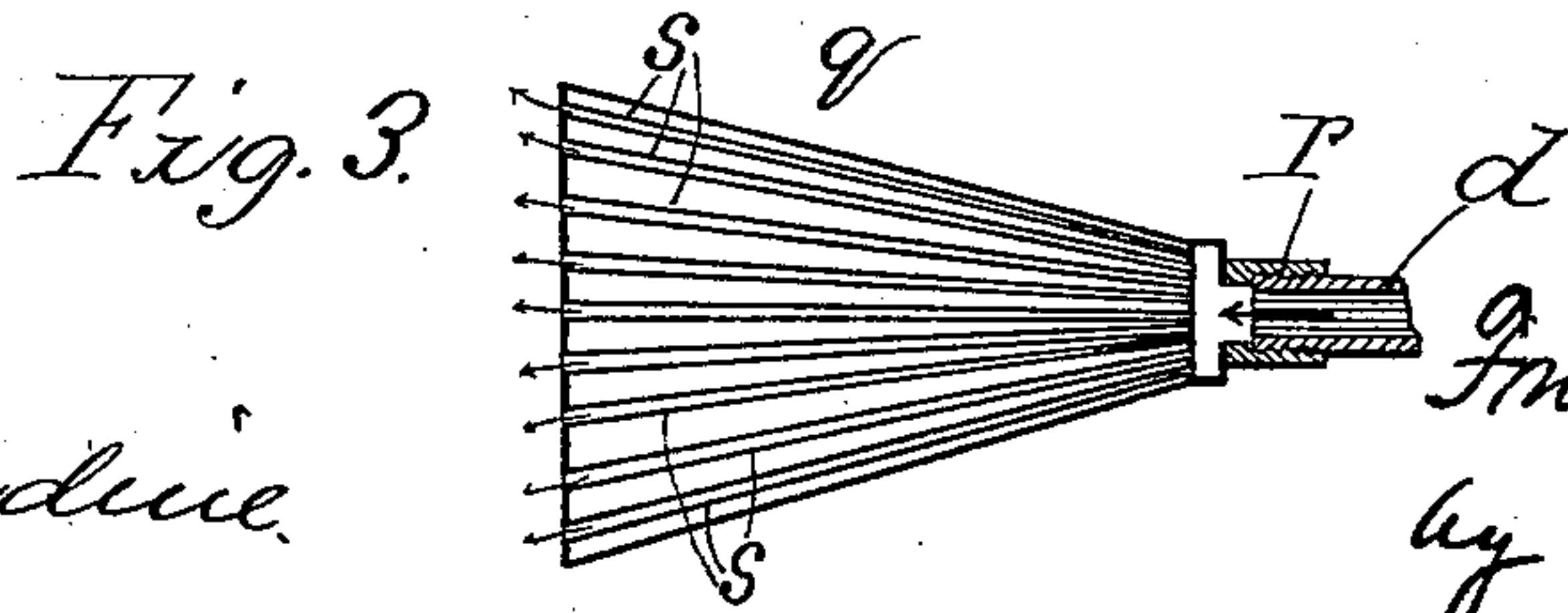
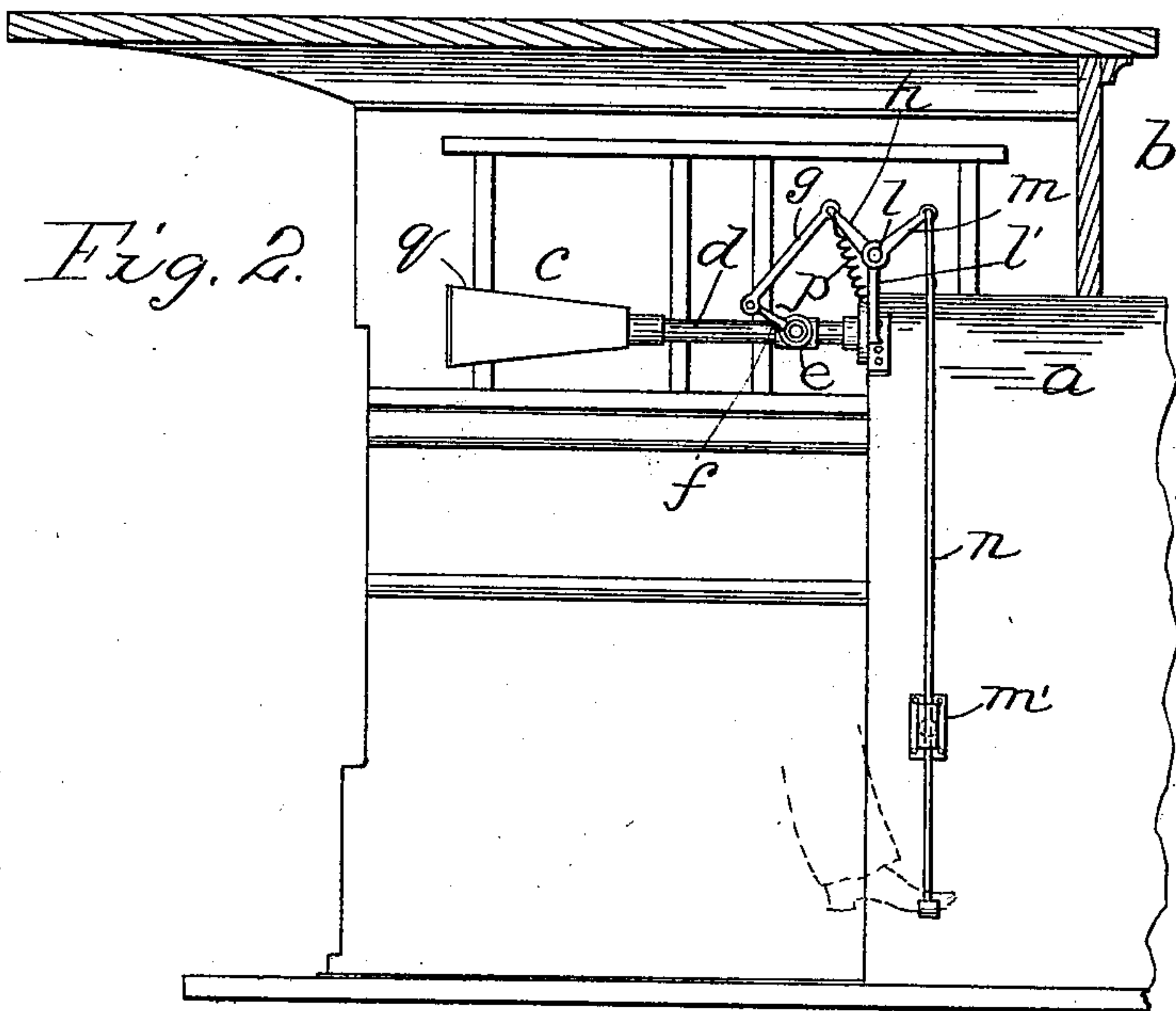
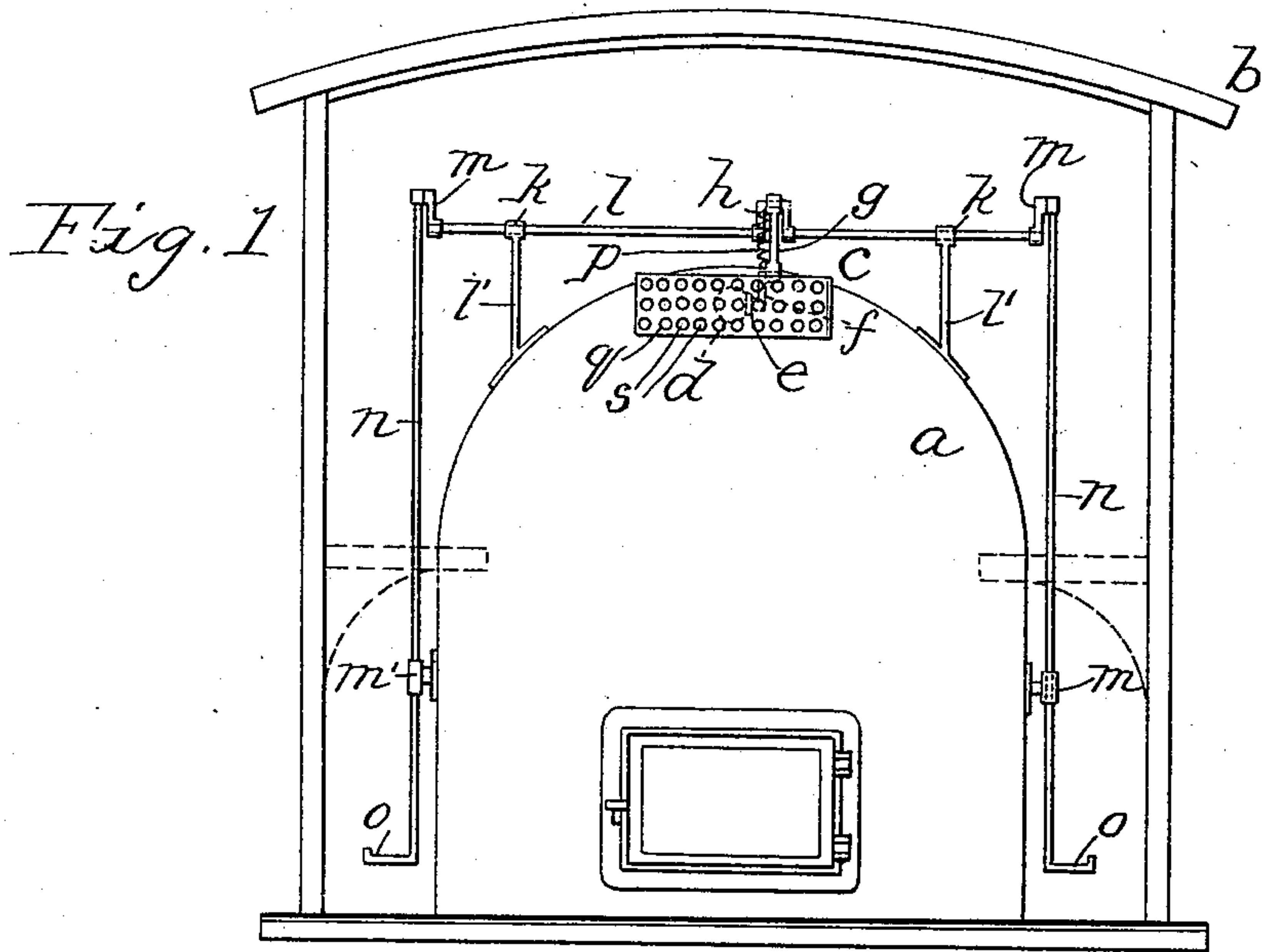


(No Model.)

F. J. SMITH.
LOCOMOTIVE ATTACHMENT.

No. 521,186.

Patented June 12, 1894.



Witnesses
C. E. Rudine
J. B. Owens

Inventor
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UNITED STATES PATENT OFFICE.

FRANK. J. SMITH, OF MARCELLUS, MICHIGAN, ASSIGNOR OF ONE-HALF TO
C. C. LONG, OF SAME PLACE.

LOCOMOTIVE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 521,186, dated June 12, 1894.

Application filed November 17, 1893. Serial No. 491,228. (No model.)

To all whom it may concern:

Be it known that I, FRANK. J. SMITH, a citizen of the United States, residing at Marcellus, in the county of Cass and State of Michigan, have invented certain new and useful Improvements in Engine Attachments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to an attachment for locomotive engines whereby robbers and other persons may be prevented from entering the engine cab and thus capturing the engineer and fireman so as to make them stop the train; and it consists of certain novel features of construction and combination and arrangement of parts which will now be described, and finally embodied in the claims.

The object of this invention is to produce an arrangement for throwing steam and boiling water upon intruders and which will be simple and durable and at the same time one which may be quickly and readily affixed to any engine so as to command the whole of the cab door-way, and yet be so constructed that it will not retard the movements of the engineer and fireman and in no way endanger them.

Referring to the accompanying drawings for a complete disclosure of my invention: Figure 1 represents a rear elevation of the engine with my invention applied. Fig. 2—a side elevation of a portion of the engine with the same attachments. Fig. 3—a detail showing particular features of construction.

The reference letter *a*, indicates the locomotive boiler around which is built, as usual, the cab *b*.

c, indicates the device for throwing the steam and water, and it consists of the short section of pipe *d*, screwed into the rear of the boiler *a*, and projecting rearwardly therefrom at such an angle that water passing from its nozzle will sweep the steps and doorway of the cab. Located in this pipe, *d*, is a valve *e*, to the spindle of which is attached

the rigid arm *f*, which is in turn pivotally connected to the link *g*. The link *g* is pivotally connected, at its remaining end, to the double crank *h*, of the transverse shaft *l*. This shaft is mounted, capable of an oscillating movement, in the bearings *k*, which are in turn supported by the rigid arms *l'*, secured to the boiler and arising vertically therefrom. Each end of the shaft *l*, projects beyond its bearings and is provided at its outer ends with an arm *m*, which projects out from the shaft on a line at about right angles to the line of the crank *h*, so that one will occur forward of the shaft, while the other will be so located to the rear of the shaft and whereby, upon applying pressure to one, the shaft may be rocked and the resistance attending the other overcome without danger of a dead center.

Secured pivotally to the wrist-pins of the arms *m* are the rods *n*, which are guided by the eyes *m'* fixed to the side of the boiler and which extend down to a slight distance above the floor of the cab where they are each provided with an outwardly projecting stud *o*, by which they may be operated. By this means the rods *n*, both or either, may be drawn down with the operator's foot, and this will be followed by an oscillation of the shaft *i*, and a consequent similar movement of the spindle of valve *e*, whereby the valve is opened and the water and steam, being under pressure, allowed to escape.

Fixed to the boiler *a*, directly under the crank *h*, is a spring *p*, which extends up to the said crank and is connected thereto. This spring operates to draw the crank down and consequently force the crank arm *f*, rearwardly and horizontally which closes the valve *e*, it being necessary to overcome the force of this spring before the valve can be opened. Thus the valve is kept normally closed, and in order to avoid all chances of an accidental opening of the valve the spring is given a force sufficient to require probably fifteen pounds to overcome. Thus it will be seen that by no ordinary accident can the valve be opened.

q indicates a spraying device which is adapted to be removably attached to the nozzle of pipe *d*, and by which the steam and wa-

ter is scattered so as to cover every portion of the space which is subjected to its action. This device consists of a cast iron case formed conical and provided at its apex or point with
5 a female screw *r*, which is adapted to screw over the nozzle of the pipe *d*, as explained before. Arranged within the body portion of this device is a series of tubes *s*, which are of such a size or number that their ends will
10 be in close engagement at the apex of the body, so that the steam and water from the pipe *d*, will be equally distributed among them all; and as these tubes continue outwardly toward the base of the cone or the
15 rear end of the body they gradually separate as shown in Fig. 3. These tubes are held at their ends by means of the perforated plates *p*, which are secured within the body of the device *q*, so that their perforations will be in
20 position to receive the ends of the said tubes and hold them secure.

Thus it will be seen that the spraying device may be removed from the pipe *d* when the arrangement is not in use, so that the work of the
25 engineer and fireman will be in no way retarded by the space which would be otherwise taken up by the device. From the foregoing description it will be seen that a device is provided which, when operated as described
30 above, will throw a series of streams of boiling water and steam directly through the door-way of the cab and into the faces of such persons who may be entering and whose presence is not desired. By this means it would

be impossible for robbers to enter the cab 35 and overpower the engineer and fireman therein.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is— 40

1. The combination with a nozzle having connection with a locomotive boiler and arranged to command the approaches to the cab thereof, and a valve, of a transverse shaft having a crank between its ends which is operatively connected with the said valve, and
45 having crank arms at its ends extending at different relative angles, and rods, one on each side of the cab, connected with the said crank arms and having foot rests at their
50 lower ends, and guides to steady and direct the said rods in their movements.

2. The combination with a locomotive cab, of a nozzle commanding the approaches thereto comprising a tapering case connected at the
55 apex with the boiler, and a series of independent tubes arranged in divergent relation from the inner to the outer end of the case, and a valve under the control of the engineer to establish communication between the
60 bank of divergent tubes and the boiler, substantially as and for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK. J. SMITH.

Witnesses:

L. B. DES VOIGNES,
ISAAC LANG.