

No. 610,413.

Patented Sept. 6, 1898.

F. E. RAMSAY.
DIRECT CURRENT REGULATOR.

(Application filed Jan. 28, 1898.)

(No Model.)

Fig. 1.

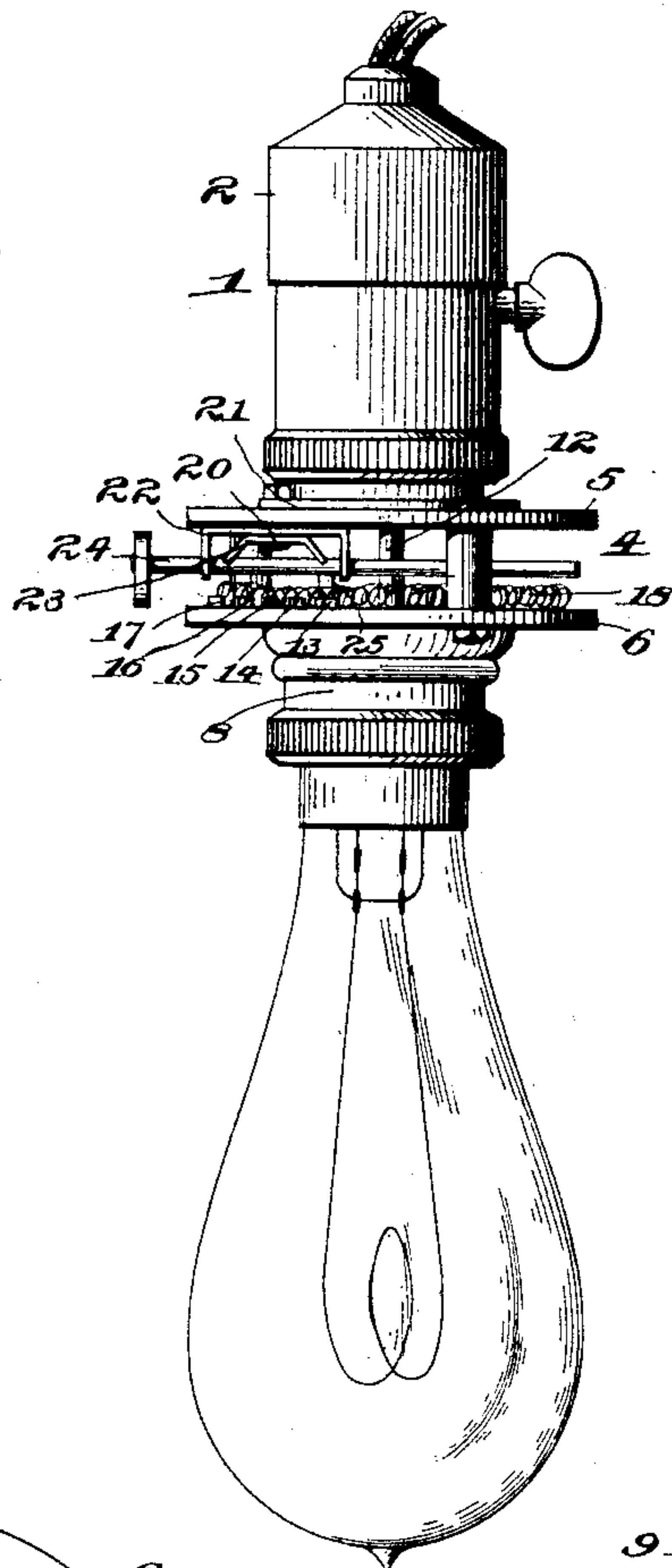


Fig. 2.

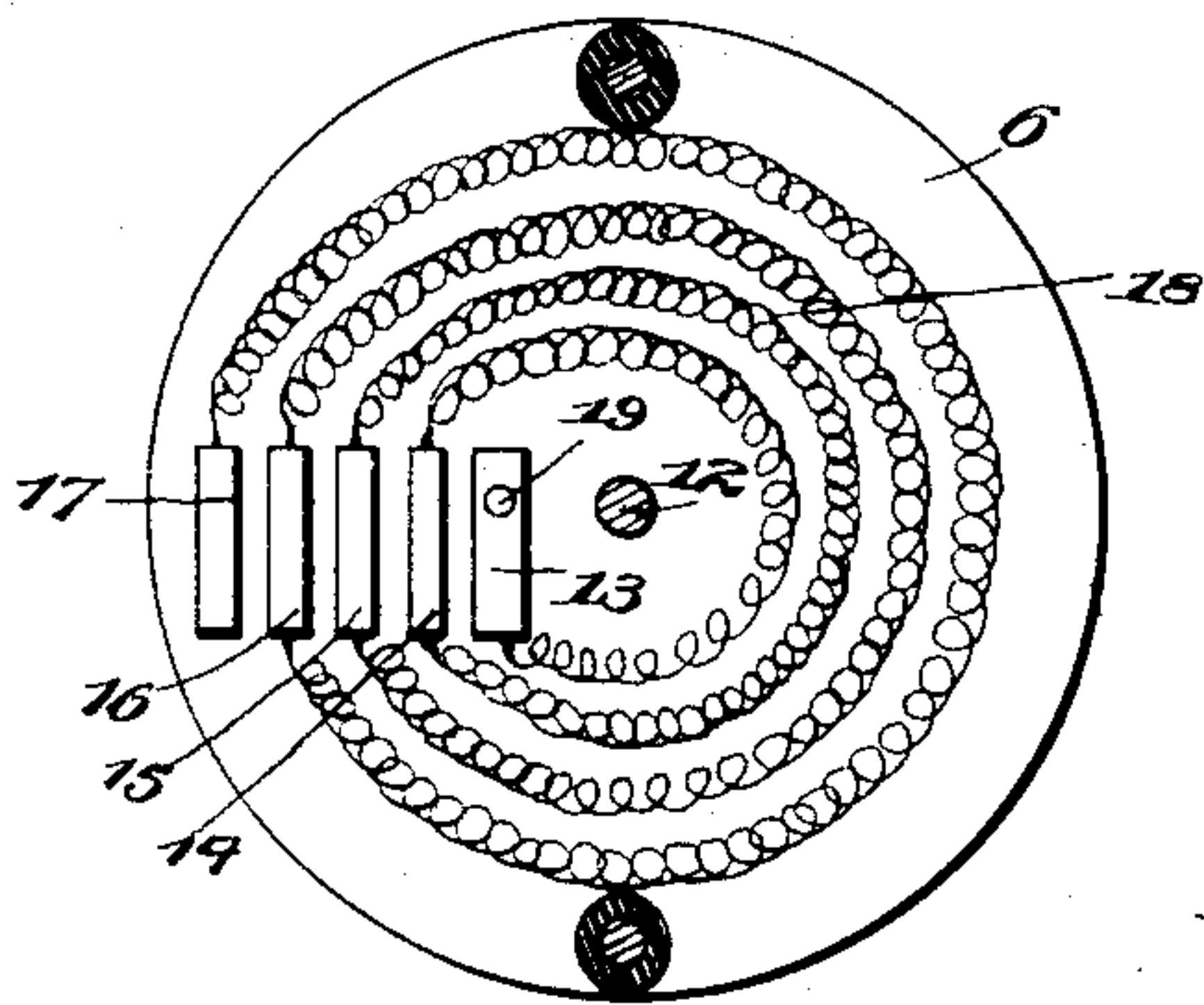


Fig. 3.

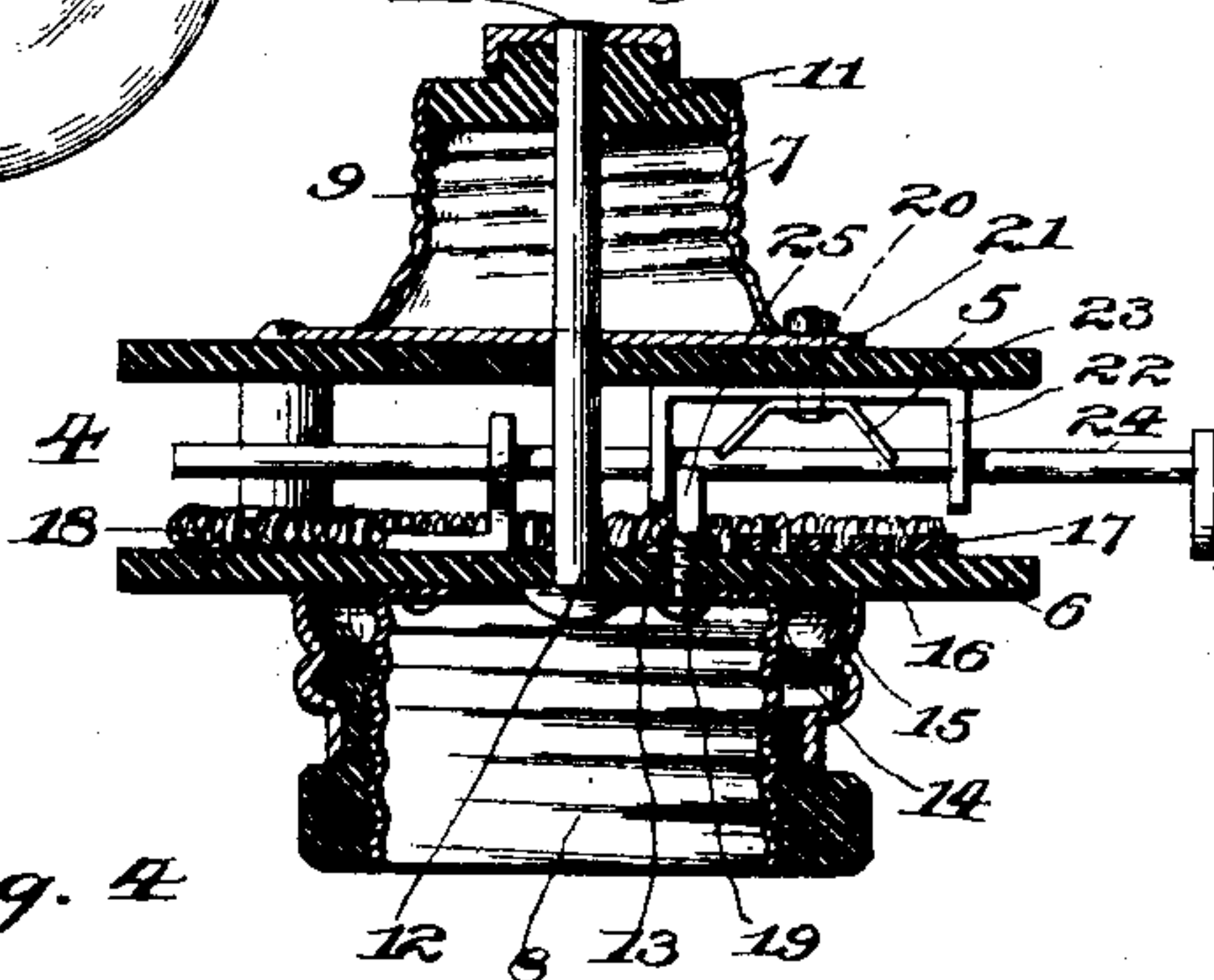
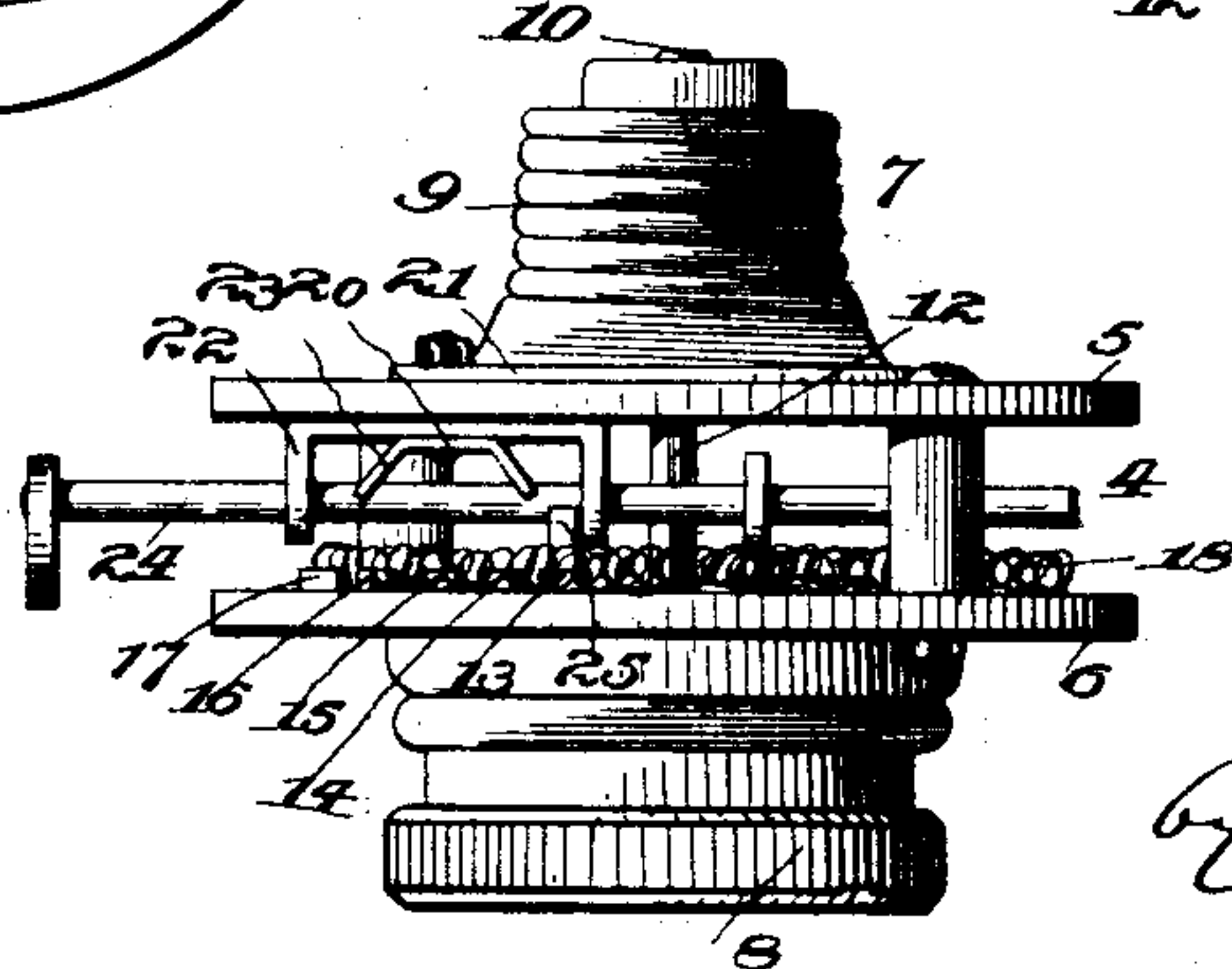


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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DIRECT-CURRENT REGULATOR.

SPECIFICATION forming part of Letters Patent No. 610,413, dated September 6, 1898.

Application filed January 28, 1898. Serial No. 668,333. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK E. RAMSAY, a citizen of the United States, residing at Walsenburg, in the county of Huerfano and State of Colorado, have invented certain new and useful Improvements in Direct-Current Regulators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a portable regulator for direct-current electric lamps.

The object of the invention is to provide a simple and effective regulator designed especially for use in connection with any of the ordinary types of direct-current incandescent lamps and which can be readily attached to or detached from the ordinary lamp sockets and taps.

A further object is the production of a simple and efficient regulator of this character which will permit the regulation of the light so that various degrees of brilliancy may be attained by the regulation of the electrical current, which is effected by establishing the electrical connection either directly from the line-wires to the filaments or through one or more of a series of resistance or reaction coils.

To the accomplishment of these and other objects subordinate thereto the invention consists in providing a regulator containing a series of preferably concentric resistance-coils and a switch for throwing any desired number of coils into the circuit, with a socket and tap of any ordinary and approved construction to enable my device to be readily interposed between the ordinary forms of incandescent lamps and the standard forms of sockets.

The invention further consists in various details of construction and in the arrangement of parts hereinafter described, and succinctly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a side elevation of my device in use, the tap of my regulator being screwed into the lamp-socket and the tap of a lamp being screwed into the socket carried by the regulator. Fig. 2 is a plan view of the lower insulating-disk, showing the arrangement of the resistance-

coils with respect to the terminal or contact plates. Fig. 3 is a central longitudinal section through the regulator, and Fig. 4 is a side elevation of the regulator on a somewhat enlarged scale.

Referring to the numerals on the drawings, 1 indicates an ordinary incandescent-lamp socket connected with the line-wires of the circuit and consisting, as usual, of a metallic sleeve 2 and an axially-arranged contact-block, which constitute the terminals of the circuit.

4 indicates my portable regulator, composed of two disks 5 and 6, of any suitable insulating material—as, for instance, vulcanite—retained in parallel relations, from which project in opposite directions an ordinary tap or plug 7 and a socket 8, the regulating device being mounted intermediate of the disks. The tap 7 is designed to be screwed into the ordinary lamp-socket and is provided, as usual, with a contact-sleeve 9 and an axial contact-block 10, designed, respectively, to make electrical contact with the sleeve and block of the socket, the terminals of the plug being separated, as usual, by a porcelain or other insulation 11. The socket 8 is designed to receive the plug of a lamp provided with the annular and axial terminals, as usual, designed to contact with the terminal sleeve of the socket 8 and with the lower extremity of a contact-rod 12, which extends from the contact-block 10 into the socket 8. Thus when the regulator is screwed into the socket and the lamp is screwed into the socket of the regulator a direct electrical connection is established between one of the line-wires and one end of the lamp-filament through the contact-blocks and the contact-rod.

I shall now proceed to a description of the current-regulating device, which is located intermediate of the other end of the lamp-filament and the other wire of the main circuit.

13, 14, 15, 16, and 17 indicate a radially-arranged series of parallel contact-plates secured upon the inner or upper face of the lower insulating-disk and constituting portions of a resistance-coil 18, arranged in spiral form upon the disk, the plate 13 constituting one terminal and the plate 17 the opposite terminal of the coil. The plate 13 is electric-

ally connected with the terminal sleeve of the socket 8 by means of a screw 19, which serves to secure said sleeve to the disk and to effect the electrical connection.

5 20 indicates a screw passing through an annular flange 21 at the bottom of the terminal sleeve of the tap and serving to secure a rectangular guide-frame 22 and a contact-spring 23, located, respectively, upon the inner face
10 of the upper insulating-disk, the frame being designed to guide and the spring to make electrical contact with a longitudinally-movable switch-rod 24, of any suitable form and provided upon its under side with a contact-
15 block 25, designed by the reciprocation of the switch-rod to be brought into contact with any one of the several contact-plates in the resistance-circuit. In this manner when the rod is pushed inward until the contact-block
20 25 is in engagement with the plate 13 a direct circuit will be established between the terminal sleeve of the tap and the terminal sleeve of the socket carried by the regulator, the circuit being through the contact-spring,
25 the switch-rod, the block 25, the plate 13, and the screw 19, and the lamp, in consequence of the absence of any resistance in the circuit, will burn with the highest degree of incandescent brilliancy.

30 Supposing now it is desired to slightly decrease the brilliancy or illuminating power of the light, the switch-rod is drawn back to make contact between the block 25 and the second plate 14 of the circuit. The current
35 must now pass through one convolution of the resistance-spiral to the plate 13, which produces the desired regulation of the current. In like manner the switch-rod may be drawn out to bring the contact-block 25 in engage-
40 ment with any of the contact-plates of the series, and thereby increasing the resistance to the desired extent, as it will be seen that contact with each successive plate will cause the resistance-circuit to be increased by one
45 convolution of the resistance-spiral. It is evident that by moving the contact-block 25 entirely beyond the series from either end the circuit will be broken and the light will be extinguished. When the contact-block is
50 located upon one or the other terminal plates 13 and 17, either a direct circuit will be established or the entire resistance-circuit will be switched into the main circuit, and when the direct circuit is established, the block 25
55 being in contact with the plate 13, the circuit may be instantly opened to cut out the lamp by moving the switch-rod inwardly without the necessity for having the contact-block moved over the series of contact-plates
60 and thereby gradually diminishing the in-

tensity of the light before finally cutting it out of the circuit.

While I have described my regulator as applied to direct-current incandescent lamps, it is obvious that it may be employed in con- 65
nection with any form of translating device of direct-current systems, as it is evident that a regulator of this character could be interposed in a circuit for energizing a motor or similar device where the regulation of the 70
current would be a desideratum.

I am aware that alternating-current regulators designed to be employed in connection with various translating devices have been devised, also that resistance or reaction coils 75
designed to be thrown into or out of the circuit by a switch are not novel; but

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

1. In a portable direct-current regulator, 80
the combination with a pair of insulating-disks, and a socket and tap extending oppositely from said disks, of a resistance-circuit spirally arranged upon one of the disks, a series of contact-plates constituting portions 85
of the resistance-circuit, one of said plates being in direct electrical connection with one of the terminals of the socket, and a longitudinally-movable switch-rod in electrical connection with one of the terminals of the 90
tap and designed to make electrical connection with either of the contact-plates in the resistance-circuit, substantially as specified.

2. In a portable direct-current regulator, 95
the combination with a pair of insulating-disks, of a tap extending from one of the disks, a socket extending from the opposite disk, a contact-rod constituting one of the terminals of both the socket and tap, sleeves constituting the other terminals of the socket and 100
tap, a resistance-circuit comprising a spirally-arranged resistance-coil upon the inner face of one of the disks, a radially-disposed series of contact-plates constituting portions of the resistance-circuit, the contact-plates located 105
at the inner end of the series being in direct electrical connection with the sleeves of the socket, a longitudinally-movable push-rod provided with a contact-block designed to contact with the contact-plates, and a spring 110
bearing upon the switch-rod and in direct electrical connection with the sleeves of the tap, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRED. E. RAMSAY.

Witnesses:

JOSEPH WORKMAN,
FRANK DAY.