

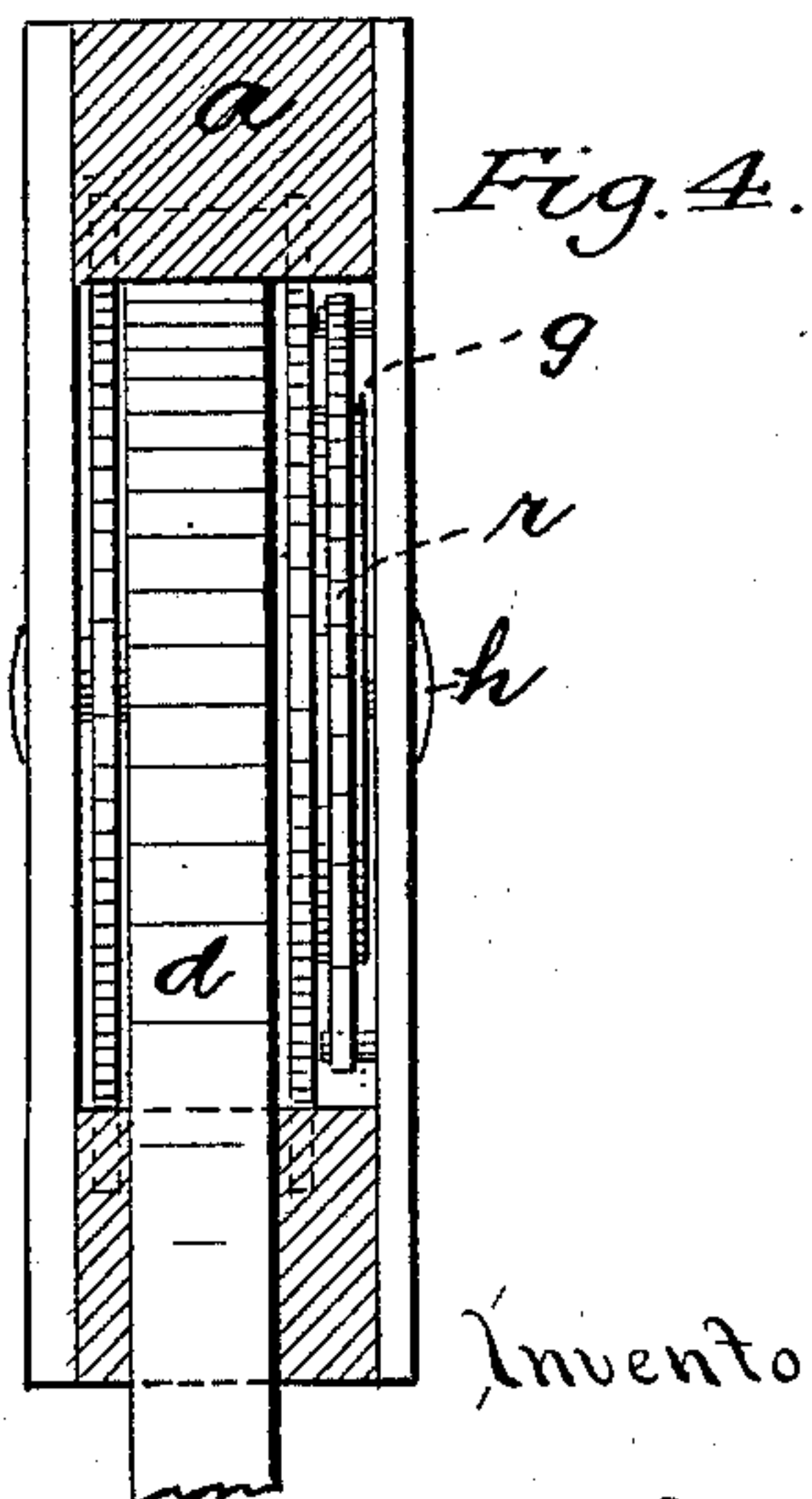
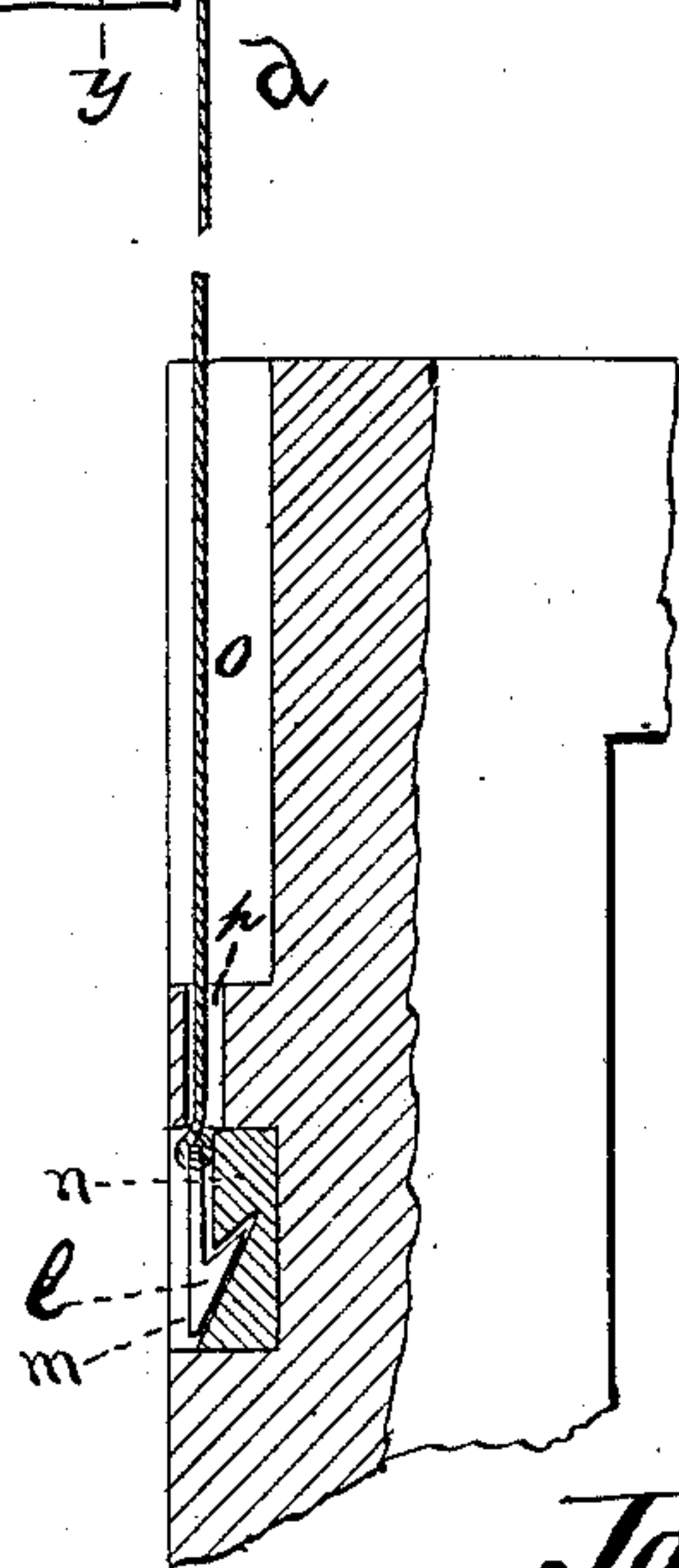
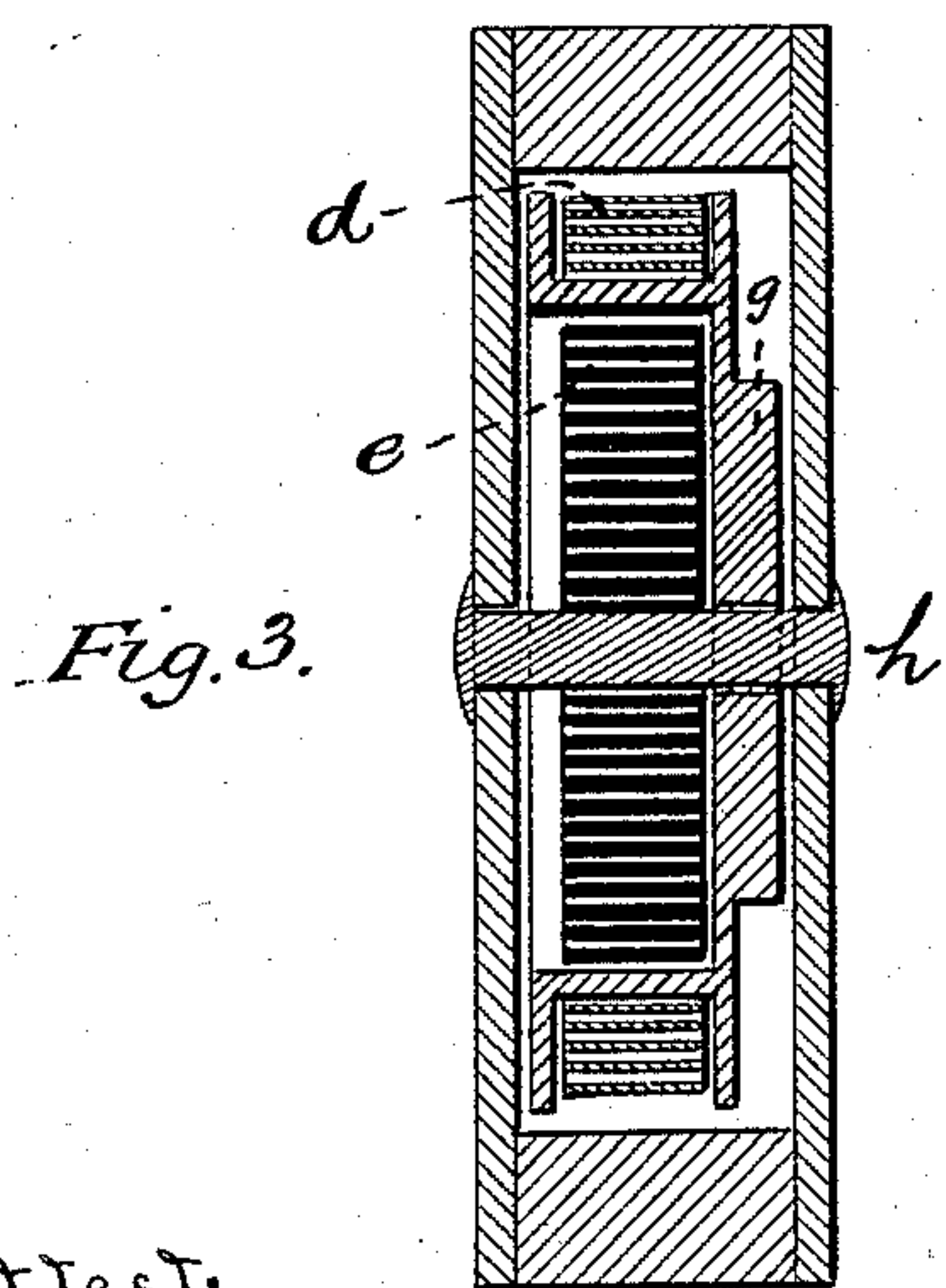
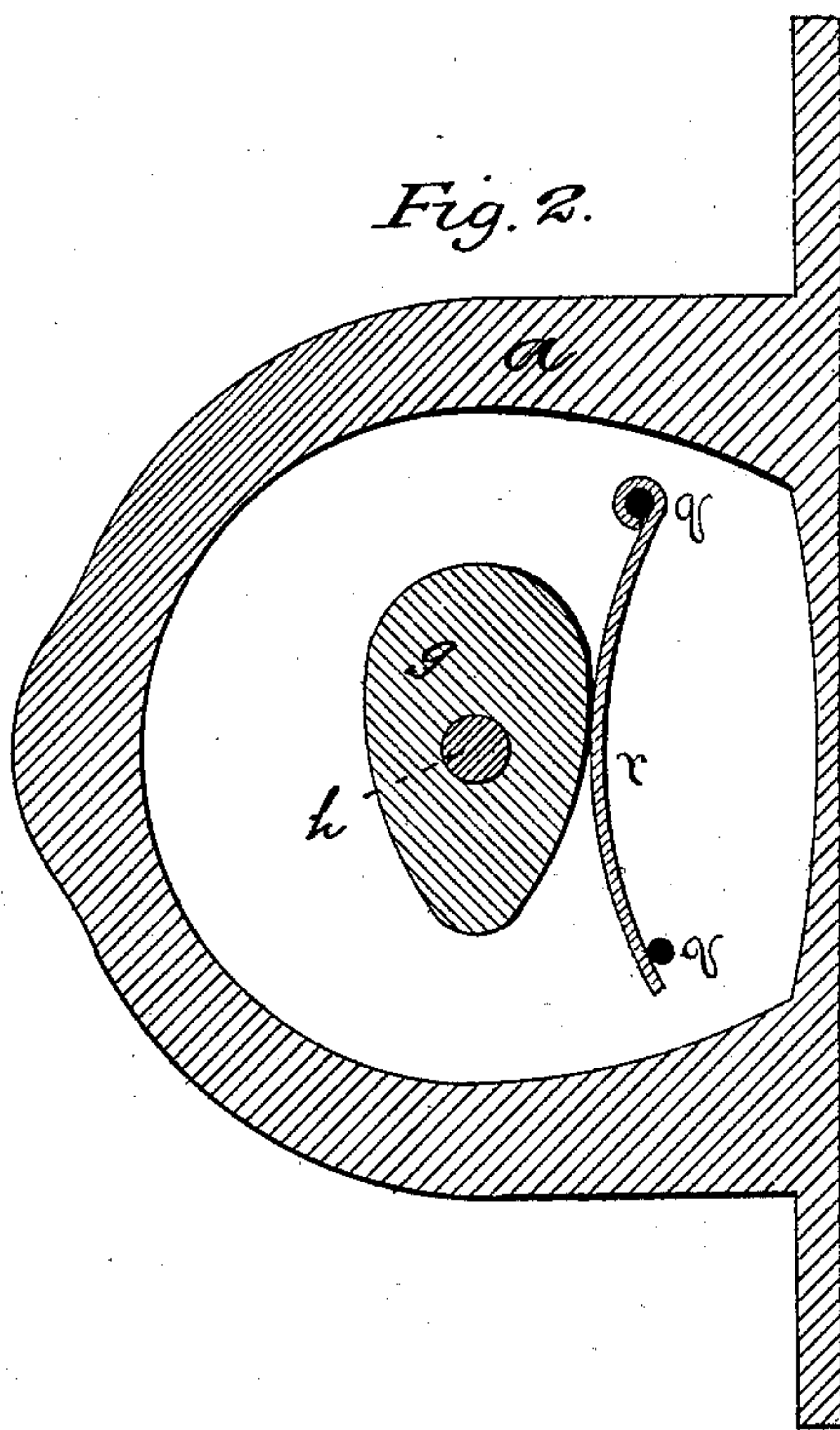
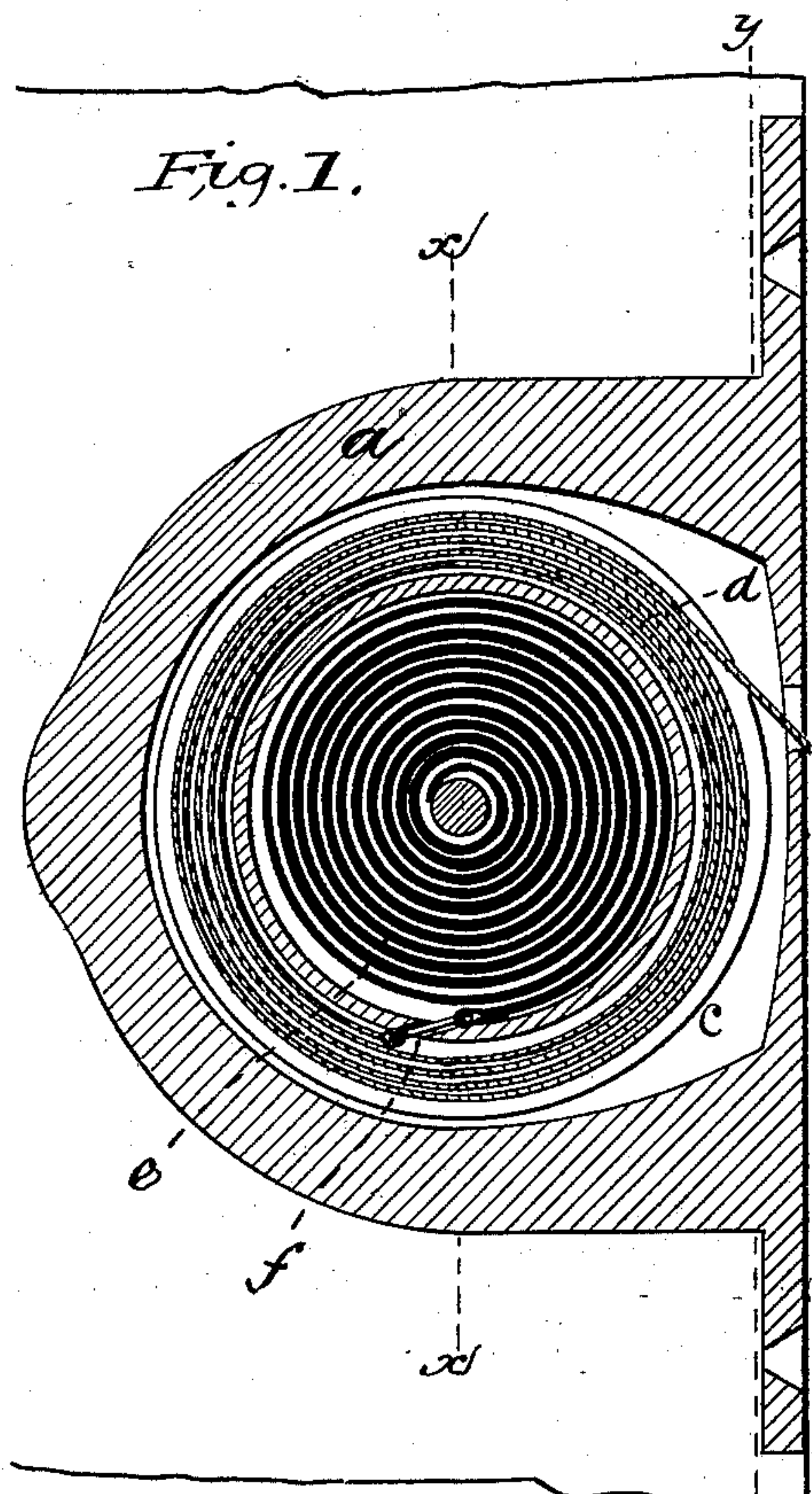
(No Model.)

J. BAVIER.

SASH BALANCE.

No. 279,631.

Patented June 19, 1883.



Attest:

John C. Tunbridge.
Fred Vogt

Inventor:

John Bavier,
by Charles H. Pell
att.

UNITED STATES PATENT OFFICE.

JOHN BAVIER, OF NEWARK, NEW JERSEY.

SASH-BALANCE.

SPECIFICATION forming part of Letters Patent No. 279,631, dated June 19, 1883.

Application filed March 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN BAVIER, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in Sash-Balances, of which the following is a specification.

The object of this invention is to provide a durable, simple, and inexpensive sash-balance capable of being used with window sashes and frames as they are now ordinarily constructed; and the invention consists in the arrangements and combinations of parts substantially as will be hereinafter set forth, and finally embodied in the claim.

Referring to the accompanying drawings, in which similar letters of reference indicate like parts in each of the several figures, Figure 1 is a vertical section of my improved device, showing the relation of the pulley to the frame and the cord attached to a window-sash. Fig. 2 is a sectional view illustrating the arrangement of a cam formed upon the pulley-wheel and its engagement with a spring secured upon the side or bed plate of the balance. Fig. 3 is a section taken through line *x*, and Fig. 4 is a section taken through line *y*.

In said drawings, *a* is the bed-plate of the pulley, which forms a chamber therefor, the walls of said chamber preventing the entrance of dust, &c., to the mechanism therein. Said plate is also provided with flanges *b*, perforated to adapt the said flanges to be screwed to the window-jambs.

Within the chamber formed by the bed-plate is arranged the pulley *c*, which is peripherally grooved to receive the flat metallic band or sash-cord *d*, has a chamber formed therein for the reception of a coil-spring, *e*, and has an opening or passage, *f*, allowing communication between said peripheral groove and said spring-chamber. Said pulley has also a cam formed upon the side thereof, as at *g*, illustrated in Figs. 2, 3, and 4. Said cam engaging with the spring *r* prevents the sash from unduly rising or falling when the power of the said spring *e* and the weight of the sash

are not exactly balanced. The friction produced by the cam-projections riding over the spring *r* is sufficient to balance the said sash (when said friction is in co-operation with the exerted power of the spring *e*) should the said power of the said spring *e* of itself be too great or insufficient to form an exact balance. The said pulley *c* is arranged to revolve on the pivot pin *h*, as shown in Fig. 3.

Within the pulley-chamber is arranged the coil-spring *e*, one end of which is secured to the pivot *h* and the other to the pulley or to the cord *d* through the opening *f*. The cord is formed, preferably, of flat steel wire or ribbon, and is connected to the sash by means of the hook *l*, which engages with a socketed casting, *n*, which is placed in the ordinary bit-hole, *m*. By this mode the ordinary sash, having the groove *o*, passage *p*, and the said bit-hole *m*, may be utilized.

In connection with the cam *g* is arranged the spring *r*, secured to the bed-plate *a* and having its bearings on the pins or lugs *q*. The engagement of the cam with the spring *r* adapts the balance to be used with several sizes of sashes.

I am aware that sashes have been balanced by springs, and therefore I do not claim this feature, broadly; but

What I claim, and wish to secure by Letters Patent, is—

An improved sash-balance, consisting of a bed-plate, *a*, a pulley, *c*, having a spring-chamber and peripheral groove therein, and a cam, *d*, thereon, a coil-spring, *e*, arranged in the spring-chamber, and a spring, *r*, adapted to engage with the cam, all said parts being arranged and operating substantially as and for the purposes herein set forth and shown.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of March, 1883.

JOHN BAVIER.

Witnesses:

CHARLES H. PELL,
JOSEPH A. ENO.