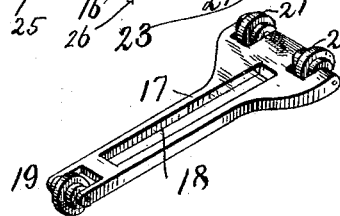
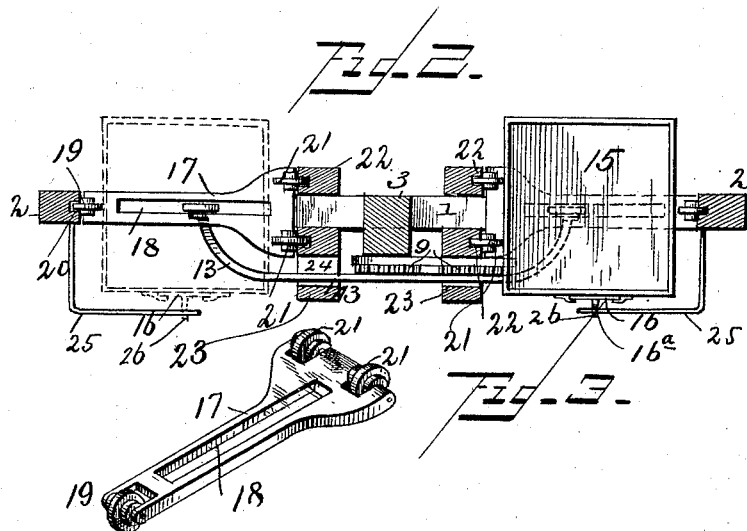
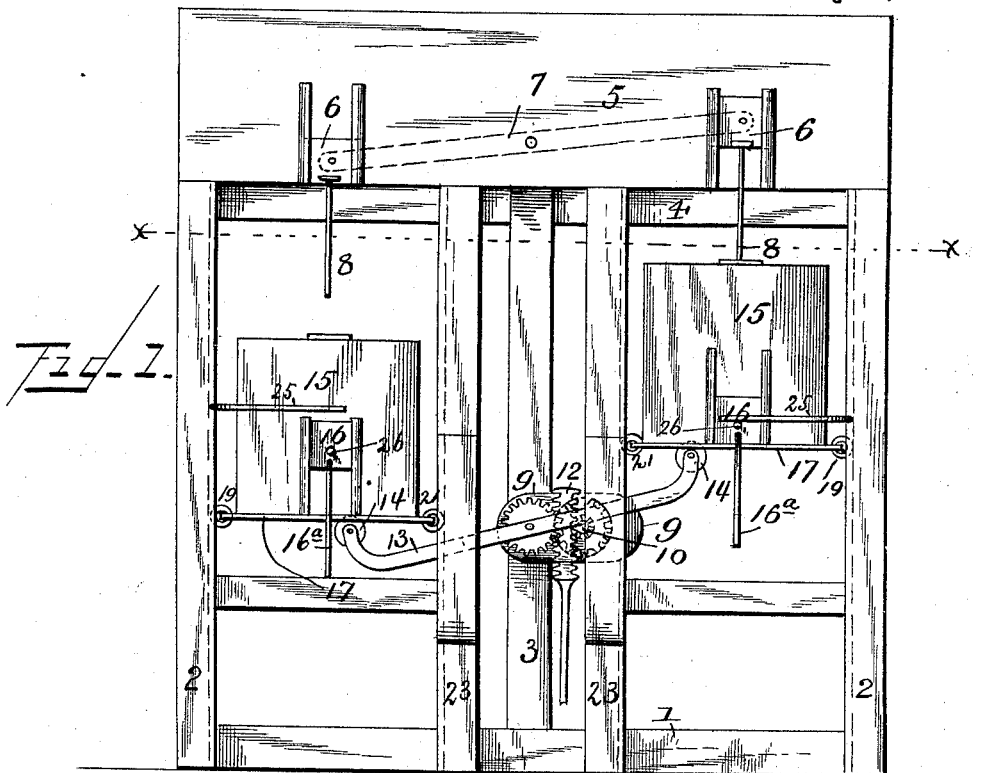


(No Model.)

P. A. GARDNER.
OSCILLATING HYDRAULIC MOTOR.

No. 474,238.

Patented May 3, 1892.



WITNESSES:
Frank L. Curand.
J. B. Coombs

INVENTOR:
Prince Albert Gardner,
by James Dugger & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

PRINCE ALBERT GARDNER, OF SPARTANBURG, SOUTH CAROLINA.

OSCILLATING HYDRAULIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 474,238, dated May 3, 1892.

Application filed October 13, 1891. Serial No. 408,622. (No model.)

To all whom it may concern:

Be it known that I, PRINCE ALBERT GARDNER, a citizen of the United States, and a resident of Spartanburg, in the county of Spartanburg and State of South Carolina, have invented certain new and useful Improvements in Oscillating Hydraulic Motors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to oscillating hydraulic motors, the object being to provide an improved construction of the same, whereby I obtain superior results with respect to simplicity and economy in construction and efficiency in operation.

The invention consists in the novel construction and combination of parts, hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a front view, partly in section, of a motor constructed in accordance with my invention. Fig. 2 is a horizontal section on the line $x x$, Fig. 1.

In the said drawings the reference-numeral 1 denotes a base-beam, to which are secured the end uprights 2 and intermediate upright or standard 3, which are connected together at their upper ends by a cross-beam 4, constituting a frame upon which is mounted a water reservoir or receptacle 5, connected with a suitable source of supply, such as a stream, spring, or river. This reservoir at one side is provided with vertically-movable gates 6, connected with a lever 7, pivoted at its center to the reservoir, so that as one gate is opened the other is closed. These gates are provided with downwardly-depending arms 8, for a purpose hereinafter explained.

Journalled to the intermediate standard 3 are two intermeshing cog-wheels 9, each of which is secured to or formed with a pinion 10, said pinion engaging with a rack-bar 12, connected with a pump or other rod. The journal of one of these pinions forms the pivot for an oscillating lever 13, having a roller 14 at each end.

The numeral 15 designates two buckets, each having a gate 16 at its lower end provided with a depending arm 16^a. Upon their lower sides the buckets are provided with a plate or bar 17, having a longitudinal slot 18, in which seat and work the rollers 14 on the ends of lever 13. The outer ends of these plates are provided with rollers 19, which work in vertical grooves 20 in the uprights 2. The opposite or inner ends of these plates are each provided with two rollers 21, which work in vertical grooves 22, in the uprights 23, which are also provided with a slot 24 for the passage of the lever 13. Projecting inwardly from the uprights 2 are arms 25, which are adapted to engage with studs or pins 26 on the gates 16 of the buckets 15.

The operation is as follows: The reservoir 5 is connected with a constant source of supply, so that a suitable or requisite quantity of water will always be maintained therein. To start the apparatus, the lever 13 is tilted, so that one of the buckets will be elevated and the other depressed, the elevated bucket striking one of the depending arms 8 of the gates 6, raising the same and closing the gate at the opposite end of the reservoir and allowing said bucket to be filled, when its weight will cause it to descend, actuating the lever 13, and by means of the pinions 10 the rack-bar 12. As the bucket descends, the arm 16^a will strike the base-beam 1, whereby the same will be opened and the water allowed to escape. At the same time the other bucket will be elevated, and in its ascent the pin or stud on the gate will strike the arm 25, closing the gate so as to prevent the escape of the water which will now be supplied from the reservoir thereto, the gate in the reservoir which had previously been closed being now opened by said elevated bucket and the opposite gate closed. The operation will be continuous, the buckets alternately rising and falling, so as to oscillate lever 13, and through its connections operating the pump-rod. It will be noted that the buckets rise and fall in a perpendicular line, owing to the guide-rollers connected therewith and the slotted plate on the under side with which the rollers on the ends of the lever engage and work longitudinally therein.

Having thus described my invention, what I claim is—

In a hydraulic motor, the combination, with the frame, of the reservoir supported thereby, 5 having sliding gates with depending arms, the pivoted oscillating lever with rollers in each end, the buckets having bottom plates or bars having horizontal slots and rollers in each end, the end standards with vertical 10 grooves, the intermediate standards having

slots therein for the passage of the lever, and double vertical grooves, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature 15 in presence of two witnesses.

PRINCE ALBERT GARDNER.

Witnesses:

BENNETT S. JONES,

AUGUST PETERSON.