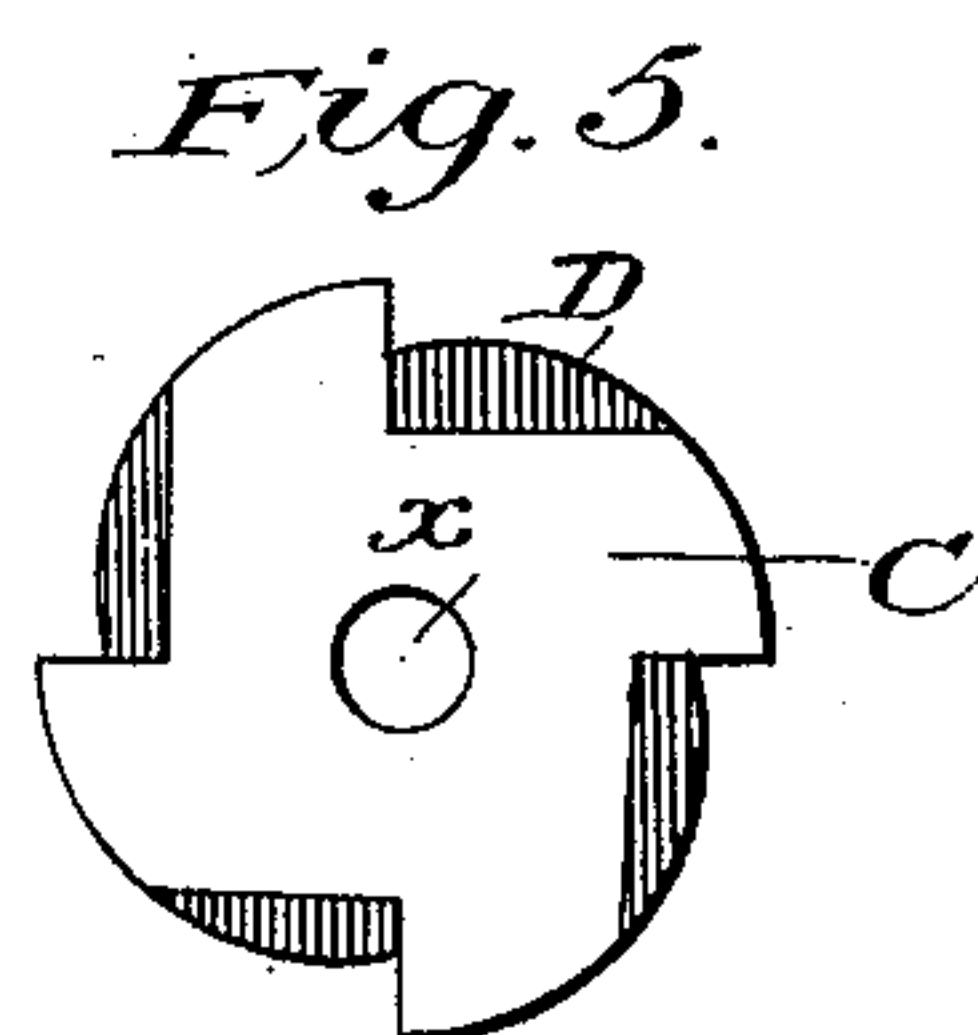
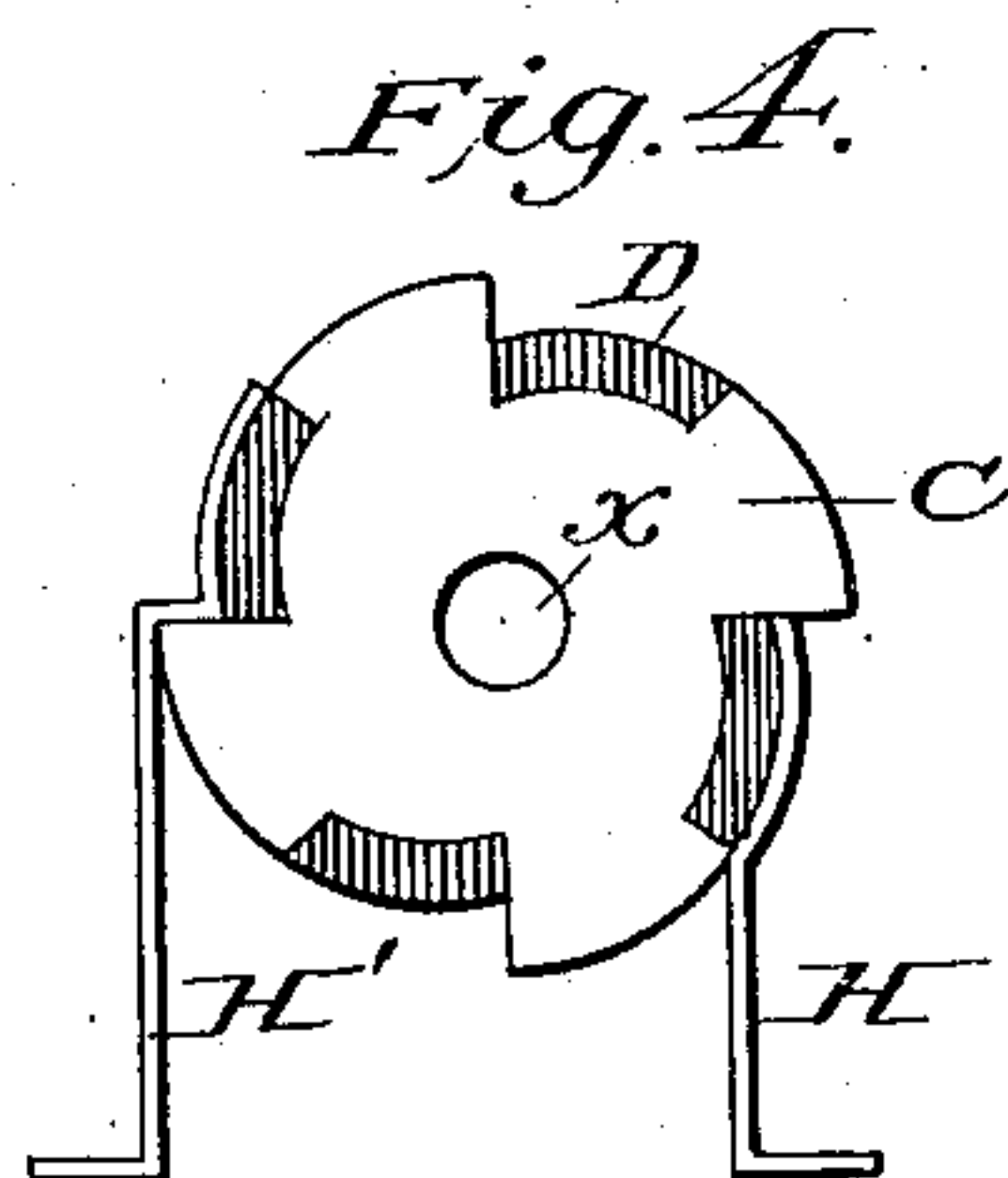
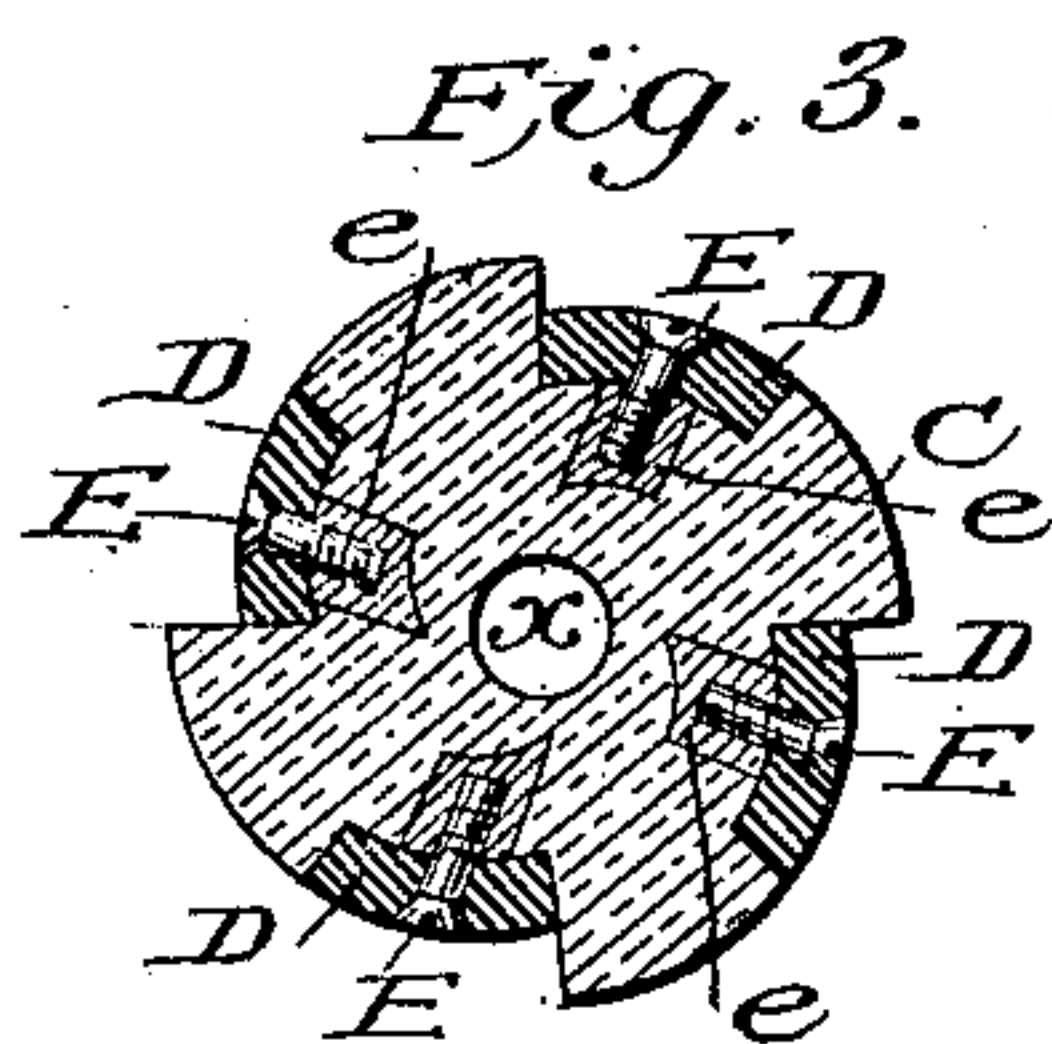
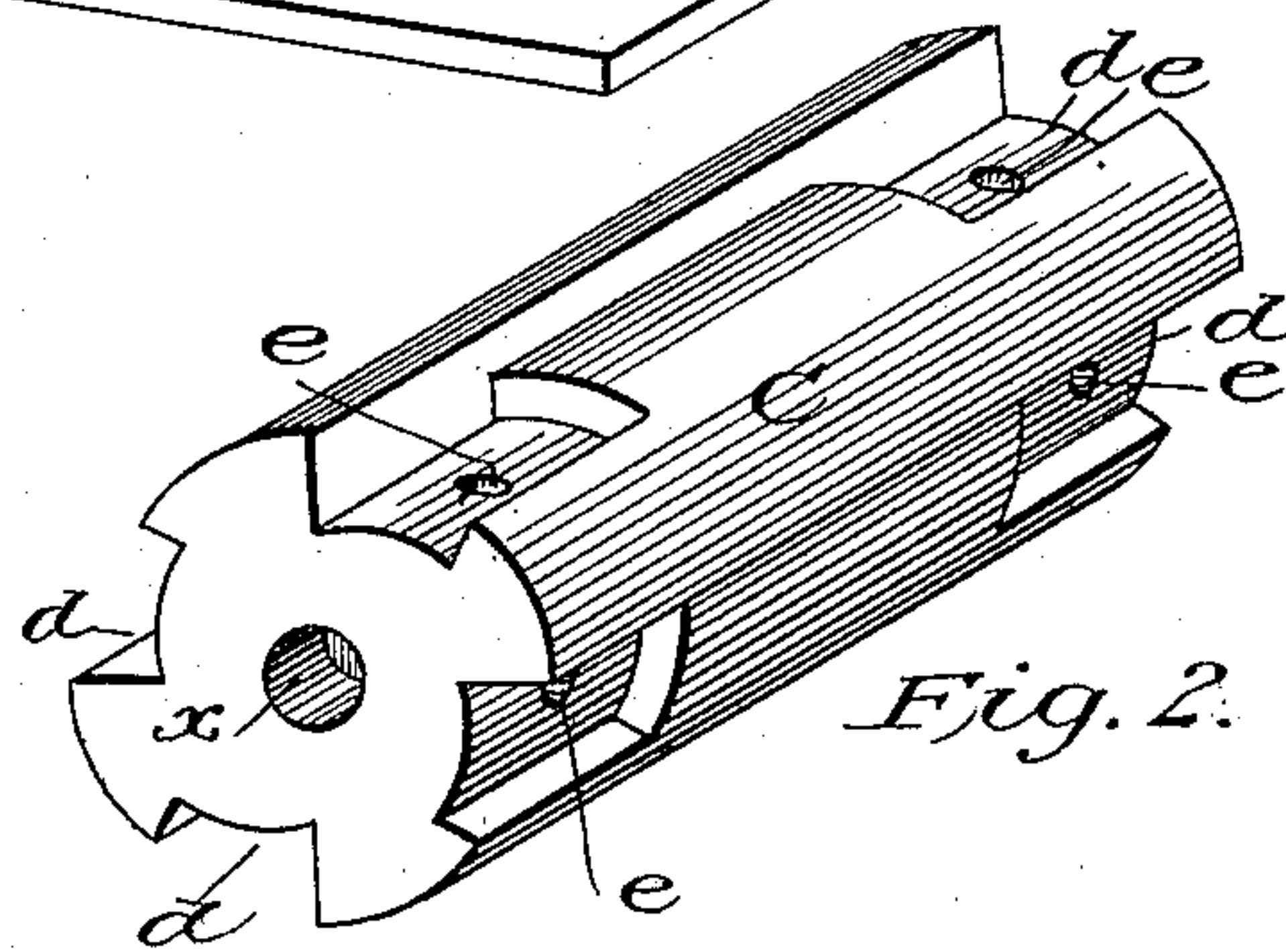
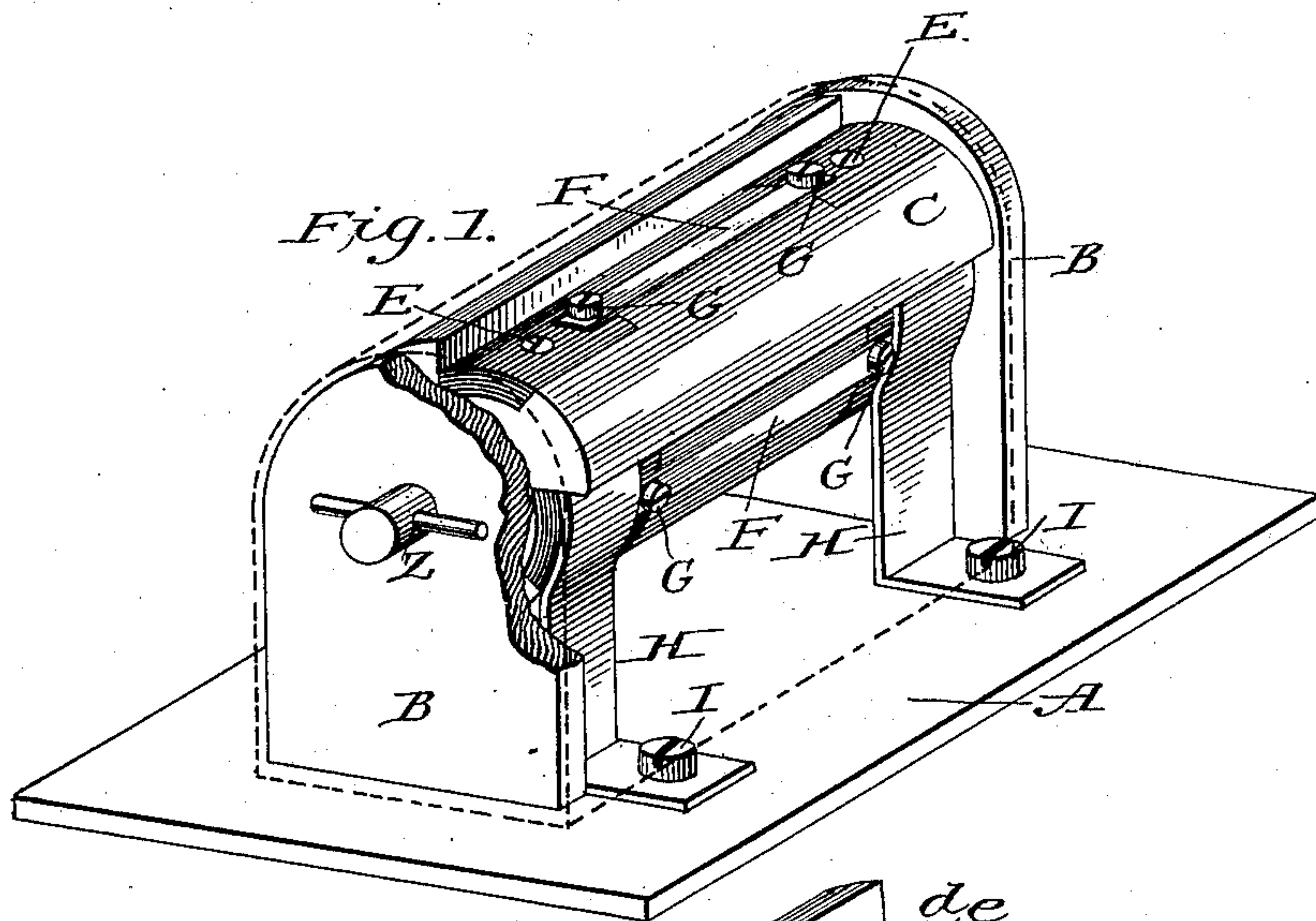


(No Model.)

W. EHRHARDT.  
MULTIFUSE CUT-OUT.

No. 568,971.

Patented Oct. 6, 1896.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## MULTIFUSE CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 568,971, dated October 6, 1896.

Application filed December 23, 1895. Serial No. 573,110. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM EHRHARDT, a citizen of the United States, residing at the town of Union, in the county of Hudson and State of New Jersey, have invented a new and useful Multifuse Box or Cut-Out, of which the following is a specification.

The object of my invention is a multifusible cut-out simple in construction, free from danger to the operator, and in which a surplus supply of fusible strips are in place, and so arranged that fresh strips can be put on the cut-out to replace burned-out or damaged ones without turning off the current or taking the cut-out cylinder from its supports.

In electric light and power installations placed in private houses and elsewhere cut-outs are placed in the main and branch circuits leading to the lamps or motors. If by any accident the current supplied to these wires should exceed the maximum intended to be supplied, the fuse-wire melts, and the circuit of which the cut-out is a part becomes open, thereby preventing the lamps or motors placed in that circuit from being burned out.

When such an occurrence takes place, an electrician is generally sent for to remedy the matter, causing delay, annoyance, and expense. By placing one of my multifuse boxes in the circuit any ordinary person can operate it by simply turning a handle forward one notch or tooth, bringing a fresh fuse into the circuit. The handle cannot be turned backward.

My multi cut-out is especially adapted to be used on motor-cars or the like, as no time is lost in bringing a fresh fuse in the circuit if one should burn out. The burned-out strip can be removed and a fresh one put in its place without removing the cylinder carrying the fuses from its supports. The strip can be replaced at the time the cylinder containing the fuses is rotated forward one notch, or whatever strips have been burned out can be put in place at the end of the route and before starting on a fresh trip.

In the accompanying drawings, which form part of this specification, the same letters of reference indicate corresponding parts in each of the figures.

Figure 1 is a front view of my device placed at an angle of about thirty degrees. A small

portion of the near support is shown broken away, so as to expose the side of the cylinder. Fig. 2 represents the cylinder before it is mounted with the contact-plates and fuses and placed between its supports. Fig. 3 is a cross-section of the cylinder, Fig. 1, on lines *e e* of Fig. 2. Fig. 4 is an end view of Fig. 1, showing contact-springs in place. Fig. 5 is an end view of a modified form of cylinder and contact-plates.

My invention consists in, first, a base A, to which base are suitably fastened supports B B. The cylinder C is suitably secured and rotates between these two supports. Rotation is produced by turning the handle Z. The cylinder is preferably made of porcelain. It can be made of glass, hard rubber, vulcanized fiber, or any other non-conductor of electricity.

My preferred form of cylinder is a ratchet-faced cylinder having two or more teeth. C, Fig. 2, shows such a cylinder. *d* are depressed or countersunk portions. *e* are holes that extend into the body of the cylinder and below the depressed portion *d*.

In practice I fill or plug up the holes with wood. This plug of wood is glued or otherwise securely fastened in place and the top then cut or trimmed flush with the lower part of the depressed portion *d*. I next place preferably a metallic contact-plate in the recess *d*, which fills it up entirely. It can be made of carbon, if desired. This contact-plate is preferably made of brass and contains a hole the center of which coincides with the center of the plug placed in the orifice or hole *e*. I next fasten the plate D, Fig. 1, into the depressed portion of the cylinder C by means of the screw E. When fastened in place the surface of the cylinder is continuous with the top of the contact-plate D. Facing the center of the cylinder and at one end of the contact-plate, of which it forms a part, is fastened a binding post or screw G.

Passing through the center of the cylinder in the line of its axis is a hole *x*, which extends entirely through the cylinder. If it is desired, it need only extend into the cylinder part way. It is not necessary that the shape of this orifice be round. It can be triangular, square, or the like. When all the depressed portions are filled with the contact-plates, I



place the cylinder C, Fig. 2, between the supports B B, Fig. 1, and drive the handle Z, which is preferably made of any material not a conductor of electricity, through the hole in supports B and into the hole  $x$  of the cylinder until its end is flush with the outside of the second support B, when it will be seen that the handle acts the part of an axle and allows the cylinder to be rotated in its supports by turning the handle. I now connect the binding-posts G G, Fig. 1, together by means of the easily-fusible strips or wires F until all the binding-posts are connected together. Fastened to the base A are two metallic contact-springs or brushes H H. These are so arranged that they press against the metallic contact-plates.

I I are binding-posts or terminals for connection with the circuit-wires. The dotted portion represents a cover. In practice the fuse-box would be covered to protect the various parts.

In the drawings, Fig. 1, the fuse-box shows a cylinder having four fuses and one set of brushes. This box can be used on a circuit and will stand four "burn-outs." By placing another set of brushes in the rear one set can be connected with one circuit and the other set with another circuit. In the latter case the cylinder would permit of two burn-outs for each circuit.

Fig. 4 shows an end view of a fuse-box having two sets of brushes. II represents the front brushes and II' the rear ones. By increasing the number of teeth and diameter of cylinder any quantity of fuses can be placed on the cylinder and two or more sets of brushes can be used, permitting the use of the fuse-box on two or more circuits at the same time.

Fig. 5 shows an end view of a ratchet-faced cylinder having no depressed portions for contact-plates. In this modified form the contact-plates are placed on the cylinder and not in recesses in the face of the cylinder. The contact-plates are fastened to the cylinder in the same manner as in the preferred form.

I do not limit myself to the particular form of multifuse box described in the preceding specification, though it is my preferred form. Various modifications can be made, as will be evident to any skilled in the art to which it appertains, and still be within the scope of my invention. It is not necessary that the teeth extend the whole length of the cylinder nor that the cylinder be made entirely of one piece of material. The toothed portion may be only of sufficient width to allow the contact-plates to be fastened to it. That portion between the ratchet-faced ends holding the contact-plates can be cylindrical in shape or otherwise. The ratchet-faced portions holding the contact-plates can be made separate from the cylinder and fastened to it in any suitable manner. Any equivalent of the tooth on the cylinder—as, for instance, a pin or the

like placed on it—can be used in its stead and still be within the scope of my invention.

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

1. A multifuse box or cut-out comprising a base, supports fastened to said base, a spindle having a handle or handles, journaled in said supports and acting as an axle, a cylinder fastened to said axle revolving with said axle by imparting rotation to the handle, depressed or countersunk portions in face of cylinder, holes in depressed or countersunk portions of cylinder and extending below the surface of said depressed portion, plugs fastened in said holes, conducting contact-plates containing holes the center of which coincides with the center of the plugs and placed in the depressed portions of cylinder, screws or the like to retain the contact-plates in depressed portions, fusible strips or wires connected to contact-plates, conducting brushes or springs one end of which presses against contact-plates, the other fastened to the base and having terminals for the circuit-wires, substantially as described.

2. A multifuse or cut-out, consisting of a base, supports fastened to said base, a spindle having a handle or handles journaled in said supports and acting as an axle, a ratchet-faced cylinder or its equivalent fastened to said axle, revolving with said axle by imparting rotation to the handle in the direction of the length of the teeth, depressed or countersunk portions in face of ratchet-faced cylinder, holes in depressed or countersunk portions of the ratchet-faced cylinder and extending below the surface of said depressed portion, plugs fastened in said holes, conducting contact-plates, containing holes the centers of which coincide with the center of the plugs and placed in the depressed portions of cylinder, screws or the like to retain the contact-plates in depressed portions, fuse wires or strips connected to said contact-plates, conducting brushes or springs one end of which presses against contact-plates and the other securely fastened to the base, terminals fastened to the brushes or springs and the circuit-wires substantially as described.

3. A multifuse or cut-out, consisting of a base, supports fastened to said base, a spindle having a handle or handles journaled in said supports and acting as an axle, a ratchet-faced cylinder having a multiplicity of teeth or its equivalent on its surface, fastened to said axle, revolving with said axle by imparting rotation to the handle in the direction of the length of the teeth, depressed or countersunk portions in face of ratchet-faced cylinder, holes in depressed or countersunk portions of the ratchet-faced cylinder and extending below the surface of said depressed portion, plugs fastened in said holes, a multiplicity of conducting-plates, containing holes the centers of which coincide with the center of the plugs and placed in the de-



pressed portions of the ratchet-faced cylinder,  
screws or the like to retain the contact-plates  
in depressed portions, fuse wires or strips  
connected to said contact-plates, two or more  
5 sets of conducting springs or brushes one end  
of which presses against the contact-plates  
and the other fastened to the base, terminals

fastened to the brushes, and the circuit-wires  
of two or more circuits substantially as de-  
scribed.

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