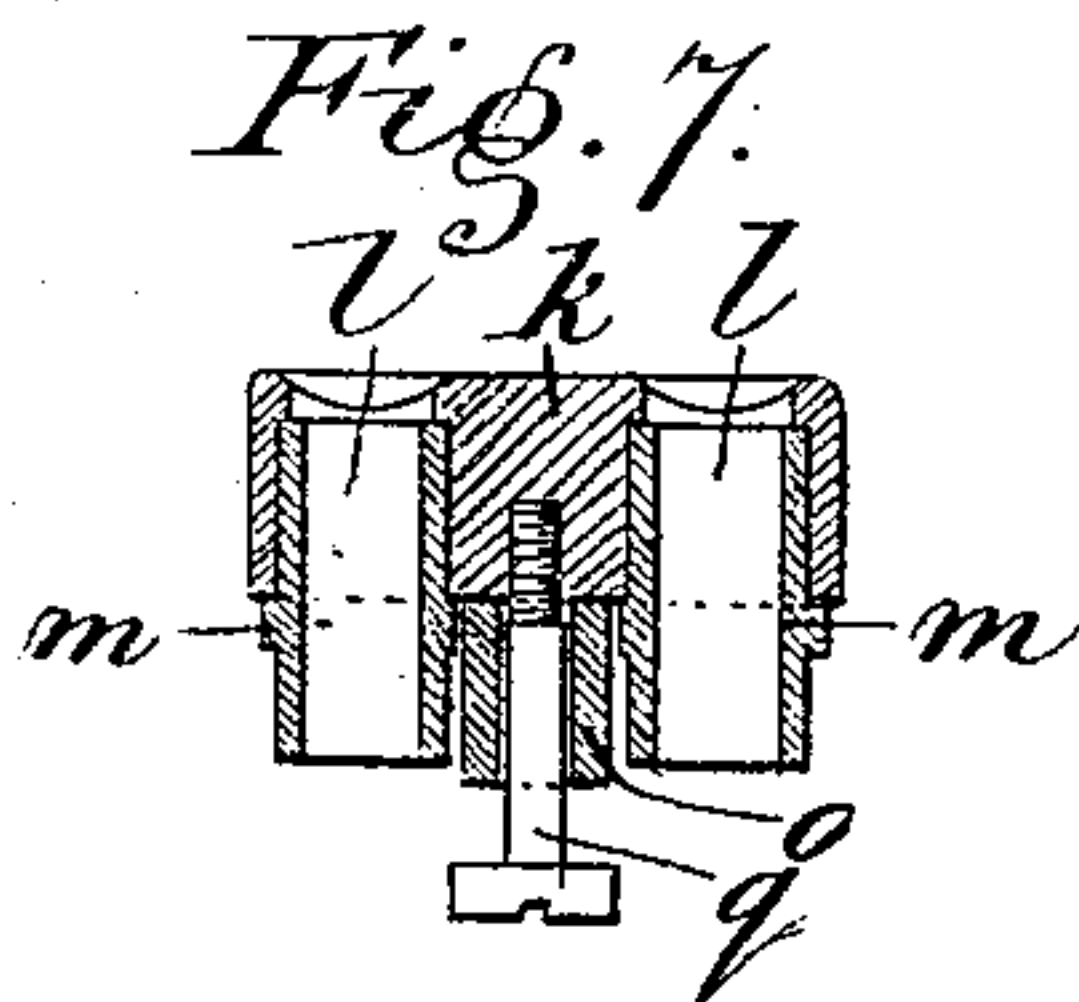
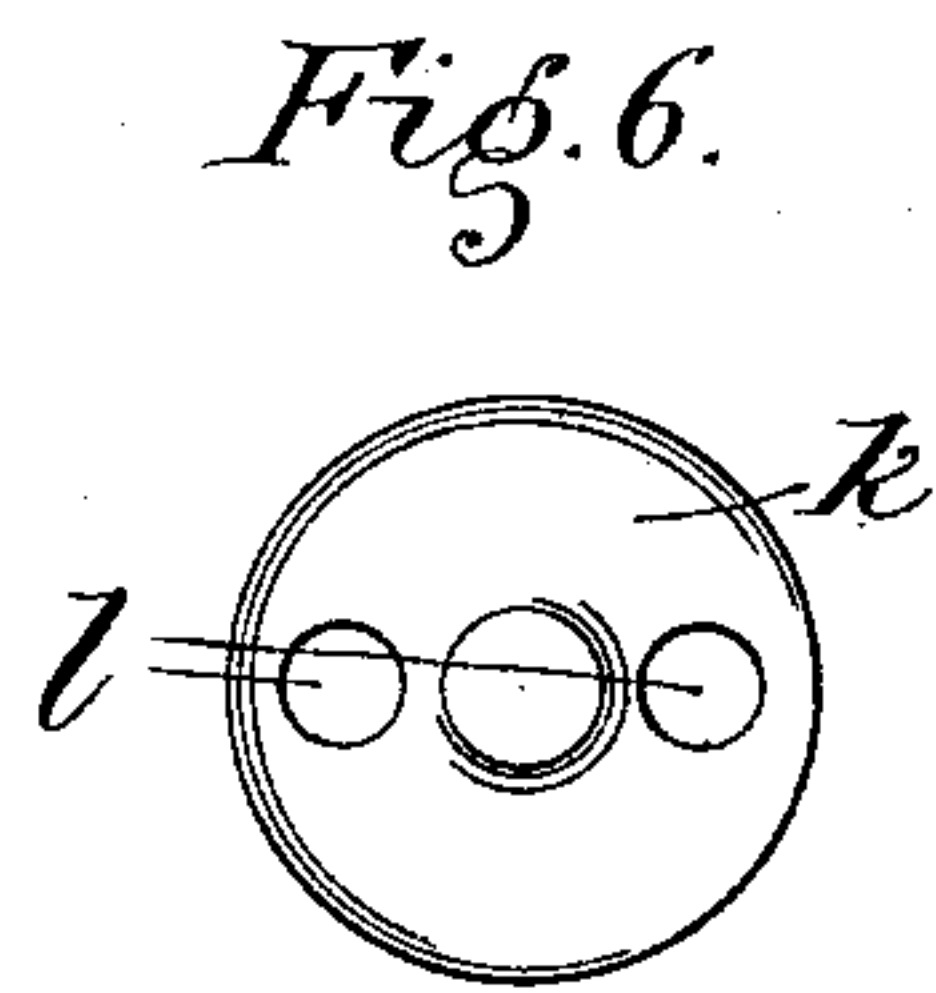
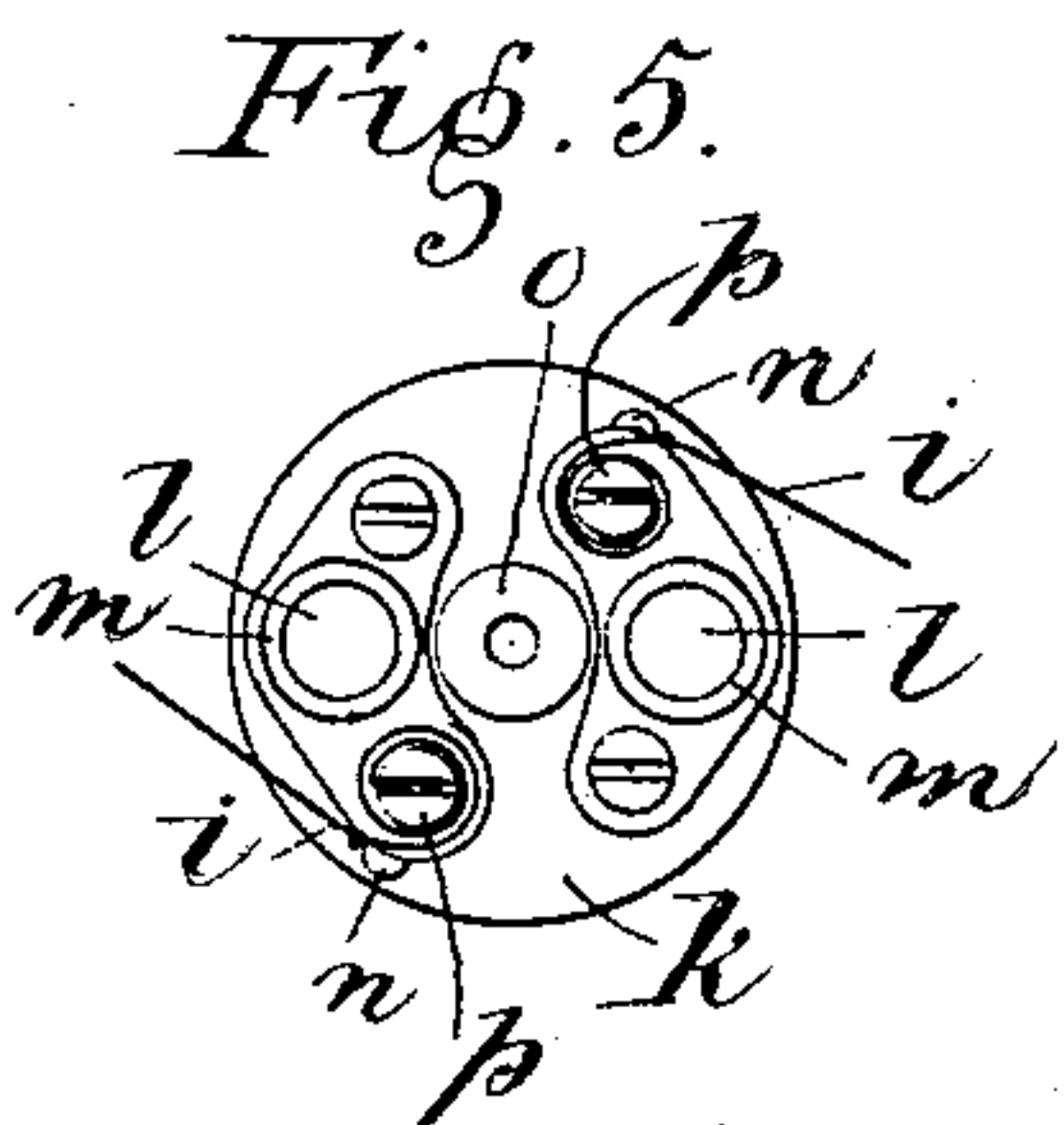
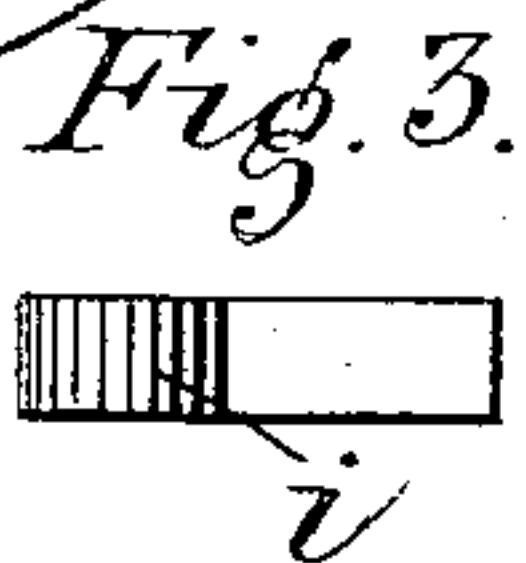
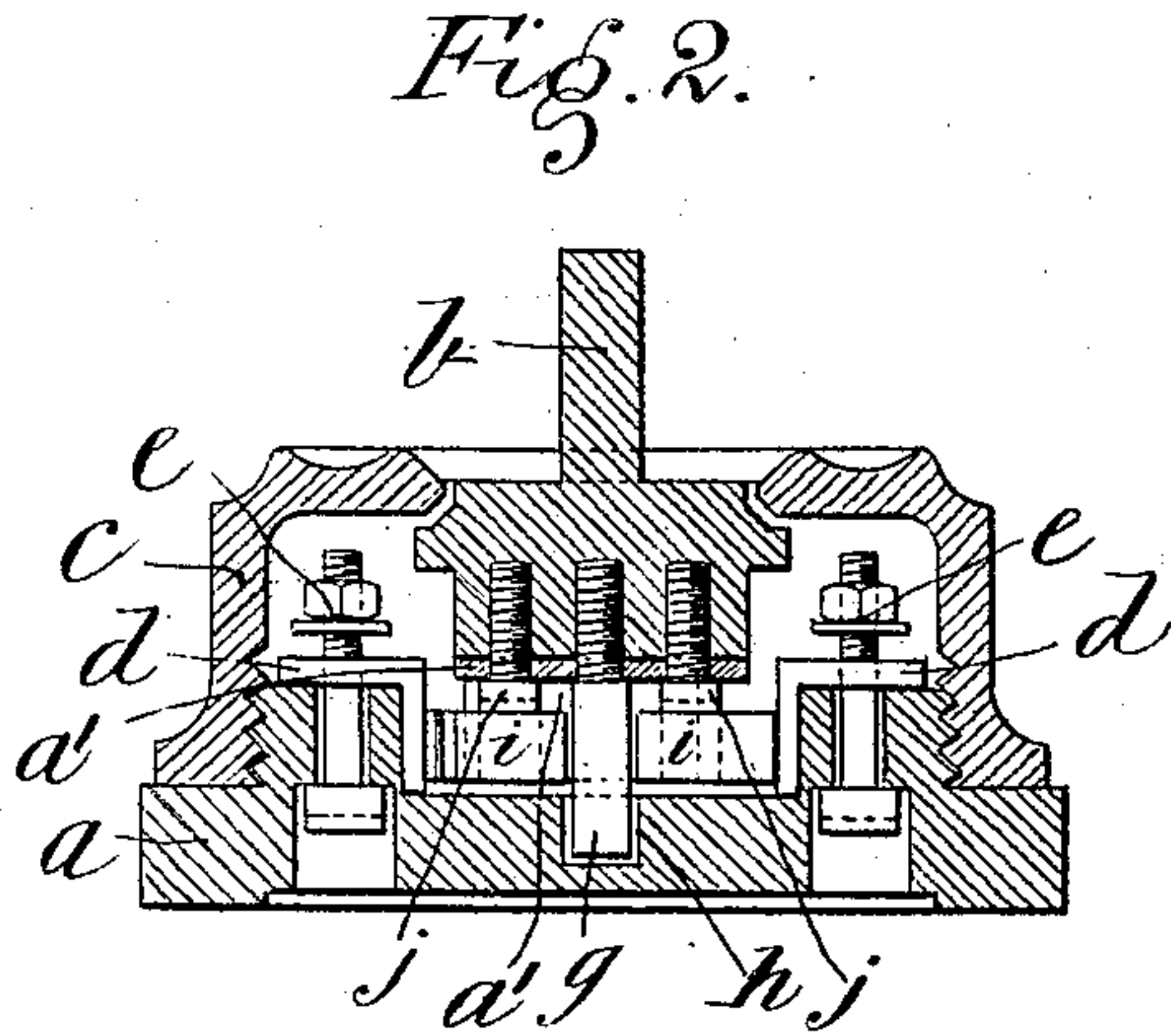
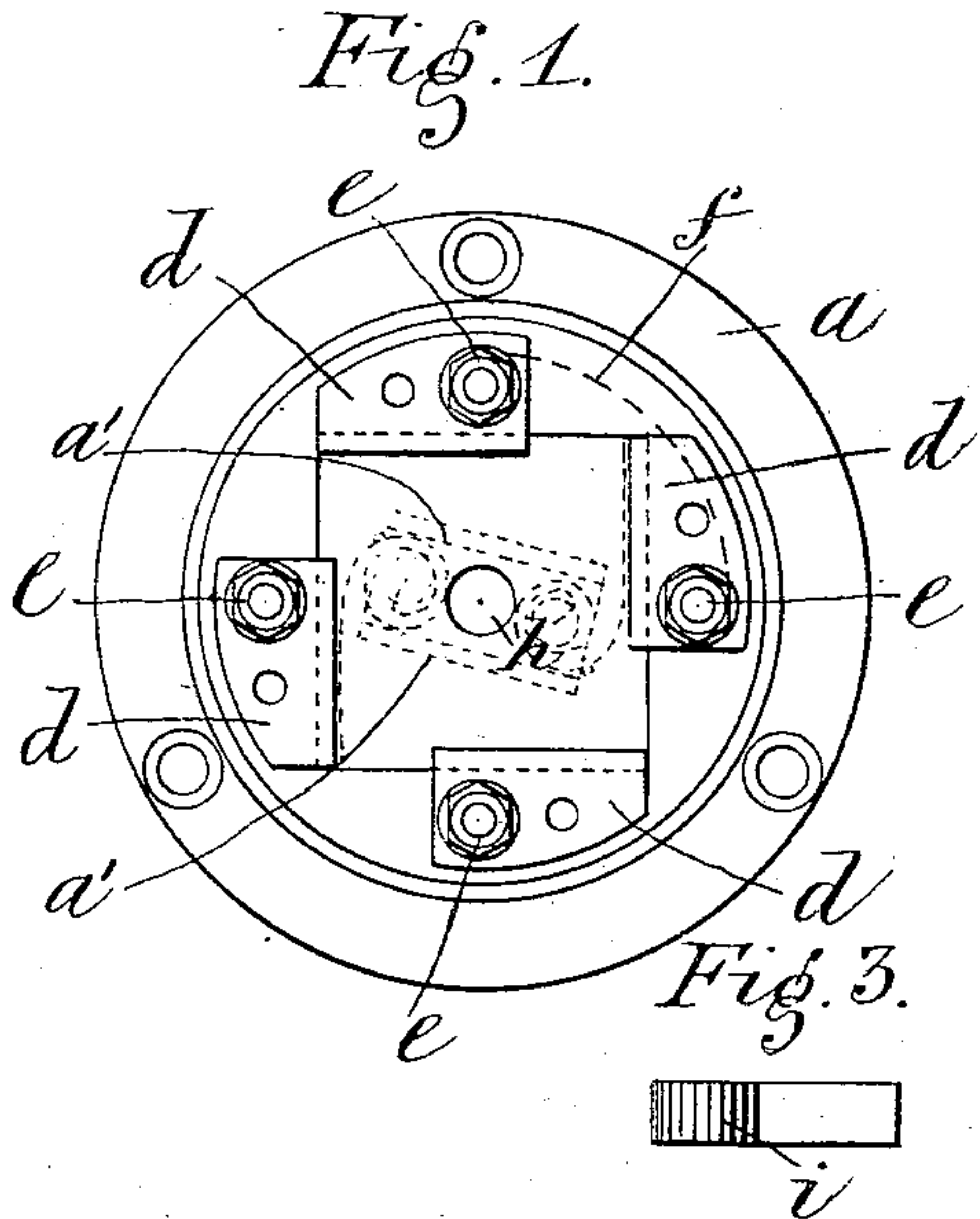


(No Model.)

A. P. LUNDBERG.
ELECTRIC SWITCH.

No. 479,821.

Patented Aug. 2, 1892.



Witnesses:
H. J. Downing
Moores

Inventor.
Andreas Peter Lundberg.

per
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Attorney.

UNITED STATES PATENT OFFICE.

ANDREAS PETER LUNDBERG, OF LONDON, ENGLAND.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 479,821, dated August 2, 1892.

Application filed December 29, 1891. Serial No. 416,487. (No model.) Patented in England October 24, 1891, No. 18,290.

To all whom it may concern:

Be it known that I, ANDREAS PETER LUNDBERG, electrical engineer, a subject of the Queen of Great Britain, residing at 18 Regina Road, Tollington Park, London, in the county of London, England, have invented new and useful Improvements in Switches for Electric Lighting, (for which I have obtained a patent in Great Britain, No. 18,290, bearing date October 24, 1891,) of which the following is a specification.

My invention relates to improvements in switches for electric lighting with a double or single quick independent or instantaneous break. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the inside with the rose removed. Fig. 2 is a vertical section. Fig. 3 is an elevation of the spring. Fig. 4 is a plan of the spring. Fig. 5 is a plan of the under side of the switch having the formation of a plug. Fig. 6 is the front of the plug. Fig. 7 is a vertical section of the plug.

Similar letters refer to similar parts throughout the several views.

This switch consists of an insulating-base *a*, with a rose *c*, (of porcelain, slate, or other insulated material,) with a square cavity or well recessed in it. In the center of this cavity is a small hole *h*, which forms a bearing for the center pin *g* of the key *b*, hereinafter described. To each of the four sides of this cavity is fixed a right-angled piece of brass *d*, one face overlapping the edge of the cavity and the other fixed to the surface of the insulating-base *a*. These angle-pieces *d* are used as connecting-plates for fixing the terminals *e* of the switch, and also as steps which assist in making, in combination with the helical contact-springs *i*, an independent quick "make" and "break" of the current when the key *b* is turned in the proper direction, as hereinafter described. Revolving in the center *h* of the square cavity is a key-piece *b*, of insulated material, attached to which is a bent metal plate *a'* of the shape shown, provided with a center bearing-pin *g* and two split posts *j, j*, placed radially, each at an equal distance from the center in a straight line. To each of these posts is attached a flexible helical metal contact-spring *i*. These two springs *i, i*, acting together

in combination with the brass steps *d*, produce a double independent make and break of the circuit by alternate quarter-of-a-circle movements. If only one helical spring is used, as in two, three, and four way switches, "single" independent make and break is only obtained. The helical springs *i* as they pass over the surface of the contact-plates *d* are gradually wound up, and, when reaching the edge of the brass piece *d* fly off, producing a quick independent make and break of the circuit, preventing the possibility of any damage being done to the contact-plates *d* or springs *i* by "sparking," so obviating the use of the objectionable "loose key" so commonly used in switches. The switch-key *b* turns in one direction only and a method of preventing any back movement is provided. It may be accomplished by putting a stop on the helical springs *i*, which catches against one of the edges of the cradle *a'*, or by inclosing the helical springs in a cradle *a'*, whose sides, when the springs unwind slightly by reason of the back movement, wedge against the spring *i*, arresting any further back movement, and also by the means of a screw or stop pin *n* butting up against the helical spring effecting a similar object. It will be noticed that the key *b* is provided near the thumb-piece with a bevel that corresponds with another bevel in the top of the inside of the cover *c*. These similar bevels, acting in combination with the central pin *g* of the key and the central hole *h* in the square cavity, form two bearings for the key and produce true central working. The switch may be constructed as a single or double make and break, combined with a wall connection for a portable lamp or any other fitting attached to a flexible cord, (with or without cut-out *f*,) the other end of the cord being fixed to a plug with split poles. These said poles pass into the sockets *m* by the opening *l* in a key *k*. The said key is attached to the base-plate *a* by a screw *q*, passing through an insulated tube *o*. The springs *i* are slipped into the split portion of the pole *p*. One or more of these said springs may be used, according to the requirements of the switch.

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

1. In an electric switch, the combination of

a recessed base, combined binding-posts and contact-plates fastened to the sides of the recess of the base, a rotary spindle carrying coiled contact-springs, and bearings for the
5 spindle, formed by the beveled cover and the recessed base.

2. The combination of a squarely-recessed base, angular contacts fastened by the binding-posts to the base and projecting into the

several sides of the recess, a rotary spindle, 10 coiled contact-springs mounted on split pins carried by the spindle, and the base and cover forming bearings for said spindle, substantially as described.

ANDREAS PETER LUNDBERG.

Witnesses:

H. J. DOWSING,
R. NOBLE.