

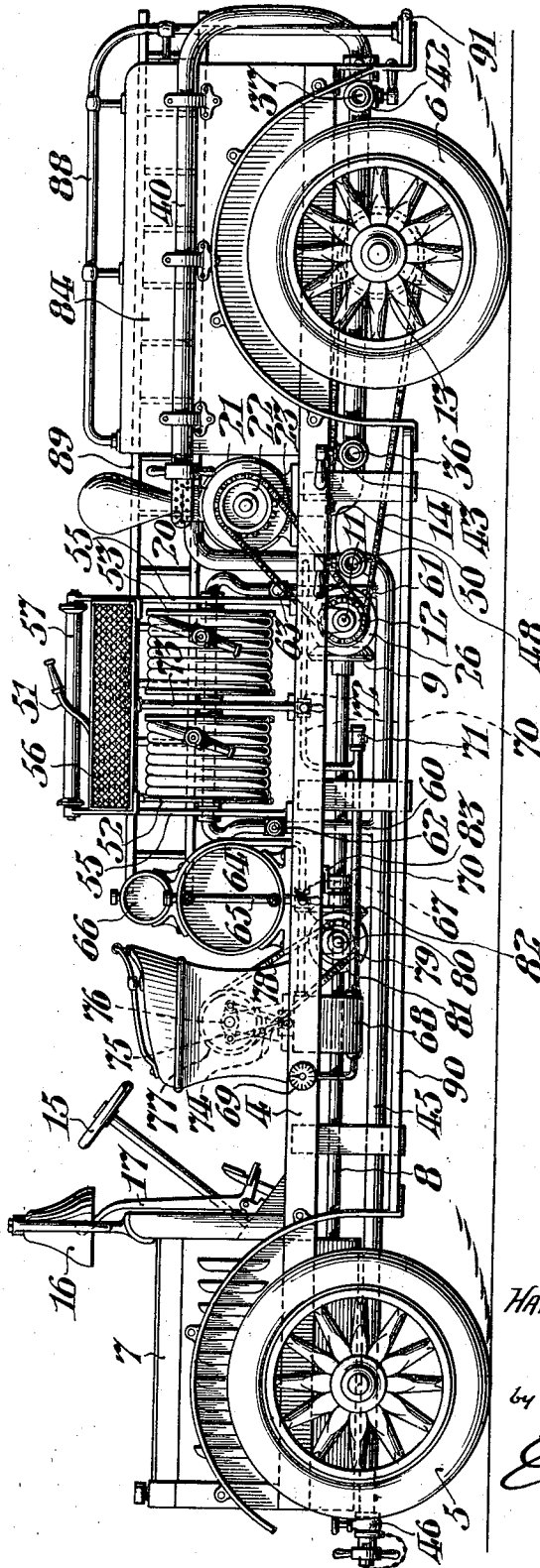
H. W. EISENBISE.
FIRE FIGHTING APPARATUS.
APPLICATION FILED APR. 5, 1911.

1,023,141.

Patented Apr. 16, 1912.

4 SHEETS—SHEET 1.

FIG. 1.



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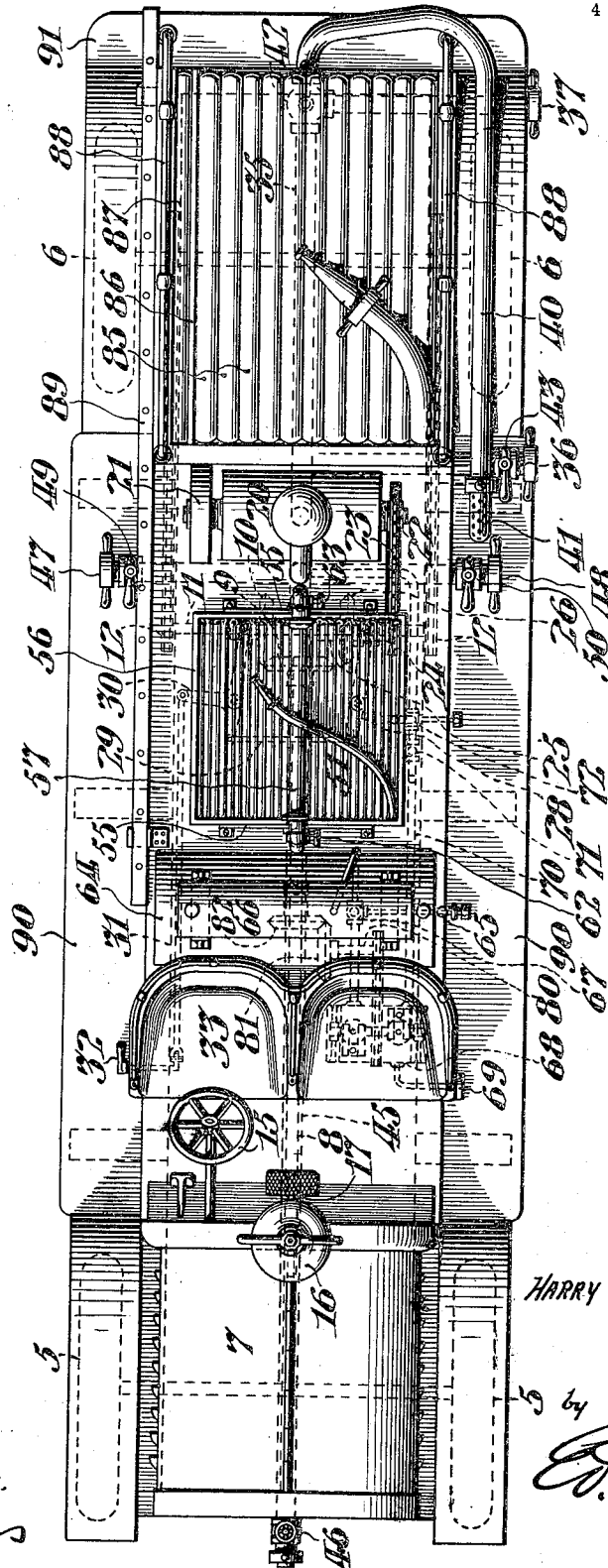
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4 SHEETS—SHEET 2.

FIG. 2.



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4 SHEETS—SHEET 3.

FIG. 3.

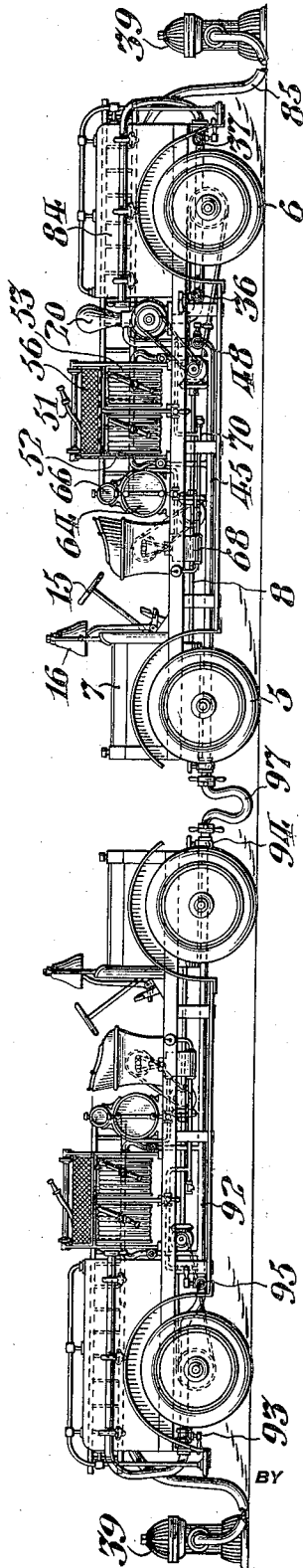
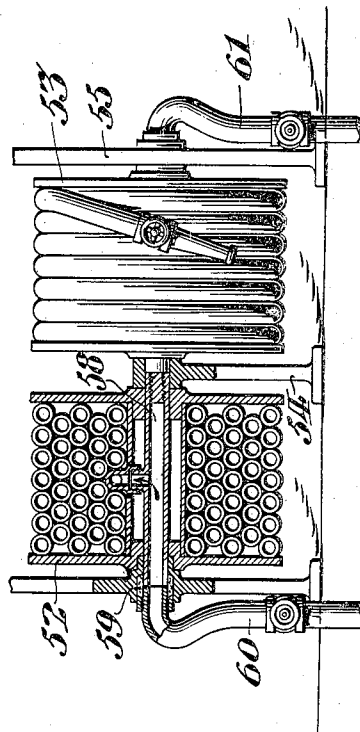


FIG. 4.



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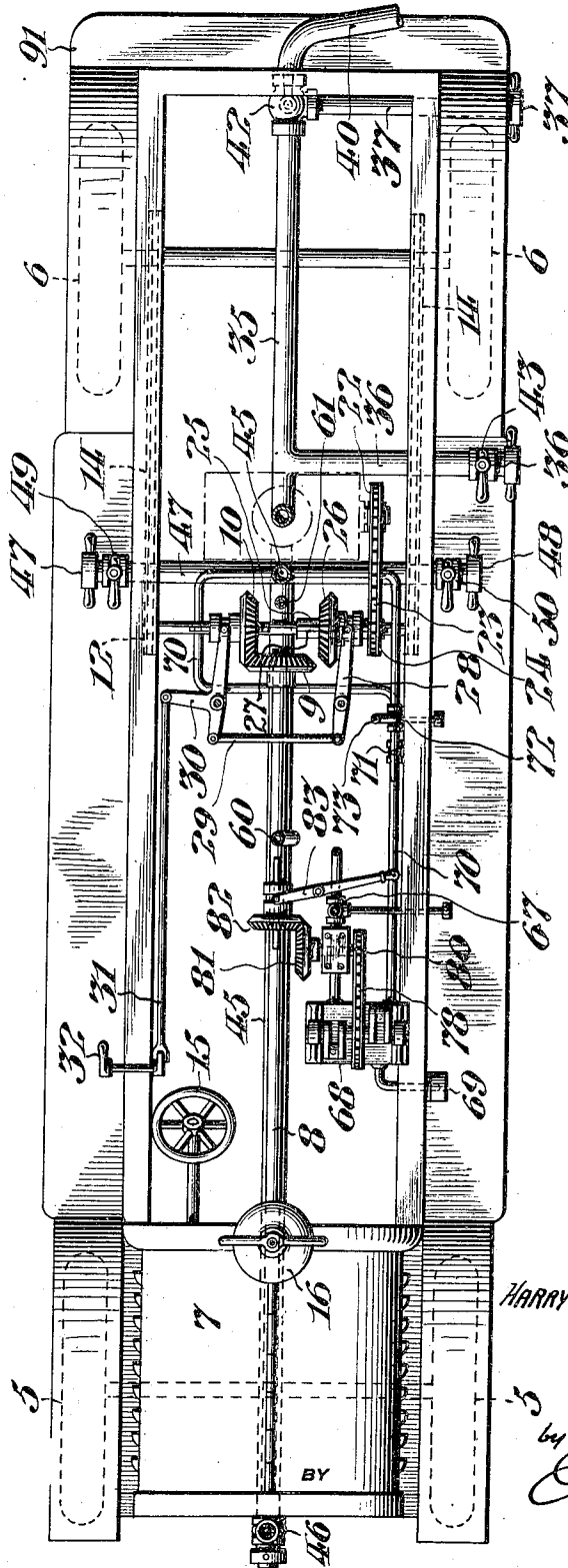
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4 SHEETS—SHEET 4.

FIG. 3.



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FIRE-FIGHTING APPARATUS.

1,023,141.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY W. EISENBISE, a citizen of the United States, and a resident of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Fire-Fighting Apparatus, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention particularly relates to that class of fire-fighting apparatus which is self-propelled and in which the propelling agent is effective to drive the pumping mechanism.

15 The principal objects of this invention are to provide fire-fighting apparatus that will be expeditious and continuous in action, effective in service, and economical in maintenance.

20 Other objects of this invention are to provide fire-fighting apparatus with means whereby the suction hose line may be paid out and connected with a fire-plug while the apparatus proceeds to the scene of conflagration; to provide said apparatus with a supply of chemical solution having suitable hose connections which may be immediately pressed into service upon reaching said conflagration; to provide a pump to 30 force said chemical solution through said hose under pressure; to provide a pump having connections for directing a plurality of water streams, to provide means to inject chemical into said connections, to provide 35 propelling means for said apparatus, and to provide means to selectively connect said propelling means with the driving wheels of said apparatus, or with the respective pumps either separately or contemporaneously.

40 Further objects of this invention are to provide means whereby two or more fire-fighting apparatus may be connected so that the pump of one apparatus may be effective to eject water through the effluent connections of the other apparatus.

45 This invention further includes all of the various novel features of construction and arrangement hereinafter more definitely specified.

50 In the accompanying drawings Figure 1 is a side elevation of the apparatus which includes the water pump and which will be hereinafter termed the engine; Fig. 2 is a plan view of the apparatus or engine 55 shown in Fig. 1; Fig. 3 is a side elevation of the fire-fighting apparatus including the

engine and hose wagon connected; and Fig. 4 is an enlarged detail view of the hose reels. Fig. 5 is a plan, sectional view, taken in the upper plane of the chassis, showing the body 60 portion removed and certain of the parts in elevation for convenience of illustration.

In said figures the engine shown in Fig. 1 comprises the chassis 4 which is carried by the steering wheels 5 and driving wheels 6, 65 and which supports the fire-fighting apparatus.

The vehicle is preferably driven by a hydrocarbon motor which is inclosed in the motor casing 7 and which has the shaft 8, 70 provided with the bevel gear 9, which is arranged to mesh with the bevel gear 10 to drive the counter-shaft 11, and the sprockets 12 which are carried thereby and which are connected with the sprockets 13 on the driving 75 wheels 6, by the sprocket chains 14.

The usual pilot wheel 15 may be connected to direct the course of the steering wheels 5, and the danger bell 16 may be supported in a suitable yoke mounted on the motor 80 casing 7, and may be sounded by the foot actuated lever 17.

The engine is provided with a pump 20, which comprises a driving shaft carrying a fly-wheel 21 and a sprocket 22 which is connected by the sprocket chain 23 with the 85 sprocket 24 on the sleeve 25 which is mounted for relative rotation on the counter-shaft 11, and which is provided with a key 27.

The sleeve 25 carries the bevel gear 26 90 which is engaged by the key 27 to prevent its rotation relative to said sleeve, and which is arranged to be shifted axially on said sleeve into and out of engagement with the bevel gear 9 on the shaft 8, by the lever 95 28 which is connected by the link 29 with the bell crank lever 30. Said lever 30 is connected by the link 31 with the hand operating lever 32 at the right hand side of the chauffeur's seat 33, and is operative to shift 100 the gear 10 to engage and disengage the gear 9. The levers 28 and 30 are so arranged that the gears 10 and 26 may be alternately engaged with the gear 9, or both may be freed therefrom to permit the idle rotation 105 of the shaft. It is to be understood that the gearing connections may include any suitable form of clutch mechanism.

The pump 20 is provided with an inlet or suction pipe 35 having the branches 36 and 110 37 to which the hose lines from the fire-plugs 39 may be attached. The suction pipe 35

is provided with the permanently connected hose 40 having the perforated cap 41, and arranged to be utilized in drawing water from a cistern or other suitable reservoir.

5 The suction pipe 35 is provided with the three-way-cock 42 which may be actuated to selectively connect the hose 40 or the branch 37 therewith or to entirely shut them off therefrom, the branch 36 being provided
10 with the valve 43 whereby it is conveniently controlled.

The pump 20 is provided with an outlet pipe 45 leading downwardly through the floor of the engine and terminating at the
15 front thereof. Said pipe 45 is provided at its outlet end with a controlling valve 46, and has lateral branches 47 and 48 respectively provided with valves 49 and 50, each of the branches 47 and 48 and the pipe 45
20 being provided with suitable couplings for the convenient attachment of separate lines of fire-hose (not shown), any one of which may be separately controlled by the respective valves 46, 49 and 50.

25 Preferably disposed centrally upon the engine are hose reels 52 and 53 mounted for rotation in the standards 54 and 55, the latter of which also support the hose basket 56 having a superimposed roller 57 over
30 which the three-quarter inch chemical hose carried by said basket may be drawn from its folded position therein. The reels 52 and 53 each carry a coil of one-and-one-half inch hose which as best shown in Fig. 4 has
35 its inner end connected with a nipple on the tubular shaft 58 which is journaled to rotate in the standards 54 and 55, each of the latter being provided with a stuffing box 59, for connection with the respective pipes 60
40 and 61 which connect said hose reels with the main outlet pipe 45, and which are controlled by the respective valves 62 and 63.

The apparatus is provided with chemical equipment which comprises a tank 64 dis-
45 posed forward of the reel 52 and adapted to contain a chemical compound solution, the depth of which may be readily ascertained by the gage 65. Said tank 64 is surmounted by a relatively smaller tank 66 adapted to
50 contain a diluted chemical compound solution. The tanks 64 and 66 have outlet pipes which are respectively connected by the three-way-cock 67 with the chemical force pump 68 having the pressure gage 69 at-
55 tached thereto. Said chemical pump 68 is provided with the outlet pipe 70 having the pressure relief valve 71, and connected with the main outlet pipe 45 between the pump 20 and the outlet branches 47 and 48. The
60 outlet pipe 70 is connected through the three-way-cock 72 with the branch pipe 73 which extends into the basket 56 and connected with the hose 51 therein, the cock 72 being operative to alternately connect said
65 pump with said hose 51 and with the pipe 45.

As best shown in Fig. 1 the pistons of the chemical pumps are connected by pitmen 74 with cranks 75 on the shaft 76 which carries the sprocket 77 connected by the sprocket chain 78 with the sprocket 79 on the counter-
70 shaft 80. Said shaft 80 carries the bevel gear 81 in position to mesh with the bevel gear 82 which is slidably keyed to the main driving shaft 8, and which may be shifted to engage or disengage the said bevel gear
75 81, by the lever 83.

The vehicle is provided at its rear end with a walled compartment 84, for the stor-
80 age of hose 85, and has its back end open for the convenient paying out of said hose as the engine proceeds to the fire from the plug from which water is to be drawn, and said compartment is provided with a partition 86, forming a separate compartment for the
85 storage of hose 87 of different diameter, to be used to run a direct water line in addition to the chemical line. The side walls of the hose compartment provide convenient support for the hand-rails 88 and ladder 89; and the side steps 90 and rear step 91 pro-
90 vide ample carrying capacity for the hose-men.

The hose wagon shown at the left hand in Fig. 3 is similar to the engine except that it does not carry a water pump, the main
95 water pipe 92 which is the equivalent of the pipes 35 and 45 of the engine, being provided at its opposite ends with the controlling valves 93 and 94, and having the lateral branches 95 corresponding to the branches
100 47 and 48 of the pipe 45 on the engine.

The hose wagon may proceed to the con-
flagration and may play streams of chemical solution and may play plug streams of
105 water or chemical laden water, but if however it is desirable to play said water streams under pressure the pipe 92 is connected by the hose section 97 with the pipe 45 of the engine, whereby the single outlet
110 of the engine may serve to force streams under pressure through the various outlets of the hose wagon.

By the apparatus contemplated a more economical operation is effected, for the reason that said apparatus may be districted in
115 such a manner that one or two engine and hose companies may respond to all bell alarms, and on the way to the fire at a selected water plug a hoseman may alight with the end of the hose and attach the same
120 to the spout of said plug while the apparatus proceeds to the desired point of vantage as near the fire as possible, whereupon the gears 9 and 10 are disengaged, and the gears 81 and 82 shifted into mesh to direct
125 a chemical stream from the tank 66 through the pipe 70, pipe 73 and hose 51, while the hosemen are connecting the suction line with inlet 36, and the fire hose lines with the various outlets. Having thus made ready
130

the gears 9 and 26 are shifted into mesh to actuate the water pump 20, whereupon the three-way-cock 72 is turned to direct chemical solution to the pipe 45, and the three-way-cock 67 is turned to draw chemical solution from the tank 64; thus the water from the pump 20 is mixed with chemical in the pipe 45, and directed therefrom through its various outlet branches. The hose wagon having proceeded in the same manner, is brought into close proximity to the engine and connected therewith as shown in Fig. 3 may be equally effective as the engine, the pump of the latter serving to force the chemical laden water from the outlets of the apparatus of both vehicles.

It may be noted that the two-and-one-half inch hose which is stored in the small hose compartment may be laid by the engine to the exclusion of the chemical lines.

It may be observed that about 75% of fires are put out by the use of chemical streams, which is an undue waste of valuable material; whereas by the system herein contemplated a greater percentage of fire loss will be saved with less chemical solution. Furthermore the tanks of the system contemplated are not under pressure but on the contrary the solution is drawn therefrom by the chemical pump and the liability of explosion is eliminated.

It is not desired to limit this invention to the precise details of construction and arrangement herein set forth as it is obvious that various modifications may be made therein without departing from the essential features of the invention as defined in the appended claims.

Having thus described my invention, I claim:—

1. In a fire-fighting apparatus, the combination with a water pump having an inlet pipe, and an outlet pipe for connection with fire-hose, of a chemical reservoir, a second pump arranged to discharge said reservoir through suitable chemical fire-hose inde-

pendent of the water fire-hose, and means operative to divert the flow of chemical solution and direct it through said outlet pipe with the water forced therethrough by said water pump.

2. In a fire-fighting apparatus, the combination with a self-propelled vehicle, of a water pump carried thereby and having a suction inlet and an outlet provided with a plurality of hose couplings, a chemical reservoir, a second pump connected to discharge chemical solution from said reservoir and provided with a bifurcated outlet having its branches respectively connected with a chemical fire-hose, and with the outlet of said water pump, and a three-way valve at the bifurcation of said chemical outlet operative to selectively direct the chemical solution through the chemical fire-hose or through the water outlet.

3. In fire-fighting apparatus carried by a self-propelled vehicle, the combination with a water pump having inlet and outlet connections, of a hose reel having a hollow shaft connected with said outlet, a coil of hose connected with said hollow shaft to convey water from said pump, separate chemical tanks having outlets connected by a three-way valve to a single discharge, a chemical pump connected with said discharge and having a bifurcated outlet whose branches are controlled by a three-way valve and are respectively connected with a chemical hose-line, and with the outlet connection of said water pump, and arranged to direct chemical solution from either of chemical tanks separately through said chemical hose or through said outlet connection to be mixed with the water forced therethrough by the water pump.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY W. EISENBISE.

Witnesses:

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EDWARD D. DIFENDERFER.