

(No Model.)

3 Sheets--Sheet 1.

P. R. ALLEN.
ELECTRIC ARC LAMP.

No. 270,361.

Patented Jan. 9, 1883.

Fig. 1.

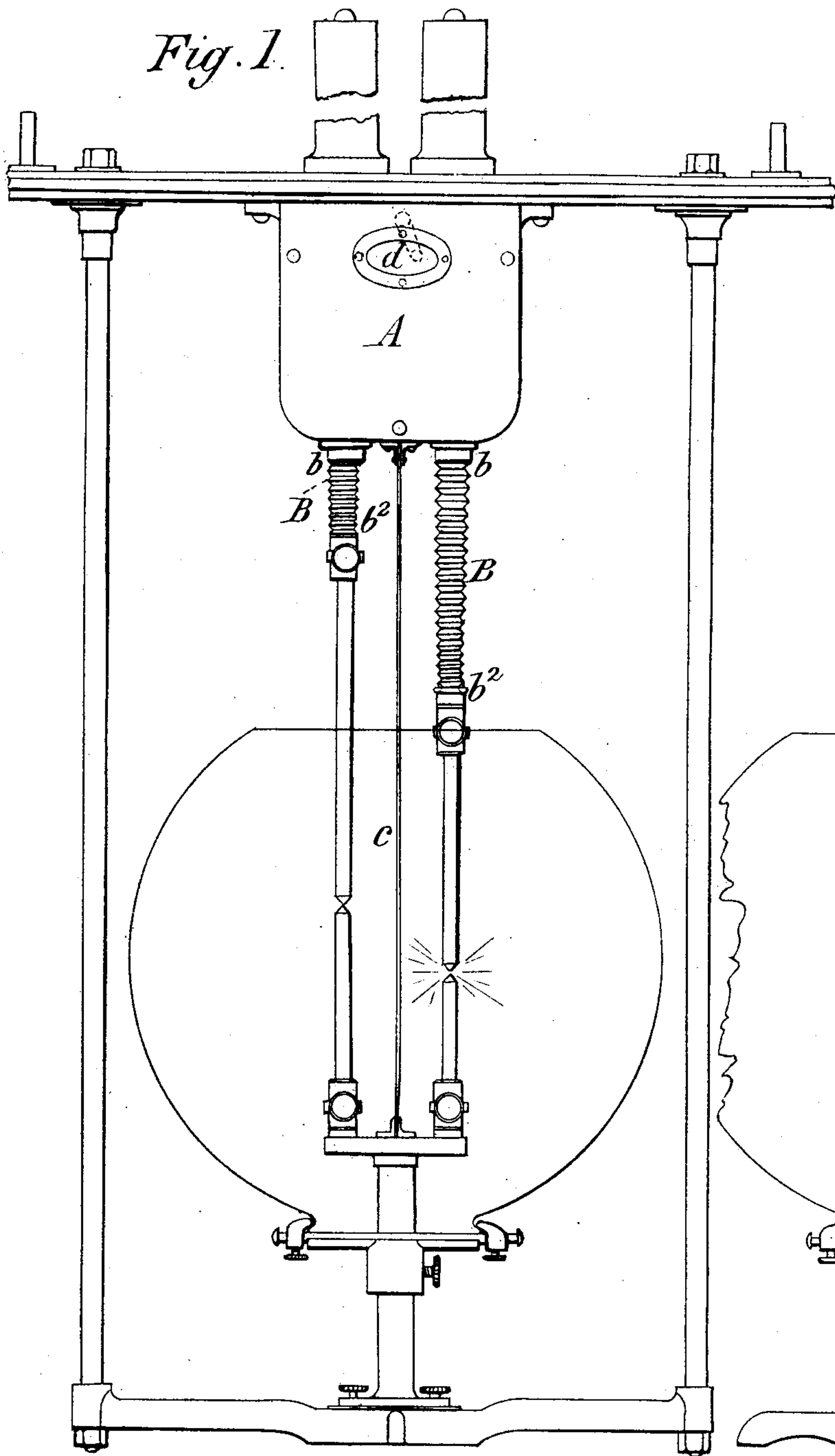
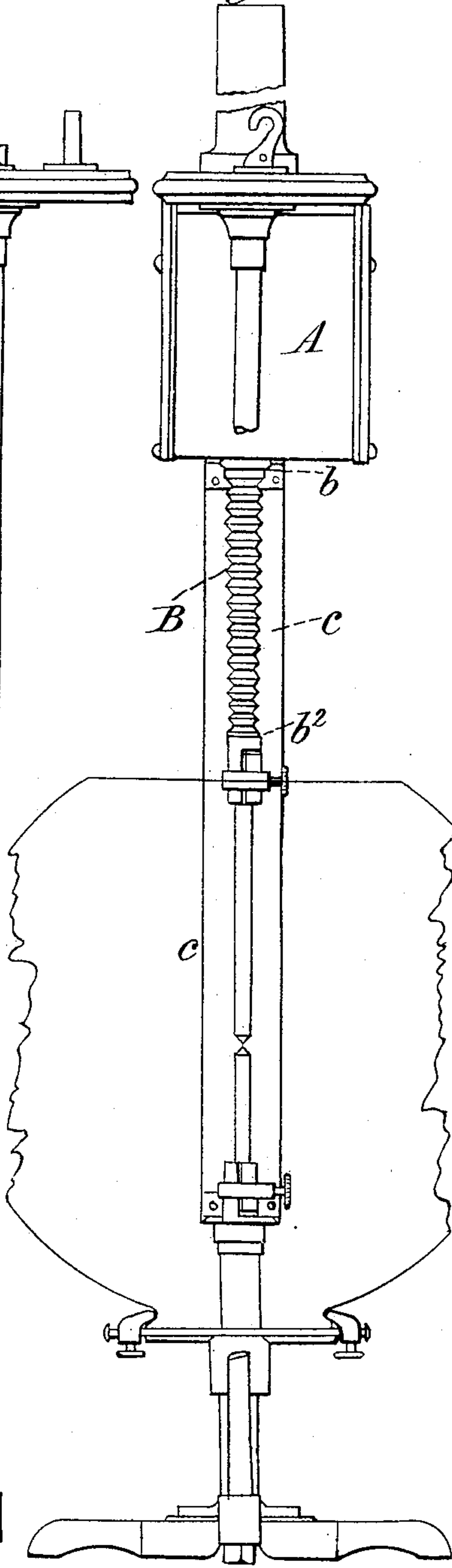


Fig. 2.



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Inventor
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Howson and Ford

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Fig. 3.

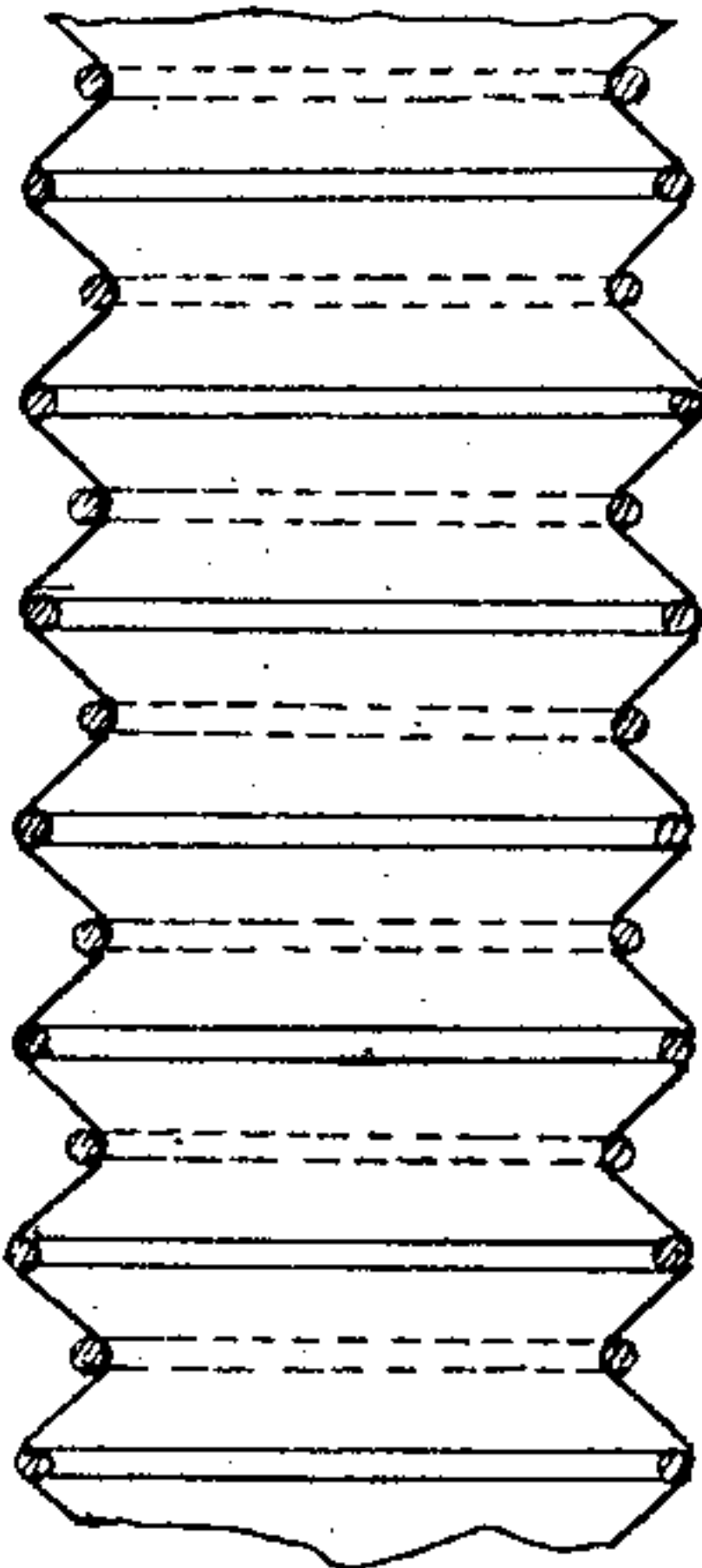


Fig. 4.

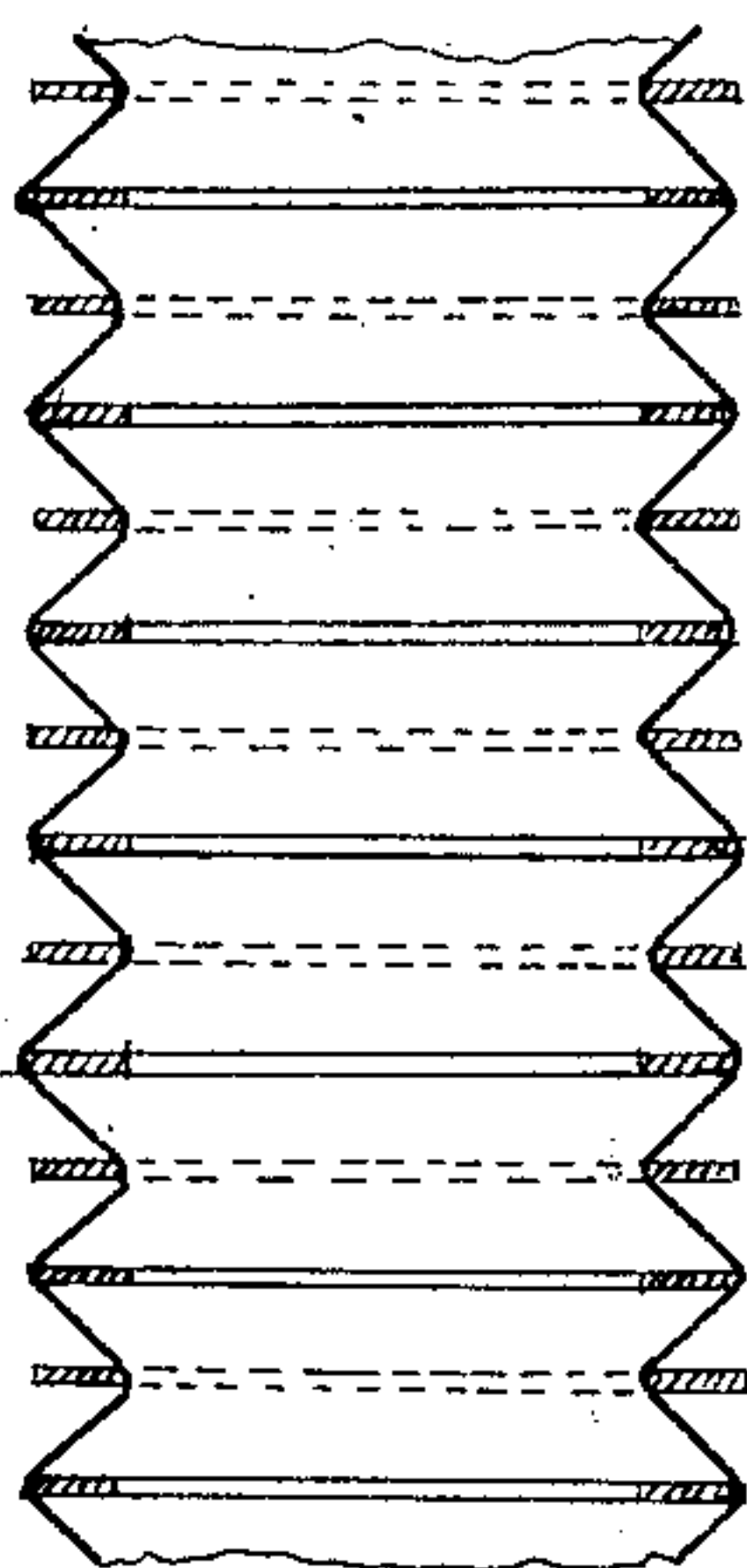


Fig. 5.

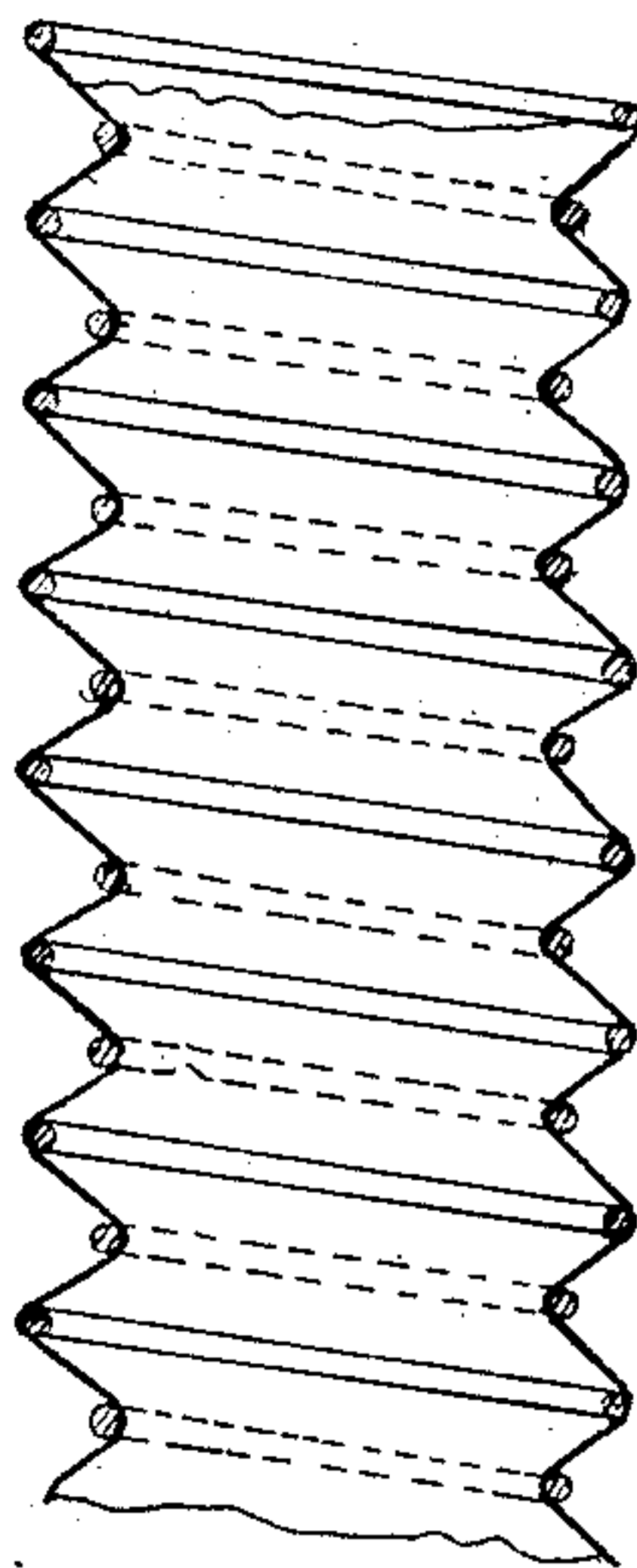


Fig. 8.

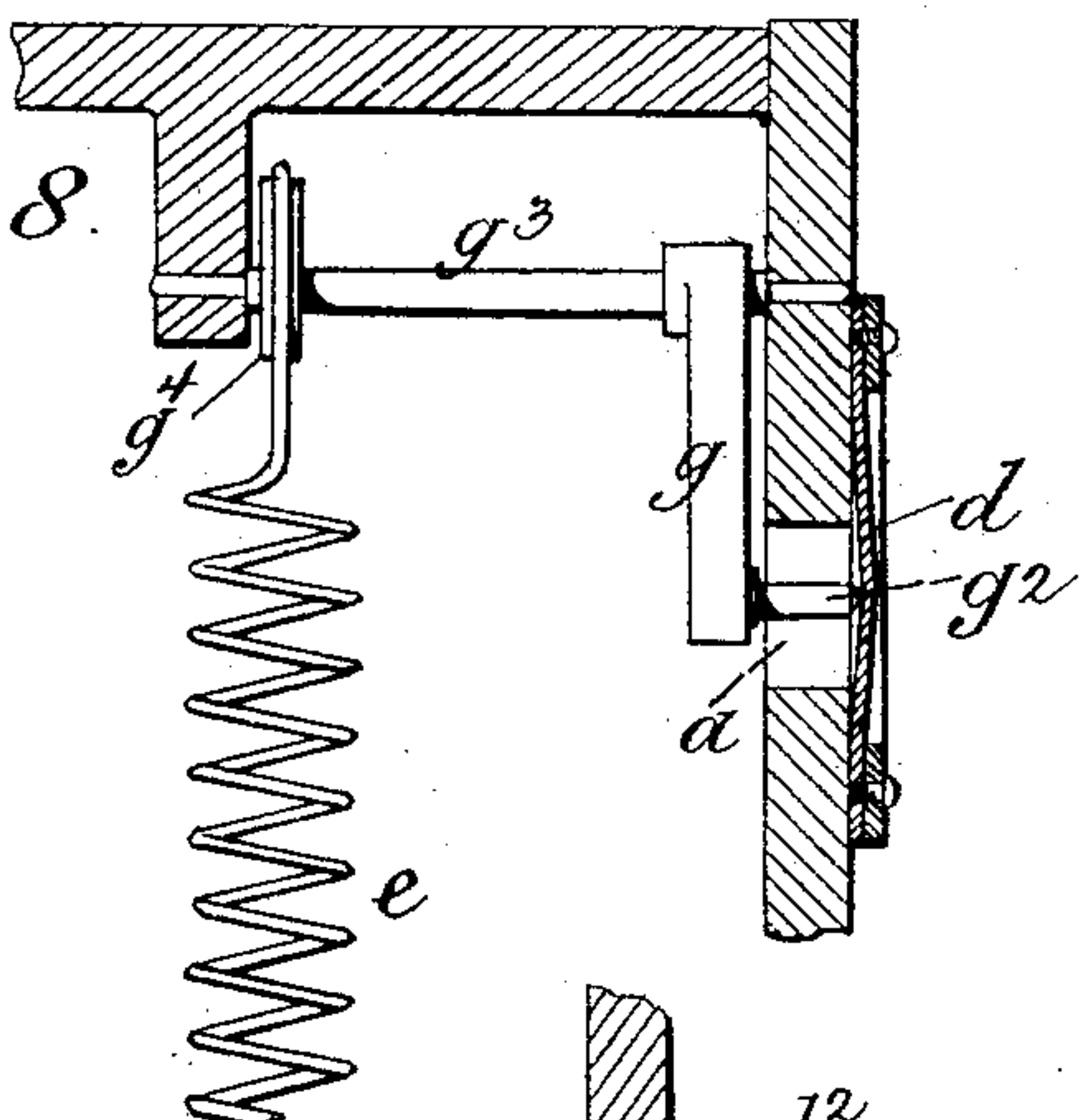


Fig. 9.

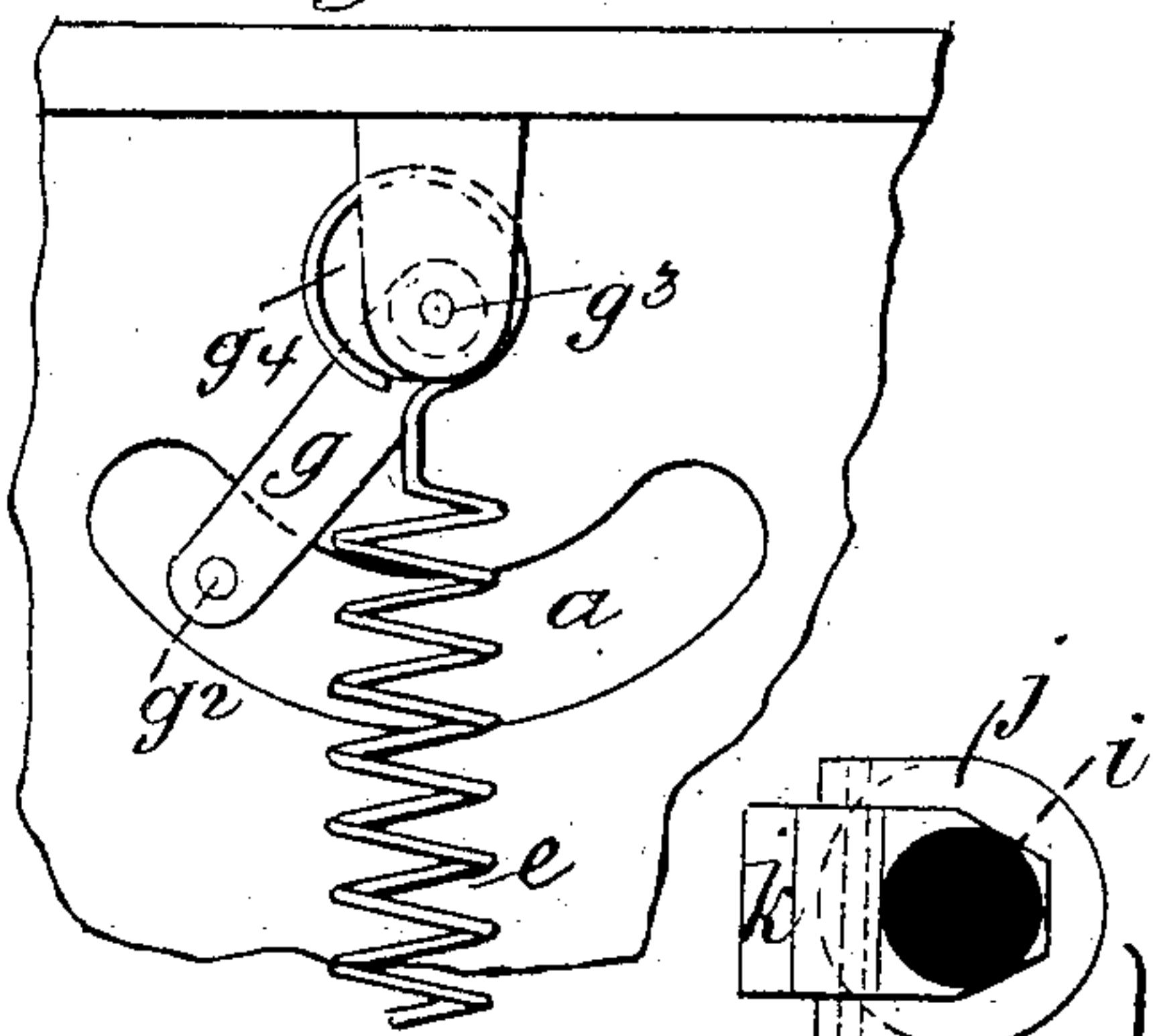


Fig. 10.

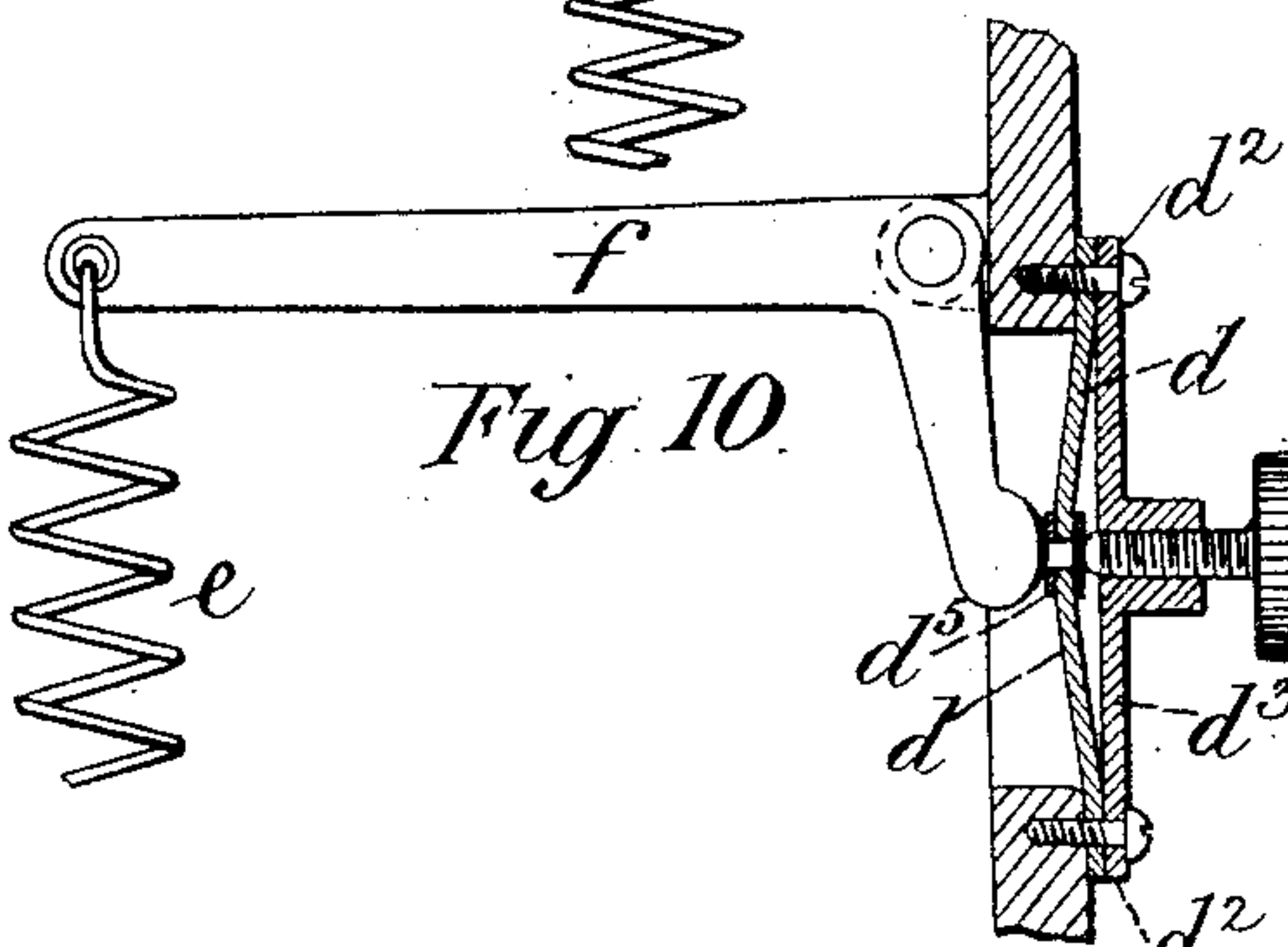


Fig. 11.

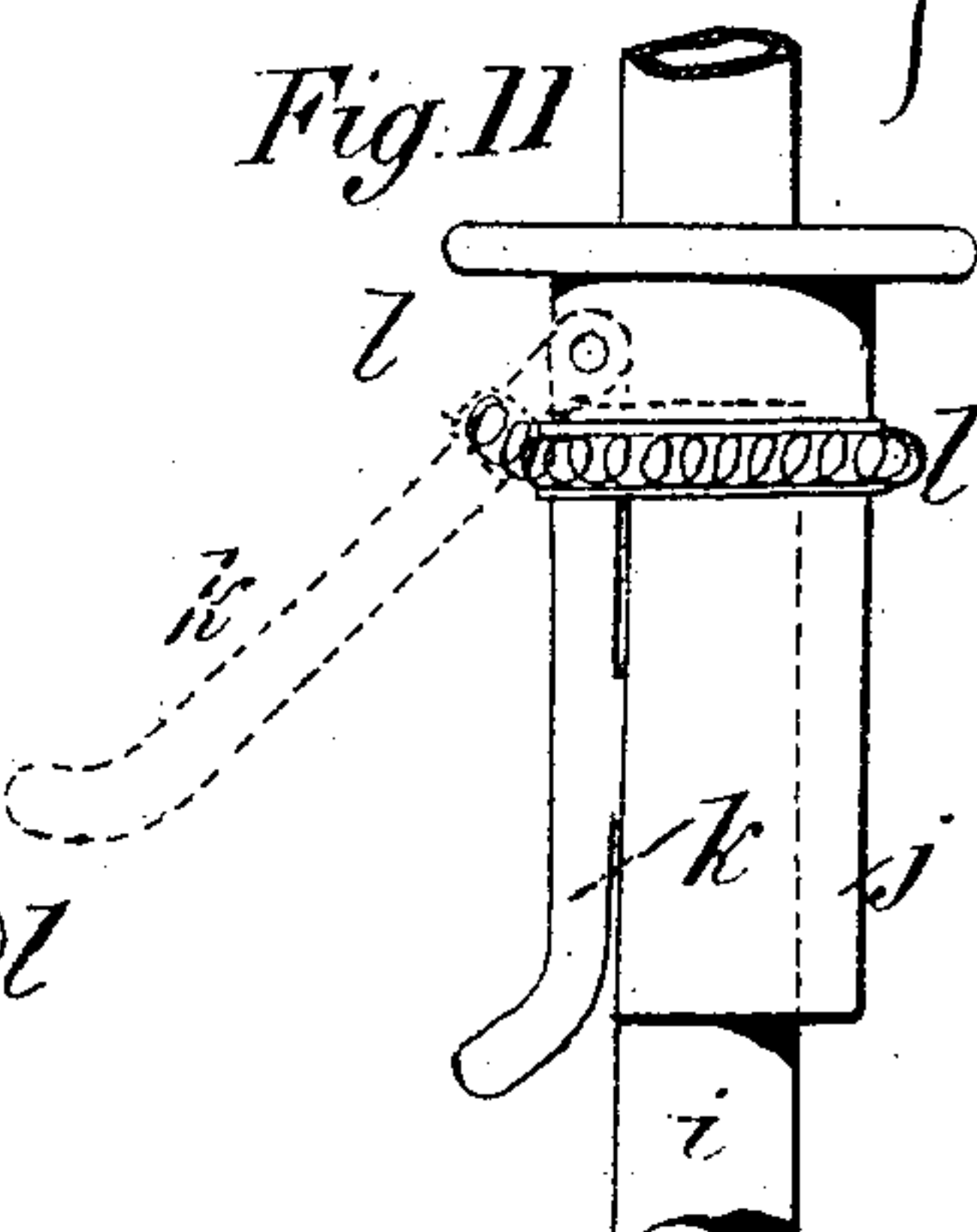
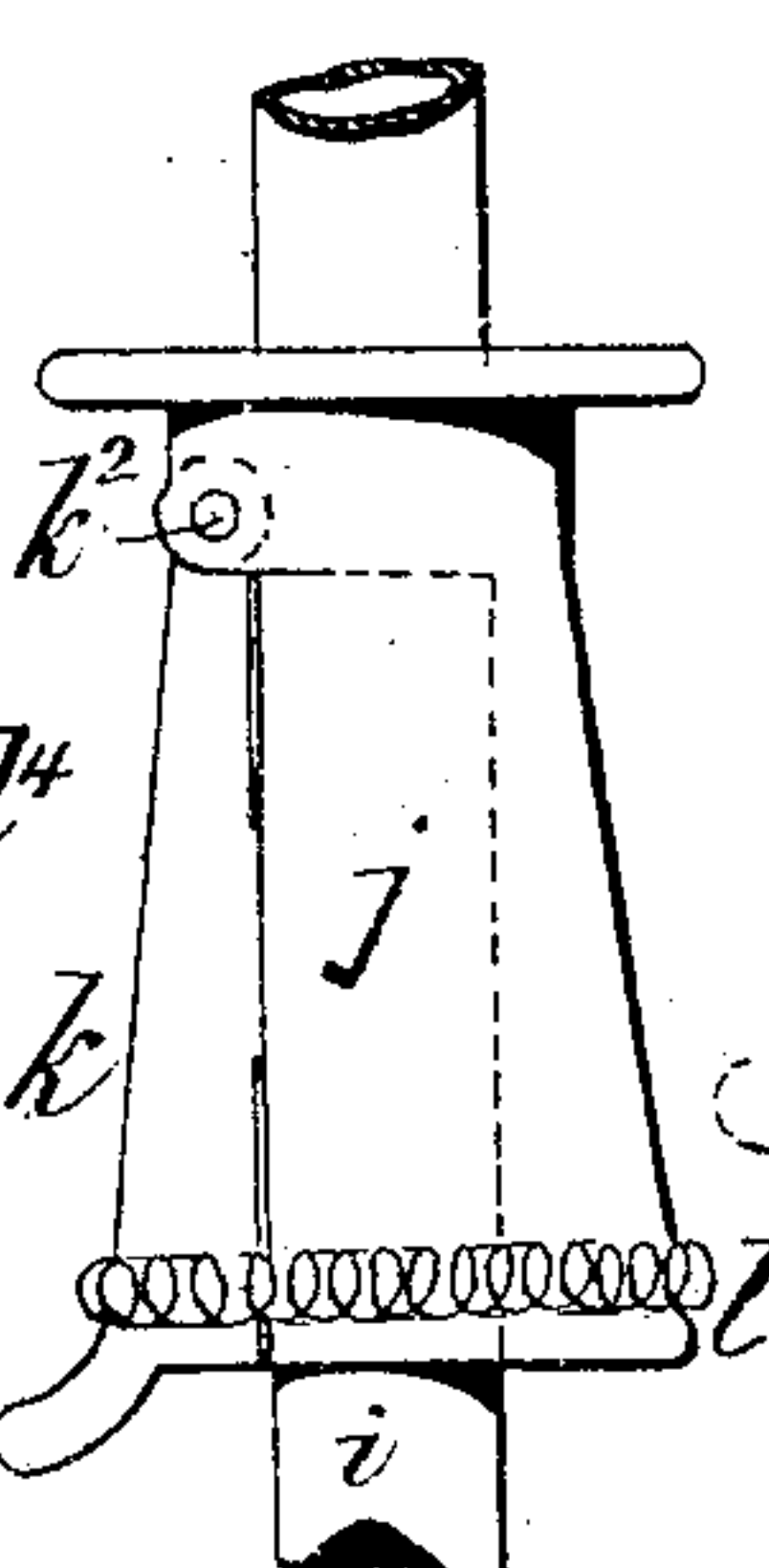


Fig. 12.



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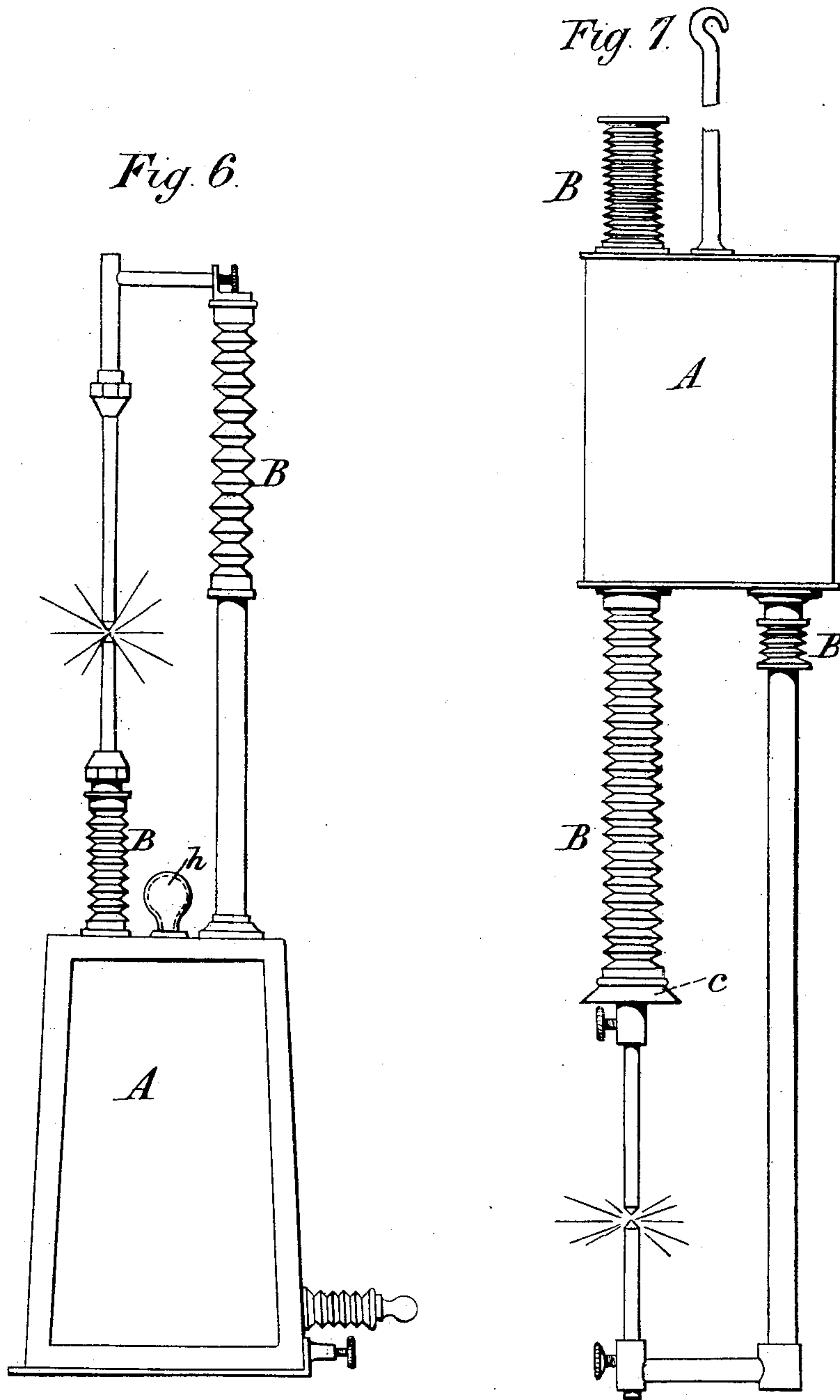
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Percy R. Allen
by his Attorneys
Howson and Fox

UNITED STATES PATENT OFFICE.

PERCY RUSKIN ALLEN, OF VICTORIA WORKS, BELVEDERE ROAD, COUNTY OF SURREY, ENGLAND.

ELECTRIC-ARC LAMP.

SPECIFICATION forming part of Letters Patent No. 270,361, dated January 9, 1883.

Application filed October 9, 1882. (No model.) Patented in England August 26, 1882, No. 4,084.

To all whom it may concern:

Be it known that I, PERCY RUSKIN ALLEN, a subject of the Queen of Great Britain, and residing at Victoria Works, Belvedere Road, county of Surrey, England, have invented certain Improvements in Arc Electric Lamps, (for which I have obtained a patent in Great Britain, No. 4,084, dated 26th August, 1882,) of which the following is a specification.

My invention has for its principal object to preserve the moving parts of arc electric lamps from dirt or corrosion, so as to render unnecessary the frequent cleaning of the said parts, which is at present needed.

According to my said invention I inclose the regulating mechanism in an air-tight box or casing, and I cover the external portions of the rod or rods of the carbon holder or holders, at the parts where they project from the said box, with an envelope, stocking, or covering attached air-tightly at one end to the casing, and at the other end to the outer end of the rod or holder.

Figures 1 and 2 of the accompanying drawings are elevations, at right angles to each other, of a Brush lamp having two sets of carbons and provided with my improvements.

A is the air-tight box inclosing the regulating mechanism. To this box are attached the flexible coverings B—one for each of the upper-carbon holders—the said coverings being attached at one end, *b*, to the box A and at the other end, *b*², to the carbon-holder. This covering may be made of any such form and material as will yield or collapse and extend to allow of the necessary movements of the carbon-holders. I have shown in the drawings the said covering as being of a construction resembling that of concertina-bellows. When in this form its angles are preferably provided with rings of metal wire, as shown in Fig. 3, or disks, as in Fig. 4. These angular portions may have a helical form, when the rings will be replaced by a spiral wire, as shown in Fig. 5; but I wish it to be understood that I have only shown these as illustrations of a convenient form of coverings, and do not limit myself thereto.

Figs. 6 and 7 represent respectively a Jasper lamp and a Crompton lamp provided with a

similar air-tight casing, A, and at B with similar coverings for the parts which extend to outside the said casing A. The material of the coverings may conveniently be the water-proof material known as "mackintosh;" but it may, as before stated, be of any suitable material. Where two or more sets of carbons are used a sheet of tale or other material may be provided, as at *c*, Figs. 1 and 2, to protect the coverings from the heat of the carbons. Where a single pair of carbons is used a convenient guard may be provided, as at *c*, Fig. 7, and this may of course be applied to each holder of a lamp having more than one set of carbons.

In order to provide for operating the tension-regulating spring or other required portion of the apparatus contained in the box or casing A without destroying the air-tight character of the said box or casing, I fix a piece of flexible material—such, for example, as the before-mentioned mackintosh—air-tightly over an opening in the said casing over the operating device, as at *d*, Fig. 1. Figs. 8, 9, and 10 are enlarged views of this detail.

In Fig. 10 the flexible material *d* is fastened to the casing by a ring or flange-piece, *d*², extending around the opening, and caused by screws or the like to pinch the flexible material between itself and the said edge. A cross-bar, *d*³, carries a screw, *d*⁴. To alter the tension of the spring *e* the said screw presses inward the flexible material *d*, and causes a stud, *d*⁵, to bear on the end of the bell-crank lever *f*. Figs. 8 and 9 are views at right angles to each other, (the latter being an inside view,) in which the flexible material *d* covers a curved slot, *a*, and through the said material the projection *g*² from the lever *g* can be felt and operated. The tension of the spring is altered simply by pressing the projection *g*² to one side or the other to turn the spindle *g*³ and alter the position of the eccentric *g*⁴ to adjust the spring.

In order to prevent the confined air in the box A exerting an inconvenient pressure by the moving of the parts inside it, I provide the said box with an opening or openings, over which a flexible bag, as at *h*, Fig. 6, is fixed air-tightly. This bag expands as the pressure of the air increases in the box, thereby compen-

sating for the entry of any of the parts into the casing and giving virtually a constant capacity for the air.

The holder for the carbon may be constructed, as shown in elevation and plan of under side in Fig. 11, to give a ready means of inserting and removing the carbon. The carbon *i* is held between a rigid jaw, *j*, and a movable jaw, *k*. The said movable jaw is hinged to the holder at *k*², and is pressed upon the carbon *i* to retain it in position by a spiral or equivalent spring, *l*, passed around the two jaws.

Fig. 12 is a modification wherein the spring *l* is situated at the outer ends of the jaws.

The carbon may be readily withdrawn by simply pulling it from the holder, and another may be reinserted simply by holding open the movable jaw and putting the carbon in place, after which, on the said jaw being released, the carbon is held firmly in place.

I claim as my invention—

1. The combination of the movable carbon-holder of an electric lamp with a protecting stocking or envelope therefor, substantially as described.

2. The combination of a closed box or casing containing the regulating devices of an electric-arc lamp and the movable carbon-

holder with a protective stocking or envelope for said holder, substantially as set forth.

3. The combination of the movable carbon-holder of an electric-arc lamp and an air-tight casing containing the regulating devices with a collapsible protective covering tightly secured at one end to the carbon-holder and at the other to the portion of the casing through which the said holder passes, all substantially as specified.

4. The combination of the regulating devices of an electric lamp and an air-tight box or casing therefor with a flexible cover, *d*, through which the said devices may be adjusted, substantially as described.

5. The combination of the regulating mechanism of an electric lamp and an air-tight box or casing therefor with a yielding or flexible bag or chamber, *h*, substantially as and for the purpose set forth.

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

PERCY RUSKIN ALLEN.

Witnesses:

CHAS. MILLS,

CHAS. JAS. JONES,

Both of 47 Lincoln's Inn Fields, London.