

945,535.

F. E. HILLIARD.  
ELECTRIC SWITCH.  
APPLICATION FILED AUG. 21, 1908.

Patented Jan. 4, 1910.

FIG. 1.

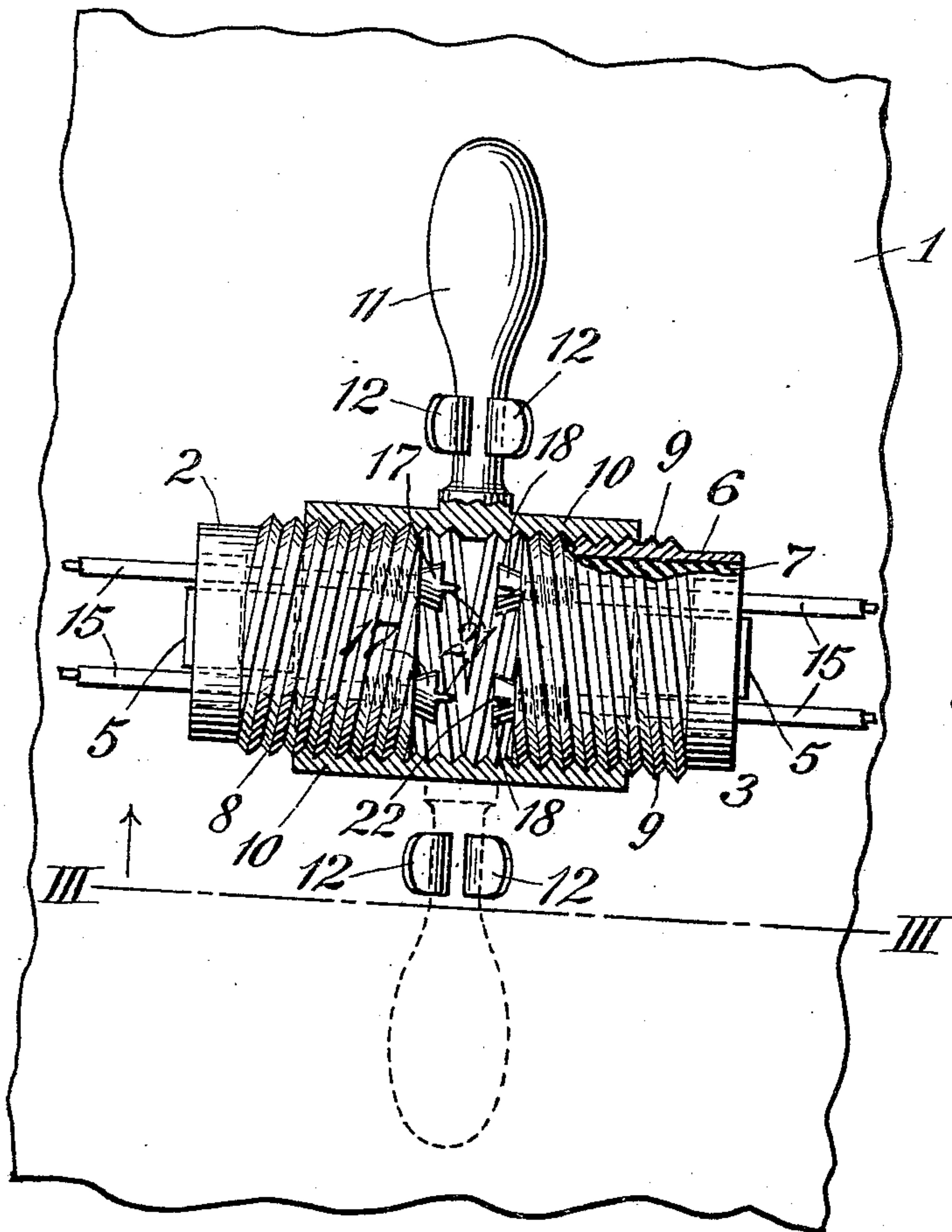


FIG. 2.

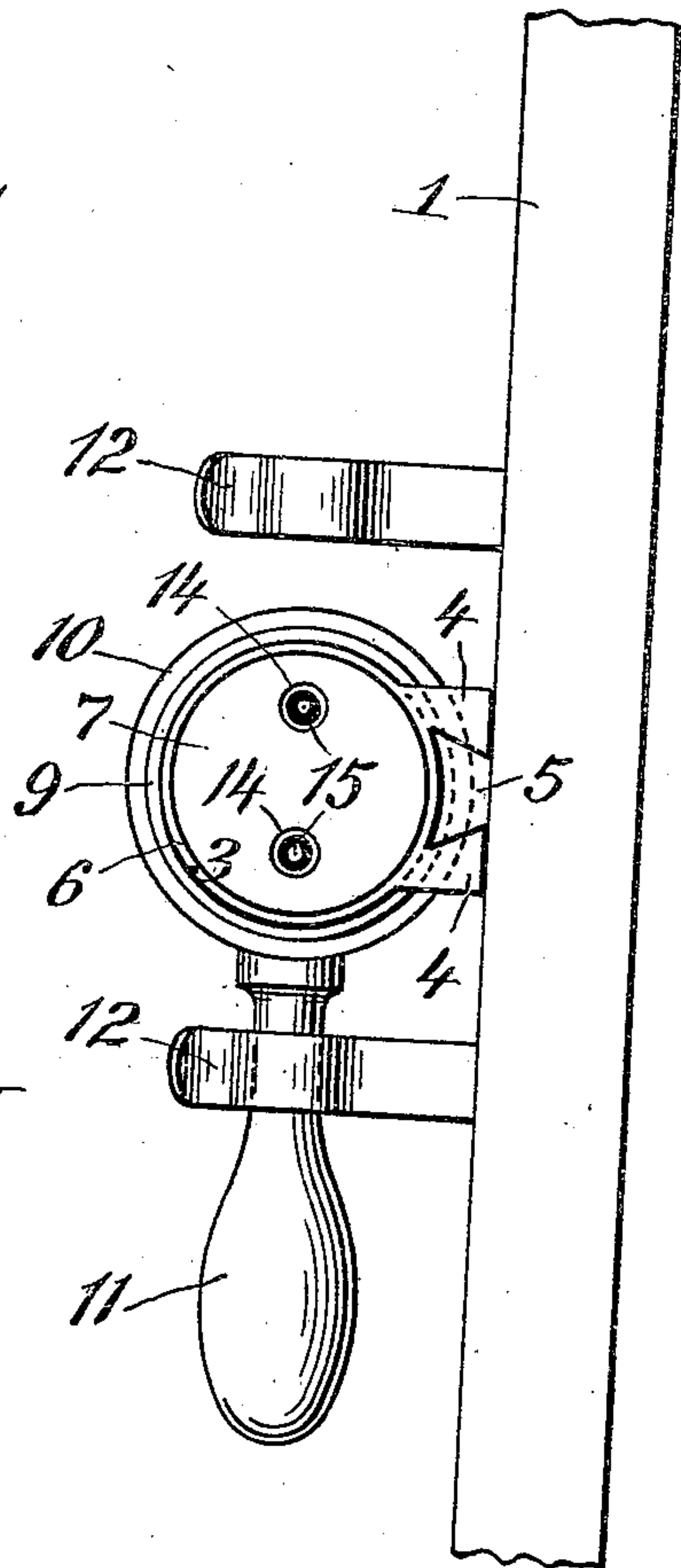
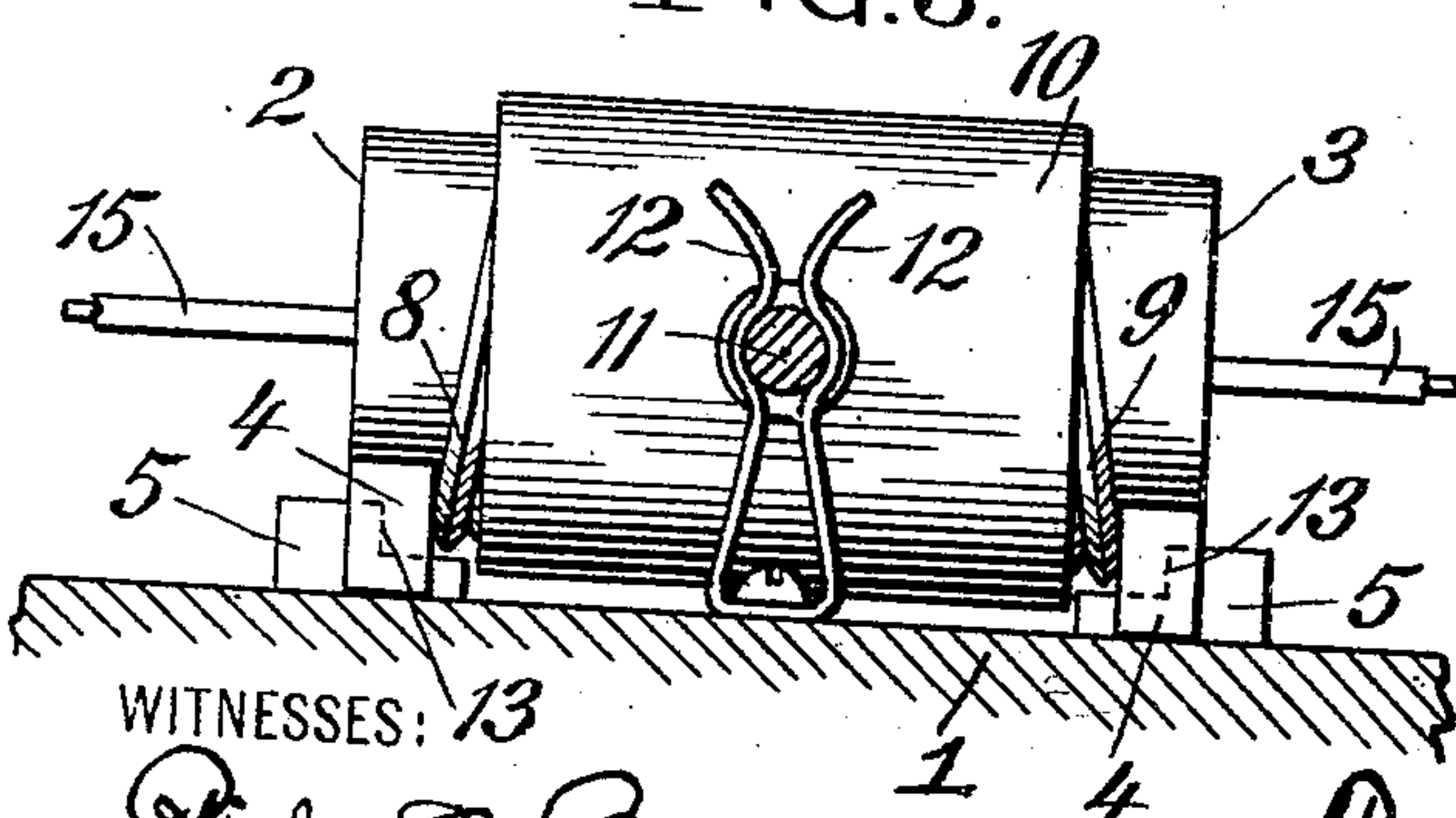


FIG. 3.

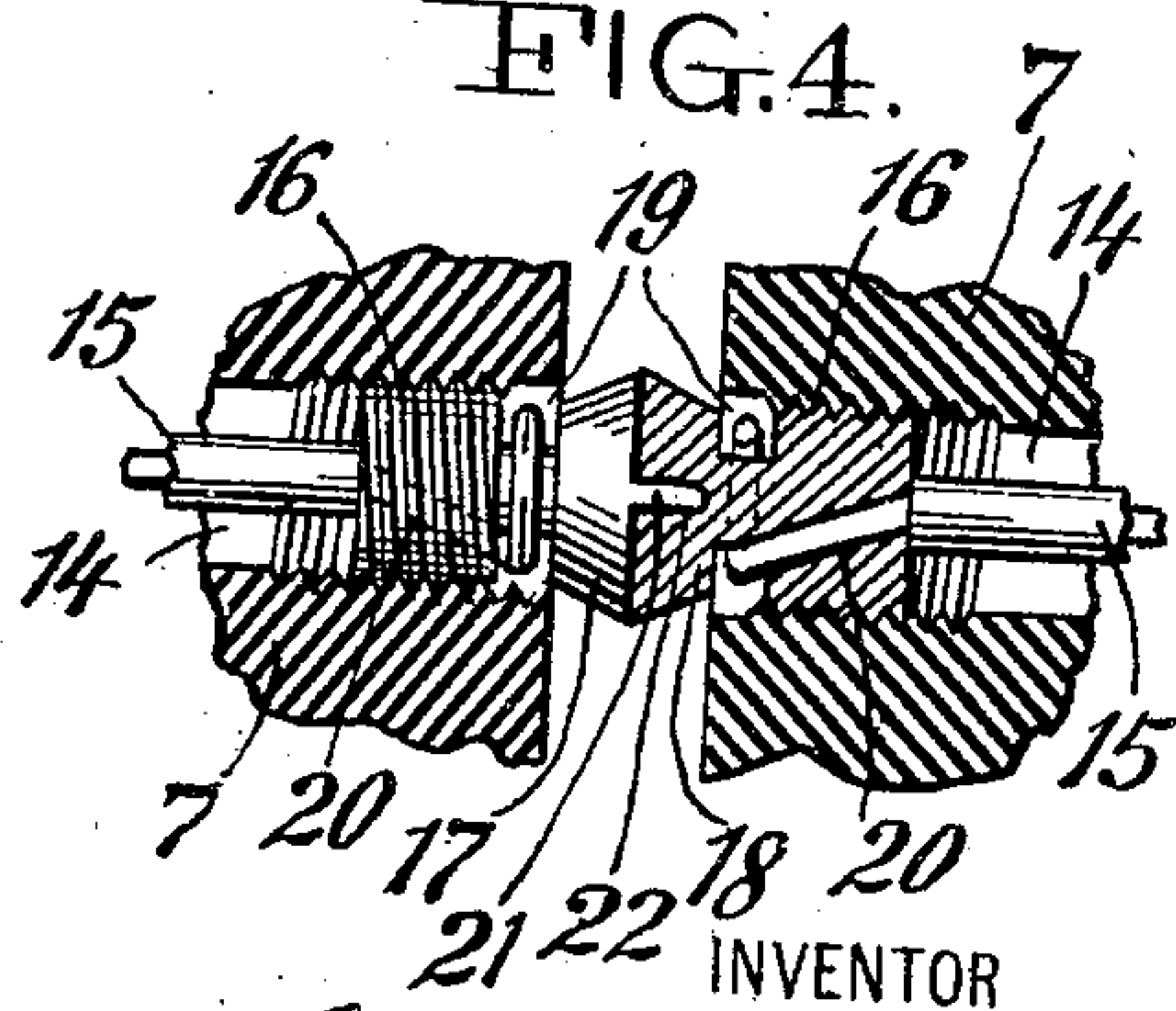


WITNESSES: 13

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FIG. 4.



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# UNITED STATES PATENT OFFICE.

FREDERICK ELMER HILLIARD, OF NEW YORK, N. Y., ASSIGNOR TO AMERICAN GEM & PEARL COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## ELECTRIC SWITCH.

945,535.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed August 21, 1908. Serial No. 449,594.

*To all whom it may concern:*

Be it known that I, FREDERICK ELMER HILLIARD, a citizen of the United States, residing in the borough of Brooklyn, in the county of Kings and city and State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification.

My invention comprises an electric switch in which novel means are provided for closing and breaking the circuit and one in which the terminals are inclosed and protected.

My device is exceedingly simple and is very easy to mount, and I have devised means whereby the conductors may be very readily connected to the switch terminals.

In the accompanying drawings I have shown one specific modification of my device which I have chosen merely for purposes of illustration.

It is obvious that my invention is susceptible of a variety of forms.

In these drawings Figure 1 is a front elevation of my switch, the sleeve being in section, Fig. 2 is a side view thereof. Fig. 3 is a section taken on line III—III of Fig. 1. Fig. 4 is a sectional detail showing the manner of attaching the conductors to the switch terminals.

Referring to the drawings in detail 1 is the wall, switch board panel or special base-plate provided for the switch. Mounted on this base are the switch blocks 2 and 3, which may be supported by any suitable device permitting them to slide longitudinally or axially toward or from each other while holding them from rotation. I have shown each block as provided with lugs 4 having a dove-tailed groove between them in which fits a dove-tailed block 5 secured to the base. The switch blocks are preferably composed of an outer shell 6 of metal or other suitable material which carries the lugs 4, and a filling 7 of insulating material. The blocks may, however, be composed wholly of insulating material or wholly of metal or other substance, suitable means being provided for insulating the conductors passing through them and the switch terminals, which they carry. Upon the outside of one shell or of a block itself where no shell is used, is formed a left hand screw thread 8, while on the outside of the other shell or

block is formed a right hand screw thread 9. Rotatively mounted upon these threads is a sleeve or double nut 10 having an internal left hand thread throughout half its length and an internal right hand thread throughout the other half of its length. A handle 11 or other suitable means may be provided for turning this sleeve about its axis.

It will be seen that when the sleeve is rotated in one direction the blocks 2 and 3 will be drawn together and when the sleeve is rotated in the other direction the blocks will be separated. I preferably provide some means, such as springs 12 to retain the sleeve in its extreme positions, though it may be found unnecessary to use anything for this purpose. The sleeve 10 may be made of metal or insulating material as found desirable or necessary. The guide blocks 5 are cut away at 13 as shown in Fig. 3 to clear the threaded portions of the switch blocks.

The switch may be constructed to break one or more circuits as desired, in the form shown, two. Each block has a pair of openings 14 through it, through which the conductors 15 are led, the inner ends of the holes 14 being internally threaded as shown at 16 in Fig. 4. The terminal blocks 17 and 18 screw into these holes. Each of these terminals is provided with a circumferential groove 19 and with an opening 20 for the conductor leading from its rear end to this groove. The terminals are preferably provided with some means for insuring alinement and for increasing their contact area, such as a knife 21 on one engaging with a slot 22 in the other.

To attach the conductor to the terminal the latter is unscrewed, the conductor is passed through the hole 14 and the insulation being removed from a portion of it, its end is threaded through opening 20 and twisted about the small neck of the terminal formed by groove 19. The terminal is then screwed back into place. Of course, various changes may be made in this arrangement.

The operation of the switch above described is apparent. With the parts as shown in Fig. 1 to close the circuit it is merely necessary to move the handle 11 to the position indicated in dotted lines when the blocks 2 and 3 will be drawn together and the terminals forced into contact as shown in Fig. 4. By means of the screw ac-



tion the terminals can be forced together under considerable pressure, thus resulting in a better electrical contact than is obtainable in knife or other switches which merely  
5 rely upon spring pressure. By making the threads 8 and 9 of a considerable pitch any necessary degree of rapidity of separation of the terminals may be obtained. The pitch will be determined according to the current  
10 and voltage for which the switch is designed.

Many modifications in the structure specifically described by way of illustration may be made without departing from the  
15 scope of my invention as defined in the appended claims.

Having thus described my invention, I claim:

1. In an electric switch a pair of cylindrical blocks arranged in axial alinement one of said blocks being provided with an external right hand thread and the other with an external left hand thread, means for preventing the rotation of said blocks,  
20 a sleeve surrounding said blocks having internal right and left threads engaging the threads on the blocks, means for rotating said sleeve, and terminals on the adjacent faces of said blocks adapted to be brought in  
25 contact when the sleeve is rotated in one

direction and separated when the sleeve is rotated in the other direction.

2. In an electric switch, a base, a pair of cylindrical switch blocks supported by said base in axial alinement and free to move  
35 longitudinally toward and from each other, but held from rotation, one of said blocks being provided with a right hand thread and the other with a left hand thread, a sleeve having internal right and left threads  
40 engaging the threads on the switch blocks, a handle on said sleeve and means fixed to the base for engaging said handle and holding it in fixed position.

3. In an electric switch, a pair of switch  
45 blocks each comprising an externally threaded cylindrical shell, a filling of insulating material, and a terminal supported by said filling, a sleeve surrounding said blocks, said sleeve being provided with in-  
50 ternal threads adapted to fit the threads on said blocks, and means for rotating said sleeve whereby the blocks will be moved toward and away from each other and the terminals brought into contact or separated. 55

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Witnesses:

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