

(No Model.)

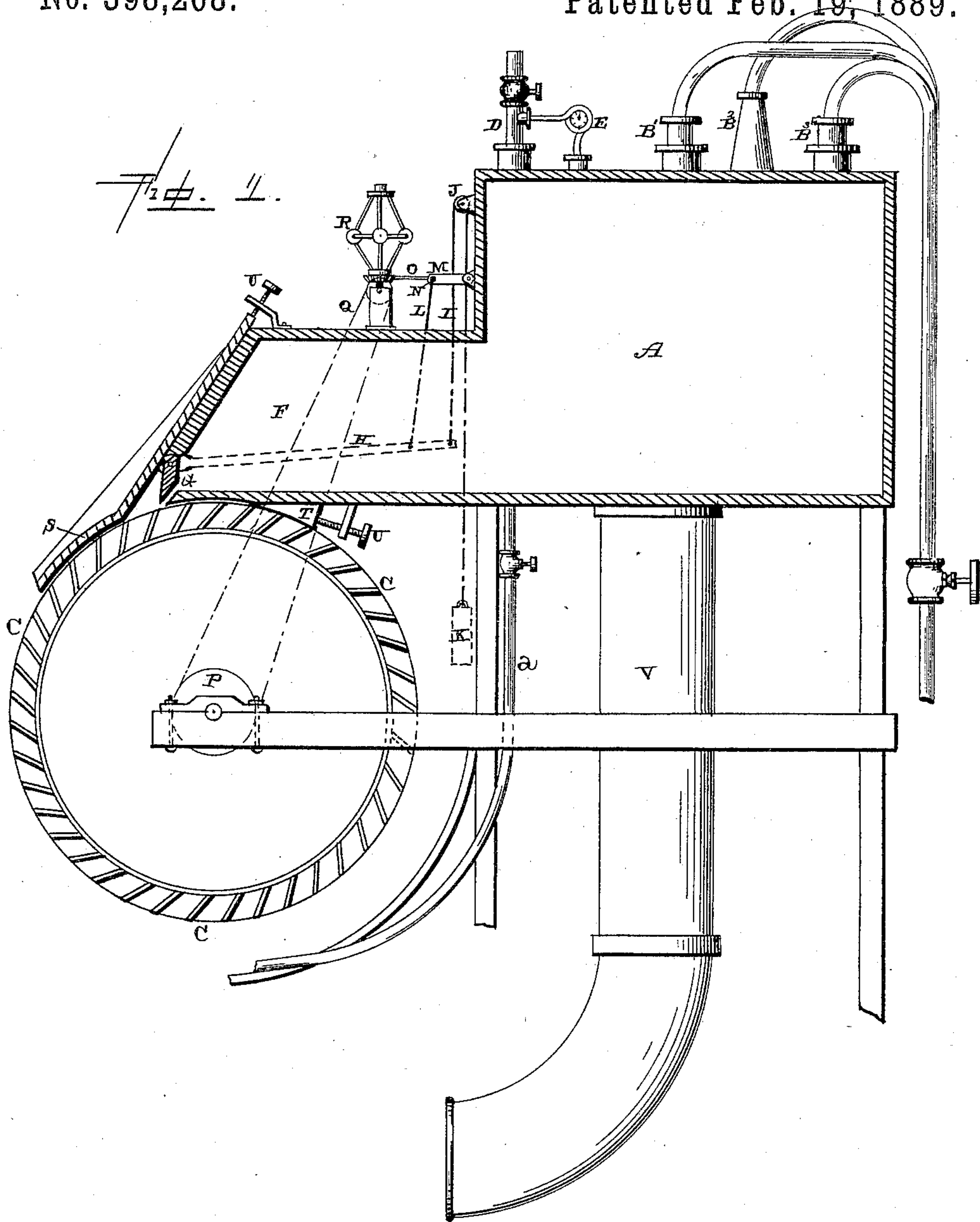
3 Sheets—Sheet 1.

L. LOHMAN.

WATER POWER.

No. 398,268.

Patented Feb. 19, 1889.



WITNESSES.
A. J. Gardner
Allen J. Patterson.

Inventor.
L. Lohman.
per J. A. Lehmann, atty.

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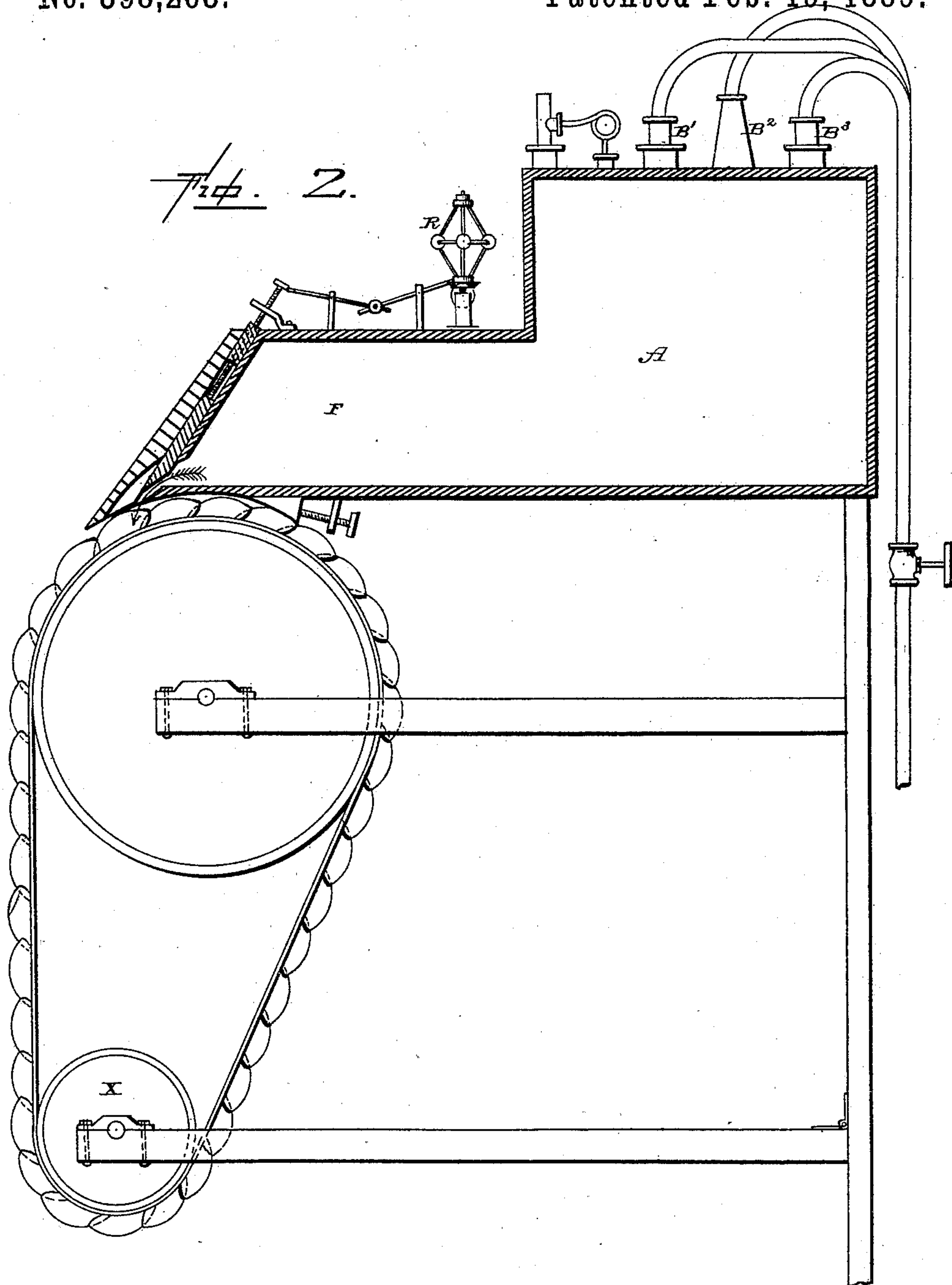
3 Sheets—Sheet 2.

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R. T. Gardner
Allen Patterson

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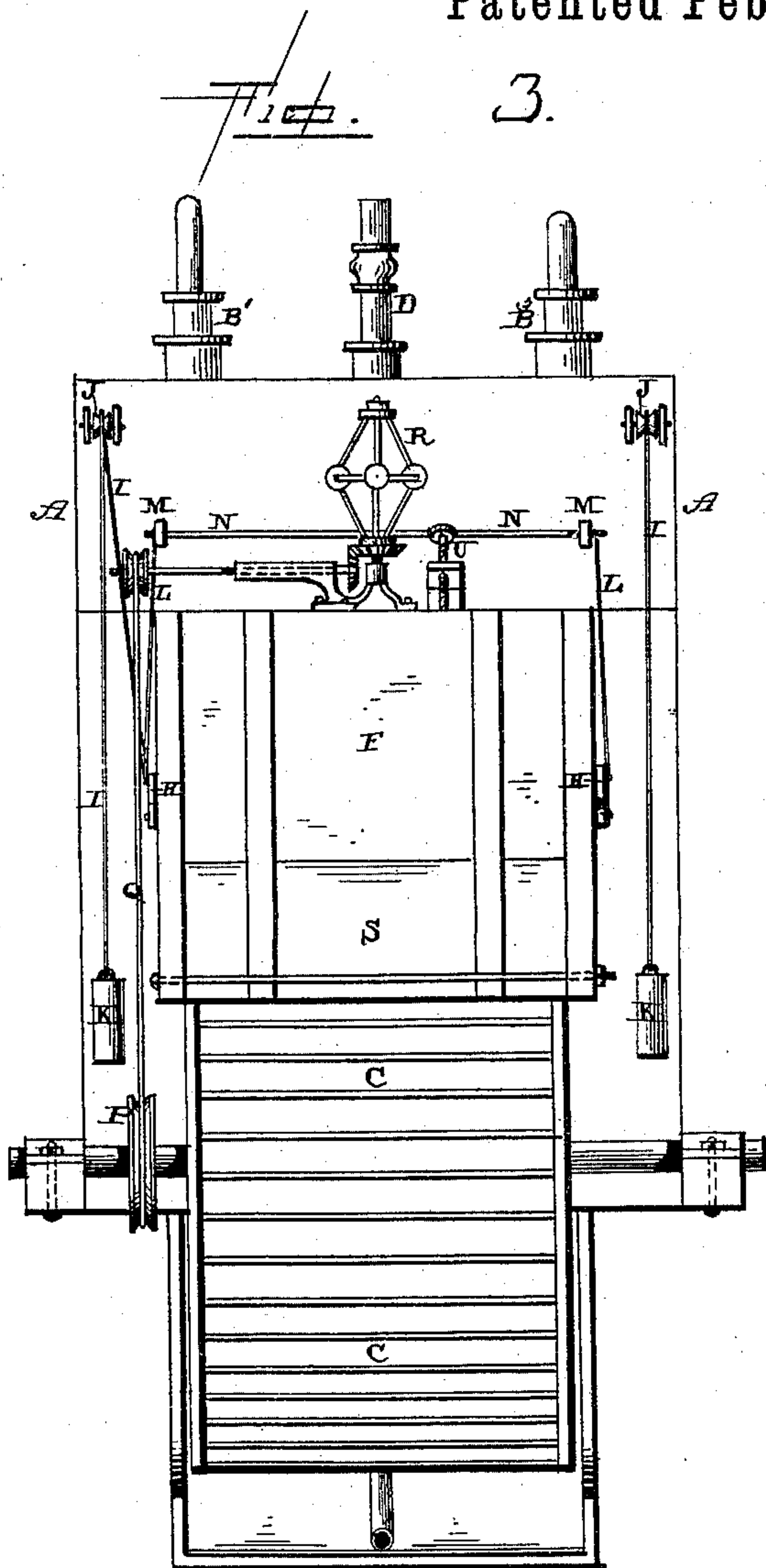
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UNITED STATES PATENT OFFICE.

LOUIS LOHMAN, OF JACKSONVILLE, FLORIDA.

WATER-POWER.

SPECIFICATION forming part of Letters Patent No. 398,268, dated February 19, 1889.

Application filed May 21, 1888. Serial No. 274,498. (No model.)

To all whom it may concern:

Be it known that I, LOUIS LOHMAN, of Jacksonville, in the county of Duval and State of Florida, have invented certain new and useful Improvements in Water-Powers; and I 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in water-powers; and its objects are to conduct the water and gas from Artesian wells into a water and air tight compartment, from which the water flows upon a water-wheel of any construction, and to provide the water and air tight compartment with an automatic governor, by means of which the flow of water to the wheel can be accurately regulated.

Figure 1 is a vertical horizontal section of a water-power embodying my invention. Fig. 2 is a similar view showing an endless-belt wheel. Fig. 3 is an end view showing the governor mechanism.

A represents an air, water, and gas tight storage-compartment, of any desired size, shape, or construction, and which is raised a distance above the ground proportioned to the size of the wheel which is to be used in connection with it. Into this storage-compartment the pipes B, leading from one or more Artesian wells, discharge their water and gas under pressure, and from this compartment the water flows under the pressure of the gas and water upon the wheel C, of any suitable construction.

The ends of the pipes B' B² B³, leading from the Artesian wells, are enlarged in any suitable manner above the top of the compartment, so as to allow free discharge. Where the pipes are discharging from more than one well into the compartment, and one of the wells has a greater pressure than the others, the pressure produced from this well in the compartment will serve to retard the flow to a certain extent from the other wells; but as soon as the flow from this strongest well becomes somewhat reduced then the flow from the other wells will be unimpeded, and the pressure will then become uniform and keep up an even flow of water.

When the pressure of gas and water in the

tank is greater than the flow of any one or more of the wells, the compartment being air-tight, the flow of water is entirely stopped from those wells in which the force of flow is not equal to or greater than the pressure in the storage-compartment, and it is always the case that the wells vary in force of flow. For instance, suppose the force of flow from pipe B³ is equal to a pressure of one hundred pounds, the pipe B² sixty pounds, and pipe B' forty pounds, and the compartment empty. Now, by closing the gate G and opening the vent E, to allow the air to pass out of the compartment, water will at once flow from all of the wells until the storage-compartment is filled. When this is done, the vent is closed, and by opening the gate G a pressure will be given upon the wheel by the outflowing water, varying according to the volume of water in the compartment, to which is added the pressure of the strongest well—viz., one hundred pounds. The pressure in the storage-compartment now being more than the force of flow from either of the pipes B' B², the flow from these pipes is stopped. If the amount of water being used by the wheel is not greater than is supplied by the pipe B³, no water whatever will flow from pipes B' B²; but should the gate be opened wider and more water used than the pipe B³ can supply the pressure in the compartment will be gradually decreased. When sufficient water has passed out of the storage-compartment to reduce the pressure therein to sixty pounds, water will at once begin to flow from pipe B², and should more water be used than the pipes B³ B² will supply, the pressure will be gradually decreased until it is equal to or less than the force of flow from pipe B', when water will at once begin to flow from pipe B', and this process will be repeated as often as there are pipes of varying force flowing into the storage-compartment. By means of this construction it will be seen that approximately the same volume of water is kept in the storage-compartment automatically, according to the amount of water being used, and all waste of water is prevented, since water can only flow as fast as it is used, and thus the wells of a weaker force of flow of gas and water are not continually flowing and exhausting themselves, as would otherwise be the case.

The pressure of air and gas in the compartment serves to increase the force of the flow of water and to greatly add to the power derived therefrom. This compartment will be
 5 provided with an air and gas escape pipe, D, which is provided with a suitable stop-cock and with a pressure-gage, E, so as to indicate the amount of pressure in the compartment. An overflow-pipe, *a*, will also be provided, so
 10 as to give relief to the compartment when the wheel is not in operation, or when more water is supplied than can be conveniently used.

As here shown the compartment is provided with a water-way, F, which extends horizon-
 15 tally from the bottom of the compartment A, and which has its end preferably inclined, as shown. The discharge of the water from this way F is regulated by the pivoted gate G, which has connected to it at each end a rod,
 20 H, which rods have their free ends supported in position by means of the cords I, which pass up over the guiding-pulleys J, and weights K, which are secured to the lower ends of the cords. Also connected to the inner ends of
 25 these rods H are the connecting-rods L, which have their upper ends attached to the pivoted levers M, which are connected by a cross-rod, N, across the end of the compartment, so as to cause them to move together. Projecting
 30 from the governor is a vertically-moving rod, O, which, as the centrifugal force causes the balls of the governor to rise, rises with the balls, and by raising the free ends of the piv-
 35 oted levers M exerts an upward pull through the connecting-rods L upon the rods or levers H, and these rods or levers cause the gate to partially close and reduce the flow of water upon the wheel. Upon the end of the wheel-
 40 shaft is a pulley, P, from which extends the belt Q to the governor R. When the wheel begins to run too rapidly, the movement of the belt Q causes the governor R to revolve more rapidly, and this rapid revolution causes the balls of the governor to rise by the cen-
 45 trifugal force and thus operate the rod O. As the balls fall, the front ends of the rods H, which are merely counterbalanced by the weights K, allow a greater pressure of water upon the wheel and increase its speed.

In order to hold the water in contact with the wheel, an apron, S, is placed over the top of the wheel just beyond the gate, so as to prevent the pressure of the water from being dissipated in any manner. A second apron,
 55 T, is applied to the top of the wheel under the end of the way F, and both of these aprons S T are regulated by the screws U. The apron T serves to prevent any backward escape of the water, while the apron S prevents the water from wasting over the tops of the buckets. Any suitable packing may be used in connection with the gate and the aprons, so as to prevent any escape of the wa-
 60 ter, gas, or air past them. The wheel C may be of the ordinary overshot variety, or it may be a turbine, and the water fed to it taken through the vertical pipe V, which leads from

the bottom of the compartment A, or the wheel may be formed of an endless belt provided with a series of separate buckets, as shown in
 70 Fig. 2. In case the endless belt is used it will be made to pass around a guiding-pulley, X, which can be adjusted in the usual manner to regulate the tautness of the belt around the
 75 large drum or roller Y.

It is perfectly immaterial what form of wheel or motor is used in connection with the compartment, the main idea being to have the pipes leading from the Artesian wells dis-
 80 charge into the compartment and to retain the water therein under pressure, so that as it escapes from the compartment it will operate a wheel or hydraulic motor of any kind, and to regulate the flow of water from the
 85 compartment.

Having thus described my invention, I claim—

1. In a water-motor, the combination, with an air-tight storage compartment provided with an opening for the outward flow of wa-
 90 ter, of a number of pipes conducting water to the compartment under varying pressures, whereby the flow of the water from the wells is automatically regulated according to the amount of water used, and a water-wheel
 95 which is operated upon by the water flowing from the compartment, substantially as shown and described.

2. In a water-motor, the combination, with an air-tight storage-compartment provided
 100 with a water-way, F, having an opening in its closed end, of a gate for closing the opening, a water-wheel which is operated upon by the flow of water from the compartment, a gov-
 105 ernor connected with the gate, and pipes conveying water from Artesian wells into the storage-compartment under varying pressures, substantially as shown and described.

3. The combination of the air-tight storage-compartment provided with a water-way, the
 110 pipes B, extending from an Artesian well and discharging into the compartment, the gate G, applied to the end of the water-way F, the rods H, supported at their free ends by means of the weighted cords I, the connecting-rods
 115 L, pivoted levers M, rod O, connected to the governor, the pulley P, and the belt Q, substantially as shown and described.

4. In a water-motor, the combination, with an air-tight storage-compartment provided
 120 with the way F, having an opening in its closed end, of a gate for closing the opening, pipes leading from Artesian wells connected with the compartment, a water-wheel jour-
 125 naled under the way, and an apron secured at its upper end to the closed end of the way and its lower end extending down over a portion of the circumference of the wheel, sub-
 130 stantially as shown and set forth.

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

Witnesses: LOUIS LOHMAN.
 A. DOGGETT,
 GEO. W. KIRBY, Jr.