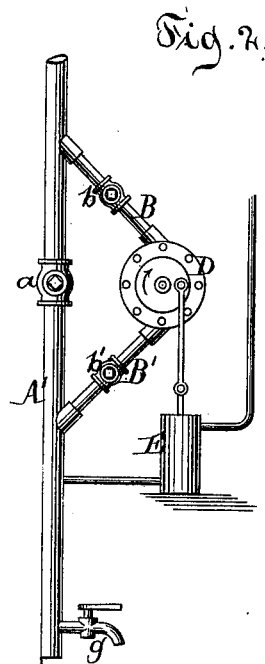
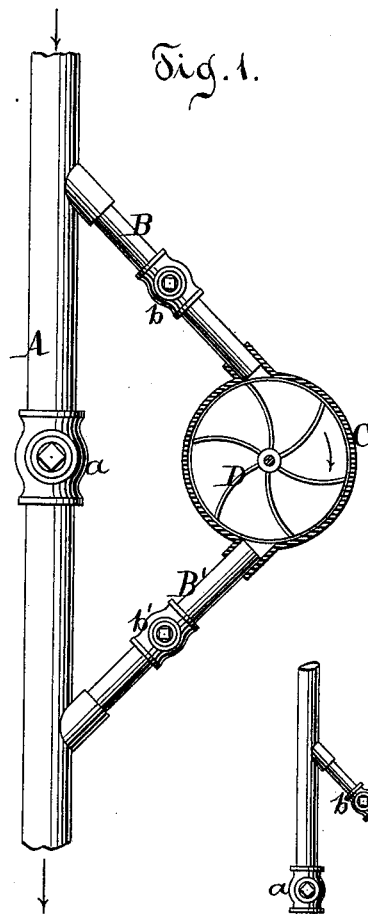


H. Z. NORTON.
Hydraulic-Engine.

No. 220,168.

Patented Sept. 30, 1879.



Witnesses.

Chas. Wablers.
William Miller

Inventor.

Hart Z. Norton
by Van Santwood & Hauff
his attys

UNITED STATES PATENT OFFICE.

HART Z. NORTON, OF NEW YORK, N. Y.

IMPROVEMENT IN HYDRAULIC ENGINES.

Specification forming part of Letters Patent No. **220,168**, dated September 30, 1879; application filed July 10, 1879.

To all whom it may concern:

Be it known that I, HART Z. NORTON, of the city, county, and State of New York, have invented a new and Improved Motive Power, which invention is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a sectional plan. Fig. 2 is a diagram indicating one of the applications of my motive power.

Similar letters indicate corresponding parts.

This invention consists in the combination, with a main pipe which forms the conduit for a current of water or other liquid or fluid under pressure, of a branch pipe connected with and extending from the main pipe to a turbine wheel or other power-machine, and from this power-machine back to the main pipe, so that by directing the current of liquid or fluid either wholly or partially from the main pipe to the branch pipe the power-machine is set in motion without wasting any portion of the liquid or fluid introduced into and passing through the main pipe.

In the drawings, the letter A designates the main pipe, through which passes a current of water, steam, air, or other liquid or fluid, under a certain head or pressure. From this main pipe extends a branch pipe, B, which communicates with a case, C, containing a turbine wheel, D; and returns from said case to the main pipe by the branch pipe B'.

In the main pipe is placed a stop-valve, *a*, between the points where said pipe connects with the branches B B', and each of these branches is also provided with a stop valve or cock, *b b'*, respectively. By closing the stop-valve *a* and opening the cocks *b b'*, the current of water or other liquid or fluid is diverted from the main pipe A, and compelled to pass through the branches B B' and through the case C, in which said current acts upon the turbine wheel D, so as to produce a motive power which can be utilized for any desired purpose. The water or other liquid or fluid, after having passed through the branches B B', returns to the main pipe and continues to flow through the same without any waste.

In Fig. 2 I have indicated the manner of applying my motive power for pumping water from the basement of a house to its upper

stories. In this figure the letter A' designates the pipe which conducts water from the street-main to a faucet, *g*. To the pipe A' are secured the branch pipes B B' and the turbine wheel D, in the manner already described.

The shaft of the turbine wheel carries an eccentric, which connects with and operates a double-acting pump, E, the suction-pipe of which connects with the pipe A', while its ascension-pipe rises up into the top story of the building. When the stop-valve *a* in the pipe A' is closed, and the stop-cocks *b b'* and faucet *g* are opened, (the opening of said faucet being essential in order to create a current of water,) the turbine wheel is set in motion, and a certain quantity of the water which runs from the pipe A' to the pump is pumped up into the top of the house; or, in other words, whenever water is drawn from the faucet *g* sufficient power is obtained, by the action of the water on the turbine wheel, to raise a quantity of water up into the upper part of the building, while the remaining portion of said water can be used for any desired purpose. In the same manner a pump may be driven by the current of water running through a street-main, for the purpose of extinguishing fires, or for sprinkling the streets, or for any other desirable purpose.

It will be noticed that the peculiarity of my invention is locating the turbine wheel and its casing outside and independent of the main pipe, a communication between the main pipe and the wheel, through the medium of branch pipes, the main and the branch pipes each being supplied with a stop cock in such relation to each other that, by a proper manipulation of the stop-cocks, the entire current of water or other fluid can be made to pass directly through the main pipe, or the entire current can be made to pass through the branch pipes, for imparting motion to the wheel; and, further, the force of the current can be regulated in the main and in the branch pipes by a proper adjustment of the stop-valves.

By making the casing and its wheel separate and distinct from a main pipe, I am enabled to adapt my invention to the main pipes now in use or those already laid in position, by simply providing the main with a stop-cock, tapping said main, connecting therewith the casing and its wheel through the medium of

branch pipes, and such can be more easily accomplished than if the main pipe were constructed with an enlargement to receive the wheel and provided on the interior with a partition for directing the current of water into the wheel for imparting motion to it, or through the main, without disturbing the wheel, as heretofore.

It will be readily understood from this example that, instead of using a turbine wheel for the power-machine, any other suitable machine, such as a water-engine, might be used; or if, instead of water, a current of steam or air under pressure passes through the pipe A, an ordinary steam or air engine may be substituted for the turbine wheel D, and instead of transmitting the power to a pump, it can be transmitted to any other machine or mechanism.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of two branch pipes, either or both of which is provided with a suitable stop-cock or valve, a suitable casing containing a wheel or other power-machine connected with said branch pipes, and all adapted to be connected with a main pipe, so that its stop-cock or valve will be between the two branch pipes, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 7th day of July, 1879.

HART Z. NORTON. [L. S.]

Witnesses:

W. HAUFF,
HENRY M. WALKER.