

W. W. TURNBULL.

BILGE-PUMP.

No. 172,900. *a*

Patented Feb. 1, 1876.

Fig. 1.

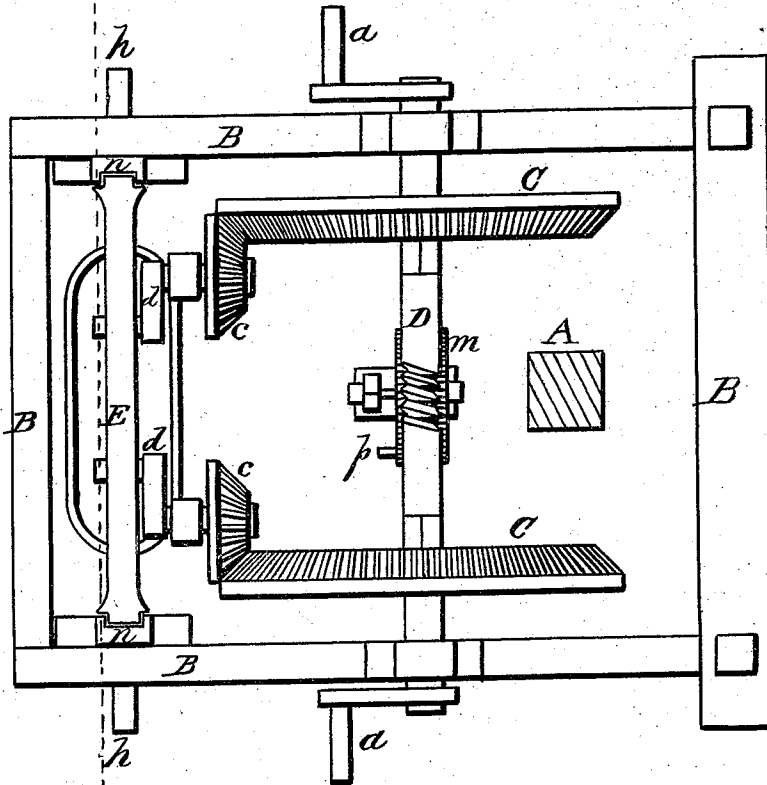
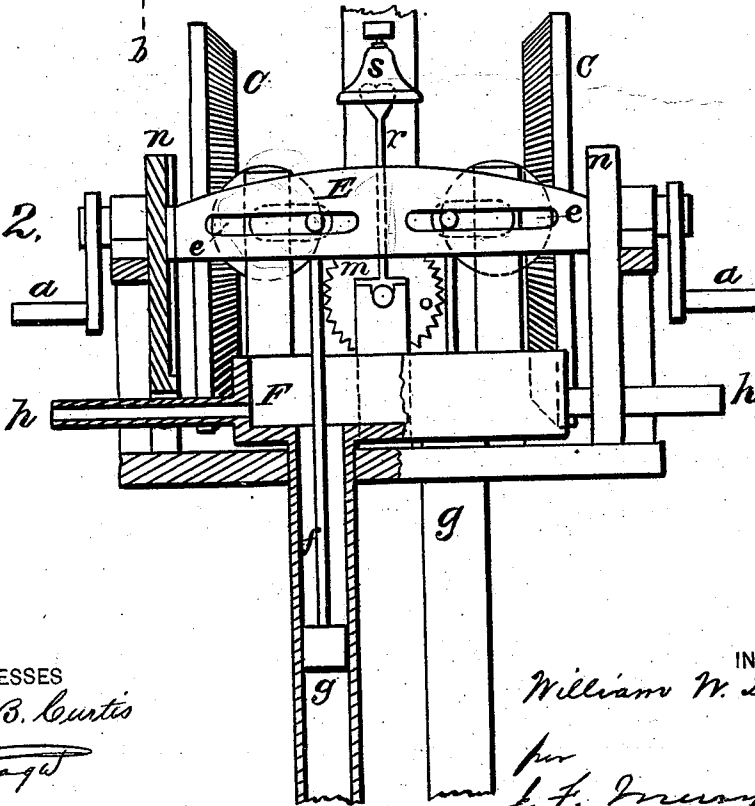


Fig. 2.



WITNESSES

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IMPROVEMENT IN BILGE-PUMPS.

Specification forming part of Letters Patent No. 172,900, dated February 1, 1876; application filed December 8, 1875.

To all whom it may concern:

Be it known that I, WM. W. TURN BULL, Edgecomb, in the county of Lincoln and State of Maine, have invented a new and valuable Improvement in Bilge-Pumps; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a top view of my pump. Fig. 2 is a transverse vertical section, made through the dotted lines *a b*.

My invention has relation to pumps, and while it is adapted for general use, it is more particularly calculated for a bilge-pump for use on board ships. It consists in the novel construction and arrangement of devices intended to serve as an efficient means for the purpose named.

Referring to the accompanying drawing, A represents the main mast of a ship, and B the life-rail surrounding the same. C C indicate two beveled cog balance-wheels secured to the shaft D, the ends of which revolve in suitable journals constructed on the top of the life-rail. These balance-wheels C C are operated by means of force applied to the cranks *a a*. Fitting into the beveled cogs on the inner rims of the wheels C C, and operated by them, are the smaller beveled cog-wheels *c c*, which are supported by uprights *b b*, through the tops of which pass the axles of the wheels *c c*. Attached to the outer ends of the axles of the wheels *c c*, or the ends nearest the pumps, are the elbow-cranks *d d*, which operate in the slots *e e* of the working-beam E. The ends of the working-beam are constructed to rise and fall in suitable grooves in the supports *n n*. To the under side of the working-beam E the piston-rods *f f* of the pumps *g g* are attached. F represents the basin into which the water rises, and *h h* the pipes by which it is conveyed away.

It will now be readily seen that by turning the cranks *a a*, attached to the ends of the shaft D, motion will be communicated through them to the balance-wheels C C and *c c*, and

that the revolution of the elbow-cranks *d d* in the slots *e e* in the working-beam E will give to the working-beam, and to the piston-rods attached to it, a regular vertical movement.

In the event that it should be found desirable to register the number of strokes of the working-beam, caused by a certain number of revolutions of the balance-wheels, screw-threads are turned on the shaft D, which cause to revolve the reel *m*, supported by, and revolving upon, two uprights, in the tops of which suitable journals are made to fit the axis of the reel. On one side of the reel a pintle, *p*, is placed, which, as the reel revolves, comes in contact with an upright spring-pendulum, *r*, causing it to strike the bell *s*. On a ship of fifteen hundred tons register, for example, is required a pump one revolution of the balance-wheels of which produces eight vertical movements of the working-beam. If the register be constructed to note when one hundred revolutions of the balance-wheels have been accomplished, it is easily seen how many strokes of the piston-rods have been made during the same time.

This pump can be adapted for use on all kinds of vessels. By making the balance-wheels larger or smaller, or by placing the cogs nearer or more remote from the center of motion, any number of strokes may be obtained.

It is claimed that this pump is better adapted for a bilge-pump than any other now in use. It is simple in its construction, effectual in its operation, and can be operated by a comparatively small amount of power.

The water thrown by this pump is large in quantity proportioned to the amount of power required to operate. This is its great advantage as a bilge-pump, and as a pump for general use, a large amount of water can be thrown in a comparatively short time. It is, in short, a time-saving and a labor-saving apparatus, both on shipboard and for general use.

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

1. In a bilge-pump, the slotted working-beam E, operated by means of the balance-wheels C C, and the beveled cog-wheels *c c*,

constructed and arranged substantially as herein shown and described.

2. The combination and arrangement of the balance-wheels C C, the beveled cog-wheels c c, with the working-beam E, all constructed, arranged, and operated substantially as herein shown and described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WM. W. TURN BULL.

Witnesses:

E. W. STETSON,
HORACE HATCH.