No. 815,224. PATENTED MAR. 13, 1906.

V. SJÖSTRÖM.

SPIRAL PUMP AND PROPELLER.

APPLICATION FILED DEC. 26, 1900.

Fig. 1.

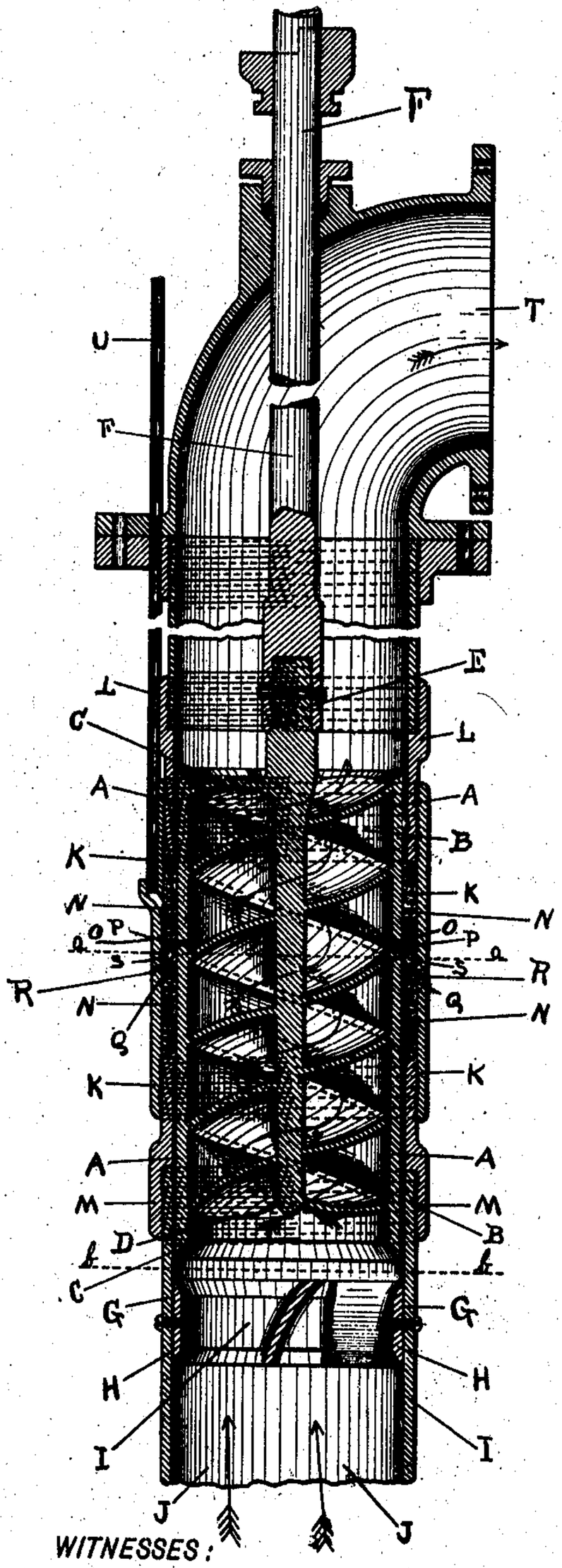


Fig. 2.

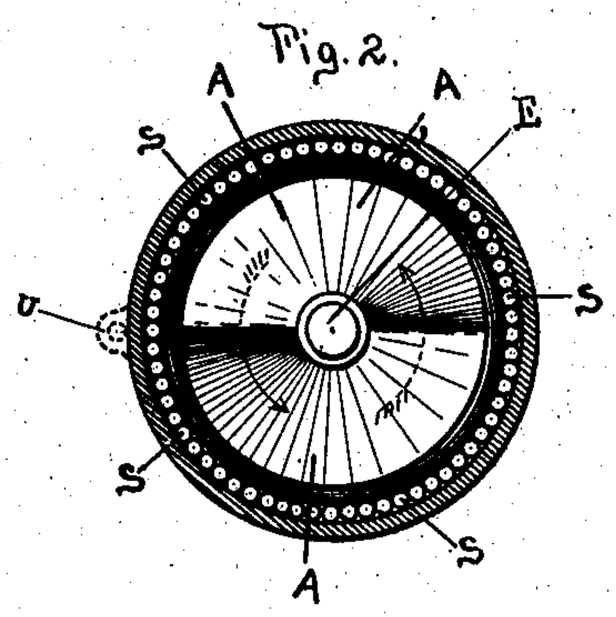
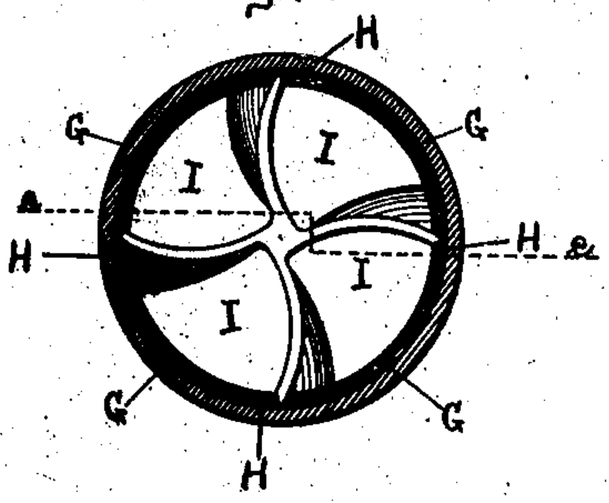


Fig. 3.



WITNESSES:

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SPIRAL PUMP AND PROPELLER.

No. 815,224. Specification of Letters Patent. Patented March 13, 1906.

Application filed December 26, 1900. Serial No. 41,153.

To all whom it may concern:

Be it known that I, VICTOR SJÖSTRÖM, a citizen of the Kingdom of Sweden, residing in the city of Los Angeles, in the county of Los Angeles, in the State of California, have invented certain new and useful Improvements in Spiral Pumps and Propellers, of which the following is a full, clear, and exact description and specification, reference being had to the annexed sheet of drawings and to the letters marked thereon.

My invention, which relates to certain new and useful improvements in spiral pumps and propellers, has for its object not only to render such pumps and propellers more efficient than hitherto, but also to provide a simple and comparatively cheap construction of such devices with a very effective packing between the rotating and stationary parts thereof—that is to say, the packing between the rotating screw part and the cylindrical casing within which such part rotates—and by which construction also my improved spiral pump or propeller is capable of being easily taken to pieces and assembled whenever required.

On the annexed drawings, Figure 1 is a vertical section of my improved spiral pump or propeller. Fig. 2 is a transverse section thereof on the line *a a*, Fig. 1, showing the antifriction-rollers between the packings. Fig. 3 is another horizontal section on the line *b b*, Fig. 1, showing the entrance-openings to the rotating screw through which the water to be pumped or propelled passes into the screw.

In Figs. 1, 2, and 3 the inner cylindrical casing and member of the device is marked A, and it contains a double spiral B and C, which extends, respectively, from the bottom of the member D to the top thereof. This spiral member is fitted by a joint E to a vertical rotative shaft F, and the exterior of the member A forms a continuous cylinder, as shown at Figs. 1 and 2. In that part of the casing of the pump or propeller marked G in Figs. 1 and 3 there is fixed the cylindrical ring H, containing the admission-ports I I I I. As the spiral member A of the device is rotated by power applied to the shaft F the water to be pumped is not only drawn through the suction-pipe J, Fig. 1, but by reason of the curved form of the ports I is caused to move in a direction which facilitates its entry into the spiral passages B and C of the rotating spiral member A.

The central part of the pump or propeller consists of the cylinder or tube K, having its upper and lower ends screw-threaded internally, as shown at Fig. 1, and into these screw-threaded portions the correspondingly-screw-threaded glands L and M are respectively entered, so that they compress the packing-rings N N. Round the exterior of the spiral member the metallic packing-ring O is fixed by screws P, as shown at Fig. 1, and within the cylindrical portion K the ring Q is secured by screws R, as also shown at Fig. 1. The ring O therefore rotates with the spiral member A, while the ring Q remains stationary, the rings O and Q having between them a space whereinto the antifriction ball-rollers S S S S are placed, as shown at Figs. 1 and 2. From this construction it follows that as the movable parts of the pump or propeller are rotated the antifriction-rollers S S S S not only enable the pump to be operated with considerable reduction of friction, while the rings N N N N above and below are enabled to be tightened with such a gradual degree by the glands L and M that a perfectly tight but easily-movable—that is to say, rotative—joint is made between the rotating and fixed parts of the pump.

The water raised by the spiral pump or propeller is discharged through the lift-pipe T, to the flanges of which a branch pipe is connected for taking the water in any direction required.

The pump-casing is provided with a lubricating-pipe U for conveying lubricant to the packing and rotating parts of the pump, as shown in Fig. 1.

It is to be understood that in place of using a single row of antifriction ball-rollers S S S S two or more rows of such balls may be used and correspondingly-situated packing-rings, according to the size and weight of the pump or propeller, also that one, two, or more spiral passages may be used in the propeller.

Having now described the nature of my said invention and the best system, mode, or manner I am at present acquainted with for carrying the same into effect, I desire to observe in conclusion that my said invention may also be used as a propeller for ships, and that what I consider to be novel and original, and therefore claim as the invention to be secured to me by Letters Patent, is as follows:

The combination of the tube-inclosed spiral passages and driving-shaft, the casing within which the tube-inclosed spiral passages rotate, the helical directing-blades and

admission-ports in the suction-pipe, the stuffing-boxes and glands in the pump-casing of such enlarged diameter as to receive the tube-inclosed spiral passage, said glands and stuffing-boxes together with the pump-casing providing a continuous suction and discharge pipe and casing inclosing the tube-inclosed spiral passages of practically the same diameter throughout their entire length, the packing, the tube-inclosed spiral passages, the antifriction-bearings, the packing-rings, all constituting the improved pump or propeller substantially as hereinbefore described.

In testimony whereof I have hereunto set my hand and seal, this 10th day of November, A. D. 1900, in the presence of two subscribing witnesses.

VICTOR SJÖSTRÖM. [L. S.]

Witnesses:
ST. JOHN DAY,
JOHN SATTERWHITE.