

(No. Model)

J. S. ALLEN.  
TELEGRAPH SWITCH.

No. 585,731.

Patented July 6, 1897.

Fig. 1.

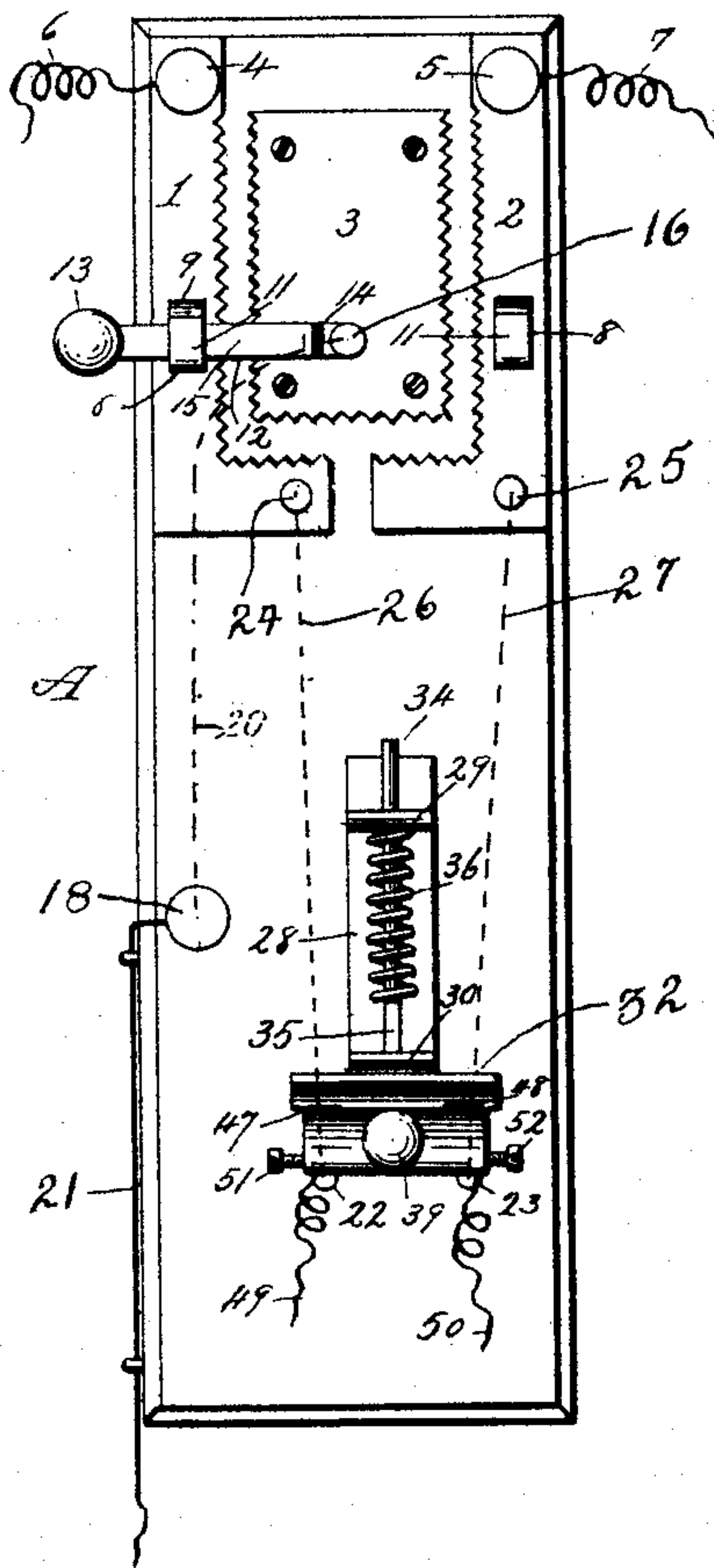


Fig. 2.

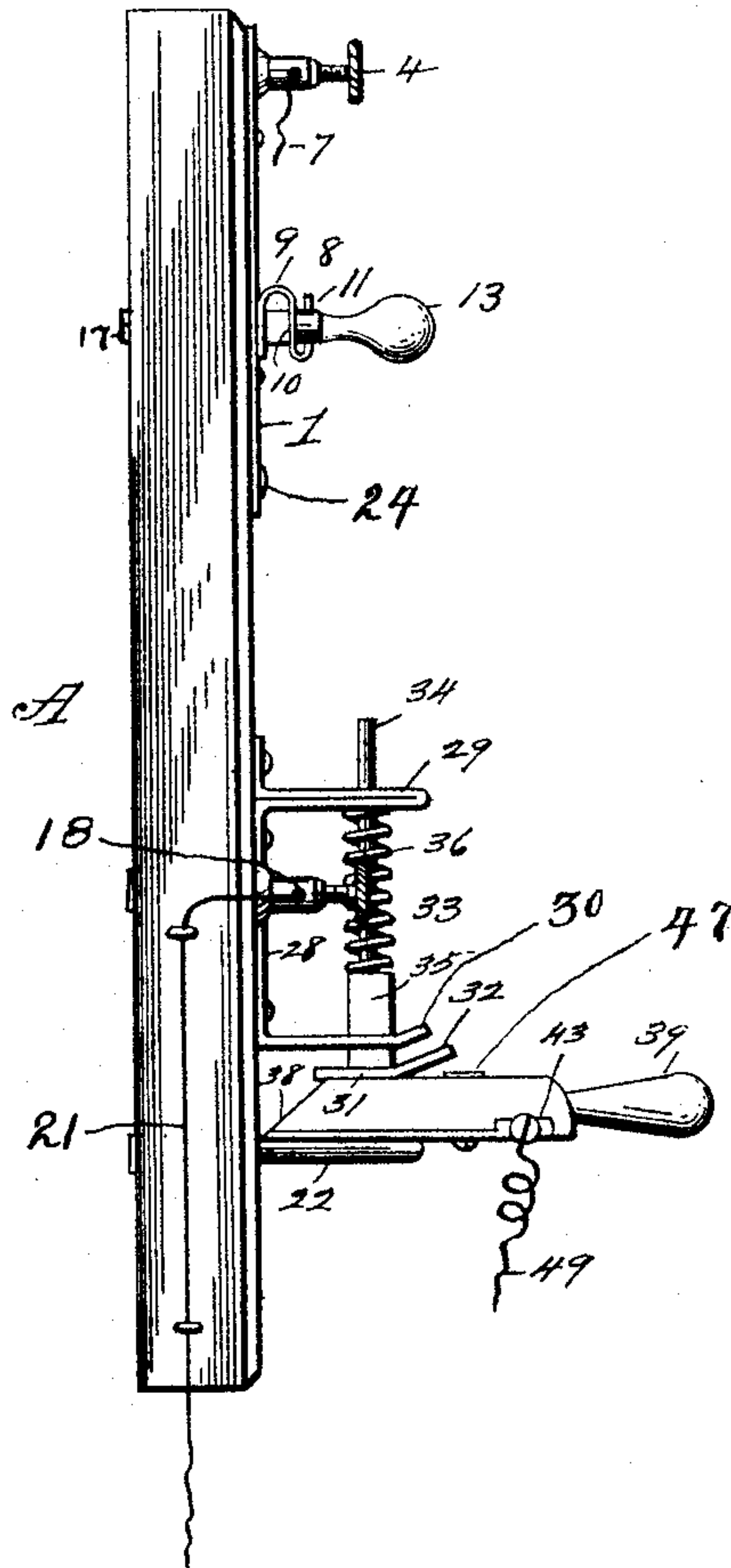
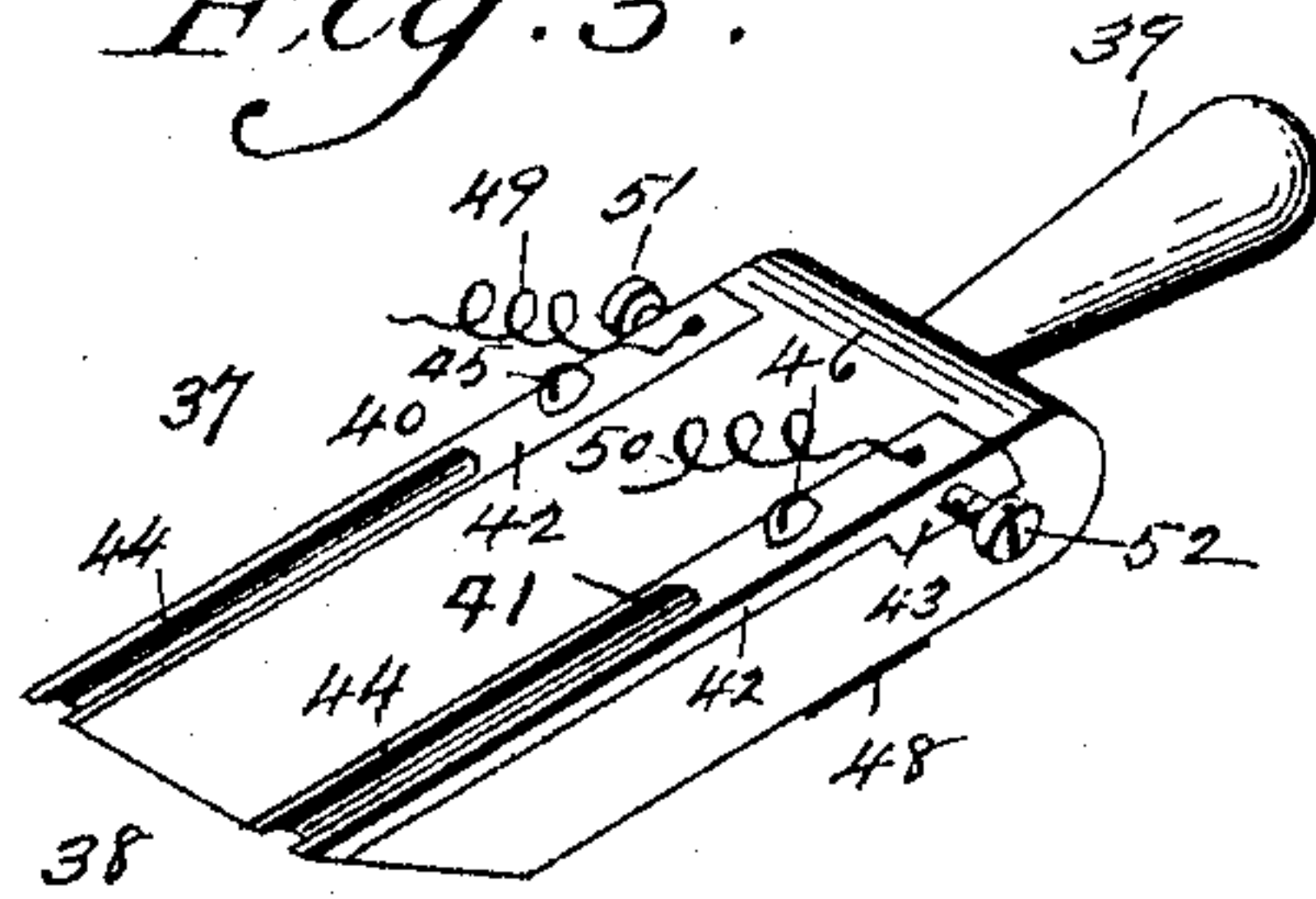


Fig. 3.



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# UNITED STATES PATENT OFFICE.

JAMES S. ALLEN, OF HALSEY, NEBRASKA.

## TELEGRAPH-SWITCH.

SPECIFICATION forming part of Letters Patent No. 585,731, dated July 6, 1897.

Application filed July 25, 1896. Serial No. 600,521. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES S. ALLEN, a citizen of the United States, residing at Halsey, in the county of Thomas and State of Nebraska, have invented certain new and useful Improvements in Telegraph-Switches; 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 telegraph-switches.

Heretofore telegraph-operators have experienced considerable difficulty and annoyance owing to the fact that during electrical atmospheric disturbances the metal parts of the ordinary metal plug cut-out switches have a tendency to fuse, thereby resulting in a "burning out" of the instruments.

My object is to obviate the difficulty mentioned by the provision of an improved instrument cut-out of non-fusible properties, and, further, to provide a lightning-arrester having a superior switch adapted for more satisfactorily grounding either side of the line and for use in connection with my improved cut-out switch.

In the accompanying drawings, Figure 1 is a front elevation; Fig. 2, a side elevation, and Fig. 3 a perspective view of the cut-out plug.

A designates an ordinary switch-base.

I provide a lightning-arrester having respective metal "line-plates" 1 and 2 and a "ground-plate" 3. The line-plates are provided with binding-posts 4 and 5, respectively, to which are connected the line-wires 6 and 7. The construction just described is old and well-known to the art to which my invention appertains, and therefore I do not lay any claim to the same.

To each line-plate there is connected a contact-spring 8. The upper portion of the spring is curved outwardly at 9, downwardly at 10, and rebent upon itself at 11. Portions 10 and 11 lie in close parallel relation.

The numeral 12 designates a spring switch-arm provided with the usual handle 13. The upper end of this switch-arm is bent inwardly, as at 14, and upwardly, as at 15. The binding-post 16 connects the portion 15 of the switch-arm to the ground-plate, and the shank

of this binding-post passes through base A, being provided with a clamping-nut 17.

The numeral 18 designates a binding-post whose shank passes through base A, being provided with a nut similar to the post 16, while a wire 20 connects this binding-post with that to which the switch-arm is pivoted.

The numeral 21 designates the ground-wire, which is connected to binding-post 18.

When it is desirable to cut out either side of the line, the switch-arm is thrown around and passed in between parallel portions of one of the contact-springs on the line-plates, thereby affording a highly-superior electric connection.

The numerals 22 and 23 designate parallel contact-pins, which project from the face of base A and pass through said base, being provided with an adjusting-nut similar to the post 16. The line-plates of the lightning-arrester are also provided with binding-posts 24 and 25, while the numerals 26 and 27 designate wires which connect said binding-posts to the contact-springs. I provide a support 28, having upper and lower guide-arms 29 and 30, the former of which is made double for the sake of strength. The upper guide-arm has a single cylindrical opening, while the lower guide-arm has an elongated opening.

The numeral 31 designates a contact-plate which is slightly wider than the distance between the contact-pins and is provided with an upwardly-inclined portion 32. A plunger 33, having a cylindrical upper portion 34, adapted to work in the opening in the upper guide-arm, and a flat lower portion 35, adapted to work in the slot in the lower guide-arm, is connected at its lower end to the contact-plate. A coil-spring 36, encircling the cylindrical portion of the plunger and interposed between the upper guide-arm and the flat lower portion of the plunger, is adapted to normally press the plunger downward, so that the contact-plate will be in electric contact with the contact-pins.

My improved cut-out plug is clearly shown in Fig. 3 of the drawings. This plug consists of a flat body 37, having a lower beveled portion 38 and an upper handle 39.

The numerals 40 and 41 designate duplicate contact-strips, whose shanks 42 and heads 43 are sunk in the flat face of the body of the



plug at the same distance apart as the distance between the contact-pins connected to base A. The shank of each contact-strip is provided with a longitudinal groove 44, which  
 5 is adapted to receive a contact-pin when the plug is in position. These strips are connected to the body of the plug by respective screws 45 and 46, and the rear face of the plug, unless the same be constructed of gutta-  
 10 percha or other suitable insulating material, is provided with two insulating-pieces 47 and 48, which insulate the tips of the screws from the contact-plate when the cut-out plug is in position. Holes are bored in the heads of  
 15 the contact-strips for the reception of the respective instrument-wires 49 and 50, while 51 and 52 designate clamping-screws for holding these wires in electrical contact with said strips.

20 When it is desired to "cut in" the instruments, the lower end of the cut-out plug is inserted between the contact-plate and the contact-pins, with the beveled portion of said plug resting against the inclined portion of  
 25 the contact-plate. As the plug is pushed home the two inclined surfaces ride easily on each other, and the contact-pins are received in the grooves in the contact-strips. When the contact-plug has been pushed against the  
 30 base, the action of the coil-spring, contact-plate, and plunger will hold it firmly in position. Upon removing the cut-out plug the coil-spring urges the plunger and contact-plate downward, bringing the latter into elec-  
 35 trical contact with the contact-pins, thereby leaving the line "through," as before.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

40 1. In a telegraph-switch, the combination with contact-pins, of guide-arms, a plunger having a cylindrical portion working in one of the guide-arms, and a flat portion working in the other guide-arm, of a coil-spring for  
 45 urging the plunger forward, and a contact-plate carried on the end of said plunger and adapted to normally establish electrical connection between the contact-pins.

50 2. In a telegraph-switch, the combination with contact-pins electrically connected to the line-wires, of a spring-actuated plate, and a removable cut-out plug provided with separated contact-strips which are electrically

connected to the instrument-wires, said plug being adapted for insertion between the plate 55 and the pins, said plate serving to retain the plug and keep the contact-strips bearing against the contact-pins.

3. In a telegraph-switch, the combination with contact-pins, of a spring-pressed plate, 60 and a cut-out plug having centrally-grooved contact-strips, said plug being adapted for insertion between the spring-pressed plate and the pins, and said plate serving to retain the plug and hold it so that the pins will lie 65 in the grooves of the contact-strips.

4. In a telegraph-switch, the combination with contact-pins connected to the line-wires, of a spring-pressed plate normally adapted to contact with said pins having a portion 70 inclined in relation to the contact-pins, and a cut-out plug having a beveled lower edge adapted to ride on the inclined portion of the spring-pressed plate, said cut-out plug being provided with contact-strips, and said spring- 75 pressed plate being adapted to press the cut-out plug against the contact-pins so that the contact-strips will be in electrical connection with said contact-pins.

5. In a telegraph-switch, the combination 80 with a lightning-arrester having respective plates connected to the line-wires, and provided with a "ground-plate," of contact-springs having parallel lips and located on the respective line-plates, and a pivoted 85 spring switch-arm adapted to be inserted between the lips of the contact-spring.

6. In a telegraph-switch, the combination with a lightning-arrester consisting of plates connected to the line-wires and another plate 90 connected to the "ground-wire," and a pivoted switch-arm adapted for manipulation to electrically connect the ground-plate with either line-plate, of contact-pins electrically connected to the line-plates of the lightning- 95 arrester, and a cut-out plug having contact-strips electrically connected to the instruments, said contact-strips being adapted for electrical connection with the contact-pins.

In testimony whereof I have signed this 100 specification in the presence of two subscribing witnesses.

JAMES S. ALLEN.

Witnesses:

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 RICHARD F. STEWART.