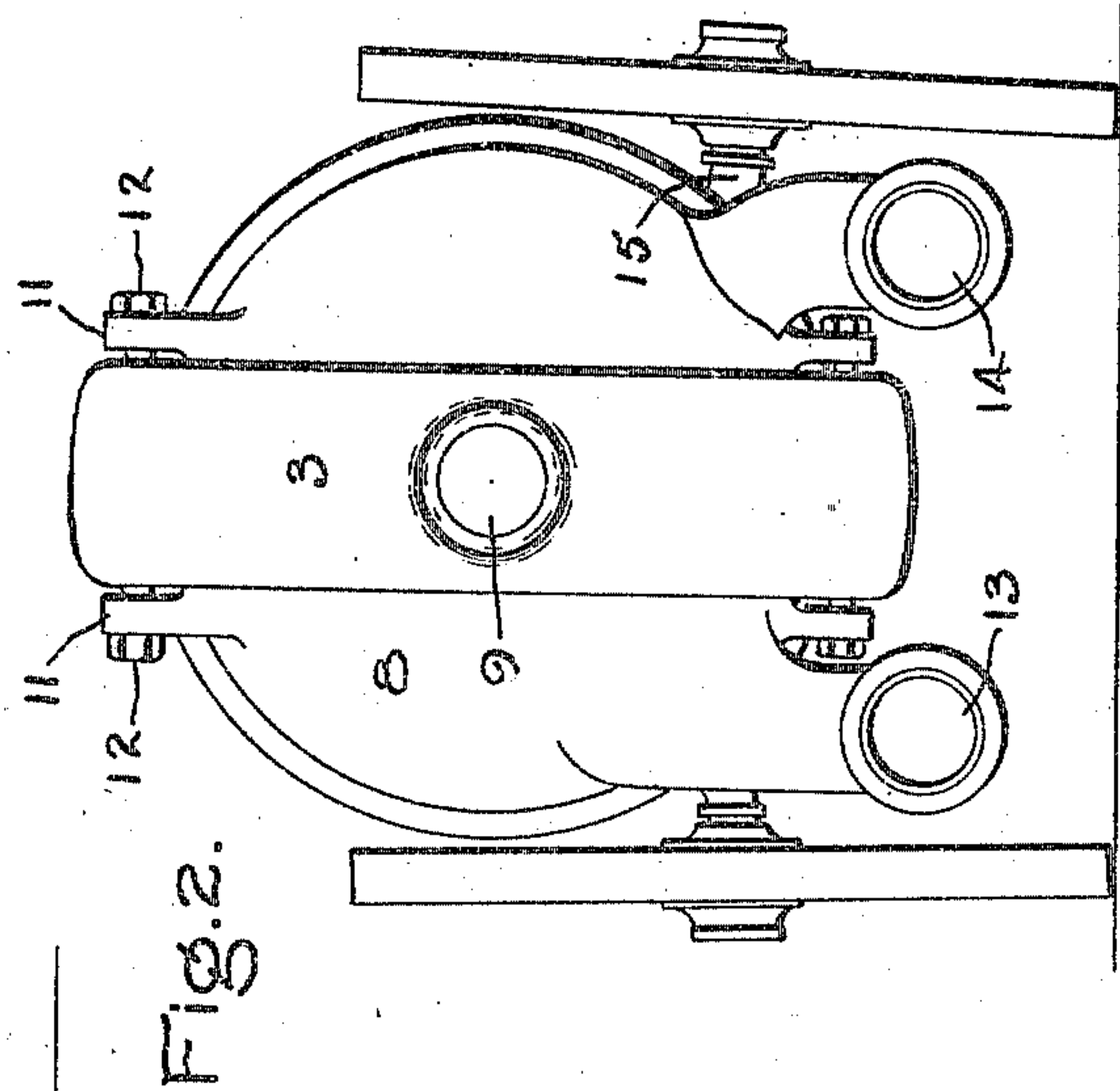
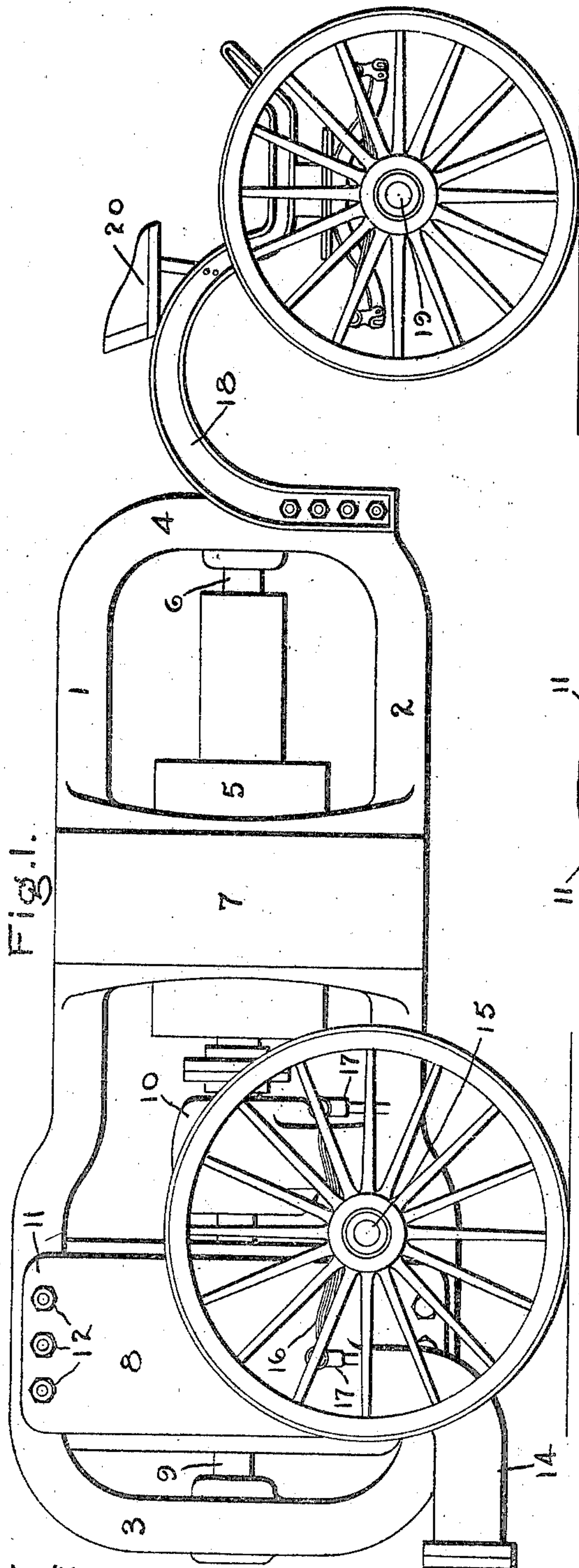


R. H. RICE.
PORTABLE FIRE ENGINE.
APPLICATION FILED SEPT. 4, 1908.

957,903.

Patented May 17, 1910.



Witnesses:

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UNITED STATES PATENT OFFICE.

RICHARD H. RICE, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

PORTABLE FIRE-ENGINE.

957,903.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed September 4, 1908. Serial No. 451,710.

To all whom it may concern:

Be it known that I, RICHARD H. RICE, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Portable Fire-Engines, of which the following is a specification.

This invention relates to fire extinguishing apparatus and its object is to provide a compact, portable, power-driven fire engine having a rigid frame of minimum weight and extreme simplicity of construction.

For the purpose of the present application I shall describe the invention as applied to an electric pump.

Electric fire engines are available for use in any town where electric lighting or railway systems can be utilized to furnish power by means of temporary connections. It has also been proposed to establish special hydrants equipped with receptacles containing the terminals of electric conductors supplied with current from any suitable source, so that the electric motor on the engine can be readily plugged into circuit at the hydrant from which its pump draws water. In order to render prompt service, the engine must be as light as possible consistent with strength and durability, so that it may be quickly hauled to the scene of the fire.

My invention has especial reference to the frame of the engine, which consists essentially of an upright open truss, the pump and the motor being carried between the top and bottom members of said truss.

In the accompanying drawing, Figure 1 is a side elevation of a fire engine embodying my invention, and Fig. 2 is a rear elevation of the same.

The frame of the engine is a long open rectangular structure arranged in a vertical plane, and comprising a top member 1, a bottom member 2 and end members 3, 4. The top and bottom members are substantially horizontal and parallel and the end members upright in the form shown in the drawing, but this particular disposition of these parts is not essential. The front portion of the frame may, if desired, be not so deep as the rear portion, as shown in Fig. 1.

The motor, which in this instance is an electric motor, is mounted between the top and bottom members of this frame, in the forward portion thereof, the rotor 5 being

arranged with its shaft 6 running horizontally fore and aft in said frame. The support for the field poles of said motor is a circular ring 7 whose plane is transverse to the engine frame, and whose vertical diameter coincides with the plane of said frame. The ring 7 is concentric with the rotor of the motor, and it is preferably cast integral with the frame, and connects the top and bottom members 1 and 2, as shown, at some intermediate point between the end members 3 and 4.

In the rear deeper portion of the frame is received the pump, which is preferably a centrifugal pump 8 arranged with its shaft 9 in axial alinement with the motor shaft 6, and suitably coupled thereto. The shafts have journal bearings in the end members 3 and 4 of the frame and in a pillow block 10 preferably cast integral with the bottom members 2, and located between the motor and the pump. The casing of the pump may have lugs 11 at top and bottom which fit on each side of the frame and receive bolts 12 which fasten the pump in place. The suction pipe 13 and the delivery pipe 14 of the pump extend backward from the lower part of the pump casing, on opposite sides thereof.

The rear axle 15 of the engine passes through the frame just above the bottom member 2 and preferably just in front of the pump casing. The springs 16 are attached to spring-hangers 17 secured to the pump casing and the frame. The front end of the frame is fastened to a goose-neck 18 which extends to the fifth wheel mounted on the front axle 19. The arch of the goose-neck is high enough to permit the front wheels to turn under it, and a driver's seat 20 may be supported on it.

By arranging the frame in a vertical plane, it can be made comparatively light without sacrificing strength. The vertical position also enables the engineer to readily inspect and repair the motor. The top member serves to protect the working parts from injury by burning timbers falling on the engine in case it is obliged to work close to a fire. The engine frame forms part of the magnetic path for the field flux at the points where it intersects the ring 7.

While I have described and illustrated an electric fire engine, yet it is evident that a frame of this kind is capable of use with

other forms of motors, so that I do not wish to be understood as limiting myself to any particular kind of motor or to any single motive power.

5 In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but
10 I desire to have it understood that the apparatus shown is only illustrative, and that the invention can be carried out by other means.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

15 1. A portable fire engine having an upright truss frame open at its sides and provided with parallel top and bottom members and connecting end members, a pump and its driving motor arranged on the frame between the top and bottom members thereof,
20 and a common shaft for the pump and motor extending longitudinally of the frame and journaled in the end members of said frame.

25 2. A portable fire engine having a vertically arranged frame provided with upper and lower longitudinal members and connecting end members, a rotary pump mounted within the frame adjacent one end thereof,
30 of, a motor mounted within the frame adjacent the other end of said frame, a common shaft for the pump and motor extending longitudinally of the frame, and bearings for the shaft arranged in the end members
35 of the frame.

3. A portable fire engine having a vertically arranged frame provided with upper and lower longitudinal members and connecting end members, the depth of the
40 frame being greater than its width, a motor mounted within the frame adjacent one end

thereof, a rotary pump mounted within the frame adjacent the other end of said frame, a bearing supported on the frame between the pump and the motor, a shaft for the motor having one end mounted in the adjacent
45 end member of the frame, a shaft for the pump that is arranged in alinement with the motor shaft and mounted in said bearing and the other end of the member of the
50 frame, and a coupling between the motor and pump shafts.

4. A portable fire engine having an open-sided, vertically arranged rectangular frame provided with integral longitudinal mem-
55 bers and connecting end members, the depth of the frame being greater than its width, a shaft centrally arranged within the frame and mounted in bearings carried by the end members thereof, a motor for driving the
60 shaft which is mounted within the front portion of the frame, a rotary pump mounted within the rear portion of the frame and driven by the shaft, and running gear on which the frame is mounted.
65

5. A portable fire engine having an open-sided, upright, rectangular frame provided with a circular ring transverse thereto at a point intermediate its end members, an electric motor having its rotor concentric with
70 and arranged within said ring and its shaft running lengthwise of the frame, the field poles of the motor being carried by the ring, and a rotary pump arranged on the frame in alinement with the motor to be actuated
75 thereby.

In witness whereof, I have hereunto set my hand this second day of September, 1908.

RICHARD H. RICE.

Witnesses:

JOHN A. McMANUS, Jr.,
ALEXANDER M. GILBERT.