(No Model.) 2 Sheets—Sheet 1.

W. ELMER, Jr.

CANAL BOAT PROPULSION.

No. 559,271. Patented Apr. 28, 1896.

Fig. 1,

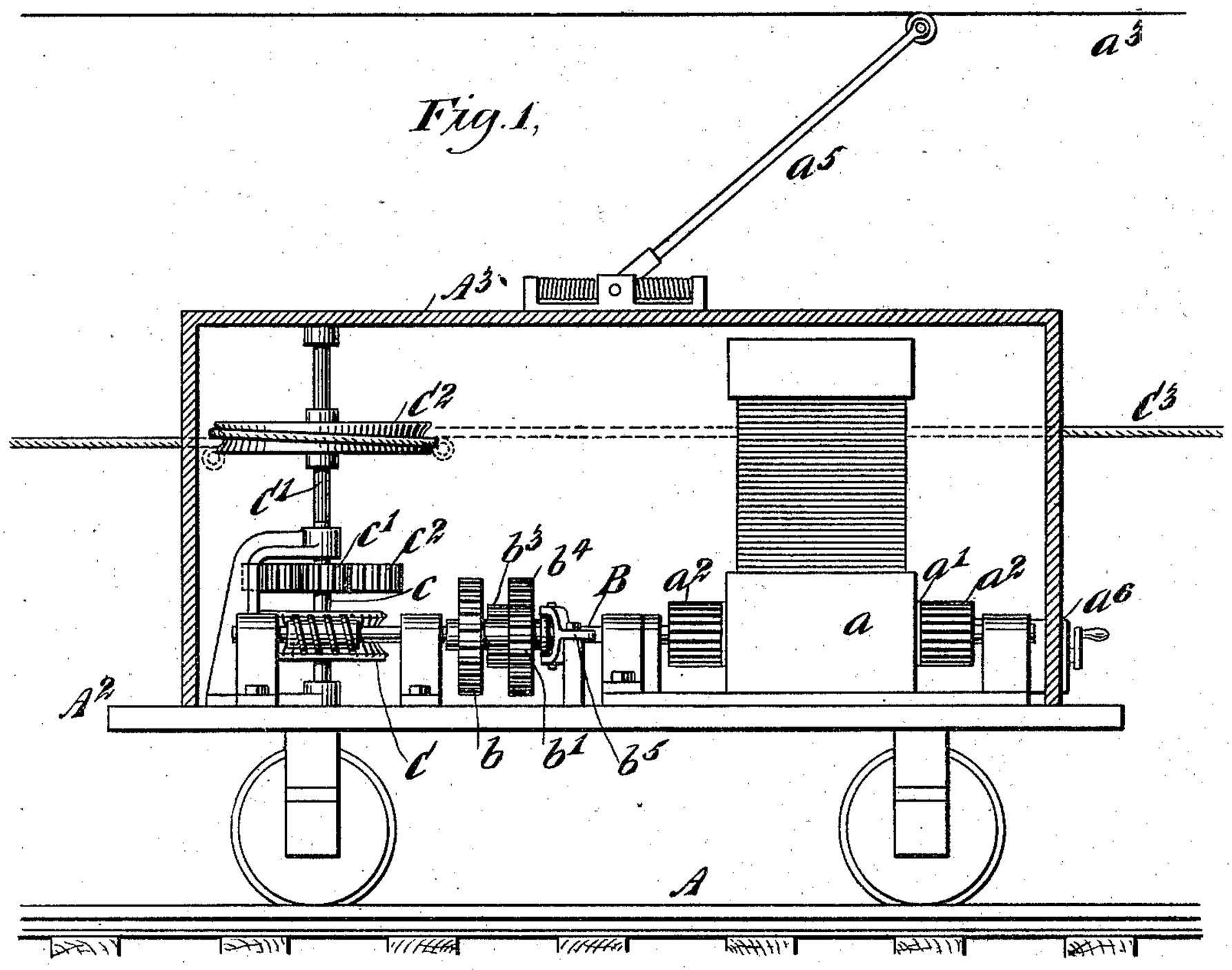
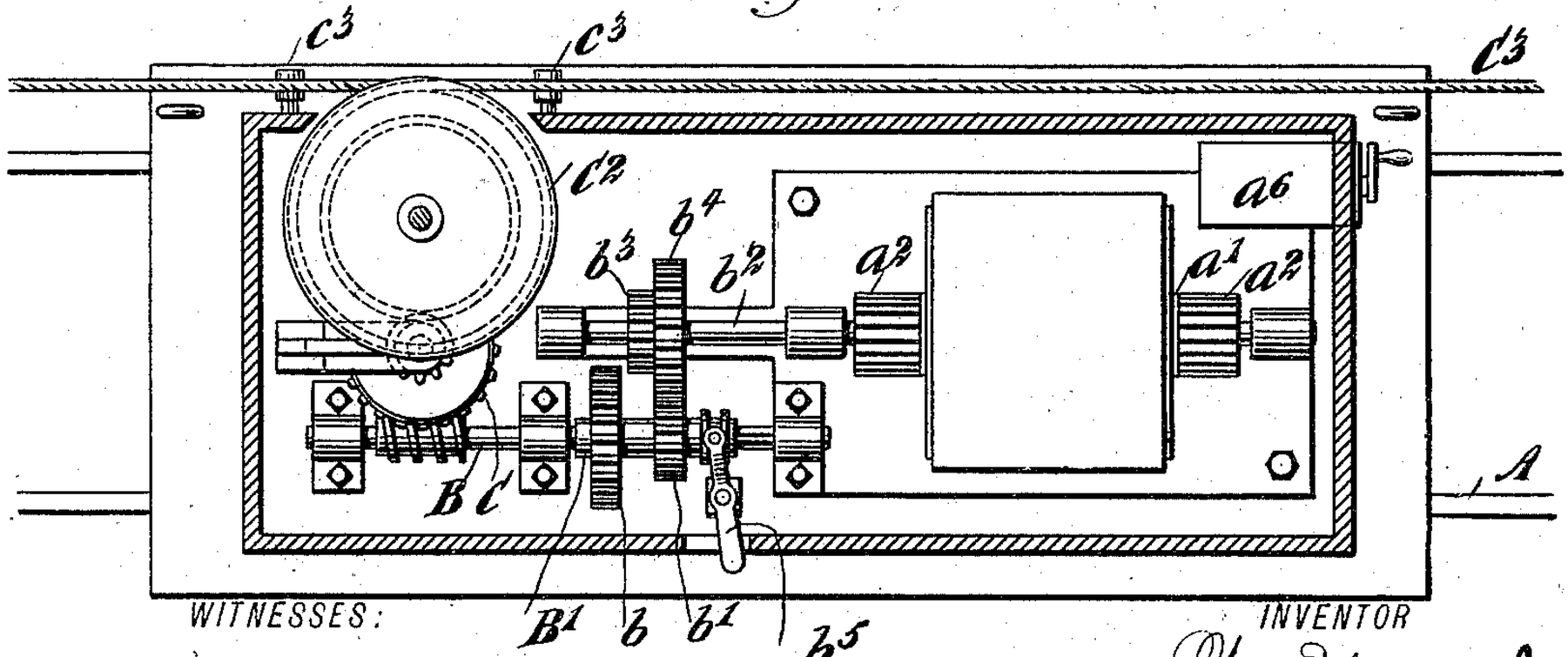


Fig. 2,



WITNESSES:

Edward Thorpe.

C. R. Ferguson

INVENTOR

W. Elmer Jr.

BY Munn & Co

ATTORNEYS

(No Model.) 2 Sheets—Sheet 2.

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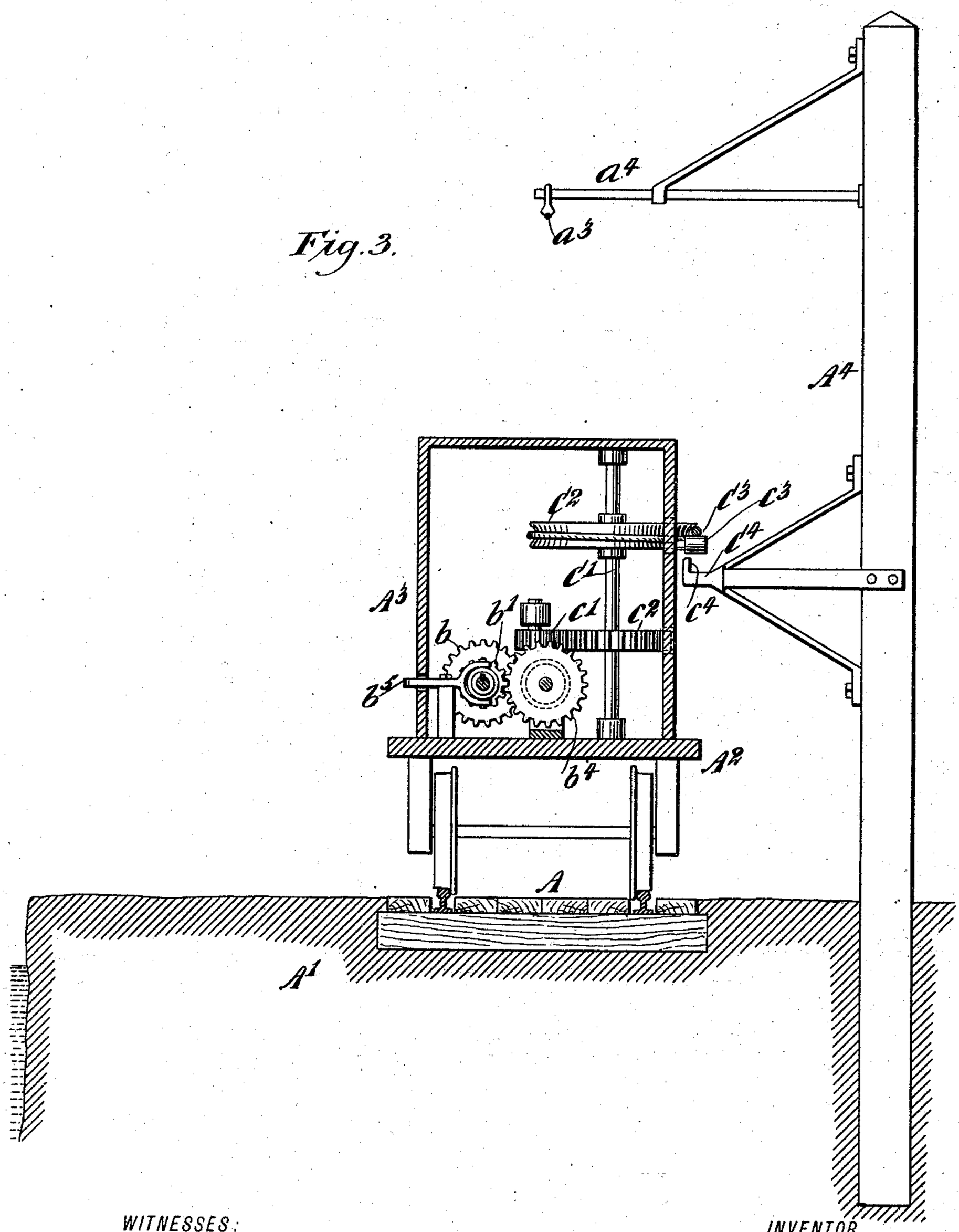
Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM ELMER, JR., OF TRENTON, NEW JERSEY.

CANAL-BOAT PROPULSION.

SPECIFICATION forming part of Letters Patent No. 559,271, dated April 28, 1896.

Application filed December 16, 1895. Serial No. 572,301. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ELMER, Jr., of Trenton, in the county of Mercer and State of New Jersey, have invented certain new and useful Improvements in Canal-Boat Propulsion, of which the following is a full, clear, and exact description.

This invention relates to electrical methods of canal-boat haulage, and the object is to provide an easily-operated motor, moving on a practically level plane, whereby the power required for its own propulsion is reduced to a minimum. Motors for canal-boat haulage have heretofore been made in which the motor runs on a suspended cable. A great objection to such device is quite obvious—that is, too much of the available power is used to haul the weight up the grade or from the center of a span to the post—and, further, in the overhead cable tension devices are required at intervals, which make the plant very expensive.

In carrying out my invention I employ a truck having a suitable electric motor mounted on it, receiving energy from a trolley-wire, and also carrying a rotating sheave, around which a suspended traction-rope is engaged, whereby when the sheave is rotated by means of the motor the truck will be moved along on the track arranged alongside of the canal, preferably on the level tow-path about ten feet from the bank, so that room will be provided for animals drawing boats.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a motor and truck embodying my invention with the casing in section. Fig. 2 is a top plan view of the motor with the casing in section; and Fig. 3 is a transverse section of the motor, and showing means for supporting a trolley-wire and a traction-rope.

Referring to the drawings, A designates a narrow-gage railway extended along the tow-path A′ of the canal and sufficiently far from the bank to allow for the passage of animals that may be drawing boats.

A^2 indicates a truck, here shown as having four wheels to engage the track-rails, and upon the platform of this truck a suitable casing A^3 may be placed to protect the motor from the weather. The motor may be of any desired construction. I have here shown it as comprising field-pieces *a*, mounted on the truck-platform, in which the armature *a′* rotates. This armature is preferably provided with two commutators a^2. The motor is energized from a wire a^3, suspended from hangers a^4, extended from poles A^4, planted at suitable intervals along the tow-path. The wire a^3 may receive its current from any desired source. The current is carried to the motor through the trolley-pole a^5, and the return may be through the tracks in the usual manner. A switch or controller may be placed in a boxing a^6 on the truck.

B is a worm-shaft having bearings in blocks mounted on the truck-platform, and mounted to slide longitudinally on the worm-shaft, but adapted, by a feather-and-groove connection, to rotate with the shaft, is a sleeve B′, upon which is rigidly secured a large gear-wheel *b* and a small gear-wheel *b′*. Rigidly mounted on the armature-shaft b^2 is a small gear-wheel b^3, adapted to be engaged with the gear-wheel *b*, and also a large gear-wheel b^4, designed for engagement with the small gear-wheel *b′*. A pivoted shifting-lever b^5 has its bifurcate end engaged between collars on the sleeve B′, and the other end of this lever projects through an opening in the side wall of the casing A^3. By this construction of change-gearing it is obvious that the speed of the truck may be quickly changed as circumstances may require.

The worm on the worm-shaft B engages with a worm-wheel C, mounted on a vertical shaft *c*, to which is also attached a pinion *c′*, meshing with a gear c^2, mounted on a vertical power-shaft C′. Attached to the shaft C′ is a traction-sheave C^2, around which, by one or more turns, is engaged a traction-cable C^3. This traction-cable is anchored at its ends and rests loosely at intervals on brackets C^4, attached to the poles A^4. The traction-sheave C^2 projects at one side through an opening in the casing A^3, and forward and rearward of this projected part are supporting-rollers c^3, which, with the sheave, are above the plane of the hook ends c^4 of the brackets C^4, so that in

traveling forward the cable will be lifted free of the brackets to allow the motor to pass.

In operation the tow-line from a boat is secured to the truck in any desired manner, and when the motor is set in motion to rotate the sheave the truck is moved along by the taking on and paying off of the traction-cable.

I have described the track A as being on the tow-path; but I wish it to be understood that the track may be elevated without departing from the spirit of my invention, a main feature being to provide a practically level roadway, and, further, the track may be located on either bank of the canal.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

In canal-boat propulsion, a truck movable along a rigid track, an electric motor on the truck, a shaft on the truck, a sheave on said shaft, mechanism between the motor and vertical shaft, comprising a worm-gearing and a change-gearing, and a traction-cable engaging with the sheave, substantially as specified.

WILLIAM ELMER, JR.

Witnesses:
ELMER EWING GREEN,
JOHN H. REDFERN.