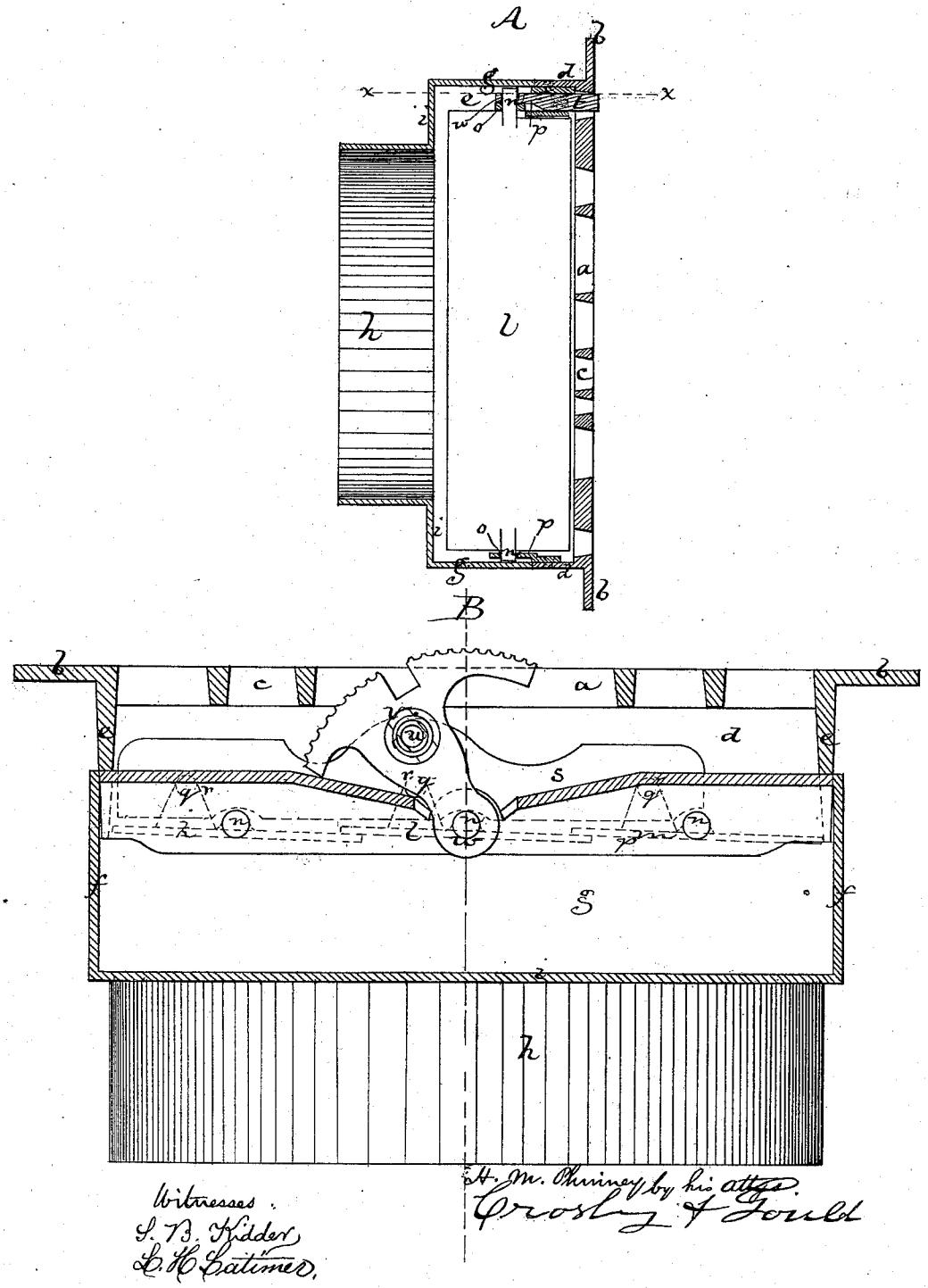
H. M. PHINNEY.

Hot-Air Register.

No. 113,447. Patented Apr. 4, 1871.



Witnesses.
S. B. Kidder
L. H. Latimer.

H. M. Phinney by his attys.
Crosby & Gould

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

United States Patent Office.

HUGH M. PHINNEY, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 113,447, dated April 4, 1871.

IMPROVEMENT IN HOT-AIR REGISTERS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HUGH M. PHINNEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented Improvements in Hot-Air Registers; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates particularly to the construction of the frames of hot-air registers (or that part of a register which supports the movable valves or blades) and the connecting piece by which the register is joined to the hot-air pipe, the invention also relating to the pivoted connection of the segment-wheel or lever that actuates the valve-blades.

In all hot-air registers, so far as I know, the box or flange-part of the frame that projects from the inner or under side of the open register is composed of separate or distinct plates, which are fastened together and to the register by screws, the employment of the connecting-screws, the necessity of tapping nut-threads for reception of these screws, and the jointing of the abutting edges of these plates being not only a large item in the cost of construction of registers, but requiring the use of various tools and the work of skilled artisans; and the joints in such plates are always objectionable.

One part of my invention consists in a register or register-frame, the projecting or blade-inclosing part or vertical flange of which is formed of plates united to each other at their ends and to the open plate at their tops without joints; or, in other words, are cast integral with each other and the main register-plate.

Hot-air pipes are always formed of sheet metal, (tinned sheet-iron being the metal generally employed,) and the connection of the pipe and the register is effected by the intervention of a sheet-metal coupler or connector, one end of which is rectangular to receive the register-flange, and the other end of which is round and tubular to fit into the end of the hot-air pipe.

Now, in putting up hot-air apparatus, the making of the round pipe requires no special skill, and may be, and generally is, the work of apprentices or of cheap or unskilled workmen; but the connections always require such fitting, and are of such compound form, that to make and apply them demands the labor of a skilled workman.

To obviate this, I make a connector to go with, and, if necessary, form a part of, every register, such connector having the square or box-shaped flange to receive the register-flange, the short projecting tubular flange to enter the end of the hot-air pipe, and the web connecting the two, these parts being made in one piece or cast solid or integral.

It is in a cast-metal connector-piece, having the register-flange and pipe-flange formed in one piece, connected by the web, that the second part of my invention consists.

The drawing represents a register and connector or coupling embodying my invention.

A shows a central vertical section of the same.

B is a section on the line *x x*.

a denotes the main register-plate, consisting of the edge piece or horizontal flange *b*, across which extends the open-work *c*.

d d are the end flanges, and

e e the side flanges, extending vertically from the horizontal flange *b*, the connection of the flanges *d d* and *e e* to each other and to the flange *b* being the connection effected by casting them as one piece, leaving no parts to be united, no joints to be fitted, no screw-holes to be tapped, and no screws, rivets, or other fastenings to be applied.

f f denote the side flanges, and

g g the end flanges of the hot-air pipe and register-coupling or connector.

h, the tubular projection for entering the hot-air pipe, and

i the web that connects the tube and the box or rectangular part of the coupling; these parts *f f*, *g g*, *h*, and *i* being cast in one piece, and so that the coupler and register may be sold as one, ready for direct connection of the pipe and register, without any fitting of parts or other than the work of the most ordinary workman.

The side flanges of the register preferably fit into the coupling, and the end flanges down upon the top of the coupling-flange; and they may be further connected, if necessary, by any suitable fastenings.

k l m denote the register-blades or valves, each having end-center pivots or journals *n*, which are supported and turn in pivot-holes *o*, made in journal-plates *p* in the ordinary manner.

Each blade has, at one end, a stud, *q*, projecting into a hole, *r*, in a slide or mover, *s*, that is actuated by the segment-lever *t*, a stud, *u*, on the slide, extending into a slot, *v*, in the lever, in the usual manner.

The segment-lever is pivoted, as seen at *w*, directly upon the adjacent journal *n* of the center blade *l*, and turns on said journal as a fulcrum, so that no screw has to be applied to form such fulcrum and secure the lever in position, the lever moving more readily, as it is free from the pressure of the screw.

With a four or even-numbered blade-register I cast

the pivot as a stud or projection from the center of the journal-plate.

I claim—

1. A hot-air register-plate, having the four-side vertical flanges *d d e e* connected to and forming part of it, without intermediate joints, substantially as shown and described.

2. The cast-metal coupling or connector, having the tube *h*, flanges *f g*, and web *i* formed in one piece, substantially as shown and described.

HUGH M. PHINNEY.

Witnesses:

FRANCIS GOULD,

S. B. KIDDER.