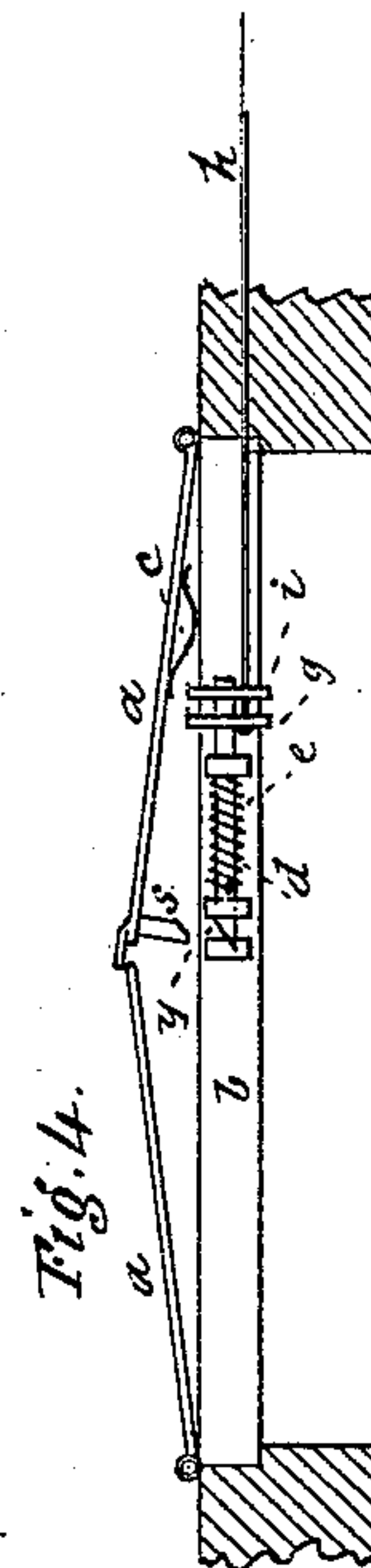
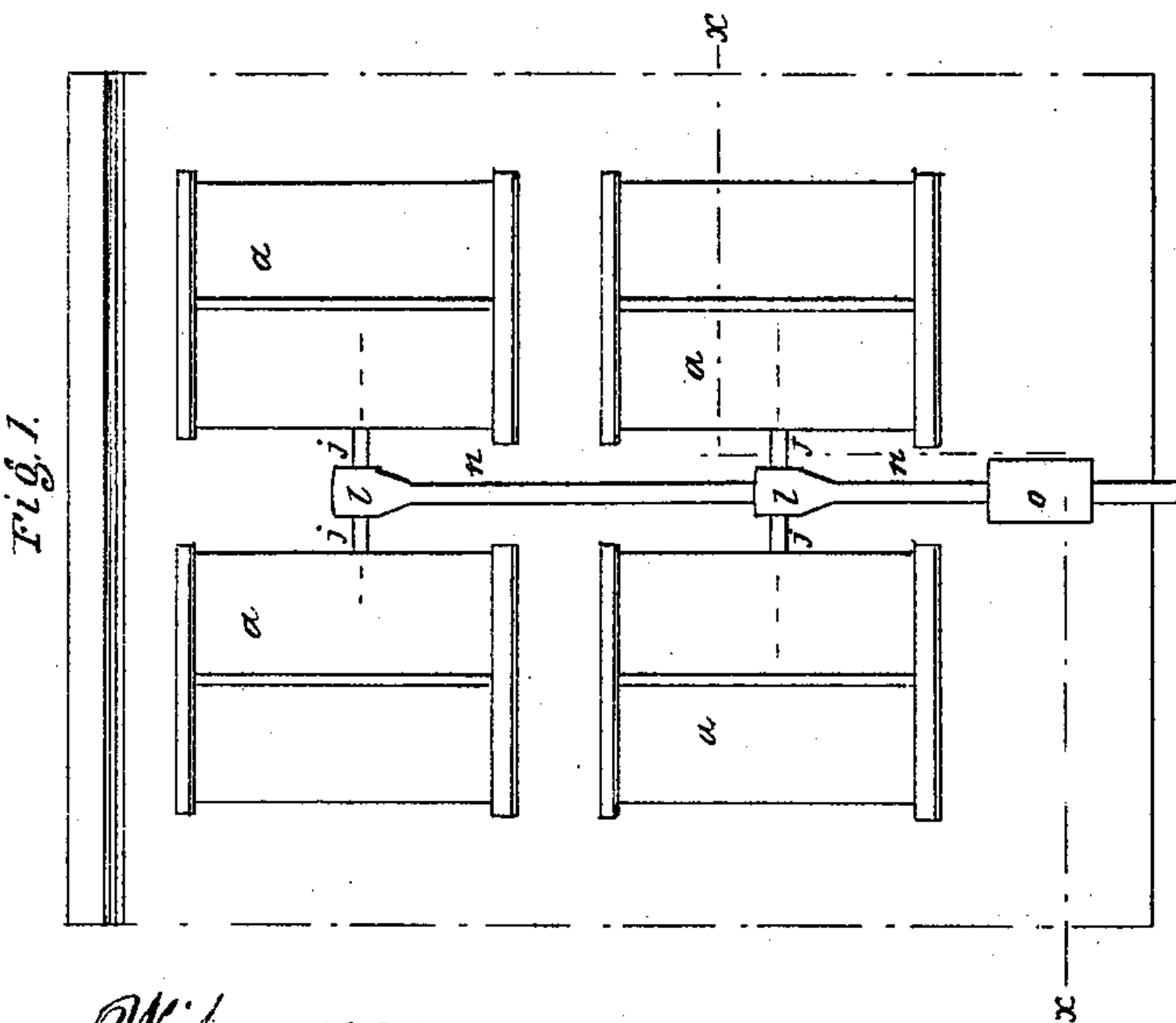
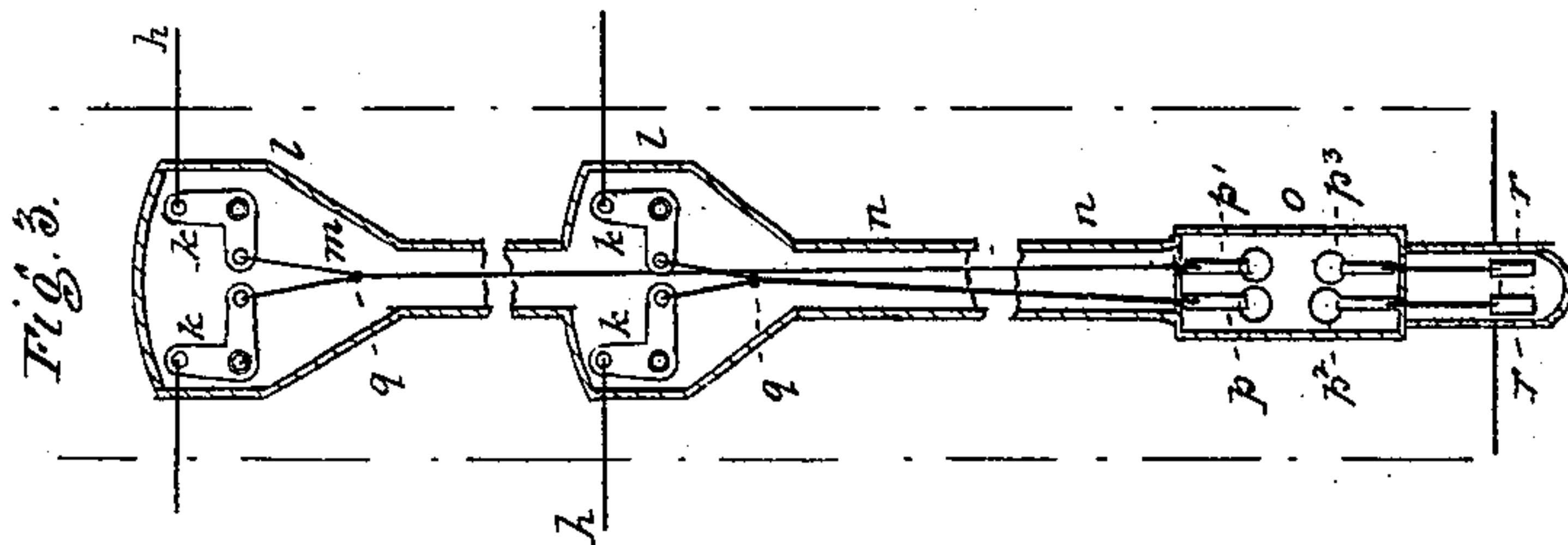
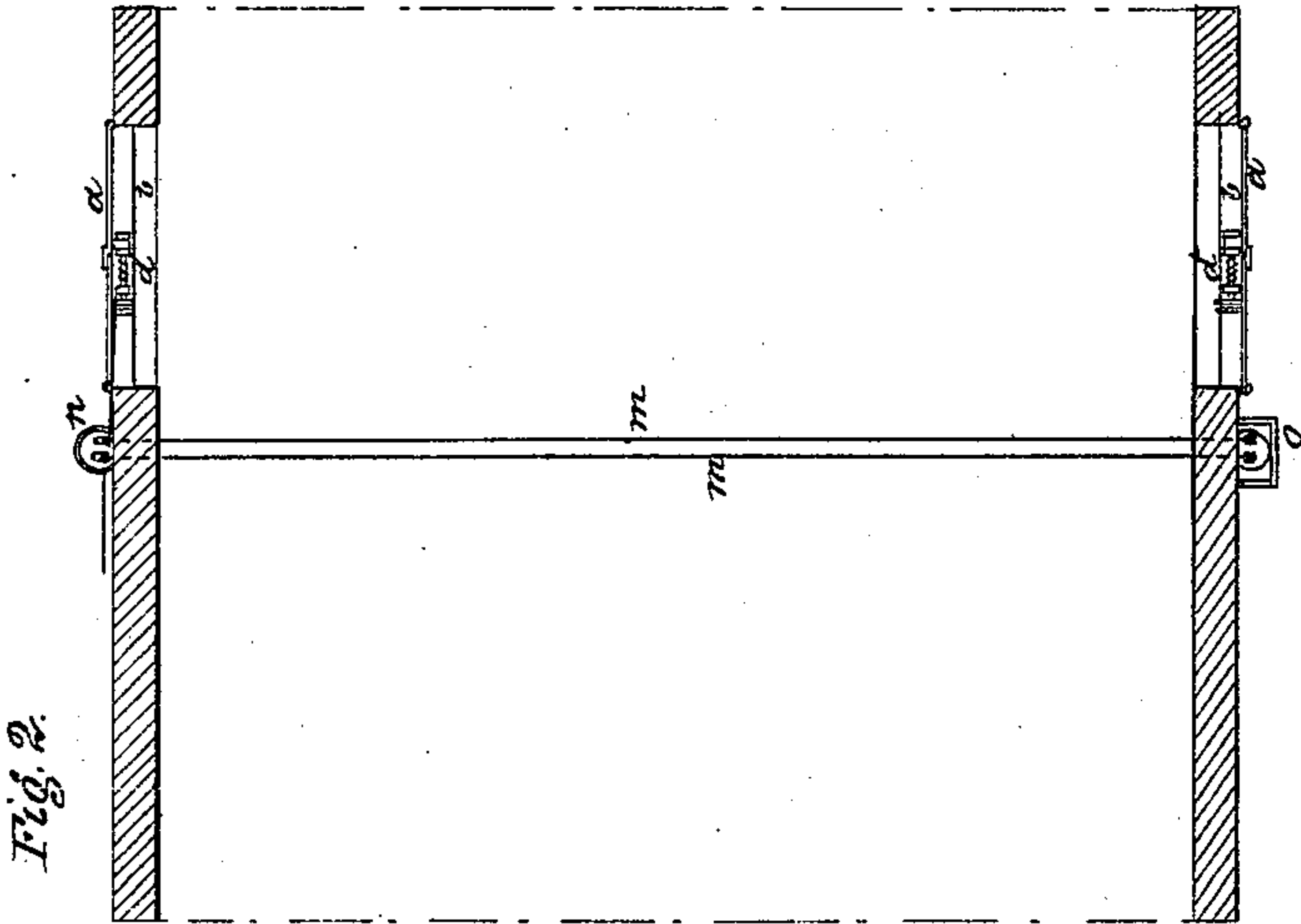


J. R. DAY.  
Window Shutter Openers.

No. 230,114.

Patented July 20, 1880.



Witnesses:  
Wm. H. King  
Philip Bleininger

Inventor:  
John R. Day  
by his atty.  
John S. Thornton

# UNITED STATES PATENT OFFICE.

JOHN R. DAY, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS OF HIS RIGHT TO JACOB COHEN AND CHARLES LAMOROUX, OF SAME PLACE, ONE-THIRD TO EACH.

## WINDOW-SHUTTER OPENER.

SPECIFICATION forming part of Letters Patent No. 230,114, dated July 20, 1880.

Application filed December 5, 1879.

*To all whom it may concern:*

Be it known that I, JOHN R. DAY, of the city of New York, in the county and State of New York, have invented a certain new and useful Improvement in Apparatus for Opening Window-Shutters; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification.

This invention relates to improvements in apparatus for opening fire-proof shutters from the outside in case of fire; and it is more especially an improvement on the window-shutter opener for which Letters Patent of the United States No. 177,697 were granted to me on the 23d day of May, 1876. In that invention the levers and connecting-rods are arranged inside the building, which arrangement is in some respects objectionable, as, for instance, the liability of the working parts becoming inoperative by the action thereon of the heat of a fire in the building; and the object of the present improvement is to arrange the parts so that all, except the spring-bolts and the parts immediately connected therewith, shall be located on the exterior of the building and protected from the weather and from the possibility of being tampered with by unauthorized persons, as well as to simplify the arrangements of the parts, so that they may be more easily and readily operated.

The invention consists in the improved construction and arrangement of some of the parts, as hereinafter particularly set forth and described.

In the accompanying drawings, Figure 1 is an elevation of the exterior of a portion of a building, showing the apparatus arranged to operate four shutters; Fig. 2, a section on the line *x x*, showing the mode of connection with the shutters on the rear of the building; Fig. 3, a detached view of the connecting rods and levers, and Fig. 4 a plan view of the spring-bolt and its adjuncts.

The two last-named figures are drawn to a larger scale, and similar letters of reference indicate corresponding parts in all the figures.

*a* represents the ordinary fire-proof shutters, and *b* the bar, to which they are fastened. *c* is a spring for throwing open the shutters when the spring-bolt is drawn back. *d* is the bolt, and *e* the spring by which the said bolt is drawn forward so as to enter an eye, *s*, secured to one of the shutters, for fastening the same. *g* is an arm fixed loosely upon the bolt, to which the connecting-rod *h* is attached, and *i* an arm secured rigidly to the outer end of the bolt, by means of which the said bolt can be withdrawn by hand without affecting the other parts of the apparatus.

These parts already mentioned are shown in my patent above referred to, and are therefore not claimed herein, except as hereinafter specified.

The connecting-rods *h* pass on the inside of the shutters to the exterior of the wall, where they are inclosed in a tube, *j*, of metal or other suitable material, and connected to one end of an elbow-lever, *k*, which latter is inclosed in a box, *l*, secured to the wall. To the other end of the lever *k* is secured a rod, *m*, which extends downward, inclosed in a tube, *n*, to a lock-box, *o*, within which the lower end of said rod is connected to a knob, *p*, or to a lever or other suitable device for pulling it downward. All the shutters in any one horizontal row may be thus connected, so as to be operated by one of the said knobs or levers, by locating two of the elbow-levers in each box *l*, as shown in Figs. 1 and 3, and connecting them with the connecting-rod that is attached to said knob or lever, as shown at *q*.

In the drawings the several shutters in the lower row are shown connected, so as to be opened by the knob or lever *p*, and those in the upper row as being similarly operated by the knob or lever *p'*. To the knobs *p*<sup>2</sup> and *p*<sup>3</sup> are attached, respectively, the connecting-rods by means of which the shutters in the rear of the building are operated, which said connecting-rods are carried through the cellar and underneath the building, being attached to suitable levers *r*, and connected with another series of devices, similar to those already described, and similarly located and arranged



on the exterior of the rear wall of the building, for opening the shutters in the rear of the building.

5 In buildings which have shutters on their end walls the said shutters are operated by a separate set of connecting rods and levers, similar to those above described, connecting with knobs or levers in a separate lock-box, or in the same lock-box, if preferred; and it will be  
10 understood that each horizontal row of shutters, whatever their number, may be connected with and operated by one knob or lever.

By means of this improvement, as above described, the apparatus is rendered more simple and is more easily operated, and the connecting rods and levers are not liable to be  
15 injured or rendered inoperative by the heat of any fire that may be in progress in the interior of the building, and, being inclosed and  
20 protected, are not subject to be damaged by the weather nor to be tampered with.

I have also improved the construction of the spring-bolt, so that in fastening the shutters  
25 on the inside it will not be necessary to withdraw the bolt by hand. For this purpose I

secure rigidly on the shutter an eye, *s*, to receive the end of the bolt, and form a bevel on the end of the latter, as seen at *y*, so that on closing the shutter the said eye (which is also slightly beveled on one side) will push back  
30 the bolt when the beveled side comes in contact therewith until, the eye coming directly opposite the end of the bolt, the latter will be pushed forward by the action of the spring  
35 so as to enter the eye and fasten the shutter.

What I claim as my invention is—

The improved apparatus herein described for opening window-shutters from the outside, the same being composed of the elbow-levers  
40 *k* and connecting-rods *h* and *m*, inclosed, respectively, in the box *l* and tube *n* on the outside of the building, the knob or lever *p*, connected to said rod *m* and inclosed in a lock-box, *o*, and the spring-bolt *d*, all arranged as  
45 shown and described, for the purpose set forth.

JOHN R. DAY.

Witnesses:

JOHN S. THORNTON,  
SANFORD H. STEELE.