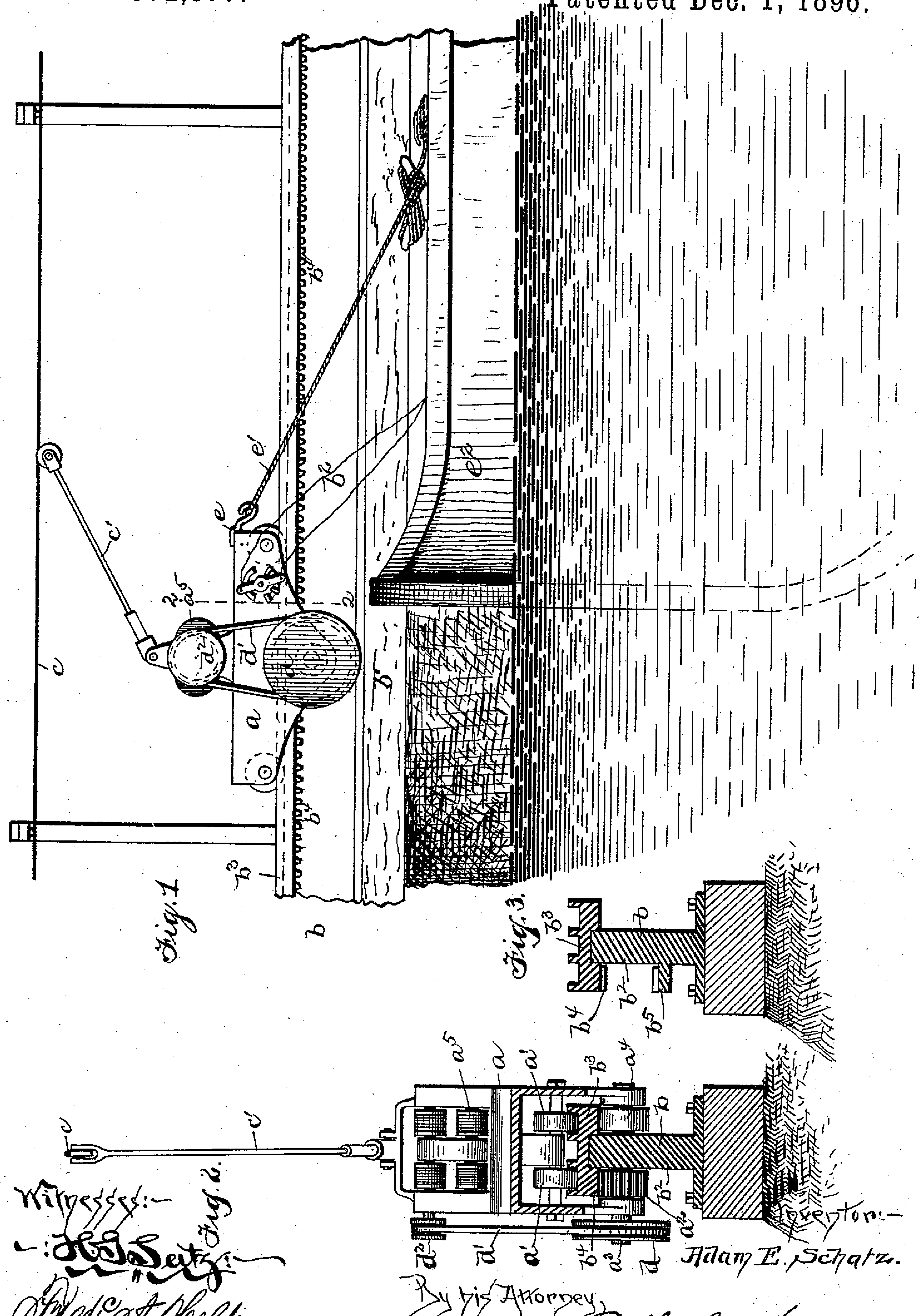
(No Model.)

A. E. SCHATZ.

ELECTRIC TOWING APPARATUS.

No. 572,377. Patented Dec. 1, 1896.



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UNITED STATES PATENT OFFICE.

ADAM EMIL SCHATZ, OF NEW YORK, N. Y.

ELECTRIC TOWING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 572,377, dated December 1, 1896.

Original application filed January 19, 1893, Serial No. 458,988. Divided and this application filed June 7, 1893. Serial No. 476,836. (No model.)

To all whom it may concern:

Be it known that I, ADAM EMIL SCHATZ, of New York, in the county of New York and State of New York, have invented new and useful Improvements in Electrical Towing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to motor-trucks and to the combination therewith of a rail particularly adapted to support the truck to enable the latter to exert a strong pull upon another vehicle, such as a canal-boat; and my invention preferably involves the employment of an electric locomotive having a spur gear wheel or wheels engaging a rack provided on the rail, the latter being fixed along the bank of a canal.

The method or means heretofore most commonly employed for the propulsion of canal-boats—viz., the use of animal power—has many well-known drawbacks; but there have been produced heretofore mechanical means, such as propellers or wheels operated from aboard the boat; but the great disadvantage in such systems is that the agitation of the water in the canal tends to wash away the bank and also disturb the sediment in the bottom of the canal. It has also been proposed to draw the canal-boat by means of locomotives running along the bank of the canal, and my invention has particular reference to improvements in such means.

This present application is a division of the application filed January 19, 1893, Serial No. 458,988, which application was patented January 2, 1894, No. 511,911. Said patent being for the particular construction of the rail to support the draft-motor, I do not claim the same herein, although describing it.

In the accompanying drawings, in which similar reference-letters indicate similar parts in all of the views, Figure 1 represents a side elevation of the motor and rail, trolley-arm and electric wire, and a portion of a boat. Fig. 2 is a cross-section on line 2 2 of Fig. 1; and Fig. 3 is a cross-section of the rail, illustrating a modification hereinafter referred to.

a is the motor-frame, and b the rail, the latter being preferably secured to a beam b', secured along the bank of the canal. The rail b consists of a vertical portion b^2, surmounted by a horizontal plate b^3, having grooves in its upper surface and having its under surface at one side of the vertical portion provided with teeth to form a rack b^4.

The frame a is provided with wheels a', running in the grooves of the plate b^3, and supports an electric motor a^5 of any preferred construction, said motor receiving the current from the wire c through a trolley-arm c'.

The sides of the frame a extend down below the plate b^3 and form bearings for a pinion a^2, mounted on a shaft a^3 on one side of the rail, and in the other downwardly-extended portion of the frame a is mounted an antifriction or bearing wheel a^4, running against the smooth under side of the plate b^3.

The shaft a^3 has a wheel d secured to it, said wheel being connected by any suitable gearing or a belt d' with a wheel d^2, driven by the electric motor. The frame a is provided with one or more hooks e for the attachment of a rope e' or other connection with the boat e^2.

In Fig. 3 is shown a rack b^5, located below the rack b^4 and at sufficient distance therefrom to enable the pinion a^2 to run in contact with only one of the racks. By any suitable means the said pinion a^2 may be shifted vertically, so as to shift the direction of movement of the motor-frame.

It will be understood that my invention offers no obstruction whatever to the navigation of a canal by any methods heretofore in use, since the rail can be located a sufficient distance from the edge of the bank to permit animals to walk along said bank between the rail and the canal. Furthermore, since the said rail and wire are located at one side of the canal there is no overhead obstruction to the passage of any boats having elevated structures, such as a smoke-stack.

Obviously the person controlling the current may ride on the carriage-platform or operate the switch from the boat by means of any suitable cords connected with the switch.

Having now described my invention, what I claim is—

1. The combination with a boat, of a carriage movable along a suitable support adja-

cent to a waterway, an electrical propelling-motor on said carriage, circuit connections, means for connecting the carriage and boat, whereby the latter will be propelled by the former, and connections, including a switch, between the motor and boat, whereby the motor-current may be controlled by a person on board the boat.

2. The combination with a fixed toothed rail located along the bank of a waterway, of an electric locomotive having a spur-gear meshing with said toothed rail, circuit connections, a boat, means for connecting the carriage of the locomotive with the boat whereby the latter will be propelled by the former, and connections, including a switch, between the locomotive and boat whereby the motor-current may be controlled by a person on board the boat.

3. In an electrical device for towing vehicles, the combination with a fixed rail, of a carriage sustaining an electric motor and geared to the rail, a coupling or drag-rope attached to the carriage, a switch lever for directing the electric current to the motor, and a pull-rope for actuating said switch-lever, substantially as set forth.

4. In an electrical device for towing vehicles, the combination with a fixed rail, of a carriage sustaining an electric motor and geared to the same, a coupling or drag-rope attached to the carriage, an electric conductor parallel with the rail, a trolley-wheel with spring-arm pivoted upon the carriage to make contact with such conductor, a switch with lever for leading the current from the trolley to the motor, and a pull-rope for actuating such lever, substantially as set forth.

5. The combination with the rail b having vertical portion b^2 and the horizontal plate b^3 provided with a grooved upper surface and a rack b^4 on its under side, of the motor and its frame or truck a having hooks e and the wheels a' fitted to the grooved upper surface of the rail and the pinion a^2 meshing with the rack b^4, and means for connecting the motor with a canal-boat, substantially as and for the purpose set forth.

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

ADAM EMIL SCHATZ.

Witnesses:

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