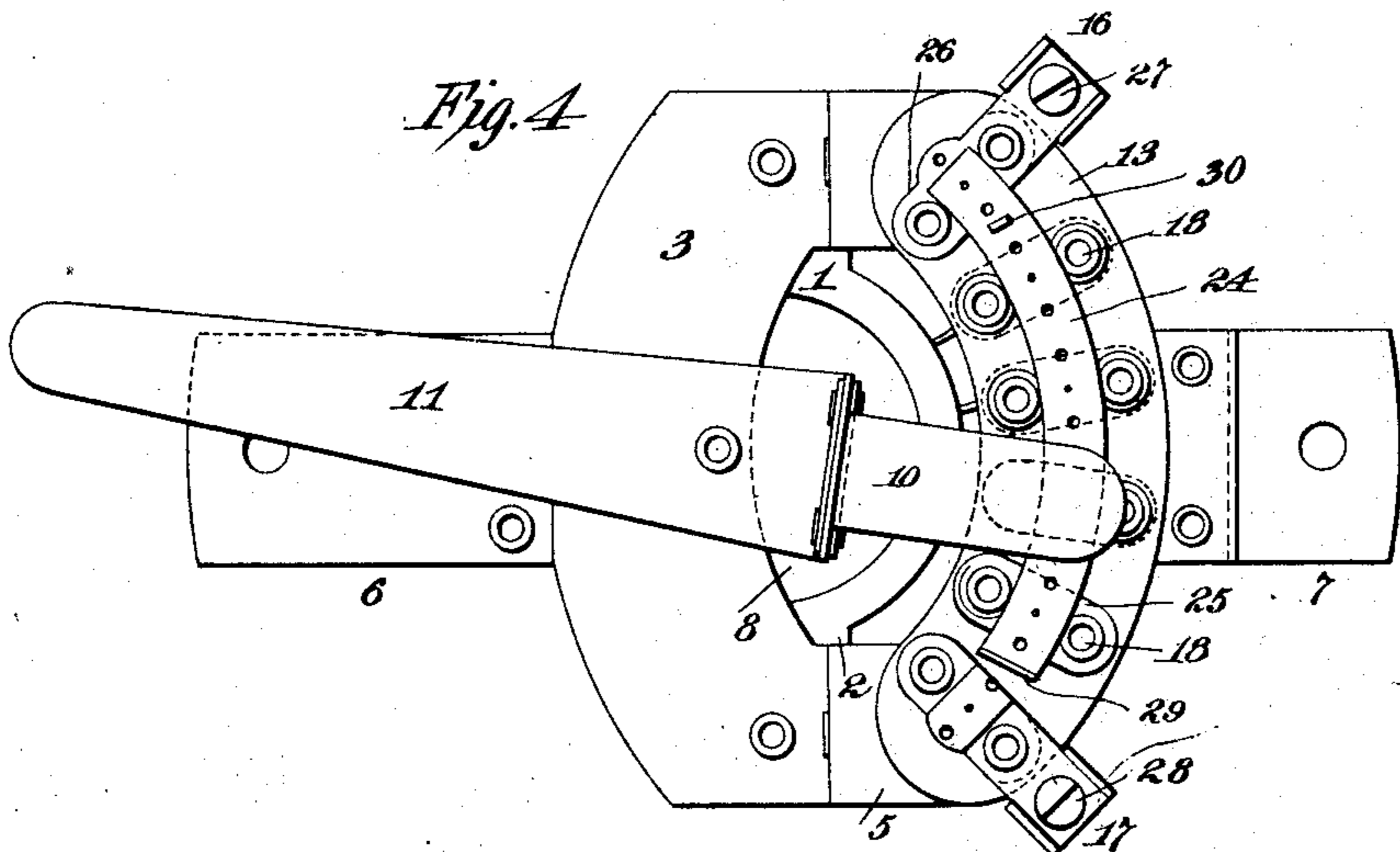
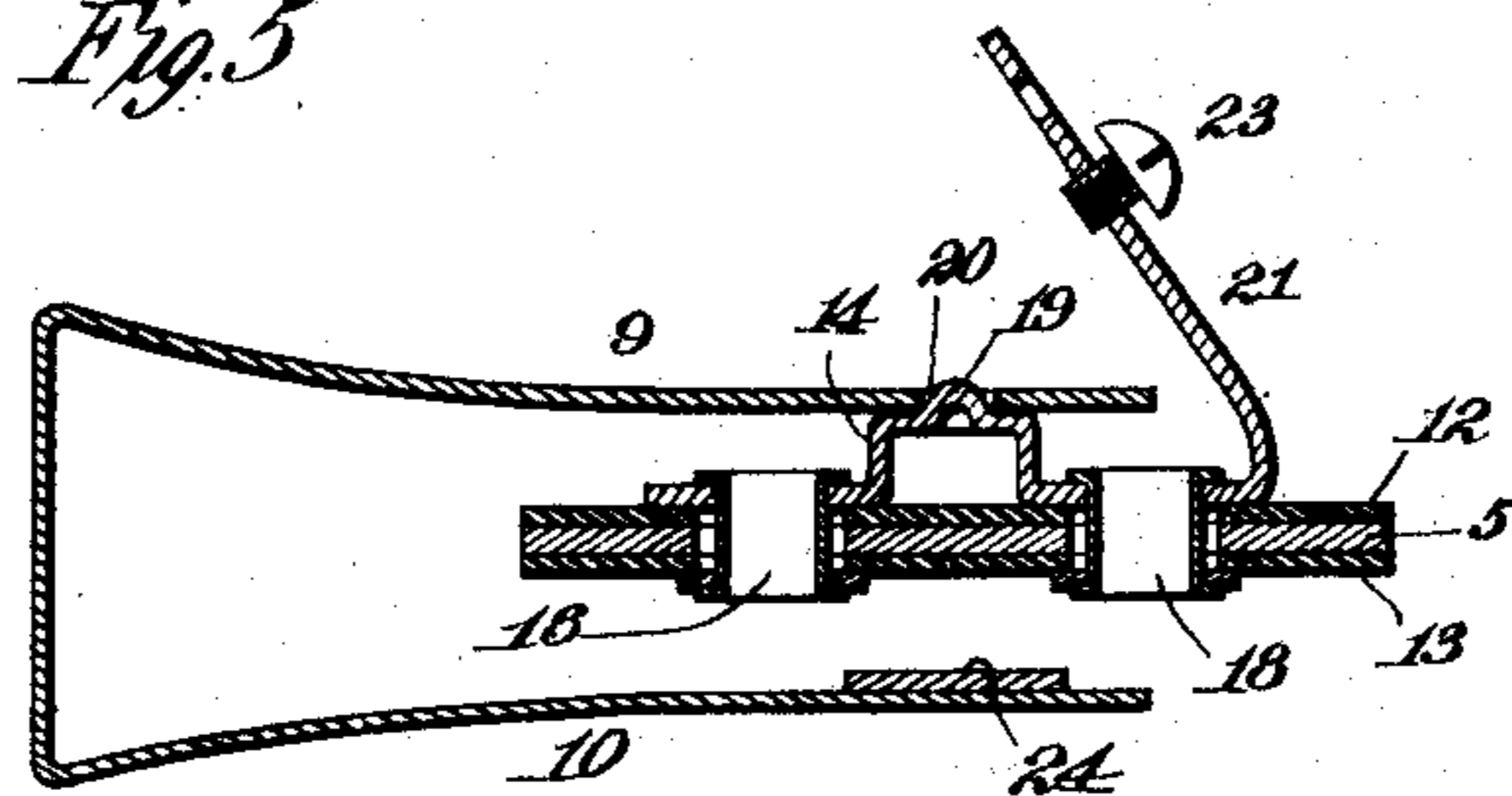


Fig. 5



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UNITED STATES PATENT OFFICE.

HENRY E. REEVE, OF BROOKLYN, NEW YORK.

COMBINED SWITCH AND RHEOSTAT.

SPECIFICATION forming part of Letters Patent No. 669,102, dated March 5, 1901.

Application filed July 2, 1900. Serial No. 22,258. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. REEVE, a citizen of the United States, residing in the borough of Brooklyn, city and State of New York, have invented certain new and useful Improvements in a Combined Switch and Rheostat, of which the following is a specification.

My invention relates to new and useful improvements in combined switches and rheostats adapted particularly for use in connection with small fan-motors, but capable of any other use to which combined switches and rheostats are now or may be applied.

The object of the invention is to provide a device for the purpose which shall be simple in construction, which can be constructed with great economy, which is efficient and durable in use, and wherein arcing is entirely avoided.

In order that the invention may be better understood, attention is directed to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a diagram of the circuits in my improved rheostat and switches; Fig. 2, a plan view of the device; Fig. 3, a section on the line 3 3 of Fig. 2; Fig. 4, a bottom view; and Fig. 5, a section on the line 5 5 of Fig. 2, taken on an enlarged scale.

In all the above views corresponding parts are represented by the same numerals of reference.

1 represents a rheostat which is of any suitable type. Preferably this rheostat is of the ordinary tubular form, comprising a metal pipe coated with an insulating-enamel, in which are embedded the resistance-wires, as is common. The rheostat 1 is provided with lugs 2 2 at the bottom, by which it is secured to a plate 3 by means of rivets or in any other way. For convenience and economy in assembling I prefer to secure all the parts of the device together by means of rivets, as shown. The plate 3 is bent downward at 4, as shown, and secured to that portion is a plate 5, which carries the contact devices, as will be explained. Obviously the plates 3 and 5 may be formed in one piece.

6 and 7 are lugs or ears secured to the plates 3 and 5, respectively, as shown, by means of which the device may be secured in position within the base of the motor or in any other

locality in which it may be used. The lugs or ears 6 7 are made separate from the plates 3 and 5 only for convenience in assembling and for economy in construction, in order that there may be a minimum waste of metal. The plates 3 and 5 are cut away at 8, as shown in Fig. 4, and working in said opening are the spring contact-arms 9 10, made, preferably, in one piece, as shown, and connected to the end of a pivoted lever 11, mounted on the under side of the plate 3, whereby the contact-arms 9 10 will straddle the plate 5. Secured to the top of the plate 5 is a strip or sheet 12 of insulating material, preferably mica, and on the bottom of said plate is a corresponding strip or sheet 13 of such insulating material. Carried on the upper insulating-strip 12 are the several contact-plates 14, the cut-out plate 15, and the terminal plates 16 and 17, all of said plates being secured in position by means of rivets 18 18, as illustrated more clearly in Fig. 5. The openings in the plate 5 through which rivets pass are made larger than the diameters of the rivets in order to insulate the several contact-plates, &c., from the plate 5.

The several contact-plates 14 and the cut-out plate 13 are each formed with a struck-up knob or projection 19, with which coöperates an opening 20 in the contact-arm 9, whereby the engagement between said opening and any one of said projections will serve to lock the contact-arm frictionally in central alinement with the several plates with which it coöperates. The several contact-plates 14 are each formed with an upwardly-projecting arm 21, Fig. 5, by which a connection 22 may be made with the rheostat, as shown in the diagram Fig. 1 as well as in the plan view Fig. 2. The extreme end contact-plate 14, as well as the upturned arm of the terminal plate 17, is provided with screws 23, by means of which connection may be made with the motor-circuit, as shown in Fig. 1. The bottom contact-arm 10 coöperates with a collecting-bar 24, which is secured to the under side of the insulating-strip 13 by means of plates 25 and 26, the latter forming one of the terminals for the line-wires and being provided with a screw 27, by means of which the line-wire may be connected thereto. The other line-terminal 28 is secured to the bot-

tom insulating-strip 13 by means of rivets, which connect with the plates 17. The throw of the switch-arm 11 in either direction is limited by means of stops 29 and 30, struck up from the collecting-bar 24, as shown in Fig. 4, and with which stops the contact-spring 10 engages at either end of its movement.

The connections being made as illustrated diagrammatically in Fig. 1, it will be seen that when the contact-spring 9 is in contact with the first contact-plate 14 the entire rheostat 1 will be short-circuited and the full line-current will pass through the motor from the terminal 28, plate 17, through the motor, to plate 16, contact-springs 9 and 10, collecting-bar 24, and terminal 26. As the switch-arm is moved to advance the contact-spring 9 successively into engagement with the other contact-plates 14 an increasing proportion of the rheostat will be thrown into series with the motor. When the switch-arm is moved to carry the contact-spring 9 into engagement with the cut-out plate 15, the rheostat will be cut out and the circuit through the motor will be broken.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

- 30 1. In a combined switch and rheostat, the combination of a support formed with a recessed portion, a rheostat carried by the support above the recessed portion, contact-plates carried by the recessed portion of the support and insulated therefrom, said plates being connected to the rheostat, and a switch-arm pivoted to the support and carrying a spring-contact which engages with said contact-plates, substantially as set forth.
- 40 2. In a combined switch and rheostat, the combination of a support, a rheostat carried by the support, contact-plates carried by the support and insulated therefrom, said plates being connected to the rheostat, and a switch-arm pivoted to the support and carrying a spring-contact which engages with said contact-plates, the support being cut away and the spring-contact projecting through said cut-away portion, substantially as set forth.
- 50 3. In a combined switch and rheostat, the combination with a support and a rheostat carried thereby, of insulating strips or plates secured to the top and bottom of said support, contact-plates on one of said insulating-strips and connected to the rheostat and secured by rivets passing through said support and insulating-plates, and a switch-lever pivoted to the support and carrying a spring-contact which engages with said contact-plates, substantially as set forth.
- 60 4. In a combined switch and rheostat, the

combination with a support and a rheostat carried thereby, of insulating strips or plates secured to the top and bottom of said support, contact-plates on one of said insulating-strips and connected to the rheostat and secured by rivets passing through said support and insulating-plates, a switch-lever pivoted to the support and carrying a spring-contact which engages with said contact-plates, a collecting-bar on the other insulating-strip and similarly secured by rivets, and a spring-contact carried by the switch-lever in constant engagement with said collecting-bar, substantially as set forth.

5. In an electric switch, the combination with a support, a switch-lever pivoted thereto, a series of contact-plates carried by the support riveted thereto and insulated therefrom, each of said plates being provided with a rounded projection or knob, and a contact-spring carried by the switch-lever engaging said contact-plates and having an opening or indentation which registers with said projections, substantially as set forth.

6. In a combined switch and rheostat, the combination with a support, a switch-lever pivoted thereto, a series of contact-plates carried by the support and insulated therefrom, each of said plates being provided with a rounded projection or knob, a contact-spring carried by the switch-lever engaging said contact-plates and having an opening or indentation which registers with said projections, a rheostat carried by the support, and integral arms formed on said contact-plates and connected with the sections of the rheostat, substantially as set forth.

7. An electric switch, comprising in combination a metallic base or support, a lever pivoted thereto carrying an insulated spring-contact at one end, insulating-strips on both sides of the base, contact-plates resting on one of said insulating-strips and held in place by rivets passing through the base and both insulating-strips, the holes in the base having a clearance around said rivets, knobs or bosses on said contact-plates over which an opening or recess in the spring-contact engages or registers, a continuous contact-plate secured to the base and insulated therefrom, in electric connection with the said spring-contact, and a rheostat the sections of which are connected to said contact-plates, substantially as set forth.

This specification signed and witnessed this 27th day of June, 1900.

HENRY E. REEVE.

Witnesses:

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