M. W. TEBYRIÇÁ.

HYDROMOBILE.

APPLICATION FILED JULY 9, 1910.

987,508.

Patented Mar. 21, 1911.

3 SHEETS—SHEET 1.

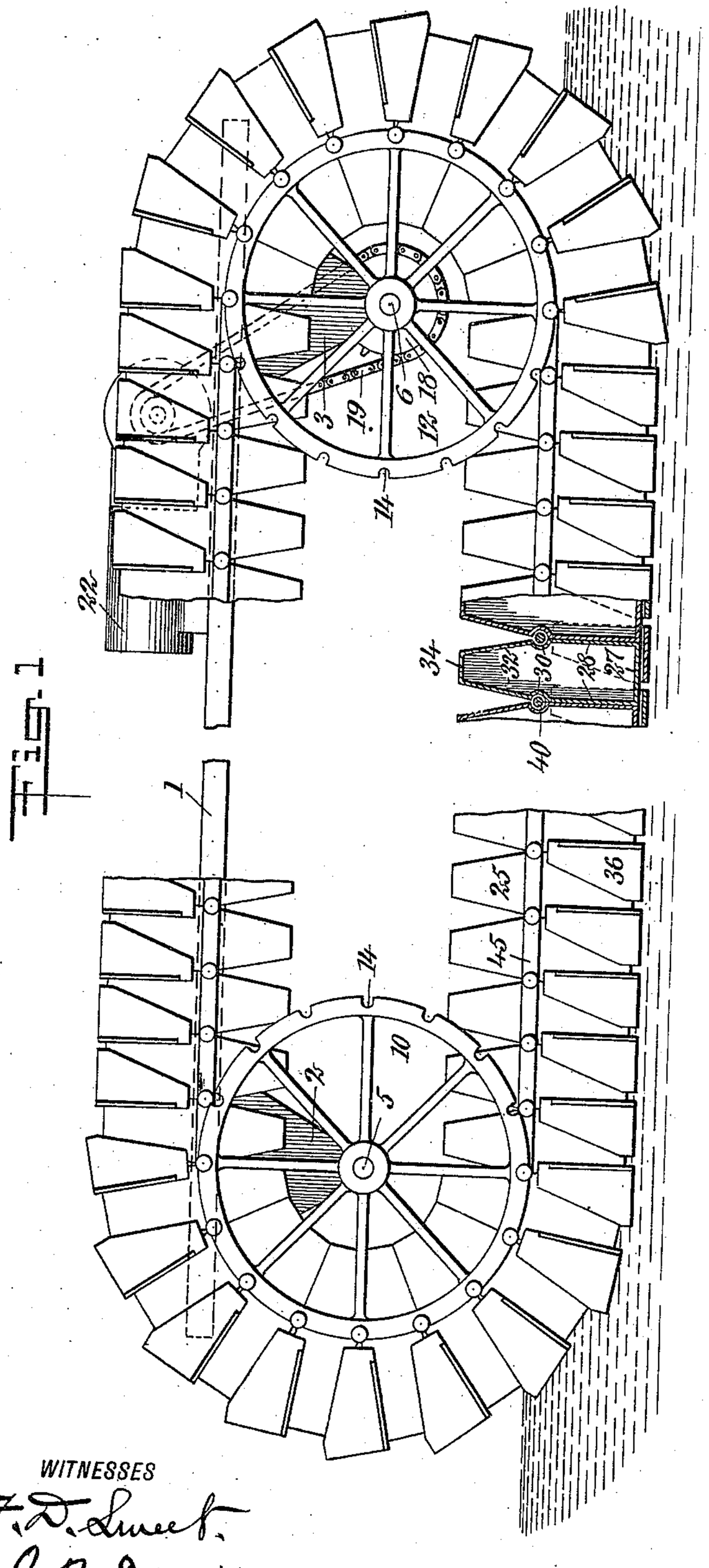

FIG. 1

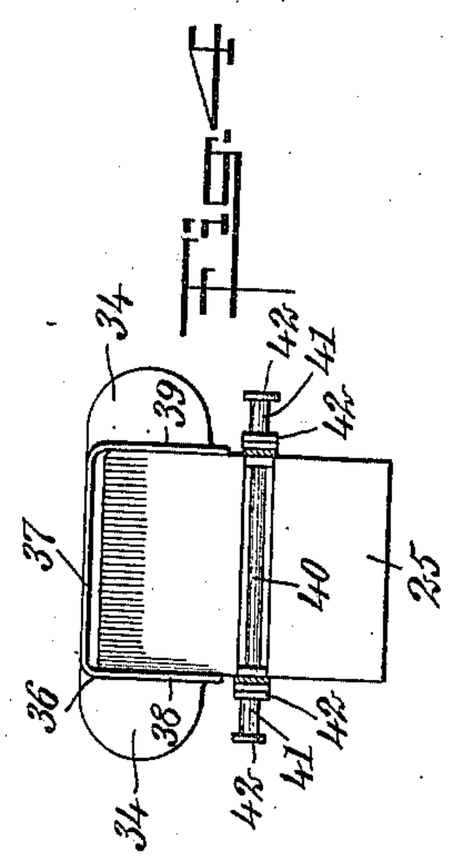

FIG. 5

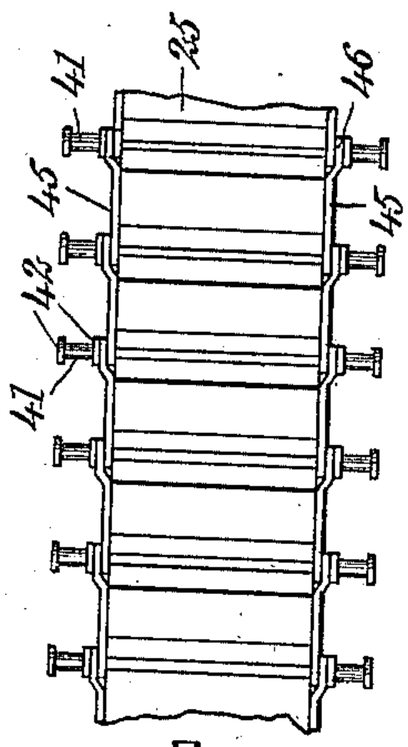

FIG. 4

WITNESSES

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3 SHEETS—SHEET 2.

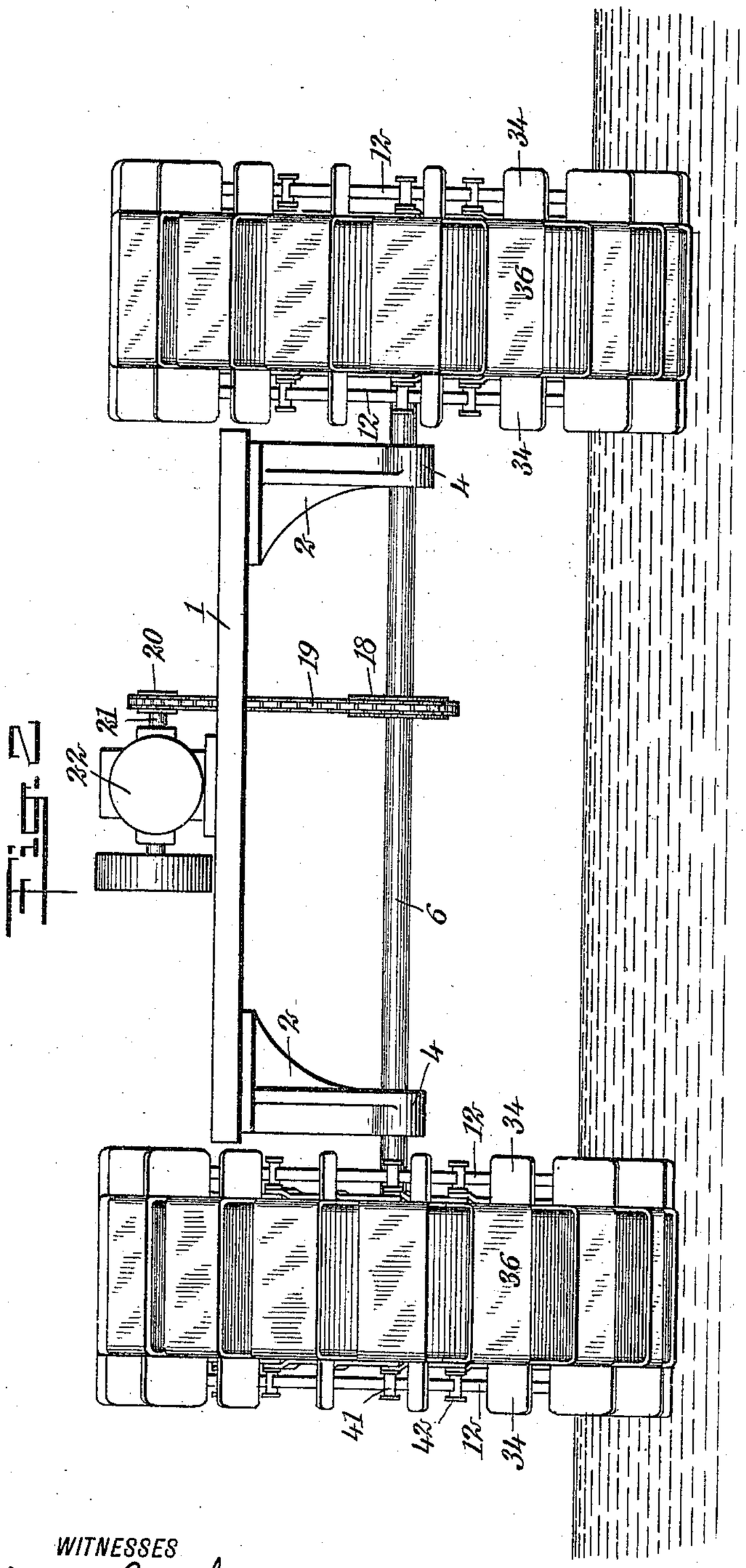

FIG. 2.

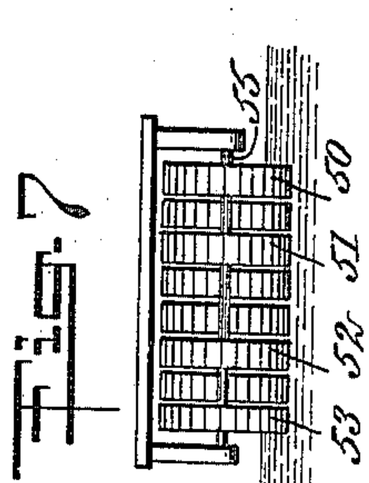

FIG. 7.

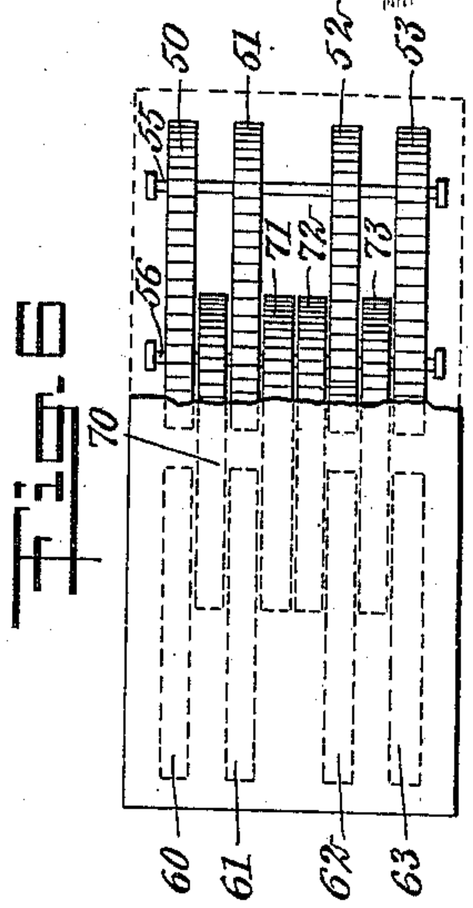

FIG. 6.

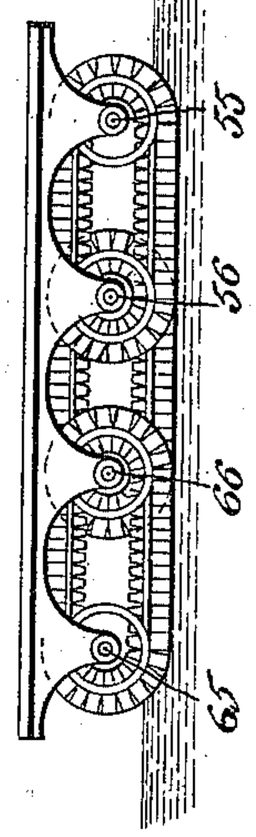

FIG. 5.

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3 SHEETS—SHEET 3.

FIG. 2.

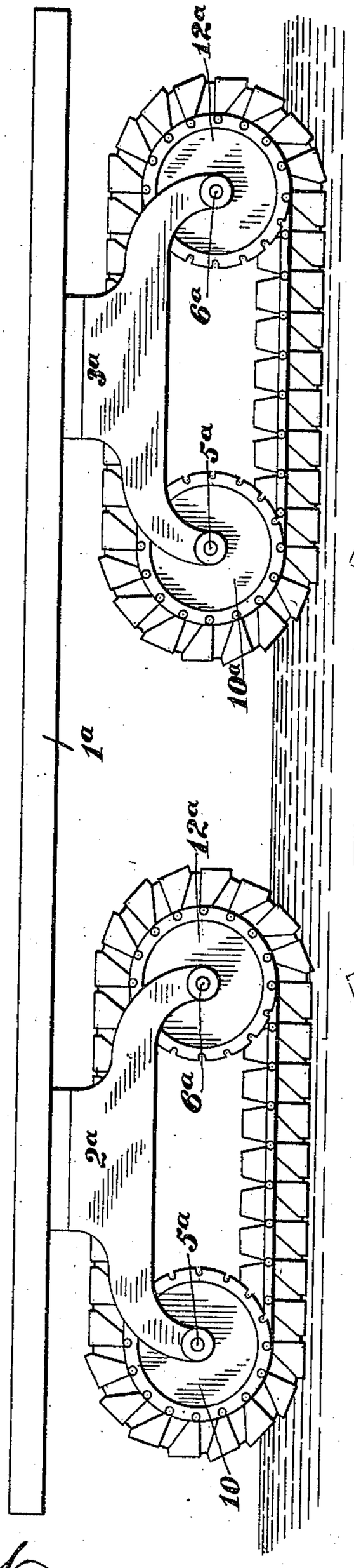
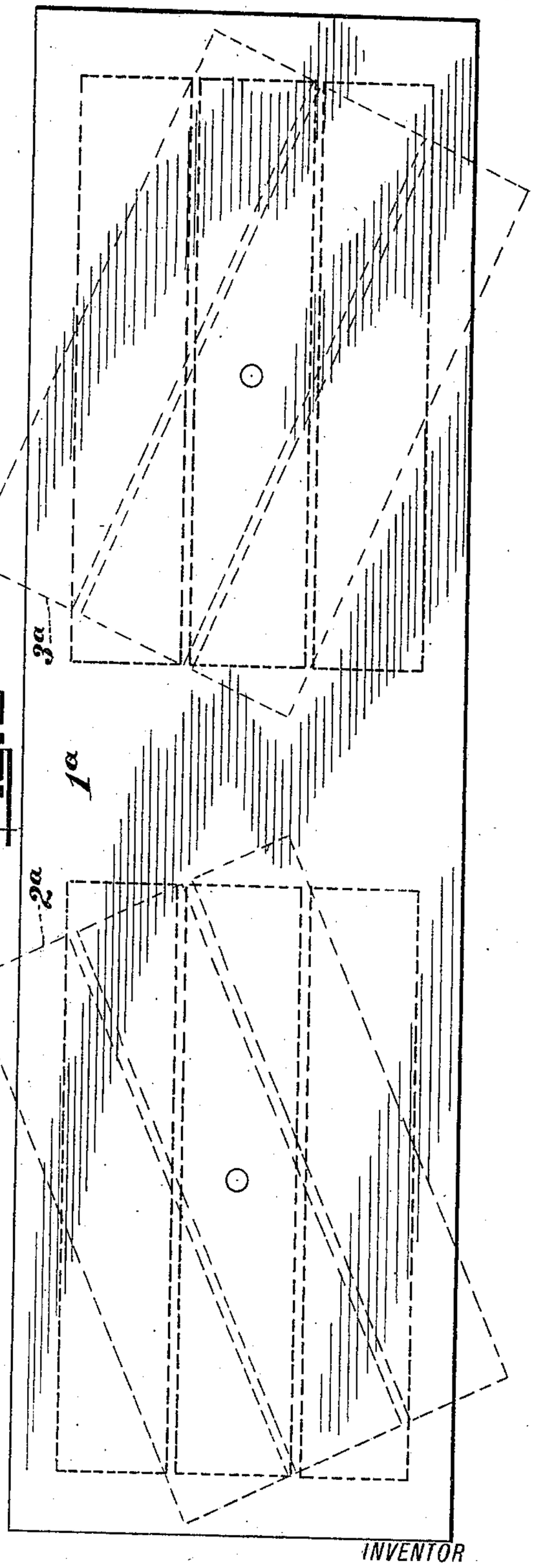


FIG. 3.



WITNESSES

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HYDROMOBILE.

987,508. Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed July 9, 1910. Serial No. 571,156.

To all whom it may concern:

Be it known that I, MARIO W. TEBYRIÇÁ, a citizen of the Republic of Brazil, and a resident of Sao Paulo, State of Sao Paulo, Brazil, South America, have invented a new and Improved Hydromobile, of which the following is a full, clear, and exact description.

My invention comprises essentially an endless series of pontoons or air-tight tanks, which are adapted to co-act with one another to afford a support for the structure as it passes over shallow water, or even across bars of sand.

One object of the invention is to provide the hydromobile with tanks which will afford the maximum amount of buoyancy, and also be so formed that the upward pressure will not tend to distort the lower line of tanks and cause unnecessary friction.

A further object is to provide hoods for protecting the tanks against obstructions, such as sand, sticks, etc. Said hoods also tend to lessen the resistance of the water against the floats when they are immersed at the front wheel, since they close the space between two contiguous floats, thus forming a substantially smooth surface at this region.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

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 views.

Figure 1 is a side elevation of the hydromobile, with parts broken away to show the cross section of some of the tanks; Fig. 2 is an end elevation viewed from the left-hand side of Fig. 1; Fig. 3 is a partial plan view of a series of pontoons or tanks showing the axles upon which they are pivoted; Fig. 4 is a front elevation of one tank, showing the hood attached thereto and the connecting links in section; Fig. 5 is a side elevation of a modified form for use in rough water; Fig. 6 is a plan view partially broken away, of the modification shown in Fig. 5; Fig. 7 is an end elevation of said modification; Fig. 8 is a side elevation of a further modified construction; and Fig. 9 is a plan of the same.

The structure comprises a frame or platform 1, mounted upon brackets 2 and 3, which are provided with bearings 4 at their lower ends. Shafts 5 and 6 are journaled in the bearings 4. A plurality of pairs of wheels 10 are fastened to the shaft 5 and a plurality of similar wheels 12 are fastened to the shaft 6. The peripheries of these wheels are provided with a series of similarly spaced notches 14. One of the shafts, as the shaft 6 for example, may be a driving shaft having a sprocket wheel 18 secured thereto, the teeth of which co-act with a chain 19 passing over a sprocket pinion 20, which may be mounted upon the driving shaft 21 of a suitable engine or motor 22.

An endless series of pontoons or tanks 25 extend around the wheels 10 and 12, said pontoons or tanks being adapted to swing about axles which co-act with the notches 14 in said wheels. Each tank (see Fig. 1) comprises a flat bottom 27 and two flat parallel sides 28 at right angles thereto. Said sides are formed with reëntrant portions 30 at the upper edges of the flat portions, and are formed with inclined portions 32, the inclination of which corresponds to the radii of the wheels 10 and 12. The top of the tank is formed with a flat side 34. The ends of the tank are flat and perpendicular to the bottom 27. A hood 36 is secured to each tank and comprises a bottom 37 and sides 38 and 39 at right angles thereto. Said sides are fastened to the end walls of the tank. The bottom 37 of the hood extends over a portion of the bottom of the succeeding tank in the endless chain. Each hood is provided with a pair of laterally-extending vanes 34, which project from the edge of said hood, to aid in steadying the structure on the water.

The opposing reëntrant portions 30 are adjacent to the tanks and form a substantially cylindrical passage for the reception of axles 40. Said axles are formed on their ends with trunnions 41 and collars 42. A link 45 is secured to each end of each tank, and has one end offset, as at 46. The axles 40 pass through the ends of said links. The axles are thus connected but the tanks may rotate partially, in order to conform to the external periphery of the wheels 10 and 12. By forming the upper ends of the tanks with inclined sides, which correspond to the radii of the wheels 10 and 12, the maximum amount of buoyancy is produced for the amount of space that is available. By forming the tanks with rectangular parallel sides

at their bottom portions, said tanks along the lower line of structure, form a substantially uniform beam.

In the modification shown in Figs. 5 to 7 inclusive, there are several sets of series of tanks which are mounted in staggered relation so that they may coöperate with rough water such as is found upon the ocean. In the forms therein shown the parallel series 50, 51, 52 and 53 are mounted to rotate about shafts 55 and 56. A similar set 60, 61, 62 and 63 is mounted to rotate upon similar shafts 65 and 66. A series 70, 71, 72 and 73 is mounted to rotate about the shafts 56 and 66, and this series is interspersed between the two other sets of series. It is obvious that the location of the various sets may be varied as desired.

The operation of the device is believed to be obvious from the construction above set forth. The motor 22 causes the driving shaft 6 to be rotated by means of the chain 19. This in turn causes the wheel 12 to be rotated and the series of tanks pushed along one at a time by the coaction of the notches 14 with the trunnions 41 on the axles 40. The links 45 maintain the tanks in proper relation to one another, but allow free movement about the wheels 10 and 12. It will be seen by reference to the left-hand side of Fig. 1 that the hoods 36 projecting from one tank across the ends of the next tank operate to close the triangular space between the sides of the tanks as they are about to be immersed in the water. This prevents the water from coming against the sides of the tanks, but rather against the lower ends of said tanks and the lower ends of the hoods.

In the modified construction, shown in Figs. 8 and 9, the platform 1^a has attached thereto, tracks 2^a, 3^a, carrying shafts 5^a, 6^a, on which are mounted wheels 10^a, 12^a, of the same character as those shown in the other views and carrying an endless series of air-tight tanks or floats. Either one or both of the trucks may be pivoted to turn beneath the platform 1^a, and any suitable means may be employed by turning the truck or trucks and for rotating the wheels carried by the trucks. In this form of my invention, perfect dirigibility is insured on the water, the action being the same as that of a bob-sled traveling upon snow.

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

1. In a device of the character described, the combination of a frame, a plurality of pairs of notched wheels rotatably mounted on said frame, an endless series of pontoons arranged side by side, a shaft passing between each pair of pontoons intermediate their depth, trunnions formed on the ends of each shaft adapted to coöperate with the notches on said wheels, and links attached to the ends of each of said pontoons intermediate their depth and connected to consecutive shafts.

2. In a device of the character described, the combination of a frame, a plurality of pairs of notched wheels rotatably mounted on said frame, an endless series of pontoons arranged side by side, being substantially rectangular in lateral cross section throughout the lower half of their depth and tapering at their upper half to conform to radii of said wheels, a shaft passing between each pair of pontoons intermediate its depth, trunnions formed on the ends of each shaft adapted to coöperate with the notches of said wheels, and links attached to the ends of each of said pontoons intermediate their depth and connected to consecutive shafts.

3. In a device of the character described, the combination of a frame, a plurality of pairs of notched wheels rotatably mounted on said frame, an endless series of pontoons arranged side by side, each having its sides formed with reëntrant portions registering with those on the adjacent pontoons to form a passage, a shaft extending through each of said passages and having trunnions on its ends, and means for connecting said shafts.

4. In a device of the character described, the combination of a frame, a plurality of pairs of wheels, an endless series of pontoons arranged side by side, a hood secured to each pontoon and adapted to overlap the succeeding pontoon, each of the said pontoons having laterally extending vanes and means uniting the pontoons and coöperating with said wheels.

5. In a device of the character described, the combination of a frame, a plurality of pairs of wheels, an endless series of pontoons arranged side by side, a hood secured to each pontoon and adapted to overlap the succeeding pontoon, vanes projecting from the ends of said pontoons, and means uniting the pontoons and coöperating with said wheels.

6. In a device of the character described, the combination of a plurality of pairs of wheels rotatably mounted and having peripheral notches, an endless series of pontoons arranged side by side, being substantially rectangular in cross section throughout the lower half of their depth and tapering at their upper half, a hood secured to each pontoon and adapted to overlap the succeeding pontoon, each of the said pontoons having laterally extending vanes and means uniting the pontoons and coöperating with the notches on said wheels.

7. In a device of the character specified, the combination with a plurality of pairs of spaced wheels, of an endless belt supported on the wheels, and an endless series of pontoons connected with the belt, each of the said pontoons being substantially rectangular at its lower end and tapering at the

upper end and having at each side a transverse groove at the junction of the rectangular with the tapered portion, the grooves cooperating to form recesses, and a shaft passing through each of the said recesses and connecting the pontoons with the belt.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MARIO W. TEBYRIÇÁ.

Witnesses:
F. J. EGAN,
FRED S. LANE.