

No. 617,936.

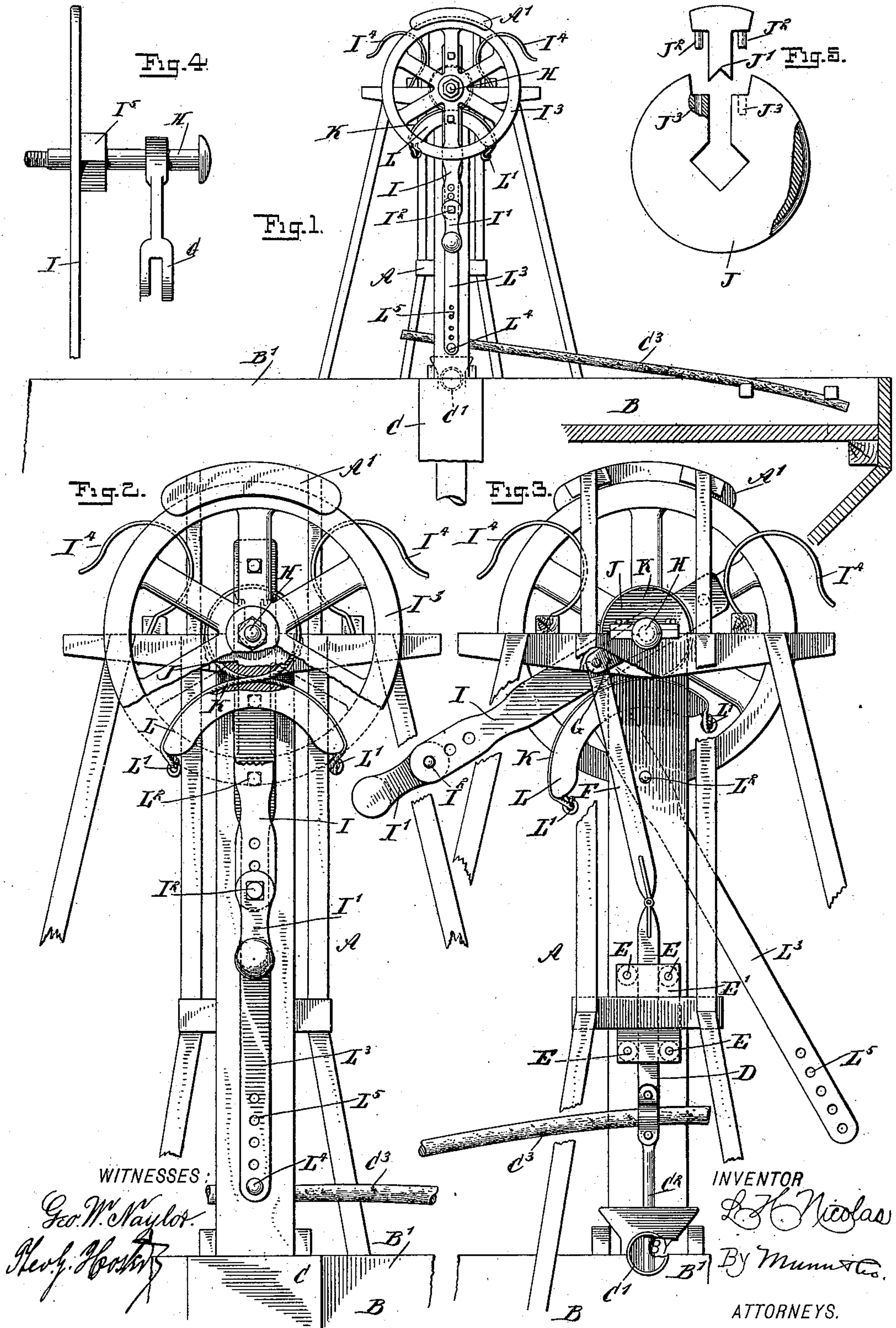
Patented Jan. 17, 1899.

L. H. NICOLAS.

PUMP GEAR.

(Application filed Apr. 11, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

LOUIS HENRI NICOLAS, OF LOUISVILLE, KENTUCKY.

PUMP-GEAR.

SPECIFICATION forming part of Letters Patent No. 617,936, dated January 17, 1899.

Application filed April 11, 1898. Serial No. 677,214. (No model.)

To all whom it may concern:

Be it known that I, LOUIS HENRI NICOLAS, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and Improved Pump-Gear, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved pump-gear more especially designed for use on manually-actuated ship-pumps and arranged to permit of operating the pumps with great ease and very rapidly to pump the water out of the hold of the vessel in a comparatively short time.

The invention consists of novel features and parts and combinations of the same, as will be described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied and with part of the vessel in section. Fig. 2 is an enlarged side elevation of the same with part broken out. Fig. 3 is an enlarged rear elevation of the same. Fig. 4 is an elevation of the crank-shaft and pendulum, and Fig. 5 is a face view of the rope-pulley with parts in section and part shown detached.

The improved pump-gear is mounted on a suitably-constructed frame A, secured to the vessel B preferably at or near the gunwale B', as is plainly illustrated in Fig. 1, the ship being provided, at the point of attachment of the gear, with a pump C of any approved construction and having a discharge-spout C' for delivering the water over the gunwale to the outside of the ship. The pump-rod C² of the pump C is connected at its upper end with the usual spring-beam C³ and with a link D, fitted to slide on friction-rollers E, journaled in a casing E', attached to the main frame A, said friction-rollers, with the casing, forming a suitable guideway for the link to slide in to reduce the friction to a minimum.

The upper end of the link D is pivotally connected by a pitman F with a crank-arm G, secured to a transversely-extending shaft H, journaled in suitable bearings on the upper portion of the main frame A, said shaft being provided at its forward end with a pendulum

I, provided at its lower end with an adjustable weight I', adapted to be fastened by a bolt I² to the said pendulum-rod at one of a series of apertures in said rod to lengthen or shorten the pendulum, according to the work to be done. The pendulum I is bolted or otherwise secured on a fly-wheel I³, held on the shaft H and prevented from wobbling by a guideway A', carried on the main frame A. The swinging motion of the pendulum I is limited by springs I⁴, secured to the frame A and extending with their ends into the path of the pendulum at opposite sides of the shaft H. Thus when the pendulum I swings outward and moves in contact with the free end of the spring I⁴ the latter is compressed until the force of the pendulum is exhausted, and then the resiliency of the spring I⁴ starts the pendulum back on its return journey.

On the pendulum I is secured a square hub I⁵ at the shaft H, and on this hub is fitted a rope-pulley J, provided with a peripheral groove, around which passes a rope K, extending on a segmental pulley-rim L, carrying at its ends the eyes L', to which the ends of the rope K are secured. The pulley-rim L is in frictional contact with the periphery of the pulley J and is secured to a hand-lever L³, pivoted at L² to the main frame A, as is plainly shown in the drawings. The lower end of this lever L³ carries a handle L⁴, adapted to be fastened nearer to or farther from the fulcrum L² by engaging said handle with one of a series of apertures L⁵ formed on the said lever L³. When the operator takes hold of the handle L⁴ and imparts a forward and backward swinging motion to the lever L³, then the segmental pulley-rim L causes the rope K to oscillate the rope-pulley J to rock the shaft H, so that the crank-arm G thereon moves the pitman F up and down, and consequently a stroke is given to the pump by the link D, connecting the pitman with the pump. The operator by moving the hand-lever L³ in one direction starts the pendulum in the opposite direction, and the momentum acquired thereby carries the lever to the full end of its stroke and a return start of the pendulum by the action of the spring L⁴, as previously explained. Thus very little power is required on the part of the operator manipulating the lever L³ to keep the pump go-

ing for pumping large quantities of water in a comparatively short time.

It is understood that in hand-pumps of the class described the stroke thereof is not limited to a particular distance and can be readily varied; but it is evident that the greater the stroke the more water will be thrown or pumped during each full stroke.

In order to fasten the pulley J on the hub I⁵, I provide the said pulley with a removable section J', (see Fig. 5,) leading to the square central aperture of the pulley, so that when the section J' is removed the pulley can be passed over the shaft H and then slipped upon the hub I⁵. The section J' is then replaced, and as it is fitted with dowel-pins J², adapted to engage apertures J³ in the web of the pulley, it is evident that the said section is securely held in place after the rope K has passed around the pulley, lateral movement of the section being prevented by the dowel-pins J².

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

1. A pump-gear, comprising a crank-shaft, a driving-pulley on the said shaft, a hand-lever having a segmental pulley-rim, a rope extending over the said rim and around the pulley, a pendulum secured to the said shaft, and a fly-wheel held on the shaft and to which the pendulum is secured, substantially as shown and described.

2. In a pump-gear, a crank-shaft, a driving-pulley on the said shaft, means for driving the pulley, a pendulum secured to the said shaft, a fly-wheel held on the shaft and to which the said pendulum is secured, and means for limiting the swinging motion of the pendulum, substantially as described.

3. In a pump-gear, a supporting-frame, a shaft journaled in the frame, a crank-arm on said shaft, a pitman connected with the crank-arm, a link connected with the pitman and arranged for connection with the pump to be operated, a driving-pulley on the said shaft, a hand-lever, a driving connection between the said hand-lever and the pulley, a pendu-

lum secured to the said crank-shaft and having an adjustable weight at its lower end and fixed springs for limiting the swinging motion of the pendulum, substantially as described.

4. A pump-gear, comprising a spring-beam adapted to be connected with the upper end of the pump-rod, a link connected with the pump-rod friction-rollers on which the said link is fitted to slide a crank-shaft connected with the said link a driving-pulley on the said shaft, a pivoted hand-lever having a segmental pulley-rim, a rope extending over the said rim and around the pulley, a pendulum secured on the said shaft and a fly-wheel held on the shaft and connected with the pendulum, substantially as shown and described.

5. A pump-gear, comprising a crank-shaft, a pump-rod to which said shaft is adapted to be connected, a driving-pulley on the said shaft, a hand-lever having a segmental pulley-rim, a rope extending over the said rim and around the said pulley, a pendulum secured to the said shaft, a fly-wheel held on the shaft and to which the pendulum is secured, a guideway for the said fly-wheel, and fixed springs having their free ends arranged in the path of the pendulum on opposite sides of the shaft, substantially as shown and described.

6. A pump-gear, comprising a crank-shaft, a driving-pulley on the said shaft, a hand-lever having a segmental pulley-rim, a rope extending over the said rim and around the said pulley, a pendulum secured to the said shaft, a fly-wheel held on the said shaft and to which the pendulum is connected, a guideway for the said fly-wheel, fixed springs having their free ends arranged in the path of the pendulum on opposite sides of the shaft, a pitman connected with the crank of the said shaft, a link engaged by the said pitman and arranged for connection with the pump-rod, and a guide-box having friction-rollers for the said link, substantially as shown and described.

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Witnesses:

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