E. GLENDILLEN.
Fire-Engine.

No. 220,604. Patented Oct. 14, 1879.

Fig. 1.

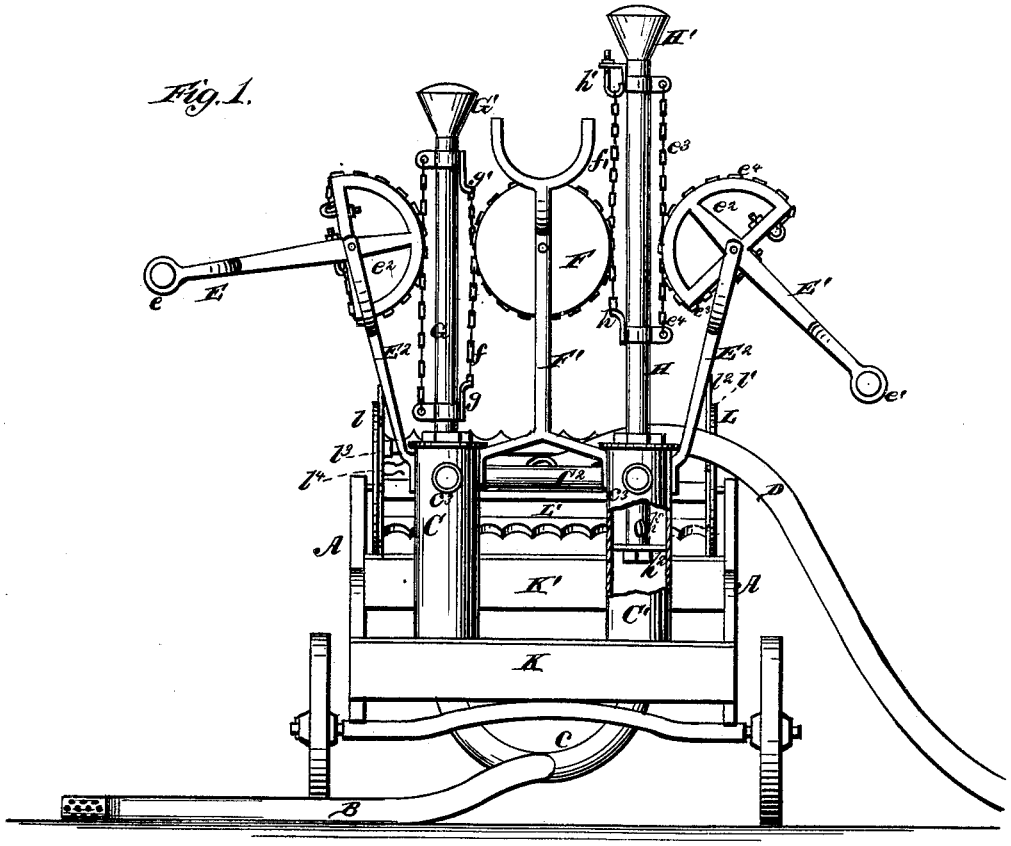
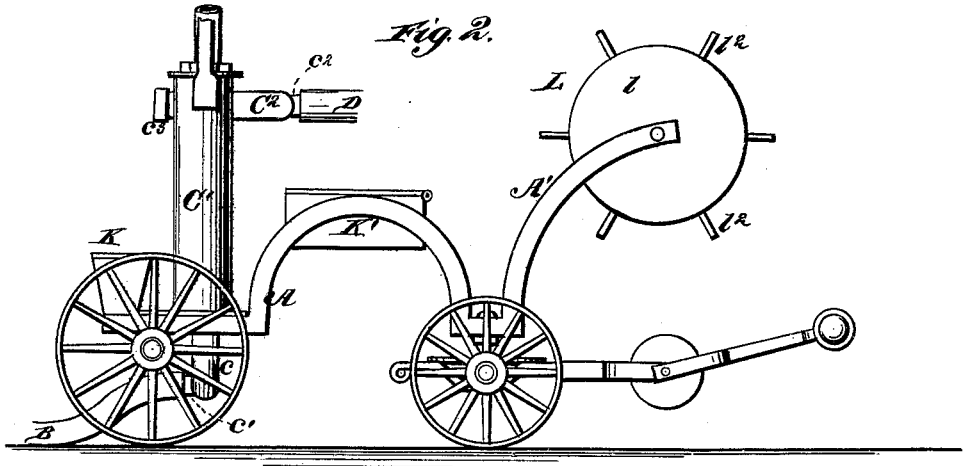


Fig. 2.



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ELIJAH GLENDILLEN, OF OWEN SOUND, ONTARIO, CANADA.

IMPROVEMENT IN FIRE-ENGINES.

Specification forming part of Letters Patent No. **220,604**, dated October 14, 1879; application filed June 7, 1879.

To all whom it may concern:

Be it known that I, ELIJAH GLENDILLEN, of Owen Sound, in the county of Grey, in the Province of Ontario, in the Dominion of Canada, have invented a new and valuable Improvement in Fire-Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 is a representation of a rear of my fire-engine, and Fig. 2 is a side-elevation view of the same.

This invention relates to fire-engines, and consists in the improvements in the construction of the same hereinafter fully described, and particularly pointed out in the claims.

A represents side pieces of the frame of the engine-carriage; A′, the arms or extensions of A, which support the hose-reel. B is the suction-hose of the engine. C C^1 are the two cylinders of the engine, which are connected at their base, by the pipe *c*, to a plug, *c*^{1}, in the center of which the suction-pipe is connected.

C^2 is a pipe which connects the cylinders at their top, and the hose D is attached to the plug *c*^{2}, centrally located in the pipe C^2. There are plugs, *c*^{3}, located upon the rear side of the cylinders, opposite the connection of the pipe C^2, for attaching hose singly to each cylinder. A common check-valve is located in each end of the pipe *c*.

E E^1 are the operating-levers, provided with the handles *e e*^{1} and segment-arms *e*^{2}, which are grooved to retain the chains *e*^{3} and *e*^{4}. The chains *e*^{3} are attached to the lower part of the segments and to the upper part of the pistons, and the chains *e*^{4} are attached to the upper part of the segments and the lower part of the pistons. The levers E E^1 are supported by the bifurcated arms E^2 E^2.

F is a pulley, which is supported by the bifurcated standard F′, situated between the pistons, and *f* is a chain which is attached to the piston G at *g*, and extends over the pulley F, and is attached to the piston H at *h*. The chain *f* is attached to the piston G at *g*′, a point above where *f*′ is attached, and passes under the pulley F and is attached to the piston H at *h*^{1}.

The pistons G and H are tubular, and provided with the air-chambers G′ and H′. These pistons are provided with the common lift-valves *h*^{2} and an aperture, *h*^{3}. The cylinders are provided with the common packing-rings. The bifurcated arms of the standard F′ are suitably forked to receive and retain the suction-pipe B.

K and K′ are tool-boxes, and L is the hose-reel, which consists of the disks *l l*^{1}, provided with the arms *l*^{2} and recesses *l*^{3} to receive the bars L′, and the clips *l*^{4}, which are for holding the end of the hose as the operation of reeling it is commenced.

The reel is not claimed in this application; but the right to make a future application therefor is reserved.

The operation of the engine is as follows: As the operators force the lever E downward the chain *e*^{4} of this lever raises the piston, and the chain *f*, passing under the pulley F, forces the piston downward. Any upward force exerted by other operators simultaneously upon the lever E^1 forces the piston downward by the action of the chain *e*, and also contributes to raising the piston by the action of the chain *f*. By this means the two pistons are connected and made to act intermittently, and any force exerted upon either lever E or E^1 is applied to both pistons. The air-chambers G′ and H′ are connected with the upper portion of the cylinders, which is the water-pressure space, by means of the openings *h*^{2} in the tubular pistons G and H. As the pressure in the water-space above the piston-valves *h*^{1} is increased the water rises in the pistons and compresses the air therein and in the air-chambers. This air-pressure contributes to a full steady jet from the hose.

In reeling up the hose, after the bars near the center are full, the bars of the outer circle of recesses are placed in their proper recesses, and the reeling is continued, by which means the hose lying in the notches *l*^{4} of the bars L′ are reeled without being in contact. In case of a hasty unreeling for use, the hose, as it is unreeled, the first coil from the inner bars will displace the outer bars, thus automatically re-

moving them without any delay or stopping of the reel.

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

1. In a hand fire-engine, the levers E E^1, provided with the segment-arms e^2, the chains e^3 e^4, and the pistons G and H, in combination with the pulley F, supported by the standard F′, and the chains f and f', substantially as and for the purposes set forth.

2. In a hand fire-engine, the pulley F, in combination with the chains f and f', the pistons G and H, and the standard F′, as and for the purposes substantially as set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

ELIJAH GLENDILLEN.

Witnesses:

JOHN RITCHIE MCKENZIE,

MICHAEL FORHAN.