Aug. 14, 1956 G. F. KRATZ 2,758,814

WATER MOTOR

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Fig. 1.

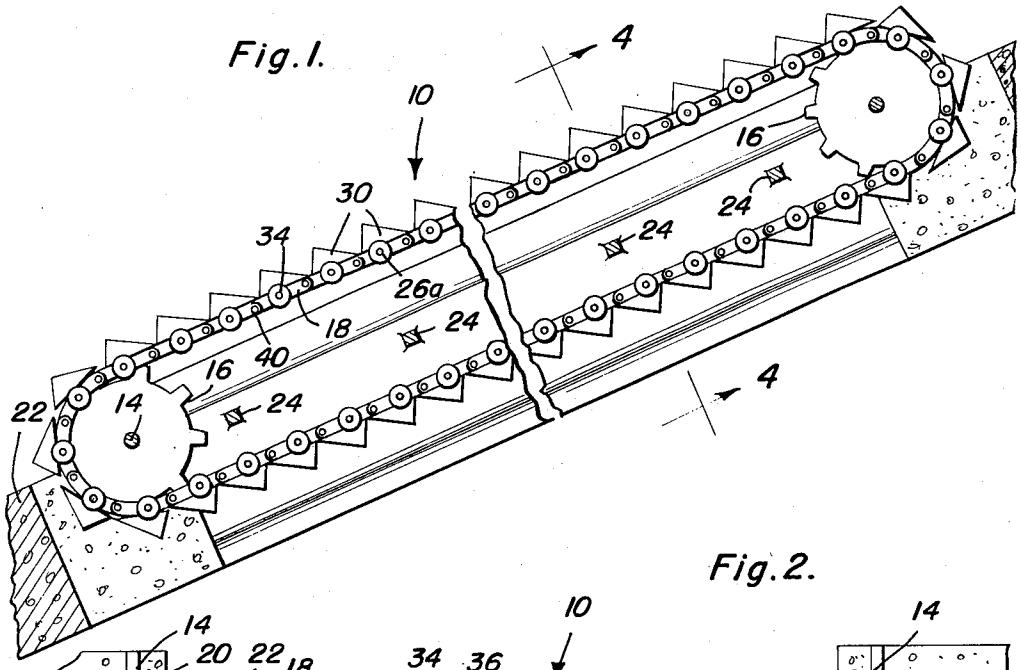
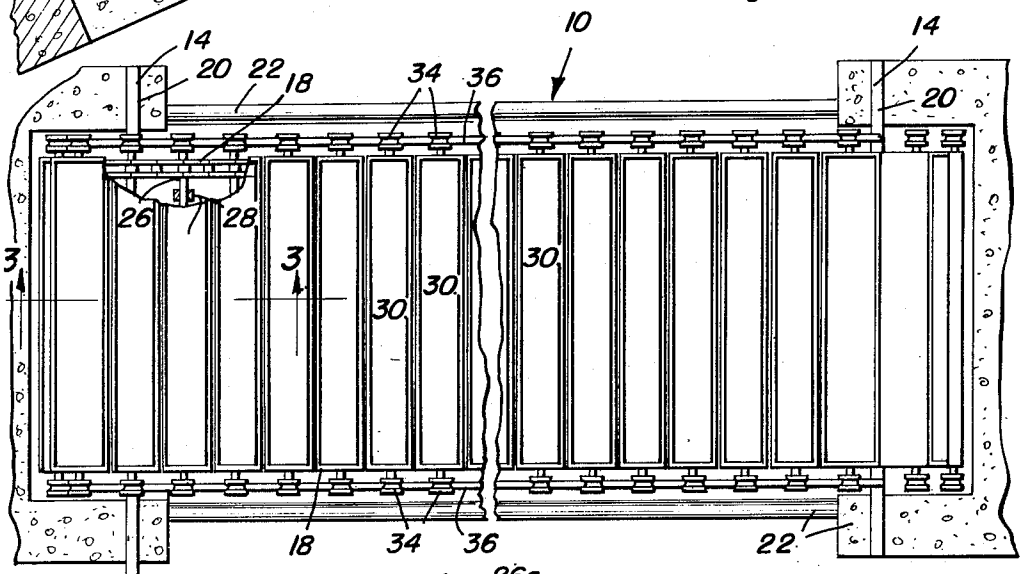


Fig. 2.



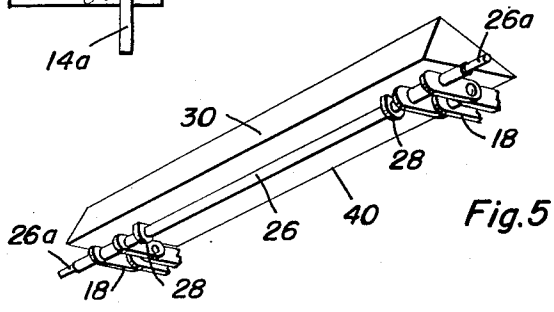


Fig. 5

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Fig.3

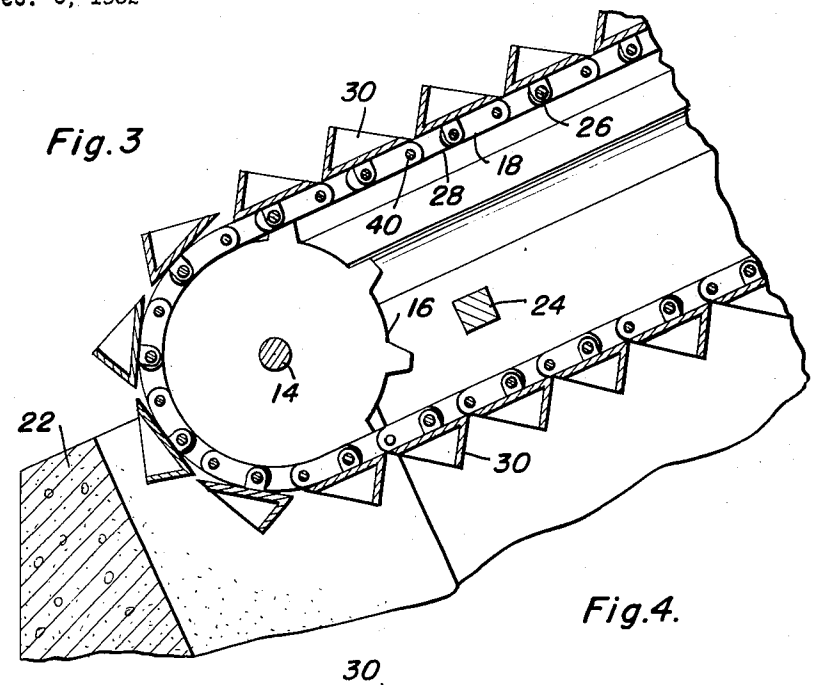


Fig.4.

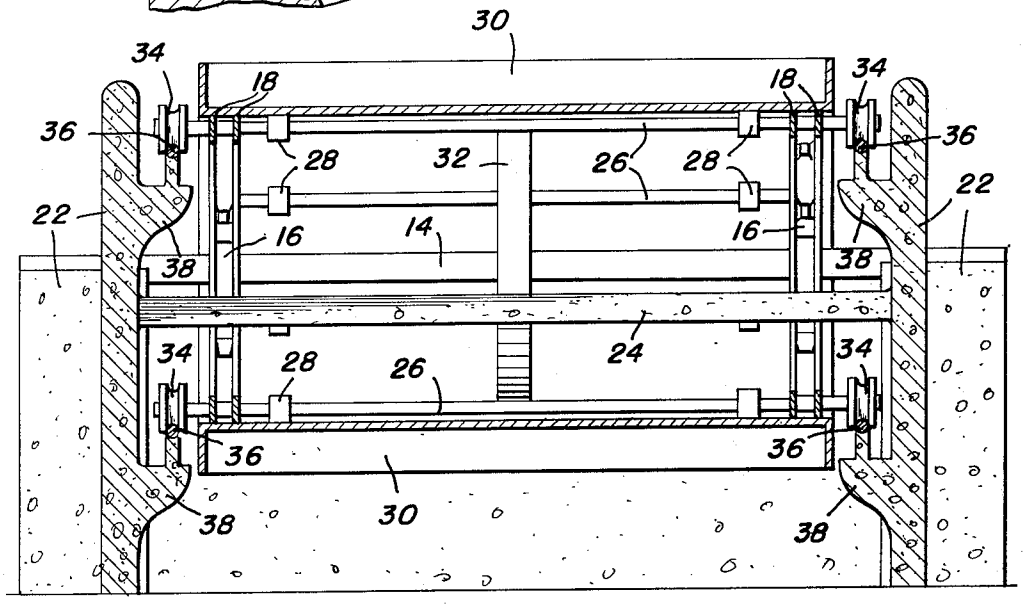
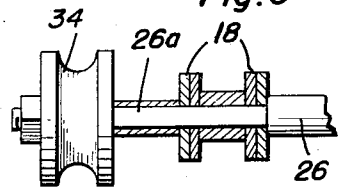


Fig.6



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2,758,814

WATER MOTOR

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Application December 5, 1952, Serial No. 324,334
2 Claims. (Cl. 253—21)

This invention relates to new and useful improvements and structural refinements in water motors, and the principal object of the invention is to provide a water motor which is in the form of a plurality of buckets carried by an endless chain unit such as is adapted to be installed in an inclined position on the slope of a hill or mountain and which is of a substantial length, whereby a large number of buckets on the chain unit may simultaneously be loaded with water to produce a much greater amuont of power than is possible with the conventional water wheel.

Some of the advantages of the invention reside in its simplicity of construction, in its durability, and in its adaptability to convenient installation and maintenance.

With the above more important objects and features in view, and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the arrangement and construction of parts as illustrated in the accompanying drawings, in which:

Figure 1 is a side elevational view of the invention;

Figure 2 is a top plan view thereof;

Figure 3 is a sectional view on an enlarged scale, this being taken substantially in the plane of the line 3—3 in Figure 2;

Figure 4 is a cross-sectional view, taken substantially in the plane of the line 4—4 in Figure 1;

Figure 5 is an underside perspective view of the one of the water buckets used in the invention, and

Figure 6 is a fragmentary enlarged sectional view showing the arrangement of one of the chains, rods and rollers used in the invention.

Like characters of reference are employed to designate like parts in the specification and throughout the several views.

Referring now to the accompanying drawings in detail, the invention consists of a water motor which is designated generally by the reference character **10** and embodies in its construction an endless chain unit of a substantial length, which is adapted to be installed in an inclined plane on a side of a hill or mountain.

This chain unit includes a pair of shafts **14** carrying a pair of sprockets **16**, while a pair of endless chains **18** pass around the sprockets, as will be readily understood.

The shafts **14** are rotatably journalled in suitable bearings **20** provided in the sides of an elongated, concrete trough **22** of any suitable construction and one of the shafts may be provided with an extension **14***a* to function as a power take-off.

As is best shown in Figures 1, 3 and 4, suitable reinforcing members **24** extend transversely between the sides of the trough **22**.

A plurality of spaced, transversely extending rods **26** are secured to and extend between the chains **18**, these rods, in turn, being journalled in bearings **28** provided at the underside of a plurality of water buckets **30**. In order to properly support the considerable weight of water which the buckets are intended to carry, intermediate portions of the rods **26** are engaged by supporting wheels **32** which are secured to intermediate portions of the shafts **14**, as is clearly shown in Figure 4.

Moreover, the outer ends of the rods **26** are provided with grooved rollers **34** which ride upon pairs of guide rails **36**. The guide rails **36** extend in parallelism to the chains **18** and at the outside thereof, being carried by inwardly projecting members **38** on the inner surfaces of the side portions of the trough **22**. It is to be noted that the guide rails **36** are provided for engaging the rollers **34** both at the upper and lower runs or reaches of the endless chains.

When the invention is placed in use, arrangements are made for delivering water to the buckets **30** at the upper end of the inclined chain unit and the weight of the water, of course, will impart motion to the chain unit, thus rotating the shafts **14** so that a drive may be taken from the shaft extension **14***a*. Needless to say, the water is discharged automatically from the buckets at the lower end of chain unit so that only empty buckets travel in the upward direction.

It is believed that the advantages and use of the invention will be readily understood from the foregoing disclosure and therefore, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed as new is as follows:

1. A water motor arranged to utilize the energy of gravity flowing water, said motor comprising an endless unit disposed and rotating in a direction of a downwardly inclined plane and having an upper and lower reach, said unit including an upper pair and a lower pair of sprockets, a pair of chains engaged on said upper and lower sprockets and in side-by-side parallel relationship to each other, a plurality of water buckets mounted at longitudinally spaced points on said chains and facing upwardly from said unit during movement through the upper reach and downwardly during movement through the lower reach thereof, each bucket being substantially V-shaped in cross-section and having a bottom wall parallel to said reaches of said chains, side walls perpendicular to said bottom wall, and a front wall secured to said side walls and to said bottom wall along one edge thereof, said front wall having an upper edge and said side walls having upper edges which are approximately horizontal when in said upper reach, a pair of spaced bearings secured to and depending from the bottom wall of each bucket, a rod extending through each pair of said spaced bearings and having ends which protrude laterally from said pair of chains, said chains being between the outer ends of said buckets and said bearings being located inwardly of said chains in order to provide a firm support for each bucket on said pair of chains, and means at the outer ends of said rods in both the upper and lower reaches of said unit for supporting said reaches during the travel of each.

2. The motor of claim 1 wherein the last-mentioned means comprise rollers secured to the outer ends of each of said rods, an upper guide rail and a lower guide rail, said guide rails being fixed and having said rollers mounted thereon and located laterally outwardly from said pair of chains.

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