

No. 887,527.

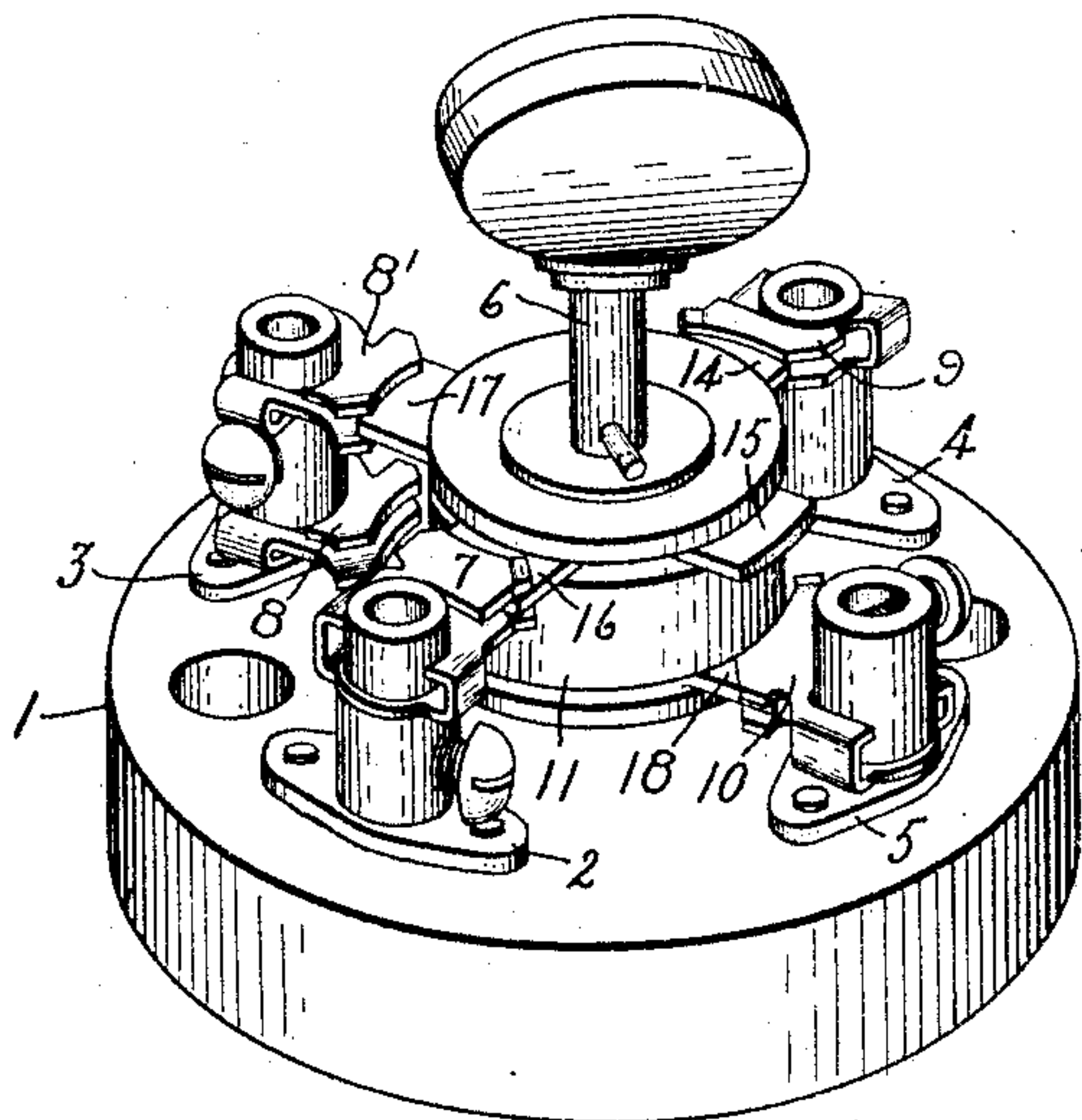
PATENTED MAY 12, 1908.

H. R. SARGENT.  
SERIES MULTIPLE SWITCH.

APPLICATION FILED MAY 22, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

*George H. Tilden.*  
*J. Ellis Glen.*

Inventor:

Howard R. Sargent,

by *Albion Davis*  
Att'y.

No. 887,527.

PATENTED MAY 12, 1908.

H. R. SARGENT.  
SERIES MULTIPLE SWITCH.

APPLICATION FILED MAY 22, 1905.

2 SHEETS—SHEET 2.

Fig. 2.

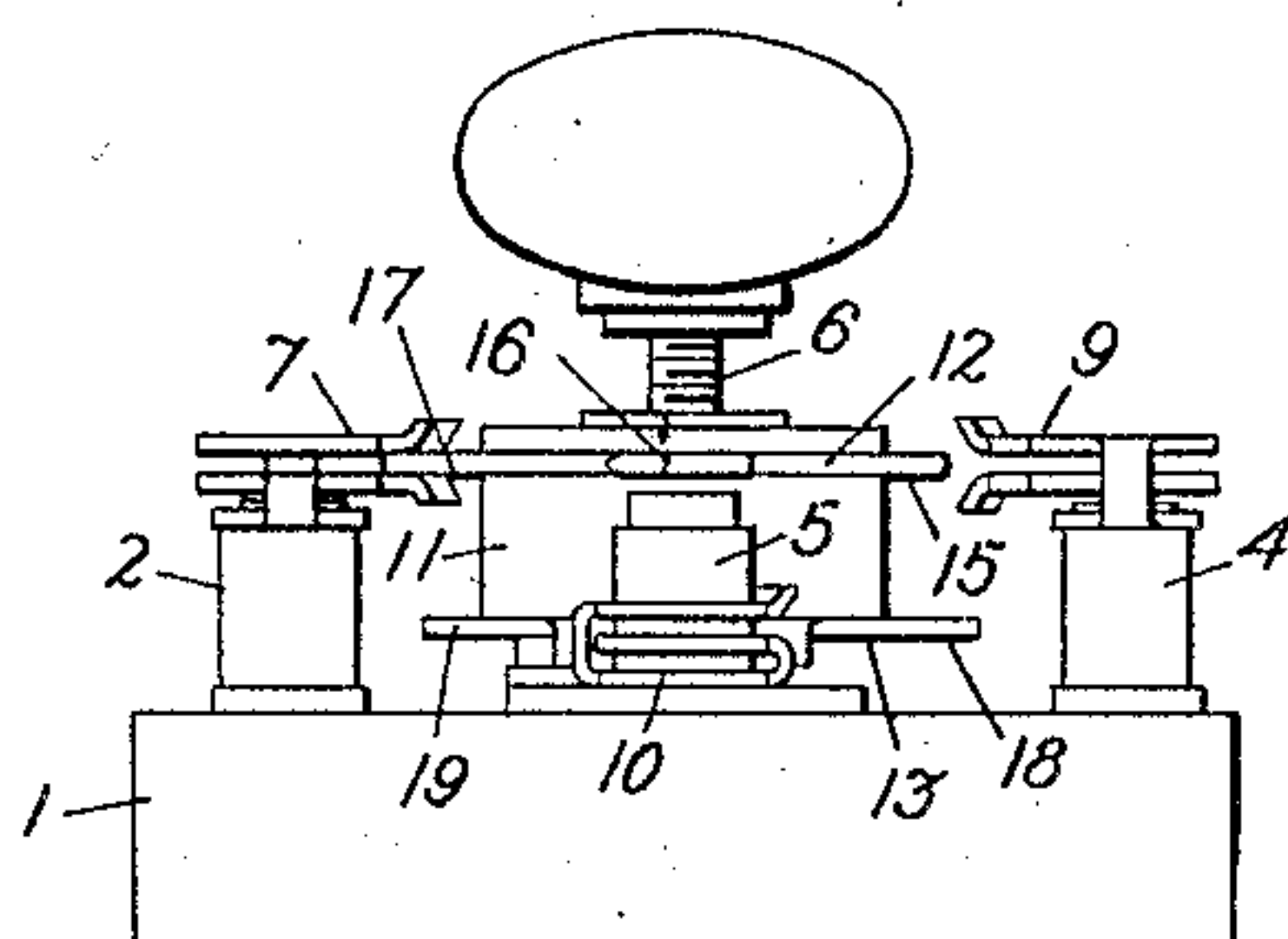


Fig. 3.

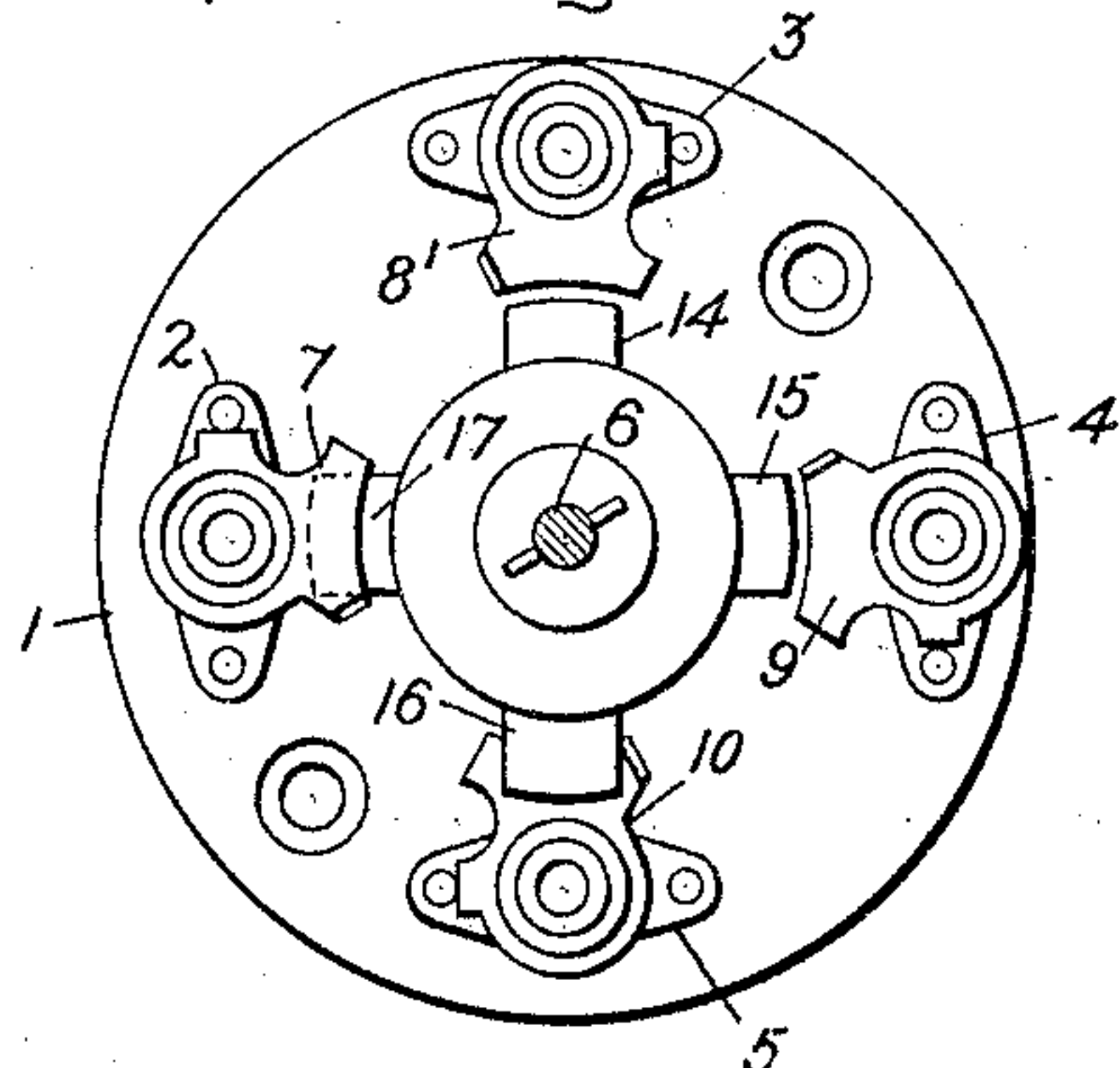


Fig. 4.

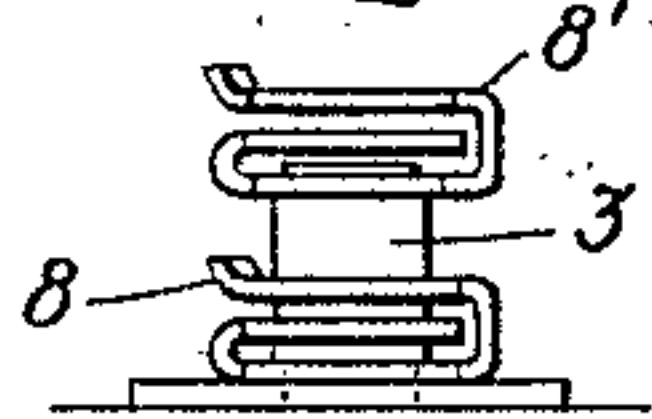


Fig. 5.

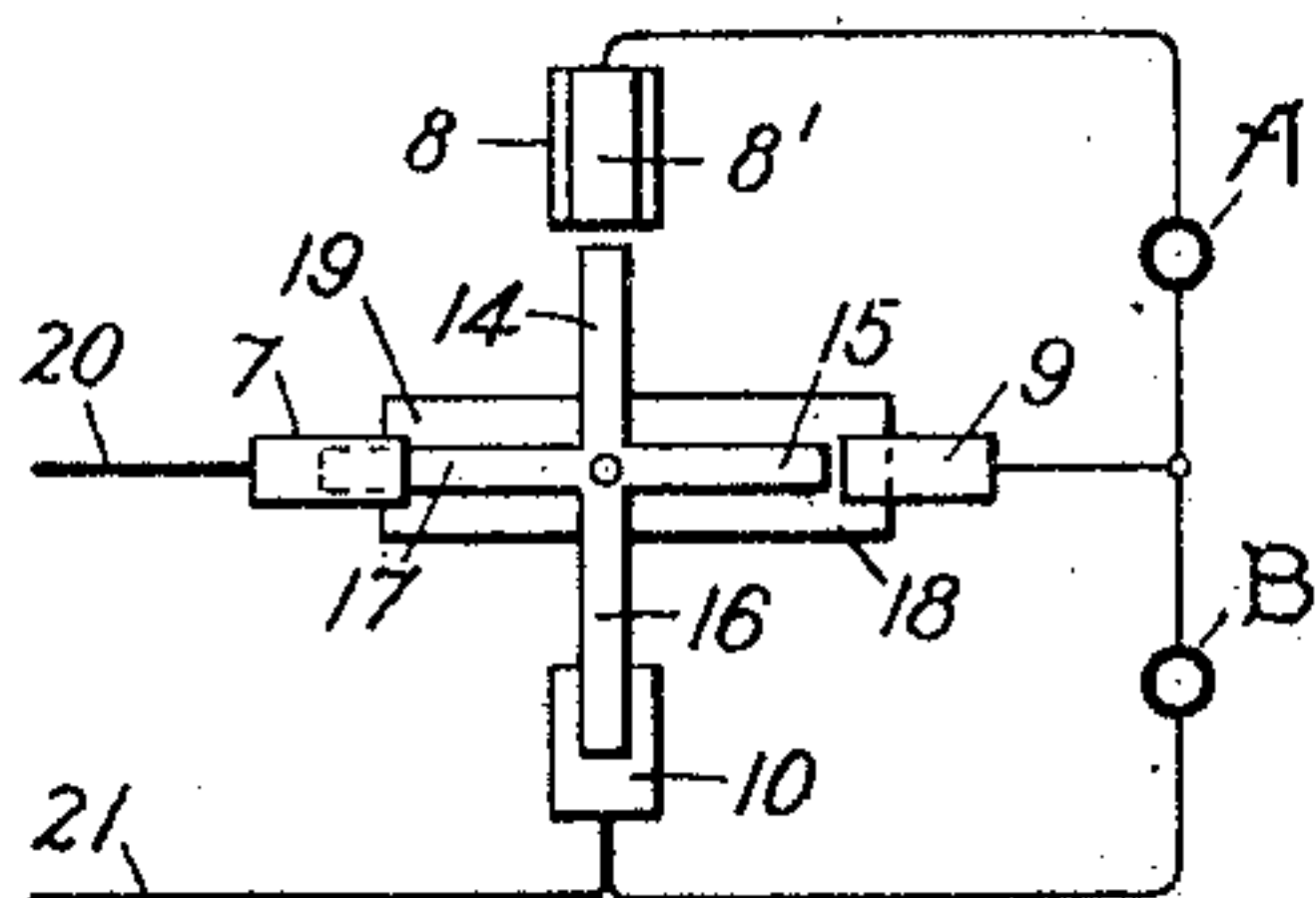


Fig. 6.

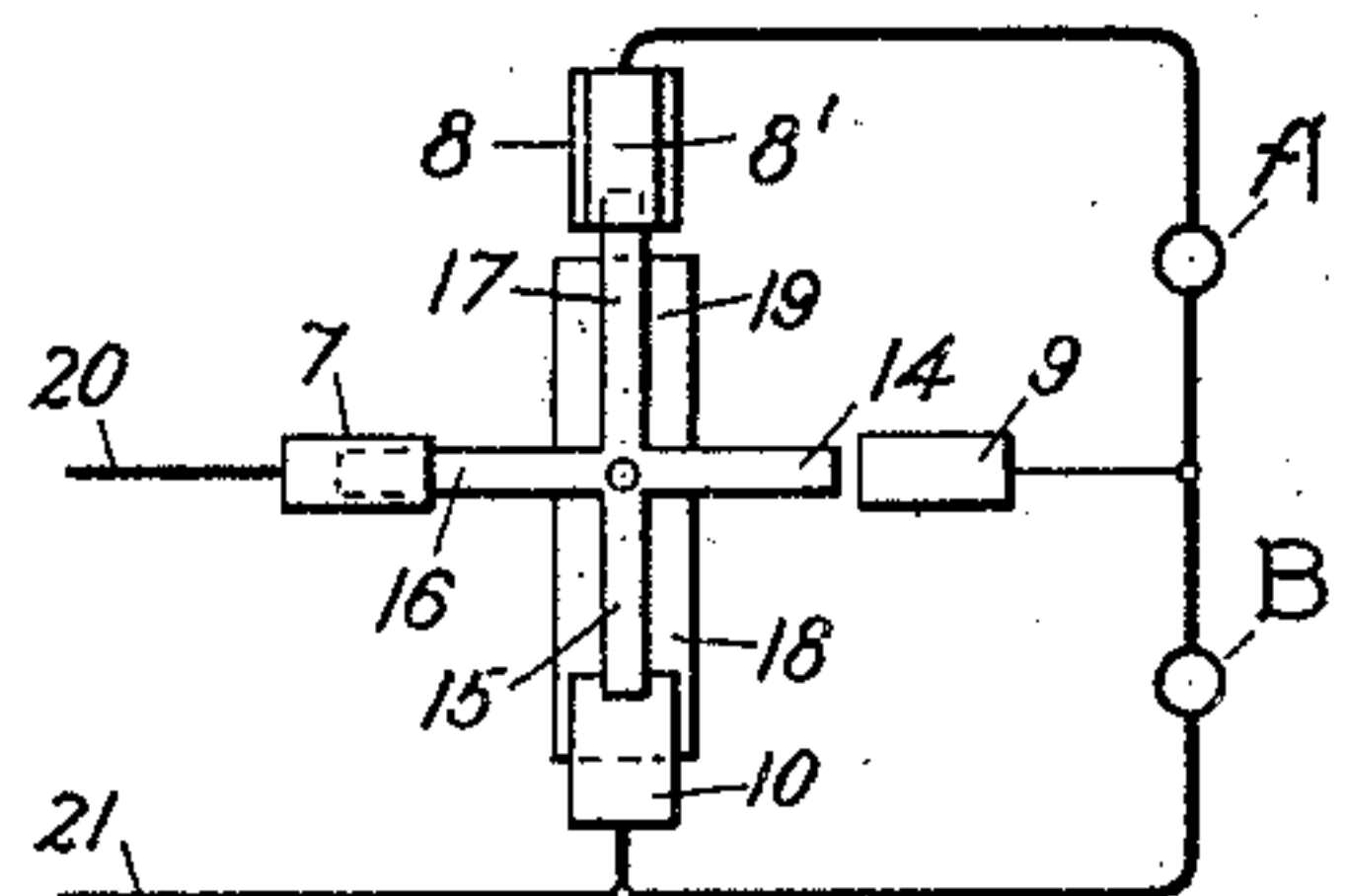


Fig. 7.

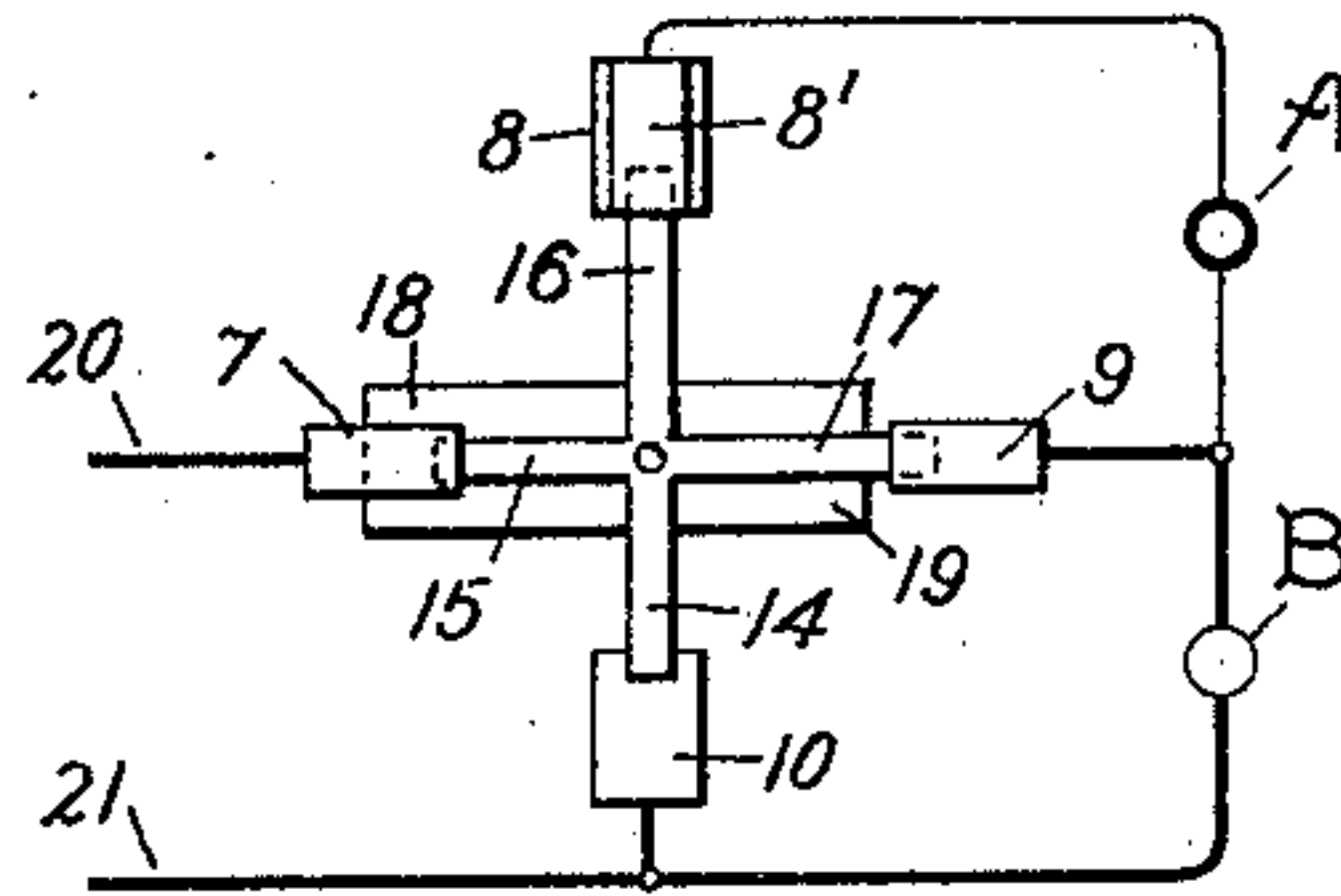
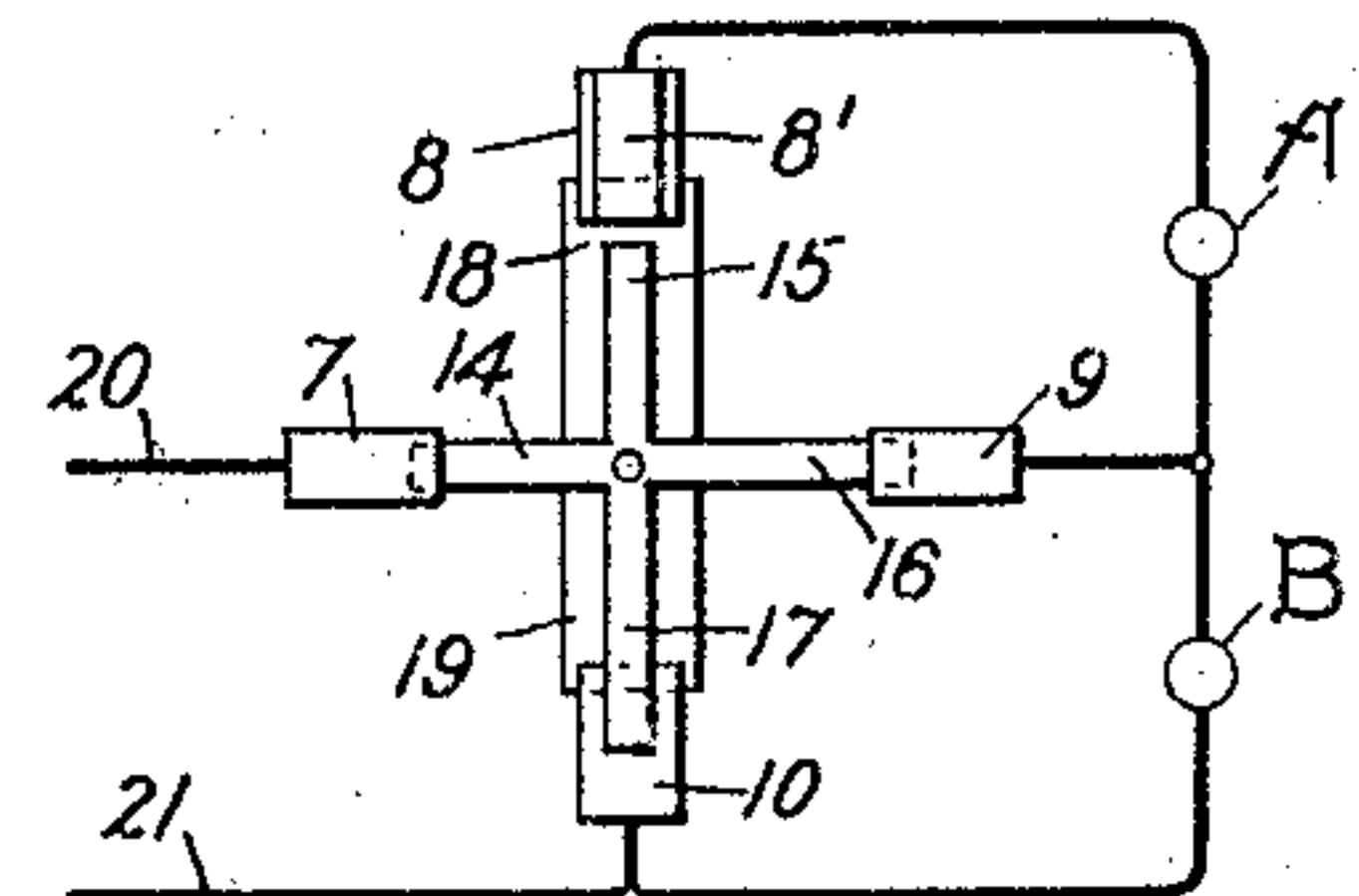


Fig. 8.



Witnesses.

*Samuel H. Tilden*  
*Allen Oxford*

Inventor.

Howard R. Sargent.  
by *Albert H. Davis*  
Att'y



# UNITED STATES PATENT OFFICE.

HOWARD R. SARGENT, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## SERIES-MULTIPLE SWITCH.

No. 887,527.

Specification of Letters Patent.

Patented May 12, 1908.

Application filed May 22, 1905. Serial No. 261,514.

*To all whom it may concern:*

Be it known that I, HOWARD R. SARGENT, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Series-Multiple Switches, of which the following is a specification.

This invention relates to electric lighting, and its object is to provide means whereby two or more incandescent lamps can be connected either with all the lamps extinguished or with all in series to give a dim light or with one lamp only in circuit to give a brighter light or with all the lamps in parallel to give a light of maximum brilliancy.

The invention is similar to that set forth in my Patent No. 769,638. But in said patent five points of connection are required, and the spindle of the switch forms a part of the circuit. In my present invention, only four binding posts are needed, and the spindle is not in circuit, thus simplifying the construction and the wiring.

In the accompanying drawing, Figure 1 is a perspective view of my improved series-multiple switch; Fig. 2 is a side elevation; Fig. 3 is a top plan view of the same; Fig. 4 is an elevation of the binding post not visible in Fig. 2; Figs. 5, 6, 7 and 8 are diagrams showing the four positions of the switch, and the resulting circuits.

For the sake of simplicity I have illustrated the application of the invention to two lamps or other translating devices, though it is to be understood that I do not limit myself to that number.

The switch comprises a base 1 of insulating material, from which rise four posts 2, 3, 4, 5 arranged preferably at equal angular distances around a central rotatable spindle 6. On each post is a contact clip, 7, 8, 9, 10, and one clip in each diametrical pair is set nearer the spindle than the other; thus the clips 7 and 10 may be nearer the spindle than the clips 8 and 9. This is easily accomplished by using clips of uniform size and setting the posts 2, 5 nearer the spindle, as clearly shown in Fig. 3. The clips 7 and 9 are in one plane of revolution of the spindle and the clips 8 and 10 in a different plane, preferably a lower one. On the post 3 is a fifth clip 8' in the same plane as the clips 7, 9.

The spindle 6 acts by a lost-motion snap action on a barrel 11 carrying two contact

blades 12, 13, which are located respectively in the planes of the clips 7 and 10 and are insulated from each other. The blade 12 has four radial arms, 14, 15, 16, 17 at right angles with each other, two adjacent arms 14, 15 being shorter than the other two. The blade 13 has two diametrically opposite arms 18, 19, lying in the same vertical plane (with reference to Fig. 1) as the arms 15, 17 of the blade 12. The arm 18 coincides with the arm 15 and is longer than the arm 19. The long arms of the two blades can make contact with all the clips in their respective planes of revolution, while the short arms can make contact only with the nearer clips 7, 10. The line wires 20, 21 are connected with the posts 2, 5. The terminals of one translating device A are connected with the posts 3, 4, and the terminals of the other translating device B with the posts 4, 5.

The operation of the switch is as follows; reference being had to Figs. 5 to 8. Fig. 5 shows the circuit open, the lower blade being at right angles to its clips 8, 10, and the arms 14, 15, 16 of the blade 12 being out of contact with any of the clips. Fig. 6 shows the two translating devices connected in series to give a dim light, arm 16 of the blade 12 is in clip 7 and arm 17 in the fifth clip 8'; all other arms of both blades being out of service. The circuit is therefore from line 20 and clip 7 to arms 16, 17, clip 8', and devices A and B to line 21. Fig. 7 shows device B only in circuit. Arm 15 of blade 12 is in clip 7, arm 16 in clip 8', and arm 17 in clip 9, the other arm 14 and both arms of blade 13 being out of service. The circuit is from line 20 and clip 7 to arms 15, 17, clip 9 and device B to line 21. Device A is short-circuited by the arm 17, and will therefore remain inoperative. Fig. 8 shows both devices in multiple. Arm 14 of the blade 12 is in clip 7, and arm 16 in clip 9, arms 15 and 17 being out of service. Arms 18, 19 of the blade 13 are respectively in contact with the clips 8, 10. The circuit is from the line 20 and clip 7 to arms 14, 16, clip 9, and devices A and B in multiple; the current through A reaching the line 20 through the clip 8, arms 18, 19, and clip 10.

What I claim as new and desire to secure by Letters Patent of the United States, is:—

1. The combination with two translating devices, of a switch having four stationary contact posts set in pairs at unequal distances from the switch axis, one pair of contact



posts connected with the line terminals, one of these and another with two translating devices, and one common to both translating devices, and a movable switch member carrying arms of unequal lengths to connect said posts, so that both translating devices will be cut out, or both placed in series, or one short-circuited, or both placed in parallel, as said switch is actuated.

2. The combination with two translating devices, of a switch having a central spindle and four stationary posts provided with contact clips, two of them being radially nearer to said spindle than the others, and an insulated blade on said spindle having long and short arms cooperating with said clips.

3. The combination with two translating devices, of a switch having a central spindle and four stationary posts provided with contact clips, one clip in each diametrical pair being nearer the spindle than the other, and two insulated blades on said spindle cooperating with said clips.

4. The combination with two translating devices, of a switch having a central spindle and four stationary posts provided with contact clips located in different planes, some being nearer the spindle than others, and two insulated blades on said spindle located in the planes of said clips and having long and short arms to cooperate therewith.

5. The combination with two translating devices, of a switch having a central spindle and four stationary posts provided with contact clips, three in one plane and two in another, and two insulated blades on said spindle located respectively in said planes and cooperating with said clips, each blade having arms of different lengths.

6. The combination with two translating devices, of a switch having a central spindle and four stationary posts provided with contact clips, one in each diametrical pair being nearer said spindle than the other, and one diametrical pair being on a different plane from the other pair, a fifth clip on the same post as one of the latter pair but on the plane of the other pair, and two insulated blades on said spindles having long and short arms cooperating with said clips.

7. The combination with two translating devices, of a switch having four posts provided with clips arranged on different levels, and a spindle carrying two insulated blades,

one having two arms of different lengths, and the other having four arms, two of which are shorter than the other two.

8. The combination with two translating devices, of a switch comprising a spindle, four posts provided with clips, one in each diametrical pair being nearer the spindle than the other and one diametrical pair being on a lower plane than the other, a fifth clip on the more distant post of the latter pair, said fifth clip being on the plane of the upper pair, and two insulated blades on said spindle, the lower having two diametrically opposite long and short arms, and the upper having four arms at right angles to each other, two adjacent arms being shorter than the other two.

9. The combination with two translating devices, of a switch comprising a spindle, four posts provided with clips, one in each diametrical pair being nearer the spindle than the other and one diametrical pair being on a lower plane than the other, a fifth clip on the more distant post of the latter pair, said fifth clip being on the plane of the upper pair, and two insulated blades on said spindle, the lower having two diametrically opposite long and short arms, and the upper having four arms at right angles to each other, two adjacent arms being shorter than the other two, one translating device being connected to the post carrying said fifth clip and also to one of the posts carrying an upper clip, the other translating device being connected to the latter post and to the one opposite said fifth clip, and line wires connected respectively with said latter post and with the remaining post carrying an upper clip.

10. The combination with two translating devices, of a switch comprising four posts provided with clips on two different planes, and a spindle carrying two insulated blades, one having diametrically opposite long and short arms, and the other having a long arm registering with the short arm of the other blade, a short arm registering with the long arm thereof, and a long arm and a short arm at right angles thereto.

In witness whereof I have hereunto set my hand this 19th day of May, 1905.

HOWARD R. SARGENT.

Witnesses:

BENJAMIN B. HULL,  
HELEN ORFORD.