J. R. CREIGHTON.

Speaking-Tube Annunciator.

No. 223,115. Patented Dec. 30, 1879.

Fig. 1.

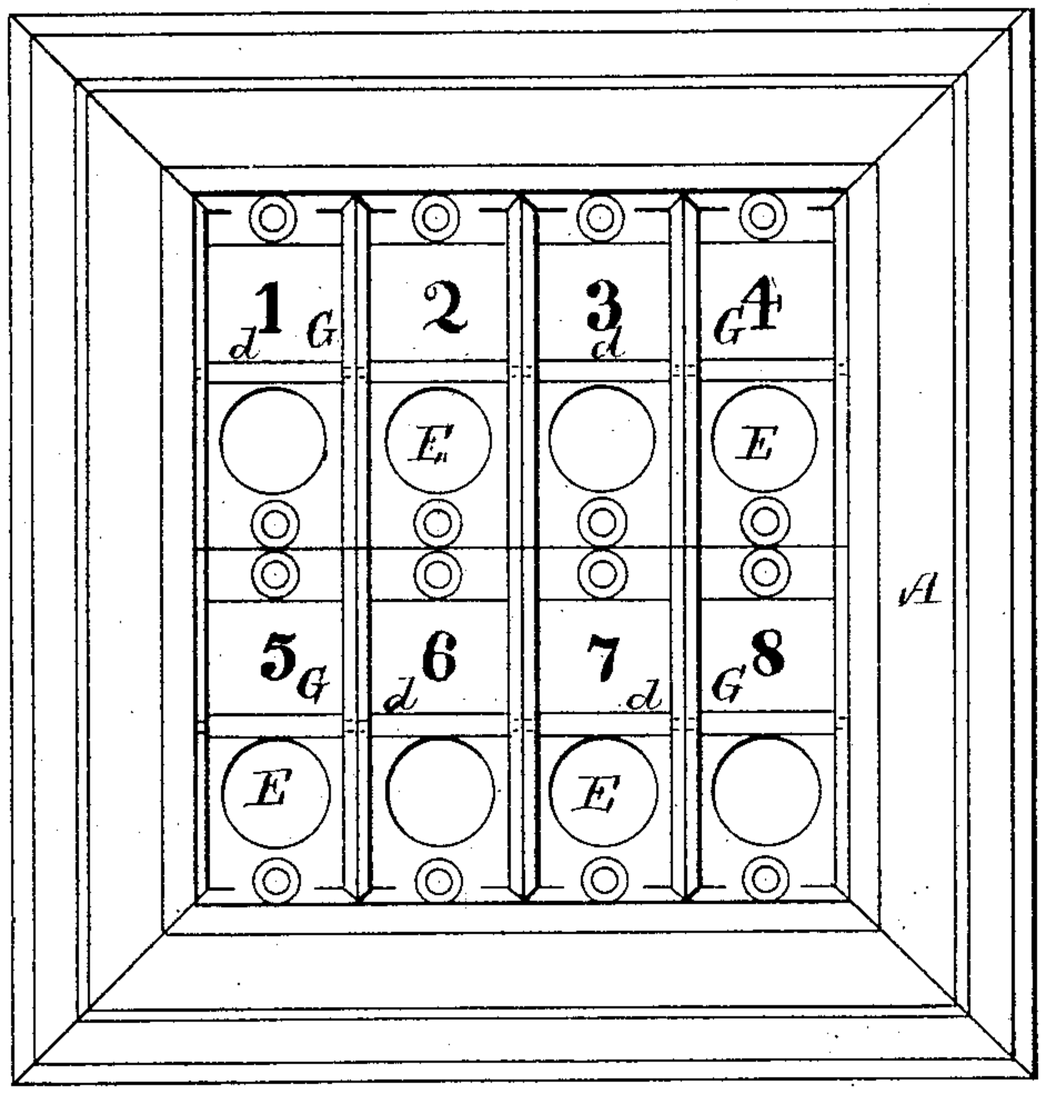


Fig. 4.

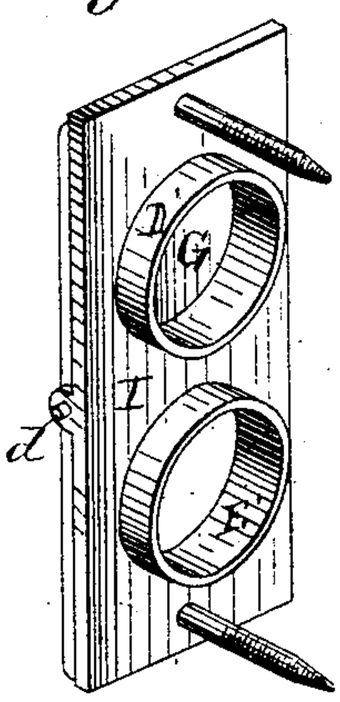


Fig. 5.

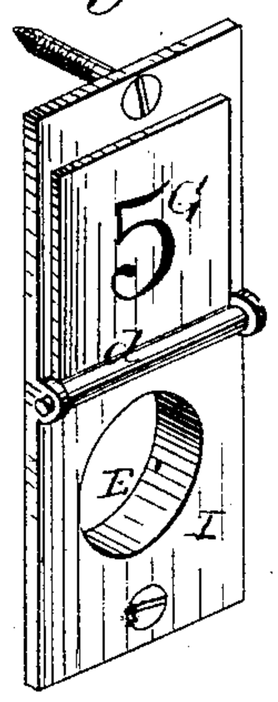


Fig. 2.

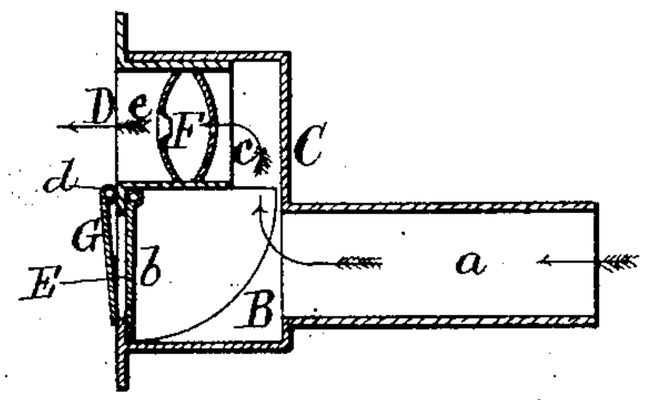
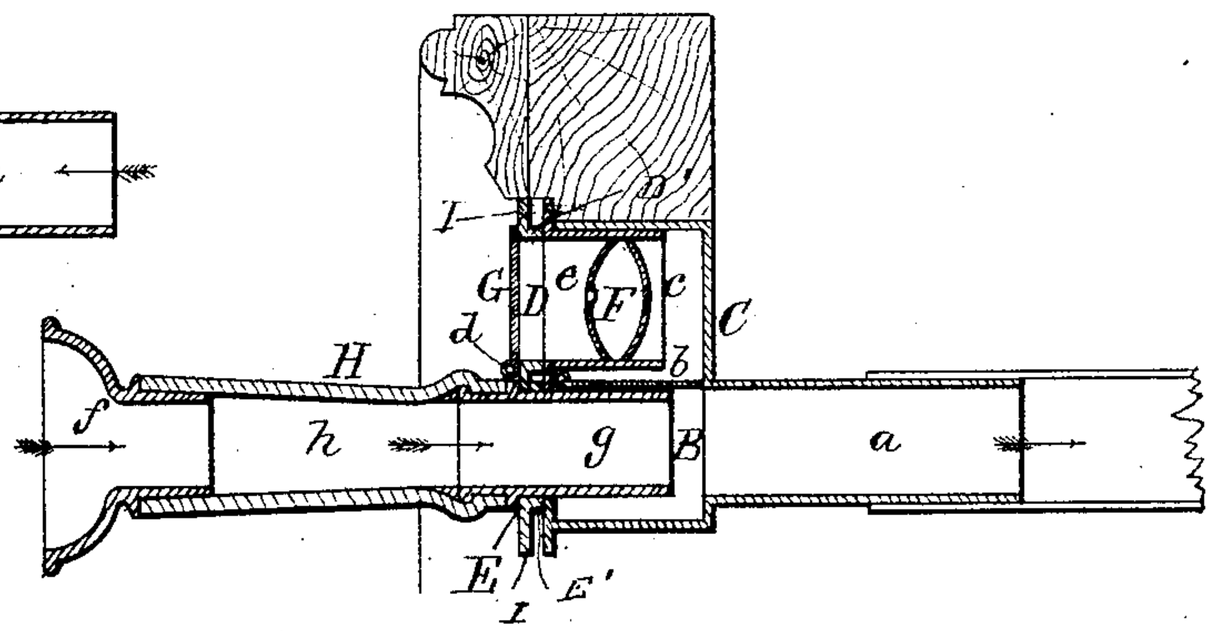


Fig. 3.



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UNITED STATES PATENT OFFICE.

JAMES R. CREIGHTON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SPEAKING-TUBE ANNUNCIATORS.

Specification forming part of Letters Patent No. **223,115**, dated December 30, 1879; application filed November 24, 1879.

To all whom it may concern:

Be it known that I, JAMES R. CREIGHTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Speaking-Tube Annunciators, of which the following is a specification.

My present invention relates to "speaking-tube annunciators," so called, for hotels and other large habitable structures containing a series of rooms with which communication is to be established with an office common to all, such oral annunciators consisting of a series of speaking-tubes connecting one end with the various rooms or apartments of the structure, and at the other assembled in a common case or tablet located in the office, each tube being employed to communicate vocal messages from such apartments to the office, and being combined with a suitable signal mechanism, which is operated or put in motion by the breath of the occupant passing through the tube to call the attention of the clerk or attendant in the office to the message of such occupant.

A notable instance of the class of annunciators to which my present invention relates is shown in Letters Patent of the United States issued to myself on the 30th day of September, 1873, in which a nicely-balanced drop is pivoted below and leans lightly against the outlet of each tube and serves to cover such outlet, while an alarm or signal mechanism is connected with the drop in such manner that as the drop falls, by a current of air induced through the tube by the sender of the message, it puts in motion the signal mechanism, and thereby attracts the attention of the attendant.

In my present annunciator I employ a whistle, located at the office or receiving end of the tube, as a means of imparting the desired signal, and pivot a drop in front of such whistle in such manner that the guest, in blowing the tube to call attention to his wants, sounds the whistle and lowers or displaces the drop by the air passing through the whistle.

In carrying out the principle of my invention in one manner in which it may be accomplished, I connect the receiving or office end of each tube with a small chamber containing a return-orifice, through which the attendant can reply to the message through the tube, such orifice being closed from the inside by a drop-valve, while the adjacent end of the tube is provided with a whistle and covered by a balanced valve or drop containing the number of the apartments with which the tube connects, the whole being so arranged that upon the occupant of the apartment blowing in the end of the tube within the apartment occupied by him the whistle is sounded and the balanced drop is lowered, thus calling the attention of the attendant in the office to the summons, the drop being preferably so arranged with respect to the return-opening before named as in its fall to cover the latter and compel the attendant to restore such drop to its normal position before being able to reply to the summons.

The valve of the return-opening closes by its own gravity from the inside of the chamber before named, and serves to prevent escape of air while the whistle is being blown by the occupant of the apartment, and when the attendant is to reply to the summons of such occupant he, of necessity, first returns the drop to its normal position, and then inserts the end of a portable mouth-piece in the return or office opening or end of the tube, thereby opening the valve and preparing the way for his return-message through the same tube, the whistle being so situated in the chamber with respect to the said return-opening and its valve that as the latter is opened by the insertion of the mouth-piece the valve covers to a greater or less degree the approach to the whistle and prevents possibility of the latter being sounded as the reply of the attendant is being sent through the tube.

The drawings accompanying this specification represent in Figure 1 a front view, and in Figs. 2 and 3 sections, of an annunciator-register containing my invention.

In said drawings, A represents a portion of the tablet or register case, which is placed in the office of the hotel or other structure containing the annunciator, and in which case are assembled the office or receiving ends or mouths of the various speaking-tubes which communicate with the different apartments of the building, the opposite end or mouth of each tube being provided in the apartment in which it is located with a permanent mouth-piece, to facilitate the blowing or speaking through the tube.

In Fig. 2 of the drawings I have shown but one tube and its attachments, since the others are simply counterparts of it. The tube is shown in said figure as communicating at its office or receiving end *a* with the interior or chamber B of a box or case, C, which is located in the case A, the chamber B having two openings, D E, in front, the uppermost one of which is filled with a whistle, F, while the lowermost one is provided with a drop or flap valve, *b*, pivoted above it on the inside in such manner as by its own gravity to close the opening and prevent escape of air through the latter upon a current of air being blown through the tube *a* from the opposite end.

The whistle is located in a short horizontal pipe, *c*, confined within the upper part of the case C and above the mouth of the speaking-tube *a*, the arrangement of the said pipe *c*, tube *a*, opening E, and valve *b* being such that when the occupant of the apartment with which the tube *a* communicates blows within the mouth of such tube within such apartment the current of air thus set in motion through the tube closes the valve *b* and escapes through the whistle F, thus sounding a signal, which calls the attention of the clerk or other attendant to the fact that a message is to be delivered through the tube.

A short distance in front of the whistle F, I dispose a "drop," so called, the same being a thin flat plate, G, pivoted by a horizontal hinge, *d*, to the front of the escutcheon in front of case C, and nicely balanced in such manner as to lean lightly against and cover the opening D, through which the air escapes after passing through the whistle.

The escutcheon just named is marked I, and is shown detached on an enlarged scale, in perspective, in Figs. 4 and 5. The escutcheon-plate, which is here made of such size as to fit one of the valve boxes or cases C, there being in this case one escutcheon for each box, is arranged, as shown in Fig. 3, to hold the case C in place, and is provided with tubular nozzles D′ E′, which meet and form prolongations of the passages D E, hereinbefore referred to.

The pivot or hinge of the drop G is placed midway between the openings D and E, in order that when it (the drop) falls from its upright or normal position it shall cover the opening E and necessitate its return to place before the attendant can communicate through the tube with the occupant of the apartment, it being observed that the number or designation of the apartment is inscribed upon the front of the drop, as shown in Fig. 1 of the drawings.

My purpose in providing a space, *e*, between the whistle and drop is to permit the current of air, after passing through the contracted orifice of the whistle, to occupy a space equal to or greater than the area of the opening D, in order to cover as large a portion as possible of the drop, and insure its fall.

If the drop were placed closely up to the opening of the whistle, the current of air passing through the latter would cover so small a portion of the area of the drop that sufficient power would not be exerted upon the latter to insure its fall; hence the intervening space, *e*, which permits of the impact with the drop of a body of air equal to that passing through the tube *c*.

I provide with this annunciator a movable or portable mouth-piece, (shown at H in the drawings,) which is to be deposited in a convenient place adjacent to the register, such mouth-piece consisting of a flanging or concave receiving-tube, *f*, and a nose, *g*, united by an intervening flexible tube, *h*, the nose *g* being adapted to enter the opening E of the chamber B, and in so doing elevate the valve *b* in such manner as to close the approach to the whistle, as shown in Fig. 3 of the accompanying drawings, thereby preventing possibility of such whistle being sounded upon speaking or blowing through such opening E.

The operation of my annunciator is briefly as follows: The occupant of the apartment with which the tube *a* communicates, desiring to communicate with the office through such tube, blows into his end of the tube, and the current of air thus put in motion through said tube passes through the whistle, sounds the latter, and lowers the drop, thus calling the attention of the attendant, who seizes the mouth-piece, restores the drop to its normal position, and inserting the nose of such mouth-piece in the opening E, and thereby opening communication with the caller through the tube, responds to his summons and receives his message through the mouth-piece as a conductor. The conversation through the tube *a* being concluded, the mouth-piece is removed and restored to its place, the valve *b* in the act dropping to its seat and shutting off communication through the tube except by way of the whistle.

One feature of value in my present annunciator will be seen in its low cost and extreme simplicity, which obviates any danger of its becoming deranged or inoperative, and enables it to be put up by persons of ordinary intelligence, as no nice adjustment is required.

I claim—

1. The combination, with the case C, or its equivalent, of the speaking-tube *a*, whistle F, openings D E, and valve *b*, under the arrangement substantially as herein described, whereby, upon blowing through such tube, the valve *b* is closed and the current of air directed through the whistle and the drop lowered.

2. The valve *b*, in combination with the speaking-tube, the whistle, and the openings D E, and arranged so as, when closed, to direct the current of air passing through the tube to the whistle, and when open to close entrance of air to the whistle from an opposite direction, and establish communication with the speaking-tube through the opening E, to

enable the attendant to converse with the caller.

3. The combination, with the whistle-passage, the speaking-tube, and the valve closing the office end of the tube, of the portable mouth-piece, arranged and operating, when inserted in the tube, to open the valve and to close the whistle-passage, substantially as set forth.

4. The combination, with the case C, or its equivalent, of the speaking-tube *a*, openings D E, whistle F, drop G, valve *b*, and portable mouth-piece.

5. The combination, with the valve case or box, of the escutcheon formed with nozzles to register with the passages in the front of the valve-box, and arranged to hold in place the said box in the main case or frame.

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