

No. 684,678.

Patented Oct. 15, 1901.

J. T. COWLEY.

PNEUMATIC DESPATCH TUBE APPARATUS.

(Application filed July 10, 1901.)

(No Model.)

3 Sheets—Sheet 1.

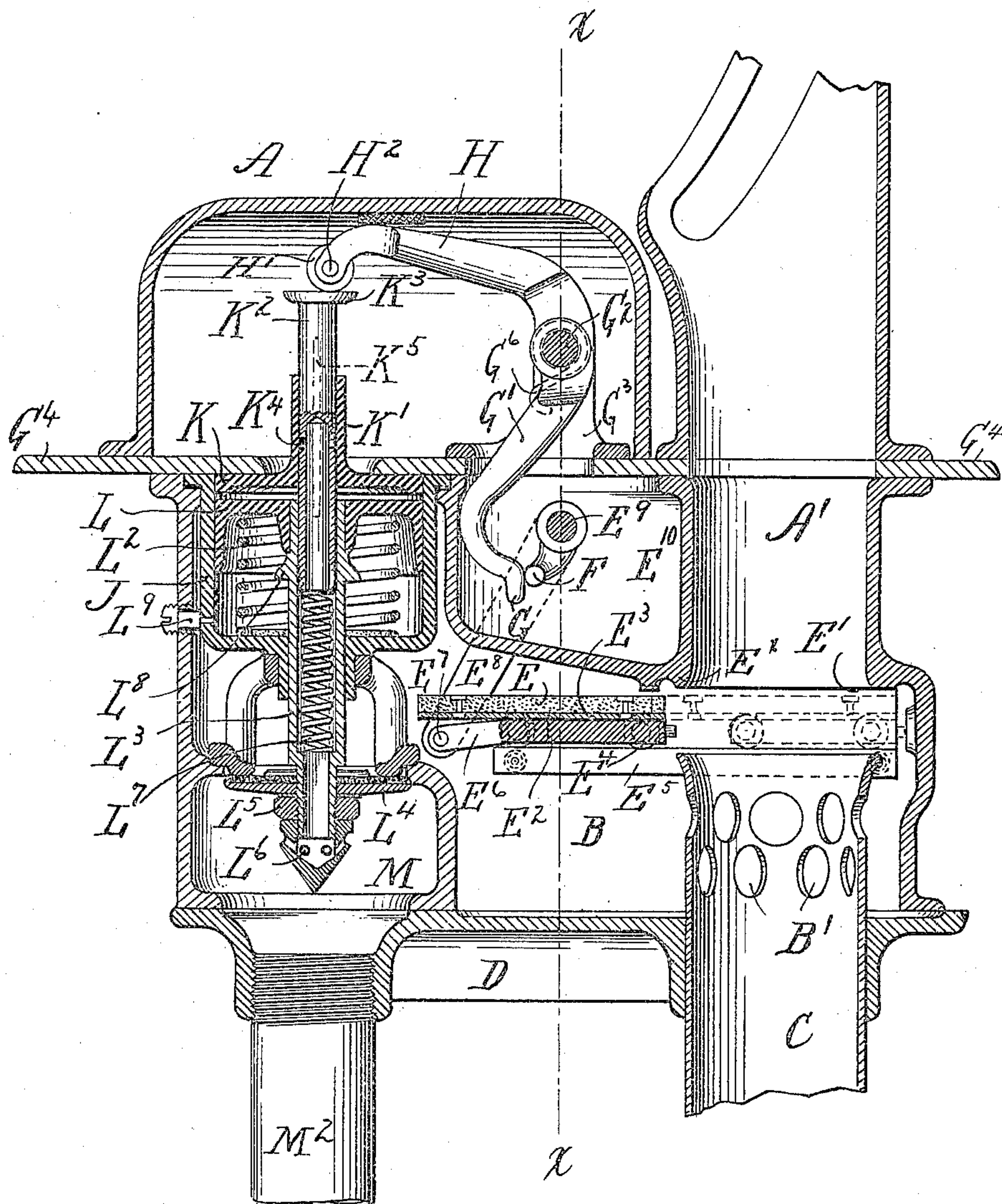


Fig. 1.

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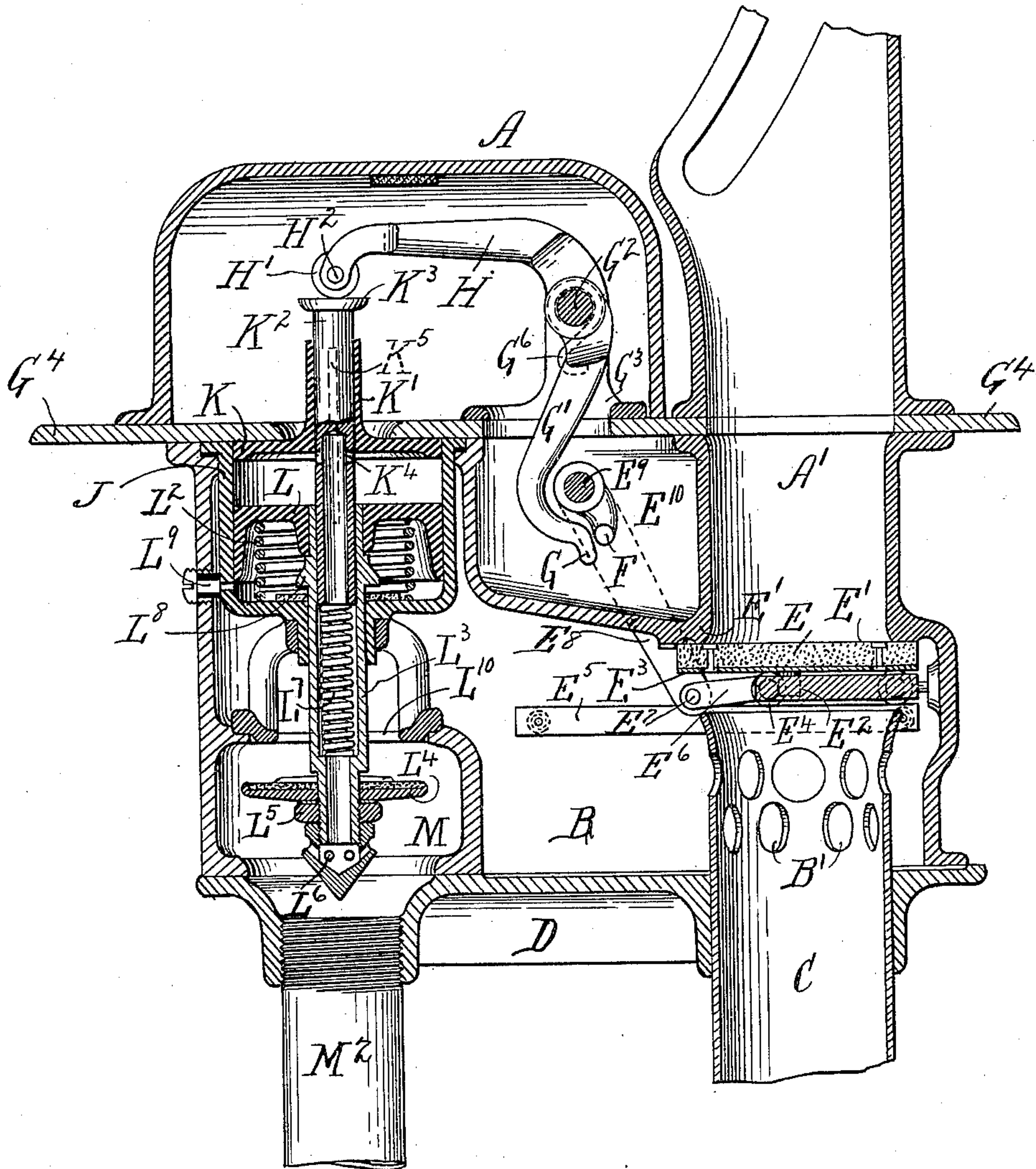


Fig. 2.

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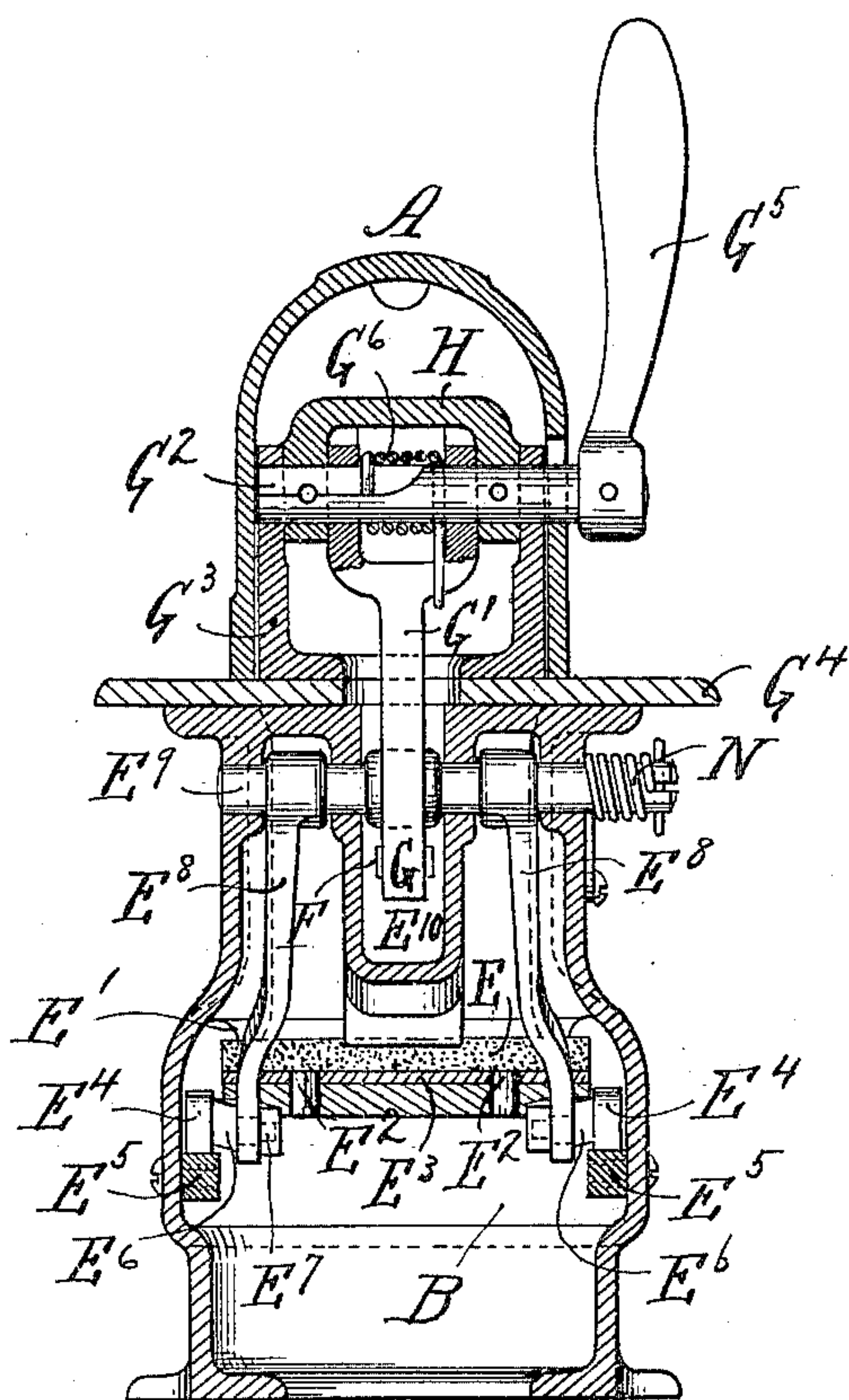


FIG. 3.

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UNITED STATES PATENT OFFICE.

JAMES T. COWLEY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO LAMSON CONSOLIDATED STORE SERVICE COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PNEUMATIC-DESPATCH-TUBE APPARATUS.

SPECIFICATION forming part of Letters Patent No. 684,678, dated October 15, 1901.

Application filed July 10, 1901. Serial No. 67,753. (No model.)

To all whom it may concern:

Be it known that I, JAMES T. COWLEY, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Pneumatic-Despatch-Tube Apparatus, of which the following is a specification.

My invention relates to improvements in pneumatic-despatch-tube apparatus, and especially to a valve for closing the transmission-tube after a carrier has been inserted for despatch to the opposite end of the line.

My invention consists of certain novel features hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, which illustrate a construction embodying my invention, Figure 1 is a sectional elevation of a despatching and receiving terminal located at one end of the line and showing my improved valve open. Fig. 2 is a similar view showing my improved valve closed. Fig. 3 is a cross-sectional view on the line X X, Fig. 1.

Like letters of reference refer to like parts throughout the several views.

The construction of the terminal and its operating parts is substantially the same as that shown in United States Letters Patent No. 657,092, issued September 4, 1900, to the Lamson Consolidated Store Service Company, of Newark, New Jersey, as my assignee, and my present invention consists in the improved valve.

When it is desired to despatch a carrier, it is inserted into the terminal A through the usual inlet and passes down through the tube A' and valve-box B into the despatch-tube C, secured to the bottom plate D of the valve-box B. This tube C is provided with a number of perforations B', through which compressed air passes to the transmission-tube for despatching the carrier. The valve E is then closed by rolling it to the position shown in full lines, Fig. 2, against the valve-seat E'. The valve E is provided with a series of pins E², Fig. 3, which extend into suitable openings in the carriage E³, and is guided in said carriage as it rises and lowers, due to the admission or non-admission of compressed air. This carriage E³ is provided with rollers E⁴, which roll along the fixed guideways E⁵. The

links E⁶, pivoted to the rollers E⁴, are pivotally connected at E⁷ to the oppositely-arranged rocking arms E⁸, which extend upwardly and are secured fast on the shaft E⁹, passing through the valve-box B. This valve-box is provided with a closed pocket E¹⁰, through which the shaft E⁹ passes, and on said shaft and projecting into the closed pocket E¹⁰ is the lever F, and bearing against the lower end of this lever F is the lower end G of the forked lever G', the upper end of which is loosely mounted on the shaft G², journaled in the upright supports G³, secured to the plate G⁴, and said lever passes down through a suitable opening in said plate G⁴, as shown in Fig. 3. The shaft G² extends outwardly on one side and is provided with a handle G⁵. On this shaft G² is secured fast the forked lever H, provided at its outer end with the roll H', mounted on the journal-pin H². Between the levers G' and H is located the spring G⁶ to hold said levers normally in the position shown in Fig. 1 relative to one another. In order that the valve E may be closed, as above described, the handle G⁵, secured fast to the shaft G², is moved and moves with it the shaft G², to which the inner end of the lever H is secured, and through the medium of the spring G⁶ and the lever G' the lever F and the valve E are moved into the position shown in Fig. 2, thereby closing communication to the transmission-tube C. Located within the pocket J and secured to the plate G³ is a plate K, provided with a hub K', within which is mounted the plunger K², provided at its upper end with a flange K³, against which the roll H' on the lever H bears. Within the pocket J is mounted the piston-plunger L, held in its raised position, by the spring L², and this piston-plunger L is provided with a hollow stem L³, to which the valve L⁴ is secured by suitable nuts L⁵ and the lower end of which is provided with suitable openings L⁶, communicating with the pocket M in the valve-box B. The spring L⁷ tends to keep the plunger K² in its upper position. (Shown in Fig. 1.) The flange L⁸ on the stem L³ limits the downward movement of the piston-plunger L in the pocket J. The plunger K² is provided with a series of radial openings K⁴ and with a groove K⁶ on the outer

periphery of said plunger. To the plate D is secured the air-pressure-supply pipe M², which communicates with the pocket M. The movement of the handle G⁵ and the lever H can push down the plunger K² until the ports K⁴ are in alinement with the spaces above the piston-plunger L in the pocket J, at which time the valve E is closed to prevent air-pressure escaping from the terminal except through the transmission-tube C. The air passing up from the pocket M through the valve-stem L³ will pass out through the ports K⁴ above the piston-plunger L, and by reason of this piston-plunger being of greater area than the area of the valve L⁴ said valve will be opened by the downward movement of the piston-plunger L and air will be admitted into the valve-box B and thence into the transmission-tube C and will force the carrier, which has been inserted for despatching, to the opposite end of the line. Any suitable catch with coöperating mechanism may be employed to regulate and hold the plunger K² in its lowered position, and when the carrier reaches the opposite end of the line such coöperating mechanism will be actuated to release the catch and allow the plunger to rise—for instance, the mechanism shown in my Patent No. 657,090, dated September 4, 1900, or that disclosed in my patent above mentioned. No special mechanism is here shown, as this apparatus forms no part of the present invention. When the carrier reaches the opposite end of the line and the plunger K² is released from any suitable catch, which holds it down, the spring L⁷ forces up the plunger K² from the position shown in Fig. 2 to that shown in Fig. 1, and will thus shut off the ports K⁴ from communication above the piston-plunger L, thereby allowing the escape of air from above the piston-plunger L through the groove K⁵, when the spring L² will force up the piston-plunger L and close the valve L⁴, thus cutting off compressed air from the valve-box B and transmission-tube C. The exhaust-port L⁹ allows the escape of air from the pocket J upon the downward movement of the plunger L. As soon as this air-pressure is cut off the valve E will drop by gravity onto its carriage E³ and will be moved by the spring N, Fig. 3, to its normal position, (shown in Fig. 1,) when the terminal will be ready for the insertion and despatch of the

next carrier, and the operation is repeated as previously described and the compressed air entering the valve-box B will raise the lever E against its seat E' and close the transmission-tube, so that compressed air will enter the tube C and despatch the carrier. By this arrangement the tube C is brought farther up into the terminal, so that the carrier entering will readily pass into said tube and will not be likely to be caught in the valve-box B, as the upper end of the tube C acts as a guide for the carrier, and a further object of this improved valve is the lessening of the noise in the valve previously used in transmission-tubes.

Having thus described the nature of my invention and set forth a construction embodying the same, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus of the character described, a despatch-tube, a valve for closing such despatch-tube after the insertion of a carrier and held to its seat by compressed air, a carriage on which said valve is mounted, means for supporting said carriage in its movements, and mechanism for operating said carriage.

2. In an apparatus of the character described, a despatch-tube, a valve for closing said despatch-tube after the insertion of the carrier and held to its seat by compressed air, a carriage on which said valve is mounted, mechanism for moving said carriage across said despatch-tube, and a spring for returning said carriage to its normal position.

3. In an apparatus of the character described, a despatch-tube, a valve for closing said despatch-tube after the insertion of a carrier and held to its seat by compressed air, a carriage on which said valve is mounted, fixed guideways for supporting said carriage in its movements, and mechanism for operating said carriage.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 26th day of June, A. D. 1901.

JAMES T. COWLEY.

Witnesses:

E. L. HARLOW,
A. L. MESSER.