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Patented Feb. 5, 1901.

H. W. FORSLUND.

TERMINAL FOR PNEUMATIC STORE SERVICE SYSTEMS.

(Application filed Feb. 6, 1900.)

(No Model.)

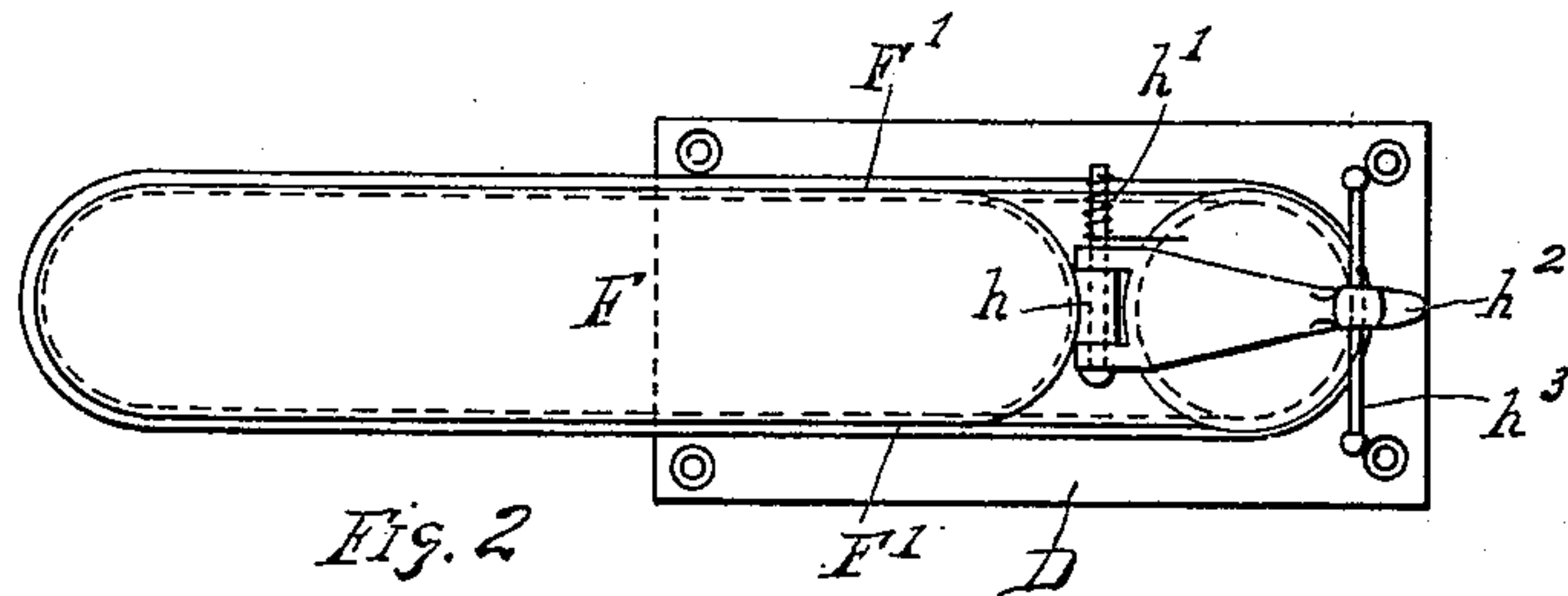


Fig. 2

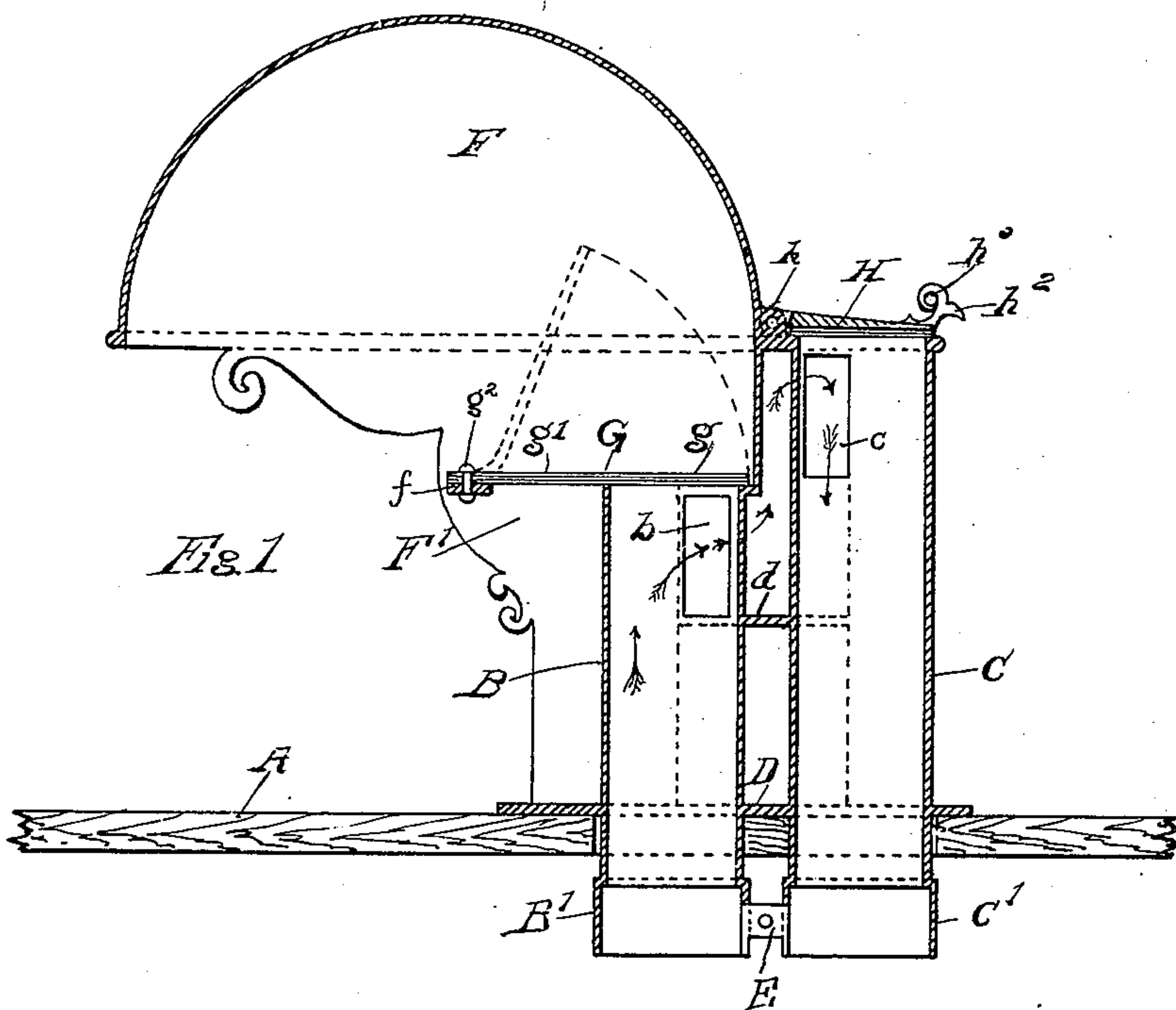


Fig. 1

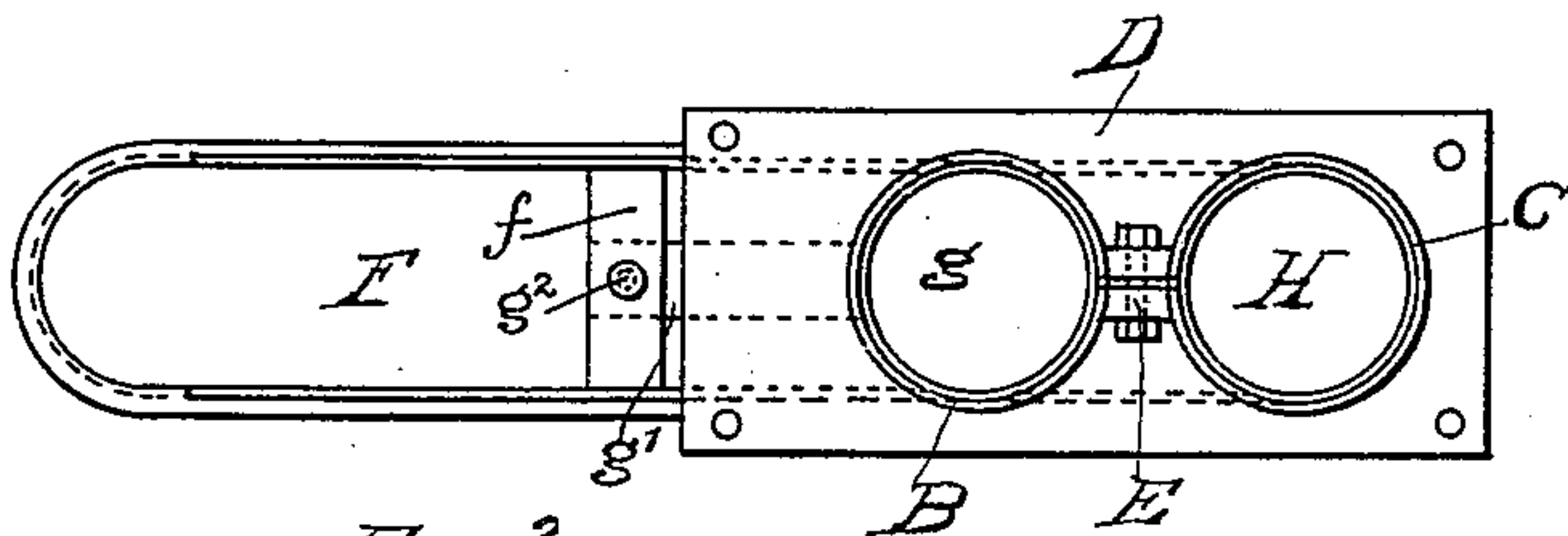


Fig. 3.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

HUGO W. FORSLUND, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE NATIONAL PNEUMATIC SERVICE COMPANY, OF SAME PLACE.

## TERMINAL FOR PNEUMATIC STORE-SERVICE SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 667,209, dated February 5, 1901.

Application filed February 6, 1900. Serial No. 4,159. (No model.)

*To all whom it may concern:*

Be it known that I, HUGO W. FORSLUND, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Terminals for Pneumatic Store-Service Systems, of which the following is a specification.

My invention relates to pneumatic-despatch tube apparatus such as is commonly used in stores and large commercial houses for transmitting cash between a central cashier's station, usually located in the basement of the building, and a large number of outlying salesman's stations; and my invention resides more particularly in a terminal device for use at a salesman's station of the type technically known in the art as an "upward-discharge" terminal—that is, one in which the carrier from the central or cashier's station arrives through a tube located beneath the counter or other point of discharge and is ejected upwardly therefrom and by suitable guides is brought to rest on said counter or table, the carrier being transmitted to the cashier's station through a suitable sending-tube lying parallel with the upwardly-extending receiving-tube; and my invention consists in certain novel, useful, and convenient arrangements and combinations of parts in a terminal of that character, all as hereinafter more particularly described, and pointed out in the claims.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation in central vertical section of a terminal constructed in accordance with my invention. Fig. 2 is a top or plan view, and Fig. 3 is a bottom view.

Similar letters of reference refer to similar parts throughout the several views.

A designates a counter, table, shelf, or other support at the salesman's station on which the carrier is to be received.

B is a short section of vertical upwardly-extending tube through which the carrier is received from the cashier's station, and C is a slightly-longer section of tube lying parallel with the tube B, through which the carrier is transmitted to the cashier's station. The tubes B and C, near their lower ends, pass

through a metallic plate D, in which they are rigidly held and properly spaced apart, and at their lower ends may be provided with split collars B' and C', connected by a clamp E, Fig. 3, whereby they are secured to the main receiving and sending tubes of the system. The plate D rests upon and is screwed or bolted to the top of the counter or table A.

F designates a curved concave guide in the form of a hood for receiving a carrier ejected from the tube B. The upper part of this hood is substantially semicircular in form, as shown, and its lower portion extends downwardly in the form of a pair of parallel side plates F' F', with their lower ends resting on plate D and embracing between them that part of the tube B which extends above the counter A.

The tubes B and C at their upper ends have longitudinal apertures *b* and *c*, respectively, formed through their adjacent walls to permit the free passage of the propelling-current from the receiving to the sending tube, such cut-away portions of the tubes being inclosed in an air-tight casing *d*, forming a by-pass for the air. The top of the receiving-tube B is closed by a door or flap G, which may conveniently and economically consist of a plain leather disk *g* of slightly-larger diameter than the diameter of the tube, having a shank *g'* pivoted or hinged at *g*<sup>2</sup> to a bar *f*, extending horizontally between the side plates F' F' of the hood F and held to its seat by gravity and the suction of the air-current. It will be noticed that this door or flap is so hinged relatively to the upper end of the receiving-tube that it opens toward the discharging end of the hood and away from the adjacent inner wall of the hood, so that it does not interfere at all with the function of the hood as a guide and reverser of the carrier's direction of movement. The top of the sending-tube C, which, for a reason hereinafter explained, is on a higher level than the top of the receiving-tube B, is closed by a door or flap H, pivoted at *h* to a lug in rear of the hood F and normally held closed by the suction of the current and when opened to permit the insertion of a carrier returned again to its seat by the combined action of gravity and a coiled spring *h'*. In order to facilitate the more



ready opening of this door from either side of the terminal and with the least interference by the hand of the operator in the operation of despatching a carrier, I secure in the usual opening knob or lug  $h^2$  a laterally-extending rod  $h^3$ , the ends of which are obviously more conveniently within reach of an operator on either side of the terminal than the knob or lug itself.

10 The operation is as follows: A carrier arriving from the central or cashier's station by the tube B is by the action of the air-current flowing through the sending and receiving tubes impelled to the very point of its discharge, where it strikes the flap G and, opening the same by the force of its momentum, by the same force slides along the inner concave surface of the hood F, and with its speed thus checked and its position thus inverted drops from the front end of the latter into a basket (not shown) on the counter or table A. A carrier to be transmitted to the cashier's station is of course sent by merely opening the door H and dropping the carrier into the sending-tube C, where the action of gravity is instantly supplemented by that of the air-current.

Having thus described the construction and mode of operation of my improved terminal, 30 I will point out some of the advantages which I believe it possesses over the common form of terminal of this type.

By reason of the fact that the apertured upper end of the sending-tube C is carried some distance above the apertured upper end of the receiving-tube B and especially above and beyond the point at which the carrier discharges from the latter the propelling-current acts upon the carrier substantially in the line or direction of its travel clear to the very point of the carrier's discharge and does not turn to flow in the opposite direction through tube C until it has passed the point at which the carrier leaves tube B. This construction entirely obviates a fault very common in terminals of this type—viz., the sticking of a carrier at some point in the terminal owing to the fact that the momentum of the carrier is insufficient to overcome the combined effect of gravity and the back pull of the current. In most terminals with which I am acquainted the by-pass between the two tubes is at some distance below the point of the carrier's discharge. In none of them, so far as I am aware, has the by-pass ever been arranged with one end above the point of the carrier's discharge, as in my improved construction.

Another advantage of my construction is

that by locating the sending-tube C directly in rear of the hood F instead of beneath it and in front of tube B, as in the common form of upward-discharge terminal, the lower face of the hood can be made entirely open and all curved guides for directing the course of the discharging carrier and of the air-current through the hood can be entirely dispensed with.

Furthermore, by reason of the compact arrangement of the parallel tubes B and C, the by-pass  $d$ , and the supporting-plate D these parts may, if desired, all easily be formed in a single casting, thus contributing to economy in the cost of manufacture.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an upward-discharge terminal for pneumatic store-service systems, in combination a vertical receiving-tube, a substantially semicircular hood located over and above said receiving-tube and serving as a guide for a discharging carrier, said hood having parallel vertical side walls which extend down over and inclose between them the upwardly-extending end of the receiving-tube, a door or flap hinged between said side walls and opening outwardly toward the discharging end of the hood, a sending-tube arranged parallel with the receiving-tube and in the same vertical plane with the carrier-guiding hood and with its upper end immediately in rear of the latter, and a by-pass between said tubes to permit the flow of the air-current from the receiving to the sending tube.

2. In an upward-discharge terminal for pneumatic store-service systems, in combination a vertical receiving-tube, a curved hood serving as a guide for a discharging carrier located over and above said receiving-tube, a door or flap suitably hinged between the side walls of said hood and closing the end of the receiving-tube, a sending-tube arranged parallel with the receiving-tube and with its upper end immediately in rear of said carrier-guiding hood and on a higher level than the end of the receiving-tube, a door or flap hinged to a lug on the rear of the hood and closing the end of the sending-tube, and a by-pass for the air-current between the upper ends of said tubes.

In testimony that I claim the foregoing as my invention I have hereunto signed my name in the presence of two witnesses.

HUGO W. FORSLUND.

Witnesses:

SAMUEL N. POND,  
GEORGE E. HALEY.