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KENNEY FRANK E ().**

(54) **HYDRO-PNEUMATIC POWER MACHINE**

(57) **Abstract:**

(54) **MACHINE HYDRO-PNEUMATIC**

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S P E C I F I C A T I O N
" " " " " " " " " " " " " " " "

TO WHOM IT MAY CONCERN:

Be it known that I, Frank E. Kenney, residing in Portland, County of Multnomah, and State of Oregon, have invented certain new and useful improvements in HYDRO-PNEUMATIC POWER MACHINES.

The object of my invention is to provide a means by which compressed air for power purposes may be furnished in a convenient way, so that the energy of a comparatively small prime mover may be stored in bulk, and be available as required in larger volume than would be possible at any one time direct from the prime mover.

A further object is to provide a convenient means of operating a self propelled vehicle, which will furnish excessive power for a short period of time, such as may be required to propel that vehicle over a steep or rough piece of roadway.

I accomplish these objects by the mechanism illustrated in the accompanying drawings in which:

FIGURE 1. is a plan view of a specific form of my invention, which in this case shows a double air compressor operated by a crank shaft driven by an electric motor, and air reservoir tanks, connected up with suitable air pipe lines.

FIGURE 2. shows a cross section of two of the reservoirs.

FIGURE 3. is a part sectional elevation of one of the reservoirs, showing the air and water injector beneath it.

This injector was patented by me December 10th, 1912.

FIGURE 4. is an enlarged view of the injector.

To describe my device more in detail, 1. is a prime mover which in the form of my invention illustrated in the drawings is an electric motor operated by electric current generated in the battery. This prime mover may be of other forms, as for instance, an internal combustion engine. The prime mover, I by means of the pulley 2, belt 33, pulley 3, shaft 4, which is supported in suitable bearings 31; and cranks 30, causes the pistons 27, of an air compressor to move back

and forth by means of the piston rods 28, and connecting rods 30 which connect them to the cranks 30. 28 a and 28 b, are respectively the cross-heads, and guides that guide the piston rods straight through the stuffing boxes 29.

32 and 26 are respectively the suction and delivery valves of the air compressor cylinders 5, they serve respectively to admit free air to the compressing cylinders 5, and to admit it after being compressed by the reciprocating pistons 27, to the air pipe lines 6. The compressed air is in turn forced along the pipes 6 past the check valves 36 and 37 to the receptacle 8; entering the receptacle at a tangent to the inside surface of its cylindrical sides at the lower end. The receptacle 8 is partially filled with water which is kept whirling round in the direction of the arrow-heads in Fig. 1. To start the water in this whirling motion a wheel is provided, it is fixed to a shaft 16, which in turn is provided with a hand wheel 39, at its upper end outside the receptacle, and collars 15 above and below to maintain this water turning device in its correct position vertically. The air passes up to the space 9. 14 is a pipe line connecting the upper portion of the receptacle 8 with the circulating injector 40. 18 is the delivery cone for water and air from the injector 40 to one end of the air and water receptacle 10, 10 and 19 together form the suction pipe from the injector 40 to the other end of the receptacle 10. As the compressed air is forced through the air pipe 14 and the injector, it blows the water in the delivery cone 18 into the receptacle 10, the air flowing in mixed with the water, the injector drawing the water from the opposite end of the receptacle 10 thus causes the water to circulate rapidly in 10. The air space in 10 is indicated by 11 and the water by 12. 21 is a safety valve and 13 are the air outlet pipes from the compression chamber 11 to any power machine which may be operated by compressed air. It will be clear that this apparatus is applicable to any form of gas power machine which requires compressed gas passed through water to operate it;

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and it may also be adapted to other purposes not here
set forth.

What I claim and desire to secure by LETTERS PATENT, is-

1- In a power machine of the character described, the combination with an air or gas compressor of:- a combined water and gas vertical cylindrical receptacle, gas mains leading from the air compressor to the receptacle and entering the receptacle in a direction tangential to its inner cylindrical surface, means to start the liquid in the receptacle revolving, a gas operated water injector, gas communicating mains from the vertical receptacle to the injector, a horizontal cylindrical gas and water receptacle having an opening at its lower side to receive the gas and water discharge of the injector, means to attach the injector to the horizontal receptacle, a water main connecting the end of the lower side of the horizontal receptacle remote from the end where the injector is attached to the injector and gas outlet pipes from the top of the horizontal receptacle to convey the compressed gas away for power purposes.

IN TESTIMONY That I claim the foregoing as my own,
I affix my signature in the presence of two witnesses.

PORTLAND, 3d December, 1914.

Signed in presence of)
)

Frank E. Kenney

J. H. Morton

D. W. Hoelling

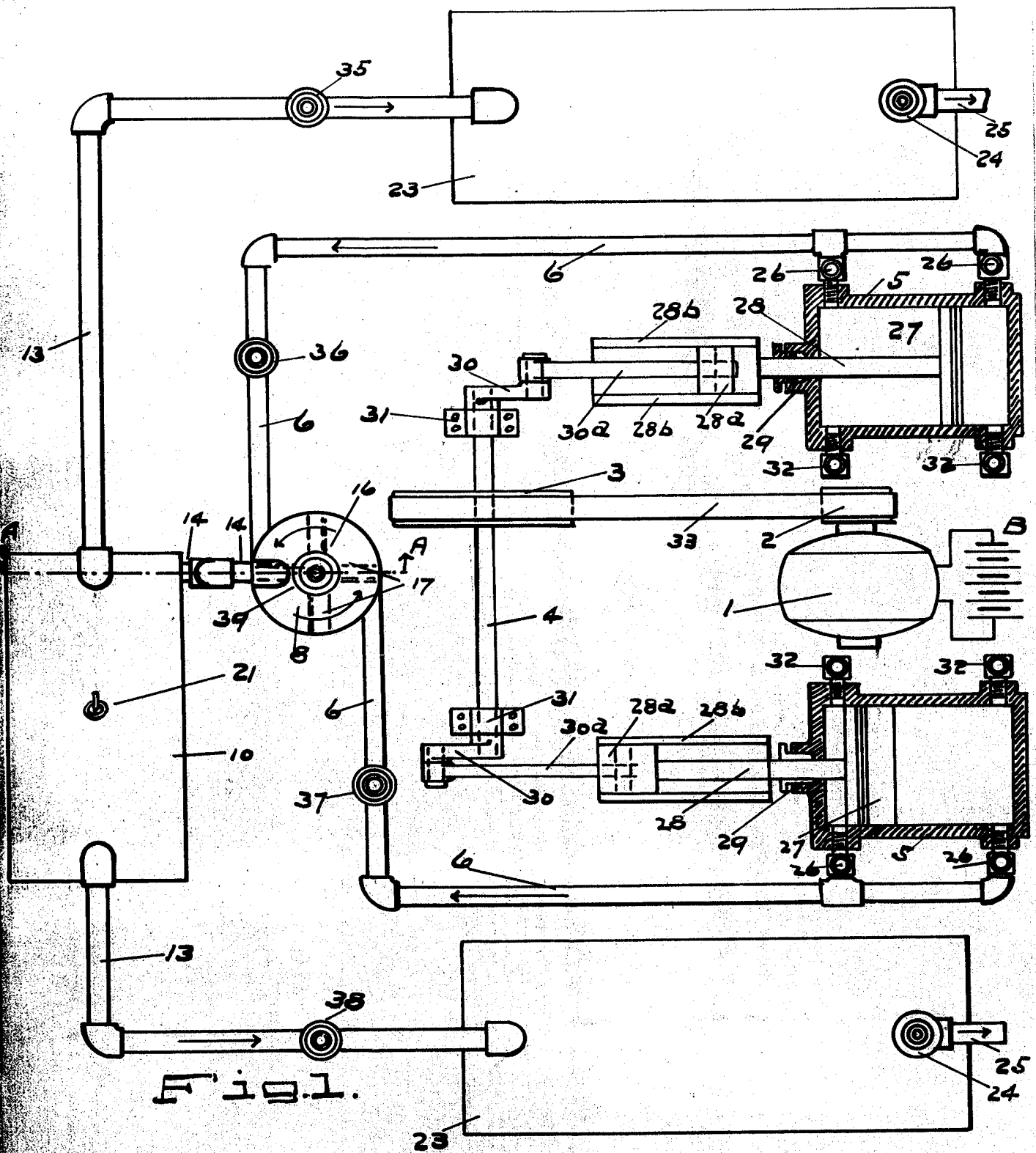


Fig. 1.

CERTIFIED TO BE THE DRAWINGS REFERRED TO IN THE SPECIFICATION
HEREUNTO ANNEXED

PORTLAND OREGON. DECEMBER 3rd 1914

J. H. Morton

D. W. Hoelling

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INVENTOR

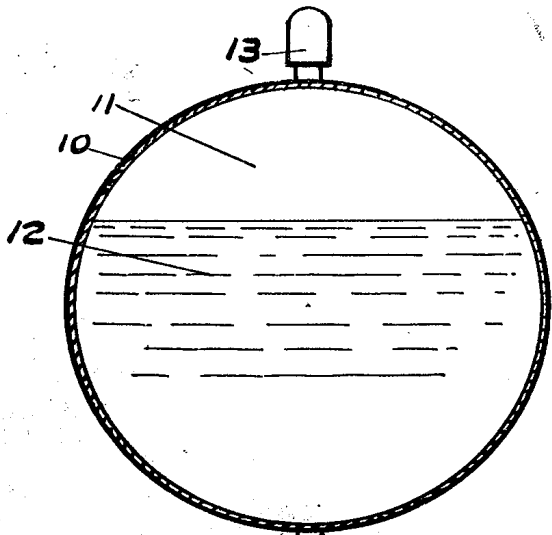


Fig. 2

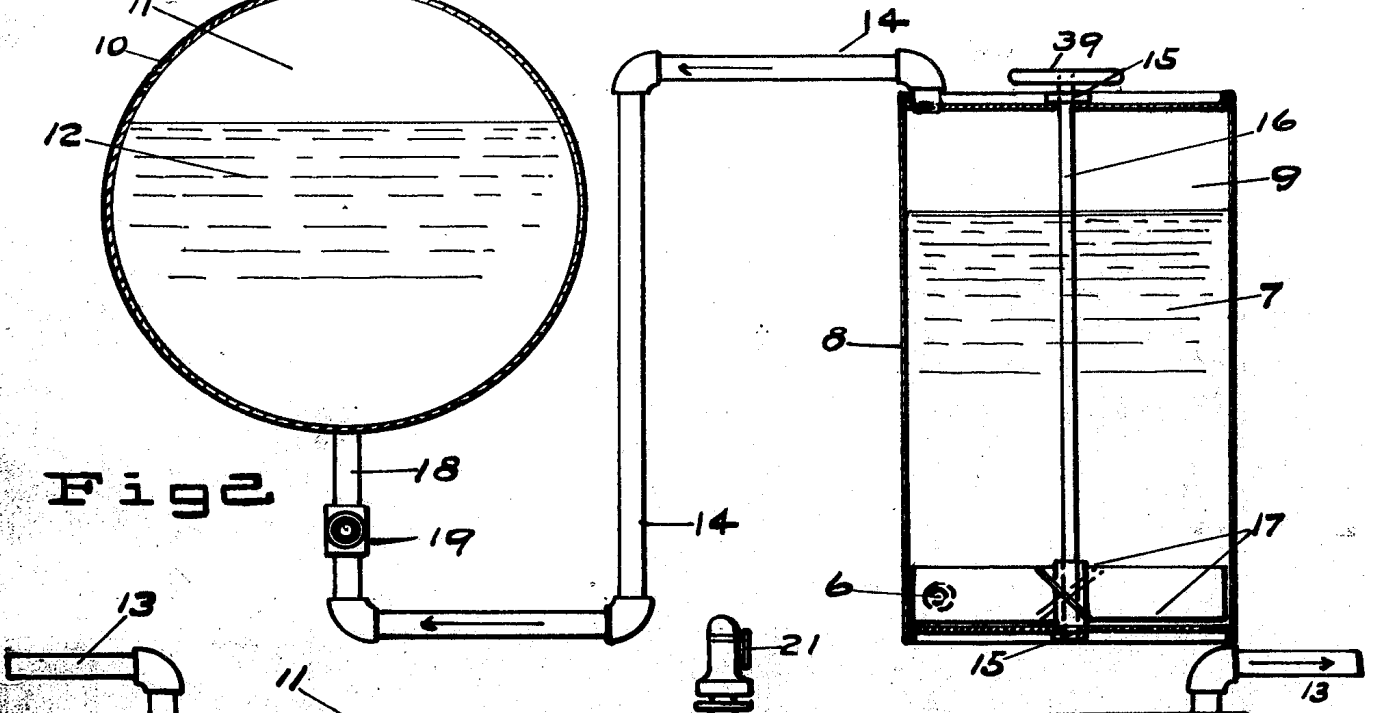


Fig. 3.

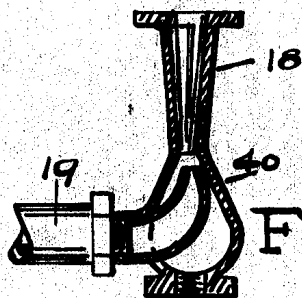


Fig. 4.

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PORTLAND OREGON, DECEMBER 3rd 1914

J. H. Morton
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