I. PÁLINKÁS.

WATER TURBINE INSTALLATION.

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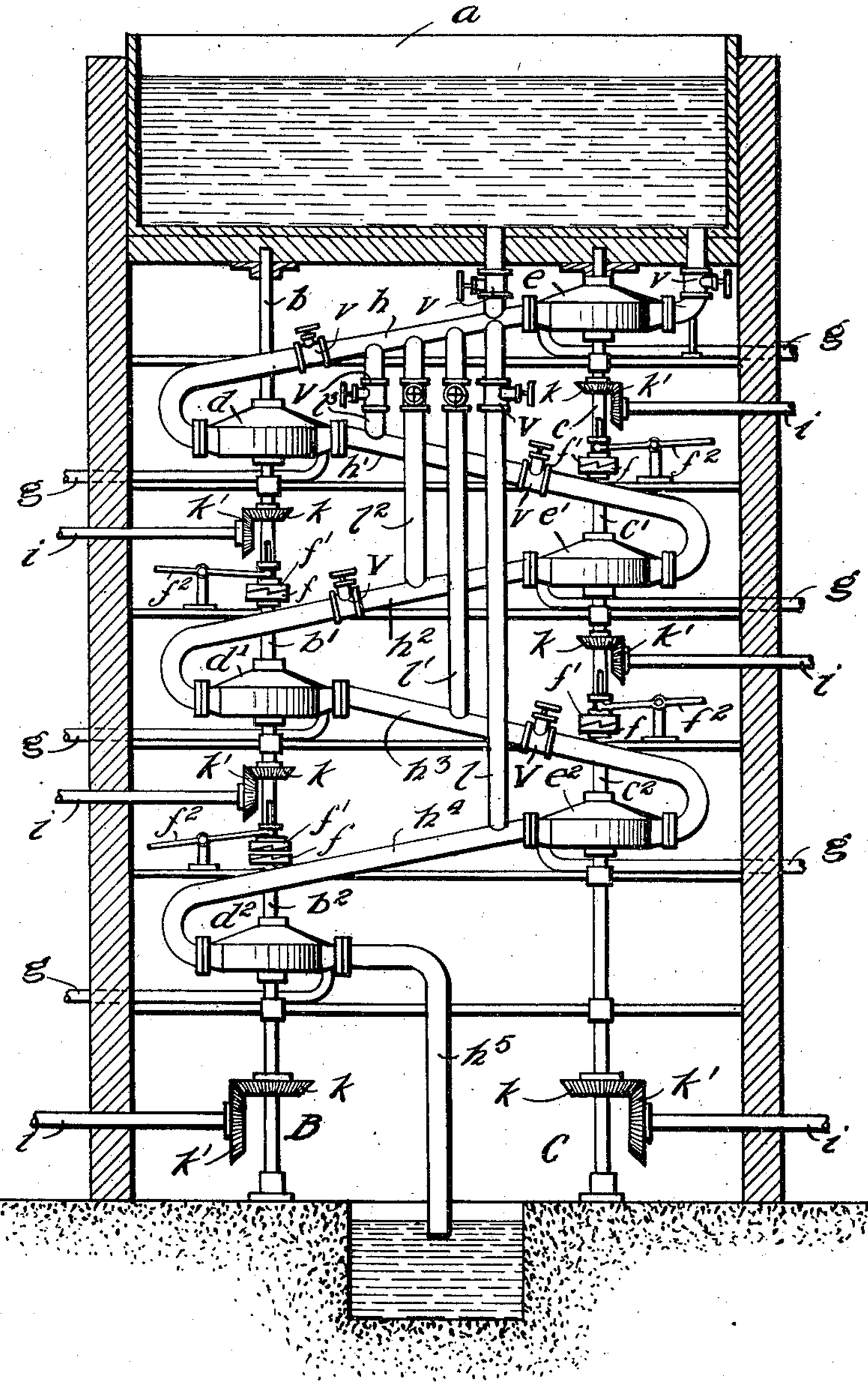
996,789. Patented July 4, 1911.



Witnesses

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WATER-TURBINE INSTALLATION.

996,789. Specification of Letters Patent. Patented July 4, 1911.

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To all whom it may concern:

Be it known that I, IMRE PÁLINKÁS, a subject of the King of Hungary, residing at Szolnok, Austria-Hungary, have invented an Improved Water-Turbine Installation, of which the following is a specification.

This invention relates to water turbines, and has for its object an installation of such turbines wherein the water power available may be regulated.

The invention consists in arranging a number of turbines on shaft sections at different heights, these turbines being independent of each other, and in communication with a water reservoir or water-fall in such a manner that not only certain turbines can be driven simultaneously, but likewise individual groups of turbines or individual turbines may be driven. When all the turbines are in action then the total water power is divided equally among them while if one or more turbines are withdrawn from action, the number of revolutions and the output of the remaining turbines may be regulated at will, whereby it is possible to utilize the individual turbines arranged at different heights, or if desired coupled groups, for the driving of pumps, dynamos and the like which may necessitate a variable driving effort. Should the power required be small, and if for instance it is desired to keep only the uppermost turbine in action, then the water exhausting from this turbine is led into an auxiliary receptacle situated at a height corresponding to that of the turbine, consequently no water enters the lower turbines. The water stored in this auxiliary receptacle can be utilized later for driving a turbine situated on a lower level or for any other purpose. In a like manner, each turbine can be connected with an auxiliary receptacle situated at a height corresponding to that of the turbine to which it is connected, which receptacle serves for storing the water exhausting from that turbine.

Reference will now be made to the accompanying drawing which shows by way of example one construction of a water turbine installation in accordance with the present invention.

The drawing is a diagrammatic representation of which part is in section.

It is self-evident that the installation can also be carried out in other forms, without departing from the spirit of the invention.

Two vertical line shafts, B and C, composed of sections b, b' and b^2, and c, c' and c^2, respectively, are journaled side by side underneath the water reservoir a. These shaft sections carry the turbines d, d', d^2, and e, e', e^2, respectively the number and type being optional. The shafts may be provided with any known coupling devices between the individual turbines, and as here shown comprises a notched collar f, fixed to one shaft end, a longitudinally movable notched collar f', coacting therewith, carried by the next adjacent shaft, and a lever f^2 for throwing the notches of the movable collar f' in and out of engagement with those of the fixed collar f. By means of this coupling device the shafts belonging to the individual turbines can be all coupled together or can be used independently of one another. The water exhausting from the individual turbines can be led by means of the pipes, g, into auxiliary receptacles (not shown) arranged at heights to correspond to those of the turbines, and thereafter can be utilized at any time for feeding a turbine situated at a lower level. A pipe, h, arranged at an angle connects the uppermost turbine on the one shaft to the uppermost turbine on the other shaft, the other turbines being likewise connected by inclined pipes h', h^2, h^3, h^4, whereby the turbines of the installation can be worked in series. The water exhausting from the lowest turbine is led by means of an exhaust pipe, h^5, into a discharge gutter. When the water actuates all the turbines then the power is equally distributed and each turbine can directly drive a machine capable of doing work, for example, a pump dynamo or the like, through any suitable power transmitting means, and as here shown by means of bevel gears k, carried by the turbine shaft, meshing with the bevel gears k' secured to the drive shafts i.

The water power available can be divided as desired by connecting the individual turbines arranged at different heights directly with the reservoir, a, or with the uppermost pipe, h. If for example the lowest turbine, d^2, on the shaft, B, is connected to the reservoir, a, by means of a pipe, l, so as to avoid setting the remaining turbines in action, then the total power available due to the head of water is utilized in that turbine. Likewise, the remaining turbines are connected independently of each other to the reservoir or pipe h, by means of pipes, l',

l^2, l^3, these pipes having varying lengths, whereby each turbine can be made to act independently of the others. The water pipes and dividing pipes can be fitted with any known pipe valve or trap, indicated at *v*.

According to requirements the various turbines of the installation can be of different forms to correspond to the work for which they are intended.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A water motor comprising in combination, a supply tank, a plurality of shaft sections, a turbine operatively connected with each section, motion transmitting means adapted to be thrown in or out of operative relation to said shaft sections whereby the turbines may be rotated in conjunction with or independently of each other, connections from the supply tank to said turbines, and means for delivering power from said shaft sections.

2. A water motor comprising in combination, a supply tank, a plurality of shaft sections, a turbine operatively connected with each section, motion transmitting means adapted to be thrown in or out of operative relation to said shaft sections whereby the turbines may be rotated in conjunction with or independently of each other, connections from the supply tank to said turbines, and means for delivering power from each of said sections.

3. A water motor comprising in combination, a supply tank, plurality of shaft sections, a turbine mounted on each of said shaft sections, motion transmitting means adapted to be thrown in or out of operative relation to said shaft sections whereby the turbines may be rotated in conjunction with or independently of each other, valve controlled connections from said supply tank to said turbine whereby either or all may be placed in operation, and means for delivering power from said shaft sections.

4. A water motor comprising in combination, a supply tank, a plurality of sets of shafts, a plurality of turbines for said shafts, valve controlled connections from said tank to said turbines and connections between each of said turbines with each other whereby any one or more or all of said turbines may be placed in or out of operation, and means for delivering power from said shaft.

5. A water motor comprising, a supply tank, a plurality of shaft sections, a turbine operatively connected with each section, clutch mechanism interposed between said shaft sections and adapted to be thrown in and out of engagement to transmit power from said turbines in conjunction with or independently of each other, conducting means communicating with said supply tank connecting said turbines in series and each directly, and control means for said conducting means whereby said turbines may be operated in series, independently of each other or to render any or all turbines inoperative, combined substantially as described.

6. A water motor comprising, a supply tank, a plurality of shaft sections, a turbine operatively connected with each section, clutch mechanism interposed between said shaft sections and adapted to be thrown in or out of engagement to transmit power from said turbines in conjunction with or independently of each other, a sectional pipe line, communicating with said supply tank, connecting said turbines in series and having valve control means interposed between each turbine, and valve control bridging pipes communicating with said supply tank and series pipe sections, combined substantially as and for the purpose set forth.

7. A water motor comprising, a supply tank, a plurality of shaft sections, a turbine operatively connected with each section, clutch mechanism interposed between said shaft sections and adapted to be thrown in or out of engagement to transmit power from said turbines in conjunction with or independently of each other, a sectional pipe line, communicating with said supply tank, connecting said turbines in series and having valve control means interposed between each turbine, valve control bridging pipes communicating with said supply tank and series pipe sections, and auxiliary outlets for each turbine, combined substantially as and for the purpose set forth.

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

IMRE PÁLINKÁS.

Witnesses:
HENRIK FRANGÖF,
HUGH KEMÉNY.