

No. 647,051.

Patented Apr. 10, 1900.

E. A. TUTTLE.

AIR REGISTER.

(Application filed Feb. 8, 1899.)

(No Model.)

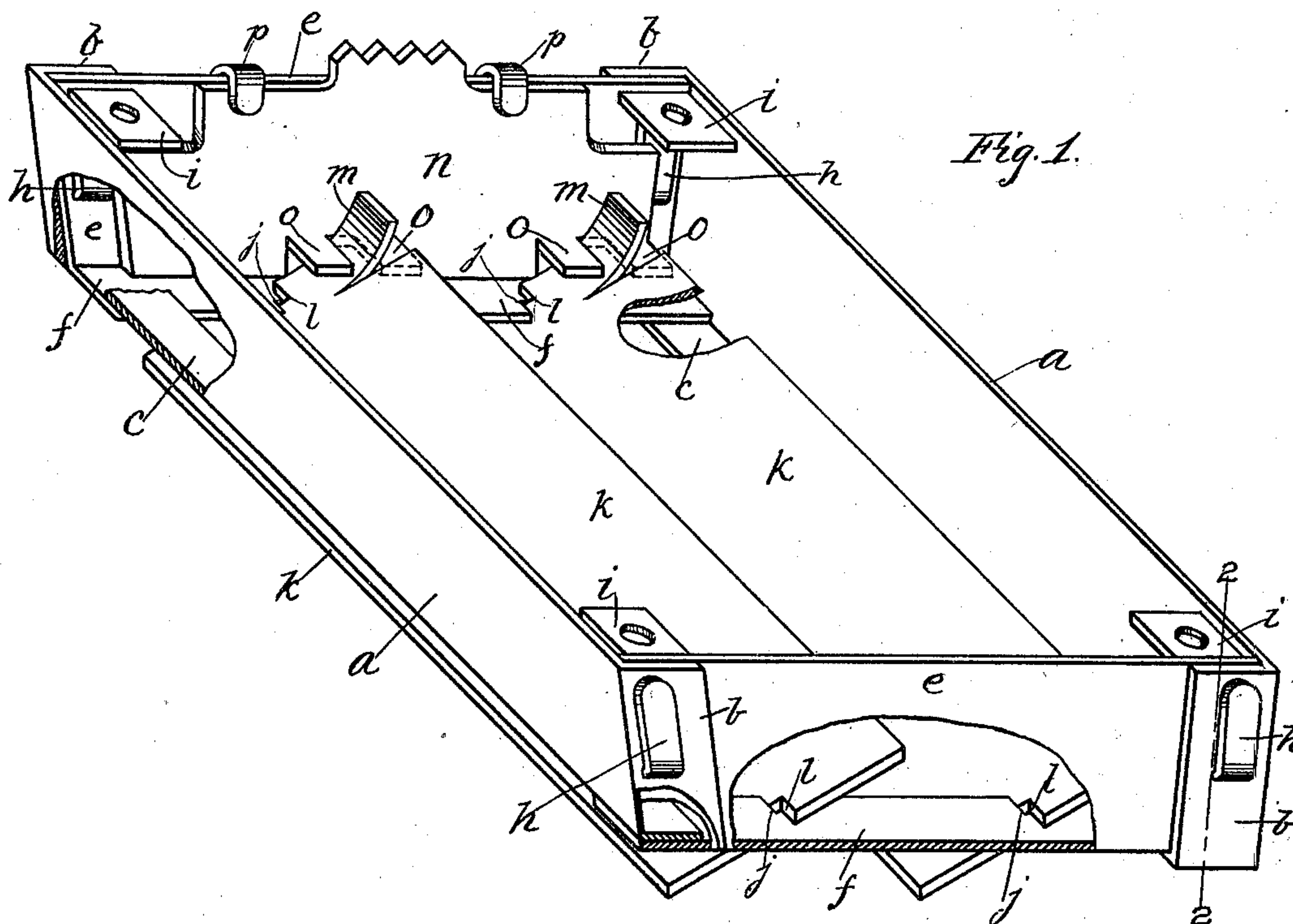


Fig. 1.

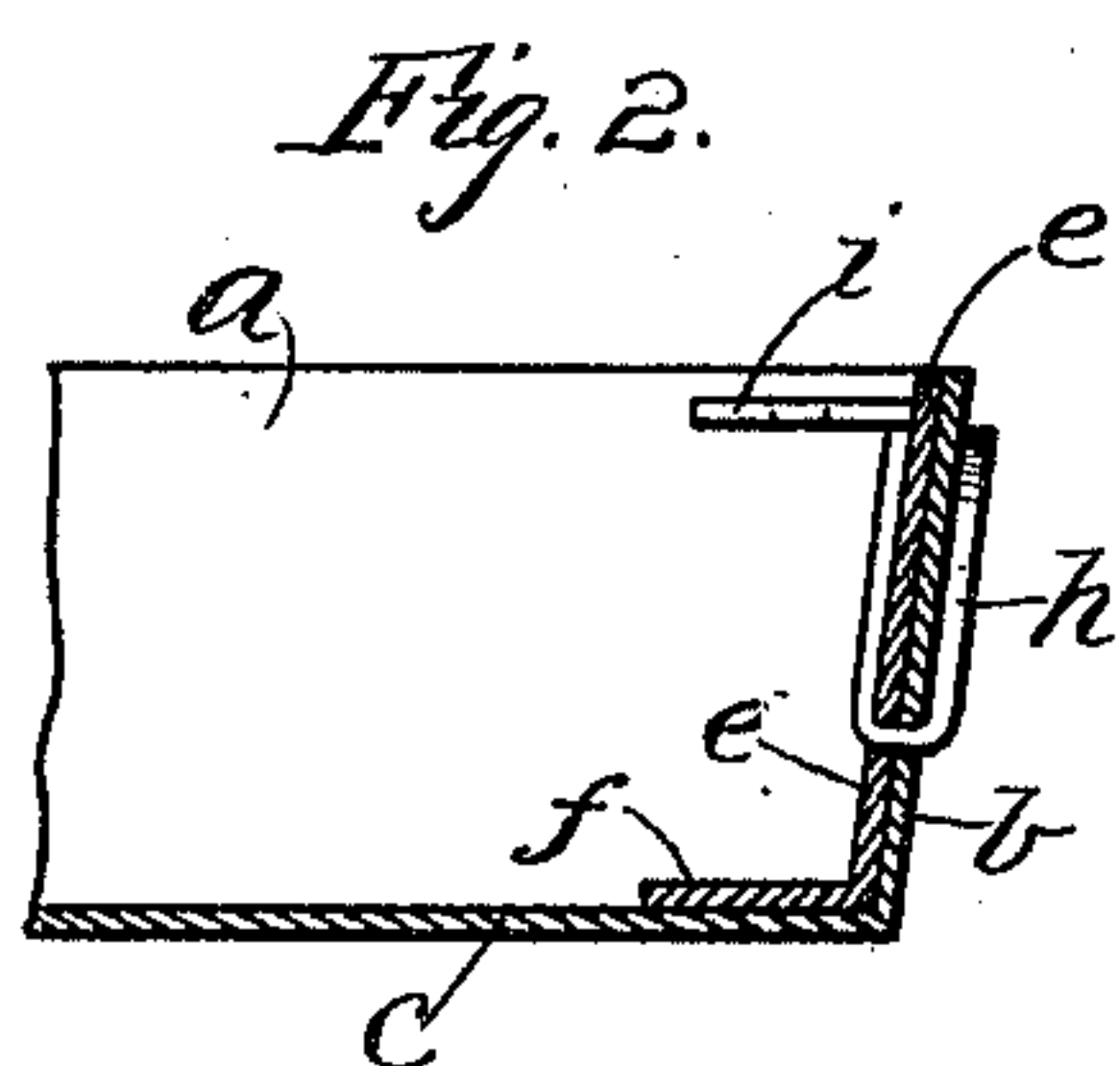


Fig. 2.

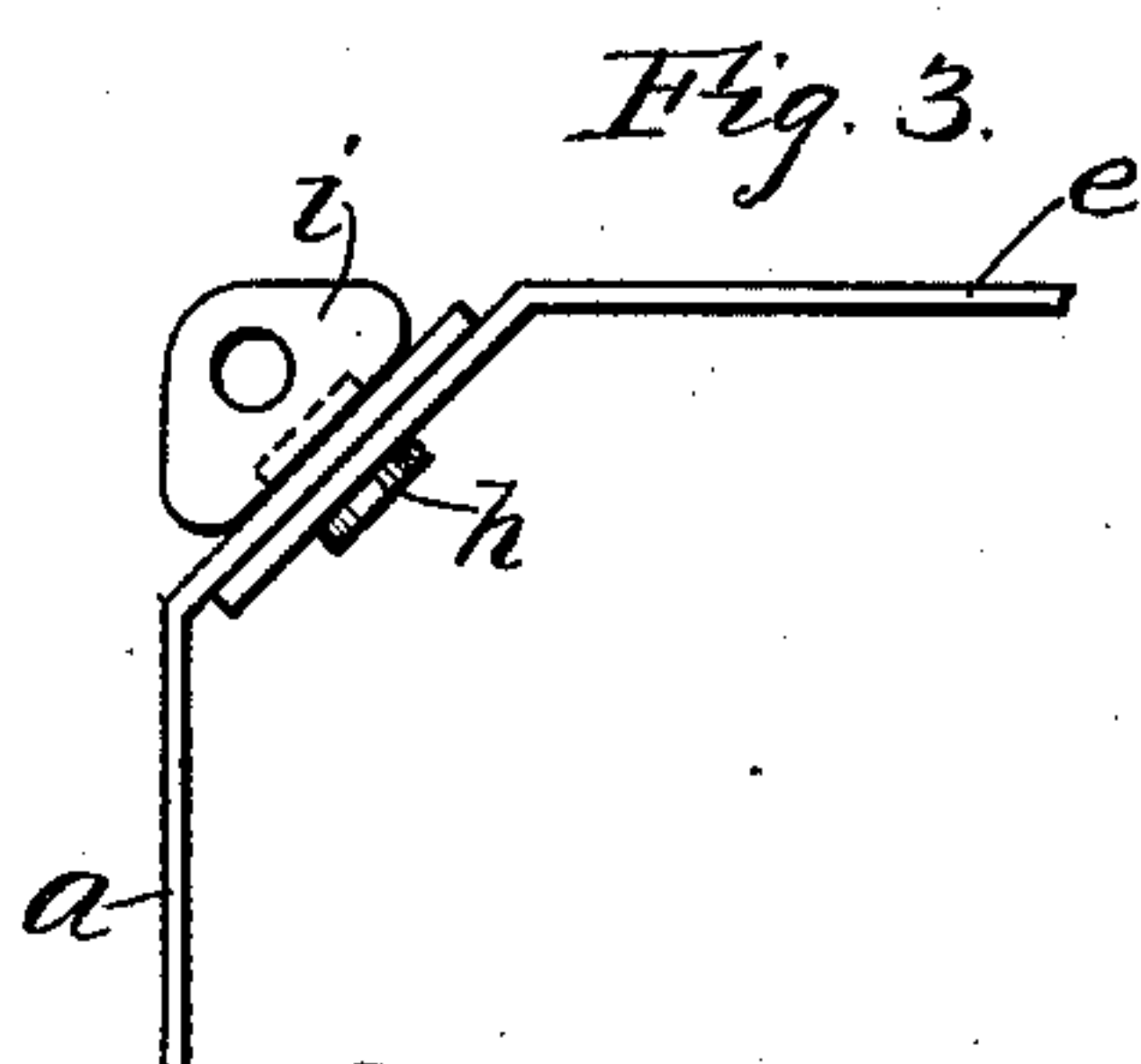


Fig. 3.

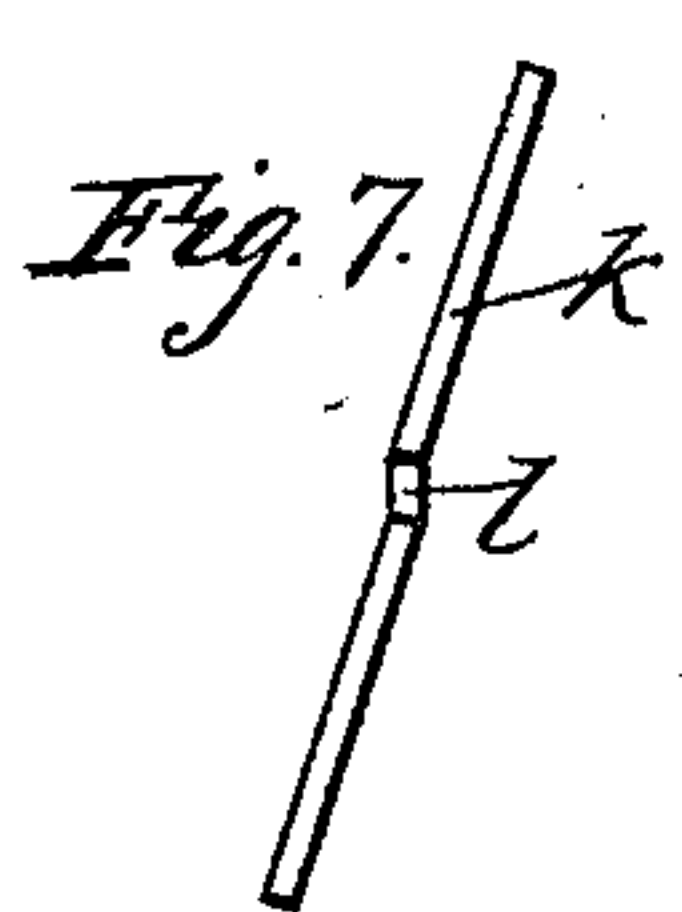


Fig. 4.

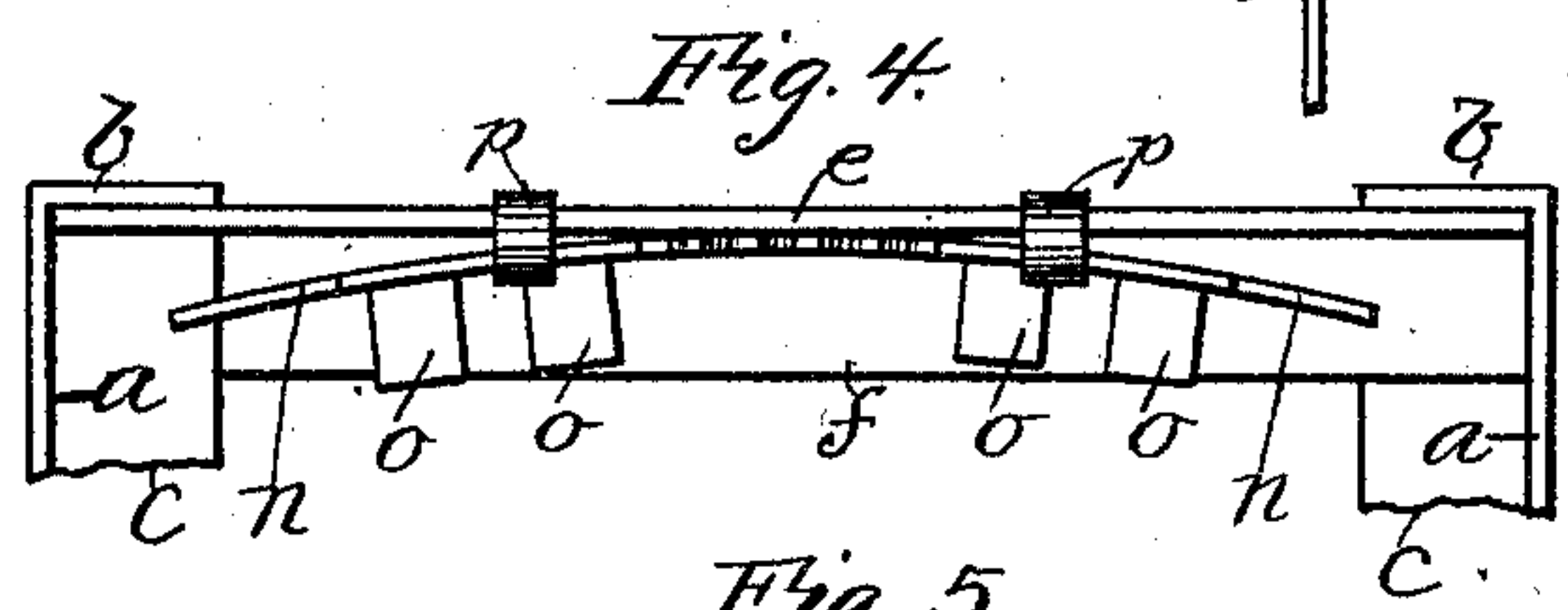


Fig. 5.

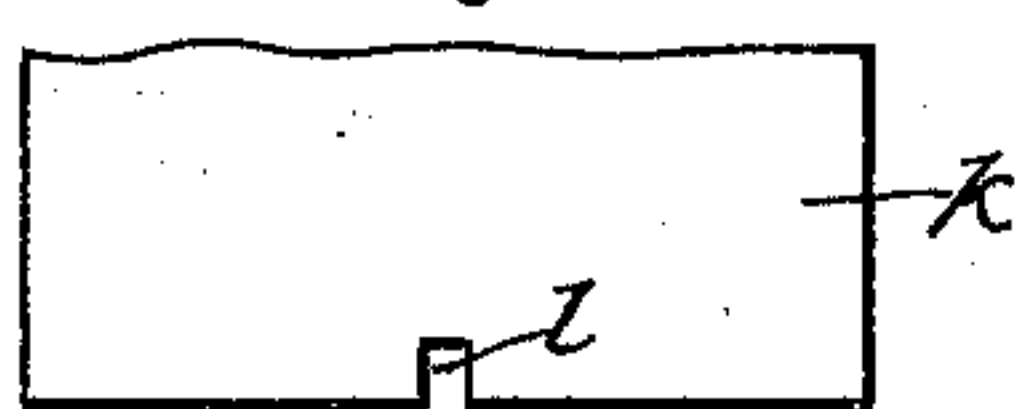


Fig. 6.

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AIR-REGISTER.

SPECIFICATION forming part of Letters Patent No. 647,051, dated April 10, 1900.

Application filed February 8, 1899. Serial No. 704,900. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. TUTTLE, a citizen of the United States of America, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Air-Registers, of which the following is a specification.

My invention consists of improvements in the construction of hot-air registers whereby, with the exception of the foraminous top, they may be produced in sheet metal more simply and cheaply than as now constructed, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved register without the foraminous top plate, which forms no part of what is claimed as the invention, and with some parts broken out. Fig. 2 is a detail in section on line 2 2 of Fig. 1. Fig. 3 is a detail in plan view, showing a modified form of the corner construction. Fig. 4 is a detail in plan view, showing a means of applying friction to the fan-operating rod to hold the fans in position. Fig. 5 is a view of an end portion of a fan; and Fig. 6 is a part of an end portion of the frame, showing the manner of pivoting the fans. Fig. 7 is an end elevation of a fan.

The construction is such that all the parts of the register except the foraminous top plate can be stamped out of sheet metal in complete form for assembling, so as to materially cheapen the cost and provide very light registers to economize material, labor in handling, and cost of freight charges. Such register-frames are generally and preferably made with flaring sides. It is feasible to make integral cast-metal frames in such form, and they are so made; but to make flaring sheet-metal frames it is necessary to make the sides separately and connect them together at the corners, which I do as follows: Two side plates *a* are made with end flanges *b*, turned at right angles in the same direction, and with one longitudinal edge flange *c*, also turned in the same direction, and two end plates *e* are made without the end flanges, but with a longitudinal edge flange *f*, these flanges *f* being turned inward. The end plates *e* are placed inside of the flanges *b*, and the side plates *a* and end plates *e* are secured by

the hooks *h*, inserted through coincident slots through plates *e* and flanges *b* and firmly clenched against them, said hooks being formed with a perforated head *i*, parallel with the top of the frame, which being located at the respective corners of the frame form the lugs by which to bolt on the foraminous plate. The flanges *f* of the side plates *e* are notched at *j* for part of the pivotal connection of the fans *k*, said fans being similarly notched in the ends at *l*, and the parts are so interlocked by these notches that the fans are retained in position in a way to turn freely for opening and closing. The fans being of sheet metal are easily sprung sidewise, so that with one end connected with a flange *f* the other end may be readily forced into position, where it will be retained when the fan assumes its straight form again. Such sheet-metal fans having ordinary pivot-studs may in like manner be inserted in the ordinary pivot-bearings. The fans are at one end formed with a transversely-disposed branch *m*, suitably upwardly inclined from the plane of the main body to serve as a means of turning the fans by the sliding fan-operating rod, said branch being preferably formed by transversely slitting the fans a suitable distance from one edge and bending the branch thus formed for producing the inclinations, and the fan-operating rod, which in this construction is a flat plate *n*, set up edgewise inside of one of the side plates *e*, and on the flange *f* of said plate is formed with two laterally-projecting lugs *o* for each fan, so disposed that a branch *m* of a fan will be engaged between each pair of lugs to turn the fans as the rod is shifted forward and backward. The branches *m* are so curved that excessive cramping between the lugs *o*, which would be liable if the branches were straight, owing to the different planes of the axes of the fans and of the lugs, is avoided.

In the plan view, Fig. 4, it will be seen that the fan-operating rod *n* is sprung in a bow shape and is placed with the crowning side against the side plate *e*, on which it is made to bear with some friction by hook-clips *p*, placed on the upper edges of the side plate and rod and being adapted to grip the bar against the side plate with some stress,

causing sufficient friction to hold the fans in any position within the range of their movement.

5 In practice the sheets of which the fans and the frame-plates are made will be so thin that the fans will close sufficiently tight for practical purposes without material hindrance by the form of pivot-joint of the fans; but, if desired, the fans may be bent longitudinally
10 along the middle in reverse directions, as indicated in Fig. 7, or the flanges may be crimped transversely at the notches *j*, as indicated in Fig. 6, to accomplish the same purpose.

15 Instead of the right-angled corner construction of the frame represented in Fig. 1 it may be a forty-five-degree angle by bending and lapping both side plates, with the clenching-hook applied with the lug *i* outside to receive the same right-angled top plate as is applicable to the frame of Fig. 1.
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The economy of labor and material by stamping the several parts out of sheet metal as compared with casting them is obvious, and the reduction in weight is a material
25 saving in cost of freight in large quantities.

What I claim as my invention is--

1. In an air-controlling register-frame, the side plates formed of sheet metal and bent and lapped at the angles and the lapped portions secured with clench-hooks, formed with
30 head-lugs, for connecting the foraminous plate.

2. In an air-controlling register, the combination with the pivot-carrying flanges of the end plates, notched in the edges for the
35 pivot connection, of sheet-metal fans notched correspondingly in the ends to form intermeshing pivot connections.

3. In an air-controlling register, the combination with the fans, and a side plate of
40 the frame, of the resilient sheet-metal-fan-actuating rod having suitable means of connection with the fans, for operating them, and means connecting the rod with the frame-plate under tension causing friction to con-
45 trol the fans.

Signed by me at New York, N. Y., this 3d day of February, 1899.

EDWARD A. TUTTLE.

Witnesses:

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