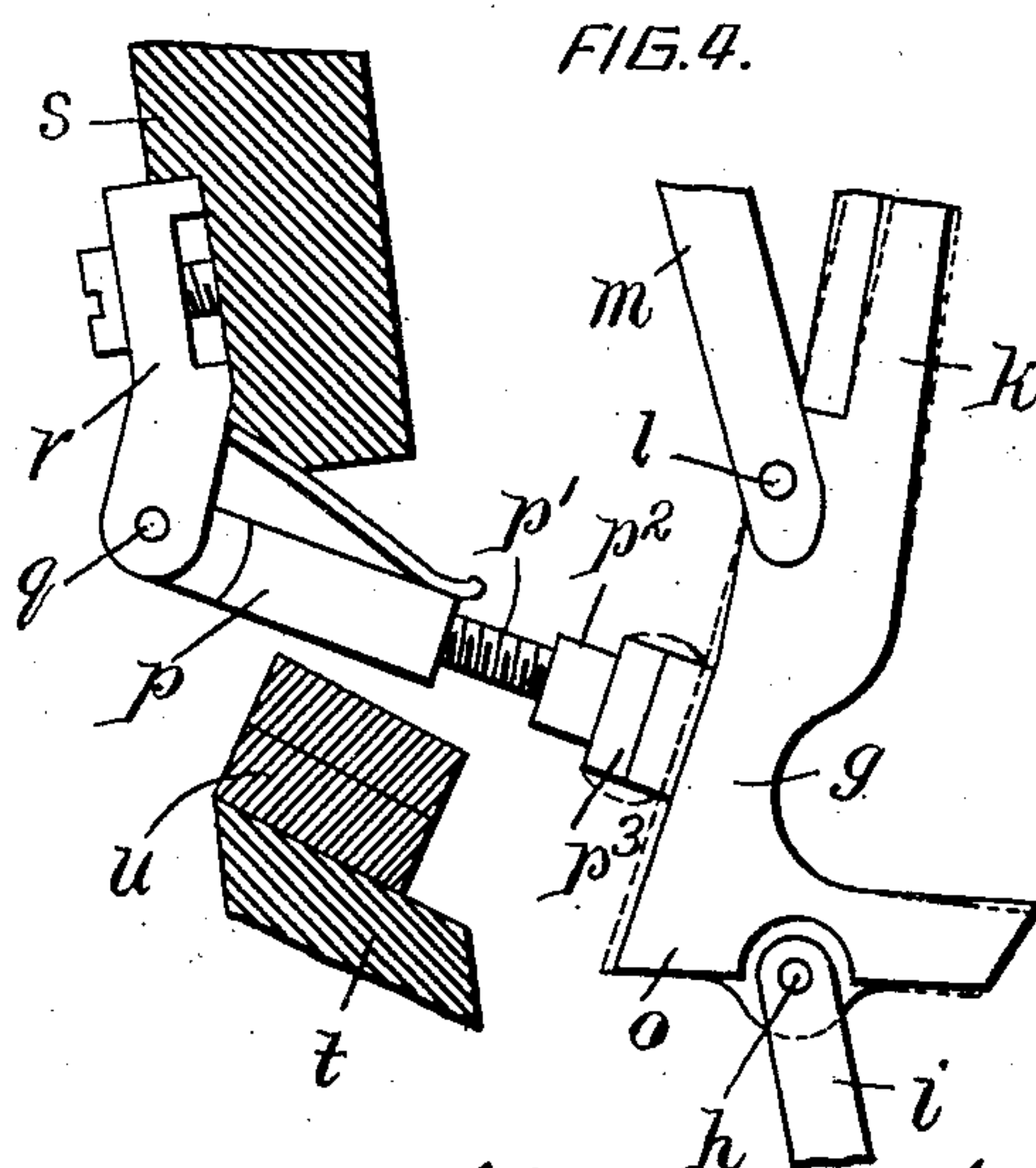
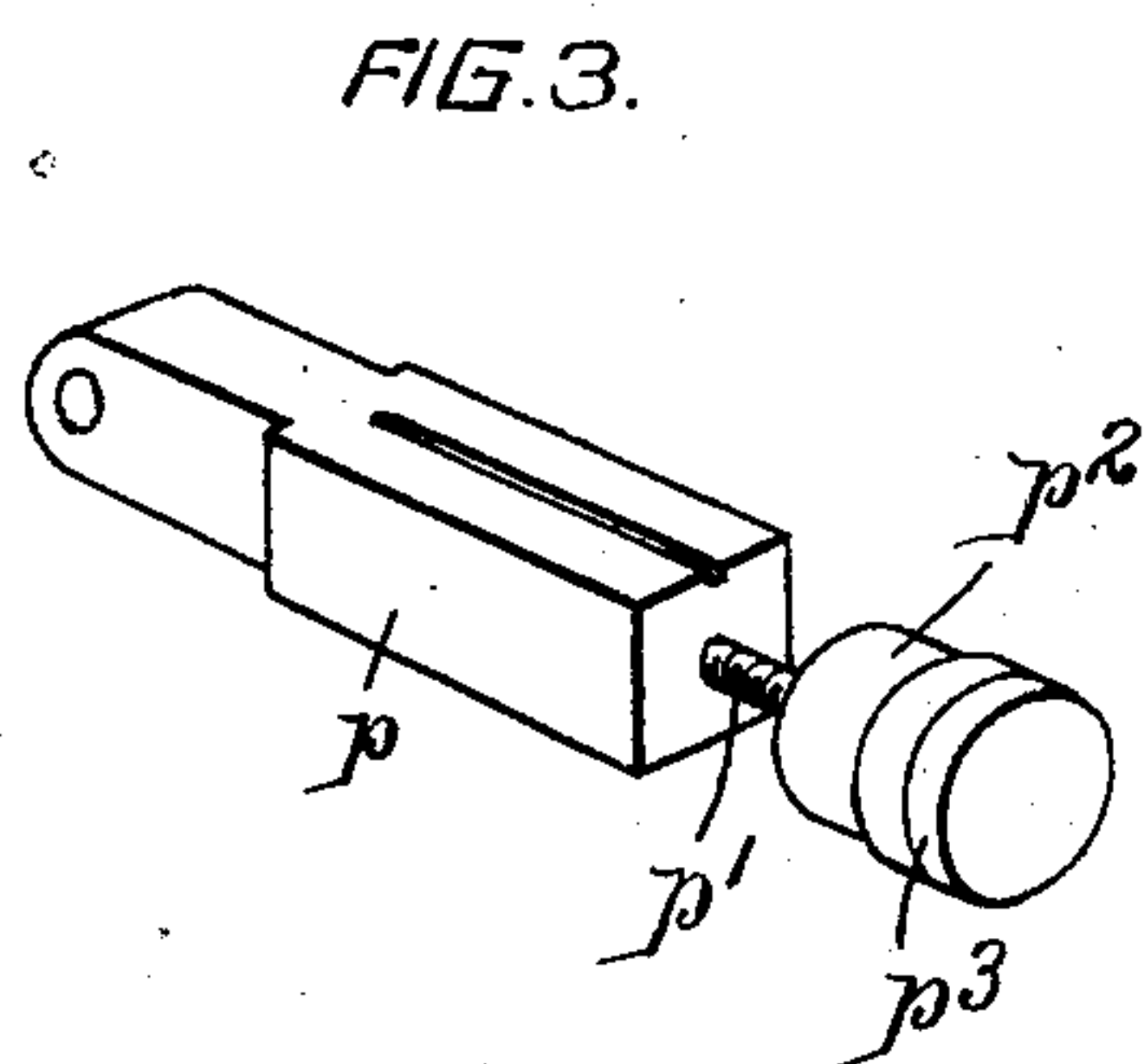
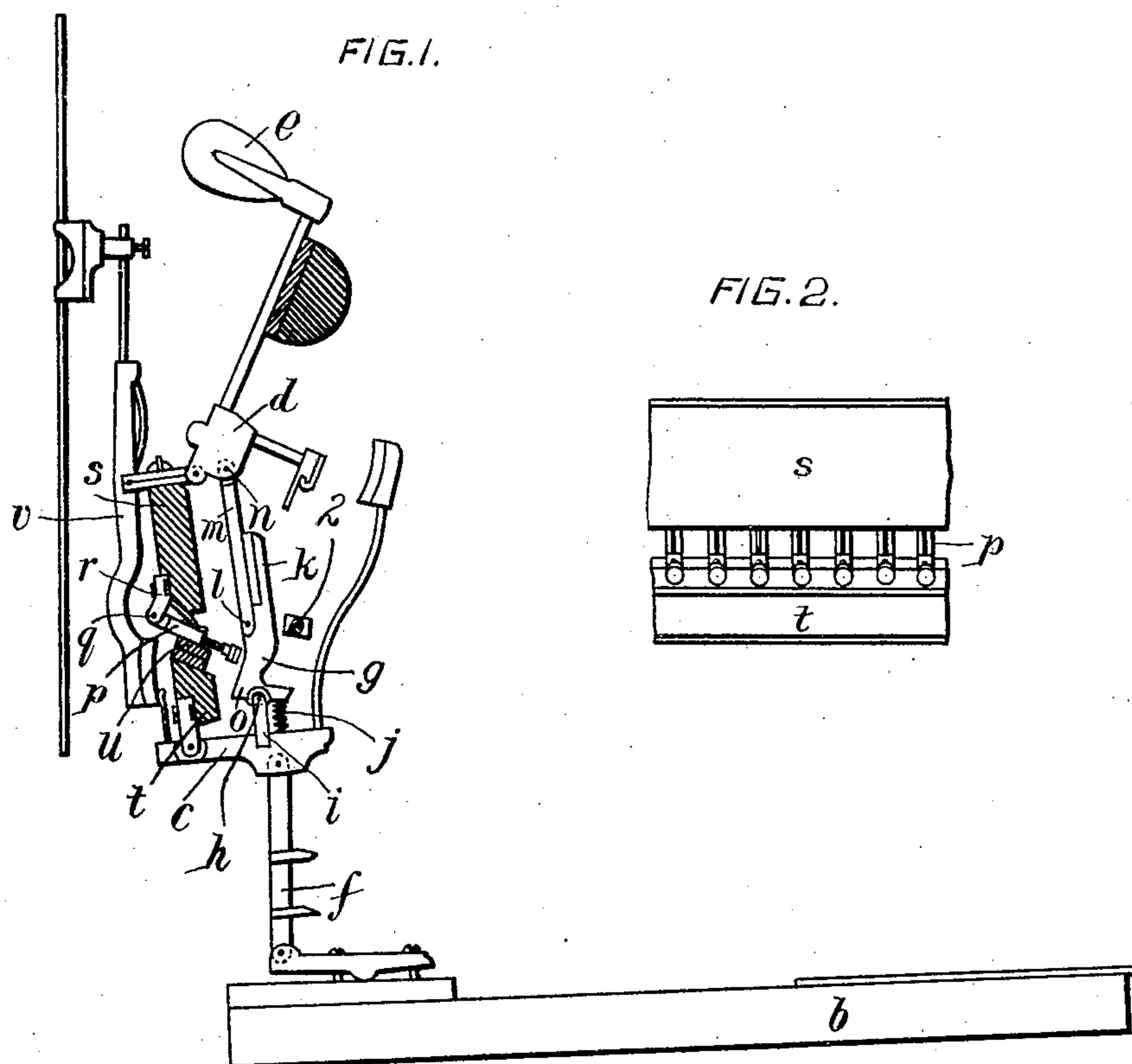


No. 839,903.

PATENTED JAN. 1, 1907.

R. M. SQUIRE.
PIANO ACTION.

APPLICATION FILED MAR. 23, 1905.



Witnesses

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ROLAND MONTAGUE SQUIRE, OF MONTREAL, QUEBEC, CANADA.

PIANO-ACTION.

No. 839,903.

Specification of Letters Patent.

Patented Jan. 1, 1907.

Application filed March 23, 1905. Serial No. 251,637.

To all whom it may concern:

Be it known that I, ROLAND MONTAGUE SQUIRE, of the city of Montreal, Province of Quebec, Canada, have invented certain new and useful Improvements in Piano-Actions; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to piano-actions of the jointed-jack type, and particularly to the means for supporting such piano-action and the auxiliary means whereby the jointed jack is operated.

The invention may be said, briefly, to consist of the several combinations of parts hereinafter set forth, and pointed out in the claims.

For full comprehension, however, of my invention reference must be had to the accompanying drawings, forming a part of this specification, in which similar reference characters indicate the same parts, and wherein—

Figure 1 illustrates a portion of a piano-action in transverse vertical section. Fig. 2 is an elevation of a portion of my improved rail, and Fig. 3 is a detail perspective view of my improved means whereby the jointed jack is operated. Fig. 4 is an enlarged view illustrating in full lines the positions of the parts when the key is depressed and in dotted lines the positions momentarily assumed as the hammer is in the act of striking the wire.

The key *b*, lever *c*, butt *d*, hammer *e*, and operating connection *f* between the key and the lever are of usual construction.

An angular lever *g* is fulcrumed at its angle, as at *h*, to the upper end of a vertical projection *i* upon the top of the lever *c* and has one arm extending horizontally and held normally yieldingly away from the lever by an expansible helical spring *j*, while the other arm thereof has a padded extension *k*. This latter arm is pivotally connected, as at *l*, to one end of a rigid link *m*, the opposite end whereof is pivotally connected, as at *n*, to the butt *d*.

An angular extension *o* upon the bell-crank lever coacts with the movable member to break the direct connection between the key and the hammer. The parts *g* and *m* constitute what I term a "jointed jack." This member consists, preferably, of an arm *p*, pivoted at one end, as at *q*, to a bracket *r*, secured to the rail, preferably as shown, the

opposite end of such arm having a screw *p'*, screwed thereinto, a wooden block *p²* being screwed upon the outer end of such screw and having secured thereon a pad or cushion *p³* of the material usually employed in the manufacture of cushions in piano-actions, while the rail is preferably made in two parts, *s* and *t*, bracket *r* being secured to the lower portion of the rear of the part *s* of the rail, while a cushion *u* for supporting the arm *p* is secured upon the top of the part *t*. In order to increase the radius of the circular path of movement of the arm *p*, the lever-arm *v* of the damper is curved, as at *v'*.

The advantage of constructing piano-actions according to my invention is that the touch is much more delicate, because rubbing friction in the operative connection between the action and the arm *p* is completely eliminated by constructing such arm to move with the action while performing its function, while the duplex rail enables a greater movement of the arm *p* to be accommodated, and thereby allows the direct rigid connection between the lever *c* and the butt *d* to be maintained until the hammer is an infinitesimal distance from the wire, at which point the angular extension *o* of the jointed jack comes into contact with the end of the arm *p* and causes the butt *d*, link *m*, and angular lever *g* to turn on the pivot-points *n*, *l*, and *h*, thus breaking the rigid connection and causing the hammer to strike the strings. Immediately the hammer strikes the strings it rebounds therefrom, and if the key is held depressed the hammer is held in close proximity to but not touching the strings. A padded rigid stop in the form of a rail 2 is provided to limit the movement of the jointed jack away from the duplex rails *s t*.

The momentum imparted to the hammer by the depression of the key causes the former to momentarily overcome the yielding resistance of the pad upon the end of the arm *p* and such hammer to strike the wire.

What I claim is as follows:

1. In a piano the combination with a rail, a key, a hammer, the butt of the hammer, a part movable with the key and means including a member effecting a direct and temporarily-rigid connection between the said part movable with the key and the hammer, such means being permanently pivotally connected to both the butt and the said part movable with the key, of movable means carried by the rail and the path of movement where-

of intersects the said first-mentioned means, and the said movable means being constructed and arranged to be impinged upon and moved by the first-mentioned means and
5 the said rigid connection broken.

2. In a piano the combination with a rail, a hammer, a key, and a jointed jack the members whereof coact to retain each other against movement in one direction upon
10 their joint, of a movable member carried by the stationary part of the piano and disconnected from the jointed jack and adapted to be impinged upon by the jointed jack to cause the members of the latter to turn on their
15 joint, for the purpose set forth.

3. In a piano-action the combination with a hammer, a key, a rail and a jointed jack, of an arm pivoted to the rail adjacent to and disconnected from the jointed jack and
20 adapted to be impinged upon by the jointed jack to cause the members of the latter to turn on their joint, for the purpose set forth.

4. In a piano the combination with a rail, a hammer, a key, and a jointed jack the members whereof overlap each other to prevent movement in one direction upon
25 their joint, of a movable yielding member carried by the stationary part of the piano and disconnected from the jointed jack and
30 adapted to be impinged upon by the jointed jack to cause the members of the latter to turn on their joint, for the purpose set forth.

5. In a piano-action the combination with a hammer, a key, a rail and a jointed jack, of

an arm pivoted to the rail and disconnected 35 from the jointed jack, a member secured to the free end thereof by a screw adjustable into and out of such end, such member being adapted to be impinged upon by the jointed
jack to cause the parts of the latter to turn 40 on their joint, for the purpose set forth.

6. In a piano-action the combination with a hammer, a key, and a jointed jack, of a duplex rail, an arm extending between the parts of the rail means pivotally connecting 45 the rear end of the arm to the rear side of the upper part of the rail, the forward end of such arm being in position to be impinged upon by the jointed jack for the purpose set forth.

7. In a piano-action the combination with 50 a hammer, a key, and a jointed jack, of a duplex rail, an arm extending between the parts of the rail, means pivotally connecting the rear end of the arm to the rear side of the upper part of the rail, the forward end of such 55 arm being in position to be impinged upon by the jointed jack, and a damper-lever having a portion thereof curved to accommodate the rear end of the pivoted arm, for the purpose
60 set forth.

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

ROLAND MONTAGUE SQUIRE.

Witnesses:

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FRED. J. SEARS.