

C. O. CRACROFT.

WATER CYCLE.

APPLICATION FILED JULY 2, 1910.

1,000,076.

Patented Aug. 8, 1911.

3 SHEETS-SHEET 1.

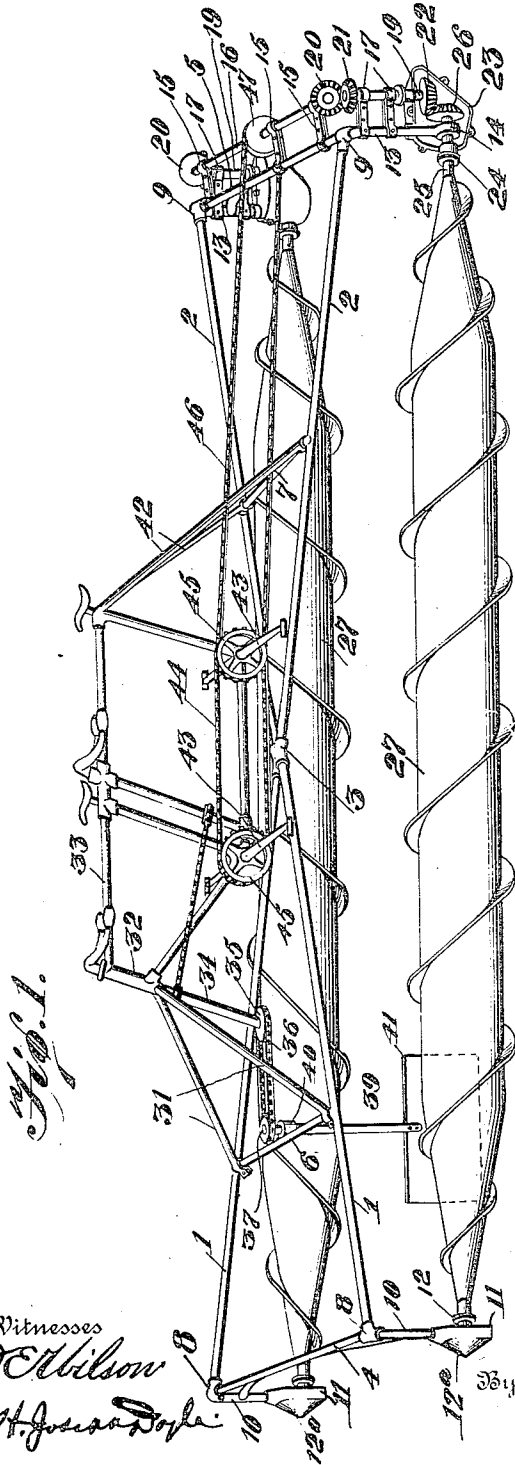


Fig. 1.

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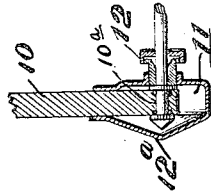


Fig. 6.

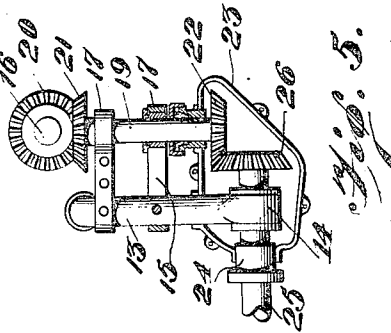


Fig. 5.

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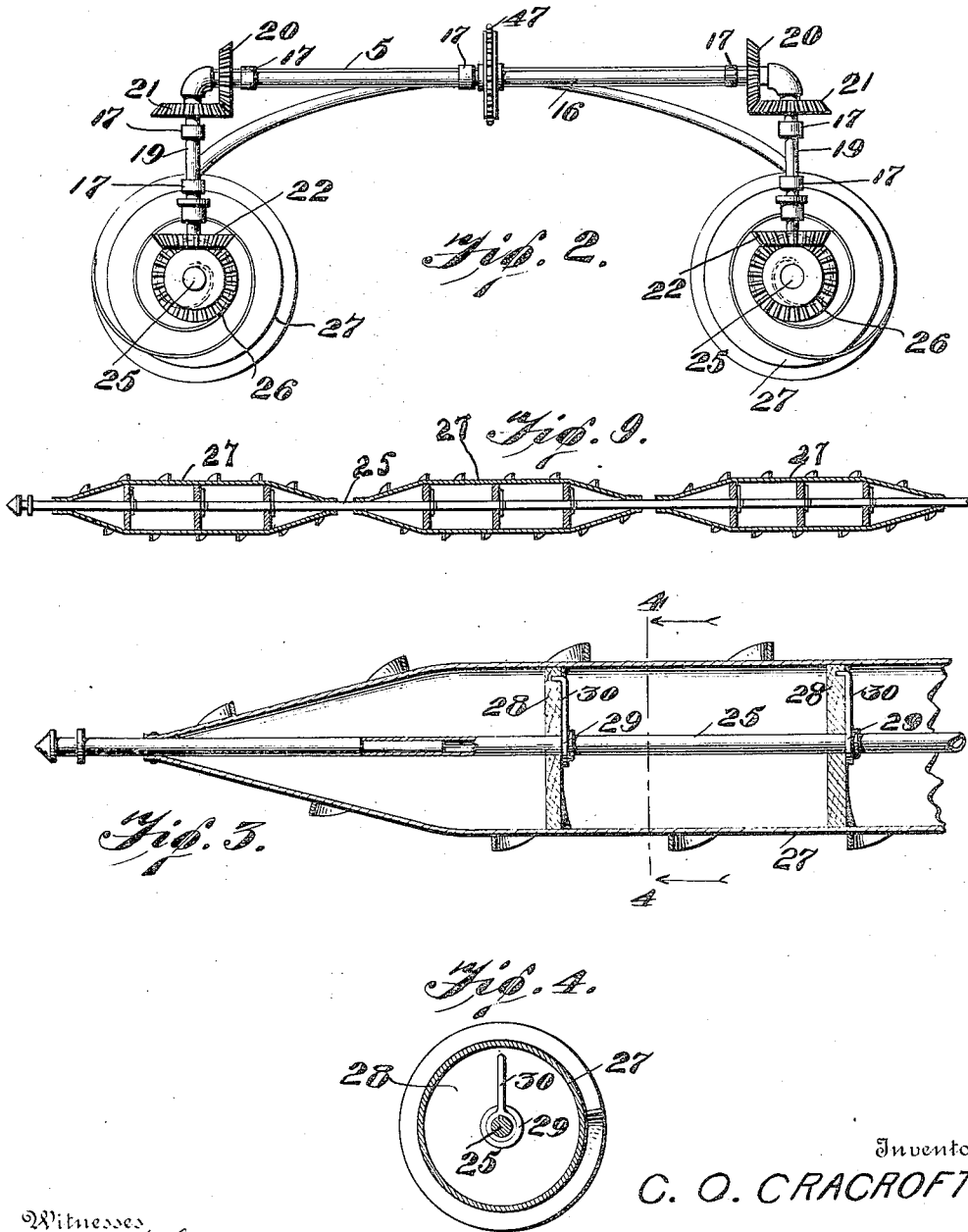
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 3 SHEETS—SHEET 3.

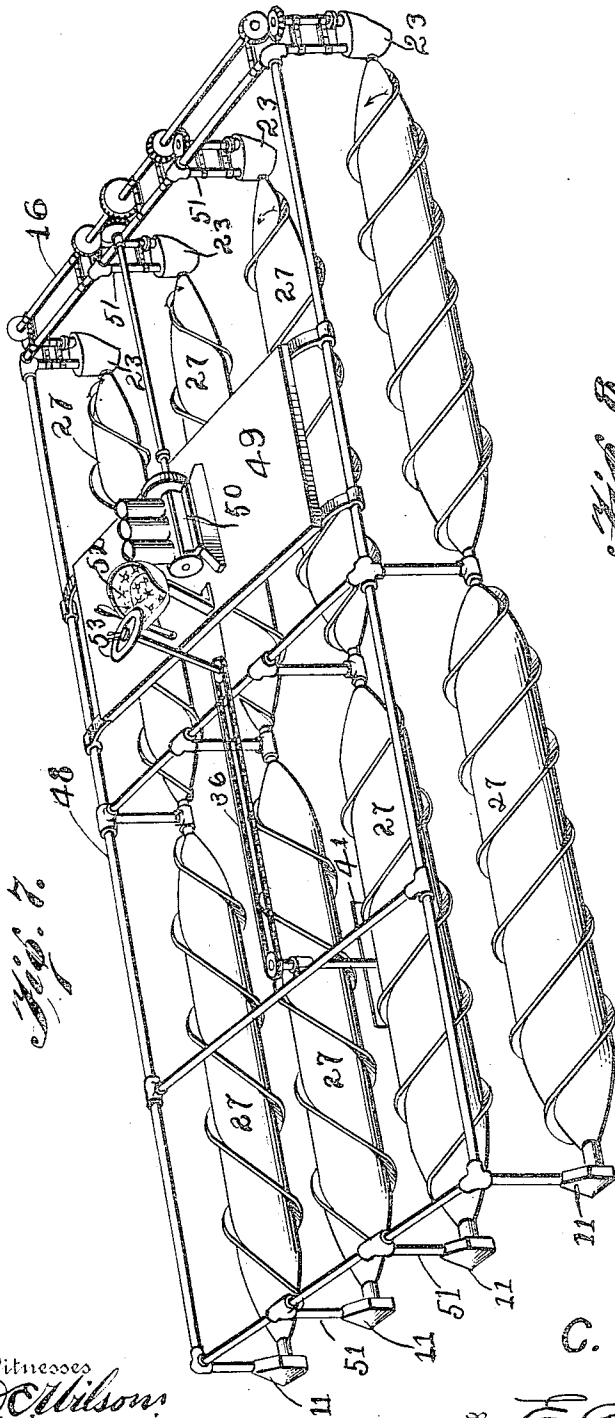


Fig. 7.

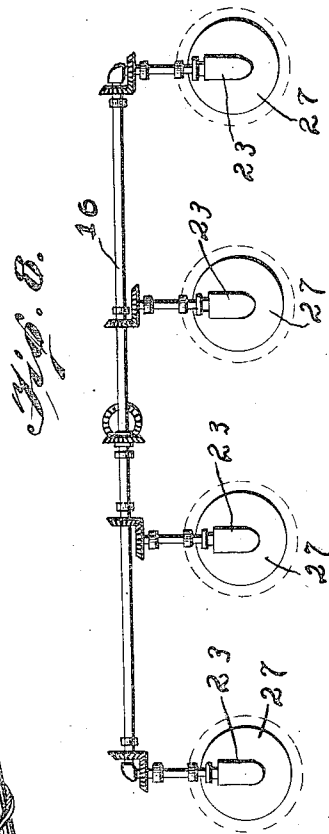


Fig. 8.

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UNITED STATES PATENT OFFICE.

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WATER-CYCLE.

1,000,076.

Specification of Letters Patent.

Patented Aug. 8, 1911.

Application filed July 2, 1910. Serial No. 570,094.

To all whom it may concern:

Be it known that I, CHESTER O. CRACROFT, a citizen of the United States of America, residing at Cordova, in the District of Alaska, have invented certain new and useful Improvements in Water-Cycles, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to water cycles and the principal object of the same is to provide simple means for operating the same and also to provide a novel frame for connecting the propellers and which also supports the frame for the operators as well as the driving means for the propellers.

In carrying out the objects of the invention generally stated above it will be understood, of course, that the essential features thereof are necessarily susceptible of changes in details and structural arrangements, one preferred and practical embodiment of which is shown in the accompanying drawings, wherein:—

Figure 1 is a perspective view of the improved water cycle. Fig. 2 is a view in rear elevation of the supporting frame and the means for driving the propellers. Fig. 3 is a fragmentary longitudinal sectional view of one of the propellers. Fig. 4 is a transverse vertical sectional view taken on the line 4—4, Fig. 3. Fig. 5 is a detail view of the means for driving the propellers also showing a gear casing section for a part thereof. Fig. 6 is a detail sectional view showing the manner of supporting the forward ends of the propellers. Fig. 7 is a perspective view of the invention shown as a boat adapted for towing. Fig. 8 is a detail rear view thereof. Fig. 9 is a fragmentary longitudinal sectional view showing a modified arrangement of propellers.

Referring to the accompanying drawings by numerals, it will be seen that the improved water cycle comprises a main supporting frame that is preferably formed of pipe sections and couplings therefor which are arranged to provide the forwardly extending diverging members 1 and similar rear members 2, said members 1 and 2 being connected by a coupling 3. The forward members are connected at their front ends by the member 4 and the rear members are similarly connected by the member 5. Said forward members are also connected by a brace 6 and the rear members

are also connected by a brace 7. Three-way couplings 8 are used for connecting the member 4 to the forward ends of members 1, and similar couplings 9 are used in connection with members 2 and 5. A hanger bar 10 depends from each coupling 8 and terminates in a bearing 10^a. A casing 11 incloses the lower end of each bar 10, said casing being water tight and equipped with a thrust bearing 12 that is in alinement with the bearing 10^a. The front of the casings 11 tapers to a point 12^a so that it will offer little or no resistance to the water.

A bar 13 depends from each coupling 9, each bar terminating in an end bearing 14. Connecting member 5 is equipped with strap bearings 15 which retain a power shaft 16 in spaced parallel relation therewith, and bars 13 are also provided with strap bearings 17 which retain a transmission shaft 19 in spaced parallel relation therewith. Power shaft 16 is provided with a bevel gear 20 at each end, and transmission shafts 19 are provided with gears 21 at their upper ends which mesh with gears 20, and also with gears 22 at their lower ends. The lower end of each bar 13 is provided with a sectional water-tight gear housing 23 which incloses the lower portion thereof and also the end gears 22. Said housings are provided with thrust bearings 24 that aline with the end bearings of bars 13.

As described, it will be understood that the supporting frame has two hanger bearings depending from the forward end which are provided with water-tight casings at their lower ends, and two hanger bearings that depend from the rear end which are inclosed by the water-tight gear casings, the hanger bearings being arranged in pairs, one member thereof being at the forward end of the frame and the other member at the rear end, and said hanger bearings supporting the propeller shafts 25 in spaced parallel relation. Said shafts enter the forward casings 11 through the thrust bearings 12 and are rotatably held in the end bearings of bars 10. The rear ends of said shafts enter the sectional housings 23 through the thrust bearings 24 and are rotatably supported within the housings by the end bearings of bars 13. The rear ends of said shafts carry the bevel gears 26 which mesh with the gears 22 of transmission shafts 19. It will therefore be seen that a rotation of power shaft 16 will be communi-

cated to transmission shafts 19, and the latter shafts will cause propeller shafts 25 to rotate.

A buoyant screw propeller 27 is provided for each shaft 25, said propellers being preferably torpedo shaped and having their tapering ends tightly fitted about said shafts. The propellers are preferably formed of sheet metal and are provided with regularly spaced wooden disks 28 which divide the propellers into independent watertight compartments. The shafts 25 pass through said disks 28 and adjacent each disk, said shafts are provided with collars 29 from which arms 30 project and fasten to said disks to prevent relative rotation of said disks and shafts.

The forward brace 6 carries upwardly inclined converging standards 31 which connect with the steering head 32 of a bicycle frame 33, which has been shown adapted for two operators. The steering rod 34 of said frame 33 has a sprocket 35 at its lower end which has a chain connection 36 with a sprocket 37 carried by a rudder shaft 39 mounted in a bearing 40 carried by brace 7. The lower end of shaft 39 is provided with a rudder 41. The rear end of frame 33 is supported by the standards 42 which extend from rear brace 7. Frame 33 is provided with the usual pedals 43, sprocket chain 44 and sprockets 45 and has a sprocket chain connection 46 with a sprocket 47 carried by power shaft 16.

It will be seen from the foregoing that the improved water cycle provides a novel supporting frame which retains the bicycle frame in a central position between the two propellers, and also that said propellers through the medium of the disks 28 are rendered practically non-sinkable. It will also be seen that the bicycle frame and the gear connection between the same and the propellers, provides means whereby an operator seated on said frame can propel the cycle with the minimum of manual labor.

In Figs. 7, 8, and 9, the invention has been shown as a boat adapted for towing, the supporting frame 48 carrying a platform 49 on which a gasolene or other motor 50 is mounted. Said frame 48, which is of a similar type to that described, is provided with additional hangers 51 so that four or more shafts can be supported thereby. The shafts are arranged in parallel relation and in pairs, one pair at each side of the frame, and each shaft being provided with two or more propellers. The shafts and propellers are of the same type as those described and are operated from the rear shaft which in turn is driven by the motor 50. The platform 49 is provided with a seat 52 and a steering wheel 53 that controls the rudder.

What I claim as my invention is:—

1. A water cycle comprising a flat main

frame composed of forward and rear divergent members, a coupling connecting the forward and rear members, hanger bearings depending from the front and rear corners of said frame, buoyant propellers supported in spaced parallel relation by said bearing, brace bars for the forward and rear members, a bicycle frame supported by said brace bars, means operable from said bicycle frame for rotating said propellers, and a rudder carried by one of said brace bars and operable from said bicycle frame.

2. A water cycle comprising a main frame formed of pipe sections arranged to provide divergent forward members and divergent rear members, a coupling connecting said forward and rear members, a hanger bearing coupled to the outer end of each member, buoyant propellers supported in spaced parallel relation by said hanger bearing, a bicycle frame carried by the main frame, and means operable from said bicycle frame for rotating said propellers.

3. A water cycle comprising a main frame formed of pipe sections arranged to provide divergent forward members and divergent rear members, a coupling for said forward and rear members, couplings at the outer ends of said members, a connecting member for the couplings at the outer ends of the forward members, a connecting member for the couplings at the outer ends of the rear members, hanger bearings depending from the forward and rear couplings of said main frame, a brace for the forward members, a brace for the rear member, buoyant propellers supported in spaced parallel relation by said hanger bearing, a bicycle frame supported by said braces, means operable from said bicycle frame for rotating said propellers, a rudder carried by one of said braces, and means operable from said bicycle frame for controlling said rudder.

4. A water cycle comprising a main frame provided with hanger bearings at the forward and rear ends thereof, propeller shafts supported in spaced parallel relation by said bearings, a buoyant propeller on each of said propeller shafts, a power shaft, means connecting the power shaft to the rear end of the main frame for retaining the power shaft in spaced parallel relation to the rear end of said main frame, transmission shafts, means for supporting the same in spaced parallel relation to the rear hanger bearings, gear connection between the power and transmission shafts, gear connections between the propeller and transmission shaft, a bicycle frame carried by the main frame, means operable from the bicycle frame for rotating the power shaft, a rudder supported by the main frame, and means operable from the bicycle frame for controlling said rudder.

5. A water cycle comprising a main

frame, hanger bearings depending from the forward corners thereof, water-tight casings inclosing said bearings, hanger bearings depending from the rear corner of said main frame, water-tight sectional gear housings inclosing said bearings, propeller shafts extending into said casings and housings and engaging the bearings, buoyant propellers carried thereby, transmission shafts extending into said housing, gear connections between said propeller and transmission shafts, a power shaft carried by the rear end of the main frame, gear connections between the power and transmission shafts, a bicycle frame carried by the main frame, and means operable from the bicycle frame for rotating the power shaft.

6. A water cycle comprising a main frame formed of forward and rear divergent members, a coupling connecting the inner ends of the forward members to the inner ends of the rear members, a three way coupling at the outer end of each member, a connecting bar for the forward couplings, a connecting bar for the rear couplings, a hanger bearing depending from each of said three-way couplings, propeller shafts journaled in said bearings, propellers on said shafts, means for rotating said shafts, and steering means carried by said frame.

7. A water cycle comprising a frame, propeller shafts carried thereby, buoyant propellers on said shafts, partition disks on said shafts for dividing the propellers into independent water-tight compartments, collars carried by said shafts, and arms projecting from said collars and engaging said disks to hold the same in rigid relation to said shafts.

8. A water-cycle comprising a frame, hangers depending from the corners thereof and provided with bearing openings in their lower portions, propeller shafts journaled in said openings, casings inclosing the lower ends of the forward hanger bearings and provided with thrust bearings through which the shafts project, said casings provided with tapering front portions, propellers carried by said shafts, and means for rotating said shafts.

9. A buoyant propeller comprising a shaft, collars therein, arms projecting therefrom, and partitions on said shaft for dividing said body into a plurality of independent water-tight compartments, said partitions being held in rigid relation to said shafts by said arms.

10. A water cycle comprising a main frame provided with couplings at the forward and rear corners, hanger bearings depending from said couplings, propeller shafts journaled in said bearings, propellers carried by said shafts, casings inclosing the lower ends of the forward bearings and provided with bearings for the propeller shafts, casings inclosing the lower ends of the rear bearings and provided with bearings for said shafts, means extending into said rear casings for rotating the propeller shafts, and mechanism carried by the main frame for operating said means.

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

CHESTER O. CRACROFT.

Witnesses:

J. R. VAN CLEVE,
B. K. DAVIS.