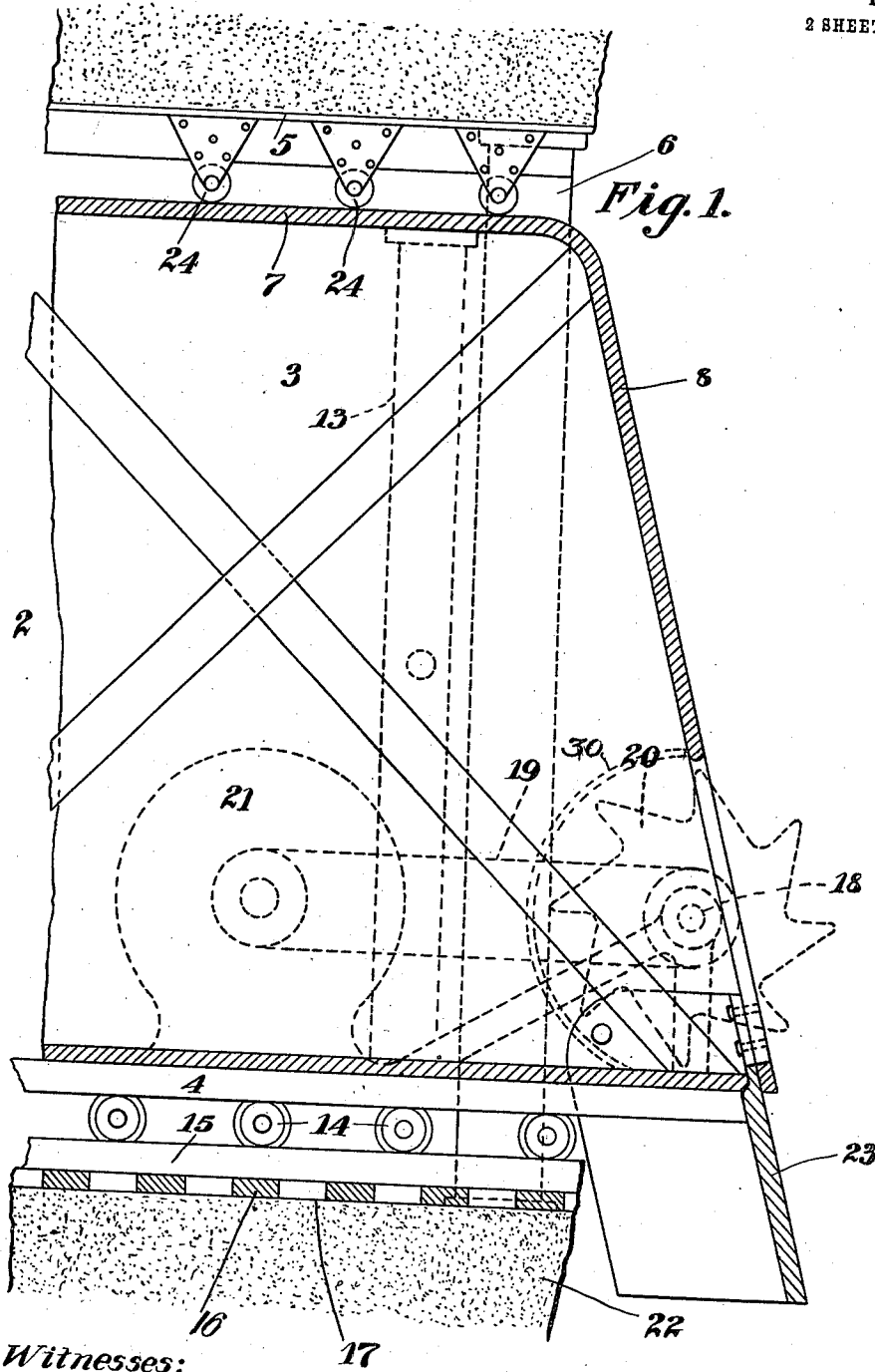


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SYSTEM IN WATERFALL POWER UTILIZATION.
APPLICATION FILED JULY 10, 1911.

1,002,241.

Patented Sept. 5, 1911.
2 SHEETS—SHEET 1.



Witnesses:

Louis B. Dischler
Chas. P. Lyding

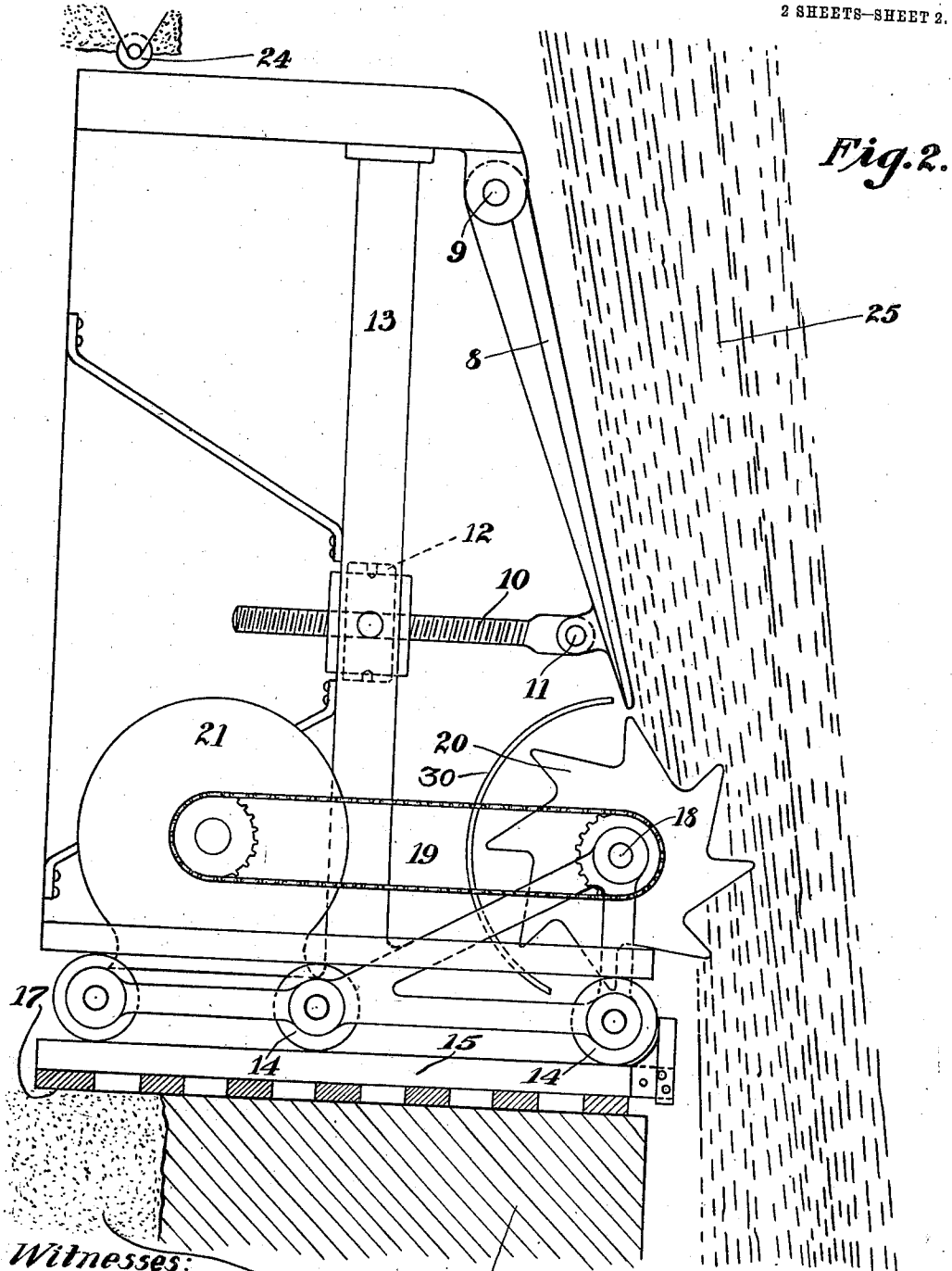
Inventor:

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UNITED STATES PATENT OFFICE.

ALBERT F. EELLS, OF ROCHESTER, NEW YORK.

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Specification of Letters Patent.

Patented Sept. 5, 1911.

Application filed July 10, 1911. Serial No. 637,739.

To all whom it may concern:

Be it known that I, ALBERT F. EELLS, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Systems of Waterfall-Power Utilization, of which the following is a specification.

This invention relates to systems of waterfall power utilization and particularly to systems of the class specified wherein the water is utilized at or near the bottom of the fall.

The object of my improvements is to provide a system of the class specified whereby the momentum due to the fall of the water is utilized, in addition to the force due to its weight.

Other objects of usefulness will be pointed out later herein.

In the drawings accompanying this specification Figure 1 is a diagrammatic side elevation partly in section of the preferred form of my improvements. Fig. 2 is a similar view showing some modifications of details.

While my improvements are adapted for installation in front of a water fall I prefer to install them behind the fall and between said fall and the cliff over which the water passes, and preferably near the bottom of said cliff. If the said cliff at its foot extends outwardly near to the descending water I preferably excavate a room 2 in said cliff supporting the roof thereof by some well known means as ceiling 5 and vertical supports as 6. The location for said room 2 may be approached by any convenient means such as a tunnel, not shown. I then transport the necessary materials to said room from which to build carriage 3 preferably having a chamber-like character as shown particularly in Fig. 1. Said chambered carriage may comprise base rails as 4, roof 7 and a front comprising a downwardly reaching water deflector portion 8. Said deflector may be fixed relative to said carriage as shown in Fig. 1 or it may be pivotally mounted, as at 9, Fig. 2, and provided with means such as screw 10, for swinging said deflector on its pivot toward and away from the water, so as to guide and regulate the flow of water to the buckets of the wheel. Said screw is pivotally attached to deflector 8 at 11 and is in threaded engagement with nut 12 suitably mounted in support 13 of

carriage 3. Said carriage 3 may be supported for movement toward and from the descending water 25 by wheels as 14 rolling on the underside of carriage rails as 4 and on upper side of permanent rails as 15, laid on cross ties as 16 of floor 17. Or said wheels 14 may be pivotally mounted in the carriage as shown in Fig. 2. Above said carriage and preferably fixed to ceiling 5 I mount a plurality of wheels as 24 for engagement with roof 7 to hold said carriage in position. Water-wheel 20 is pivotally mounted at 18 in carriage 3 and may be connected as by chain 19 with electric generator 21.

In erecting my improvements it is usually desirable to extend floor 17 outwardly from its natural limit as 22, toward the downwardly moving water. This is preferably done by concrete or stone construction 26. To afford proper protection for the workmen during said construction I provide an extension hood 23 depending from the water side of said carriage. When said floor 17 and rails 15 thereon have been extended waterward a sufficient distance, hood 23 is removed and carriage 3 run backwardly from the water. Wheel 20 and the other apparatus are then installed and the carriage 3 again moved forwardly until wheel 20 is in suitable engagement with the water. If at any time it is desired to put said wheel out of commission, pivoted deflector 8 (Fig. 2) may be swung outwardly so as to deflect the water from engagement with wheel 20 or carriage 3 may be moved backwardly into room 2 until said wheel is out of engagement with the downwardly moving water.

It will be apparent that the force of the water applied to the water wheel at the outer extremity of the structure which carries said wheel, will strongly tend to tip said structure and put great strain thereupon. It is therefore important that the structure which carries the water wheel, and incloses mechanism connected with it, should be of great firmness. This is secured, by inclosing all this mechanism in a carrying frame or housing, the whole of which is made movable and which is supported on wheels between it and the floor or base on which the structure rests while the top of the structure has a bearing through similar wheels on the ceiling of the chamber in the cliff. As the falling sheet of water is ordinarily at a considerable distance from the face of the cliff, I provide also a masonry

extension 26, of the floor of the chamber, which extension projects near enough to the falling sheet of water so that the water wheel still firmly supported, may be projected in to engage the falling water, and this together with the deflecting shield enables me to bring the full force of the water, concentrated upon the buckets of the wheel. As it is desirable that the shield maintain also the same relation to the water wheel, this shield is mounted on the housing frame work. Further the sheet of falling water is subject to fluctuations in and out, and for this reason the shield is made movable in its relation to the water wheel.

In rear of the water wheel, as shown in Fig. 1, is a guard 30 curved to conform to said wheel and arranged to prevent the dashing of the water upon the machinery connected with the wheel.

I claim:

1. A system of water fall power utilization including in combination a chambered carriage carrying a water wheel installed behind the water fall and mounted for movement toward and away from the descending water.

2. A system of water fall power utilization including in combination, a chambered carriage installed behind the water fall and mounted for movement toward and away from the descending water and a water deflector mounted on the water side of said carriage.

3. A system of water fall power utilization including in combination, a chambered carriage installed behind the water fall and mounted for movement toward and away from the descending water, a water deflector mounted on the water side of said carriage and an extension hood depending from the water side of said carriage.

4. A system of water fall power utilization including in combination, a chambered carriage installed behind the water fall and mounted with bearing wheels at top and bottom for movement toward and away from the descending water, a water deflector mounted on the water side of said carriage and a water wheel pivotally mounted in said chambered carriage.

5. A system of water fall power utilization including in combination, a water wheel, means for moving said wheel into and out of engagement with the descending water, a water deflector pivotally mounted above said wheel and means for swinging said deflector on its pivot.

6. A system of water fall power utilization including in combination, a water wheel, a carriage in which said water wheel is pivotally mounted, said carriage being mounted for movement toward and away from the descending water, a water deflector pivotally mounted above said wheel, and having water engaging portion depending from said pivot toward the water engaging position of said water wheel, an electric generator on said water wheel carriage and means for connecting said water wheel with said generator.

7. A water power system comprising a movable frame work structure which forms an inclosing chamber and support for the water wheel and its connections, said structure being movable toward or from the falling sheet of water, on upper and lower bearings, a water wheel mounted to revolve in fixed bearings at the front edge of said structure and an extended base 26 for supporting said structure near the falling sheet of water.

8. In a water power system comprising a structure movable in its chamber toward and from the falling sheet of water, a water wheel carried from the front edge thereof and having suitable power connections, and a covering 30 arranged to protect said wheel and its immediate connections.

9. A chamber having a water deflecting front inclosing said chamber, said chamber being located in rear of the falling sheet of water, and combined with a water wheel, and the mechanism moved by said wheel, said wheel being adapted and arranged to be exposed to the falling water.

Signed this 8 day of July, 1911 before two subscribing witnesses.

ALBERT F. EELLS.

Witnesses:

WILBUR M. STONE,
LOUIS B. TISCHLER.