

(No Model.)

2 Sheets—Sheet 1.

N. A. BOYNTON.

DAMPER FOR FURNACE OR STOVE PIPES.

No. 279,530.

Patented June 19, 1883.

Fig. 1.

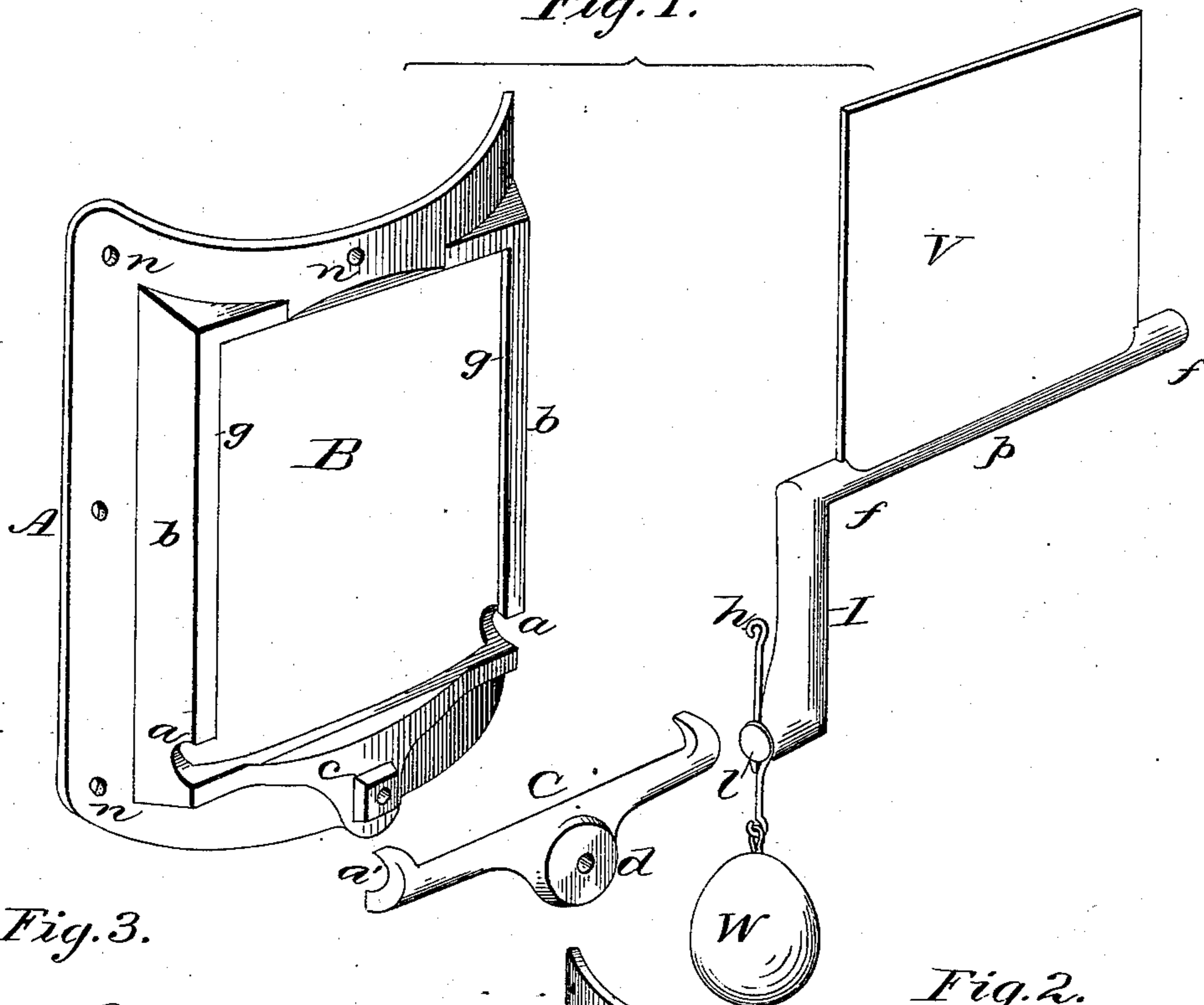


Fig. 3.

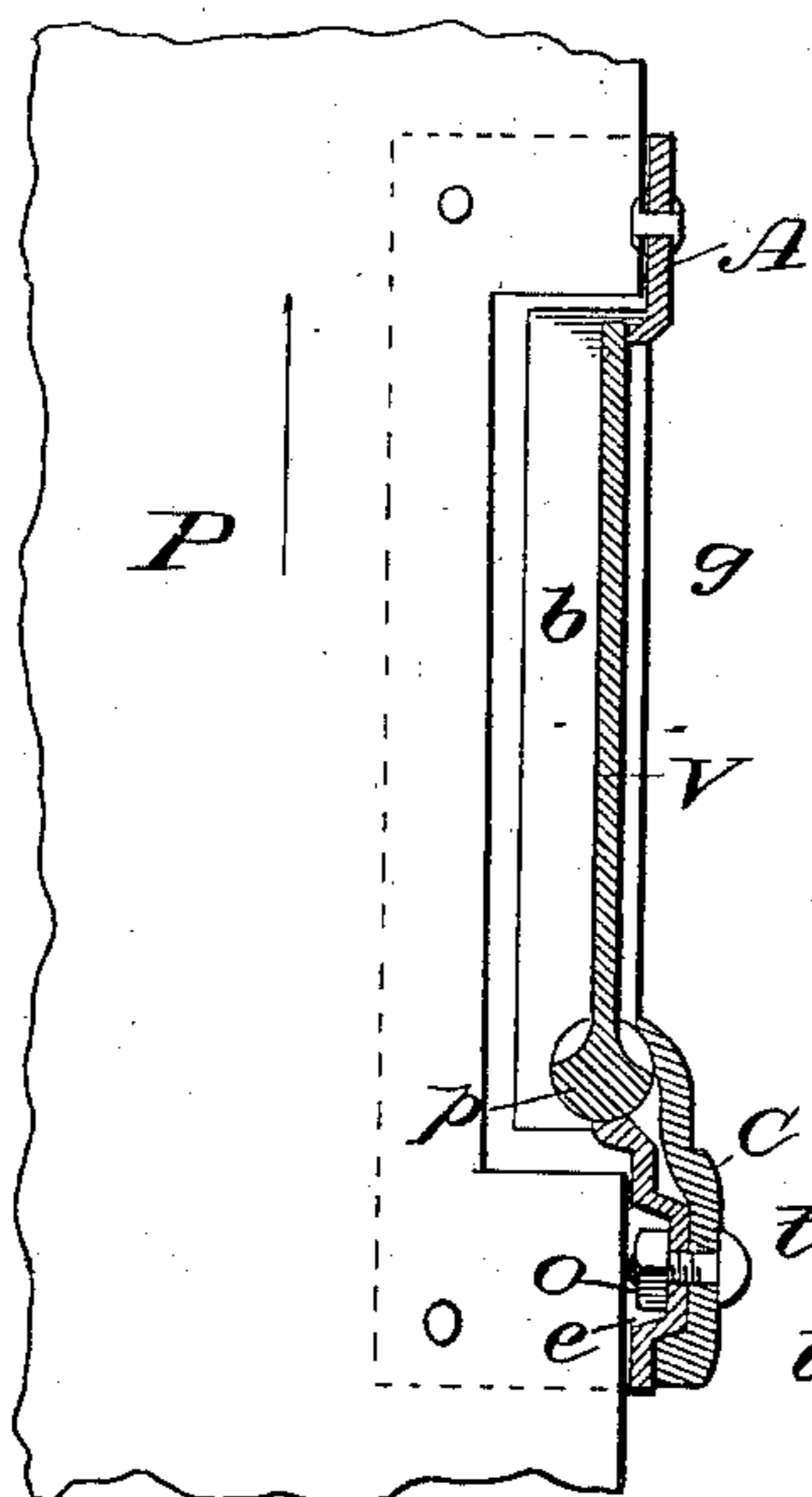
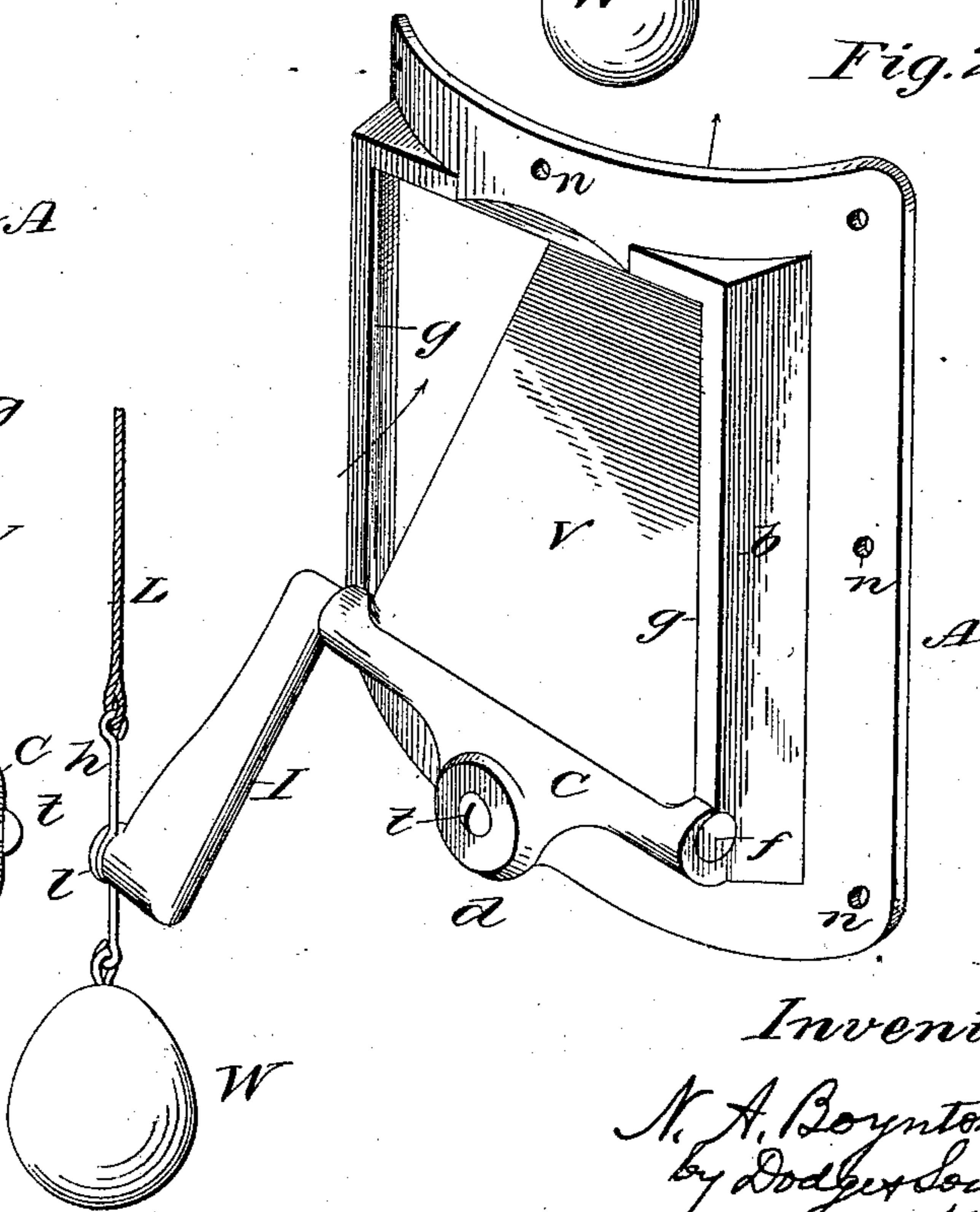


Fig. 2.



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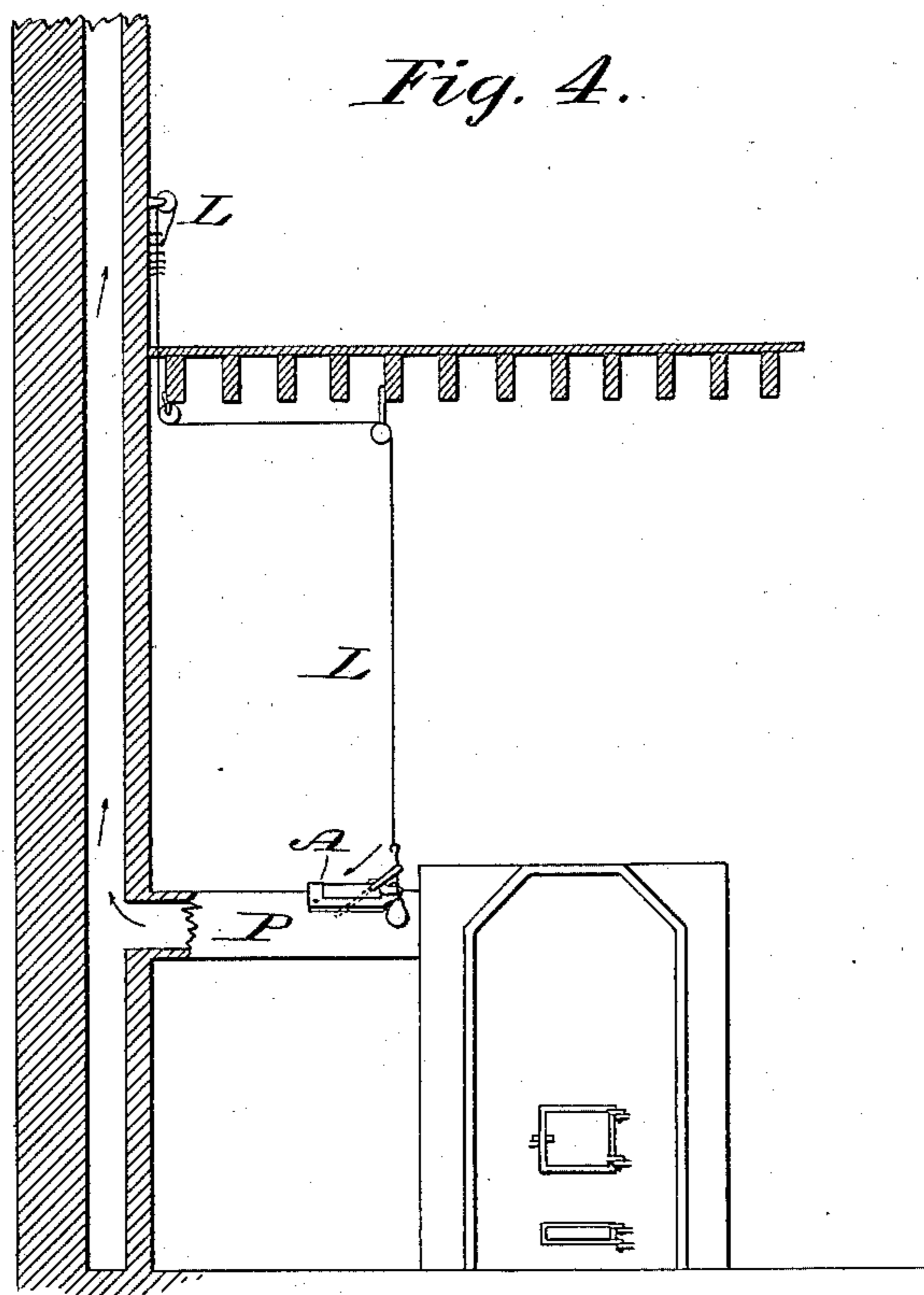
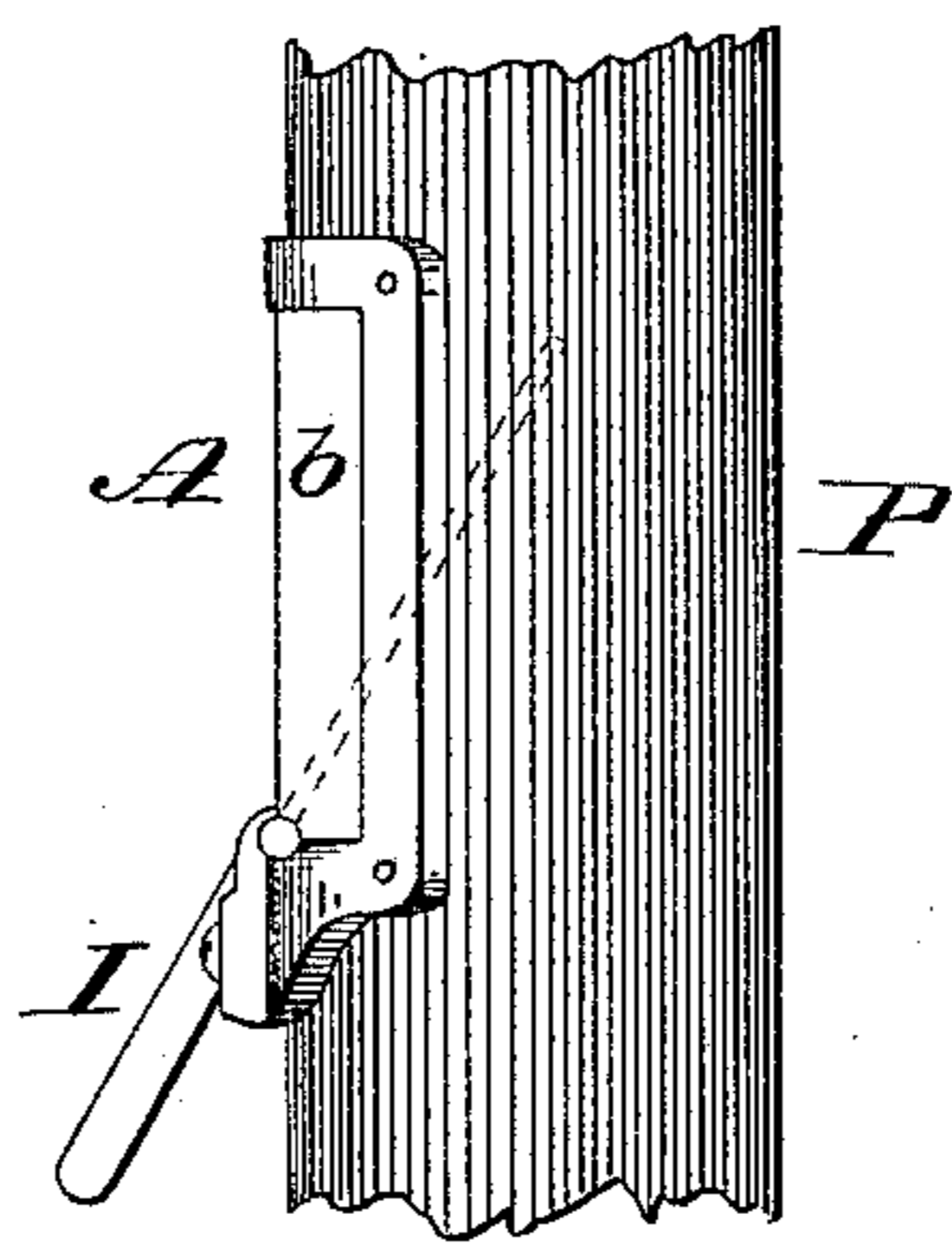


Fig. 5.



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UNITED STATES PATENT OFFICE.

NATHANIEL A. BOYNTON, OF NEW YORK, N. Y., ASSIGNOR TO CHARLES B. BOYNTON, OF SAME PLACE.

DAMPER FOR FURNACE OR STOVE PIPES.

SPECIFICATION forming part of Letters Patent No. 279,530, dated June 19, 1883.

Application filed March 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, NATHANIEL A. BOYNTON, of New York, in the county of New York and State of New York, have invented certain
5 Improvements in Dampers for Stove or Furnace Pipes, of which the following is a specification.

This invention relates to dampers or check-valves for use in connection with the smoke-pipes of furnaces or stoves; and the invention
10 consists in the novel construction of the parts, whereby it can be cheaply made and applied, and be readily operated from a distance, and so that the valve can be reversed in its frame
15 or bearings to adapt it to different positions of the pipe, all as hereinafter more fully set forth.

Figure 1 is a perspective view of the parts detached. Fig. 2 is a perspective view of the
20 damper as applied to a vertical pipe, with the valve open, and Fig. 3 is a central vertical section. Figs. 4 and 5 illustrate the application of the damper.

The object of this invention is to produce a
25 simple and efficient form of damper or check-valve that can be readily applied to the smoke-pipes of furnaces or stoves, in whatever position they may happen to be, for the purpose of checking the draft, and so constructing it that
30 the parts can be cast complete and be assembled or put together without any boring, drilling, or machining of the parts, and so it can be readily operated from another room from
35 that in which the furnace or its pipe is located, thus saving time and labor on the part of the attendant.

As a general rule, the draft of furnaces is regulated either at the front by means of draft
40 doors or slides, or by dampers placed within the smoke-pipe. In order to operate these it is usually necessary to go to the furnace, and they are therefore very apt to be neglected, thereby creating too great alternations of temperature, while the placing of dampers in the smoke-
45 pipes is very objectionable, for the reason that if too nearly closed they shut the pipe to such an extent as to prevent the passage of the gases produced by combustion, which are thereby
50 well known, are very detrimental to health.

For these reasons I regulate the draft by means of a valve so applied to the smoke-pipe as to open a passage from the exterior into the pipe, thereby admitting air into the latter at a point
between the furnace and the chimney, said
55 valve at the same time serving to partially close the pipe, as hereinafter explained. To accomplish this result I make a cast-iron frame, A, of the form shown in Figs. 1 and 2. It is
60 curved laterally to correspond to the size of the pipe to which it is to be secured, and is provided with a rectangular opening, B, around the edges of which is formed a flange, b, which
projects far enough to present a flat face, this
65 flange being provided along the top and its two sides with an inwardly-projecting lip, g, for the valve to rest against when closed, as
shown in Figs. 1, 2, and 3. In the flanges b, at their lower ends, on each side, I form a semi-
70 circular recess, a, as shown in Fig. 1, to receive the journals f of the valve V. At the center of the lower end of this frame A, I form a rectangular recess, e, as shown in Fig. 3, to
receive and hold a correspondingly-shaped nut,
75 o. A series of holes, n, are also made in the frame A, as shown in Figs. 1 and 2, to receive the
rivets by which the frame A is to be secured to the pipe, the frame being so shaped that it
80 can be cast complete with the recesses a and the holes n, thus avoiding the necessity of any drilling or boring.

The valve V, I make in the form of a thin rectangular plate, as shown detached in Fig. 1, it being provided with a circular journal, f, at
its lower end, on each side, these journals being
85 connected by a semicircular rib, p, which extends all the way across the lower end of the plate, so as to fit snugly to its bearing at the lower side of the opening in the frame, and
90 thus make a close-fitting joint at that point, whether the valve be opened or closed. From one of the journals an arm or lever, l, projects in the plane of the valve, but in the opposite
direction, as shown in Fig. 1, said arm being
95 provided at its extremity with a small lateral projection or wrist, l, for attaching a weight, W, as shown. I then provide a small plate, C, of such a length as to extend across the frame
from side to side, its inner face being made con-
cave to fit snugly against the bead p on the
100

lower end of the valve V, and having on each end a projection provided with a semicircular recess, *a'*, to fit over the journals *f*, as represented in Figs. 1 and 2, the latter showing the parts in position. At its center this plate C has a projection or boss, *d*, which comes opposite the recess *e* in the lower part of the frame A, and has a hole at its center through which a bolt, *t*, is inserted to clamp and hold the plate C fast to the frame A, as shown in Figs. 2 and 3. The parts being thus constructed, the valve V is placed within the frame A, with its journals resting in the recesses *a*, its body all around the edges fitting snugly against the inner face of the lip *g*, when the clamp or plate C is secured in place by the bolt *t* and nut *e*. In this condition it is ready for use. Ordinarily the frame A will first be riveted to the pipe, in which a rectangular hole has been cut of such a size as to permit the valve to swing inward through it, care being taken to place the nut *o* in the recess *e* before the frame is secured to the pipe, the nut thus being held securely in place and prevented from dropping out or turning when the bolt *t* is screwed into it from the outside, as shown clearly in Fig. 3, in which P indicates a section of the pipe, the valve and clamp C being applied after the frame has been riveted to the pipe. It is obvious that, if preferred, a square-headed bolt may be used, and the bolt be inserted from the inner side of the frame, with its head resting in the recess, and then have the nut applied on the outside, the result being the same; but the plan shown is preferred, as it makes a neater finish.

It should be observed that the valve V is made reversible by having its two faces precisely alike, with its journals *f* and the bead *p* projecting equally from the center laterally on each side or face. By this means it can be reversed in the frame A by simply removing the clamp C, taking the valve out, turning it over, and replacing it and the clamp C. This is an important feature, as it often happens that the smoke-pipe runs close alongside of a wall, where there is not room for the arm I and weight W, and in which case by reversing it, as above stated, the arm and its weight will be brought on the other side of the pipe.

This damper may be applied with equal facility to a pipe running either horizontally, as shown in Fig. 4, or to a vertical pipe, as shown in Fig. 5. In either case by attaching a cord or chain, L, to the wire *h*, which is bent around the wrist *l* and has the weight W attached, as shown in Figs. 2 and 4, the cord L can be carried to any point desired, as indicated in Fig. 4, and be secured in any desired manner, thus enabling the occupants of the room above to regulate the draft, and consequently the temperature, at will without going near the furnace. The damper may be applied to a horizontal pipe, either on its upper or lower side, as preferred, the only difference being that if applied to the upper side, as in Fig. 4, the

weight will tend to hold it closed, while if placed on the lower side the weight will tend to hold it open. If applied below, the inward draft of air will prevent any sparks or ashes from passing out at that point.

While this damper is specially designed for furnaces, it is equally adapted for use in connection with ranges and stoves, and as such usually have their pipes arranged in a vertical position, and as the valve will be located in the room, the weight and cord in such cases may be dispensed with, the intention being to make the weight of the arm I just equal to that of the valve V, whereby it will serve as a counter-balance and hold the valve in any position to which it may be adjusted. By tightening the clamp C by the bolt *t* the friction on the journals *f* may be adjusted so as to hold the valve against any accidental movement by the draft or otherwise. As the valve is opened it swings inward, thereby partially closing the pipe, and is inclined so as to deflect the current of air in the direction of the passing current of smoke and gases.

The device as constructed is exceedingly simple and cheap in its construction, and is very efficient. By its use the draft, and consequently the heat, can be regulated with the greatest accuracy, thus insuring much greater uniformity of temperature, and that, too, without leaving the room, and without any liability of causing the gases of combustion to escape from the furnace or stove into the building.

I am aware that check-valves have before been applied to stove-pipes, and that weights have been so applied as to hold the valve closed, or hold it entirely open, but not so as to hold it at any intermediate point desired. I am also aware that a cord or chain has been connected to a damper or valve and extended into the rooms above, so it could be regulated therefrom, and hence I do not claim these features as of my invention; but

What I do claim is—

1. The valve V, having its two sides made in duplicate and provided with an arm or lever, I, secured to one of its projecting journals, whereby said valve may be reversed in its bearings, so as to throw the arm I on one or the other side of the pipe, substantially as described.

2. The pivoted plate-valve V, having a portion, I, extended to the opposite side of its pivot or bearing, said extended portion being so proportioned to the weight of the plate V as to balance the same without the use of any other weight than that of the extended portion itself.

3. The frame A, having its body curved to fit upon the exterior of a stove-pipe, and having the recesses *a*, to receive the journals *f* of the valve, and the raised portion *b*, with the inwardly-projecting flange *g* for the valve to shut against, in combination with the swing-

ing valve \bar{V} and the clamping-plate C, all constructed and arranged to operate substantially as described.

4. The frame A, provided with a recess, e ,
5 to receive the nut or bolt head and prevent the same from turning therein, in combination with the clamping-plate C and bolt t , substantially as set forth.

5. In combination with the frame A and the

swinging valve V, the clamping-plate C and 10
bolt t , arranged to operate as described, whereby the friction on the journals of the valve may be varied at will, as set forth.

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Witnesses:

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