

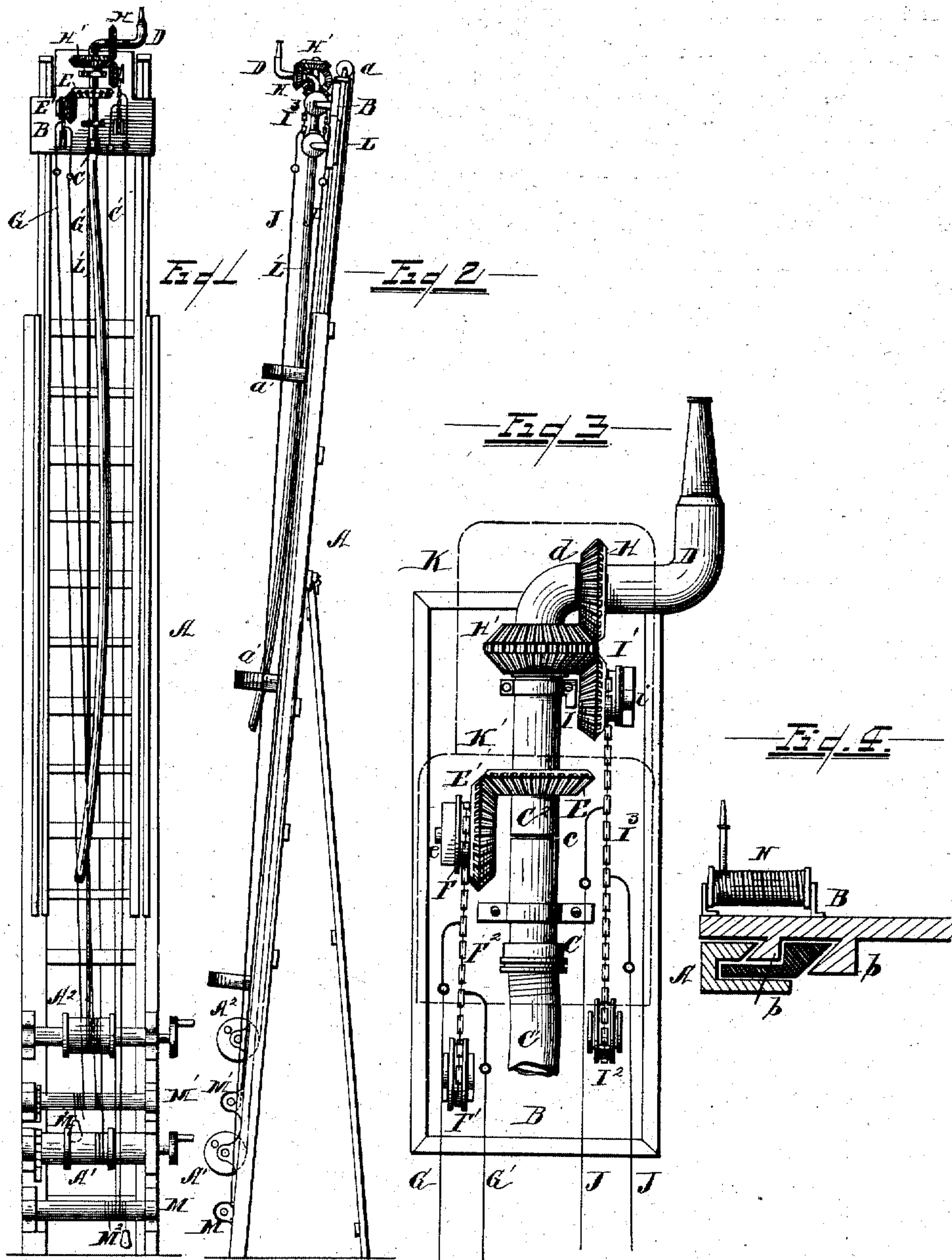
(No Model.)

J. ROBY.

FIRE HOSE MANIPULATOR.

No. 316,830.

Patented Apr. 28, 1885.



WITNESSES  
Samuel C. Thomas  
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# UNITED STATES PATENT OFFICE.

JAMES ROBY, OF DETROIT, MICHIGAN.

## FIRE-HOSE MANIPULATOR.

SPECIFICATION forming part of Letters Patent No. 316,830, dated April 28, 1885.

Application filed April 3, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES ROBY, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in a Fire-Hose Manipulator; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists in the combination of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

In the drawings, Figure 1 is a front elevation of a device embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a separate view of the elevator with the nozzle and its operating mechanism attached thereto. Fig. 4 is a cross-section.

My invention relates to firemen's apparatus, and has for its objects, first, to provide means for operating a hose-nozzle at any elevation from the ground, so as to direct the same to any desired point; second, to provide mechanism for elevating the same, as well as operating it from the ground; third, to provide, also thereby, for the elevation of the hose attached to the nozzle.

It is the object of my invention to provide means whereby the hose may be elevated and the nozzle operated from the foot of a ladder or from any desired position from the street below, and to accomplish these results in an economical and efficient manner.

I carry out my invention as follows: As illustrated in the drawings, A is an extension-ladder, which may be made in any desired way. It may be made light, so as to be adapted simply for the elevation of the hose, and the mechanism connected therewith, so as to be more quickly and easily-raised; or it may be made heavier, so as that, besides being adapted for the elevation of the hose and said mechanism connected therewith, the fireman may also ascend, if desired.

The elevator-way may be located upon one side of the ladder, if preferred.

I would have it understood that I do not confine myself to any particular manner of constructing an extension-ladder, as I contemplate any suitable means of extension and elevation as coming within the scope of my invention in this connection.

B is an elevator platform or slide, adapted to be raised and lowered upon the ladder, which may readily be accomplished by causing the rails of the ladder to project forward, so as to form a track, and by providing the elevator with suitable guides, *b*, to insure its traveling thereon in ascending and descending, though I do not confine myself to any special construction and arrangement of the elevator upon the extension-ladder.

C is a hose-coupling adapted to be secured to the hose C'.

C<sup>2</sup> is a pipe having a jointed connection with said coupling or with an intervening pipe, as may be desired, as shown at *c*, so as to be capable of a lateral revolution.

D is the nozzle, jointed to the pipe C<sup>2</sup> in any suitable manner, as shown at *d*, so as to be capable of a vertical revolution.

I prefer to construct the pipe C<sup>2</sup> and the nozzle with elbows, as illustrated in the drawings, so that the nozzle shall be caused to stand away from the operating-gear and the elevator, and thus be clear of obstructions; but this may be secured in any desired way.

To enable the operator upon the ground to give the nozzle a lateral rotation, the pipe C<sup>2</sup>, as illustrated in the drawings, is provided with a beveled gear, E.

E' is a similar gear adapted to mesh therewith, located adjacent thereto upon bearings *e*, which may be attached to the elevator. This latter gear is provided with a sprocket or other suitable wheel, F, connected therewith.

F' is a similar wheel supported upon suitable bearings.

F<sup>2</sup> is a chain or belt adapted to operate said wheel and the gears E and E'.

G and G' represent suitable cords, wires, or cables, &c., secured to opposite sides of said chain, and which may extend to any desired length, so that by their means the operator



may give the desired lateral rotation to the pipe C<sup>2</sup>, either from the foot of the ladder, across the street, or from any desired position.

5 To give the nozzle a vertical rotation, it is provided with a beveled gear, H. Meshing therewith is a similar gear, H', which I prefer to have loosely sleeved upon the pipe C<sup>2</sup>, although it may be located above the elbow, if preferred.

10 I is a gear meshing with the gear H', said gear provided with a suitable support, i, and a sprocket or other suitable wheel, I'.

15 I<sup>2</sup> is a similar wheel, connected with the former by a chain or belt, I<sup>3</sup>, and J are cables or cords secured upon opposite sides of said chain and extending to the operator, whereby he may give a vertical rotation to the nozzle.

20 K and K' represent caps or housing for the gear, arranged in any proper manner.

The elevator may be raised and lowered in any desired way—as, for instance, by means of cable L attached thereto passed over a pulley, a, thence downward to a drum, A', at the base of the ladder.

25 L' is an additional cable, connected with the elevator and with the drum A<sup>2</sup>, the construction and arrangement being such that by the proper rotation of the drums the elevator may be raised or lowered thereby. This will enable the operator, also having attached a hose to the coupling C, to elevate the hose, at the same time avoiding the necessity of its being lugged up on the ladder by the fireman. The  
30 cables which operate the revolving gear may be free at their ends, so as to be operated independently by one or more men; or they may be coiled upon reels M M', the reels provided with a compensating weight or spring, M<sup>2</sup>, whereby the operator may the more readily manipulate the nozzle.

If desired, a coil of hose, N, may be located upon a suitable bracket, or otherwise connected with the elevator, means being provided  
45 for coupling it with the hose or any of its connections, so that, if required, in addition to the manipulation of the rotary nozzle said additional pipe may be operated independently thereof should occasion render it desirable—as, for instance, when the fire has been checked adjacent to said nozzle and it is necessary to extend the hose into the building—and I would have it understood that I contemplate this as a part of my invention.

55 The operation of the device is evident. After extending the ladder to the desired height, the hose is made fast to the coupling C, and the elevator is then raised into position, carrying the hose with it. It may readily be  
60 made fast in any desired position by means of ratchet or other suitable mechanism connected with the elevating-drums; then by means of the cables extending down to the operator he may give to the nozzle a horizontal and a  
65 vertical revolution by which the nozzle may be directed to any desired point.

I would have it definitely understood that I do not confine myself to the particular means herein shown and described for giving the nozzle said revolutions, as I am not aware that  
70 heretofore any mechanism has been provided for giving a nozzle a vertical and horizontal revolution, and I desire to cover these points broadly.

It is evident that by means of the jointed  
75 connection of the nozzle to the pipe C, and of the jointed connection of the pipe C to the coupling or intervening pipe, the two joints constitute, in effect, a universal joint, and such a connection of the nozzle to the hose may be  
80 secured in various ways. So, also, different means may be employed to communicate the various motions described to the nozzle without departing from the principle of my invention.

85 I have described the nozzle as having a horizontal and vertical rotation; but my invention contemplates the rotation of the nozzle in any other desired planes which may be found practicable to secure the object sought—  
90 namely, the direction of the nozzle to any desired point by suitable mechanism.

It will be observed that, by providing the elevator with guides d, the elevator is kept in close contact to the ladder and prevented  
95 from swaying. If preferred, the elevator, with the hose, might be run to the end of the ladder before the same is raised. So, also, a single ladder might be used in connection with the elevator and the nozzle secured thereto, if  
100 desired. It is evident that the nozzle has a full throat in whatever position it may be turned, and that the size of the stream is not narrowed by providing the hose with the rotary nozzle.

105 It may be desirable to provide the ladder with suitable hooks or guards, a', to prevent the hose from swaying from the ladder.

I would have it understood that I do not use the words "vertical" and "horizontal" with their derivatives in any technical, precise, or limited meaning, as the incline of the  
110 ladder or the angle between the nozzle and the hose-union may be readily so varied as to change the rotations described out of the exact vertical or horizontal plane, as the case may be, while I would of course consider any such changes as coming within the scope of my invention. This explanation will also assist in understanding my use of the term  
115 "in various planes" hereinafter used in the claims.

What I claim is—

1. The combination, with the hose-elevator B, of the auxiliary reel N, mounted upon said  
125 carriage, substantially as described.

2. The combination, with the ladder A, of the hose-elevator B, hose c', hose-coupling c<sup>2</sup>, swiveled thereon, nozzle D, swiveled to the coupling-gears E and E', H and H', and actuating-gears I, sprockets F and I'.  
130

3. The combination, with a hose-elevator,

of means for raising and lowering the same, and an auxiliary hose carried upon said elevators, substantially as described.

4. The combination, with the hose-elevator,  
5 of the auxiliary hose N, carried by a reel mounted upon said elevator, and mechanism for raising and lowering the latter, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

JAMES ROBY.

Witnesses:

N. S. WRIGHT,  
M. B. O'DOHERTY.



It is hereby certified that in Letters Patent No. 316,830, granted April 28, 1885, upon the application of James Roby, of Detroit, Michigan, for an improvement in "Fire-Hose Manipulators," errors appear in the printed specification requiring the following correction: In line 130, page 2, the hyphen between the words "coupling" and "gears" should be omitted and a *comma* inserted; and that the Letters Patent should be read with these corrections therein to make it conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 19th day of May, A. D. 1885.

[SEAL.]

H. L. MULDROW,  
*Acting Secretary of the Interior.*

Countersigned:

M. V. MONTGOMERY,  
*Commissioner of Patents.*