

(No Model.)

2 Sheets—Sheet 1.

J. SACHS.

ELECTRICAL MEANS FOR PROPELLING CANAL BOATS.

No. 513,466.

Patented Jan. 23, 1894.

Fig 2

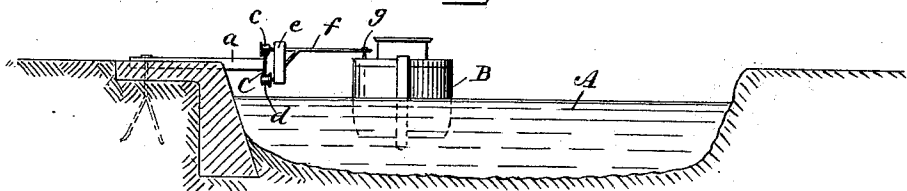


Fig 1

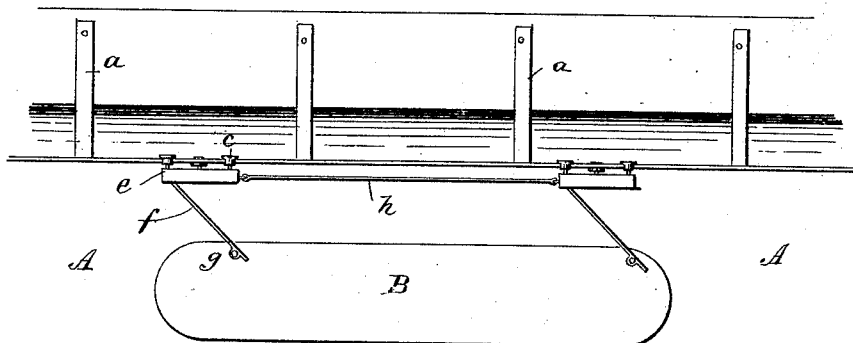


Fig 3

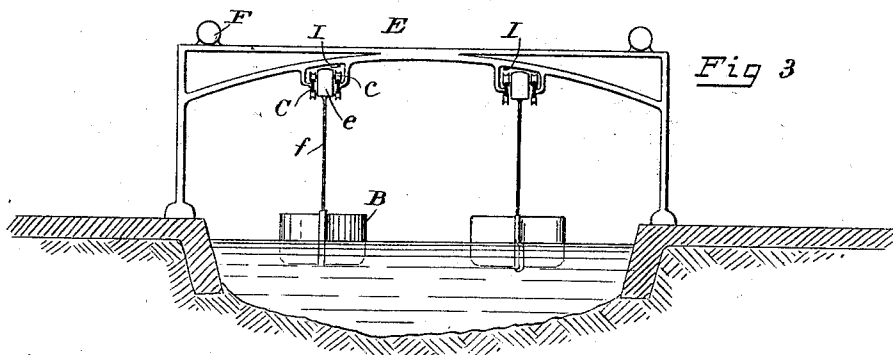
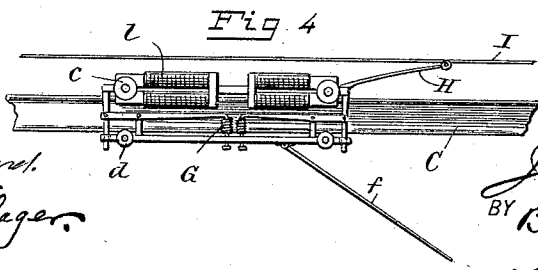


Fig 4



WITNESSES:

W. B. Shepherd.
L. M. Frischelager.

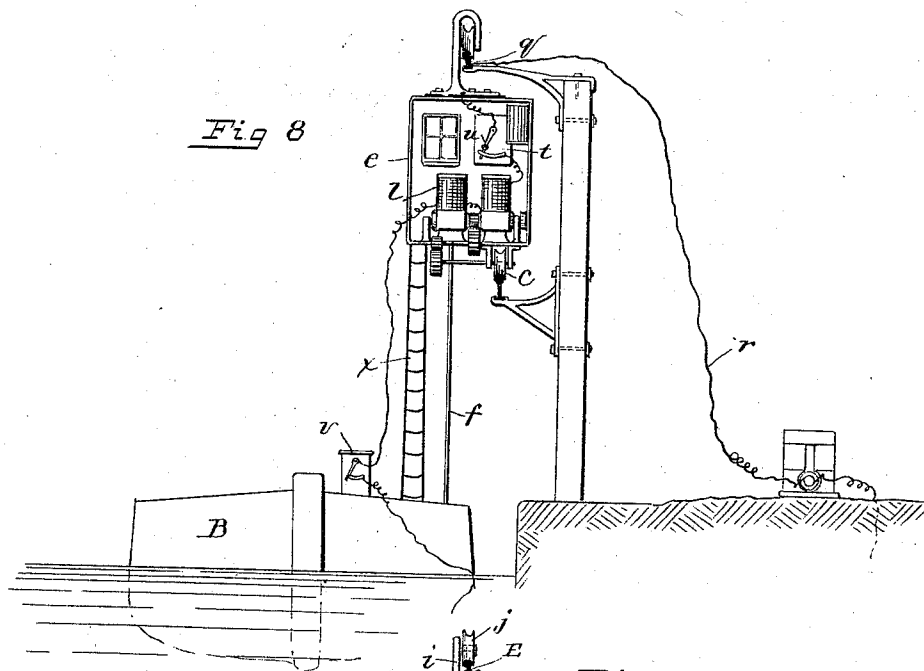
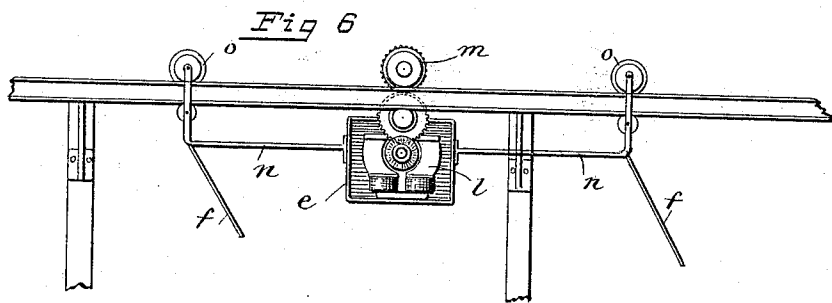
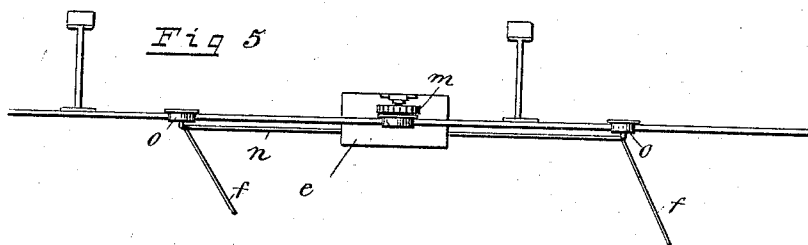
INVENTOR

Joseph Sachs,
BY *Briesen & Knauth*
his ATTORNEYS.

(No Model.)

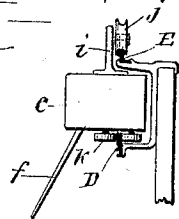
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ELECTRICAL MEANS FOR PROPELLING CANAL BOATS.
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WITNESSES:

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INVENTOR

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UNITED STATES PATENT OFFICE.

JOSEPH SACHS, OF NEW YORK, N. Y.

ELECTRICAL MEANS FOR PROPELLING CANAL-BOATS.

SPECIFICATION forming part of Letters Patent No. 513,466, dated January 23, 1894.

Application filed February 15, 1893. Serial No. 462,402. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SACHS, residing at New York, county and State of New York, have invented an Improved Means for Propelling Canal-Boats, of which the following is a specification.

The present invention relates to means for propelling canal-boats.

The main object of the invention is to provide simple and efficient means for propelling such boats electrically, and without the use of cumbrous apparatus on the boat itself, and the invention consists in the apparatus and in the several combinations hereinafter more fully described and set forth in the claims.

In the accompanying drawings Figure 1 is a plan view of a boat and one form of my improved apparatus connected thereto. Fig. 2 shows a cross section of a canal and an end view of the said boat and apparatus. Figs. 3, 4, 5, 6, 7 and 8 show modified constructions—the latter figure being on a larger scale, and showing the circuit connections.

Referring first to Figs. 1 and 2, A is a canal, B a canal-boat, and C a rail extending along one edge of the canal, and supported in any suitable way, for example, by the beams *a* extending slightly over the canal, as shown in Fig. 2, or on posts, as hereinafter described.

c, d are rollers adapted to bear on this rail C, and to cause the carriage *e* to travel along the rail. Within the body *e* is any suitable electric motor for driving said rollers. The motors are not shown in Figs. 1 and 2 on account of the small scale of the drawings, but the motors are shown in Figs. 6 and 8 in similar bodies. *f*, Figs. 1 and 2, is a steel or other strong and preferably springy or elastic arm, one end of which is connected to the body *e*, and the opposite end of which is connected to the canal-boat B near one end thereof, as shown at *g*. By reference to Fig. 1 it will be seen that there are two of the carriages such as above described, one on the rail adjacent to each end of the boat. These carriages are also preferably secured together by an intermediate rod *h*, and both carriages are connected to the boat by rods *f*.

In Fig. 3 the rails C are shown supported in pairs on brackets depending from the structure E, which preferably spans the canal, and

which may support pneumatic tubes or other devices F. The body *e*, in this form, which for some reasons is my preferred form, contains one or more electric motors *l* (see Fig. 4, which shows the motors, but omits the body) the armatures being on or geared to the axles on which rollers C are secured. The lower rollers *c, d*, are caused to firmly grasp the rails by suitable adjustable springs G. By causing the rollers *c, d*, to thus grasp the rail greater traction friction is obtained. H is a trolley adapted to bear against a trolley wire I which in this case conducts the current instead of rail C. *f* is a spring rod, or it may be a cable, adapted to communicate motion from the motor to the boat.

In Fig. 7 I have shown a rail D, corresponding to the rail C, above described, and a second rail E supported by a second arm of the same bracket, which bracket is supported by a suitable pole. From the carriage body *e* extends an arm *i*, provided at its upper end with a roller or wheel *j* adapted to travel along the rail E, and to support the main weight of the carriage. *k* are two rollers, adapted to grip the rail D, being driven by an electric motor, not shown, within the body.

In Fig. 6, within the body *e* is shown a propelling electric motor *l*, geared to a roller *m*, which supports the carriage, and causes it to travel along the rail. From each end of the carriage projects an arm *n* having at their outer ends rollers *o* also adapted to travel along the rail, and to steady and support the arms. From the rods, or arms, *n*, extend arms *f*, which are connected to the boat at opposite ends, and which serve to communicate motion from the carriage to the boat.

In the form of apparatus shown in Figs. 1 and 7 the carriage is supposed to be large enough to support the motor and gearing, but not large enough to allow an operator to ride in the carriage.

In the form of apparatus shown in Fig. 8 two rails, an upper and a lower, are provided for the carriage *e*, which is large enough to admit an operator. To the upper rail *g*, the dynamo or source of current *r* is connected, one terminal of the dynamo being connected to the ground. In the system first described the dynamos would, or might, be connected to the rail C, and thence through the motor

in carriage *e*, and to earth, but any suitable circuit connections may be used.

l are electric motors geared to the driving wheels *c* by which the carriage is caused to travel along the track. One terminal of these motors is connected to a resistance conductor *t*, over which a switch arm *u* is adapted to travel to regulate the motor, this switch arm being connected to the insulated top bracket, as shown. The opposite terminal of the motor is connected to a similar resistance or regulating switch *v* on the boat, the resistance of this switch being connected to ground through the water of the canal. This arrangement makes it possible to control the motor from the boat or in the carriage.

f is an arm, corresponding to rod *f* of Figs. 1 and 6 for communicating motion from the carriage to the canal boat.

x is a light rope ladder by which persons can pass from the boat to the carriage, or vice versa, which may sometimes be used in place of rod *f*.

I have used the term rail to designate the carriage supports, but I intend to include thereby also supporting cables.

While I have shown a regulator *v* on the boat in one figure only, it should be understood that I propose, when desired, to use such regulator in each form of apparatus, so that I may be able to control the speed of the motor, and to stop and start the motor without leaving the boat. I find that by using the elastic arms between the traveling carriage and the boat, and especially by connecting the rods to each end of the boat, the latter is under much better control than when the boat is drawn along by a flexible cable, but it is evident that some features of the invention are applicable as well to cases in which such cables are used.

I do not wish to limit myself to the particu-

lar construction of electric carriages, and the means for supporting them, which I have shown, since these can be modified largely without departing from my invention.

Subject-matter shown and described herein but not claimed is embodied in an application filed by me December 29, 1893, Serial No. 495,042.

What I claim is—

1. The combination with a boat, of a carriage movable along a suitable support adjacent to a water way, an electric propelling motor on said carriage, circuit connections, means for connecting the carriage and boat, whereby the latter will be propelled by the former, and a controlling device on the boat for the electric motor on the carriage, substantially as described.

2. The combination of two rails placed side by side, a carriage having rollers adapted to bear against the upper and lower sides of said rails, springs causing said rollers to firmly grasp the rails, an electric motor on the carriage for driving it, means for connecting the carriage to a boat, and means traveling with said motor for regulating the same, substantially as described.

3. The combination with a boat, of a carriage movable along a suitable support adjacent to a water-way, an electric propelling motor on said carriage, circuit connections, means for connecting the carriage and boat, whereby the latter will be propelled by the former, means on the carriage for firmly grasping the support, and a controlling device on the boat for the electric motor on the carriage, substantially as described.

JOSEPH SACHS.

Witnesses:

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CHARLES M. CATLIN.