

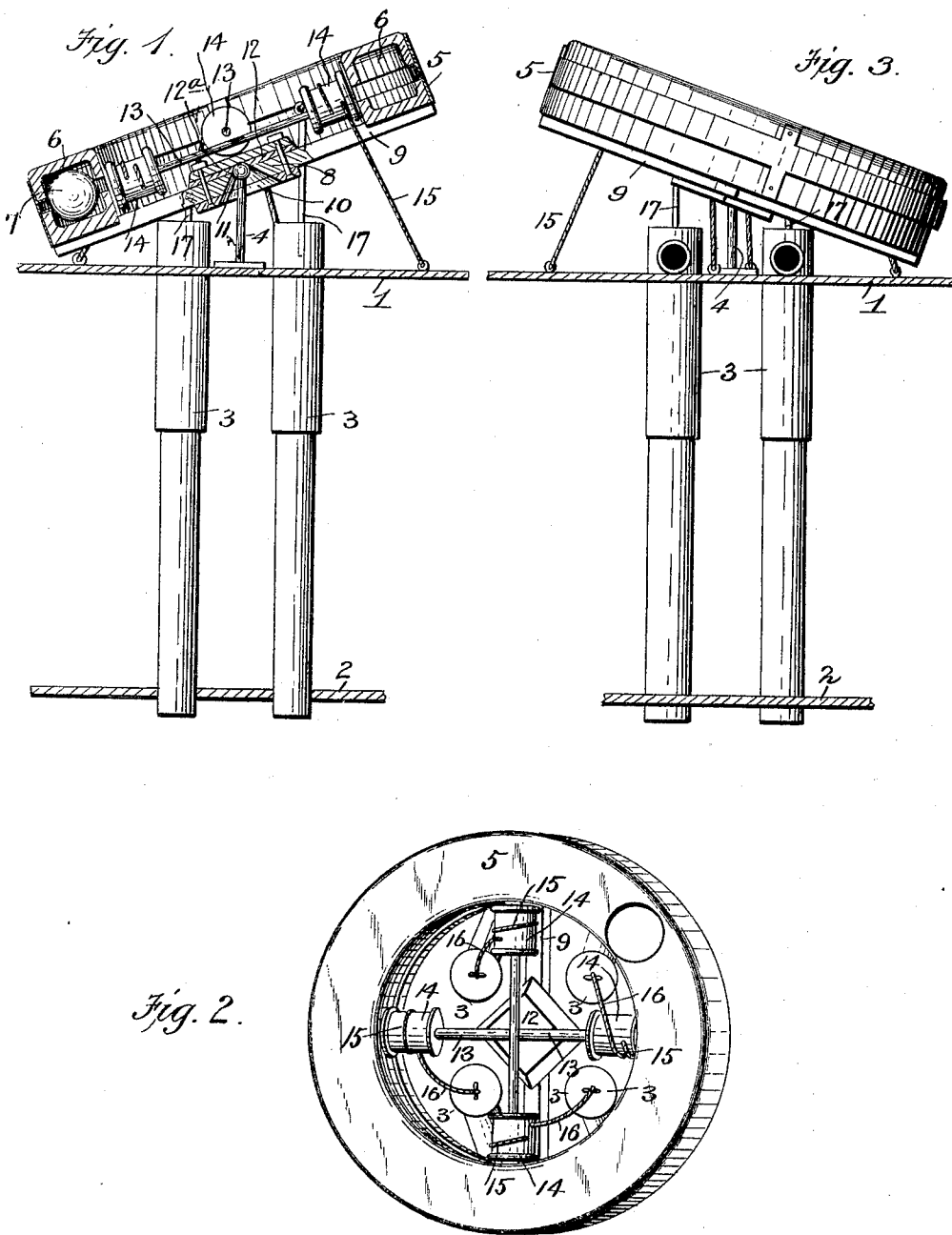
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F. STUTH.
MECHANISM FOR OPERATING BILGE PUMPS.

(Application filed Feb. 4, 1899.)

(No Model.)



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MECHANISM FOR OPERATING BILGE-PUMPS.

SPECIFICATION forming part of Letters Patent No. 630,130, dated August 1, 1899.

Application filed February 4, 1899. Serial No. 704,503. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK STUTH, a citizen of the United States, residing at Somers Point, in the county of Atlantic and State of New Jersey, have invented new and useful Improvements in Mechanism for Operating Bilge-Pumps, of which the following is a specification.

My invention relates to mechanism for operating the bilge-pumps of boats or vessels by the pitch or roll of the vessel caused by the movement of the waves.

The object of the invention is to provide an improved construction of the same which shall possess superior advantages with respect to efficiency in use.

The invention consists, broadly stated, in a series of bilge-pumps extending from the deck of a vessel down into the bilge, a horizontal wabbling non-rotatable ring or annulus formed with a circular groove or recess, forming a continuous raceway, a weighted sphere or ball traveling in said groove, a series of oscillating shafts pivotally connected with said ring and provided with a pulley at each end, a rope connected with the deck or other fixed point and with said pulleys, and ropes connected with the pulleys and with the piston-rods of the pumps, as hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a longitudinal section of series of bilge-pumps and means for operating the same constructed in accordance with my invention. Fig. 2 is a plan view. Fig. 3 is an elevation showing the ring in an inclined position.

In the said drawings the reference-numeral 1 designates the deck, and 2 the keelson, of a boat or vessel of any ordinary or suitable construction.

The numeral 3 designates four lift-pumps extending from the deck down into the bilge and having their outlets or spouts located above the deck. These pumps are arranged in the form of a square or parallelogram and may be of any ordinary or suitable construction, so that a detailed description thereof is not necessary. Secured to the deck 1 is a vertical stationary shaft 4.

The numeral 5 designates a horizontal wabbling or oscillating ring or annulus formed

with a circular groove or raceway 6, in which travels a weighted sphere or ball 7.

The numeral 8 designates a hub formed with four integral arms 9, the outer ends of which are secured to the said disk or annulus. Said hub is formed with a conical opening 10 in its lower side, through which the shaft 4 passes. This shaft is provided with a head 11, and secured centrally to said arms are two removable plates 12, each having a recess 12^a in the adjoining sides, which form a bearing for the head of the shaft. Pivotally connected with the said ring or annulus are two diametric oscillating shafts 13 at right angles to each other. Fixed to the ends of these shafts are pulleys 14, to which is secured one end of cords 15, the other ends of which are secured to the deck or other fixed place. Also secured to these pulleys are cords 16, the other ends of which are connected with the piston-rods 17 of the pumps.

The operation is as follows: As the boat or vessel pitches or rolls, caused by the movement of the waves, the ball in the groove or raceway of the ring or annulus will rotate or travel in said raceway, so as to oscillate the said ring. This will cause the disk or annulus to wobble or have a kind of universal movement in a horizontal plane—that is to say, as the boat or vessel careens or pitches the ball will roll in the groove in the ring in the direction of the movement of the vessel, and upon the return movement thereof the ball will roll to the opposite side, thus causing the ring to oscillate in a longitudinal and also a transverse plane. This oscillation of the ring will alternately oscillate the pulleys and the shafts carried thereby. This is caused by the cords connected with the pulleys and secured to the deck. As the vessel lurches or pitches the ball will roll in the raceway of the ring, depressing the ring at one side and elevating it at the other, so that the pulley at the elevated side will also be elevated by the cord connected therewith and with the deck. At the same time the other cord connected with the pulley and with the piston-rod of the pump will be wound upon the pulley, elevating said rod and causing the upstroke of the piston. Upon the return movement of the vessel the ring will be moved in

a reverse direction, so that the pulley which was previously elevated will be depressed, allowing the piston-rod to descend by gravity and the piston-rod connected with the other 5 pulley to be elevated and the opposite pump to be operated. The ring will thus be alternately depressed and elevated both in a longitudinal and a transverse plane as the ball revolves or travels in the groove in the ring, 10 so that the opposite piston-rods and pistons of the diametrically opposite pump will be alternately reciprocated.

From the above it will be seen that the pumps are automatically operated and the 15 greater the degree of the pitch or roll of the vessel the more efficiently the pumps will operate.

Having thus fully described my invention, what I claim is—

20 1. The combination with the bilge-pumps adapted to be located in a boat or vessel, of the stationary shaft, the wobbling ring connected therewith formed with a circular raceway, the ball seated therein, the oscillating 25 shafts at right angles to each other, the pulleys carried thereby, the fixed cords secured

thereto, and the cords secured thereto and to the piston-rods of the pumps, substantially as described.

2. The combination with the deck of a boat 30 or vessel, of the bilge-pumps, arranged in the form of a parallelogram, the stationary shaft secured to the deck, the ring or annulus formed with a raceway, the ball seated therein, the radial arms secured to said ring, the 35 hub formed with a conical opening through which said shaft passes, the removable plates having recesses forming a bearing for the said shaft, the oscillating shafts at right angles to each other pivotally connected with said ring, 40 the pulleys carried thereby, the fixed cords secured thereto, and the cords secured thereto and connected with the piston-rods of the pumps, substantially as described.

In testimony whereof I have hereunto set 45 my hand in presence of the subscribing witnesses.

FREDERICK STUTH.

Witnesses:

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