

(No Model.)

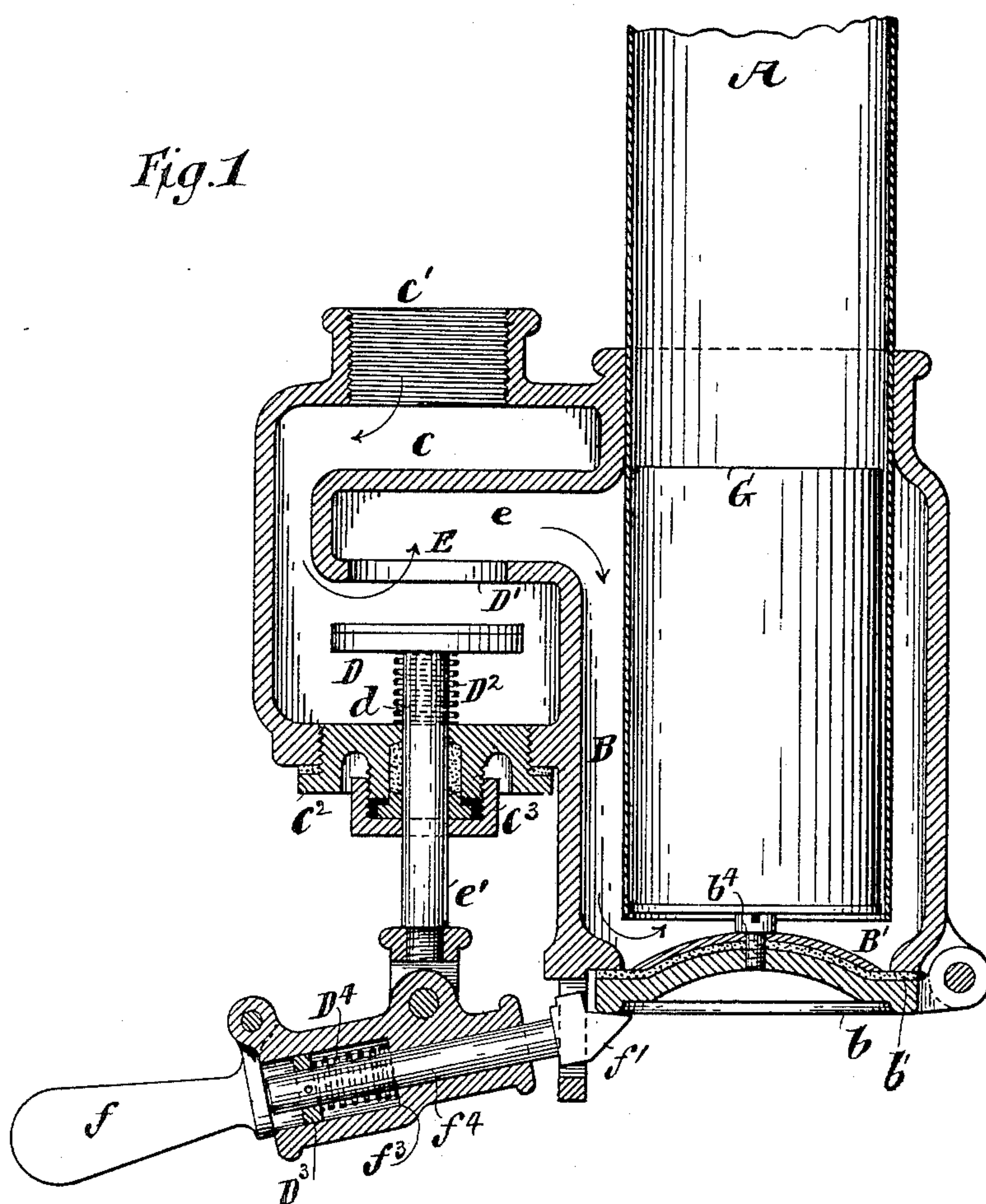
3 Sheets—Sheet 1.

G. MILES.
PNEUMATIC CARRIER.

No. 462,266.

Patented Nov. 3, 1891.

Fig.1



Witnesses
Geo. Wadman
J. E. Burns.

Inventor
George Miles
Per Coln. E. Quincy
Atty.

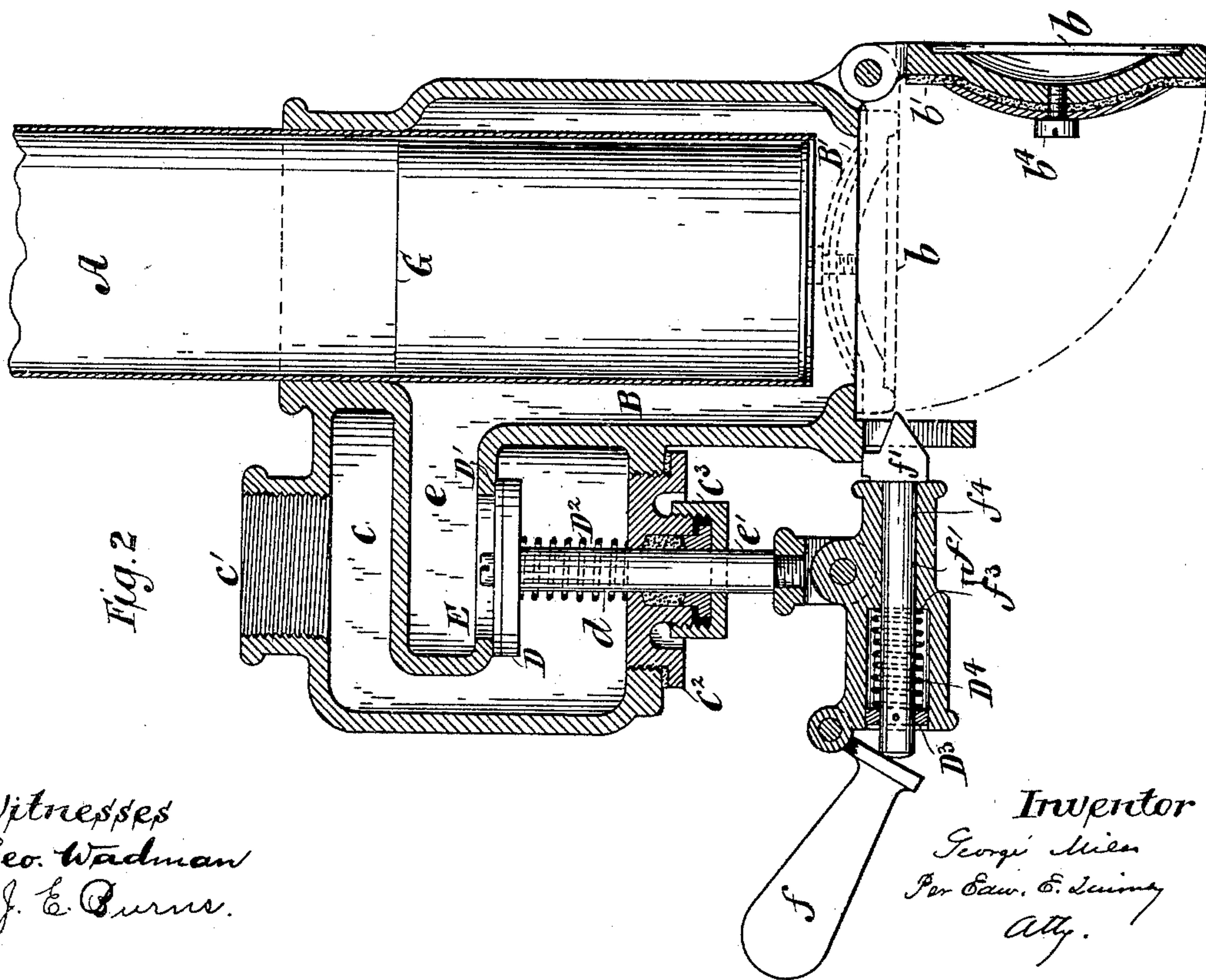
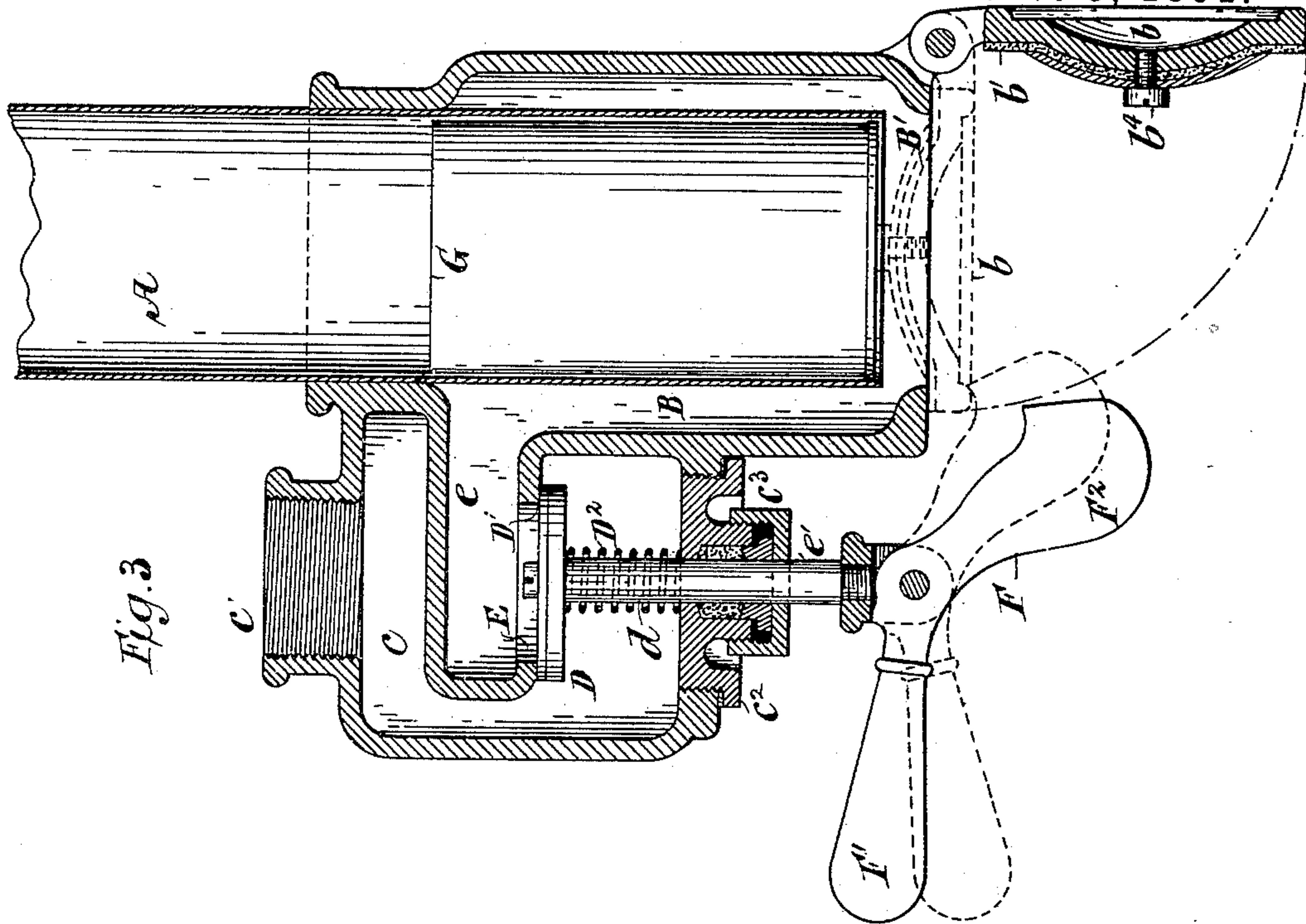
(No Model.)

3 Sheets—Sheet 2.

G. MILES.
PNEUMATIC CARRIER.

No. 462,266.

Patented Nov. 3, 1891.



Witnesses
Geo. Wadman
J. E. Burns.

Inventor
George Miles
Per Edw. E. Quincy
Atty.

(No Model.)

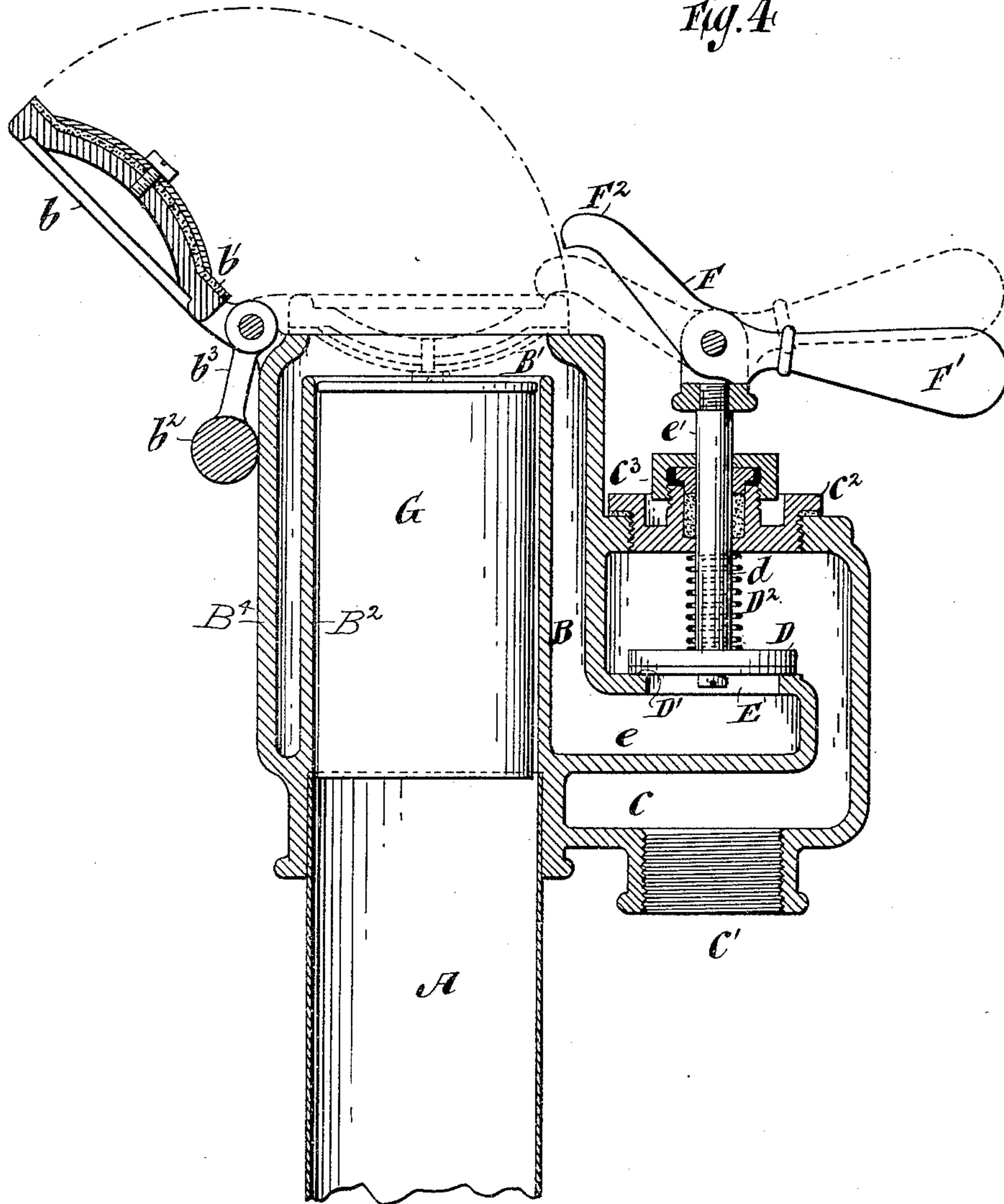
3 Sheets—Sheet 3.

G. MILES.
PNEUMATIC CARRIER.

No. 462,266.

Patented Nov. 3, 1891.

Fig. 4



Witnesses
Geo. Wadman
J. E. Burns.

Inventor
George Miles
Per Edw. E. Quincy
Atty.

UNITED STATES PATENT OFFICE.

GEORGE MILES, OF WELLESLEY, MASSACHUSETTS.

PNEUMATIC CARRIER.

SPECIFICATION forming part of Letters Patent No. 462,266, dated November 3, 1891.

Application filed March 24, 1891. Serial No. 386,201. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MILES, of Wellesley, Norfolk county, Massachusetts, have invented certain Improvements in Pneumatic Carriers, of which the following is a specification.

These improvements relate to a pneumatic carrier the dispatch-tube of which is open at both ends, and is hence under atmospheric pressure, except during the transmission through it of the message-box.

The invention consists in means for establishing a pressure of compressed air against a message-box which has been introduced into the open end of the dispatch-tube at one station—that is to say, at the station from which the message-box is to be transmitted—and in maintaining such pressure until the message-box has been driven to and discharged from the open end of the dispatch-tube at the distant station, and in then automatically releasing from obstruction the end of the dispatch-tube at the station from which the message-box has been transmitted, so that a free passage will be left for the discharge therefrom of a message-box transmitted from the other station. The mechanism for accomplishing these purposes consists of a self-closing valve and an adjoining air-chamber, into one end of which the dispatch-tube is inserted, the other end having an opening which is in alignment with and is preferably of slightly greater diameter than the dispatch-tube and which is provided with a hinged cover adapted to swing out of vertical alignment with the dispatch-tube. When a message-box intended for transmission has been introduced into the open end of the dispatch-tube within the air-chamber, the hinged cover is manually closed, and the valve is then opened by a lever pivoted to the end of the valve-stem and provided with an engaging latch, which, when the valve-operating lever is rocked upon its pivot, is carried against the exterior of the hinged cover, which serves as a fulcrum during the further rocking of the lever by which the valve is removed from its seat against the pressure of an expanding spiral spring. When the message-box has been transmitted, the lever is released. Thereupon the valve-spring closes the valve, the valve-stem carries the lever bodily upward or

downward, as the case may be, and the engaging latch is withdrawn from the path of movement of the hinged cover, which is consequently permitted to be thrown open by gravity or by the pressure of the air expelled from the dispatch-tube during the transmission of a message-box from a distant station, thus leaving a free path for the subsequent discharge of the message-box itself from the end of the dispatch-tube.

The accompanying drawings of pneumatic carriers employing the invention are as follows:

Figure 1 is a longitudinal section of the lower end portion of the dispatch-tube and of the valve and valve-chamber and an adjoining air-chamber in which the end of the dispatch-tube is inserted, showing the opening at the bottom closed by the hinged cover and showing a valve-operating lever provided with a longitudinally-movable engaging latch bearing against and holding the hinged cover upon its seat while the valve is open. Fig. 2 is a section similar to Fig. 1, excepting that it shows the valve closed, the latch of the valve-operating lever withdrawn from the path of the hinged cover and the hinged cover swung downward, thus leaving a free path for the discharge of the message-box from the lower end of the dispatch-tube. Fig. 3 illustrates a modification in the structure, which consists in making the engaging latch an integral part of the operating-lever and shows in dotted lines the hinged cover raised against its seat and valve-operating-lever in the position which it occupies at the instant of the engagement of its latched end with the edge of the hinged cover and also shows in solid lines the valve-lever in the position which it assumes when the valve is closed upon its seat and the hinged cover swung downward. Fig. 4 illustrates a modification of the organization represented in Fig. 3, adapting it for application to the upper open end of a vertical dispatch-tube.

The drawings represent the end portion of a dispatch-tube A, which is inserted in one end of and extends nearly to the opposite end of the air-chamber B, having the opening B' provided with the hinged cover b, faced with the elastic washer b' for closing said opening when it is required to transmit a message-box.

Adjoining the air-chamber is a valve-chamber *c*, provided with a nozzle *c'*, which is tapped for connection with a pipe for supplying compressed air from a suitable source. The valve *D* is held against its seat *D'* by an expanding spiral spring *D²*, surrounding the valve-stem *d* and abutting at one end against the valve *D* and at its opposite end against the inner face of the cap *c²*, screwed into the lower end of the valve-chamber and provided with the stuffing-box *c³* for suitably packing the valve-stem *d*. When the valve is open, compressed air is admitted from the valve-chamber *c* through the port *E* into the compartment *e*, which communicates with the air-chamber *B*. The outer end *e'* of the valve-stem is pivotally connected with the valve-operating lever, which may either be formed in one piece *F*, as represented in Figs. 3 and 4, or may be provided at one end with a hinged handle *f* and at the other end with a longitudinally-movable engaging latch *f'*, as represented in Figs. 1 and 2.

In the modified construction shown in Fig. 3 the end of the operating-lever, which forms the handle *F'*, may, if desired, be made lighter than the opposite end of which the engaging latch *F²* constitutes an integral part, in which case gravity will cause the valve-operating lever, when the valve is closed, to rock into the position in which it is represented in solid lines in Fig. 3, and in which, as will be seen, its latched end is swung clear of the path of movement of the hinged cover *b*. If, however, the organization is to be applied to the upper end of the dispatch-tube, the handle *F'* of the valve-operating lever may be made heavier than the latched end *F²*, or may have a weight hung upon it, so that under the influence of gravity when the valve is closed the lever will assume the position in which it is represented in Fig. 4.

In all cases when power is applied in the appropriate direction to the handle of the operating-lever, after the hinged cover *b* has been closed, the engaging latch is carried against the edge of the hinged cover *b*, which thereafter serves as the fulcrum upon which the engaging latch bears during the continued movement of the operating-lever by which the valve *D* is removed from its seat.

When the hinged cover is applied to the lower end of an air-chamber into the top of which the dispatch-tube is inserted, gravity causes it to swing away from its seat into the position represented in Figs. 2 and 3 whenever the latched end of the valve-operating lever is withdrawn from its path. It is to be remarked, however, that in the organization illustrated in Fig. 3 the force of gravity, acting upon the hinged cover, plus the force of the compressed air acting upon the interior of the hinged cover during the transmission of a message-box from the distant station, would ordinarily suffice to trip the valve-operating lever out of its path, even if the latch

end *F²* of the valve-operating lever should not be heavier than the handle end.

The hinged cover for the open upper end of the dispatch-tube may be provided with the counter-weight *b²*, mounted upon arms *b³*, one of which is shown in connection with the weight *b²* in Fig. 4, so that when the cover is released from the latch end of the valve-operating lever the counter-weight will cause the cover to swing completely open into the position in which it is represented in solid lines in Fig. 4. The employment of a counter-weighted hinged cover, however, is not in all cases essential, because the rush of air from the dispatch-tube will ordinarily be sufficient to throw the hinged cover open when the valve-operating lever is released from the force applied to it to open the valve.

As illustrated in Fig. 4, the cylinder *B⁴* may be cast integrally with the shell of the air-chamber *B*, in which case the dispatch-tube, instead of extending into the air-chamber *B*, may be merely inserted in the end of the air-chamber in alignment with the cylinder *B²*, as shown.

When the valve is removed from its seat, compressed air is admitted into the compartment *e* and thence into the air-chamber *B*, where its pressure is exerted upon the end of the message-box *G*, previously introduced into the open end of the dispatch-tube. When the cover *b* is closed, a stud or projection *b⁴* upon its inner face presses the message-box into the tube, so that the compressed air admitted into the air-chamber may flow around the edge of the tube and act against the exposed end of the message-box. When the message-box has been transmitted, the operating-lever is released from the pressure previously applied to its handle, and thereupon the spring *D²* returns the valve *D* to its seat, moving the operating-lever bodily, and thereby causing or permitting it to assume such a position that the engaging latch is withdrawn from the path of movement of the hinged cover *b*.

If the longitudinally-movable engaging latch represented in Fig. 1 is employed, then whenever the handle of the operating-lever is released the expanding spiral spring *D⁴*, bearing at one end against the perforated head *D³* of the hollow portion of the operating-lever and at the other end against the collar *f³*, affixed to the stem *f⁴* of the yielding latch, retracts the latch *f'* and rocks the hinged handle *f* into the position in which it is represented in solid lines in Fig. 2. On the other hand, if there is employed the engaging latch integral with the operating-lever, as represented in Fig. 3 or 4, then when the operating-lever is released the latch end of the operating-lever, under the influence of gravity, swings clear of the path of movement of the hinged cover.

In any case the release of the operating-lever permits the hinged cover *b* to swing

away from the bottom of the air-chamber B, and thus leave an unobstructed path for the discharge of a message-box from the mouth of the dispatch-tube.

5 What is claimed as the invention is—

1. A pneumatic carrier composed of a dispatch-tube normally open at both ends for the reception and discharge of message-boxes and having one end or having each of its two
10 ends combined with transmitting apparatus consisting of an air-chamber, into one end of which the dispatch-tube is inserted, an opening in the opposite end of said air-chamber, a hinged cover adapted to be manually placed
15 in position to close said opening, a valve-chamber adjoining said air-chamber, a manually-operative self-closing valve for controlling the supply of compressed air from said valve-chamber to said air-chamber, a valve-
20 operating lever for opening said valve and so long as said valve is open holding said hinged cover in its closed position when a message-box previously placed in the mouth
25 of said dispatch-tube is to be transmitted, and a spring for closing said valve irrespect-

ive of the air-pressure when said valve-operating lever is released and concurrently releasing and permitting said hinged cover to swing open.

2. The air-chamber B, the dispatch-tube A, 30 inserted therein and open at its end, the hinged cover *b* for closing an opening in said air-chamber opposite the end of said dispatch-tube and provided with the projection *b*⁴, and a valve for admitting into said air- 35 chamber a suitable quantity of compressed air to drive through said dispatch-tube a message-box previously inserted in the open end thereof.

3. The valve D, the valve-stem *d*, an operating-lever pivoted thereto, the air-chamber B, and the hinged cover *b* for closing the opening in the end of said air-chamber and for serving when closed as the fulcrum for said valve-operating lever, in combination with 45 the valve-spring D².

GEORGE MILES.

Witnesses:

A. M. JONES,
J. E. BURNS.