

No. 840,769.

PATENTED JAN. 8, 1907.

J. C. HARMER.

DEVICE FOR REMOVING FROST, STEAM, &c., FROM WINDOWS.

APPLICATION FILED JAN. 10, 1906.

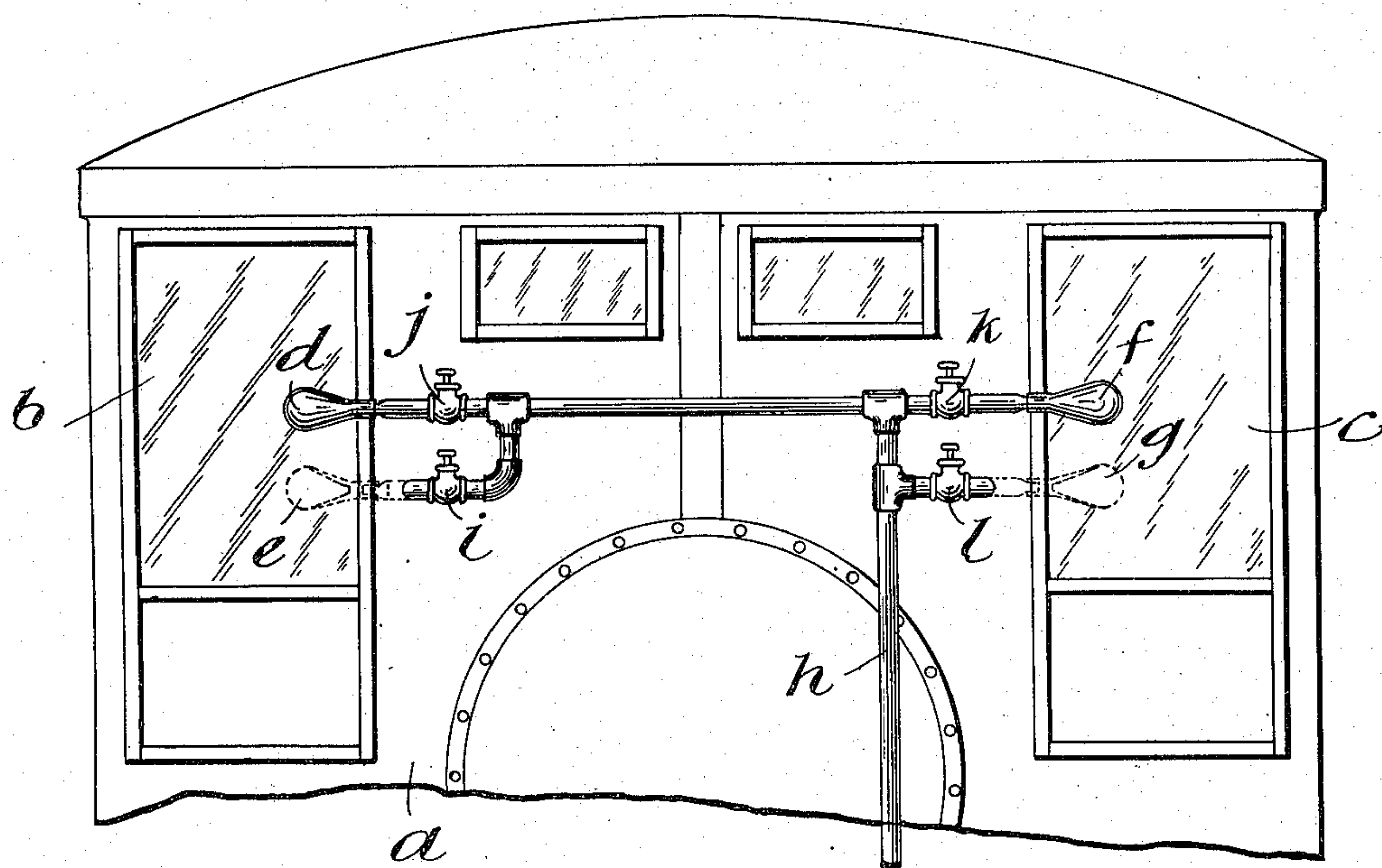


FIG. 1.

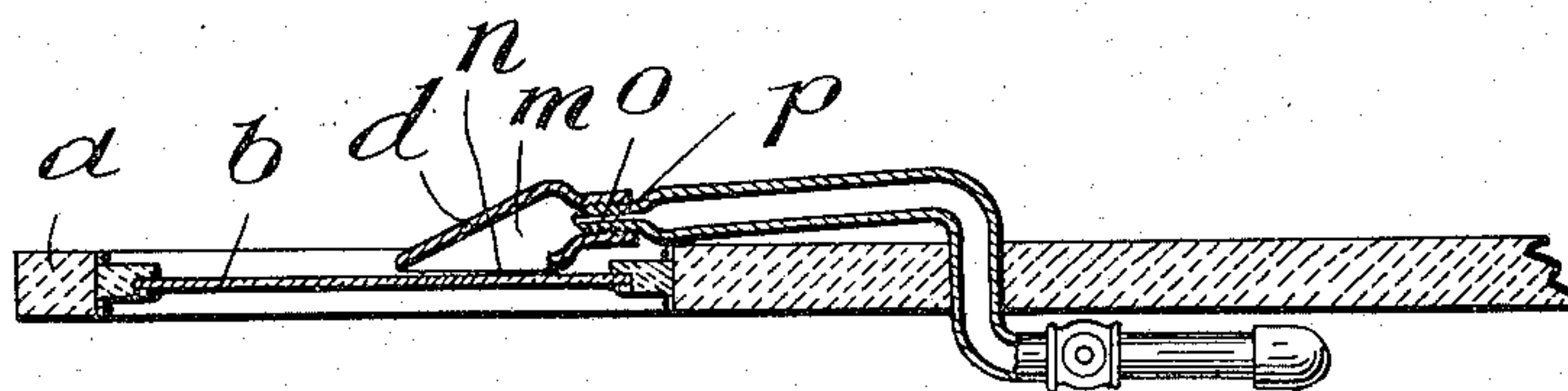


FIG. 2.

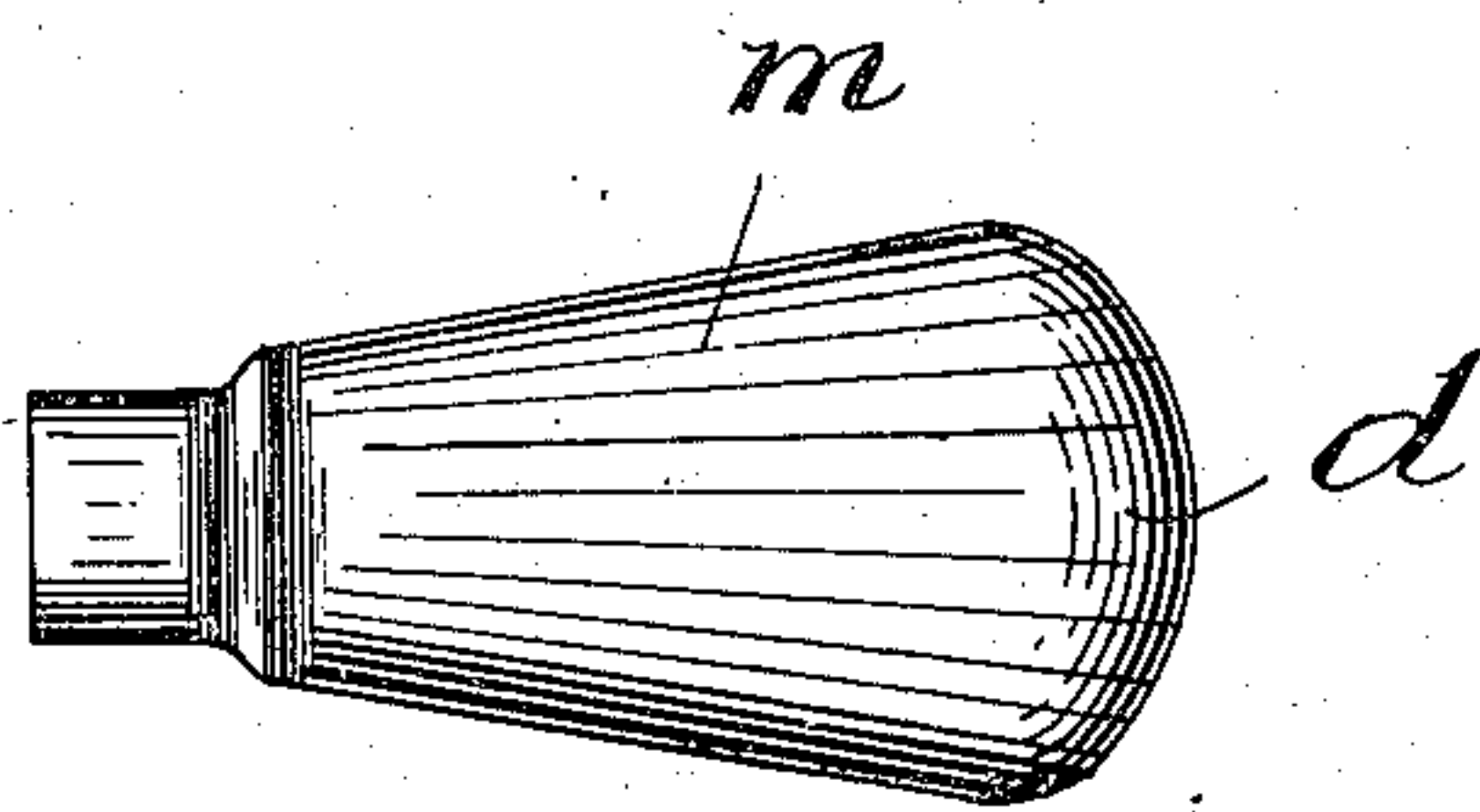


FIG. 4.

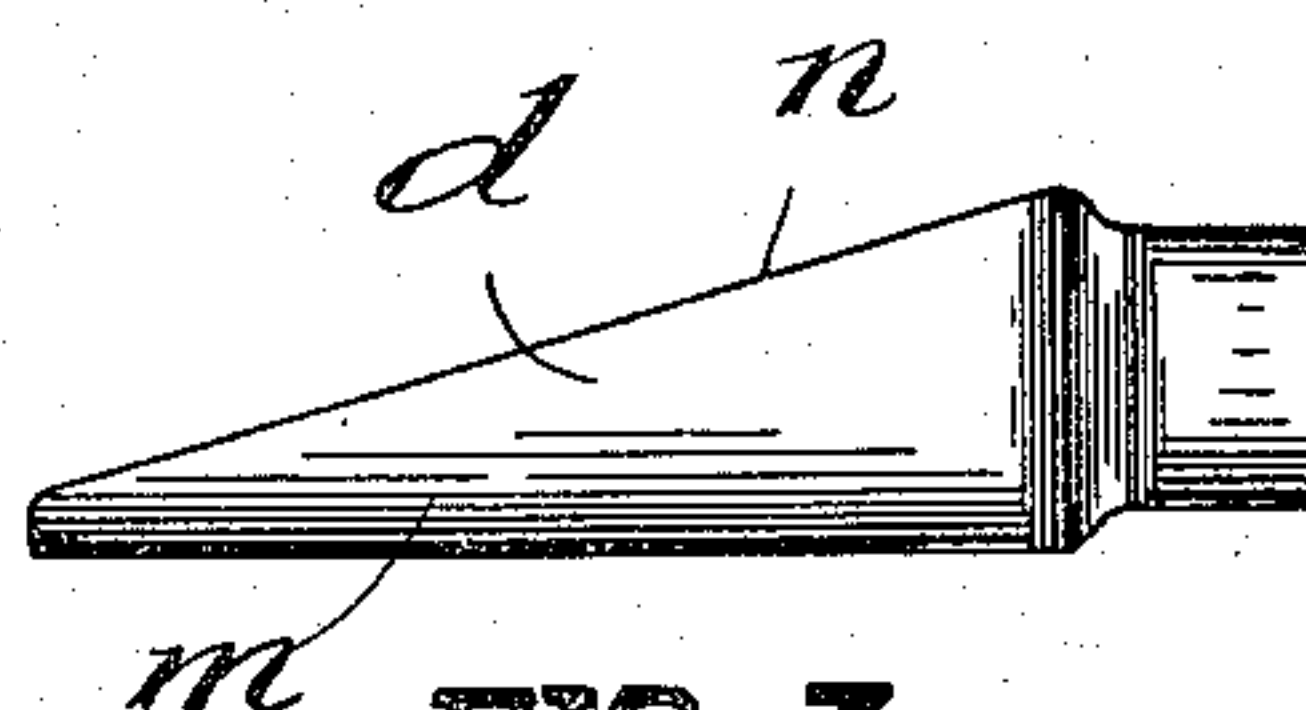


FIG. 3.

WITNESSES

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JAMES C. HARMER, OF KINGSTON, ONTARIO, CANADA.

DEVICE FOR REMOVING FROST, STEAM, &c., FROM WINDOWS.

No. 840,769.

Specification of Letters Patent.

Patented Jan. 8, 1907.

Application filed January 10, 1906. Serial No. 295,511.

To all whom it may concern:

Be it known that I, JAMES C. HARMER, telegrapher, residing at the city of Kingston, in the county of Frontenac, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Devices for Removing Frost, Steam, or the Like from Windows, of which the following is a specification.

My invention relates to improvements in devices for removing frost, steam, or the like from windows, being particularly adaptable for use in connection with the windows of locomotives; and the objects of my invention are to insure that the engineer may always have a clear and unobstructed view through the window; and it consists, essentially, of a plurality of nozzles directed against the window-pane and through which compressed air or the like is adapted to be forced in a small stream and a plurality of directing-shields extending around the nozzles and diverting the stream flowing therethrough against the window-pane, the various parts of the device being constructed and arranged in detail, as hereinafter more particularly described.

Figure 1 shows a view of the front of an engine-cab having my device applied to the windows thereof. Fig. 2 is an enlarged transverse sectional view through one of the nozzles and supply-pipes therefor. Fig. 3 is a side view of one of the nozzles. Fig. 4 is a top view of the same.

In the drawings like letters of reference indicate corresponding parts in each figure.

a represents the cab, and *b* and *c* are the windows thereof.

h is a supply-pipe which is connected to a suitable source of compressed air, such as that ordinarily employed for the air-braking system and the branches of which are led to opposite sides of each of the windows *b* and *c* of the cab.

Valves *i*, *j*, *k*, and *l* are separately provided to control the passage of fluid through each of the branches.

The ends of each of the pipes opposite the windows are made in the form of nozzles *o*, having small orifices *p* therein, through which the compressed air is adapted to flow in the form of a jet. Surrounding each of the nozzles are directing-shields *d*, *e*, *f*, and *g*, which are of such form that they will deflect the jet of compressed air and distribute it over the face of the pane. Preferably the form of

these shields is as shown, consisting of a casing *m*, having one side *n* thereof formed flat and pointed, which side is adapted when the shield is secured in position to be parallel with the window-pane.

As will be seen, the valves are arranged one on each side of the pane, that on the outside to clear it from snow, sleet, or the like, and that on the inside of frost or steam.

In the operation of the device the compressed air being forced through the orifices in the nozzles impinges on the shield, which deflects it against the window-pane and simultaneously spreads it, so that it will cover the whole surface of the pane.

It will be readily understood that the form of nozzle I have employed may be changed to suit different forms of windows, and different arrangements of the nozzles might be made to agree therewith. It will also be understood that any other compressed fluid might be employed in place of air.

While I have described with great particularity of detail one form of my invention, yet it is not to be limited to the specific form shown, as considerable variations may be made therefrom within the scope of the appended claims without departing from the spirit of my invention.

What I claim as my invention is—

1. In a device of the class described the combination of a plurality of nozzles directed against the window-pane, a plurality of conducting-pipes leading from a supply of compressed fluid to said nozzle and a plurality of directing-shields secured to said nozzles as and for the purpose specified.

2. In a device of the class described the combination of a conducting-pipe leading from a supply of compressed fluid, and having an orifice in the end thereof and a directing-shield directing the stream of fluid from said orifice against the window-pane as and for the purpose specified.

3. In a device of the class described the combination of a conducting-pipe leading from a supply of compressed fluid having a small orifice in the end thereof discharging along the window-pane and a directing-shield inclosing the end of the conducting-pipe and having one face thereof open and parallel to the window-frame whereby the jet of fluid flowing through the orifice will be directed against the window-pane as and for the purpose specified.

4. In a device of the class described the combination with the window-pane, of conducting-pipes leading from a supply of compressed fluid to each side of the window-pane
5 and having orifices in their ends and directing-shields for directing the jet of fluid from the orifice against the window-pane as and for the purpose specified.

10 5. In a device of the class described the combination with the window-pane, of conducting-pipes leading from a supply of compressed fluid to each side of the window-pane and having orifices in their ends, directing-

shields for directing the jet of fluid from the orifice against the window-pane and means 15 for separately controlling the flow of fluid through the conducting-pipes on each side of the window as and for the purpose specified.

Signed at Kingston, in the county of Frontenac, Province of Ontario, this 26th day of 20 December, 1905.

JAMES C. HARMER.

Witnesses:

H. D. VAN SANT,
INA L. MILLER.