

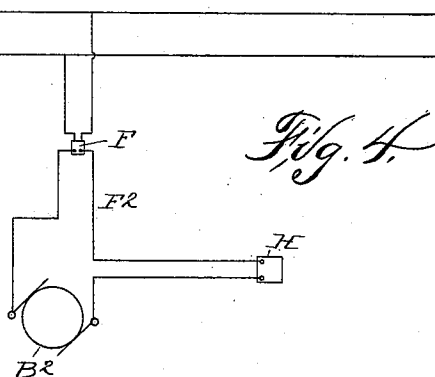
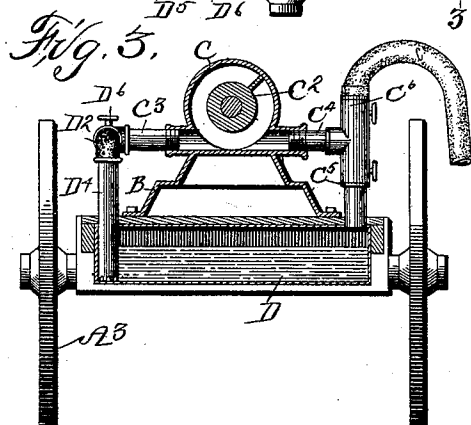
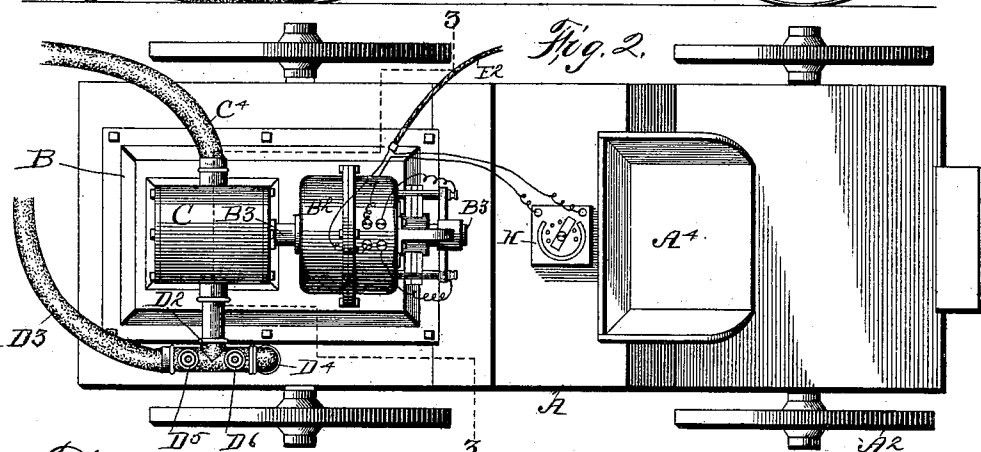
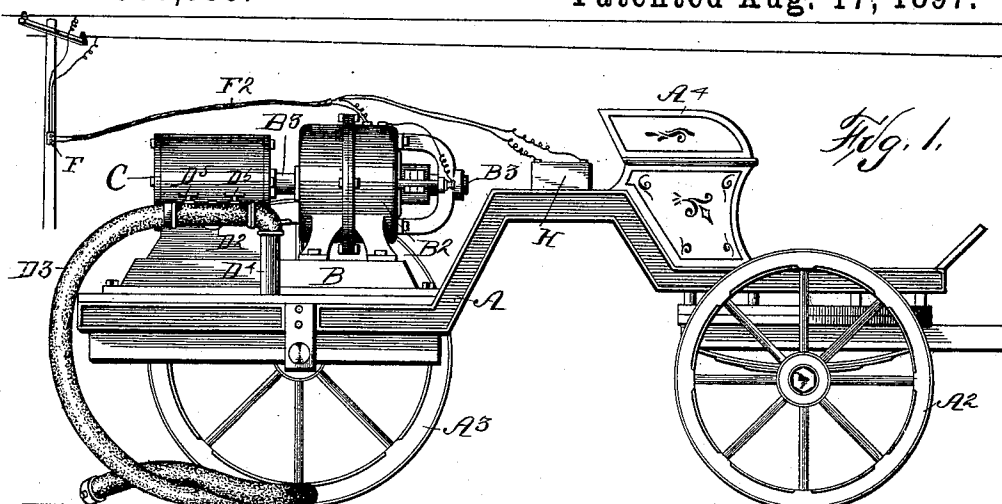
(No Model.)

2 Sheets—Sheet 1.

G. W. COX.
ELECTRIC FIRE ENGINE.

No. 588,399.

Patented Aug. 17, 1897.



Witnesses:
W. J. Sankey,
R. G. Orwig.

Inventor: George W. Cox,
By Thomas C. and J. R. Orwig, Attys.

(No Model.)

2 Sheets—Sheet 2.

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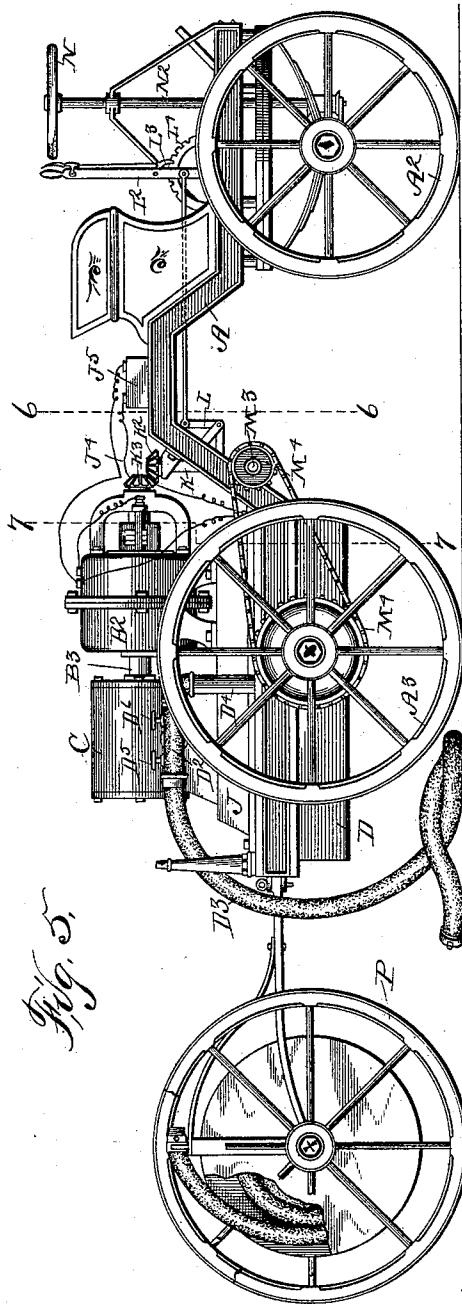


Fig. 8.

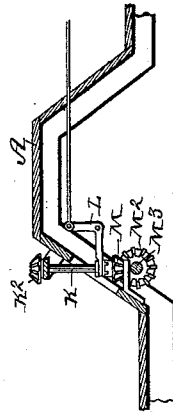


Fig. 7.

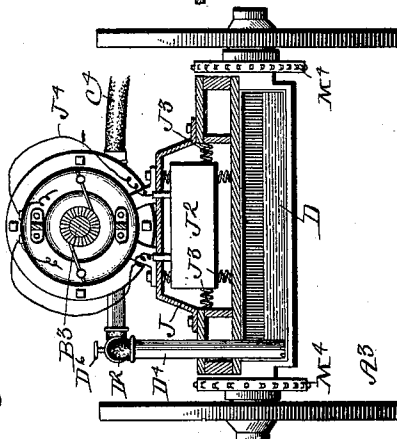
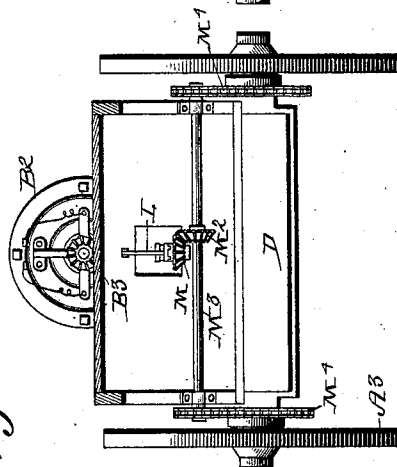


Fig. 6.



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Inventor: George W. Cox,
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UNITED STATES PATENT OFFICE.

GEORGE W. COX, OF STUART, IOWA.

ELECTRIC FIRE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 588,399, dated August 17, 1897.

Application filed December 30, 1895. Serial No. 573,853. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. COX, a citizen of the United States of America, residing at Stuart, in the county of Guthrie and State of Iowa, have invented certain new and useful Improvements in Electric Fire-Engines, of which the following is a specification.

My object is to provide an electric fire-engine adapted to be operated as required to move it to and from a fire without any extraneous force, to operate it, when stationary at a fire, by means of a storage battery on the carriage combined with the motor on the engine or by connecting the same motor with an extraneous electric conductor, and to carry a water-supply to be utilized at a fire before connection is made with an extraneous source of water-supply; and I accomplish the results contemplated by my invention, hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows the engine in side elevation. Fig. 2 shows a top or plan view of the same. Fig. 3 shows a transverse section through the line 3 3 of Fig. 2 and illustrates the manner of connecting the pump with the tank as required to fill the tank with water by the operation of the pump. Fig. 4 illustrates, diagrammatically, the means for conducting an electric current from suspended wires to the motor carried by the vehicle. Fig. 5 shows a side elevation of a modified form and also showing a hose-carriage connected with the engine. Fig. 6 shows a transverse section through the line 6 6 of Fig. 5. Fig. 7 shows a transverse section through line 7 7 of Fig. 5. Fig. 8 shows a detail view illustrating the device for throwing the motor in and out of gear.

Referring to the accompanying drawings, the reference-letter A is used to indicate the vehicle-frame, A¹ the front wheels, and A² the rear ones. A seat A³ is mounted on the frame, upon which the driver or operator may sit. Directly above the rear axle, on a suitable base B, I have mounted an electric motor B², of the usual form, having its shaft B³ extended longitudinally of the vehicle and projecting rearwardly from the motor.

C indicates a rotary pump of ordinary con-

struction mounted on the base B and having the shaft B² extended therethrough, with the valve C² of the pump attached to the said shaft.

C³ indicates an induction-pipe leading to one side of the pump, and C⁴ an eduction-pipe leading therefrom.

C⁵ is a branch pipe leading from the eduction-pipe C⁴ to the water-tank and is provided with a valve, so that communication between the pump and tank can be opened and closed at pleasure.

C⁶ is a branch pipe extending from the pipe C⁴ and adapted for connecting a flexible hose therewith and also provided with a valve, so that when said valve is closed and the valve in the branch C⁵ open the pump can be advantageously operated for filling the tank with water by connecting the hose D³ with a water-supply, opening the valve D⁵, and closing the valve D⁶.

D indicates a water-tank, which may be of any desirable size and shape, mounted on the frame A.

D² indicates a T-joint on the induction-pipe C³, one member of which communicates direct with the said tank and the other with a hose D³, designed to be connected with any suitable source of water-supply, such as a well, fire-plug, or the like. A hose D⁴ may be attached to the eduction-pipe to direct the water as desired. Cut-off valves D⁵ and D⁶ are provided to direct the water through either the tank-pipe or the hose.

When the valve D⁵ is closed and the valve D⁶ opened, the water-supply in the tank can be immediately utilized to suppress a fire while the hose D³ is being connected with an extraneous source of water-supply, and the valve D⁶ then closed and the valve D⁵ opened as required to utilize water secured from an extraneous source of supply. Corresponding cut-off valves D⁵ and D⁶ are located in the branches C⁵ and C⁶ of the eduction-pipe C⁴, as indicated in Fig. 3 and as required for filling the tank by the operation of the pump. By closing the valve D⁶ and opening the valve D⁵ in the induction-pipe C³ and opening the valve in the branch C⁵ and closing the valve in the branch C⁶ of the eduction-pipe C⁴ and then connecting the hose D³ with a water-

supply and operating the pump the tank will be readily and advantageously filled with water.

When this engine is used, it is desirable to place at suitable points adjacent to the water-supply stations plug-switches F, connected with a live electric wire, bearing a light or power current, said plug-switches being located at points easily accessible to firemen. Mounted on the engine are two wires F², arranged to be coupled to the switch and leading to a rheostat H, mounted on the machine in the rear of the driver's seat. The wires lead from the rheostat to the motor. Hence when the wires are connected with the plug-switch and the current turned on the motor is operated and the pump of course driven.

In the modified form shown in Figs. 5, 6, 7, and 8 a chamber J is provided above the water-tank to receive a storage battery J², cushioned on all sides by the springs J³. Wires J⁴ lead from the battery to the cut-out switch J⁵ and from thence to the motor. By this means the engine can be utilized advantageously at places where it is impracticable to make connection with an extraneous electric conductor.

K indicates a shaft mounted rotatably in the machine-frame and having a bevel gear-wheel K² on its upper end arranged to be placed in mesh with a like gear-wheel K³ on the shaft of the motor. This shaft K is moved vertically as required to throw it in and out of gear by means of a bell-crank lever L, connected with the shaft and with a hand-lever L², fulcrumed in proximity to the driver's seat. A spring-actuated pawl L³ on the lever engages a segmental rack L⁴ to hold the lever in position.

On the lower end of the shaft L is a gear-wheel M, in mesh with a wheel M² on a shaft M³, and this latter shaft is geared to the axle of the driving-wheel by means of the sprocket or other gearing M⁴. It is obvious that the carriage may be readily controlled by the manual operation of the lever L² to propel it as required to move the engine from place to place without the application of any extraneous force.

N indicates a hand-wheel on the shaft N², which is mounted in the forward portion of the engine and connected with the front axle in a common way to control the direction of the engine.

P indicates a hose-carriage, also of ordinary construction, detachably coupled to the rear end of the engine.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. In an electric fire-engine, a water-tank and a rotary pump mounted on a carriage, an induction-pipe C³ connected with the pump and provided with a T-joint D² one branch of which is connected with the tank and the

other branch provided with a branch C⁵ leading to the tank and a valve in the branch for closing communication between the pump and tank and also provided with a branch C⁶ and a valve in said branch, and a hose attached to said branch for distributing water, all arranged and combined to operate in the manner set forth for the purposes stated.

2. In an electric fire-engine, an electric motor, a pump, a water-supply tank, a pipe communicating with the pump and tank and provided with an intervening valve and also provided with a branch for connecting a hose leading to a water-supply and a valve in said branch and a second pipe communicating with the pump and tank and provided with a valve between the pump and the tank and a branch having a distributing-hose attached thereto and a valve for closing communication with said hose, arranged and combined to operate in the manner set forth for the purposes stated.

3. The combination in an electric fire-engine upon a suitable carriage, a pump, a water-supply tank, a pipe leading from the pump to the tank and a valve for closing communication between the pump and tank and a branch extending from said pipe having a hose attached thereto for filling the tank and a valve for closing communication with said hose, a storage battery, an electric motor, means for electrically connecting the motor and battery, a second pipe leading from the pump to the tank and provided with a valve for closing communication with the tank and a branch for attaching hose thereto to distribute water and a valve in the branch for closing communication with the hose, means for connecting the storage battery with an extraneous electric conductor and means for transmitting power from the motor to the traction-wheels of the carriage for the purposes stated.

4. In an electrical fire-engine, the combination of an electric motor and a rotary pump on the same shaft, a suitable water-tank supported between the wheels of the carriage, a storage battery mounted on the tank, wires for connecting the storage battery and motor and the pipes leading from the tank to the pump, a hose connected with one of said pipes to draw water from a suitable source of water-supply to the pump and tank and a hose connected with the other pipe to distribute water from the tank and pump, as and for the purposes stated.

5. In an electrical fire-engine, the combination of an electric motor and a rotary pump on the same shaft, a suitable water-tank supported between the wheels of the carriage, a storage battery mounted on the tank, wires for connecting the storage battery and motor, a T-pipe connected with the pump and one branch thereof communicating with the tank and the other branch provided with a hose for drawing water and a second T-pipe connected with the pump and the tank and provided

with a hose for distributing water and suitable gearing for connecting the motor and pump-shaft with the driving-axle, substantially as and for the purposes stated.

5 6. An electric fire-engine comprising a suitable carriage, an electric motor, a pump, a water-supply tank, a pipe leading from the tank and a valve for closing said pipe, a pipe
10 leading to an extraneous water-supply and a valve for closing said pipe, a pipe leading from the pump to the tank and provided with a valve for closing said pipe, a hose for distributing water from said pipe and a valve in
15 the pipe for closing communication with said hose, a storage battery, means for detachably connecting said battery with the motor, means for detachably connecting the motor with an
20 extraneous electric conductor and means for detachably connecting the motor with the traction-wheels of the carriage, all arranged and combined to operate in the manner set forth.

7. In an electric fire-engine, the combina-

tion with a carriage of a tank for storing water, a storage battery located on top of the 25 tank, an electric motor, means for connecting the motor and storage battery, a pump, a pipe communicating with the pump and tank and provided with an intervening valve and also provided with a branch for connecting a hose 30 leading to a water-supply and a valve in said branch and a second pipe communicating with the pump and tank and provided with a valve between the pump and the tank and a branch having a distributing-hose attached 35 thereto and a valve for closing communication with said hose, means for connecting the storage battery with an electric conductor that is extraneous to the engine, and means for transmitting power from the motor to the 40 traction-wheels of the carriage to propel the engine for the purposes stated.

GEORGE W. COX.

Witnesses:

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