

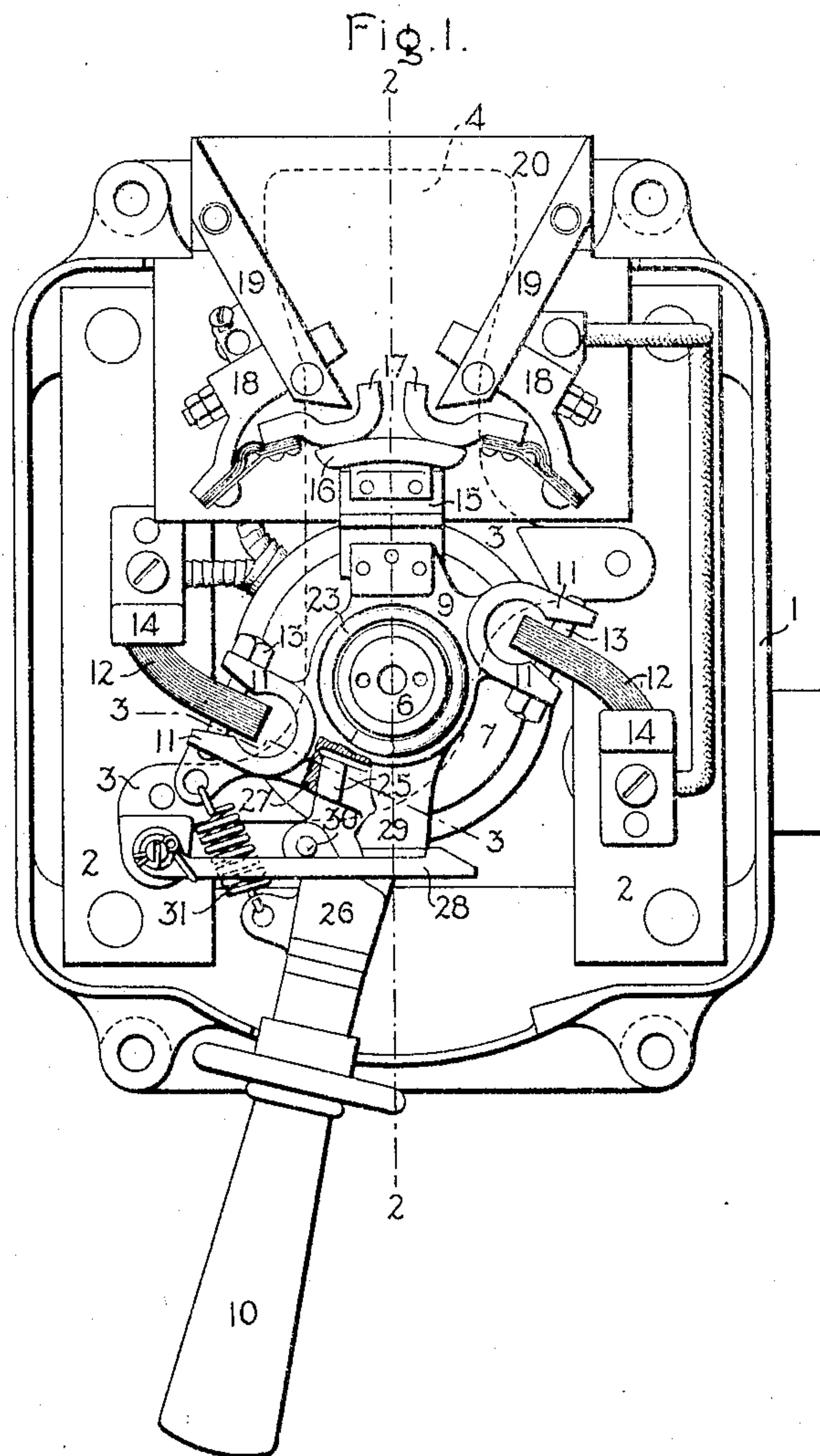
No. 785,985.

PATENTED MAR. 28, 1905.

S. B. STEWART, JR.
SWITCH.

APPLICATION FILED JULY 15, 1903.

2 SHEETS—SHEET 1.



Witnesses.

Harry M. Tilden.
Helen Clifford

Inventor.

Samuel B. Stewart, Jr.
by *Allen H. Davis*
Atty.

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2 SHEETS—SHEET 2

Fig. 2.

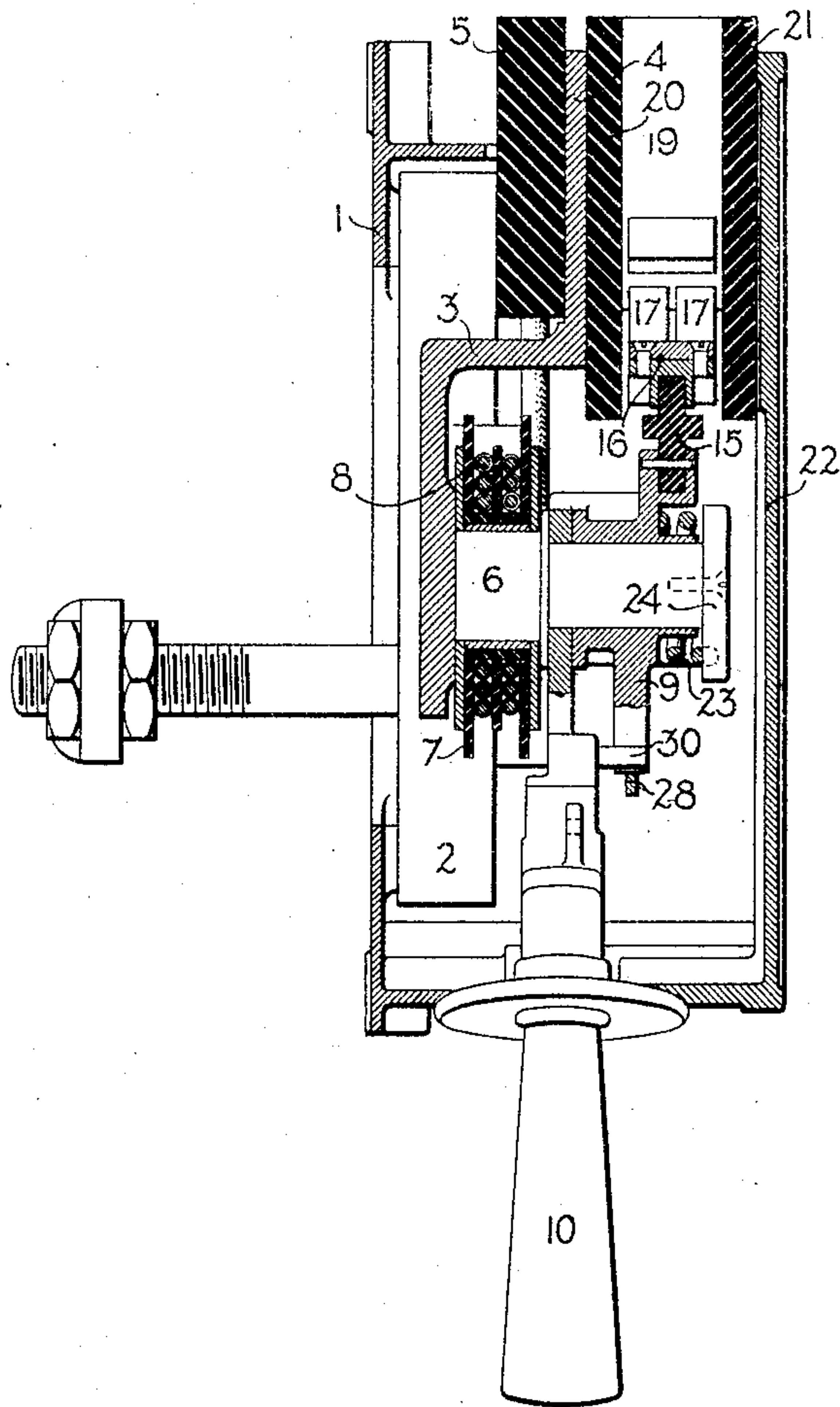
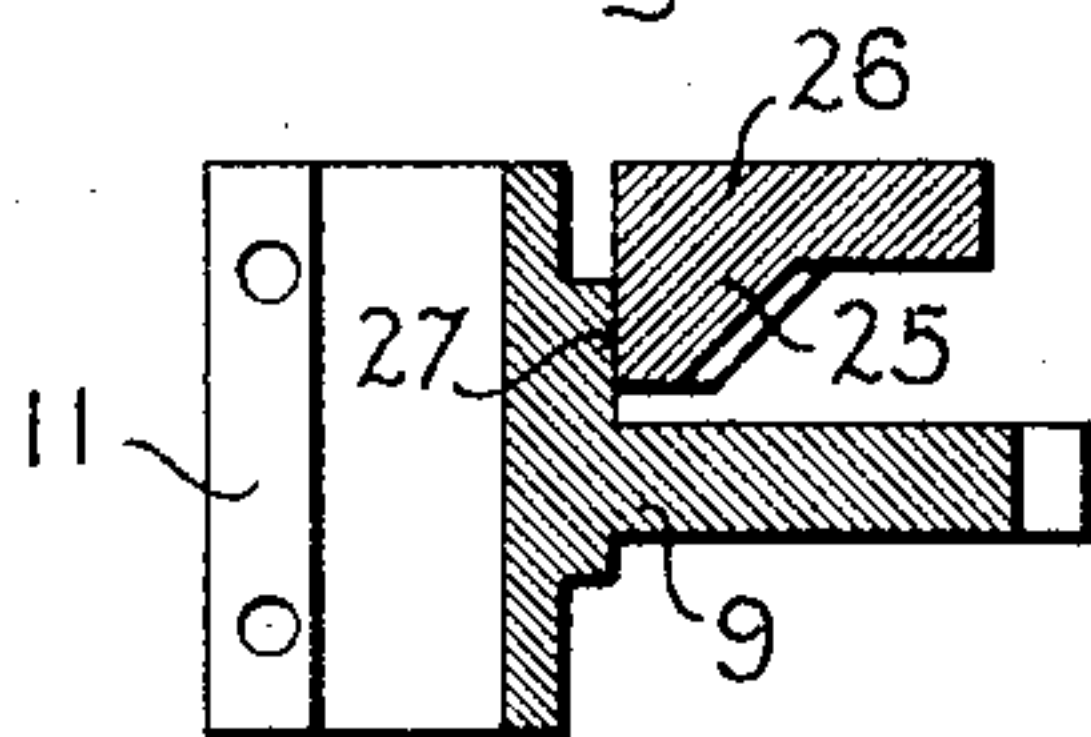


Fig. 3.



Witnesses.

Nanny M. Tilden.
Helen Oxford

Inventor.

Samuel B. Stewart, Jr.
by *Allen H. Davis*
Atty.

UNITED STATES PATENT OFFICE.

SAMUEL B. STEWART, JR., OF SCHENECTADY, NEW YORK, ASSIGNOR TO
GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SWITCH.

SPECIFICATION forming part of Letters Patent No. 785,985, dated March 28, 1905.

Application filed July 15, 1903. Serial No. 165,564.

To all whom it may concern:

Be it known that I, SAMUEL B. STEWART, Jr., a citizen of the United States, residing at Schenectady, in the county of Schenectady, State of New York, have invented certain new and useful Improvements in Switches, of which the following is a specification.

This invention relates to cut-outs for electric circuits; and its object is to improve the construction of a quick-opening magnetic blow-out switch with a view to better efficiency, reliability, and durability. The novelty resides in certain features of construction and arrangement hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a switch embodying my improvements, the lid of the casing and the spring-retainer being removed and a portion of the contact-carrier being broken away. Fig. 2 is a section on the line 2-2, Fig. 1; and Fig. 3 is a section on the line 3-3, Fig. 1.

In a suitable casing 1 are secured strips of insulation 2, on which is mounted a casting 3. (Shown for the most part in dotted lines in Fig. 1.) The upper wide end 4 of this casting or pole-piece is offset toward the front of the switch, as shown in Fig. 2, and forms one pole of the blow-out magnet. Said end 4 is preferably supported by a plate of insulation 5. From the lower portion of the pole-piece 3 projects a cylindrical stud 6, forming a core for the spool 7 of insulation, occupying the rear portion of the stud and on which is wound the blow-out coil 8. The front portion of the core serves as a pivot for the oscillating contact-carrier 9 and its operating-handle 10, which are movable independently of each other. The carrier is a three-armed structure, two opposite arms being recessed to form jaws 11, in which the laminated copper brushes 12 are secured by transverse bolts 13. Stationary contact-blocks 14, secured to the strips 2, cooperate with said brushes and form therewith the main switch. The third arm of the carrier has a piece of insulation 15 secured to it, on which is mounted the bridging-contact segment 16, adapted to bridge the spring-mounted contacts 17,

which form the terminals of a shunt around the main switch. The contacts 17 are carried by blocks 18, fastened to the backs of the strips 19 of insulation, which form the sides of the arc-chute. The back of the chute is a slab 20 of insulation standing in front of the pole 4. The front is a similar slab 21, (not shown in Fig. 1,) secured to the edges of the sides 19. The lid 22 of the casing serves to complete the magnetic circuit of the blow-out magnet.

The main contact-carrier is constantly urged in a direction to open the switch by a helical spring 23, one end of which is anchored in the hub of the carrier and the other in a retaining-plate 24, rigidly fastened to the outer end of the stud 6. In order to close the switch, a lug 25 is provided on the pivoted handle-support 26, which when the handle is swung to the left in Fig. 1 abuts against a shoulder 27 on the carrier and forces the brushes into close contact with the contacts 14. When thus set by the handle, the parts are detained by a spring-catch 28, which engages with a lug 29 on the carrier.

On the handle-support is a pin 30, which extends over the catch 28. By moving the handle to the right in Fig. 1 this pin will push down and trip the catch and release the carrier, so that its spring 23 will throw it open quickly. The bridging-contact segment 16 is of such a length that it does not open the shunt-circuit until after the main switch is well open. The arcing therefore takes place wholly at the shunt-terminals, where it is at once blown out by the coil 8.

To keep the handle from accidental movement, it is yieldingly attached to the carrier by a spring 31 of sufficient tension to prevent the handle from swinging about and tripping the catch, but not to interfere with its ready operation by hand.

It will be seen that the movable parts, the blow-out coil and the arc-chute are supported by the pole-piece 3, so that they can be readily assembled before being put into the casing.

In accordance with the patent statutes I have described the principle of operation of

my invention, together with the apparatus which I now consider to represent the best embodiment thereof; but I desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means.

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

1. In a switch, the combination with a pivoted three-armed contact-carrier; provided with two main brushes arranged on opposite sides of its pivot and a bridging-contact, of two main contact-blocks, and two contacts in a shunt around said blocks.

2. In a switch, the combination with a pivoted three-armed contact-carrier, of main and shunt contacts cooperating therewith, a helical spring in permanent connection with said contact-carrier for urging said carrier away from said contacts, and a spring-catch adapted to detain said carrier against the tension of said spring.

3. In a switch, the combination with a pivoted three-armed contact-carrier, of a spring urging said carrier in a given direction, a spring-catch detaining it against the tension of said spring, a handle pivoted concentric with said carrier, and a projection on said handle for disengaging said catch.

4. In a switch, the combination with a pivoted three-armed contact-carrier, of a handle pivoted concentric therewith and having a lug adapted to engage with said carrier for setting the same, a spring-catch for holding said carrier when set, a helical spring for opening said carrier, and a pin on said handle for tripping said catch.

5. In a switch, the combination with a blow-out magnet having a stationary core extended to form a pivot-stud, of a three-armed contact-carrier pivoted on said stud, main and shunt contacts cooperating therewith, a handle independently pivoted on said stud and yieldingly connected with said carrier, cooperating lugs on the handle and carrier, a spring-catch engaging with the carrier, and a pin on the handle for tripping said catch.

6. In a switch, the combination with a blow-out magnet having a pole-piece provided with an offset wide end, of an arc-chute carried by said wide end, a core projecting from said pole-piece, and a contact-carrier pivoted on the outer end of said core in line with said arc-chute.

7. In a switch, the combination with a blow-out magnet having a pole-piece, of a core projecting therefrom, a contact-carrier pivoted on the outer portion of said core, a retainer fastened to the outer end of said core, and a helical spring having one end anchored in said retainer and the other in said carrier.

8. In a switch, the combination with a casing, of a blow-out magnet having a pole-piece serving as a support for the coil, the arc-chute and the movable elements of the switch.

9. In a switch, the combination with a metallic casing, of a blow-out magnet supporting the working elements of the switch, and insulation interposed between said magnet and the casing.

10. An electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, an operating-handle therefor, and fixed and movable shunt-contacts arranged to break after the main contacts, said movable shunt-contact being rotatable about the same center as said carrier.

11. An electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, cooperating fixed contacts, an operating-handle therefor having a movement independent of said carrier, and shunt-contacts arranged to break after the main contacts.

12. An electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, an actuating-spring therefor, an operating-handle movable in one direction to force said carrier against the tension of said spring, a catch for holding said spring under strain, and means actuated by said handle in its movement in the opposite direction to release said catch.

13. In an electric switch comprising a pivoted contact-carrier, contacts mounted on the opposite sides thereof, cooperating fixed contacts, a spring tending to rotate said carrier to open the switch, a catch for holding the parts under strain, an operating-handle, and means thereon for releasing said catch.

14. An electric switch comprising stationary contact-blocks, a contact-carrier pivoted between said blocks, contacts carried thereby and adapted to engage the upper and lower faces of said blocks respectively, a spring urging said carrier in a given direction, and an operating-handle having a movement independent of said carrier for setting and releasing the same.

15. An electric switch comprising stationary contact-blocks, a contact-carrier pivoted between said blocks, contacts carried thereby and adapted to engage the upper and lower faces of said blocks respectively, a spring urging said carrier in a given direction, and an operating-handle having a lost-motion connection with said carrier.

In witness whereof I have hereunto set my hand this 13th day of July, 1903.

SAMUEL B. STEWART, JR.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.