

E. SEAVEY & C. STORER.
HOT-AIR REGISTER.

No. 177,964.

Patented May 30, 1876.

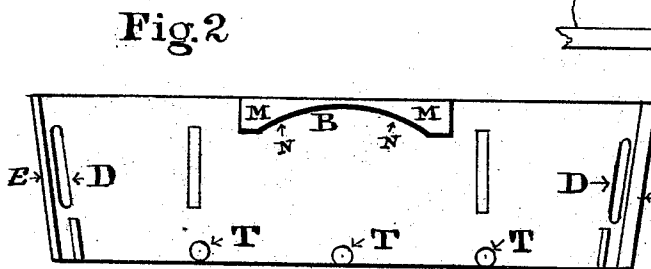
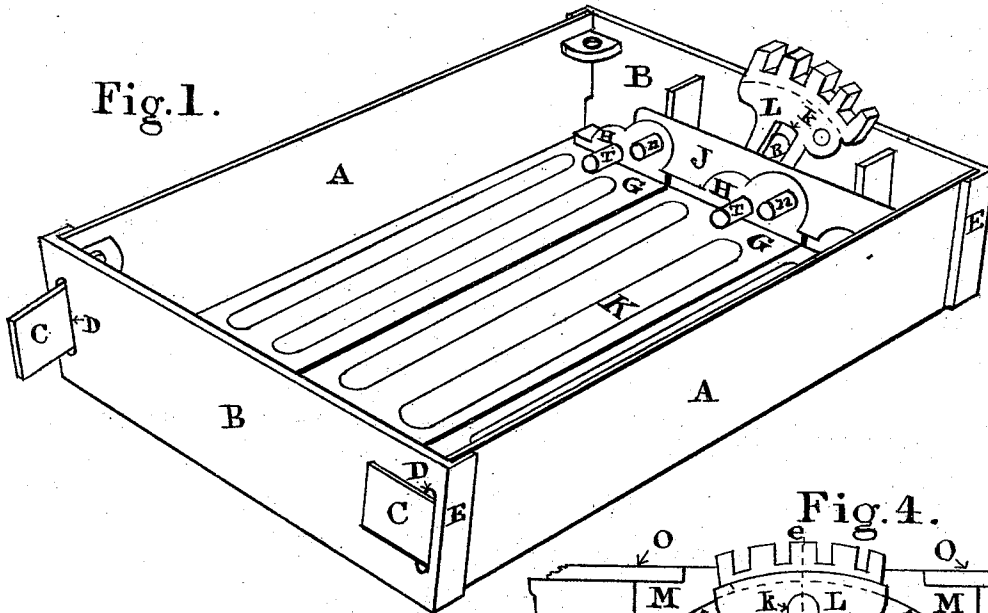
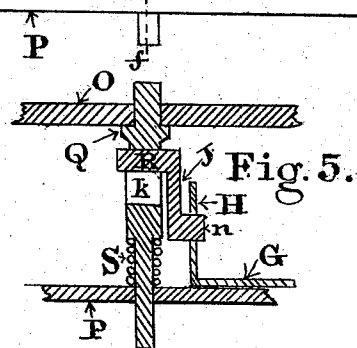
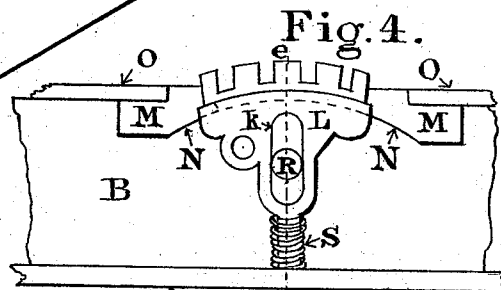
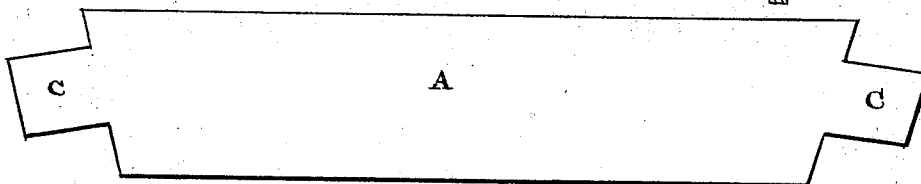


Fig. 3.



Witnesses.
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J. P. Winkler

Inventors.
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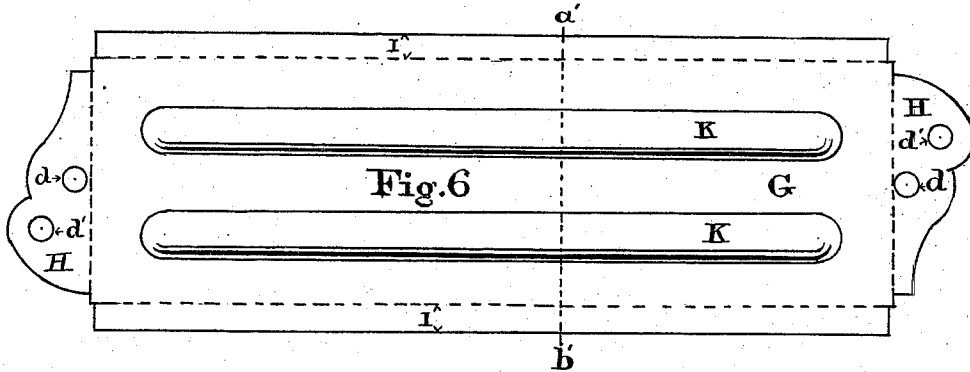


Fig. 7

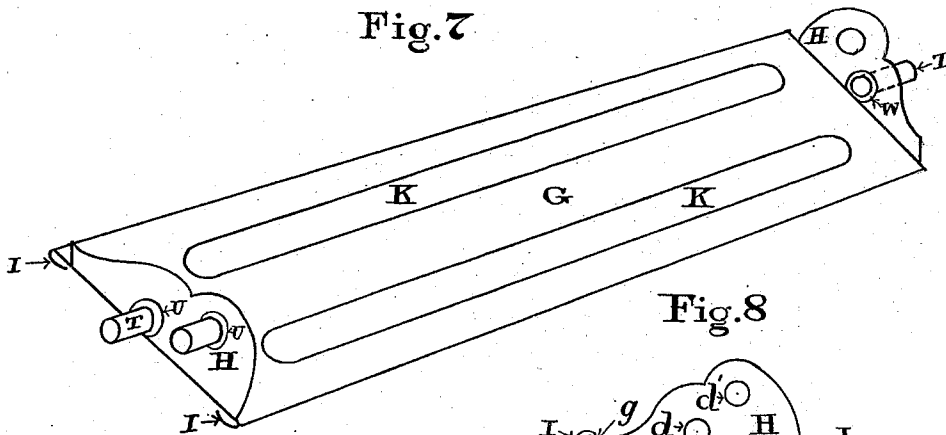


Fig. 8

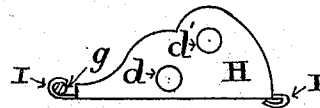


Fig. 9

Fig. 10



Fig. 11

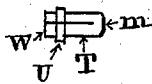
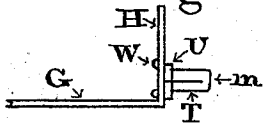


Fig. 12



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UNITED STATES PATENT OFFICE.

EBEN SEAVEY AND CHARLES STORER, OF CAMBRIDGEPORT, MASS.; SAID
STORER ASSIGNOR TO SAID SEAVEY.

IMPROVEMENT IN HOT-AIR REGISTERS.

Specification forming part of Letters Patent No. **177,964**, dated May 30, 1876; application filed
March 15, 1876.

To all whom it may concern:

Be it known that we, EBEN SEAVEY and CHARLES STORER, of Cambridgeport, State of Massachusetts, have invented certain new and useful Improvements in Registers for Distributing Heat and Register-Fans; and we do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification, in which similar letters of reference indicate like parts.

The fact that cast-iron frames and fans are universally used in registers for distributing heat demonstrates that no practical fan or frame of other material has been invented. The cast-iron frames, being made in one piece, require a special pattern for each size, and the fans, being cast, have to be made very thin, or they are too costly, and, if very thin, they are also very brittle, and are easily warped or broken. To remedy these defects, and to produce a stronger and cheaper register, is the object of the present invention.

The invention consists in making the sides of the register-frame and the fans out of wrought or sheet iron, or other sheet metal; also, in means for moving and keeping the fans in any position required, as will be seen from the following description and drawings.

To keep the fans in any position required, the piece L has shoulders Q, Fig. 5, pressed up against the arch N on projecting piece M by spiral or other spring S. When L is moved, the shoulders Q traverse the arch N, and the pressure given by spring S to Q against the arch N keeps the fans open or shut, or at any point desired.

Figure 1 is a perspective view of register-frame, showing fans and movement. Fig. 2 shows end of frame B, with holes D, projections T and E; Fig. 3, blank A, cut for sides of frame, showing ends C. Fig. 4 shows arch N, movable piece L, spiral springs S. Fig. 5 is a section of Fig. 4, through points *e f*. Fig. 6 is a sheet-metal blank, G, showing ends H, sides I, to be turned over or under, flutes K, raised or stamped, and holes *d d'*; Fig. 7, perspective view of fan, ends turned up and sides I turned under; Fig. 8, elevation of end

H, one side turned under, the other side turned over and around a piece of wire, *g*; Fig. 9, section of blank G, through points *a' b'*; Fig. 10, blank out of which the rivet is formed; Fig. 11, rivet when formed; Fig. 12, end of fan, with rivet attached.

A piece of wrought-iron, or any kind of sheet metal, is cut of any length required, similar in configuration to A, Fig. 3, with ends C projecting, for the purpose of putting them through the holds D in the ends of register-frame B. The ends C are then turned at angles of forty-five degrees outside the frame, thus locking the ends and sides of frame together, as at C, Fig. 1. E is a projection at each corner, to steady and keep in position the sides A when locked to the ends. A piece of wrought-iron or any kind of sheet metal (called a blank) is cut similar in configuration to Fig. 6, of any size desired, the shape of blank being such that it will allow metal enough at the ends of fan to give strength around the holes *d d'*, also giving metal lengthwise down each side, so that the edge can be turned up or down or under, as at I, Fig. 8. After the blank is cut, the beads or flutes K are raised, by stamping in a die or in any other manner, for the purpose of stiffening the sheet metal. The beads, of course, can be of any shape or pattern. The holes *d d'* are then punched or drilled in the ends H, the hole *d* being either for the reception of the rivet on which the fan is to swing, or to fit on projections cast on the ends of frames, as at T. The hole *d'* is put in at an angle of forty-five degrees, or any other angle, to hole *d*, so that when a movable piece of metal having projections, say three or more, which fit into the holes *d'*, is moved forward or backward, the fans will open and close. These operations may not come in the order marked down here, but may be changed in the routine, producing the same results. When stamped and the holes are in, the ends H are to be turned up at angles of forty-five degrees to the plane G, at the point indicated by dotted lines across Fig. 6, and that part of the blank down the two sides, from dotted lines outward to the edges, can either be turned down at an angle, or may be folded under until it is nearly parallel to G, as at I, Fig. 7; or wire can be

inserted and one edge turned over onto the top of fan, the other being turned under, as at I, Fig. 8. The object of turning the sides down or under is to strengthen the fan laterally and give a better edge, and turning up the ends H at angles of forty-five degrees to plane G serves the double purpose of stiffening the fan transversely, and of bringing the ends H into the right position to swing in the register.

To supply cheap rivets, by which the fans can be moved, or on which they can swing, a blank, Fig. 10, is cut out of sheet metal, and placed in a similar-shaped recess in a die, in the center of which, and underneath the blank, is a hole the exact diameter of the outside of rivet required. A plunger is then brought down onto the center of the blank, Fig. 10, and by pressure in a press, or otherwise, the blank is pressed through the hole in die, and makes a hollow cylinder, closed at one end, as at *m*, Fig. 11. A short distance from the end of cylinder—viz., at *W*, Fig. 11—a small bead, *U*, is raised to act as a shoulder. When the rivet is placed in the holes *d* or *d'* in the end of fan H, the end of the rivet is turned over outward, as at *W*, Fig. 12, thus holding the rivet securely clinched on the end H of fan. A solid metal rivet the same shape, having the shoulder *U*, may be used, if it can be produced as cheap or is better.

What we claim as our invention is—

1. The wrought-iron or sheet-metal blank A, having ends C, in combination with a register-frame, substantially as described, as and for the purposes set forth.

2. The holes D, projections E and T in and on the casting B, the pivots or projections *n* on moving piece J, in combination with the fans and register-frames, substantially as described, and for the purposes set forth.

3. The arch N, in combination with the shoulder Q and spring S, substantially as described, and for the purposes set forth.

4. A sheet-metal blank of the form and configuration described, so that when cut a margin is left down one or both sides, that can be turned up or down at any angle, or folded under, and of such shape at the ends as to allow metal enough round the holes *d d'* to give the required strength, and sufficient to be turned up at angles of forty-five degrees, as at dotted lines, Fig. 6, in combination with a register-frame, substantially as described, and for the purposes set forth.

5. The rivet T, in combination with the end H and sliding frame, substantially as described, and for the purposes set forth.

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Witnesses:

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