

A. C. NORCROSS.
Stove-Pipe Damper and Case.

No. 219,111.

Patented Sept. 2, 1879.

Fig. 1.

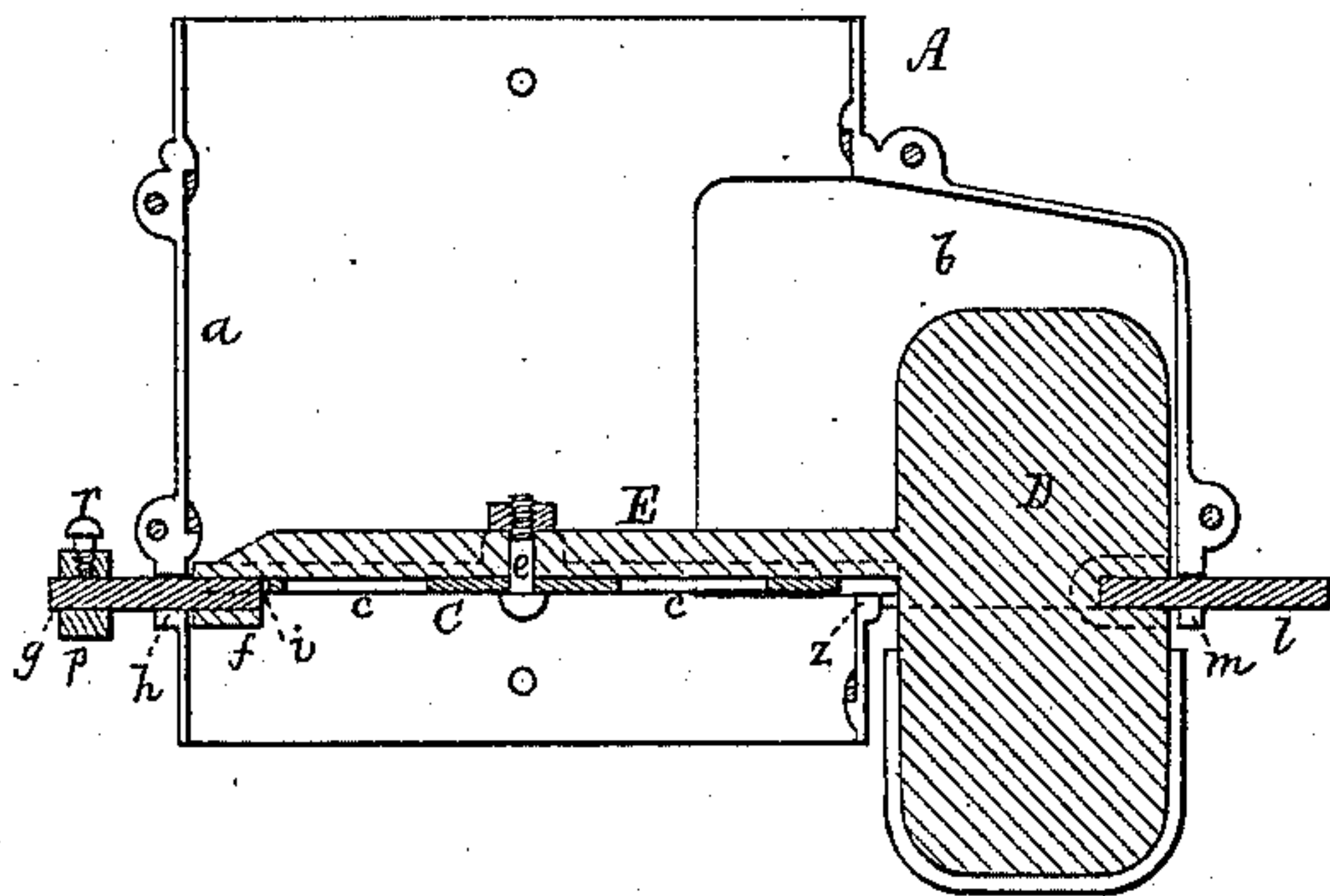


Fig. 2.

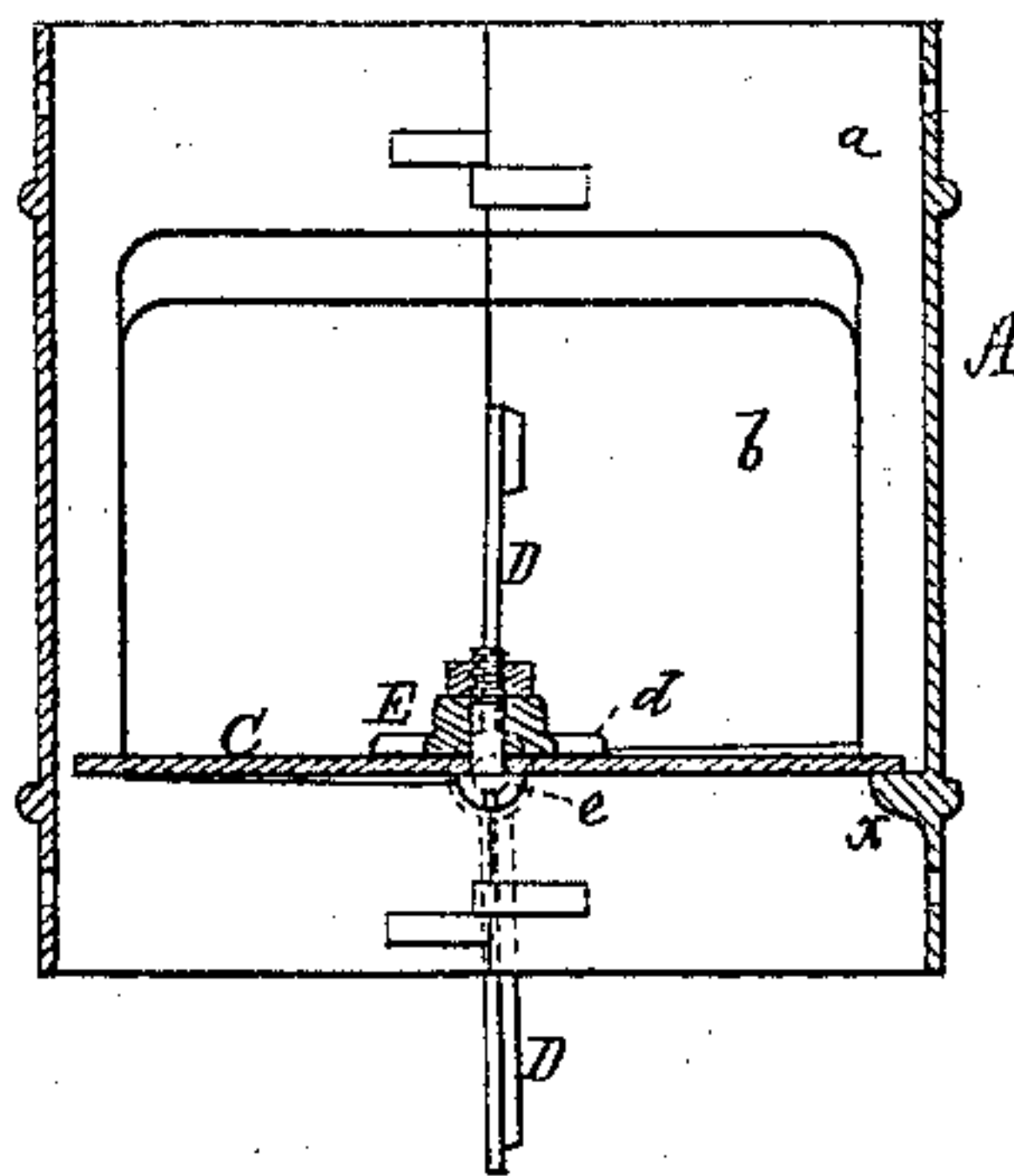


Fig. 4.

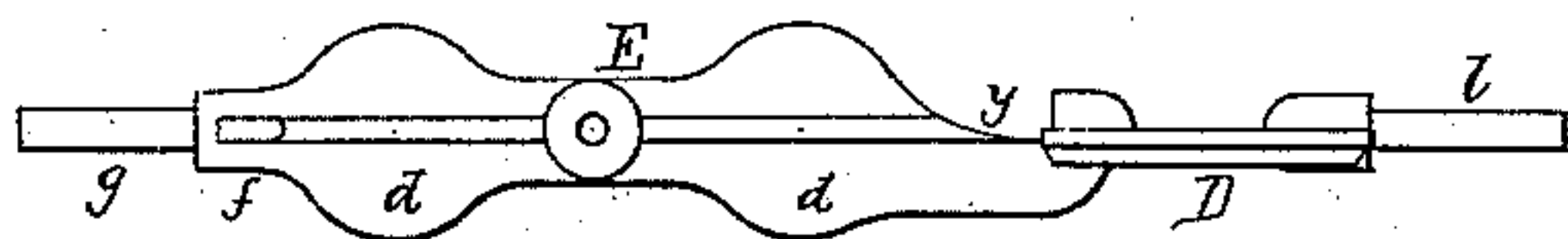


Fig. 3.

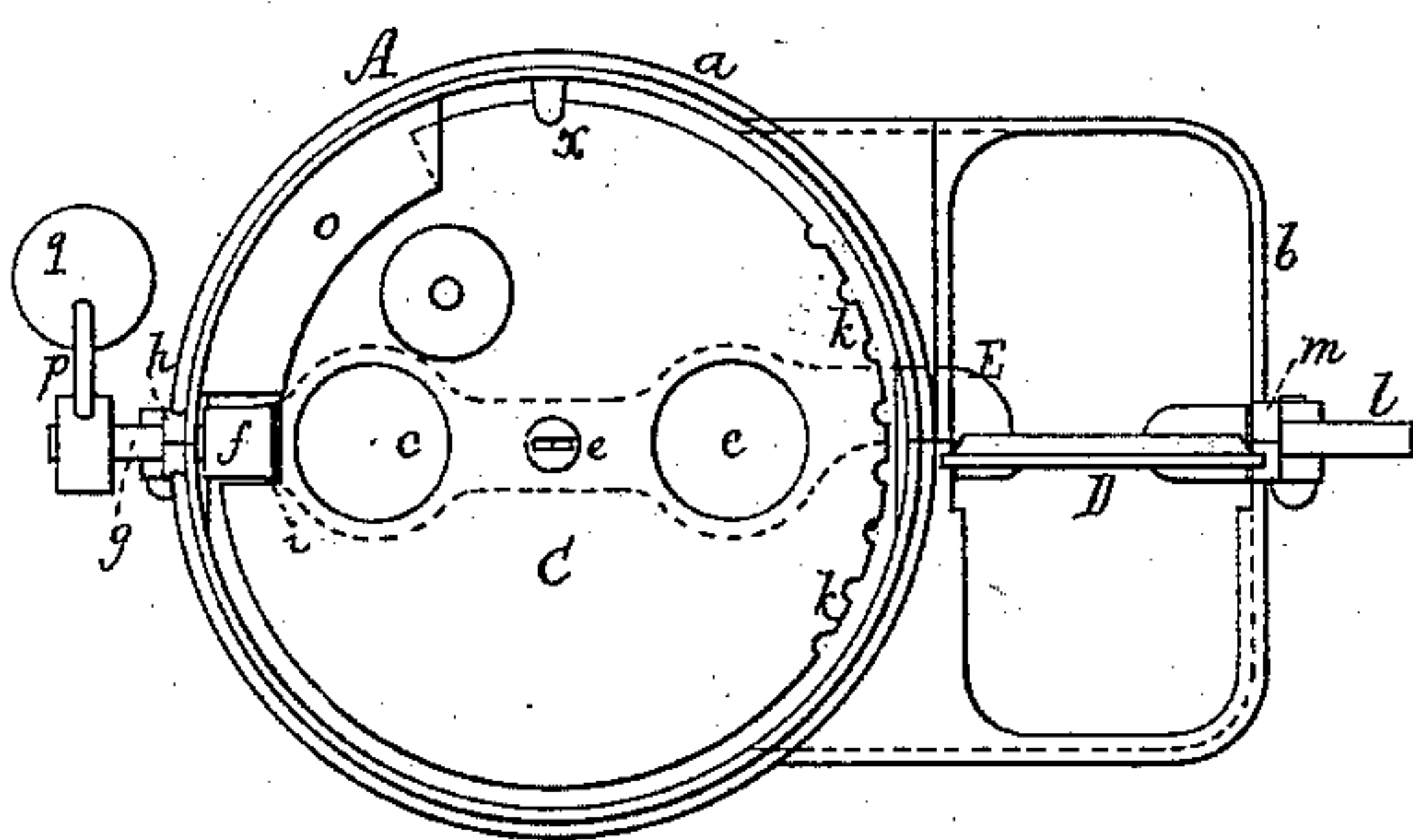
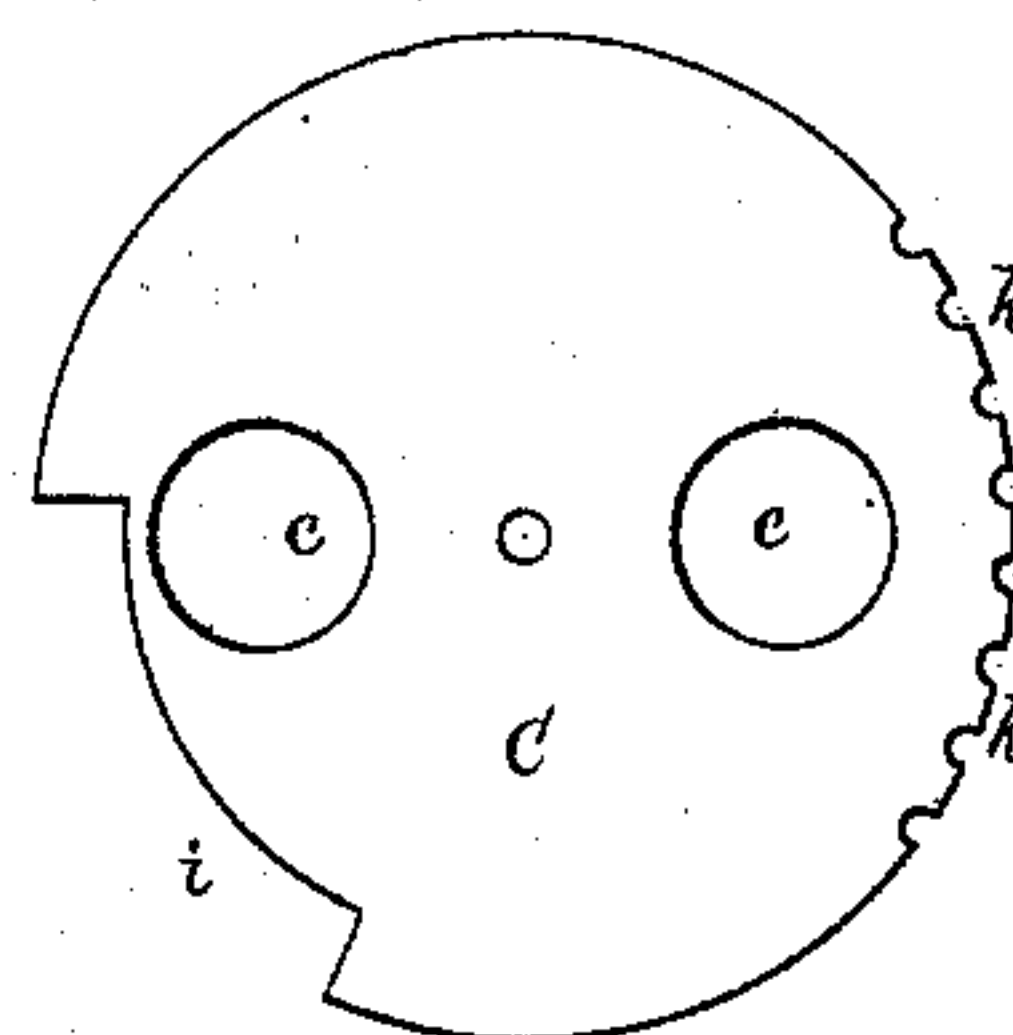


Fig. 5.



Witnesses

S. N. Piper
M. Sullivan.

Inventor.

Alvin C. Norcross
by attorney.
R. R. Eddy.

UNITED STATES PATENT OFFICE.

ALVIN C. NORCROSS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STOVE-PIPE DAMPER AND CASE.

Specification forming part of Letters Patent No. **219,111**, dated September 2, 1879; application filed December 2, 1878.

To all whom it may concern:

Be it known that I, ALVIN C. NORCROSS, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Stove-Pipe Damper and Case therefor; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a longitudinal section, Fig. 2 a transverse section, and Fig. 3 a bottom view, of two combined dampers and their case provided with my invention.

The said case A consists of a short tube, *a*, provided with a lateral hood or extension, *b*, which opens out of one side of the case and downward in the manner represented.

There is in the main part of the case a damper, C, and in the extension, at its mouth or lower part, another or auxiliary damper, D, which are combined with a single shaft or spindle, E, in manner as follows—that is to say, the auxiliary or extension damper is fastened to or is in one piece with the spindle, and is arranged at right angles with the main damper, which is a flat disk or circular plate of metal, and at its center is pivoted to the spindle.

The main damper has two circular gas passages or openings, *c c*, made through it, at equal distances from its center, and the spindle is correspondingly enlarged over the openings, so as to cover or close them when they are directly under it, the enlargements being shown at *d d*, and may be termed "valves." On turning the damper around on its pivot *e* the passages *c c* may be more or less opened, they being intended as necessary means of escape of the gases of the stove or furnace to whose smoke-discharge pipe or flue my dampers and case may be applied.

Fig. 4 is a top view of the spindle and auxiliary damper as separated from the main damper.

Furthermore, there projects down from the spindle at one end a boss, *f*, from which a journal, *g*, is extended through a bearing, *h*, in the pipe *a*. This boss extends down through a long arcal notch, *i*, made in the damper C, such notch enabling the damper to be turned on its pivot and spindle. A top view of the damper C is represented in Fig. 5, in which,

besides the notch *i*, there is shown a series of smaller notches, *k k*, made in the damper at the opposite part of its circumference.

By means of the series of smaller notches a person, by his finger or an implement of a proper kind introduced into the case through the mouth of the extension, can revolve the damper more or less on its pivot, so as to regulate the opening or closing of the gas-escape passages.

From the auxiliary damper a short journal, *l*, projects into or through a bearing, *m*, made in the extension.

In order to partially close the arcal notch *i* of the damper C when such damper is closed, there is projected from the inner part of the case a lip, *o*, which extends over the said opening in part, and beyond it, as shown. A stop to arrest the damper when closed is shown at *x*.

The case I usually cast in two separate pieces or halves, provided with suitable ears, to enable them to be connected together by screws or other proper devices.

An arm, *p*, carrying a weight, *q*, I usually fix by a set-screw, *r*, on one of the aforesaid journals, in order to maintain the dampers in such positions as circumstances may require.

From the above it will be seen that the dampers C D revolve simultaneously with the spindle E, and when either damper is closed the other will be entirely open. The extension *b* is to operate as an induct for air to pass into the damper-case or the space thereof above the damper C.

In order to save the necessity of an intermediate bearing to the spindle, and also to gain other advantages, I make such spindle, near its junction with the auxiliary damper, with a notch, *y*, to extend into it beyond its axis and to receive the part *z* of the case in manner as shown, the spindle over the notch being arched, as represented. The spindle is thus supported by only two journals and their bearings.

When the damper-case is applied to a smoke-flue the latter projects both above and below the tubular part *a* and shuts over or encompasses it for short distances from its ends.

A damper-case made as described, and provided with main and auxiliary dampers, and their spindle constructed and applied as set forth, has been found in practice to be very serviceable, and particularly advantageous for

use with what is termed an "automatic heat-regulator," applied to one of the journals of the combined dampers.

I am aware that two dampers fixed on one spindle and arranged in planes at right angles to each other have been applied to two separate pipes, one to lead air to a furnace, and the other to lead air into the smoke-discharge pipe of such furnace, such being shown in the United States Patent No. 168,297, all of which differs materially from my invention, in which the two dampers are not applied to separate pipes having no communication with each other, but to a peculiarly-constructed case, composed of a pipe, *a*, and an extension or air-induct, *b*, the latter being open at bottom, and opening into the former directly over its damper, whereby air admitted into the extension is conveyed by it into the part of the pipe that is directly over the damper in such pipe.

Furthermore, I am aware that a stationary disk having holes through it has been placed in and across a smoke-pipe, and provided with another disk having corresponding holes, and pivoted at its center to the stationary disk, and having cogs to engage with a pivoted pinion, whereby, by revolving the said pinion, the movable disk could be turned around on the stationary one, such being shown in the United States Patent No. 41,457. Such differs from the damper C and its separate spindle E, the latter being revoluble on its axis, so as to revolve the damper in one way, such damper being also revoluble on the spindle in another way. Thus the damper, by my application and construction of and its spindle, is revoluble in two directions, which is not the case with the damper shown in said Patent No. 41,457.

Furthermore, I am aware that a stove-pipe damper to revolve in one direction only has been provided with a valve fixed to a rod applied to slide in bearings, such being as shown in the United States Patent No. 57,368, such differing materially from the damper C, which, at its center, is pivoted to its spindle, so as to revolve thereon in a manner to open its gas-passages more or less.

From the above it will be seen that I have, first, a spindle provided with flat extensions or valves *d*; and, second, not only one damper

fixed immovably on the spindle relatively thereto, but another damper provided with the openings *c*, and pivoted to the spindle, so as to be revoluble on the pivot, as well as revoluble with the spindle.

I claim as my invention as follows, viz:

1. The combination of the case A, consisting of the tube *a* and hood *b*, with the shaft or spindle E, having the enlargements *d d*, and with the perforated main damper C and the auxiliary damper D, applied to such spindle, and arranged in the case substantially as set forth.

2. The main damper C, provided with one or more openings or gas-passages, *c*, arranged in it as shown, in combination with the separate spindle E, pivoted to the damper, and furnished or constructed with one or more flat extensions or valves, *d d*, to operate with such gas passage or passages, as explained.

3. The damper-spindle provided with the journal-carrying boss *f* and one or more valves, *d*, as described, in combination with the damper C, having one or more gas-passages, *c*, and pivoted to the spindle, and furnished with the arcal notch to receive such boss and admit of the necessary rotary movement of the damper on its pivot, either to close or open the said gas-passages, as circumstances may require.

4. The case provided with the internal lip *o*, in combination with the damper C, having the arcal notch *i*, and one or more gas-passages, *c*, and pivoted, as described, to a separate spindle provided with one or more extensions or valves, *d*, all being arranged substantially as set forth.

5. The damper C, pivoted to the spindle E, and provided with the gas opening or openings *c* and series of peripheral notches *k* arranged in it, (the said damper,) and with the case-extension, as set forth, the said spindle E having extensions or valves *d*, to operate with such gas-passages, as described.

6. The spindle provided with the notch *y* and the two dampers, arranged as set forth, such being for use with the case, as described.

ALVIN C. NORCROSS.

Witnesses:

R. H. EDDY,
S. N. PIPER.