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Patented Oct. 9, 1900.

R. CROTEAU & R. J. MESSIER.

DEVICE FOR REMOVING AND REPLACING INCANDESCENT LAMPS.

(Application filed June 11, 1900.)

(No Model.)

FIG. 1

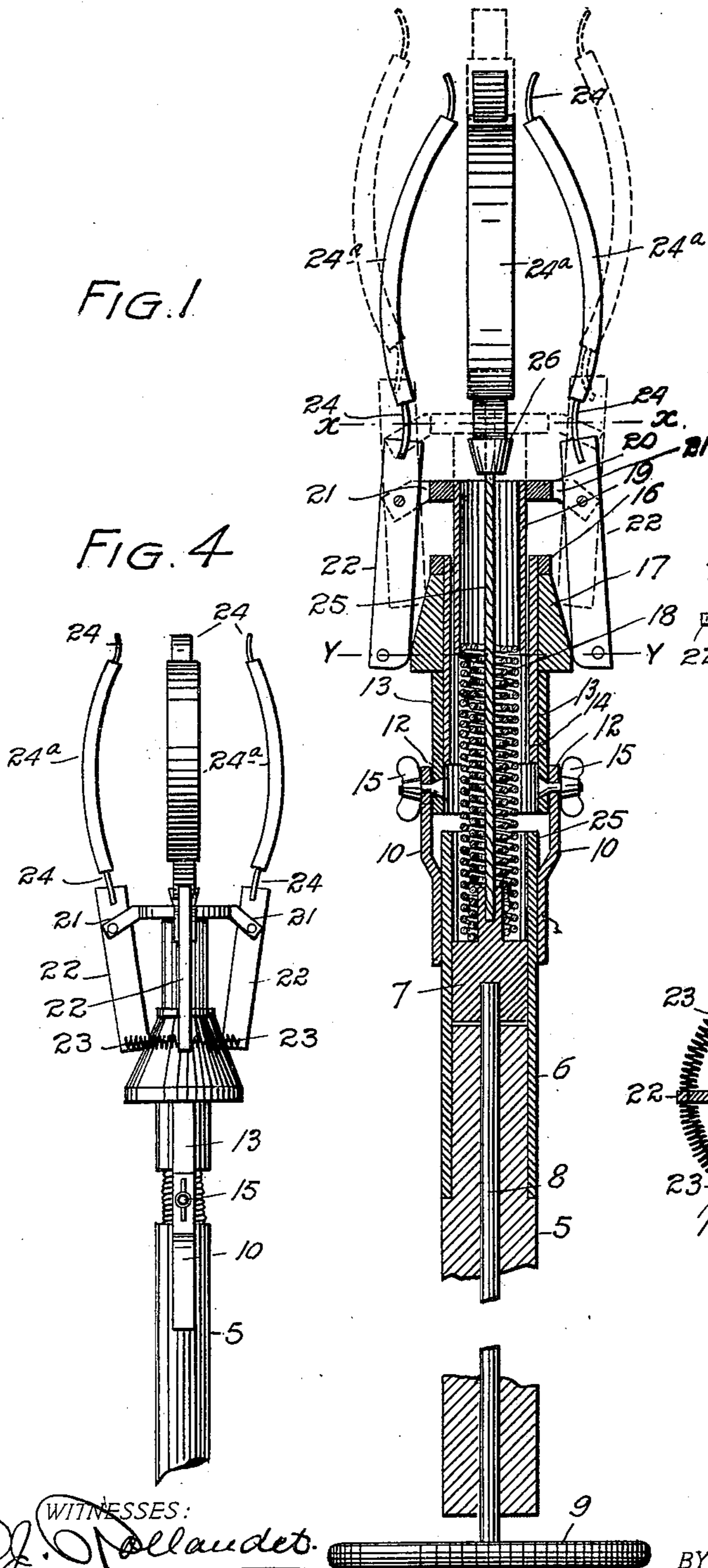


FIG. 2

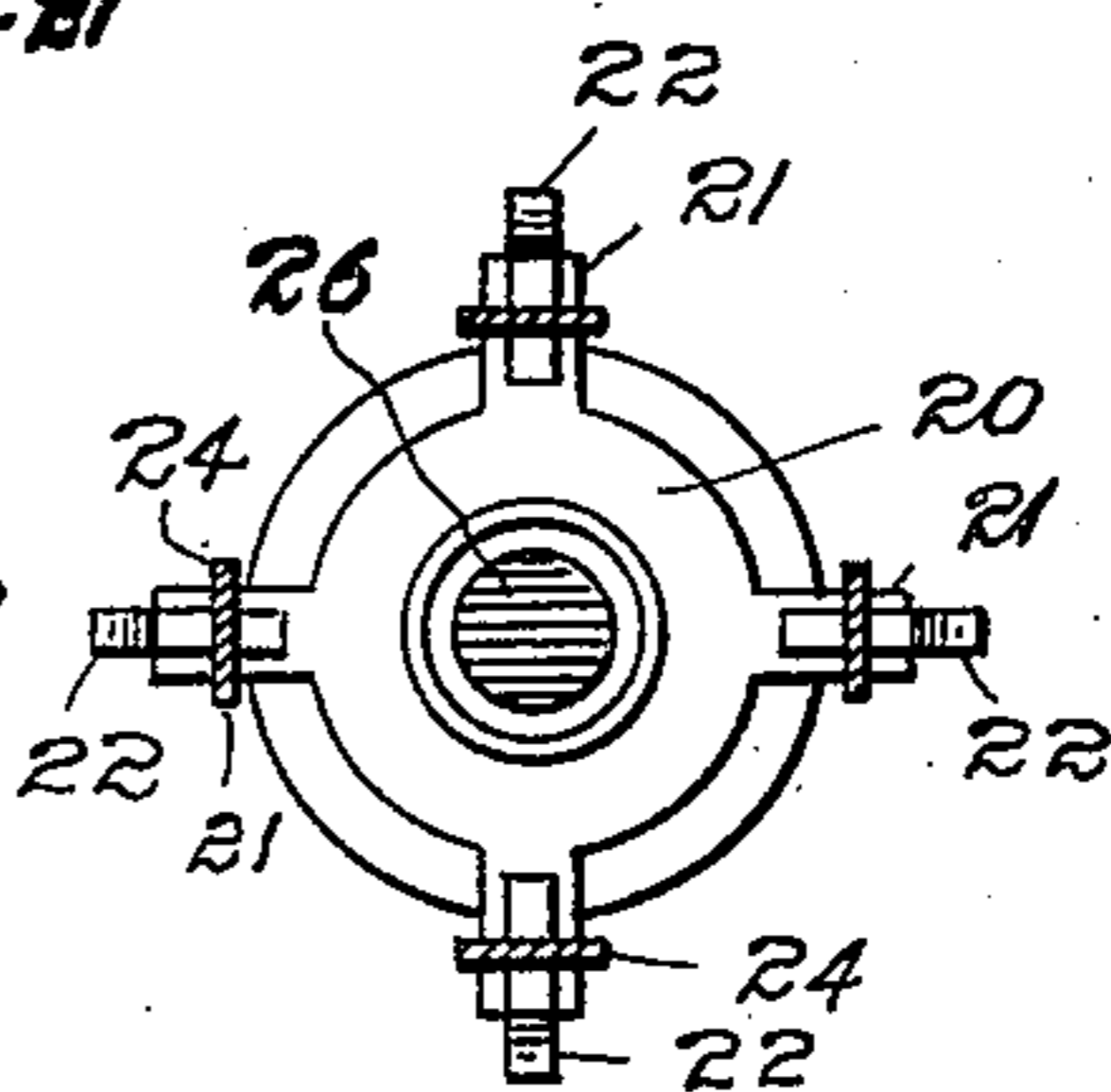


FIG. 4

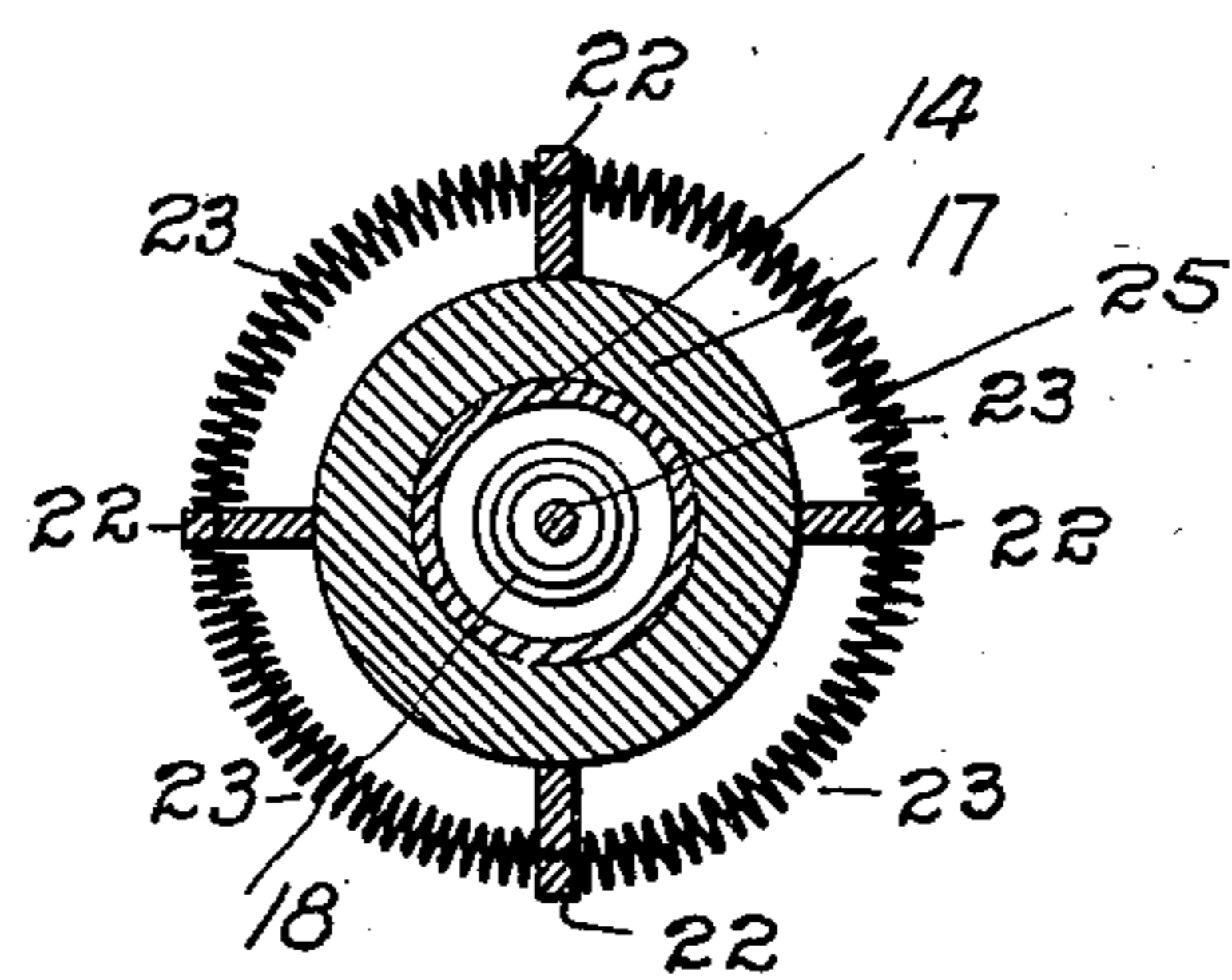
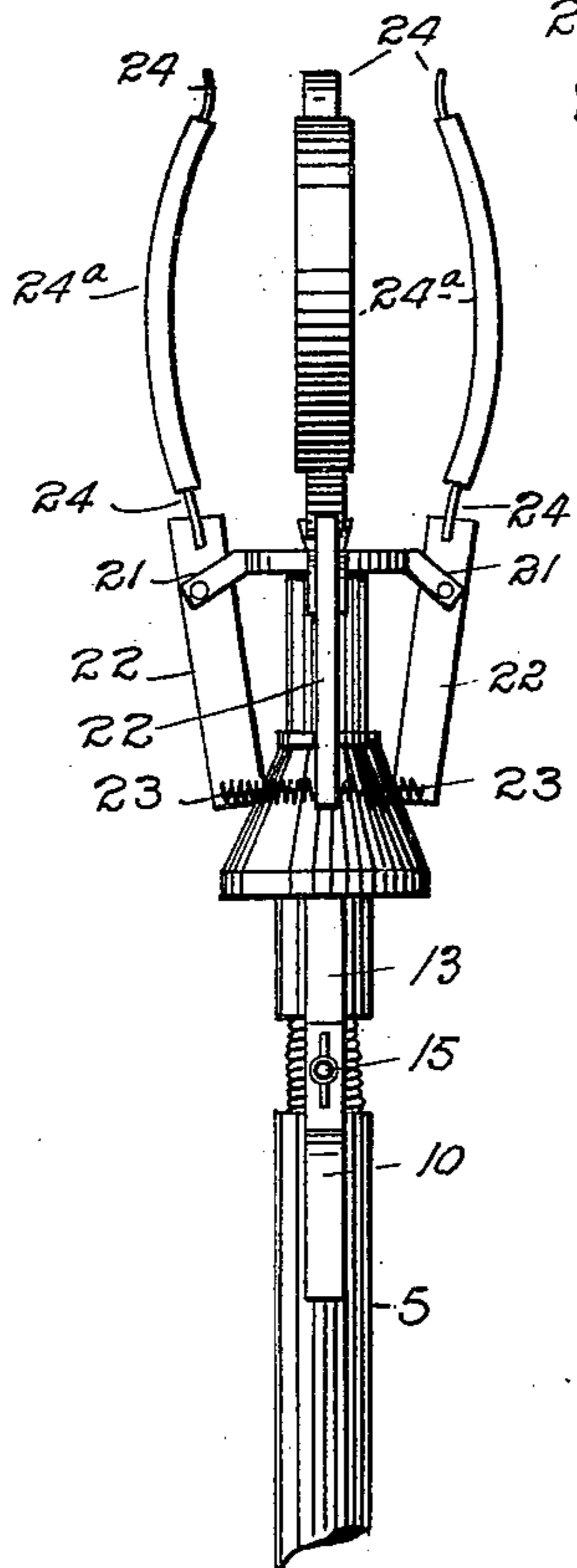


FIG. 3

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DEVICE FOR REMOVING AND REPLACING INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 659,631, dated October 9, 1900.

Application filed June 11, 1900. Serial No. 19,946. (No model.)

To all whom it may concern:

Be it known that we, ROCH CROTEAU and RICHARD J. MESSIER, citizens of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Devices for Removing and Replacing Incandescent Lamps; and we do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in devices specially intended for removing and inserting incandescent lamps when the sockets are so located that they cannot be reached by the hand. The device may, however, be employed for picking fruit and in other similar or analogous relations.

The invention consists of the features hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a vertical longitudinal section taken through our improved device, the handle being partly broken away. Figs. 2 and 3 are cross-sections taken on the lines X X and Y Y, respectively. Fig. 4 is an elevation of the device on a smaller scale and given a quarter-turn from the position shown in Fig. 1. The levers are also shown at their upward limit of movement.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a handle or pole of any desired length. To the upper portion of this handle is attached in any suitable manner a metal sleeve 6, which projects above the top of the handle. Within the protruding portion of this sleeve is located a plunger 7, to which is attached one extremity of a rod 8, which passes through a central longitudinal opening formed in the handle. Its opposite extremity protrudes from the free end of the handle and is provided with a hand-wheel 9 or other suitable device to facilitate the operation of the rod, which is permitted a limited reciprocation in the handle. To the up-

per extremity of the sleeve 6 are rigidly attached two arms 10, respectively located on opposite sides of the sleeve. These arms project above the upper extremity of the sleeve and are apertured to receive screws 12, whose heads are made fast to arms 13, rigidly secured to a sleeve 14. The arms 10 and 13 are connected by applying thumb-nuts 15 to the screws 12. This connection forms a hinge-joint, whose freedom of movement is controlled by the thumb-nuts. To the upper part of the sleeve 14 is attached a collar 16, between which and the upper extremities of the arms 13 is located a conical cam 17, which is revolubly movable on the sleeve 14.

To the reduced upper extremity of the plunger 7 is made fast one extremity of each of two coil-springs 18, one located within the other. The opposite extremities of these springs are secured to one extremity of a tube 19, movable within the sleeve 14. To the upper extremity of this tube is secured a collar 20, provided with ears 21, upon which are fulcrumed lever-arms 22, whose lower extremities engage the conical cam 17 and are connected by coil-springs 23. To the upper extremities of the lever-arms 22 are made fast bow-shaped gripping-arms 24, each of which is surrounded by a rubber sheath 24^a.

To the upper extremity of the plunger 7 is secured one extremity of a small twisted-wire cable 25, which extends upwardly through the springs 18 and the tube 19, from which its upper extremity protrudes and is provided with a button 26.

Assuming that the parts are in the position shown by full lines in Fig. 1 of the drawings, the operation of the device is as follows: While the handle 5 is held by one hand the other hand grasps the part 9 and shoves the rod 18 upwardly until the part 9 engages the end of the handle. This upward movement of the rod imparts a corresponding movement to the plunger 7, the springs 18, the cable 25, the tube 19, the collar 20, the levers 22, and the gripping-arms 24. It will be observed that when in the full-line position in Fig. 1 the lower extremities of the levers engage the base or largest portion of the cam 17, the springs 23 being stretched and under tension. Hence as soon as the levers are moved upwardly to the dotted-line position in Fig. 1

and the full-line position in Fig. 4, where the cam is smaller, the springs 23 recoil and draw the lower extremities of the levers inwardly against the cam and open the gripping-arms 5 24 sufficiently wide to receive the incandescent lamp or other device which it is desired to handle. When the lamp is in place, its lower extremity bears against the button 26 of the wire cable. The gripping-arms are 10 then closed on the lamp by reversing the movement of the rod 8 and its connections. The device is then drawn bodily away, whereby the lamp is removed from its socket. The cushion-sheaths 24^a of the arms 24 overcome 15 any tendency to break the lamp or bruise the fruit or other article which it is desired to handle. To insert a lamp in the socket, the operation is reversed and will be readily understood without further explanation. When 20 it is desired to reach a lamp upon a vertical wall or the inclined portion of a ceiling, the thumb-nuts 15 are loosened and the arms 13 and the parts above, which are connected therewith, as heretofore explained, are bent 25 to any desired angle by virtue of the flexible part, composed of the springs 18 and the cable 25. By tightening the thumb-nuts the lamp-removing device is held in the adjusted position, and the operation is the same as 30 heretofore described.

Having thus described our invention, what we claim is—

1. In a lamp remover and replacer, the combination of a handle, a cone-shaped cam 35 mounted on its upper extremity, a rod movable longitudinally on the handle, a collar connected with the upper extremity of the rod, levers fulcrumed thereon above the cam which the lower arms of the levers engage, 40 springs whose tendency is to hold the lever-arms against the cam, and gripping-arms connected with the upper arms of the levers, the arrangement being such that as the rod is moved longitudinally in the handle, the grip- 45 ping-arms are opened and closed through the action of the cam and the levers.

2. The combination with a handle and a rod movable longitudinally therein, of a hollow cam mounted on the upper extremity of 50 the handle, a collar located above the cam, a device passing through the cam and connecting the collar with the upper extremity of the rod, and spring-held lever-arms fulcrumed on the collar and engaging the cam.

3. The combination with a handle and a rod movable longitudinally therein, of a hollow cam hinged to the upper extremity of the 55 handle, means for locking the cam at any desired angle with the handle, a collar located above the cam, a flexible connection between the collar and the upper extremity of the rod said connection passing through the opening 60 in the cam, and spring-held lever-arms fulcrumed on the collar.

4. The combination of a handle, a rod passing longitudinally therethrough and movable

therein, a plunger attached to the upper extremity of the rod, a sleeve attached to the upper extremity of the handle, and surrounding the plunger, arms attached to the upper 70 extremities of the sleeve on opposite sides, a hollow cone-shaped cam mounted on said arms and movably connected with the arms on the sleeve to permit the cam to be moved to occupy a position at an angle to the han- 75 dle, a flexible device passing through the cam and projecting above the same, a collar fast thereon, and spring-held lever-arms fulcrumed on the collar and engaging the cam.

5. The combination of a handle provided 80 with a longitudinal opening, a hollow cam hinged to the upper extremity of the handle, a rod passing through the handle and movable therein, a flexible device connected with the upper extremity of the handle and pass- 85 ing through the cam, a collar connected with the upper extremity of the flexible device and spring-held lever-arms fulcrumed on the collar.

6. The combination of a handle provided 90 with a longitudinal opening, a hollow cam hinged to the upper extremity of the handle, a rod passing through the handle and movable therein, a flexible device connected with the upper extremity of the handle and pass- 95 ing through the cam, said device comprising springs coiled one within the other, a collar connected with the upper extremity of the springs, and spring-held lever-arms fulcrumed on the collar. 100

7. The combination of a handle provided with a longitudinal opening, a hollow cam 105 hinged to the upper extremity of the handle, a rod passing through the handle and movable therein, a flexible device connected with the upper extremity of the handle and pass- 110 ing through the cam, said device comprising springs coiled one within the other, a collar connected with the upper extremity of the springs, and spring-held lever-arms fulcrumed on the collar, a flexible wire cable 115 connected with the upper extremity of the rod, passing through the springs and protruding above the collar, and a button attached to the upper extremity of the cable.

8. The combination of a handle, a rod movable longitudinally therein, a hollow cam 120 mounted on the upper extremity of the handle, a collar located above the cam, a connection between the rod and the collar, said connection passing through the opening in the cam, lever-arms fulcrumed on the handle, and coil-springs connecting the lever-arm ex- 125 tremities and having a tendency to hold them against the cam.

In testimony whereof we affix our signatures in presence of two witnesses.

ROCH CROTEAU.

RICHARD J. MESSIER.

Witnesses:

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