

(No Model.)

N. F. ADAMS.
CUT-OUT.

No. 509,713.

Patented Nov. 28, 1893.

Fig:1.

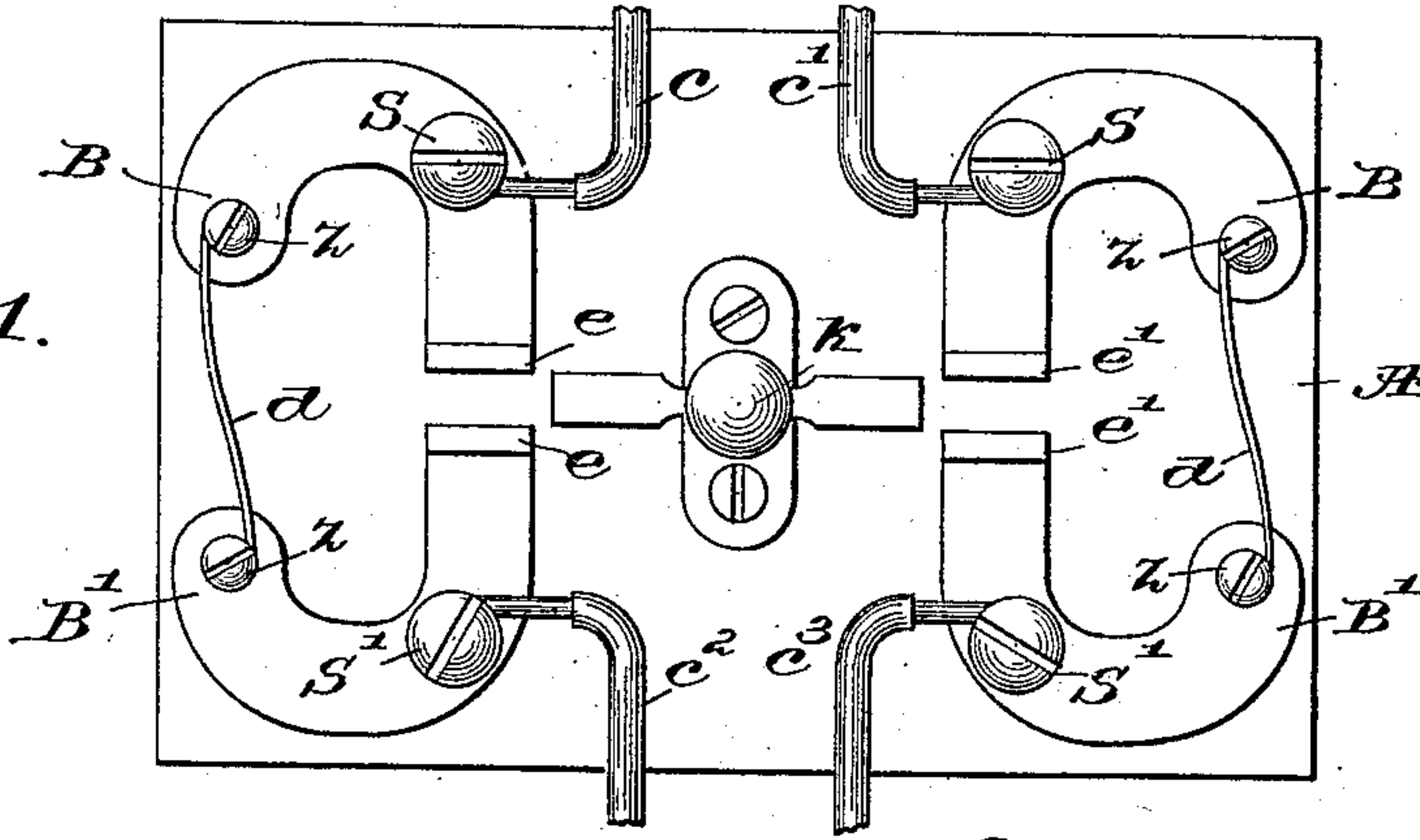


Fig:2.

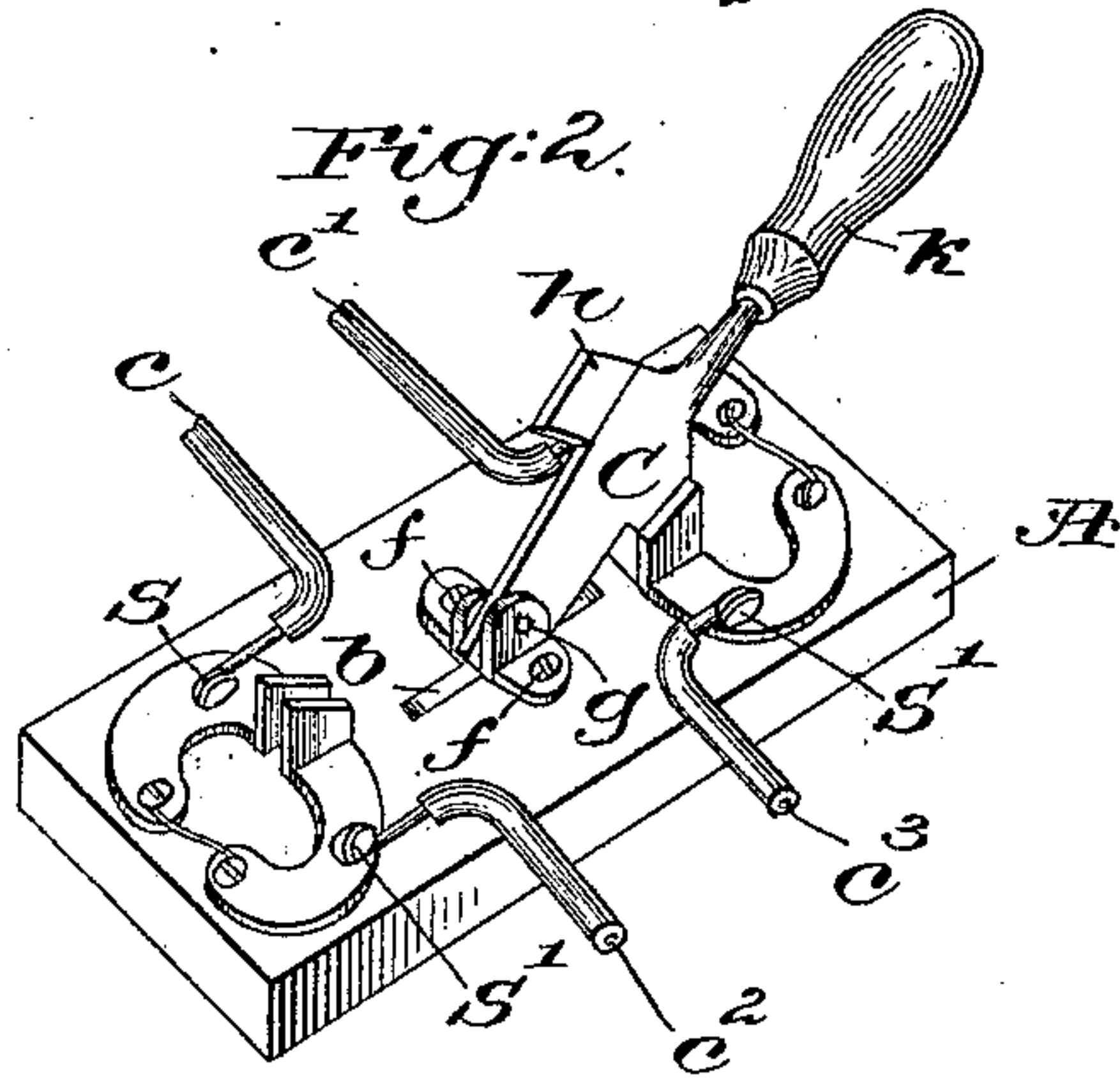


Fig:4.

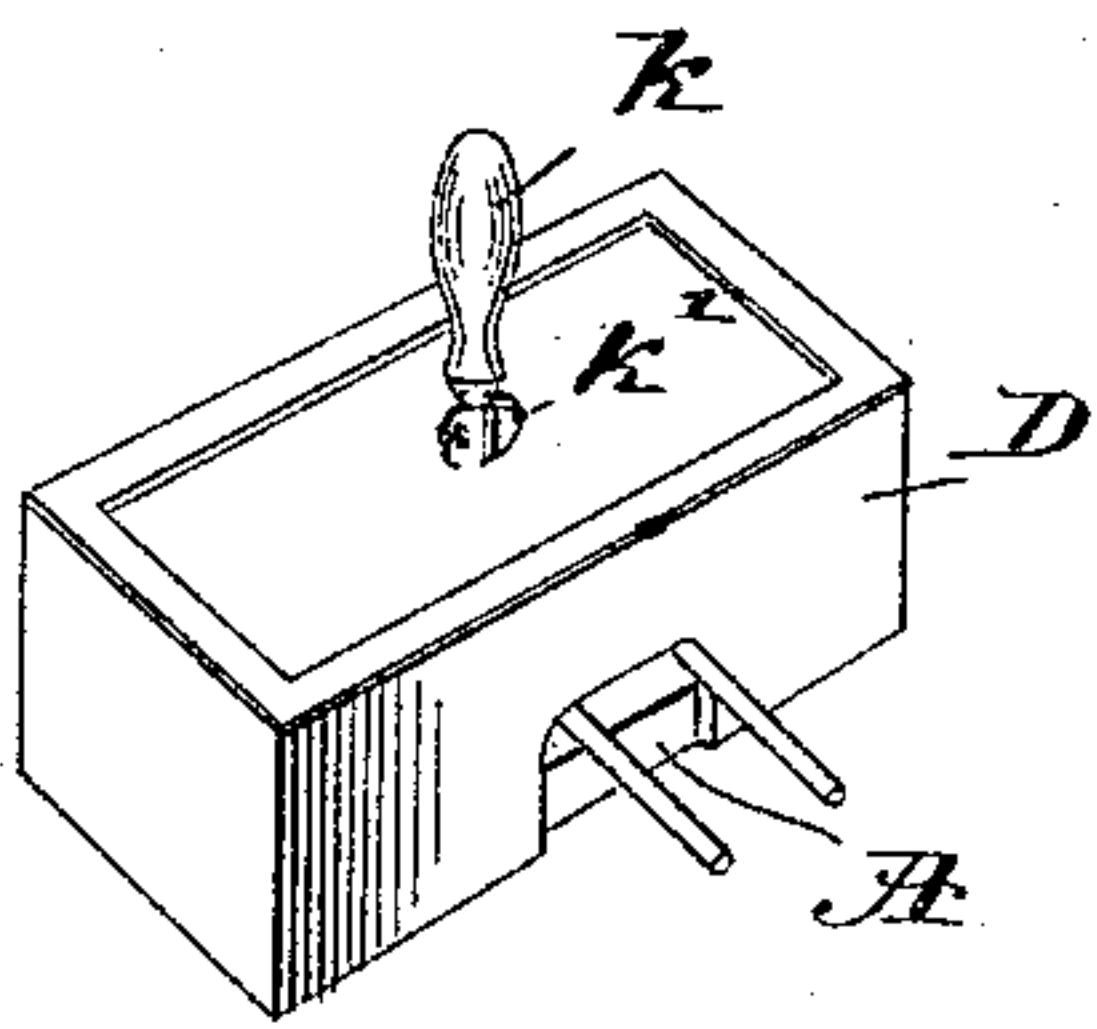
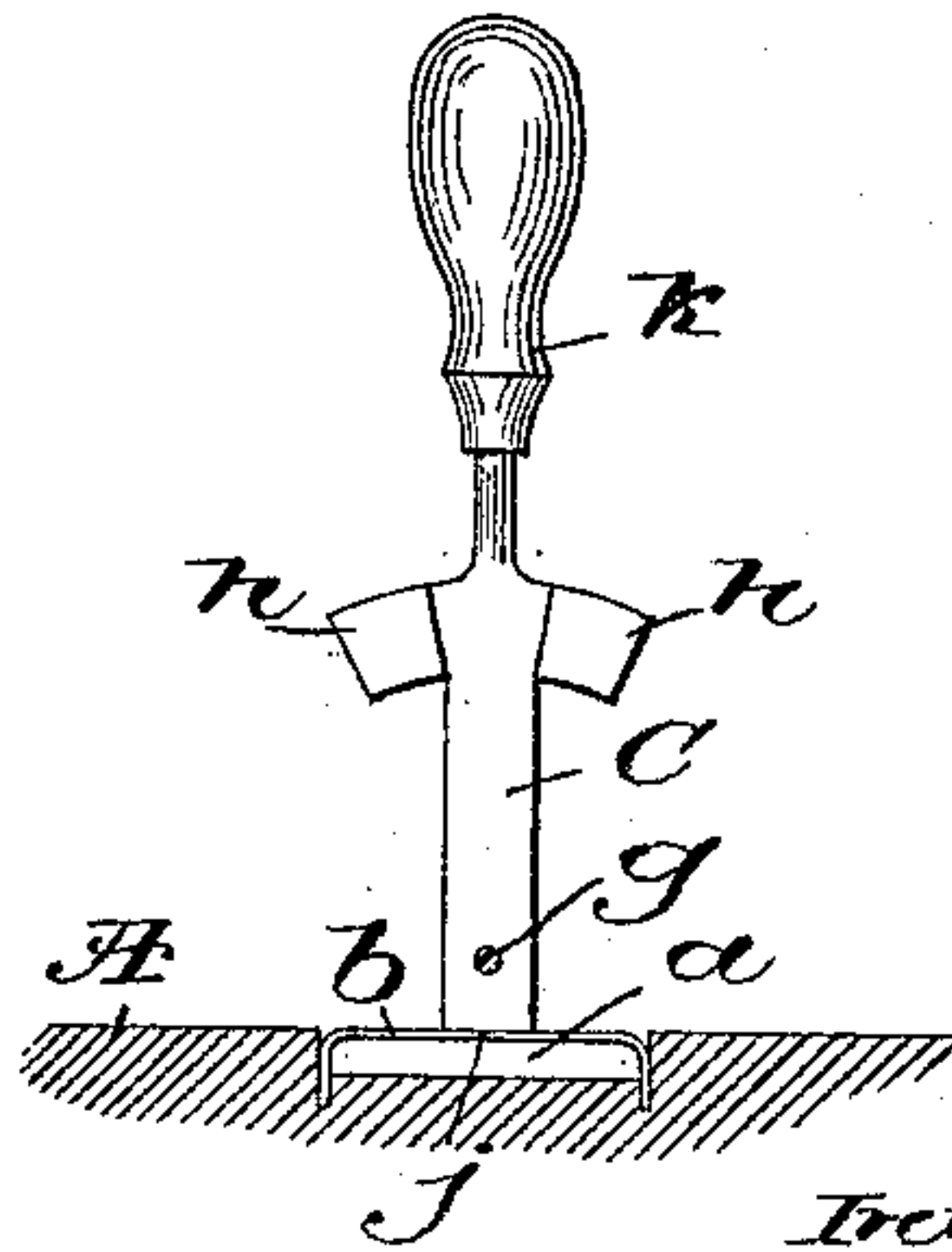


Fig:3.



Witnesses.

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CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 509,713, dated November 28, 1893.

Application filed February 18, 1893. Serial No. 462,826. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL F. ADAMS, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Cut-Outs, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to electric cut-outs provided with fuses, through which the current normally passes and is completed, said fuse or fuses being blown out by the passage of a current of undue strength, which may be caused by a cross, ground or short circuit, and the objects of my invention are, first, to maintain the free passage of the electric current through the cut-out while a new fuse is being inserted in the place of the one blown out; and second, to form a simple, instantaneous and infallible test as to the existence of a ground or short circuit on the line, the construction of the cut-out being such that when it is in normal condition a fuse will always be included in the circuit, as a safety device.

In accordance therewith, my invention consists, in a cut-out, of a plurality of stationary members each provided with a fuse normally included in and completing the circuit, combined with a movable member permanently secured adjacent to and to co-operate with any one of the stationary members and complete the circuit mechanically, substantially as will be described.

Other features of my invention will be hereinafter described, and particularly pointed out in the claims.

Figure 1, is a plan view of a cut-out embodying my invention, with the cover removed. Fig. 2, is a perspective view of the devices shown in Fig. 1, the movable member of the cut-out being shown in abnormal position. Fig. 3, is a detail of the movable member to be described; and Fig. 4, is a perspective view on a reduced scale of the cut-out, with the insulating cover in place.

As herein shown, the various parts constituting the cut-out are secured to the base A of slate or other suitable insulating material, the base being adapted to be secured to a wall, switch-board, or other support, as may

be desired, the said base having at or about its center a recess or groove *a* to receive therein a spring *b* to bear upon the lower end of the movable member of the cut-out, as hereinafter described.

I have herein shown my invention as embodied in a double pole cut-out, two sets of conducting plates or terminals B, B' being secured to the base A in any suitable manner at the opposite ends of the groove or recess *a* in the base, said plates being provided with suitable terminal screws S, S', to which the ends of the line wires are connected, said sets of plates forming the stationary members of the cut-out.

Referring to Fig. 1, the wires *c*, *c'*, may be supposed to connect this cut-out with the source of electricity, the said wires being respectively connected by the binding screws S and S' to one part of each of the sets of terminal plates B, B' forming the stationary members, and the wires *c*², *c*³ represent the ends of the loop or circuit in which the electric lights or other appliances are included, said wires being also connected by the binding screws to the other part of each set of terminal plates respectively.

Referring to Figs. 1 and 2, the two terminal plates composing each stationary member are shown as upturned at their inner ends parallel to each other to form friction contacts *e*, *e*, and *e'*, *e'* for the movable member, as will be described, said plates being also provided each with suitable binding screws *z* and *z'* respectively, to which suitable fuses *d* are secured, the said fuses completing the circuit through the stationary members, under normal conditions, between the source of electricity and the loop including the lights or other appliances. It will be thus seen that in the arrangement herein shown the circuit must necessarily pass through the two fuses, one for each set of terminal plates, in the normal condition of the apparatus.

The movable member C of the cut-out is herein represented as pivoted at *g* between two like supports or cheeks *f* secured to the base A at each side of the groove or recess *a*, said cheeks or supports serving to guide the movable member when moved upon its pivot.

The movable member is provided with opposite projections h, h , of conducting material so arranged that when the member is moved from its normal position, shown in Fig. 1, to one or the other side of its center, as for instance, as shown in Fig. 2, one of the projections or teeth h will enter between the adjacent contacts e or e' , thereby mechanically completing the circuit at such point, the adjacent parts of the contacts e , and e' , being sufficiently close to each other to make a snug fit for the projection h when the movable member is actuated as described. The lower end of the movable member C is squared, as best shown in Fig. 3, as at j , and the spring b bears thereon with sufficient force to keep the movable member in its normal upright position, but when the member is thrown for the purpose of mechanically completing the circuit, as described, one or the other of the corners of the end of the member compresses and forces the spring b downward until the corner passes the center of pressure, whereupon the spring, by its elasticity, communicates to the arm C a sudden movement and produces a quick contact between the projection h and the contacts nearest thereto; and inversely, when the projection h is withdrawn from between the parallel contacts, the spring will cause a quick break, preventing sparking or burning the metal thereat.

I have herein shown a cover D , of glass or other insulating and non-combustible material, adapted to cover the cut-out and serve to protect surrounding objects from danger of fire due to melting of the fuses from any cause. The cover is also provided with an opening k' , through which the handle k of the movable member of the cut-out projects, said handle k being of insulating material. The handle projects through the opening in the cover only when the cut-out is in its proper normal condition, and the cut-out cannot be operated manually without removing the cover or breaking its top. Furthermore, the cover cannot be replaced over the cut-out when the movable member is in position to complete the circuit mechanically through one of the pairs of contacts e or e' , thus indicating to the attendant that the cut-out is not in its proper normal condition.

In the operation of my invention, if the current is unduly increased from any cause, one or the other of the fuses d will be blown out and the circuit broken at that point, and the attendant will then remove the cover from the cut-out and turn the movable member C of the cut-out until one of the projections h enters between the contacts of the stationary member of which the fuse was blown out, thereby mechanically completing the circuit through said member by the contacts thereof and the intervening projection h of the movable member. A prolonged break in the circuit is thus obviated, and a new fuse can be inserted without danger to the attendant, or liability of blow-

ing out the new fuse as soon as inserted. When the fuse is in place the movable member is returned to its normal position and the cover replaced, thus placing the fuse in the circuit. Should, however, a ground or short circuit occur on the loop beyond the cut-out, it will be made manifest by the blowing out of one or both of the fuses, thus breaking the circuit, and if only one fuse be blown out, when the attendant has completed the circuit mechanically as described, and the ground or short circuit is again set up, the fuse connecting the terminal plates of the outer stationary member will be blown out, effectually opening the line and indicating to the attendant that the interfering cause, whether a ground or short circuit, still exists and must be removed. It will be seen that even when one of the fuses has been blown out and the circuit has been completed through the movable member of the cut-out, the fuse in the other terminal is still included in the circuit, so that if the increase of current was only momentary but one fuse will be blown out; while if the trouble be caused by a ground or short circuit, the fuse in the other terminal will be blown out upon the mechanical completion of the circuit by the movable member, thus clearly distinguishing between a momentary increase and a continuous increase of current. As will be evident, the mechanical connection through the movable member can never be made with more than one stationary member at a time.

While I have herein shown the movable member of the cut-out as operable in a vertical plane, it is obvious that the same may be moved in any other direction, and that the spring may be altered or omitted entirely, and the movable member of the cut-out may be made to slide between one of the other set of contacts e or e' . My invention accordingly is not limited to the exact construction or arrangement of parts as herein shown, as the same may be varied without departing from my invention.

I claim—

1. In a cut-out, a plurality of stationary members each provided with a fuse normally included in and completing the circuit, combined with a movable member permanently secured adjacent to and to co-operate with any one of the stationary members and complete the circuit mechanically, substantially as described.

2. In a cut-out, a plurality of divided stationary members to which the line terminals are connected, and a fuse for each member normally included in and completing the circuit, combined with a movable member permanently secured adjacent to and adapted to co-operate with any one of the stationary members, the circuit being mechanically completed by said movable member, substantially as described.

3. In a cut-out, a plurality of two-part stationary members, each having a pair of sep-

arated contacts, and a fuse secured to and normally connecting the parts of each member and completing the circuit therethrough, combined with a movable member permanently secured adjacent to said stationary members and adapted to be brought between and electrically connect the separated contacts of any one stationary member, mechanically completing the circuit at such point, substantially as described.

4. In a cut-out, two stationary members each composed of separate line terminal plates having upturned adjacent contacts, and a fuse connecting the plates of each member and normally in the circuit, combined with a movable member adjacent to the stationary members, and adapted to be moved into engagement with the upturned contacts of one or the other of said members and mechanically complete the circuit therethrough, substantially as described.

5. In a cut-out, a plurality of stationary

members each including a fuse normally in the circuit, and a movable member adapted to co-operate with any one of the stationary members to mechanically complete the circuit, combined with a removable cover to engage and retain the movable member in neutral position, substantially as described.

6. In a cut-out, a plurality of stationary members each provided with a fuse normally included in the circuit, and a movable member to co-operate with any one of the stationary members and complete the circuit mechanically, combined with a removable non-combustible cover of insulating material for the cut-out, substantially as described.

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

NATHANIEL F. ADAMS.

Witnesses:

FREDERICK L. EMERY,
JOHN C. EDWARDS.