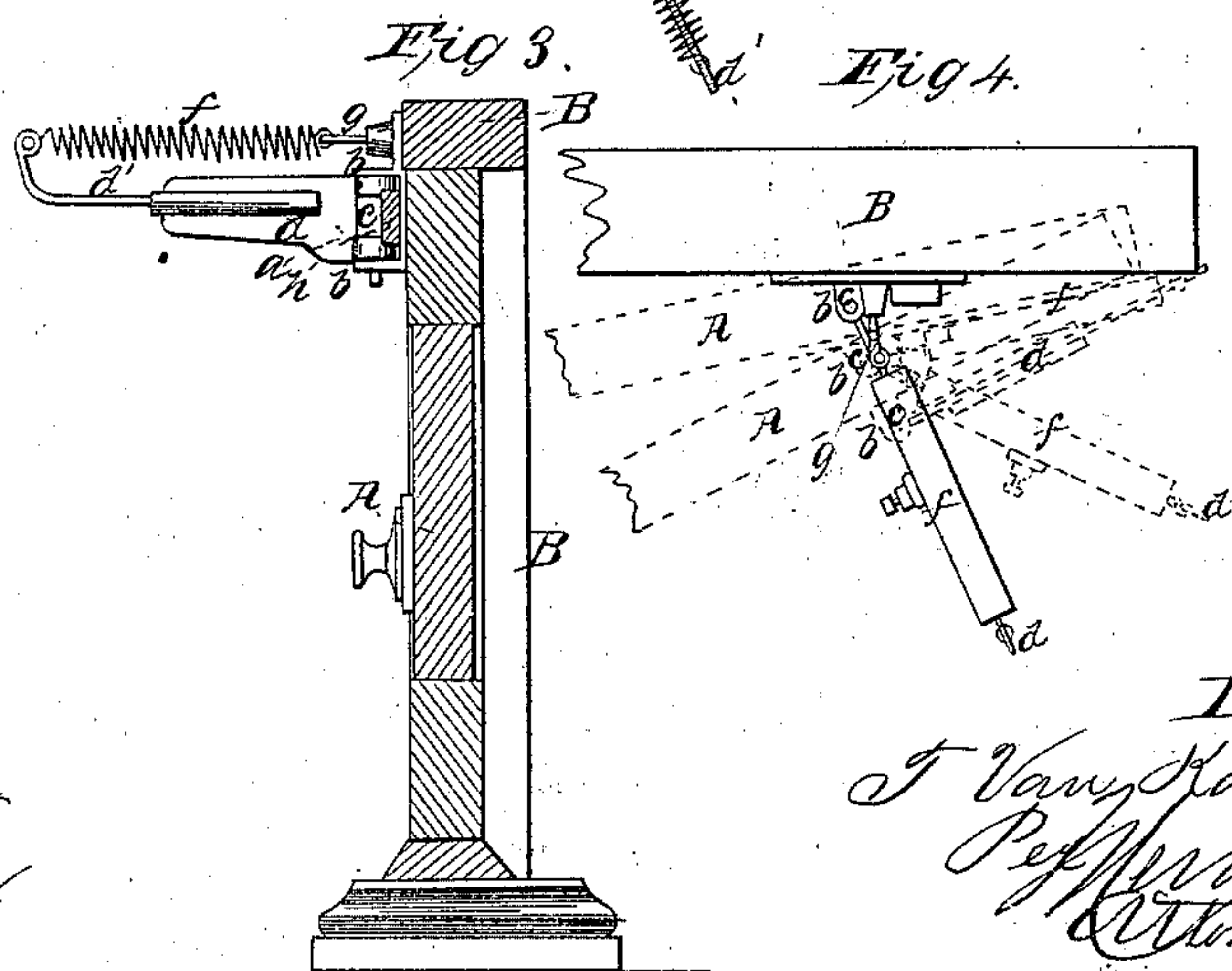
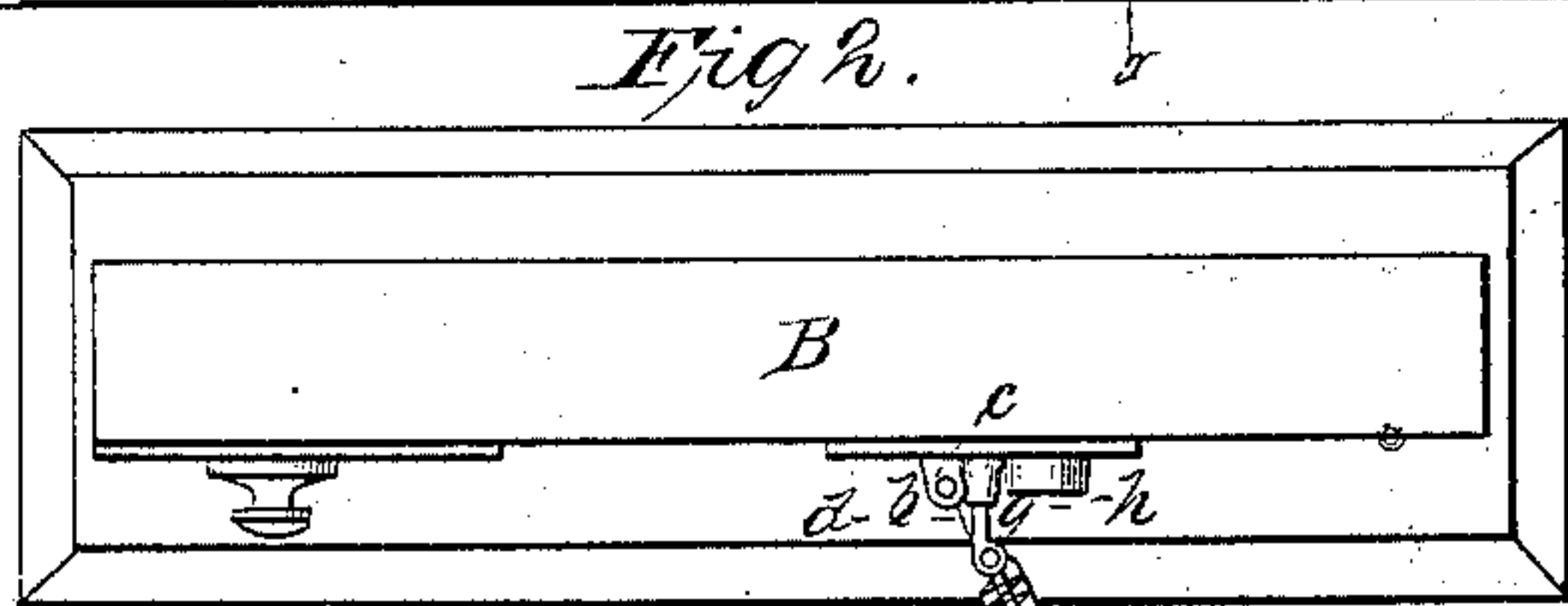
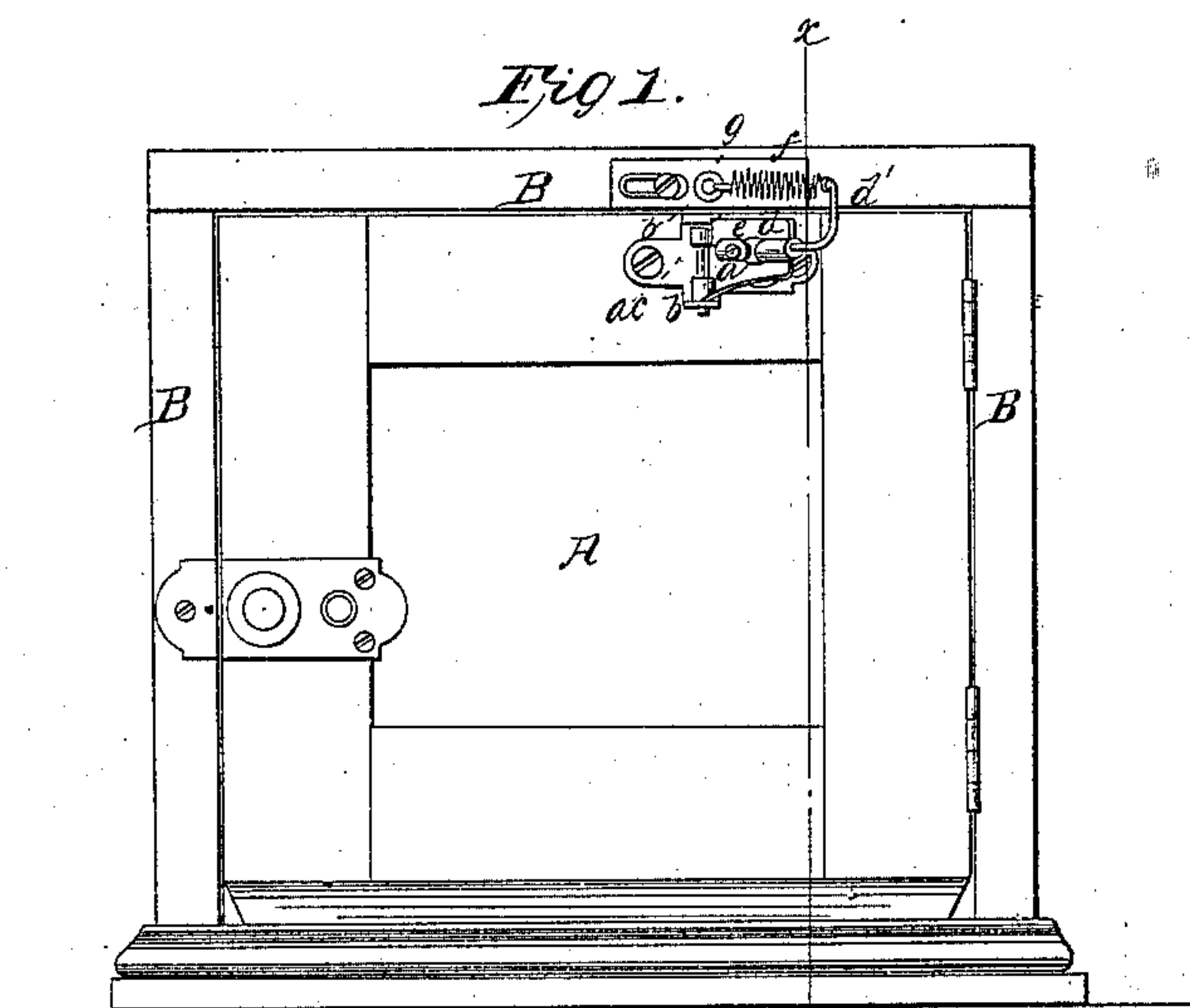


T. Van Kannel,
Door Spring.
N^o 66,538. Patented July 9, 1867.



Witnesses.
Theo Tinsche
J. A. Servus

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T. VAN KANNEL, OF CINCINNATI, OHIO.

Letters Patent No. 66,538, dated July 9, 1867.

IMPROVEMENT IN DOOR-SPRINGS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, T. VAN KANNEL, of Cincinnati, Hamilton county, Ohio, have invented a new and improved Door-Spring; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of this invention is to construct a door-spring which will prevent the violent slamming of the door, and by which the door will be gently closed, power enough being obtained to overcome the pressure of the spring in the lock of the door upon the latch while the door is being closed.

The invention consists in the use of a rod or bar which is hinged to the face of the door, near to its upper edge, and of a spiral spring, which is attached to a small projection from the casing or lintel above the said rod or bar. The latter is hinged so that it can swing freely in a horizontal direction, but not up and down, and its outer end is bent up and connected with the end of the spring. The parts are so arranged that the spring and rod project nearly at right angles from the door, when the same is closed, inclining a little towards the hinged side of the door, so that when the door is being opened it will have the tendency to move the rod forward, and will do so for a short distance, that is as long as the spring can be easily attached; but as soon as the pivoting point of the rod comes below (or nearly so) the point where the spring is secured to the aforesaid projection from the door, the spring will swing itself and the rod around towards the hinge of the door, and the rod will then remain in that position while the door is being opened, and then when released the door will be closed by the spring. The latter, though, will not have much force, on account of its position, and will therefore close the door very gently, until the pivoting point of the rod comes again below, or nearly below, the inner end of the spring. The spring has then sufficient force to assume its original position, which is nearly at right angles with the door, and then it forces the door with power against the casing, in order to make the latch spring into its recess. In the annexed drawing my invention is illustrated—

Figure 1 being a front view of the door when closed.

Figure 2 is a plan or top view of the same.

Figure 3 is a vertical cross-section through the same, taken on the line *x x*, fig. 1.

Figure 4 is a diagram, showing the various points in the different positions.

Similar letters of reference indicate corresponding parts.

A represents a door of usual construction, hinged to a casing or frame, B, in the usual manner, and made of any suitable material. On that side of the door to which it opens, and near its upper edge, is secured to the door a plate, *a*, which is provided with two ears, *b b*, between which an upright pin, *c*, is pivoted, as shown. To the pin *c* is attached the bar or rod *d*, so as to swing freely to either side. This rod *d* is made so that it can be extended either by having the inner part tubular, so that the outer end *d'* fits therein, and is held in place by a screw, *e*, or otherwise. The outer end of *d'* is bent up, as shown in fig. 3, and is attached to the end of a spiral spring, *f*, the inner end of which is secured to a pin, *g*, which is projecting from and adjustable sideways on the lintel of the door, as shown. The rod *d* can be extended so as to stretch the spring when required. It will be seen that when closed, (as in fig. 2, and in black lines in fig. 4,) the bar *d* and spring *f* will stand nearly at right angles from the door and casing, inclining slightly towards the hinges. When the door is being opened, the relative position of the bar and door will not be materially changed until the pin *c* is almost under the end of pin *g*, (see position in red in fig. 4,) then the spring will swing around so as to lie against the casing, and will also pull the bar *d* with it. (See position in blue, fig. 4.) The bar *d* in this position strikes against a rubber bolster, *h*, arranged in the door as shown. The pin *c* can never be exactly under the end of pin *g*, as the latter is set nearer to the hinges for that purpose. As soon as the door is open and released, the spring will have but little power, and will close the door very gently, until the parts are again in position shown in red in fig. 4. The spring will suddenly assume the position therein shown, and will then act with full power upon the rod *d*, so as to close the door smartly, and to throw the latch into its recess.

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

1. A door-spring made and operating substantially as herein shown and described.
2. The extension-bar *d*, when made and operating substantially as herein shown and described.
3. The rubber bolster *h*, in combination with the rod *d*, for the purpose of preventing the latter from being thrown against the door when the same is opened, and to assist in throwing it back when the door is being closed.
4. The swing-lever *d*, attached to the door A, and operated by a spring, *f*, which is attached to an adjustable projection, *g*, from the lintel of the casing, all as set forth.

THEOP. VAN KANNEL.

Witnesses:

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