Nov. 1, 1932. C. W. THOERIG ET AL 1,885,643

MECHANICAL CONTRIVANCE FOR POPULAR AMUSEMENT

Filed Nov. 19, 1929 4 Sheets-Sheet 1

Fig. 1

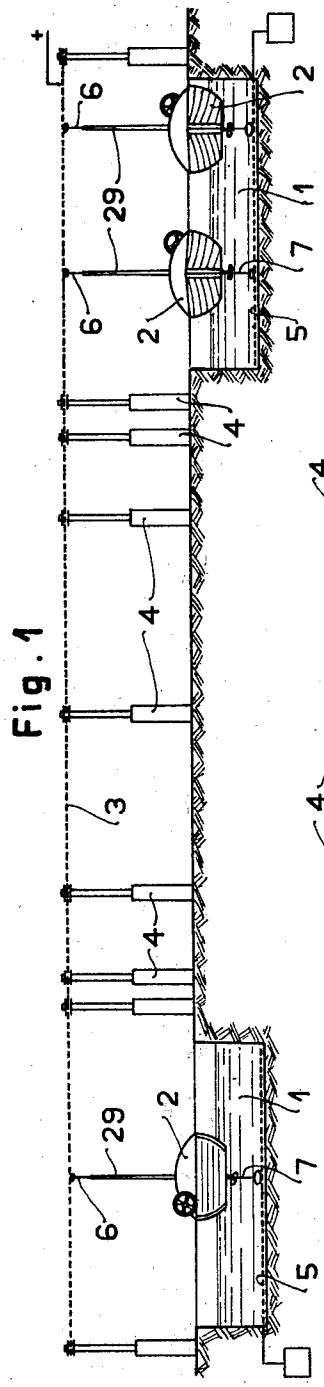
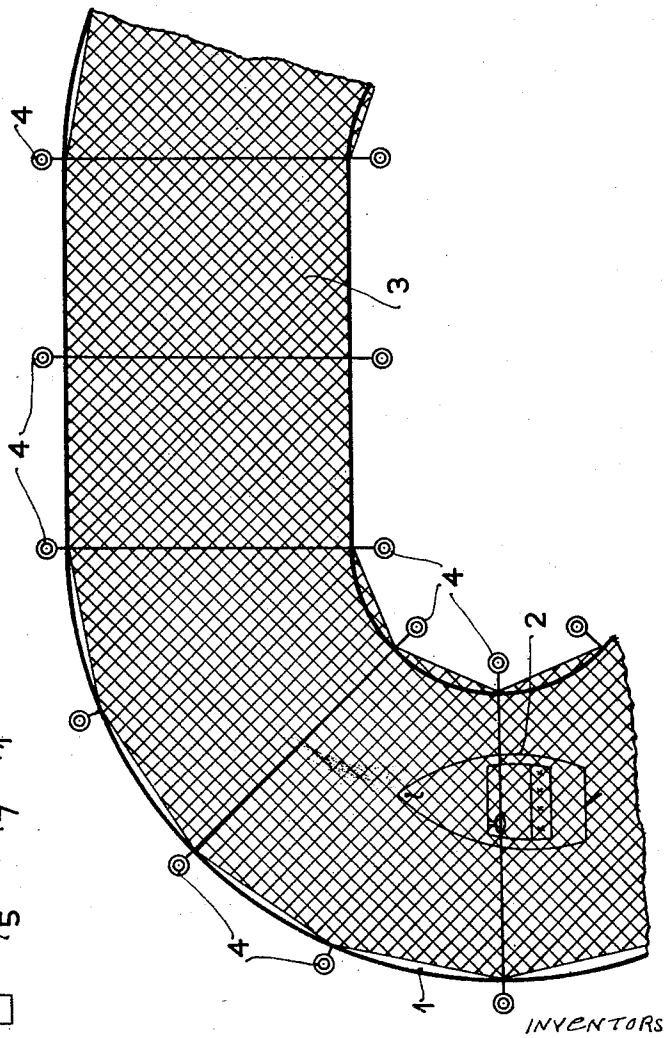


Fig. 2



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Filed Nov. 19, 1929 4 Sheets-Sheet 2

Fig. 3

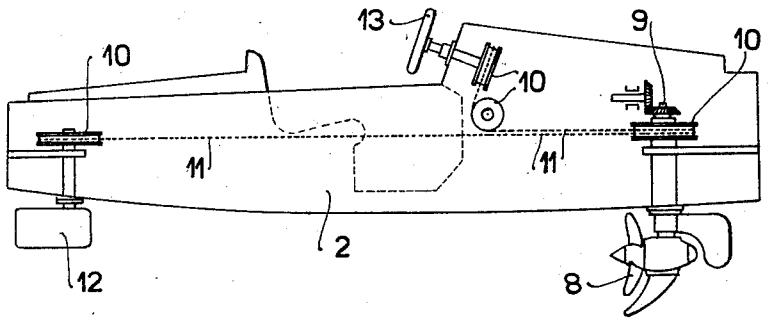


Fig. 4

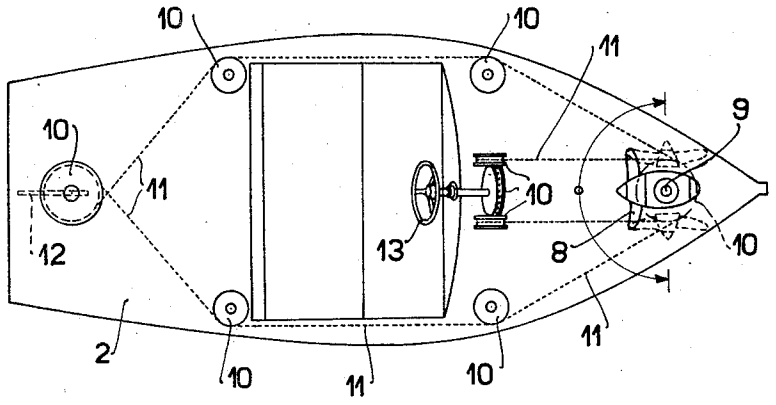
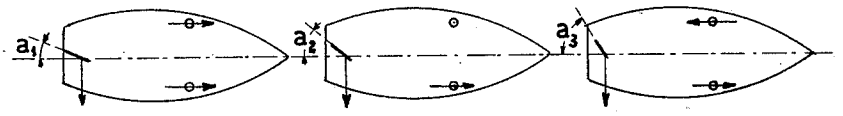


Fig. 10 Fig. 11 Fig. 12



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MECHANICAL CONTRIVANCE FOR POPULAR AMUSEMENT

Filed Nov. 19, 1929 4 Sheets-Sheet 3

Fig.5

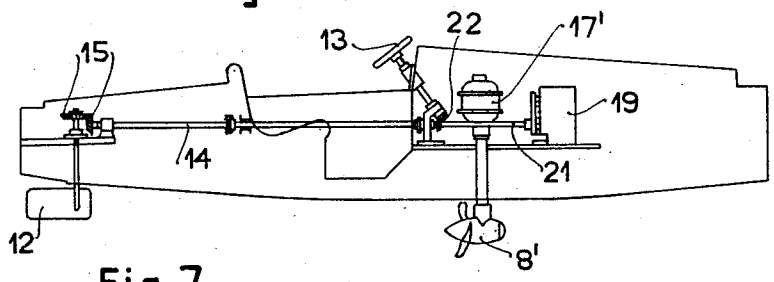


Fig.7

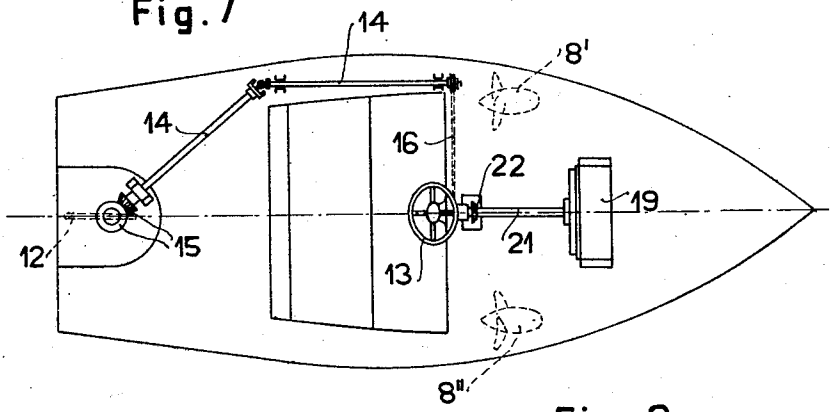


Fig.6

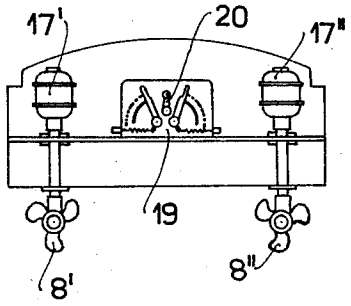


Fig.8

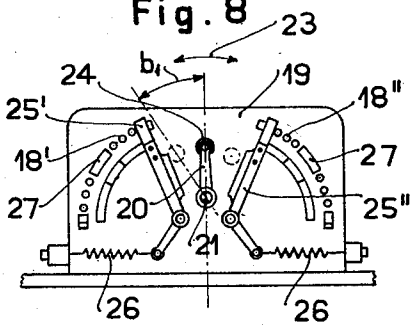
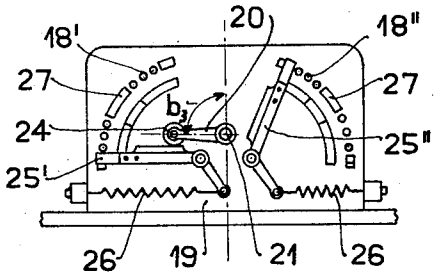


Fig.9



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MECHANICAL CONTRIVANCE FOR POPULAR AMUSEMENT

Filed Nov. 19, 1929 4 Sheets-Sheet 4

Fig. 13

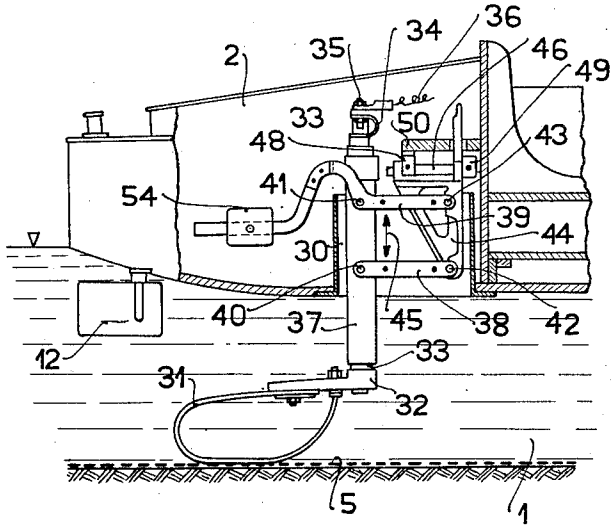


Fig. 14

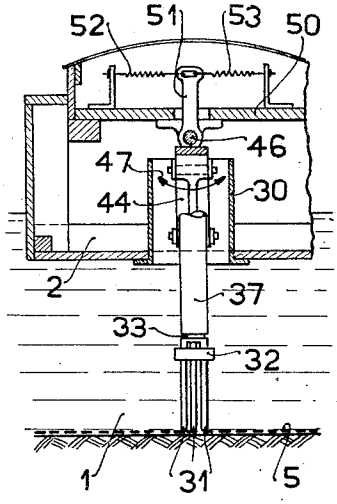


Fig. 15

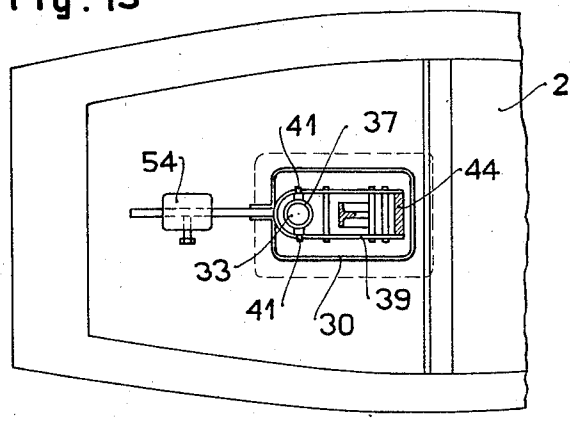


Fig. 16

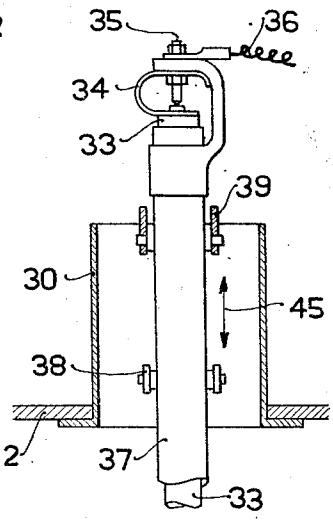


Fig. 17

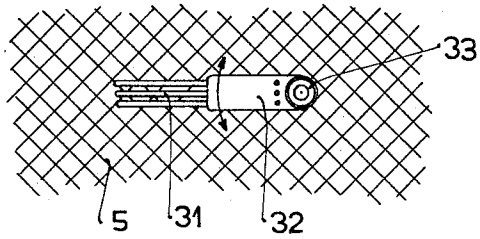
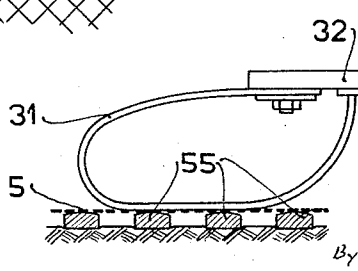


Fig. 18



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Patented Nov. 1, 1932

1,885,643

UNITED STATES PATENT OFFICE

CONRAD WERNER THOERIG AND EDUARD JETILEK, OF VIENNA, AUSTRIA; SAID JETILEK ASSIGNOR TO HUGO KARVALY, OF NEUILLY, SEINE, FRANCE

MECHANICAL CONTRIVANCE FOR POPULAR AMUSEMENT

Application filed November 19, 1929, Serial No. 408,387, and in Austria March 2, 1928.

This invention relates to a mechanical contrivance for public amusement consisting of electrically driven boats, which sail on an enclosed sheet of artificial water and are capable of being steered independently of each other, thus being freely movable in all directions. In a contrivance of this description, as intended in particular for the amusement grounds (Luna parks and the like) in larger towns, a large number of boats are required to sail on a comparatively small sheet of water at short distances from each other; the danger of accidents is therefore great, the more so since the boats are used by people who are ignorant of the art of handling a boat, and who take a particular pleasure in rocking the boats and in bringing about collisions by steering in sudden and violent curves.

It would be very easy to reduce the danger of accidents by so dimensioning the driving mechanism of the individual boats that they could not travel at more than a certain very limited speed. If, however, the highest attainable speed be set so low as to exclude the possibility of accidents with reasonable certainty, then the whole contrivance loses its element of attraction.

According to the present invention the boats of a contrivance of the described order are provided with devices, which adequately reduce the risk of accidents from collision or overturning of the boats without making it necessary for the normal speed to be much reduced. The devices concerned are in the first place for increasing the capacity of manœuvring, so that each boat can be turned round very rapidly almost on the spot and even with very little headway to avoid a collision at the last moment, secondly for automatically effecting a reduction of speed when the rudder is put hard over, and finally for ensuring that the driving motor does not become cut off from the current supply as a result of the tilting of the boat when sheering or of the pitching and rocking of the boat or of uneven loading of the hull of the boat. The last mentioned devices for preventing the motor from becoming dead, thus causing the boat to lose headway and to be rammed by the boat behind it, are of course only necessary in the case of such contrivances of the type mentioned as provide for the supply of electric current to the boats from a conducting net and for the leading away of the current through a second net, but not in the case of those using accumulator drive. The first mentioned devices on the other hand are also used in connection with boats provided with accumulators.

The drawings illustrate the different devices separately, though they can of course all be provided in one and the same boat.

Figs. 1 and 2 show the complete contrivance for popular amusement in section and in plan elevation respectively.

Figs. 3 and 4 show devices for increasing the capacity of manœuvring.

Figs. 5 to 12 show devices for regulating the speed of travel when the boat is steered in a sharp bend.

Figs. 13 to 18 represent the devices for preventing the motor from becoming dead.

In Figs. 1 and 2 the pond is numbered 1 and the motor-boats 2. Above the surface of the pond 1 a conducting net 3 is held in tension by the masts 4 and is connected to a source of current. At the bottom of the pond 1 an earth-contact 5 is arranged and may consist of sheet metal or of a metallic net. The current-carrying connections between the motors disposed on the boats 2 and the two nets 3 and 5 are indicated in Fig. 1 by 6 and 7 respectively. When the boats are driven by accumulators carried on board, the conducting nets 3 and 5 and the current-carrying connections 6 and 7 are of course omitted.

The boats 2 are perfectly independently movable and as a rule they sail in the manner of a "roundabout" at approximately the same speed and in the same direction, while they are each separately capable of being steered.

As shown in Figs. 3 and 4, the propeller 8 is not situated as is usual at the stern of the boat 2 but in the vicinity of the bow, and is mounted in the known manner so as to be capable of being swivelled about a vertical axle 9. The movement of the steering wheel

13 is transmitted by the flexible member 11, which can consist of a wire-rope or of a chain and is guided over the rollers 10, not only to the propeller 8 but also to the rudder 12 in such a manner that both propeller and rudder are swivelled and that their steering effects are additive. The boat 2 can therefore follow a very sharp curve, and by suitable manipulation of the propeller and rudder can be caused to turn round on the spot.

In the form of construction in accordance with the invention shown in Figs. 5—12 the rudder 12 is connected to the steering wheel by a system of shafts 14, toothed wheels 15, and a chain 16. The boat is provided with two propellers 8′ and 8″ which, as in the form of construction shown in Figs. 3 and 4, are disposed towards the bow of the boat and are adjustable about their vertical axes simultaneously with the rudder 12.

When the boat is provided with two propellers 8′ and 8″ the increased capacity of manoeuvring can also be obtained by providing that the actuation of the steering wheel 13 automatically alters the force of propulsion exerted by the two propellers 8′ and 8″. For this purpose the two motors 17′ and 17″ are each fitted with a regulating resistance 18′ and 18″ disposed in a switch box 19. Situated between the two regulating resistances 18′ and 18″ is a one-armed lever 20, which is mounted on a shaft 21 and can be tilted (arrow 23, Fig. 8) by the movement of the steering wheel 13 through the agency of a pair of bevel wheels 22. The free end of the lever 20 is fitted with a roller 24 (Figs. 8 and 9) which, according to the adjustment of the lever 20, actuates one of the two contact lever 25′ and 25″, which are strained into the position of normal speed by the springs 26.

The one-armed switch lever 20 is thus tilted simultaneously with the swivelling of the rudder 12. If the movement of the rudder 12 is only slight, so that for instance it does not exceed the angle indicated by a_1 in Fig. 10, the movement of the switch lever 20 is also only so slight (b_1 Fig. 8) that the contact levers remain uninfluenced by the roller 24. Both propellers 8′ and 8″ continue to work with the same power, that is to say the boat takes wide curves at normal speed and steered exclusively by the rudder 12. If the rudder is put harder over, for instance to the extent of the angle a_2 in Fig. 11, the switch lever 20 is also tilted to such an extent that its roller 24 actuates one of the two contact levers 25′ or 25″ so that the corresponding regulating resistance 18′ or 18″ is set for a lower amperage. One of the two motors 17′ or 17″ works then at reduced output, the thrusts of the two propellers 8′ and 8″ are unequal, and these unequal thrusts reinforce the steering effect of the rudder 12. On the rudder 12 being still further shifted over, the contact lever concerned 25′ or 25″ reaches the dead button 27 (Fig. 8), so that only one of the two propellers continues to work (Fig. 11). If finally the rudder 12 is put still harder over to the angle a_3 (Fig. 12) the switch lever is swung through the angle b_3 (Fig. 9) and the direction of rotation of one of the motors 17′ or 17″ is reversed. The two propellers then represent a pair of forces (Fig. 12), which turn the boat round on the same spot.

If the rudder 12 is returned to the middle position the springs 26 draw the contact lever 25′ or 25″ back into its normal position and the boat travels on at normal speed in a wide curve or in a straight line.

The devices described above are intended for use in connection with boats driven from accumulators as well as for such as derive their current from a conducting net 3. In the latter case however care must be taken that no interruption occurs in the conducting in or carrying away of the curent to the motors of the boats, since otherwise the boat would at once lose speed or come to a standstill and be rammed by the boat coming after it. Interruptions in the current supply can be caused in particular by the rising and falling, pitching, and uneven loading of the boats, and by unevennesses in the bottom of the pond.

Interruptions in the supply of current from the conducting net 3 to the motors of the boats can be comparatively easily prevented; it is merely necessary for this purpose that the collecting stirrup 6 (Fig. 1) which slides on the net 3 should be sufficiently elastic and that the masts 29 (Fig. 1), which serve for the conducting of the current, should either be flexible or articulated.

It is more difficult to prevent with adequate certainty the occurence of interruptions in the curent connection between the motors of the boats and the carrying away or earthing net 5 lying at the bottom of the pond 1. This purpose is served by the devices shown in Figs. 13—18 and now to be described.

The hull of the boat 2 is provided with a shaft or pit 30, which prevents the intrusion of water into the boat and encases certain portions of the earthing mechanism. The connection of the motor (not shown in Figs. 13—16) with the carrying away or earthing net 5 is effected by means of stirrup-shaped skids 31, which consist preferably of elastic metal strips and are attached by means of a carrying member 32 to a vertical shaft 33. This shaft 33 is fitted at its upper end with a sprung conductor 34, which is connected to the motor by means of a terminal 35 and a conducting cable 36 (Figs. 13 and 16). This shaft 33 is mounted rotatably in a a vertical guiding tube 37, which also carries it. The guiding tube 37 is connected by means of links 38 and 39 arranged in pairs and by the pivots

40, 41, 42, and 43 to the bracket 44, so that it, together with the shaft 32 and the skids 31, is vertically adjustable in the direction of the arrow 45 (Fig. 13). The bracket 44 is rotatably mounted on a shaft 46, which is disposed on the longitudinal axis of the boat 2, so that it together with the parts carried by it can oscillate as indicated by the double arrow 47 (Fig. 14). The shaft 46 is mounted in the bearings 48 and 49 (Fig. 13), which are attached to a cross board 50. The bracket 44 possesses an extension 51 projecting upwards beyond the shaft 46 engaging two springs 52 and 53, which tend to retain it and the parts carried by it constantly in the middle position (Fig. 14). The upper links 39 are extended on beyond their pivot 41 (Fig. 13) and carry a weight 54 which is situated lower than the axis of the shaft 46. This weight 54 tends to press the guiding tube 37 together with the shaft disposed within it and the skids 31 downwards, and thus to keep the skids permanently in contact with the earthing net 5.

The described devices ensure the advantages that the skids 31 are kept permanently in contact with the earthing net 5 and that this result is achieved irrespective of all vertical and lateral motions of the boat and of the depth of the boat in the water. For this purpose the mere elasticity of the skids 31 would not suffice. A further advantage of this arrangement is that the skids 31 are pressed with considerable force on to the earthing net 5, so that they push aside mud or sand which collects in time on the net and thus effect a good earth contact.

Finally the deposit of mud and sand on the earthing net 5 can be prevented by laying the net 5, as shown in Fig. 18, not directly on the bottom of the pond 1, but on a wooden grating 55. The mud or sand settles then in the spaces of the grating 55, while the net 5 remains constantly free for contact with the skids 31.

We declare that what we claim is:—

1. In an amusement device, an enclosed pond, a current conducting net stretched above the pond, an earthing net stretched on the bottom of the pond, boats movable on the pond, electrically driven means therefor, and means for connecting the driving means in circuit with the respective nets to drive the boats freely in straight course, or revolving the same on the pond.

2. An amusement device as claimed in claim 1, characterized in that the boats are provided with motors, means controlling the motors to prevent cutting off of the current in consequence of tilting of the boats or varying the depth of the boats in the water of the pond.

3. An amusement device according to claim 1 characterized in that the boats are provided with several adjusting means for carrying current from the earthing net, whereby the current connection is independent of the movements or draught of the boat.

4. An amusement device according to claim 1, characterized in that the system for carrying away the current to the earthing net consists of stirrups or skids tiltable about a vertical axis and also about an axis disposed longitudinally of the boats.

5. An amusement device comprising a boat movable on a pond in a straight course or capable of being revolved, a current connecting net stretched above the pond, an earthing net, a grating on the bed of the pond and upon which the earthing net rests, and means carried by the boat for electrically connecting the same to the respective nets.

In testimony whereof we have signed our names to this specification.

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EDUARD JETILEK.