

F. B. & H. B. HUNTER.
 COMBINED FIRE ENGINE AND MECHANICAL PROPELLING MEANS.
 APPLICATION FILED MAR. 23, 1909.

932,282

Patented Aug. 24, 1909.
 2 SHEETS—SHEET 1.

Fig. 1.

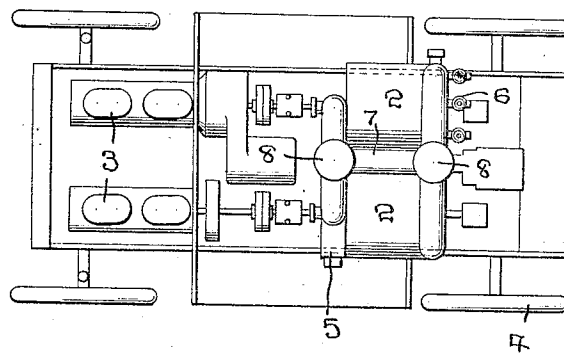
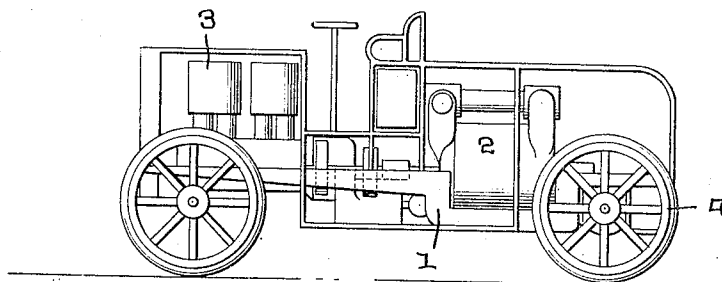


Fig. 2.



WITNESSES:

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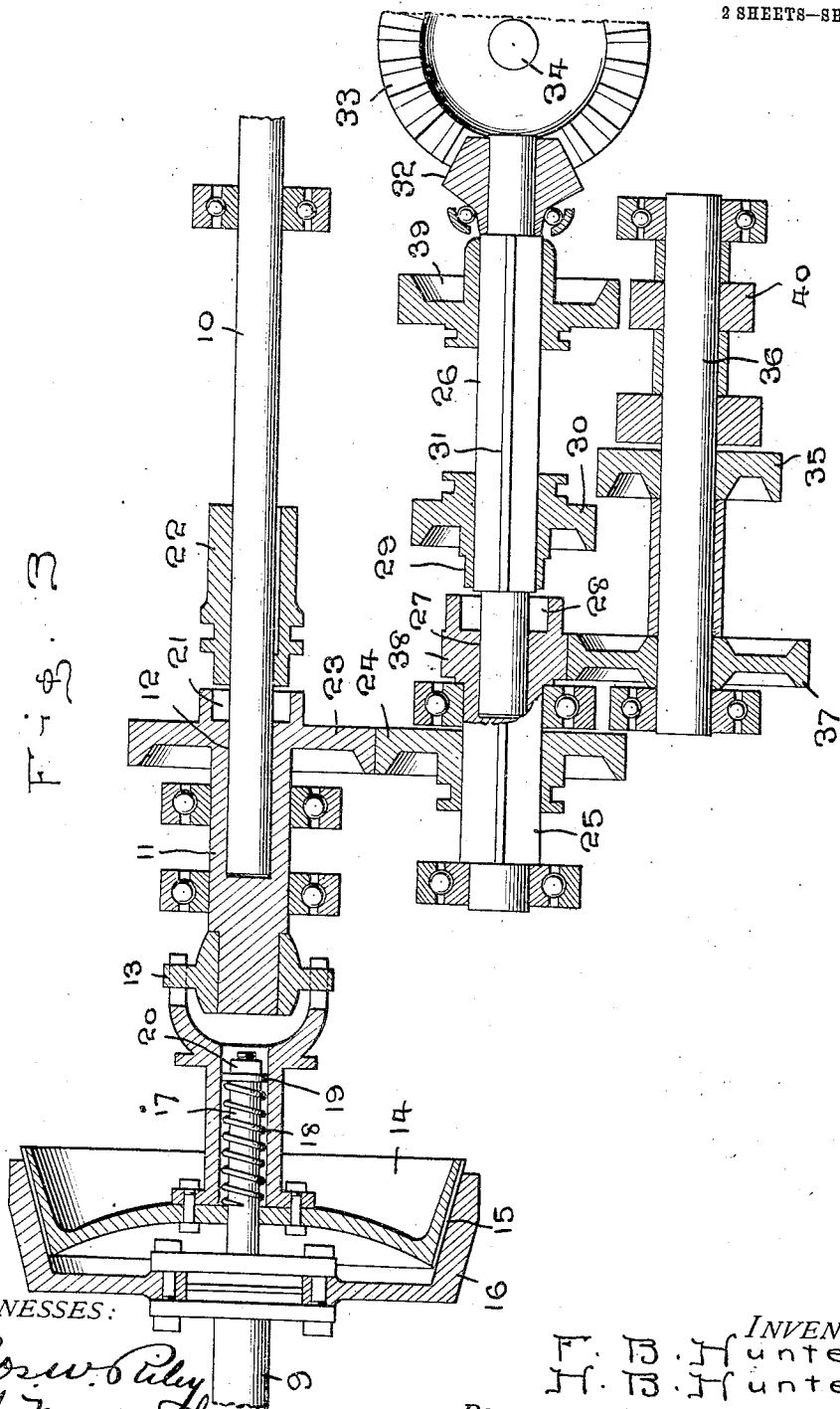
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UNITED STATES PATENT OFFICE.

FRANK BARRINGTON HUNTER AND HARRY BETTIS HUNTER, OF MEMPHIS, TENNESSEE.

COMBINED FIRE-ENGINE AND MECHANICAL PROPELLING MEANS.

932,282.

Specification of Letters Patent.

Patented Aug. 24, 1909.

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To all whom it may concern:

Be it known that we, FRANK B. HUNTER and HARRY B. HUNTER, citizens of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Combined Fire-Engine and Mechanical Propelling Means; and we do hereby 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 appertains to make and use the same.

Our invention relates to new and useful improvements in combined fire engines and mechanical propelling means therefor and our object is to provide means for mounting suitable pumping mechanism upon a motor-propelled vehicle and a further object is to provide means for connecting the motor to the pump for pumping water or to the propelling parts of the vehicle for moving the apparatus from place to place.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claims.

In the accompanying drawings, making part of this application, Figure 1 is a top plan view of a motor propelled vehicle showing pumps mounted thereon. Fig. 2 is a side elevation thereof, and, Fig. 3 is a detail sectional view through portions of the driving mechanism for the vehicle showing the manner of applying power either to the pump or vehicle.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the frame of our improved device, at one end of which is provided any suitable form of centrifugal or turbine pumps 2, while 3 indicates the engines employed for operating the pump and propelling the vehicle, the frame 1 being mounted on any suitable form of supporting wheels 4.

The pumps 2 are provided with an intake 5, through which the water enters the pumps and 6 indicates the outlets to which the hose is attached when throwing water and in order to control the pressure and volume of water discharged by the engine, we provide a suitable passage 7, said passage having three-way cocks 8 at its ends, whereby the water may be directed through the pumps separately or in parallel, thereby giving a maximum capacity or, if desired, may be

turned as to cause the water to first flow through one pump, then return through the passage and through the other pump, thereby giving maximum pressure. The pumps 2 are driven from the crank shafts 9 of the engines 3 through the medium of pump shafts 10, said shafts 10 being connected with the crank shafts 9 through the medium of a driving shaft 11, said driving shafts having sockets 12, into which one end of the shafts 10 extend, said shafts 10 fitting loosely in the sockets, while the opposite ends of the driving shafts 11 are provided with flexible couplings 13, one portion of said couplings engaging the driving shafts 11, while the opposite portions thereof are attached to friction clutch cones 14, which cones are adapted to engage the frictional faces of fly wheels 16, said fly wheels being fixed to the crank shafts 9.

That portion of the flexible coupling attached to the cone 14 is hollow to receive a stem 17, which stem extends from the end of the crank shaft 9 through the cone 14 and substantially through the hollow portion of the section of flexible coupling 13, a spring 18 surrounding that portion of the stem 17 within the hollow section and being adapted to direct pressure on the cone 14, thereby holding the cone in frictional engagement with the fly wheel, a washer 19 being fixed to the stem 17 by means of a nut 20; said washer forming a support for one end of the spring.

That end of the driving shaft 11 farthest from the flexible coupling 13 is provided with a clutch face 21, with which is adapted to engage a clutch 22 on the pump shaft 10 and as said clutch is rotatably fixed with the shaft 10, it will be readily seen that when said clutch is moved into engagement with the clutch face 21 and power is applied to the driving shaft 11, the pump to which the shaft 10 is attached, will be operated. In this manner, the pumps are given a direct drive from the motor, thereby giving a greater efficiency to the pumps as there is no lost motion encountered between the pumps and engines. The same engines are employed for propelling the vehicle and to accomplish this result, the driving shaft 11 is provided with a fixed gear 23, with which co-operates a sliding gear 24 carried on a driving shaft 25, said shaft being preferably square and entering a square opening in the gear 24, whereby said gear will be caused to drive the shaft 25.

A propelling shaft 26 has one of its ends introduced in a socket 27 in the end of the shaft 25, the socketed end of the shaft 25 having a clutch face 28, which is adapted to be engaged with a clutch 29 at one end of a shifting gear 30, said gear being slidably mounted upon a squared portion 31 of the shaft 26, so that when the clutch 29 is in engagement with the clutch face 28 and the gear 24 is in engagement with the gear 23, the shaft 26 will be driven direct from the shaft 25.

The end of the shaft 26 farthest from the shaft 25 is provided with a pinion 32, which meshes with a bevel gear 33 on the rear axle 34 of the vehicle, thereby rotating the axle when the shaft 26 is rotated.

Should it be desired to lower the speed of the vehicle, the gear 30 is moved away from the end of the shaft 25 and into engagement with a gear 35 on an auxiliary shaft 36, said auxiliary shaft 36 being rotated through the medium of a driving gear 37 fixed to the auxiliary shaft, said gear 37 engaging a gear 38 on the socketed end of the driving shaft 25, the transmission of the power in this roundabout way lessening the speed of the vehicle.

Should it be desired to still further lessen the speed of the vehicle, a second gear 39 is mounted on the shaft 26 and in alinement with a gear 40, also fixed to the auxiliary shaft 36, said gears 39 and 40 being connected by an idler gear (not shown). The gears 24, 30 and 39 and the clutch 32 are provided with suitable thrust collars with which are adapted to engage any suitable form of levers (not shown) for operating the gears and clutch to slide them on their respective shafts.

What we claim is:

1. A device of the character described comprising a frame, axles mounted on said frame, supporting wheels for said axles, crank shafts, fly wheels attached to said crank shafts and having friction faces, pumps carried by said frames, pump-shafts for said pumps, the axial centers of which are in alinement with the axial centers of the crank-shafts, a driving shaft between said crank-shafts and said pump-shafts, said driving shaft having a socket to loosely receive the end of a pump shaft, a frictional clutch-cone adapted to engage the friction faces of said fly wheel, a flexible coupling between said cone and said driving shaft, means to fix said pump shaft with relation to

said driving shaft, said cone having a hollow stem between the same and said coupling; said crank-shaft also having a stem or extension received by said hollow stem and provided with a resilient member, adapted to hold said cone in frictional contact with the face of said fly wheel, a plurality of gears arranged for delivering the motion of said driving shaft and a shaft of a vehicle also provided with a plurality of gears adapted to mesh with the aforesaid gears.

2. In a combined fire engine and motor-propelled vehicle, the combination with a frame, axles on said frame and supporting wheels for said axles; of engines carried by the frames, crank shafts for said engines, fly wheels attached to the crank shafts and having friction faces, pumps carried by said frame, pump shafts for said pumps, the axial centers of which are in alinement with the axial centers of the crank shafts, a driving shaft between the crank shaft and pump shaft, said driving shaft having a socket to loosely receive the end of the pump shaft, a frictional clutch cone adapted to engage the friction face of the fly wheel, a flexible coupling between the cone and driving shaft, means to fix the pump shaft with the driving shafts and a plurality of gears extending from the driving shaft to one of the axles of the vehicle, whereby power may be applied through said gears to propel the vehicle.

3. In a device of the class described, the combination with pumps and shafts for said pumps of engines for said pumps, crank shafts for the engines, said crank shafts being in alinement with the axial centers of the pump shafts, driving shafts having sockets therein to loosely receive the pump shafts, fly wheels on the crank shafts having frictional faces, frictional clutch cones adapted to cooperate with the friction faces of the fly wheels, a flexible connection between the cones and driving shafts, means to yieldingly hold the cones in engagement with the friction faces and a clutch mechanism adapted to fix the pump shafts with the driving shafts.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANK BARRINGTON HUNTER.

HARRY BETTIS HUNTER.

Witnesses:

J. B. SLOAN, Jr.,

A. O. McARDLE.