

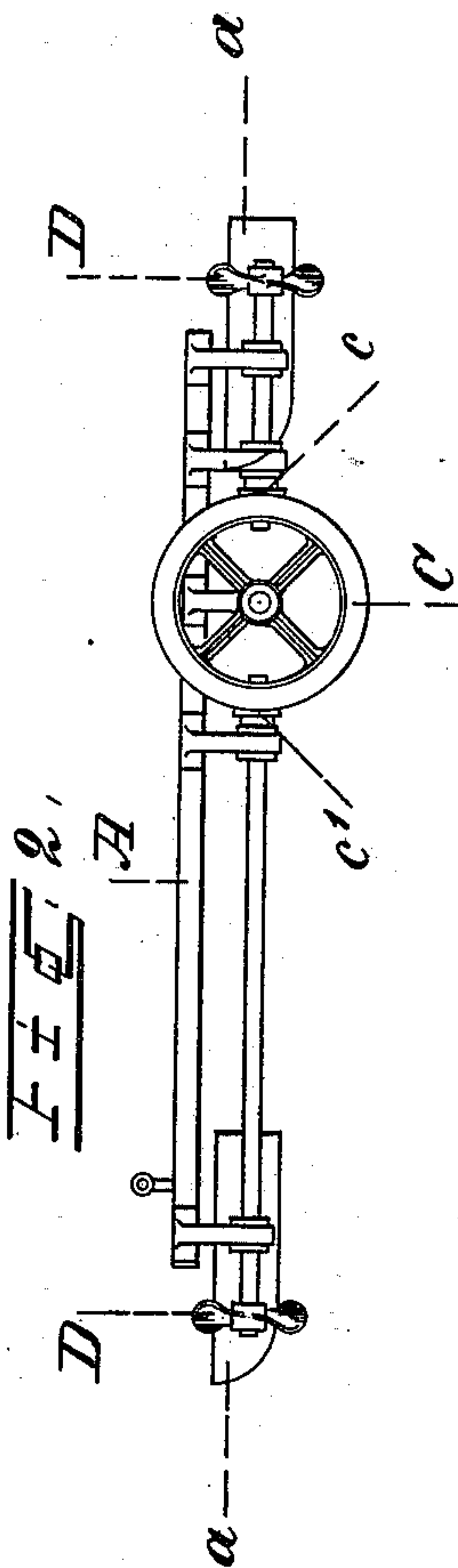
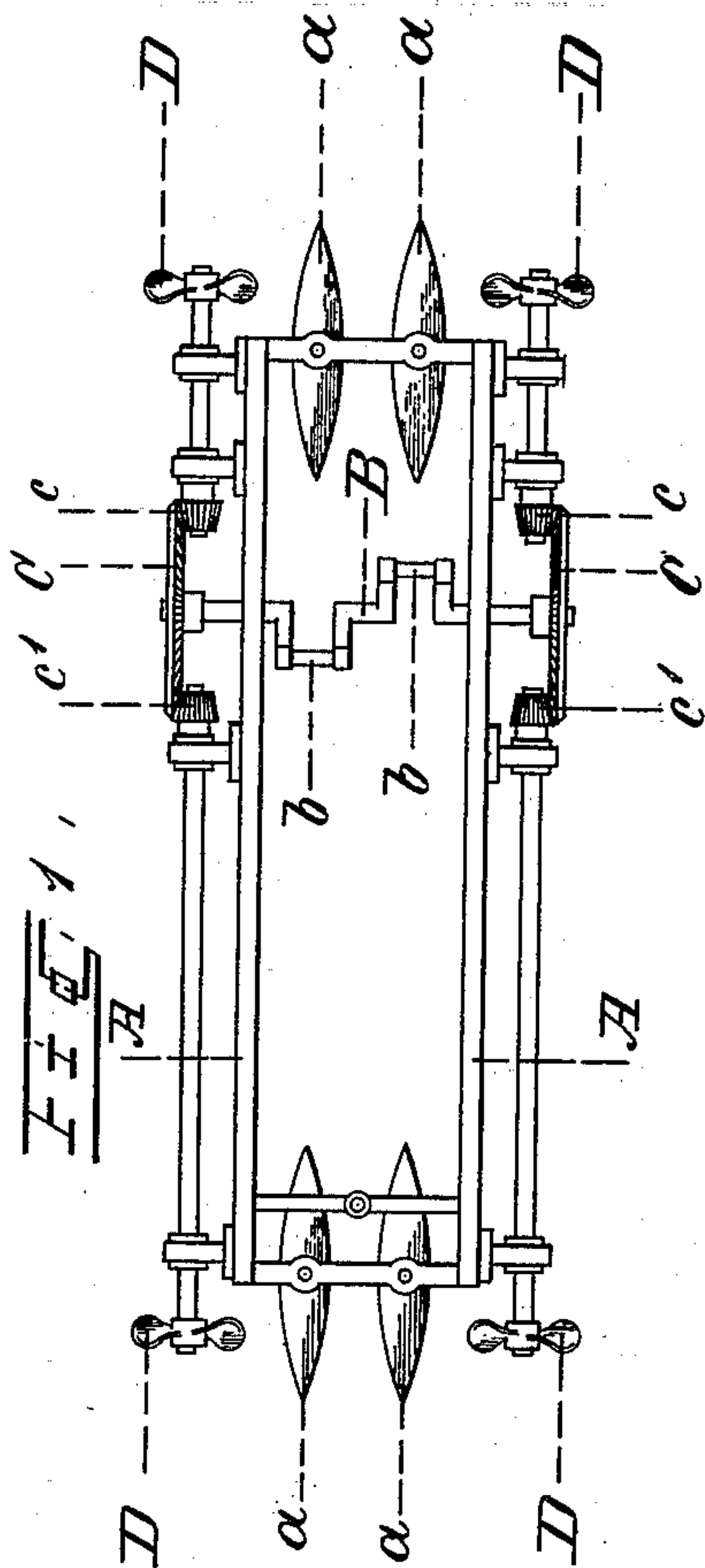
No. 623,060.

Patented Apr. 11, 1899.

G. ZACHER.
SWIMMING APPARATUS.

(Application filed Nov. 12, 1898.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

GUSTAV ZACHER, OF BERLIN, GERMANY.

SWIMMING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 623,060, dated April 11, 1899.

Application filed November 12, 1898. Serial No. 696,243. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV ZACHER, of Berlin, in the Kingdom of Prussia, German Empire, have invented a new and useful Swimming Apparatus, of which the following is a full, clear, and exact description.

The invention relates to a swimming apparatus which is to serve principally for sporting purposes, the peculiarity of the apparatus being that the striking movement of the legs in swimming at the same time serves to actuate screw-propellers. As is known, the swimmer draws his arms under his chest and his legs under his body, whereupon he strikes out strongly with his arms and legs. The forward stroke of the arms merely serves to part the water, and thereby reduce its resistance in moving forward, while the forward movement itself is effected by the striking out of the spread legs. The stronger the swimmer strikes out with his legs the quicker he moves forward; but the forward movement is always only in proportion to a small fraction of the strength expended, as in order to fully utilize the latter the water does not offer sufficient resistance. Now my idea is to considerably increase the useful effect of the striking or pushing movement in swimming by letting the stroke act not only direct against the water, but at the same time upon a propelling mechanism.

In the drawings, Figure 1 is a plan view of an apparatus illustrating the nature of my invention, and Fig. 2 a side elevation of the improvement.

The swimming person lies in the water with his body stretched out flat within a frame A, of which the front and rear ends are fastened on floats *a*, preferably of the form illustrated by the drawings, in order to cut the water easily. This open frame A comprises side and end bars. The feet of the swimmer are placed on the cranks *b* of a double-bent shaft B, which is arranged in the frame A and provided at its ends with bevel gear-wheels C. The latter mesh with comparatively smaller bevel-pinions *c c'*, which serve to actuate the screw-propellers DD, arranged at both sides of the frame. The greater part of the body of the swimmer resting in the water, by which it is principally carried, the floats, in consideration of the dead weight of the apparatus, may be of comparatively small size. The swimmer holds on with his hands to the front end of the frame

and strikes out strongly with his feet—however not with both feet at the same time, but with one after the other, which movement follows by itself in consequence of the feet resting in the double-bent crank-shaft B. Thus while one leg strikes out, whereby a forward movement of the swimmer is caused, the other leg is drawn in, while the foot remains on the crank in order to be at once pushed out again, &c. The pushing force of the legs is thus utilized in the same manner as in free swimming; but by the feet turning the crank-shaft, and consequently the screw-propellers, which on their part in the known manner propel the frame, the strength exercised by the legs is considerably better realized. A peculiar double action therefore takes place. As for the first, the swimmer moves directly forward, taking along the apparatus, and for the second he is himself carried along by the apparatus, which is propelled by the screw-propellers. In consequence of this double action and the considerably better utilization of the pushing force of the legs the swimmer can with the apparatus move forward in the water much faster than an ordinary swimmer and one using a water-vehicle which he propels by treading or by screw-propellers.

In order to steer the swimming apparatus, no special steering-gear is required if the floats *a* are fastened to the frame A so that they can be turned and if they are so coupled with each other that the swimmer can turn them with his hand.

What I claim, and desire to secure by Letters Patent, is—

In combination in a swimming apparatus, the open frame comprising the side and end bars, the crank-shaft extending across the open frame to be operated by the feet of the swimmer who lies within the open frame, the propellers outside of the open frame, the shafts therefor extending along the outer sides of the frame and the gearing between the crank-shaft and the propeller-shafts, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GUSTAV ZACHER.

Witnesses:

W. HAUPT,
C. H. DAY.