No. 726,796. PATENTED APR. 28, 1903.

M. FISCHHABER.

TORPEDO.

APPLICATION FILED DEC. 6, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig: 1.

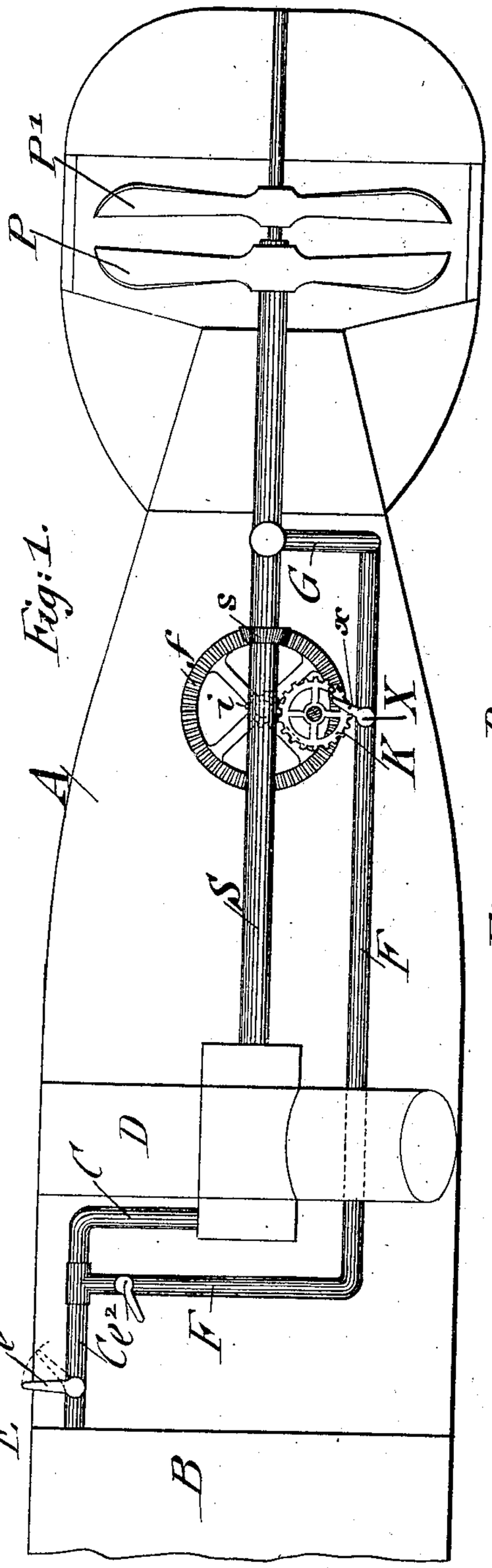


Fig: 3.

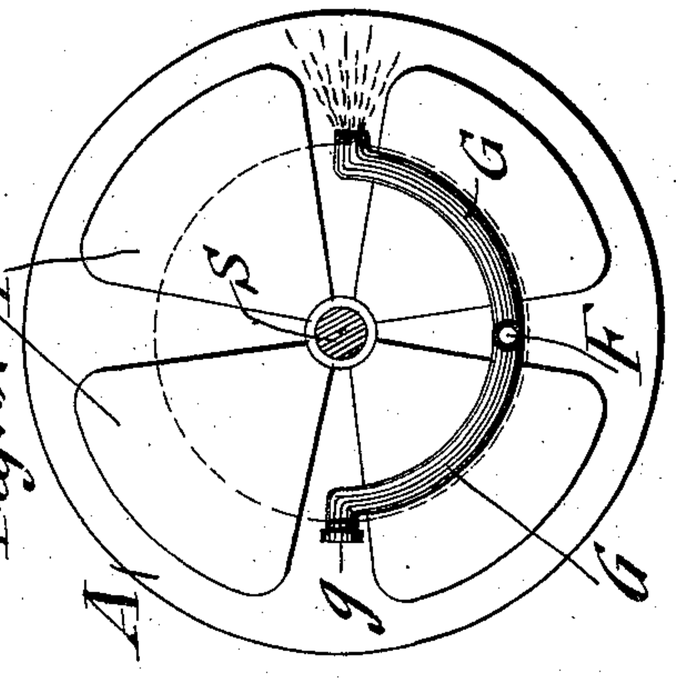
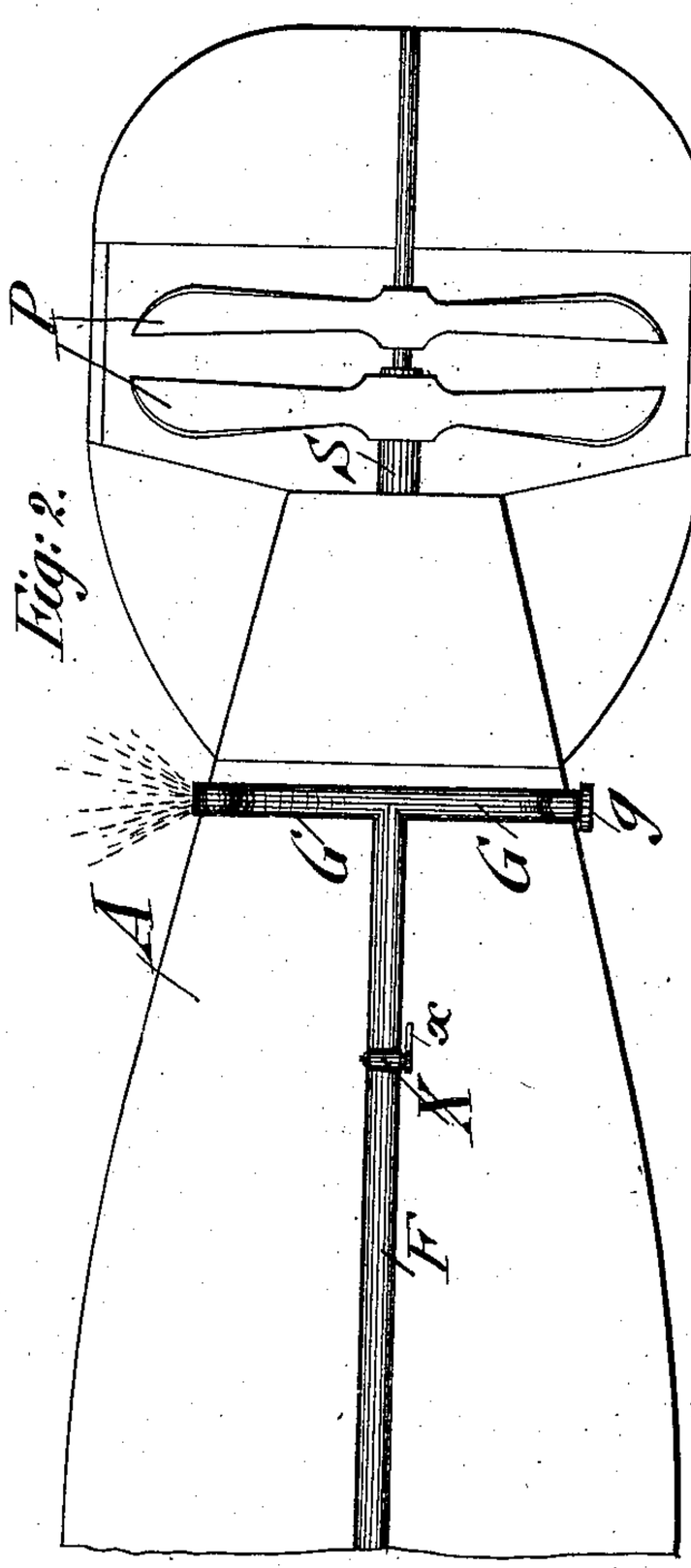


Fig: 2.



Witnesses
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Henry J. Suhrbier

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By his Attorneys
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NO MODEL. 2 SHEETS—SHEET 2.

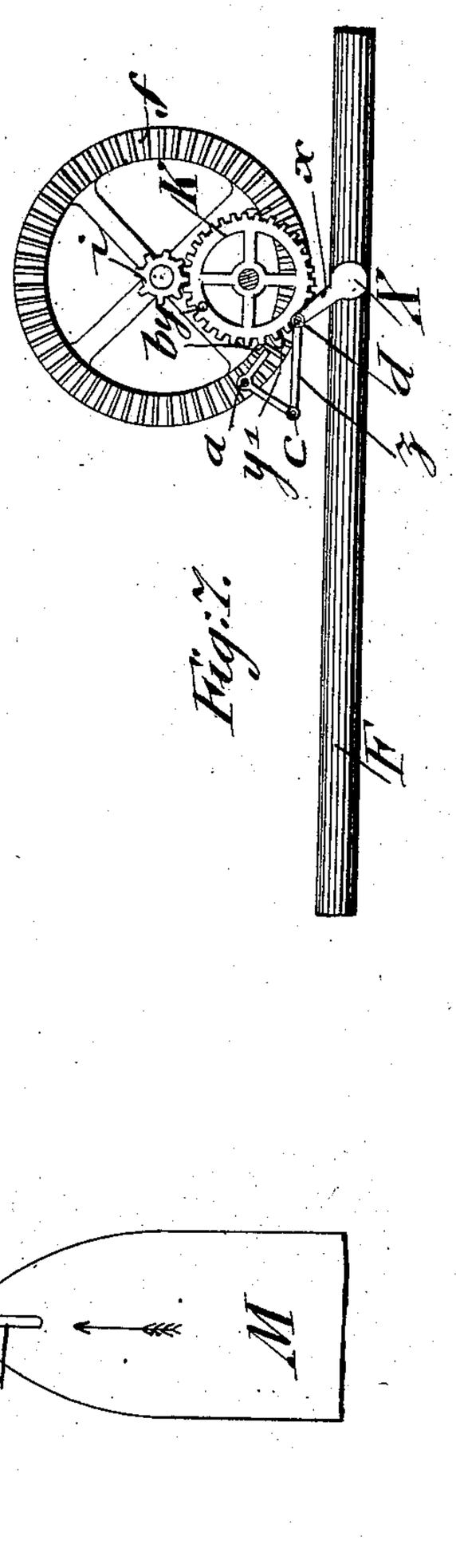

Fig. 6.

Fig. 7.

Fig. 5.

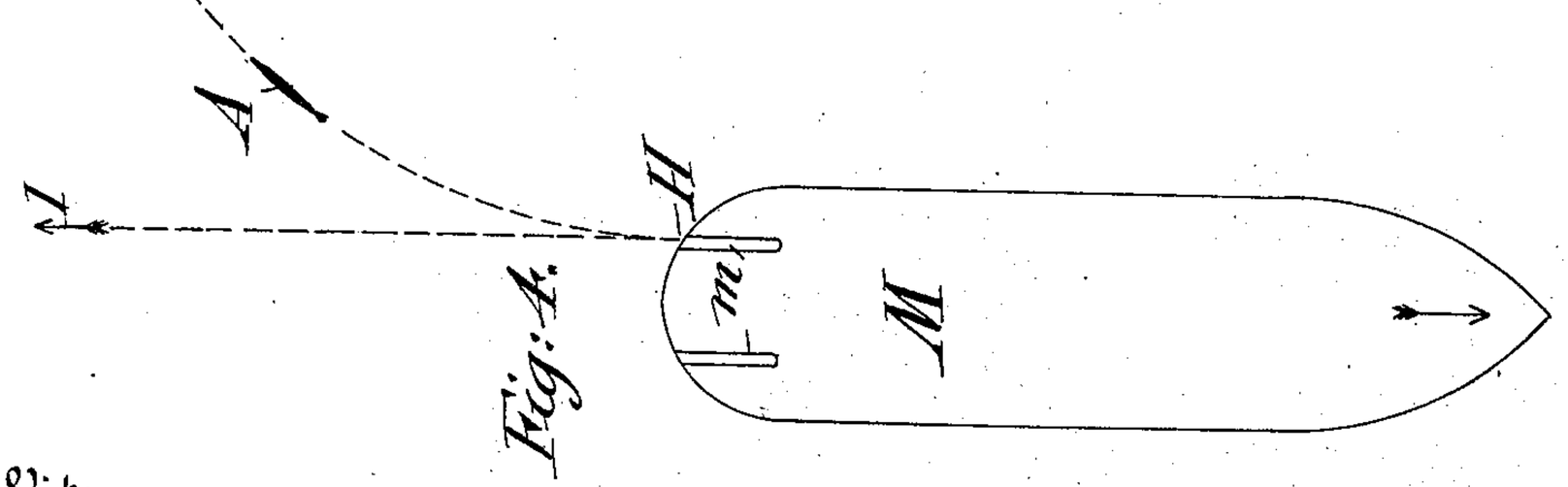

Fig. 4.

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UNITED STATES PATENT OFFICE.

MANFRED FISCHHABER, OF NEW YORK, N. Y.

TORPEDO.

SPECIFICATION forming part of Letters Patent No. 726,796, dated April 28, 1903.

Application filed December 5, 1902. Serial No. 133,943. (No model.)

To all whom it may concern:

Be it known that I, MANFRED FISCHHABER, a citizen of the United States, residing in New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Torpedoes, of which the following is a specification.

This invention relates to submarine torpedoes of that class generally known as the "Whitehead torpedo," which are propelled under water by means of compressed air.

It has been found that there are certain objections to discharging torpedoes from the broadside of a man-of-war during the movement of the same. So it is now customary to discharge the torpedoes from the bow and stern of the ship. After the torpedo, fitted with my improved device, reaches the water compressed air is discharged from one side of the stern of the torpedo, so as to guide the same in either one or the other direction. After some time the torpedo will be propelled in an entirely different direction than when it first reaches the water.

For this purpose the invention consists of a submarine torpedo, means for propelling and steering the same in one or the other direction, and consists more specifically of means for propelling the torpedo, a pipe connected at one end with a supply-pipe and at the other with two branch pipes which terminate at the outside of the torpedo at each side of the stern of the same, means for closing one of said branch pipes, a valve in the first pipe, and means for actuating said valve.

The invention consists, further, of certain additional details of construction and combinations of parts, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section of the rear part of a submarine torpedo to which my improved steering device is applied. Fig. 2 is a top view of part of Fig. 1. Fig. 3 is a rear end view of Fig. 2. Figs. 4 and 5 are diagrammatic views of a ship and the course which the propelled torpedo has taken after discharge, and Figs. 6 and 7 are detail views of the steering device.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a torpedo in which is suitably arranged a storage-tank B, from which a pipe C leads to a motor D, which operates the propelling-shaft S and propellers P P'. After the storage-tank B has been filled with a suitable medium, as compressed air or steam, the stop-cock E is closed, but opened by the sudden discharge of the torpedo by the backward falling of its handle *e*, as shown in dotted lines in Fig. 1. This conducts the medium so as to operate the motor D and propellers P P'. Connected to the pipe C is a pipe F, which conducts some of the medium—compressed air, for instance—to the stern of the torpedo to two circularly-shaped pipes G G, which pass outwardly of the shell of the torpedo, and are opened and closed at their ends by a cap *g*, depending on the predetermined course of the torpedo. The compressed air emanating from the open side of the pipe G in horizontal direction and transversely to the length of the torpedo will, due to the reactive force of the water, move the stern of the torpedo in the opposite direction, and thereby continually change the direction of the same. The torpedo would then take the course H J K, as shown in Fig. 4—that is, transcribe a circle. As this quality alone would be almost useless and as it very often becomes desirable and necessary that the torpedo take both a curved as well as a straight course, as shown in Fig. 4 by H J L or in Fig. 5 by R T U, a mechanism similar to that used in torpedoes for regulating the distance which the torpedo should travel is employed to actuate a valve-rod of the valve or cock X, which alters the intensity of the outflow of the air from the pipe G, as well as opens and closes it, thereby altering the curvature of the course of the torpedo.

To the shaft S is attached a miter or small bevel-gear *s*, which meshes with a larger bevel-gear *f* and on the axis of which is arranged a pinion *i*, which meshes in a gear-wheel K.

These gears are so chosen as to considerably reduce the velocity of the shaft and are generally combined with suitable levers to throw out the propelling mechanism after a certain time and so end the traverse of the torpedo.

In my improved device the gear-wheels, as above described, are made use of, and to a stationary point a is hinged an elbow-lever $b\ a'\ c$, one end, b, of which passes over near to the gear-wheel K, so as to engage with a lug y' on the periphery of the wheel, the other end, c, being connected to a link z, which is connected to the free end of the valve-rod x of the valve or cock X. To this gear-wheel is also attached a pin y, which engages with the rod x of the valve. This link z and lug y' may be placed on the gear-wheel k at any point, and other similar lugs, pins, or cams may be also placed thereon, so as to make all desirable combinations of movements and permit a varied maneuvering of the torpedo.

The operation of my improved torpedo is as follows: The torpedo A is discharged from the ship of war or torpedo-boat M, and by the sudden thrust given to it the handle of the supply-cock E is thrown in backward position, as shown in dotted lines in Fig. 1. The compressed air passing then through pipe C actuates motor D and shaft S, which in turn actuates propellers P P' and the reduction-gearing connected therewith. At the same time some of the compressed air, the quantity being regulated by valve e^2, passes through the pipe F and to the pipes G. The velocity of the shaft S is reduced by suitable gearing, so that the gear-wheel K rotates very slowly, and the valve X being closed no air emanates from the pipe G, and consequently the torpedo is propelled in a straight-line course. After some time, usually predetermined, the lug y' will engage with the end b of the elbow-lever $b\ a'\ c$, and thereby open the valve X, permitting air to emanate from one of the pipes G, and so change the course of the torpedo, as shown by R T in Fig. 5. By the time the torpedo arrives at point T the gear-wheel K will have passed through a part of its revolution and the pin y will engage with the rod x and again close the valve X, thereby preventing any air from emanating from the pipe G, and so permitting the torpedo to be propelled in a straight line again. It is clear that by a suitable combination of the arrangement of the pins and lugs on the gear-wheel any course, curved or straight, may be traversed by the torpedo.

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

1. In a submarine torpedo, the combination of means for propelling the torpedo, a supply-pipe, a pipe connected with said supply-pipe and terminating in two branch pipes at the outside of the torpedo, one at each side of the stern of the same, a valve in said connecting-pipe, means for actuating said valve at a predetermined time and means for closing either one of said branch pipes according to the course to be given to the torpedo, substantially as set forth.

2. In a submarine torpedo, the combination of a storage-tank, a motor, a supply-pipe connecting the motor and the storage-tank, a valve in said supply-pipe, a shaft operated by the motor, a propeller on said shaft, a pipe connected with said supply-pipe and terminating in two branch pipes passing to the outside of the torpedo, means for closing one or the other of said branch pipes, a valve for regulating the efflux of the medium from the opened branch pipe, and means for actuating said valve at a predetermined time, substantially as set forth.

3. In a submarine torpedo, the combination of means for propelling the torpedo, a supply-pipe, a pipe connected at one end with said supply-pipe and at the other with branch pipes which terminate at the outside of the torpedo one at each side of the stern of the same, means for closing one of said branch pipes, a valve in said connecting-pipe, a lever-arm on the spindle of the valve, a reduction-gear between the propeller-shaft and valve, a gear-wheel connected to said reduction-gear, a pin on the gear-wheel to engage with and actuate the lever-arm in one direction, an elbow-lever, a link connecting said lever-arm and elbow-lever, and a lug on the gear-wheel adapted to engage with the free end of the elbow-lever for actuating the lever-arm in the opposite direction, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

MANFRED FISCHHABER.

Witnesses:

PAUL GOEPEL,

C. P. GOEPEL.