G. BALDWIN.

AUTOMATIC WATER ELEVATING DEVICE.

APPLICATION FILED JUNE 24, 1909.

960,775. Patented June 7, 1910.

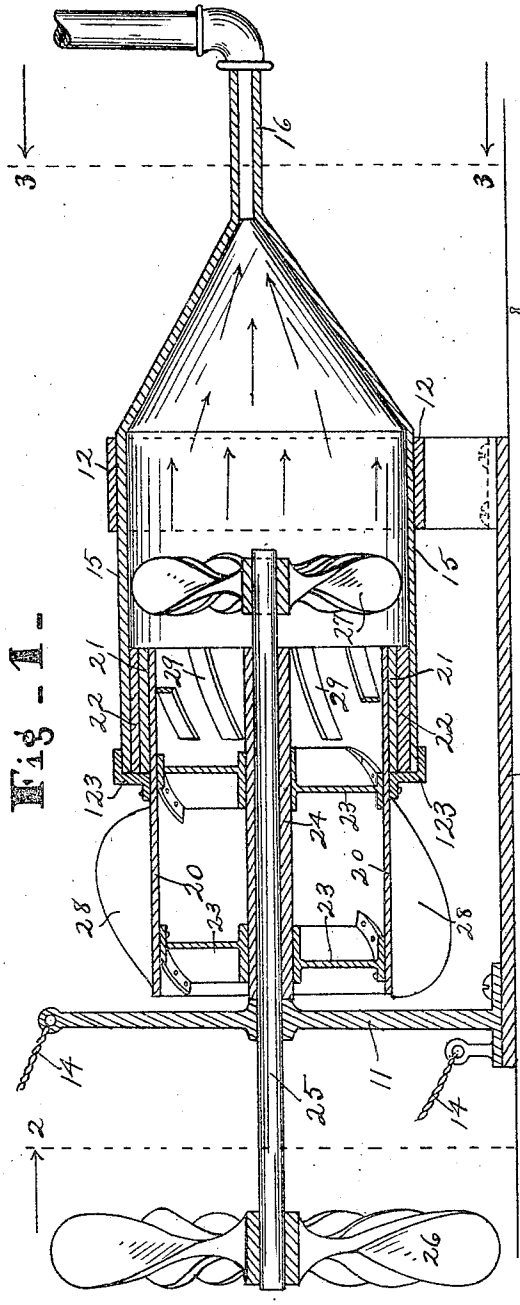

Fig. 1.

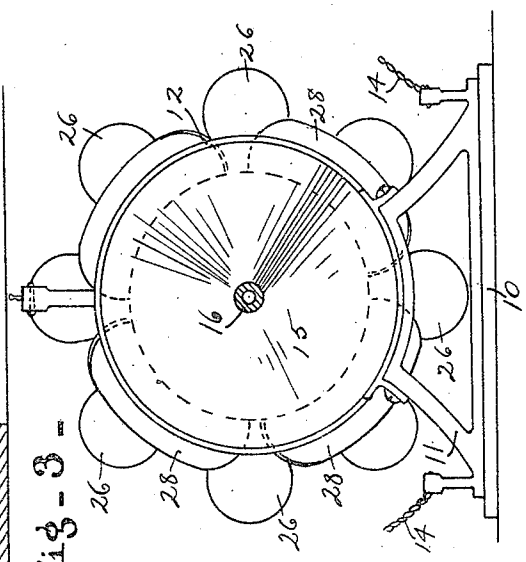

Fig. 3.

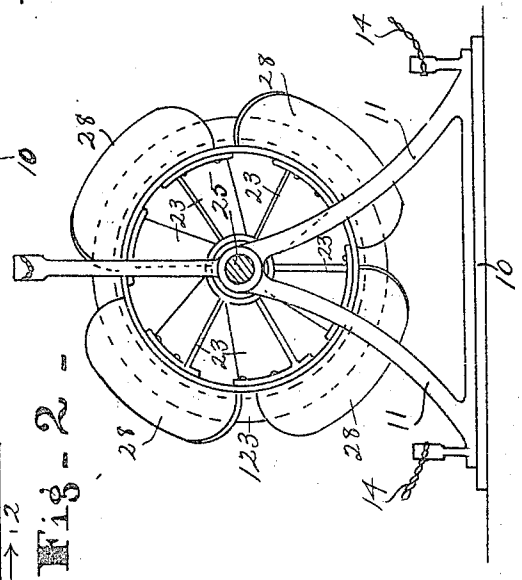

Fig. 2.

WITNESSES:

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GEORGE BALDWIN, OF INDIANAPOLIS, INDIANA.

AUTOMATIC WATER-ELEVATING DEVICE.

960,775. Specification of Letters Patent. **Patented June 7, 1910.**

Application filed June 24, 1909. Serial No. 504,011.

To all whom it may concern:

Be it known that I, GEORGE BALDWIN, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Automatic Water-Elevating Device; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

The object of this invention is to provide means for utilizing the current of a stream of water for lifting the water from the stream to a higher elevation for the purpose of irrigation and the like.

The chief feature of the invention consists in providing in the bed of the flowing stream a turbine-like construction that is of relatively large diameter and is driven by the current and forces a relatively small column of water upwardly to the desired height. The matter of height of the elevation of the water depends on the relation between the diameters of the revolving means and of the column of water lifted and of the flow of the current. To that end, therefore, a stationary cylindrical casing is secured in the stream of water and with a relatively large diameter, and a relatively small pipe leads therefrom upwardly. A propeller is mounted in said casing that is driven by an external propeller actuated by the current of water. There is also a rotatable turbine-like shell extending out of said stationary casing with external wings on the outer portion for causing its rotation and with internal spirally disposed flanges for assisting in propelling water.

The nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Figure 1 is a central longitudinal section through the device. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1.

The device is mounted in a frame consisting of a base plate 10, an end frame 11 at one end of said base, and a band 12 rigidly secured to the other end thereof. This frame may be secured in a stream by any means, but as herein shown, it is held by cables 14 that are tied to any stationary object along the stream and hold the device from flowing down stream. In the band 12 of the frame a stationary casing 15 is secured rigidly. It is a cylinder open at one end and conically closed at the other end, and from the conical end a small discharge tube 16 leads upwardly to a point above the bank of the stream and through which the water is elevated and discharged. The diameter of the discharge tube 16 is very small in proportion to the diameter of the casing 15. Within the open end of the casing a rotatable turbine shell 20 is mounted, a portion of said shell projecting into said casing 15 and a larger portion extending out of it. The shell is of slightly smaller diameter than the casing 15 and is mounted within bearing rings 21 and 22, and a flange 120 is secured to the shell and overlaps the ends of the casing 15 for centering the shell within the casing and limiting the movement of the shell to the right. The shell is prevented from movement to the left by the end plate 11 against which it abuts. Said shell has spirally disposed radial wings 23 secured on the bearing tube or cylindrical sleeve 24 which rides loosely on the shaft 25. The shaft 25 extends through the end plate 11 and said sleeve 24 and has an external driving propeller 26 and a driven propeller 27 located within the casing 15. The external propeller 26 is of considerably greater diameter than the casing 15 or internal propeller 27. The revoluble shell 20 has spirally disposed wings 28 outside of it whereby the shell will be turned by the current of water, and within it there are spirally disposed flanges 29 in the inner end in addition to the spirally disposed wings 23.

The mode of operation is as follows: The current of water coming down stream strikes the propeller 26 and causes a revolution of the propeller 27 on the end of the shaft 25. The water goes on, a portion of it passing outside of the shell 23 and striking the external wings 28, causing the revolution of the shell in the same direction as the propellers 26 and 27. A portion of the water enters the shell 27 and passes through it, being propelled by the wings 23 and flanges 29, and also give a swirling movement. After it has left the revolving shell 20 and entered the casing 15, a further swirling and propelling movement is given to said column of water by the inner propeller 27. Hence these two means, the propellers and the revolving shell, 20, force the water that enters the casing 15 out through the tube 16. This tube 16 is relatively small in order that the column of water to be lifted shall

not be too great for the power generated by the propellers and the shell 20. Therefore the proper proportion between the diameters of said parts must be considered and determined in each case, and that proportion is modified by the height to which the column of water is to be lifted, said column of water being diminished in diameter as the height increases.

What I claim as my invention and desire to secure by Letters Patent is:

1. An automatic water elevating device consisting of a stationary casing open at one end to receive the current of water and with an upwardly extending discharge tube at the other end thereof and of relatively small diameter as compared with said casing, a propeller shaft projecting longitudinally into said casing, a propeller thereon within said casing, and a propeller on said shaft outside of said casing, said latter propeller being of larger diameter than the inner propeller and adapted through said shaft to drive the inner propeller.

2. An automatic water elevating device consisting of a stationary casing with a tube leading from one end thereof upwardly and being of relatively small diameter as compared with the diameter of said casing, a shell revolubly mounted in the other end of said casing with a portion thereof extending out of the casing, spirally disposed wings on the outside of said shell whereby it is revolved, and spirally disposed wings within said shell for giving the water a forward movement.

3. An automatic water elevating device including a stationary shell with a tube leading from one end thereof upwardly and being of relatively small diameter as compared with the diameter of said casing, a shell revolubly mounted in the other end of said casing with a portion thereof extending out of the casing, spirally disposed wings on the outside of said shell, whereby it is revolved, spirally disposed wings within said shell for giving the water a forward movement, a shaft having bearings centrally located in said revoluble shell and extending beyond each end thereof, a propeller on the end of said shaft within said casing of substantially the same diameter as the casing, and a propeller on the other end of said shaft that is of larger diameter than said casing.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

GEORGE BALDWIN.

Witnesses:
G. H. Boink,
O. M. McLaughlin.