O. M. BUTCHER.

CURRENT MOTOR.

APPLICATION FILED MAY 15, 1909.

958,590. Patented May 17, 1910.

2 SHEETS—SHEET 1.

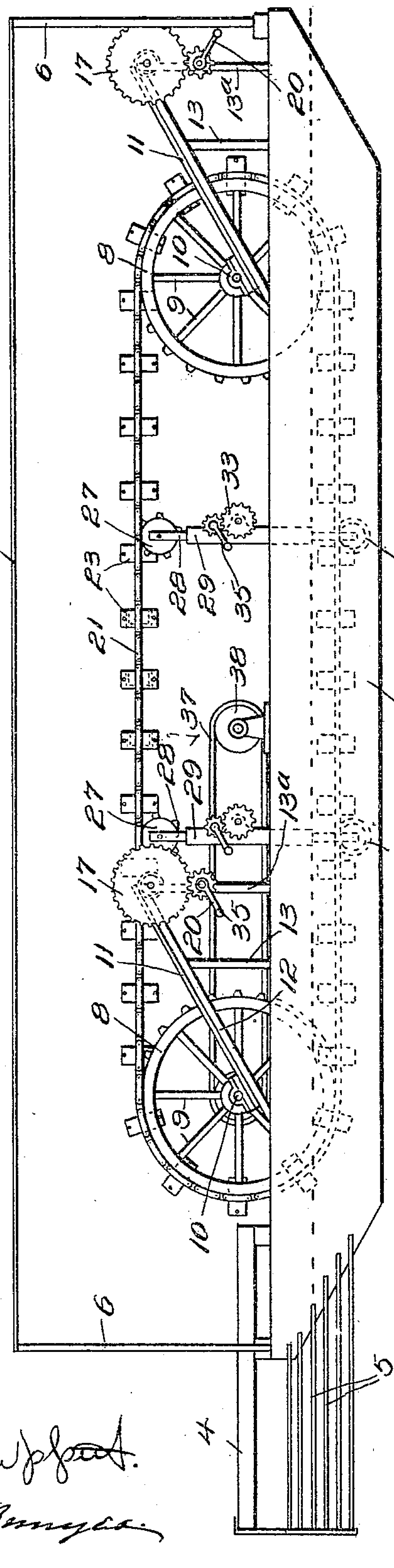

Fig. 1.

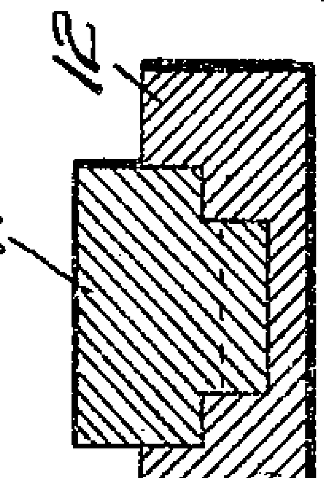

Fig. 5.

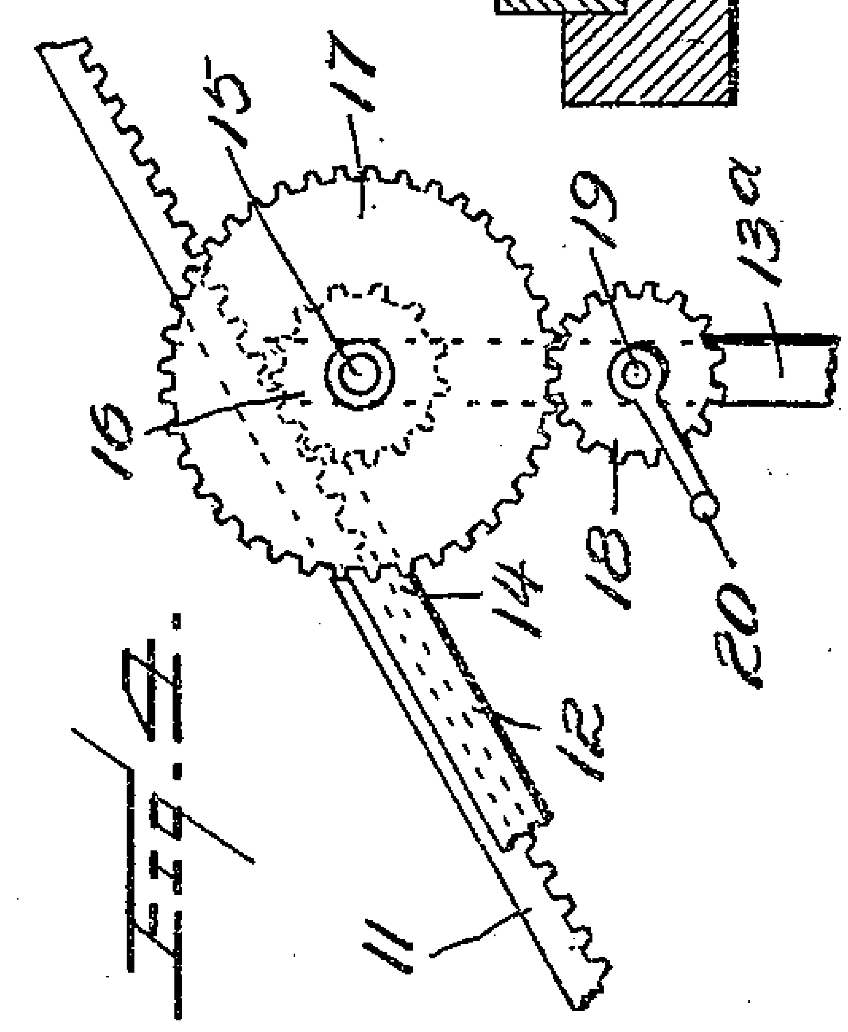

Fig. 4.

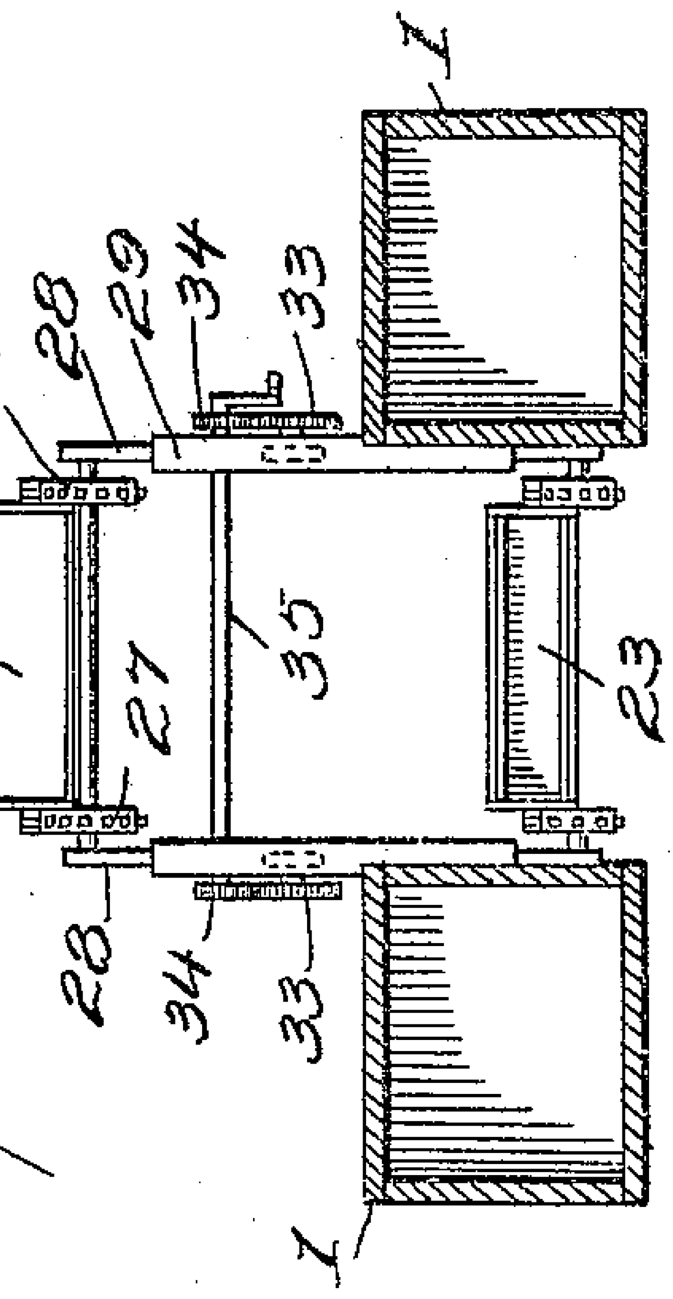

Fig. 3.

Witnesses

E. R. Ruppert

[illegible] Bonnyda

Inventor

Offie M. Butcher.

By Victor J. Evans

Attorney

ANDREW B. GRAHAM CO. PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 2

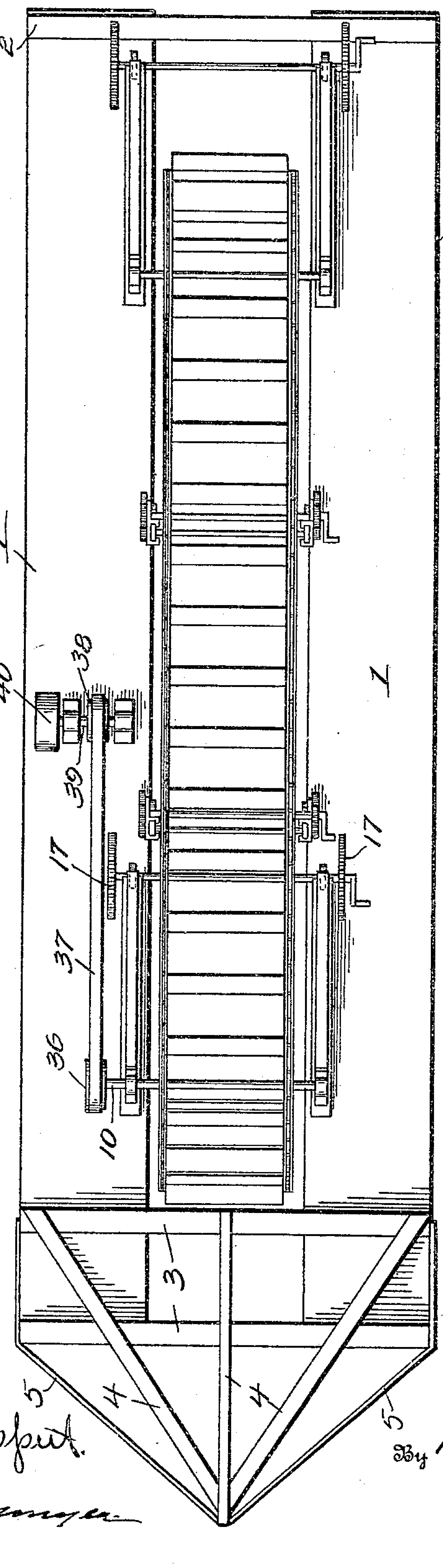


Fig. 8

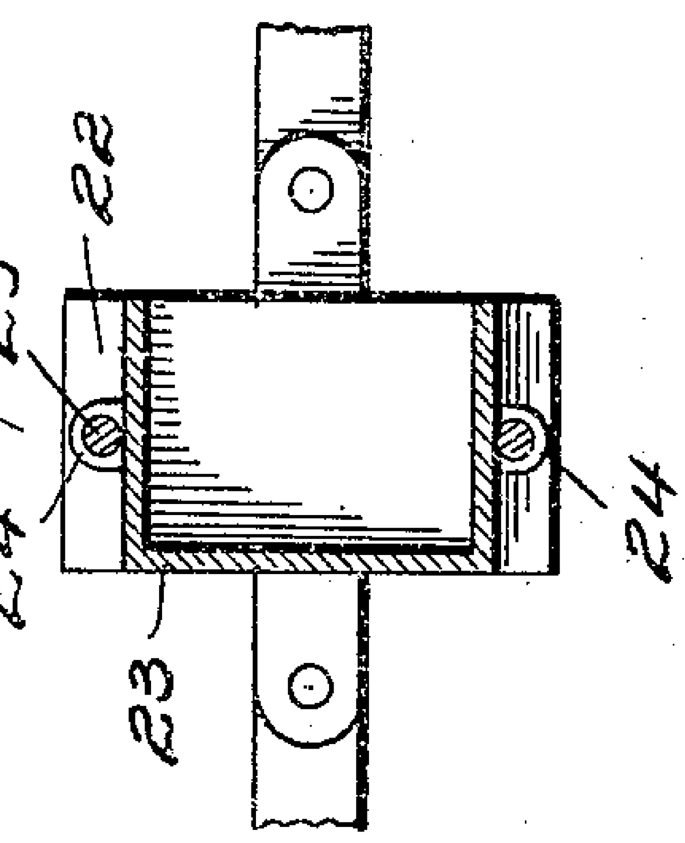


Fig. 7

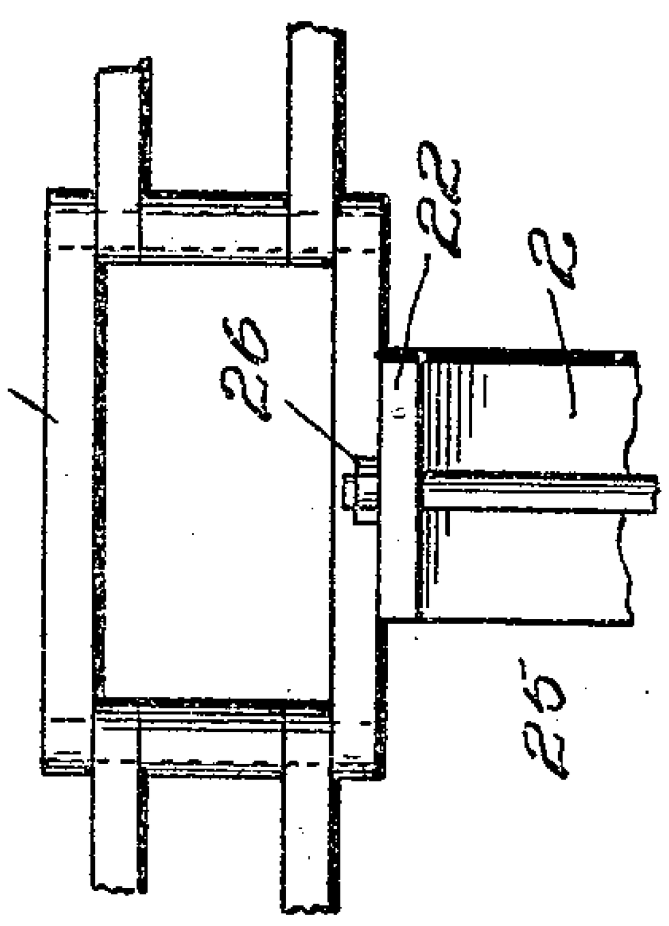
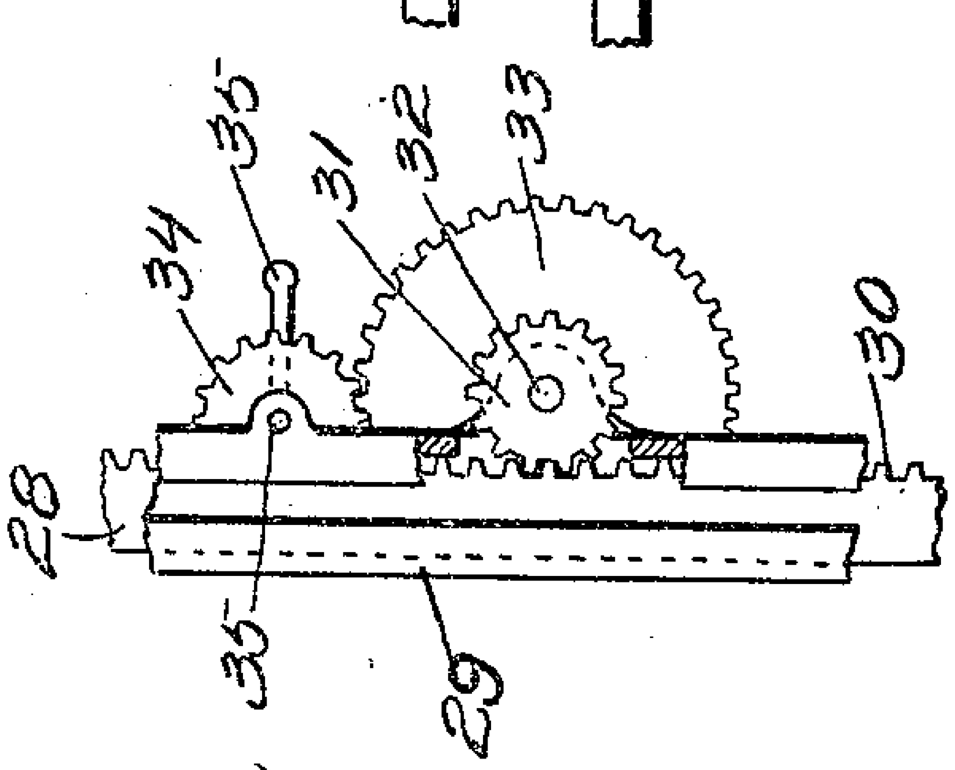


Fig. 5



Witnesses

E. R. Ruppert.

E. P. Bunger

Inventor

Offie M. Butcher.

By Victor J. Evans

Attorney

ANDREW B. GRAHAM CO. PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

OFFIE M. BUTCHER, OF COEUR D'ALENE, IDAHO.

CURRENT-MOTOR.

958,590. Specification of Letters Patent. Patented May 17, 1910.

Application filed May 15, 1909. Serial No. 496,153.

To all whom it may concern:

Be it known that I, Offie M. Butcher, a native-born citizen of the United States of America, residing at Coeur d'Alene, in the county of Kootenai and State of Idaho, have invented new and useful Improvements in Current-Motors, of which the following is a specification.

This invention relates to current motors designed for the purpose of developing power from the current of the stream, and one of the principal objects of the invention is to provide a machine for this purpose comprising an endless chain having a series of buckets connected thereto and mounted to travel over drums at opposite ends, said belt being mounted between a pair of floats anchored in a stream and provided with means for raising and lowering the belt to start and stop the motor.

Another object of the invention is to provide a current motor of simple construction which will operate continuously and will develop great power and which can be quickly thrown out of operation when desired.

These and other objects may be attained by means of the construction illustrated in the accompanying drawings, in which,—

Figure 1 is a side elevation of a current motor made in accordance with my invention. Fig. 2 is a plan view of the same. Fig. 3 is a transverse vertical section of the same. Fig. 4 is a detail side elevation of the mechanism for elevating the end drums and large sprocket wheels for throwing the motor out of operation. Fig. 5 is a detail sectional view of the rack bar and its guide. Fig. 6 is a view in elevation and partial section of the mechanism for raising the chains. Fig. 7 is a detail plan view of one of the links of the chain and showing the manner of connecting one of the buckets thereto. Fig. 8 is a detail vertical sectional view of one of the buckets, showing the manner of connecting it to the chain.

Referring to the drawing, the numerals 1 designate hollow floats connected together by cross bars 2 at the stern and similar cross bars 3 at the bow end of said float. Guard rails 4 are connected to the cross bars 3, and supported upon said rails is a metal fender 5 designed for the purpose of preventing floating logs or driftwood from interfering with the operation of the motor. Upright bars 6 and longitudinal rails 7 may be provided for supporting an awning or shade to protect the mechanism from the weather. Large sprocket wheels 8 comprising rims and spokes 9 are mounted in bearings 10 secured to the lower ends of rack bars 11 mounted in guides 12 supported upon the floats 1 by means of uprights 13 and 13^a. The upper ends of the guides 12 terminate at 14, and mounted upon the upright 13^a is a shaft 15 carrying a pinion 16 which meshes with the rack 11. On the shaft 15 is a large gear wheel 17 which meshes with a pinion 18 on a shaft 19, said shaft carrying a hand crank 20. By means of the hand cranks 20 the large sprocket wheels 8 may be elevated to lift the endless chains and buckets out of the water when it is desired to stop the motor.

The endless belt comprises the chain 21 which may be a drive chain of the usual construction consisting of pivoted links. Secured at suitable intervals upon the chain 21 are vertical plates 22, and connected to said plates 22 are hollow buckets 23, said buckets having upper and lower lugs 24, and rods or bolts 25 extend across from one bucket to the other, said bolts or rods being fitted with nuts 26 for holding them in place. The chains 21 pass over the sprocket wheels 8, and the buckets are carried from front to rear between the floats 1 by the current of the stream. These chains are sustained between the sprocket wheels 8 by means of suitable idler sprocket wheels 27 mounted upon vertically movable racks 28 adjustable in hollow guides 29, said racks 28 being provided with rack teeth 30 adapted to be engaged by a pinion 31 on a shaft 32 mounted in a lug projecting from the guides 29. The shaft 32 carries a large gear wheel 33, and this gear wheel is engaged by a pinion 34 mounted on a shaft 35 journaled in the guide 29, said pinion 34 being in mesh with the gear wheel 33, and a crank 35 being utilized for rotating the pinion 34 to raise the idlers 27 and the chain 21. At the lower end of the racks 28 are mounted similar idlers 27^a which engage the under surface of the lower stretch of the chain 21, said idlers sustaining the weight of the lower stretch of chain as it passes through the water. The idlers 27^a are raised or lowered when the cranks 35 are operated to raise the upper idlers 27. The shaft 10 of the front sprocket wheel is extended upon one side and carries a belt pulley 36, and a belt 37 passes around the pulley 36 and around a similar pulley 38 on a shaft 39 journaled on one of the floats 1, said shaft carrying a belt pulley 40 which may carry the belt to the pump or other mechanism which it is desired to operate by the motor.

The operation of my invention may be briefly described as follows: The floats 1 being anchored in a stream, the current passing from front to rear between said floats will operate the chain by coming in contact with the buckets 23. The rotation of the shaft 10 is communicated through the belt 37 to the shaft 39, from which the power may be taken.

My invention is of comparatively simple construction and will develop great power at slight cost.

I claim:—

In a current motor, an endless traveling belt comprising drive chains, plates secured to opposite links on said drive chains, and hollow buckets connected to said plates by rods extending from one plate to the other through lugs on the buckets.

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

OFFIE M. BUTCHER.

Witnesses:
ROGER G. WEARNE,
GEORGE WILLIAMS,
ANDREW A. PRIM.