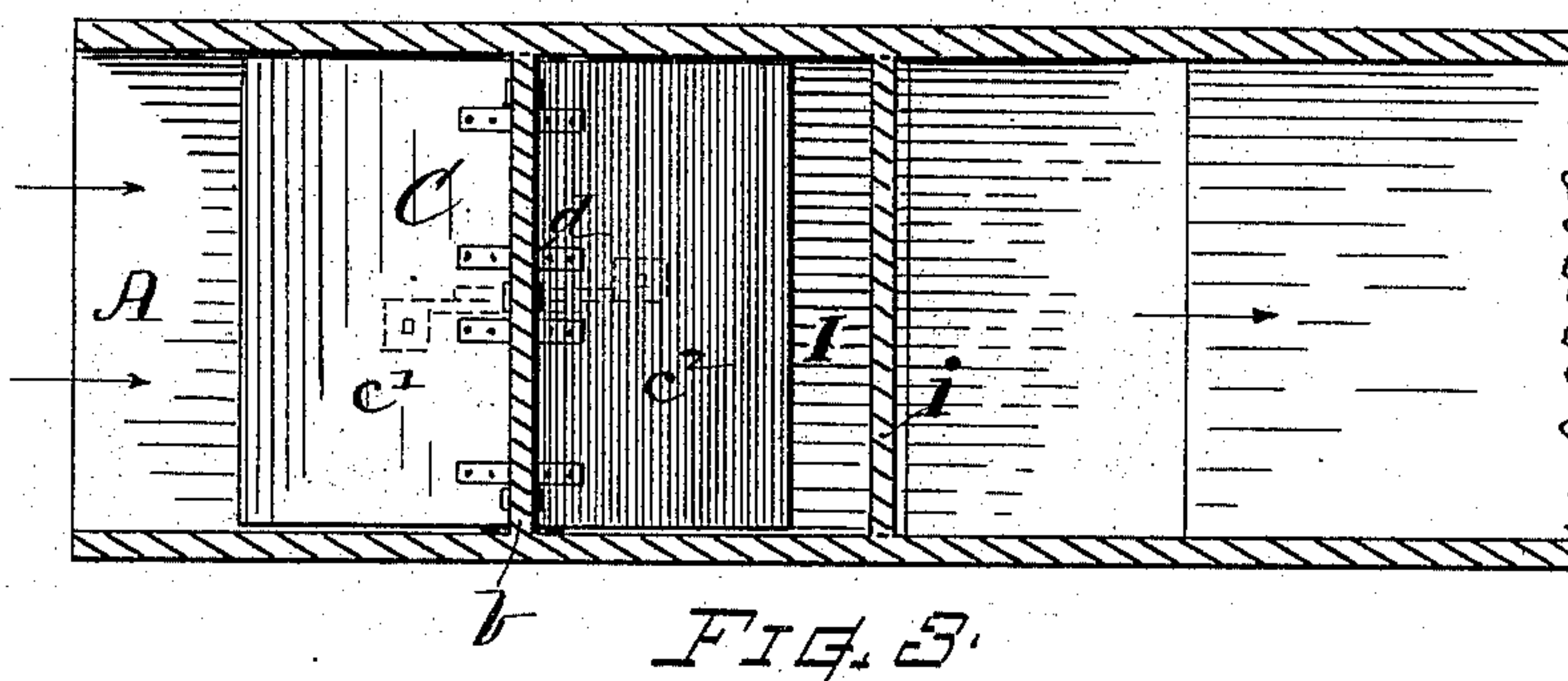
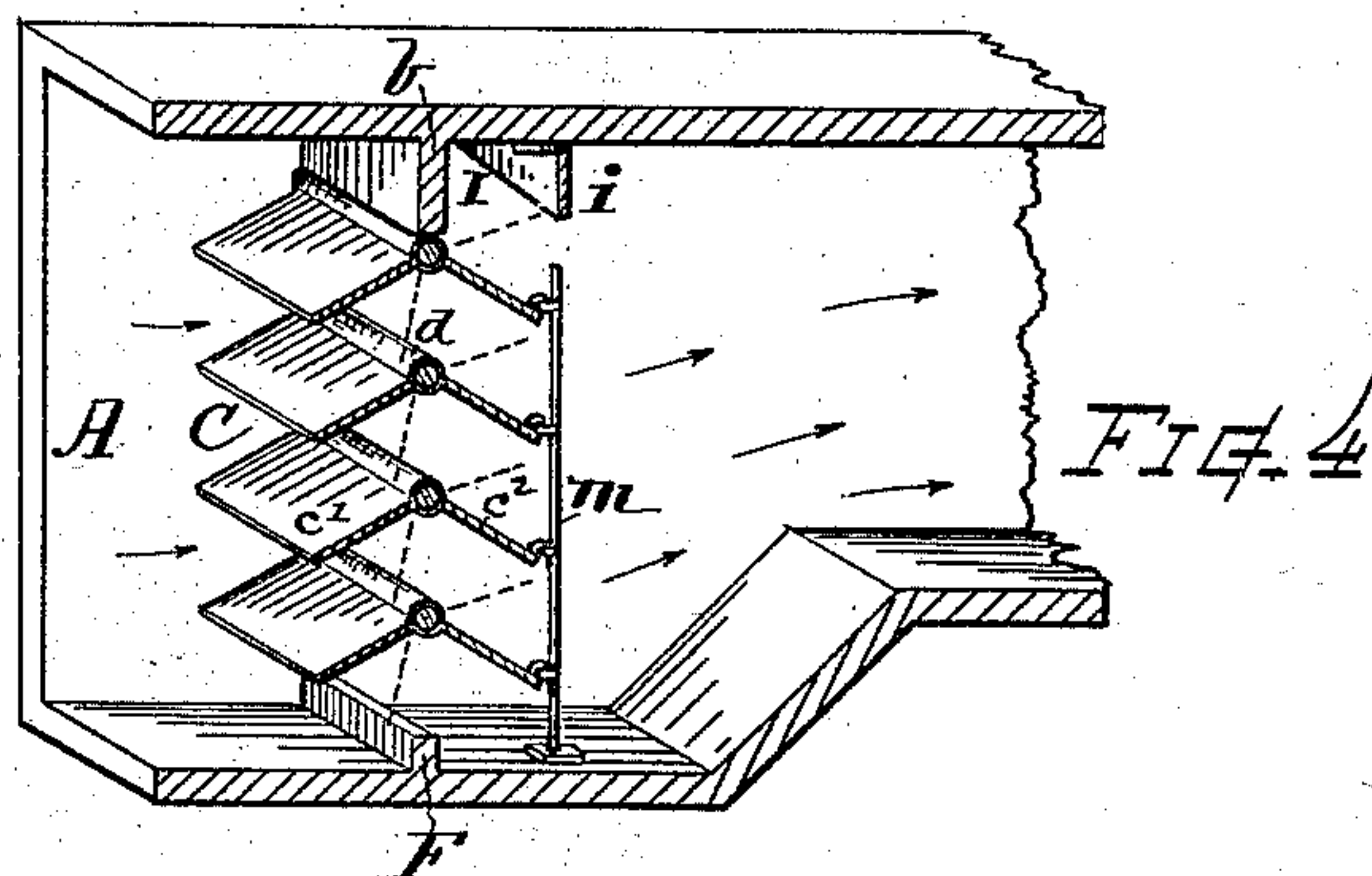
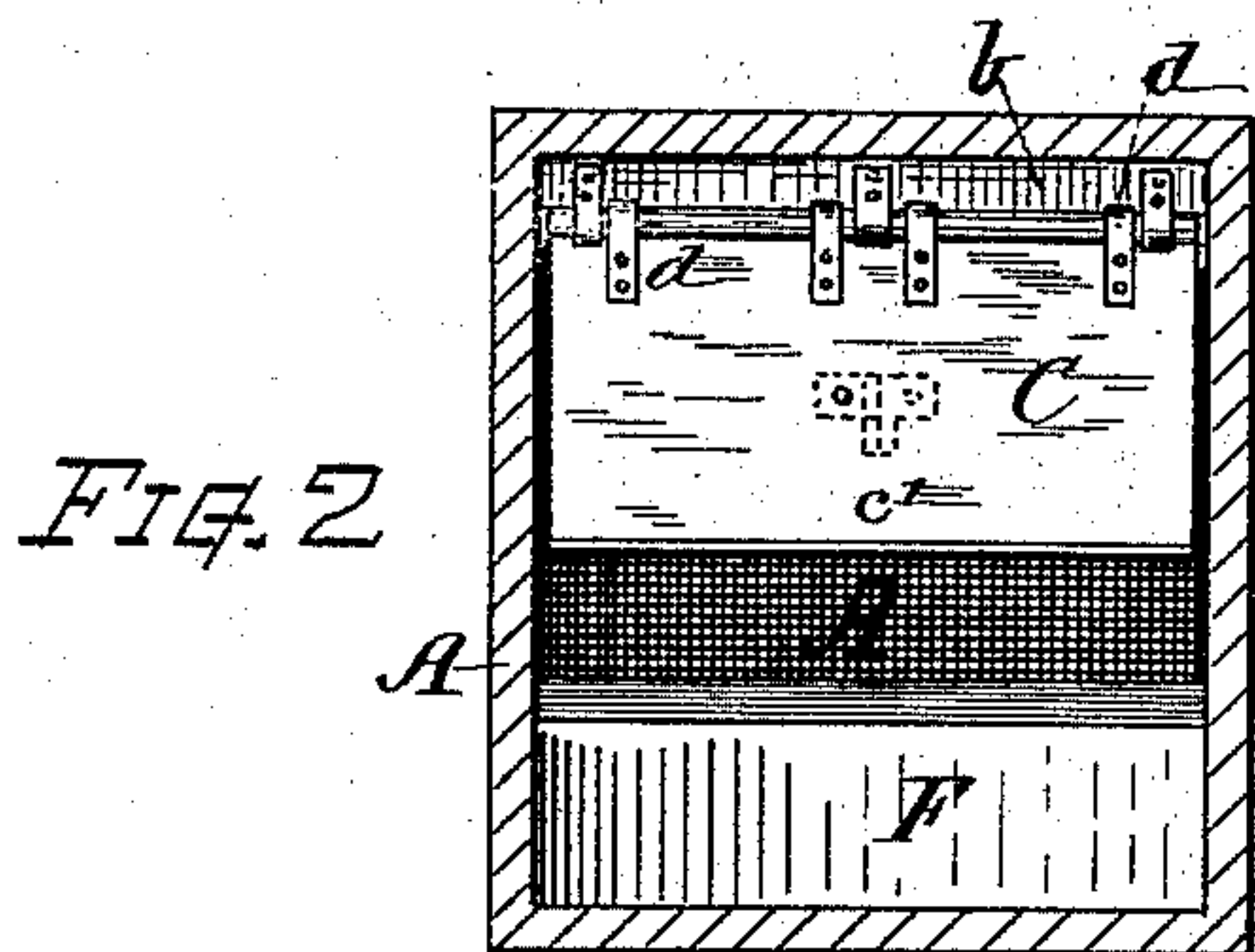
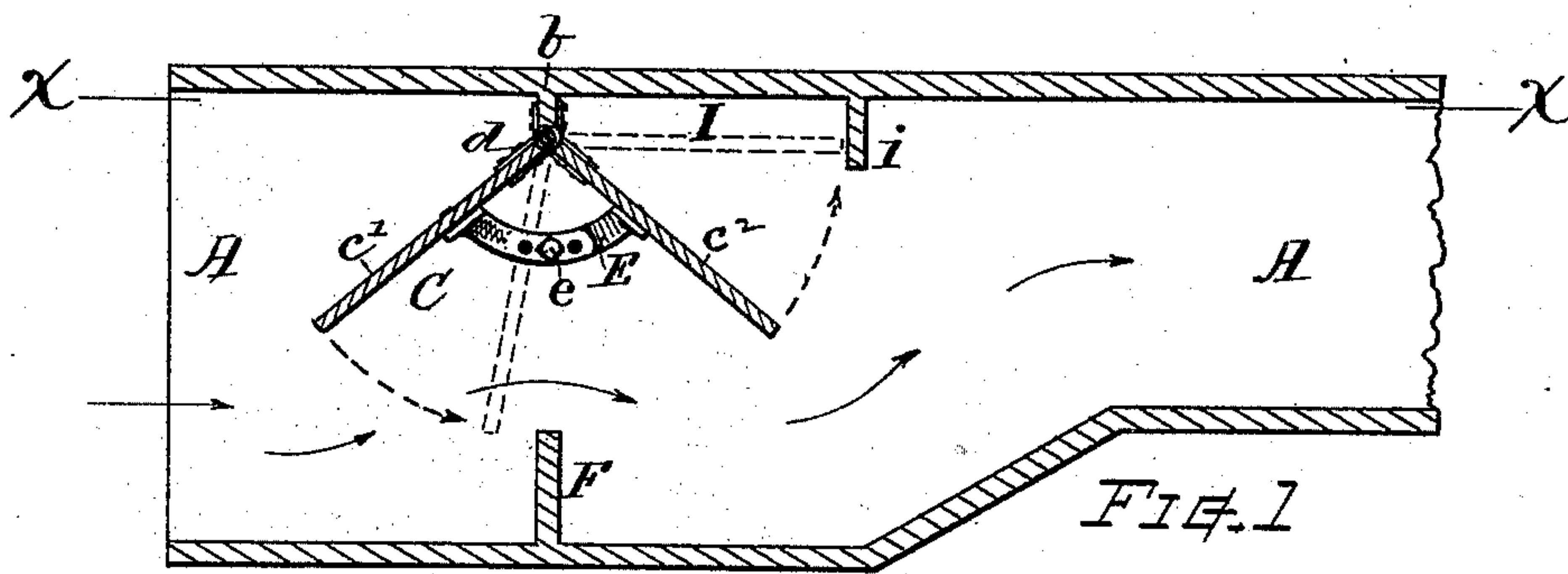


(No Model.)

S. P. SMITH.
AIR CURRENT GOVERNOR.

No. 505,238.

Patented Sept. 19, 1893.



Witnesses -

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UNITED STATES PATENT OFFICE.

SOLOMON P. SMITH, OF WATERFORD, NEW YORK.

AIR-CURRENT GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 505,238, dated September 19, 1893.

Application filed December 24, 1892. Serial No. 456,226. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON P. SMITH, a citizen of the United States, residing at Waterford, in the county of Saratoga and State of New York, have invented a new and useful Improvement in Air-Current Governors, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to afford a practical, efficient and desirable mechanism of improved construction, for the automatic control or regulation of air currents in the inlet-ducts, registers, passages or air-conduits of ventilating or heating apparatus. Also, to provide, in mechanism for the purpose specified, simple and efficient means to prevent slamming of the valves.

These objects I attain by the mechanism shown in the drawings and explained in the following detailed description; the particular subject matter claimed being hereinafter definitely specified.

In the drawings, Figure 1 is a vertical section longitudinally of the air-conduit or flue, showing my improved current governor. Fig. 2 is a front view. Fig. 3 is a longitudinal section at the position of line xx Fig. 1. Fig. 4 is a perspective view of my invention as made with a plurality of pendulous dual-leaved valves.

Referring to parts, A denotes the air-inlet, conduit, register or passage through which the air current to be regulated flows, the direction of the current being indicated by arrows on the drawings. Said conduit is preferably of rectangular cross section and is provided with a hinging strip b fixed transversely across the top of the passage.

C indicates a swing valve composed of two leaves or plates c' and c^2 disposed transversely to the air passage and in oppositely inclined planes, meeting at their upper edges at an angle and sloping downward at the front and back in the form shown. Said valve is attached along the apex ridge or meeting angle, to the top of the conduit or its hinging strip b by suitable hinges or flexible connections d in a manner to permit the valve to have free back and forth pendulous action; the two

leaves c' c^2 maintaining their degree of angularity relatively to each other so that the leaf c^2 swings up as the leaf c' swings down, and vice versa. In any case desired, a weight w may be attached to the rear leaf c^2 for counter-balancing the valve against the pressure of the incoming air current up to any given normal degree. The leaves c' and c^2 of the pendulous valve, if of considerable size, are best hinged together at their adjacent edges, or separately hinged to the piece b so as to be independently adjusted, and the two parts supported from and fixed in relation to each other by one or more pairs of adjustable brackets or slotted arms E attached to the leaves, [see Fig. 1] and having a clamp screw or device, as at e , by means of which the said leaves can be adjusted to different degrees of angularity or retained in fixed relation in planes more or less inclined to each other; thereby adapting the mechanism to the requirements of different situations, and for responding to greater or less current forces.

F indicates a barrier, fender or upright stationary guard disposed transversely across the bottom of the air-conduit at a central position beneath the valve C, and extending upward sufficiently far to intercept the arc or line of motion on which the outer edge of the valve leaves swing. At the rear of the hinging joint, and at a distance therefrom substantially corresponding to the width of the leaf c^2 , there is fixed a depending plate i inclosing a space or pocket I corresponding to the area of the rear leaf c^2 of the valve and into which said leaf swings when the valve is forced backward, thereby affording an air cushion against said leaf which arrests the backward movement and prevents slamming of the valve against the barrier F when influenced by a sudden gust of wind.

When my invention is applied in large flues or air conduits a single pendulous dual-leaved valve is best employed, as in Figs. 1 to 3; and when applied in registers, short inlets, or positions in which economy of space is essential or desirable the invention is best made with a plurality of narrow dual-leaved valves disposed one above the other, as in Fig. 4, at such distances apart that the closing leaf of the higher valve will swing to the apex or central hing-

ing roll of the lower valve [see dotted lines Fig. 4], the lower valve thus serving in the capacity of the barrier or fender for the higher valve; the stationary barrier F being disposed 5 beneath the series and the operation being effected in same manner as in the case of one dual leaved valve. When more than one dual-leaved valve is employed the several valves are best connected by a rod or link *m* 10 so that all will move in unison.

In the operation, under normal conditions the air enters the conduit uninterrupted through the space between the oppositely inclined leaves *c'* *c*² and barrier F; but any sudden or strong current acts to lift the leaf *c*² 15 and depress the leaf *c'* of the valve, thus causing the leaf *c'* to approach the barrier F reducing or closing the passage proportionally to the increased force of the current. In 20 case of a sudden gust that swings the valve backward with violence, shock is prevented and the slamming of the valve obviated by the cushioning of the air against the leaf *c*² in the inclosure I. [See dotted lines Fig. 1.] 25 In reflex actions the rear leaf *c*² serves to close the passage by its approach to the barrier F. Consequently the action is steadier and there occurs no excessive swinging of the valve, the tendency being to oppose by the opposite ac- 30 tion of the two leaves any movement beyond that required to control and equalize the current of air passing through the apparatus.

I claim as my invention herein, to be secured by Letters Patent—

35 1. The valve composed of two oppositely inclined leaves meeting at an angle at their upper edges, and supported in fixed relation to each other, said valve suspended at its apex by a hinging connection transversely within 40 the air-passage to have free back and forth swinging action, in combination with the air-conduit, and an upright guard or fender disposed transversely across the passage cen-

trally beneath said dual-leaved valve, the top of said guard terminating adjacent to the line 45 of motion or arc on which the lower edge of the valve leaf swings, substantially as and for the purpose set forth.

2. The combination, of the conduit or air-inlet having the fender or guard disposed 50 across the bottom of the passage, the pendulous double-leaved valve having its respective leaves disposed in separate intersecting planes hinged to each other and pivotally suspended at their adjacent edges to swing freely 55 within the air-conduit, and an adjustable brace connecting the two leaves of the valve to each other and adapted for adjusting the degree of angularity between the planes of said valve-leaves, substantially as set forth. 60

3. The combination, with the air-conduit, the pendulous dual-leaved valve, and the upright fender beneath said valve; of an inclosure in rear of said valve adapted to afford an air cushion on the rear leaf to arrest the mo- 65 tion of said valve before the front leaf strikes said upright fender, as the valve is forced backward, substantially as set forth.

4. In combination, with the air-inlet passages or register, a plurality of transversely 70 disposed dual-leaved angular valves respectively suspended by hinging attachment at their apex, one above another, to swing freely when acted upon by the air currents, and disposed in such relation as to respectively close 75 one against another, the fender or guard beneath the lower valve, and a link connecting the several valves for united action, substantially as set forth.

Witness my hand this 19th day of Decem- 80 ber, A. D. 1892.

SOLOMON P. SMITH.

Witnesses:

CHAS. H. BURLEIGH,
ELLA P. BLENUS.