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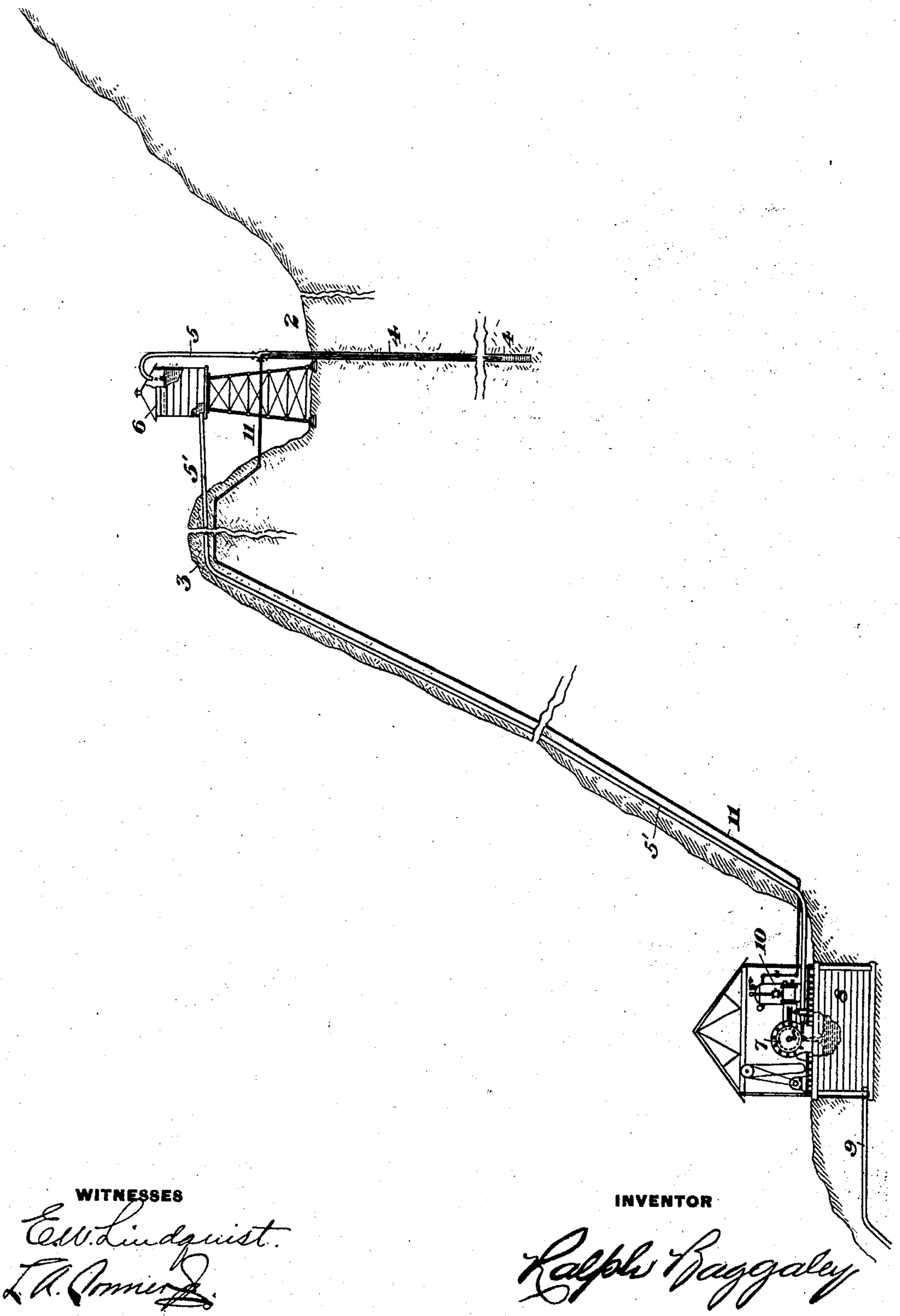
R. BAGGALEY.

WATER SUPPLY APPARATUS.

APPLICATION FILED FEB. 24, 1903.

NO MODEL.



WITNESSES

E. W. Lindquist.

L. A. Sommerville

INVENTOR

Ralph Baggaley

No. 746,242. Patented December 8, 1903.

UNITED STATES PATENT OFFICE.

RALPH BAGGALEY, OF PITTSBURG, PENNSYLVANIA.

WATER-SUPPLY APPARATUS.

SPECIFICATION forming part of Letters Patent No. 746,242, dated December 8, 1903.

Application filed February 24, 1903. Serial No. 144,657. (No model.)

To all whom it may concern:

Be it known that I, RALPH BAGGALEY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Water-Supply Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, which shows in side elevation, partly in vertical section, a water-distributing plant constructed in accordance with my invention.

My invention relates to a new means of furnishing a supply of water for any desired purpose, but more especially for large manufacturing plants—such, for instance, as copper-smelting plants—which supply is intended to be practically free from manual labor and without the employment of fuel or of power other than that supplied by the water itself. The limit of supply is regulated solely by the drainage area from which it is drawn. It will be understood that this automatic system is only applicable to use at such places where the natural conditions existing are suitable, and chief among these conditions may be mentioned that the source of supply must be materially higher than the point or points at which the water is utilized. For instance, the water in an elevated lake, pond, river, creek, or drainage basin may be readily utilized for an automatic supply when the smelter plant or the point at which the supply is to be utilized is in a valley or at a point materially lower than the source and where the physical conditions are such that a natural flow by gravity is impossible and where the intervening obstruction or elevation is too great to admit of the use of a siphon.

My invention consists of a new combination of old devices and old principles in mechanics and in hydraulics. I am well aware that drive-wells are old; that the hoisting of water from driven and other wells by means of compressed air allowed to escape in the bottom of the well is also old. I know that an air-conducting pipe and a water-conduit have been used before. I know that an impact-wheel is old and that air-compressing machinery of various kinds has been used for years, yet so far as I know these things have never been combined as in my invention.

Referring now to the drawing, 2 represents an elevated valley, from which the water supply is to be derived.

3 is a natural obstruction or hill over which the water is to be carried. At the place 2 is a well or wells 4, from which water is elevated through a pipe 5 into a reservoir 6. On the other side of the obstruction 3 at a considerably lower level is a water wheel or motor 7, which is driven by water from a pipe 5′, leading from the reservoir 6, the water from the wheel falling into a tank 8, from whence it is delivered by a pipe 9 to the place of use.

10 is a compressor for supplying compressed air, which is driven by the water-wheel 7 and transmits the air through a pipe 11, which extends upwardly past the obstruction and down to or near the lower end of the well-tube 4. When compressed air is discharged from this pipe into the well-tube, the ascending rings or cylinders of air elevate the water and discharge it into the reservoir 6, from which it flows through the pipe 5′ and operates the water-wheel 7, which in turn drives the air-compressor 10. The air is liberated from the water in the reservoir 6 at the top of the ascending column of water. This is essential, since if means were not employed for separation of the air it would accumulate at the top of the pipe 5 and would check the flow.

In starting the flow of water it is necessary to supply compressed air to the pipe 11 from some suitable source or by some auxiliary motor; but after the flow of water begins through the pipe 5′ the apparatus will operate continuously and automatically without any power other than that supplied to the motor 7 by the descending water.

The absence of all machinery which would require the presence of a man at the well is an important feature of my invention and renders it economical and very efficient.

I claim—

Means for transmitting water from an elevated source over an intervening obstruction, which consists in the combination with a water-conducting pipe extending upwardly

from such source, of an air-conducting pipe discharging into the lower part of the water-conducting pipe, a free opening at the top of the water-conducting pipe for the liberation of the air from the water, a motor at a lower level, a water-pipe leading downwardly from said opening and adapted to supply water by gravity to drive the motor, and an air-compressor driven by the motor and discharging into the air-conducting pipe; substantially as described.

In testimony whereof I have hereunto set my hand.

RALPH BAGGALEY.

Witnesses:
GEO. B. BLEMING,
N. M. GRIFFIN.