

J. R. CREIGHTON.
SPEAKING-TUBE ANNUNCIATOR.

No. 172,913.

Patented Feb. 1, 1876.

Fig. 1.

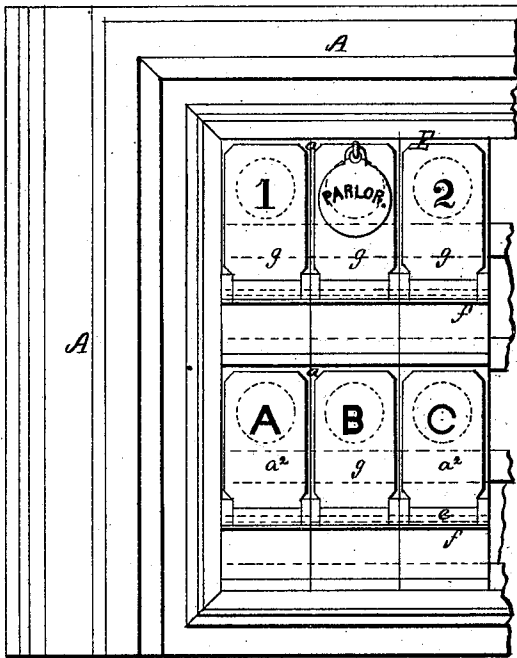


Fig. 2.

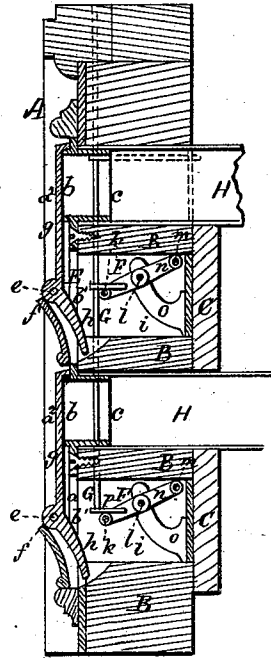
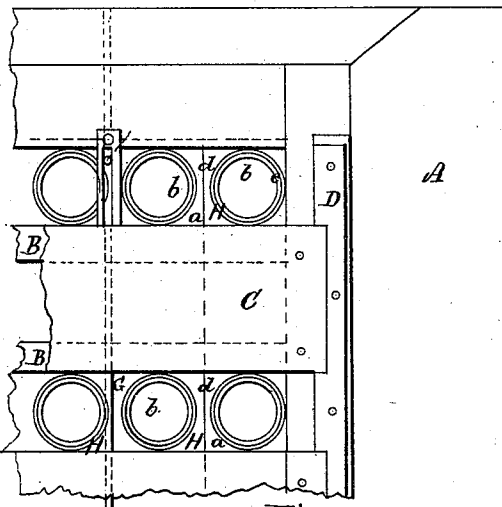


Fig. 3.



Rear view of Plate. a.
Full Size.

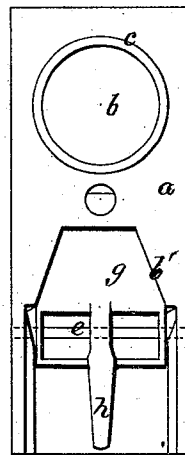
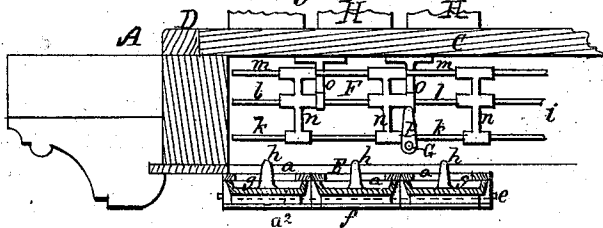


Fig. 4.



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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. **172,913**, dated February 1, 1876; application filed December 17, 1875.

To all whom it may concern:

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

My present improvements have for their basis a method of communicating intelligence through speaking-tubes shown and described in Letters Patent of the United States issued to myself on the 29th day of June, 1869, and subsequently reissued on the 30th day of September, 1873, the principle of which consists in the employment, with speaking-tubes of otherwise ordinary character and use, of an alarm or signal mechanism of any suitable construction, and in the combination with such alarm or signal mechanism and speaking-tube of one or more tilting or drop valves or levers supported upon a pivot, the whole being so organized and arranged that upon a person's breath being blown into one end or terminal of the tube the valve at the opposite terminal shall be blown from its perpendicular position and turned upon its pivot by its own gravity, in its descent actuating and putting into operation the signal mechanism, by this means signaling a person at or near one end of the tube that a communication is to be sent from the other.

The drawings accompanying this specification, which are designed to illustrate a portion of a hotel-annunciator, display or signal board containing my improvements, represent, in Figure 1, a face or front view, in Fig. 2 a vertical section, in Fig. 3 a rear elevation, and in Fig. 4 a horizontal section of the same.

In these drawings, A represents a rectangular frame, which, in the form in which I have herein presented my invention, constitutes a part of the signal board or indicator of a hotel-annunciator. Spanning this frame A horizontally are a series of shelves or rails, B B, at equal distances asunder, and serving to support the speaking-tubes and allow of their ready adjustment to the air valves or levers, as hereinafter explained, every alternate two of such rails being united at rear by vertical bars C C, &c., in order to obtain great strength and rigidity of construction, the ends of the bars C being preferably let into notched plates

D affixed to the rear of the frame A. The rails B B may, if desirable, be set in the partition-wall of the apartment in lieu of constituting part of the annunciator board or frame. Within the frame A I place a tablet, E, of thin metal, which may be of one entire piece, but which, for purposes of convenience and ease of application, I prefer to produce of a series of upright plates, *a a*, &c., arranged side by side in a series of parallel rows, as shown in Fig. 1 of the drawings, each plate bridging two rails, B, and being secured to the central rail by a screw, which permits of their ready application or removal, and the construction of an annunciator-board of any size.

These plates or tablets *a* may be of an ornamental design, and, in common with each and with the drop-valves, may be made to present a highly-finished appearance.

In the upper part of each plate *a* I create a circular orifice, *b*, and surrounding the inner boundary of the latter I cast an annular lip or thimble, *c*, such orifice and thimble being placed opposite to, or communicating with, the space or channel *d* which exists between the uncovered rails B, the thimble being to receive the end of the speaking-tube shown at H, and the rail being in part to direct the tube to the thimble and enable such tube to be readily attached and in part to aid in supporting it.

Heretofore in putting up annunciators in accordance with my patent before named, I have been in the habit of boring a series of holes in a board placed in the back of or in rear of the frame A, which holes coincide with or are intended to coincide with the outlet of the tube.

It is a matter of difficulty and time to fit the tubes under these circumstances, and to avoid this expenditure of time and labor I have employed the rails B, which, while they guide and support the ends of the tubes until the outlet is ascertained and the tube adjusted, allow of sufficient play to allow the tubes to be applied at once to such outlet.

To the front of each plate or receiver *a*, and near its lower part, I pivot, by a horizontal fulcrum or pin, *e*, passing through a boss or shelf, *f*, cast upon the outside lower part of

such plate *a*, a drop valve or lever, *g*, composed of a thin plate, *a*², the length of which, when in an upright or closed position, is sufficient to cover the outlet or mouth of the orifice *b*, the said valve, when in a fallen or horizontal position, resting against and being stopped by the shelf *f*.

Each drop or valve *g* is slightly overbalanced toward its plate *a*, so as to hug the latter and stand in an upright position until thrown down, as hereinafter stated, and each drop *g* terminates at bottom in a central longitudinal horn, *h*, which extends a short distance into the channel or chamber *i*, hereafter alluded to, through an opening or slot, *b'*, created in the lower part of the plate *a* and above the shelf *f*.

The obverse side or face of each drop *g* has engraved or engrossed upon it the number, figure, or other character which designates the apartment which it represents, and if desirable a label bearing this character may be pivoted to the drop in such manner that as the latter falls to a horizontal position, where ordinarily its character could not readily be seen, the label will assume a vertical position, and the character upon it be readily visible.

The fall of any one drop *g* is designed to actuate an alarm or signal mechanism placed in the office of the hotel in the immediate neighborhood of the annunciator-board, or, under other conditions, in any locality in which the said mechanism may be situated, (as my invention is susceptible of imparting notice to any required locality, as I am not restricted to arbitrary distances,) and to this end I proceed as follows:

Within each closed channel or chamber *i*, before named, of which the bar *C* before named constitutes the back, I dispose a rocking frame, *F*, composed of three long horizontal parallel wires, *k l m*, united and strengthened at proper intervals by stiff bars *n*, which are secured firmly to them by riveting, soldering, or otherwise. The central wire or rod *l* constitutes the axis or fulcrum upon which the frame rocks, and this rod *l* is supported at any desired intervals of space by brackets *o* affixed to the bar *C*.

The rocking frame *F* in either of its extremes of movement stands, preferably, at an angle of twenty degrees or thereabout to the horizon, and consequently its mean position is a horizontal one, and it is so situated and adjusted with respect to the drops *g* and the horns *h* of the latter that when such drops and horns are in an upright and closed position, the frame is overbalanced upon its rear side and the front rod *k* is the lowest, remaining practically in a level plane with the pivot of such drop.

G in the drawings represents a vertical rod, which passes through the series of rails *B*, and intersects each channel *d*, such rod bearing a stud or finger, *p*, to each channel *i*, which fingers rest upon the outermost rod *k*. The opposite or terminus of the rod *G*, when in an

inactive state, ceases at a point immediately adjacent to the signal mechanism, whether the latter be a clock escapement and gong, or otherwise, and so as when elevated by the fall of a drop to put such mechanism in operation.

In lieu, however, of this method of putting the signal mechanism in operation by direct contact of the rod *G*, the latter may be connected with an electric battery in such manner as when elevated to close the circuit of such battery, and through its opposite pole put the mechanism in operation.

For great distances the latter method may be desirable, but for hotel-annunciators I prefer the former.

The operation of my present apparatus is as follows: Presuming that the drops *g* are all in an upright position, and each closing the mouth of its respective speaking-tube, and the rod *G* at its lowest point and out of connection with the signal mechanism, a guest in an apartment of the hotel, or a person at the remote terminus of any one of the speaking-tubes blows into the tube nearest him or in his apartment, and this act has the effect of overcoming the equipoise of the drop *g*, which covers the signal-mouth of such tube, and causes the latter to fall. As the drop falls its horn *h* rises and intercepts the outer rod *k* of the frame *F*, and rocks such frame upon its central rod or axis, the rise of the said rod *k* having the effect of elevating the rod *G*, and consequently of sounding an alarm or signal, which at once attracts the attention of the hotel-clerk, or other person whose duty or occupation it is to pay attention to such signal. Upon hearing this signal the attendant inspects the signal-board, and, upon ascertaining which drop is lowered, applies a portable mouth-piece to the exposed or open tube and announces that the signal is heard, after which he receives the message from the person giving the signal. After attending to the demands of the caller, the fallen drop (or drops, if more than one are lowered at the same time) is returned to its upright or normal position, which permits the rod *k* to lower and the rod *G* to drop back to its original position and the signal to cease.

As each and every drop actuates the common rod which sets the signal mechanism in motion, this signal will continue to sound until every drop is returned to its place, unless an independent wire or bar entering the bell-case, similar to the starting wire or rod, is used, by which the attendant is enabled to stop the bell, and thus prevent the annoyance resulting from the constant ringing of such bell.

Should a call be made and a drop lowered unperceived at the time by the attendant, on releasing his hold of this extra bar the alarm would begin, and thus call his attention to his omission. Hence, a call from any quarter is more sure to be attended to if several are made at once than if the signal ceased with

the attention to some one call and the neglect of others. In this respect my present improvements possess a certain advantage over my patented device.

In the device shown in my patent above cited the tripper of each drop must be adjusted separately, as it performs its duty independently of its neighbor, and it must be adjusted to extreme nicety.

In my present device each drop actuates the signal mechanism through a rod, which is common to all; and when this rod is properly set, and the frame, of which it constitutes part, is rightly overbalanced, the work of adjustment is complete, for the reason that the horn of each drop is allowed considerable play; and, as the only condition to be observed is that the horn, when at its highest point, shall elevate the rod G, and when at its lowest position shall fall entirely away from such rod, no difficulty is found or nicety required in accomplishing this.

As the outer faces of the drops *g* are flush or in a common plane, the restoring of a fallen one to place does not result in knocking down several others, and thereby needlessly sounding an alarm, as has heretofore been experienced.

To adjust the position of the frame F, one or many set-screws may be screwed into the rail below to intercept the rod *k*, and determine the lowest point to which such rod shall fall.

The bars C C, before named, serve a very useful purpose in excluding dust, vermin, &c., from the chambers containing the rocking

frame, and protecting the latter and its bearings from moisture, and rendering lubrication unnecessary.

I claim—

1. The combination, with the drops, of the rocking frame, actuated by the fall of any one of the drops to put in operation the signal, substantially as set forth.

2. The drops and the rocking frame, in combination with a signal-operating mechanism actuated by the movement of said frame, substantially as set forth.

3. The rails B, in combination with the tablet-plates *a* and the speaking-tubes, substantially as set forth.

4. The combination of the rails, the speaking-tubes, the series of plates forming the front or tablet, and the drops, substantially as set forth.

5. The combination of the rails, the tablet-plates, the rocking signal-operating frame, and the drops, substantially as set forth.

6. In combination with the rails B, the bars C, to stiffen such rails, and constitute a back to support the rocking frame F, substantially as and for purposes stated.

7. The rocking frame F, as composed of the parallel rods *k l m* and bars *n*, such frame being supported by the brackets *o*, and operating in connection with the drops *g* and rod G, essentially as and for purposes stated.

JAS. R. CREIGHTON.

Witnesses:

F. CURTIS,

W. E. BOARDMAN.