Merritt & Gibson,

Operating Windlasses.

No. 35,772. Patented July 1, 1862.

Fig: 1.

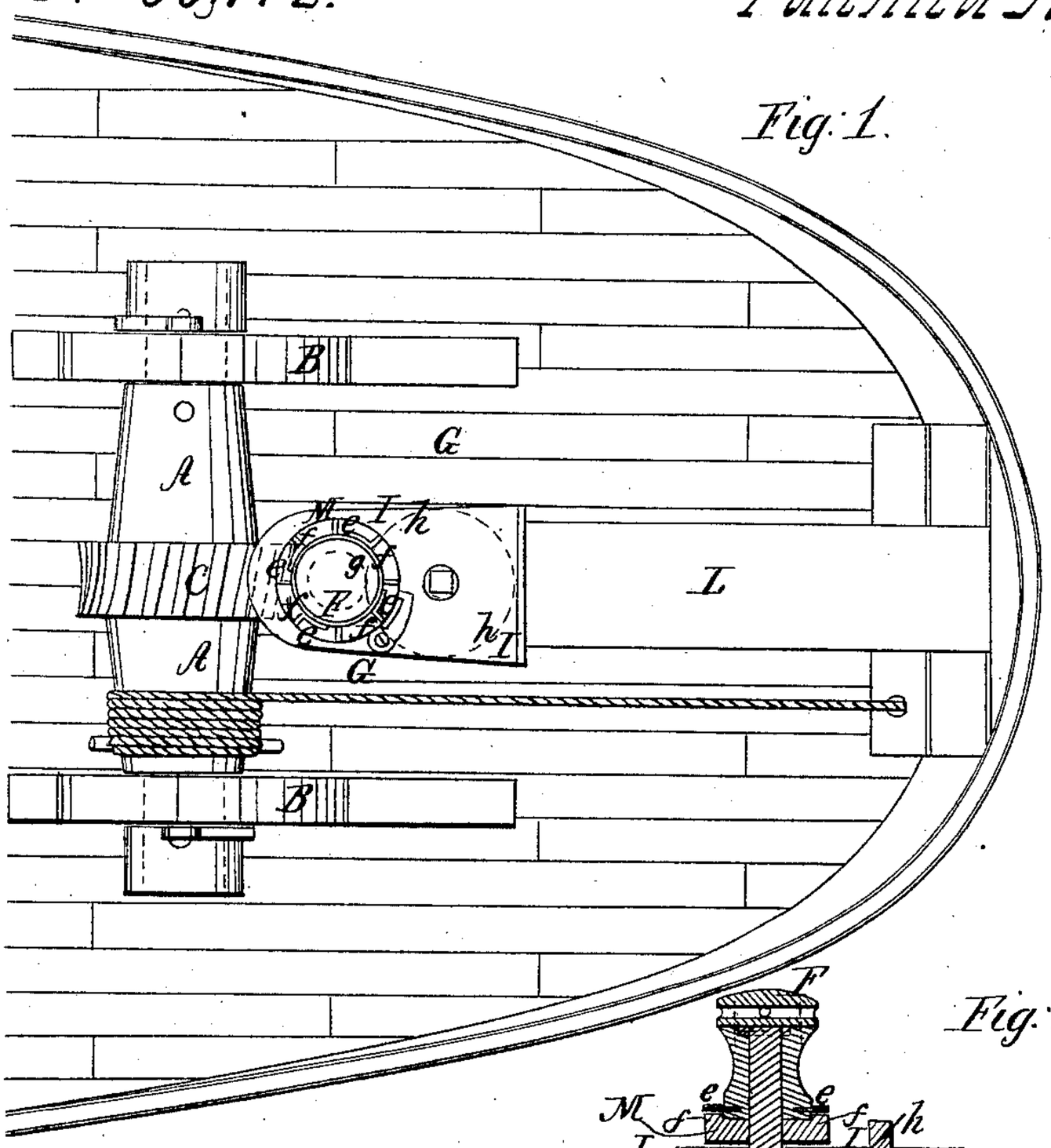
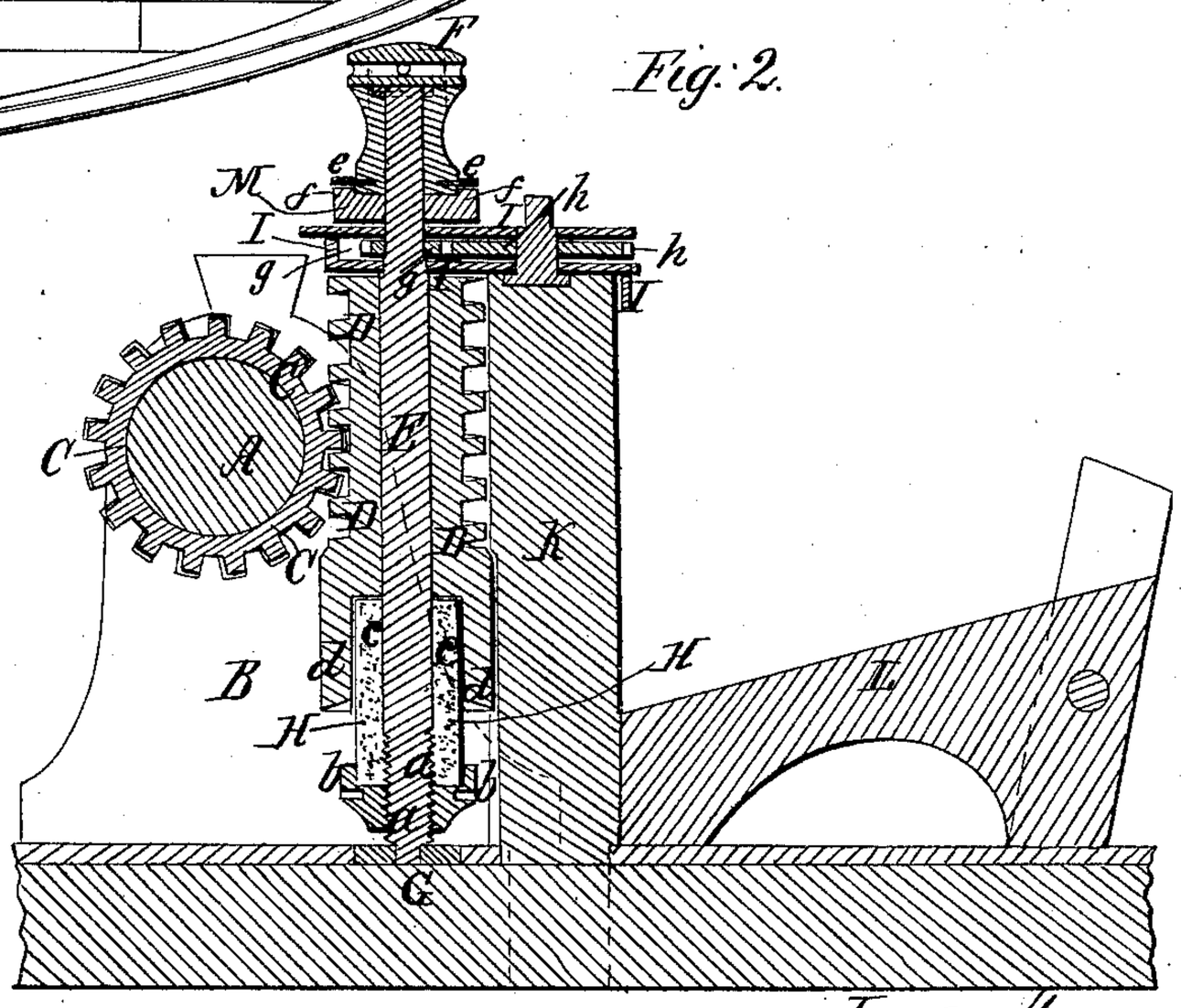


Fig: 2.



Witnesses;

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UNITED STATES PATENT OFFICE.

BENJAMIN MERRITT AND FREDERICK M. GIBSON, OF CHELSEA, MASSACHUSETTS.

IMPROVED MECHANISM FOR OPERATING SHIPS' WINDLASSES.

Specification forming part of Letters Patent No. **35,772**, dated July 1, 1862.

To all whom it may concern:

Be it known that we, BENJAMIN MERRITT and FREDERICK M. GIBSON, of Chelsea, in the State of Massachusetts, have invented a new and useful or Improved Mechanism for Operating the Windlass of a Navigable Vessel; and we do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, and Fig. 2 a vertical and longitudinal section, of our invention as applied to a windlass.

In the drawings, A denotes a windlass as supported by two bits or standards, B B. A worm-gear, C, encompasses the central part of the windlass, and plays into a vertical screw, D, down through which a square or prismatic shaft, E, passes, and is surmounted by a capstan, F, which should be so adapted to the shaft as to be capable of being rotated freely thereon in a horizontal direction. At its lower end the said shaft E is pivoted or stepped into the deck G, a screw, *a*, being formed on the shaft just above the deck. On the said screw a cup or shoe, *b*, is screwed, and serves to support a spring or cylindrical block of india-rubber, which is shown at H as extending around the shaft and entering a socket, *c*, formed in the lower part of a cylinder, *d*, which extends down from the screw, and is made of a diameter larger than that of either the spring or its supporting cup or shoe. The purpose of so making the said cylinder *d* is to prevent oil which may escape from the screw from dripping into the cup or shoe, and thereby gaining access to the rubber spring. By making the part *d* larger in diameter than the cup *b* any oil which may drop from the outer surface of the said part *d* will not fall within the cup. The object of keeping the oil from contact with the rubber spring is to prevent injury of the rubber or its elastic property from becoming impaired by the oil.

The screw should be capable of sliding freely in a vertical direction upon the shaft, the two being so made or applied together as to cause the former to be revolved by the latter when it may be put in revolution. The upper part of the shaft runs in a cap or frame, I, which is fastened to the upper end of a post, K, arranged in front of the windlass and with respect to the bowsprit L, as shown in the drawings. Furthermore, on the shaft and above the cap I a clutch-wheel, M, is fixed. It extends around the lower part of the capstan and receives on its toothed surface a series of reversible pawls, *e e e*, which act against teeth *f f*, projecting upward from the clutch-wheel, and arranged at equal distances asunder.

By rotating the capstan in one direction the screw will be revolved; but when the capstan is put in motion in an opposite direction, provided its pawls may not have been reversed, the said capstan will rotate freely on its shaft without imparting any motion to it.

Two gears, *g h*, are arranged within the cap or frame I, the smaller of them being fixed on the shaft E. The larger is carried by a separate vertical shaft, on the head of which a key or lever may be applied for the purpose of imparting a rotary motion to the said larger gear, and thereby operating the screw at a greater speed than can be accomplished conveniently by the capstan.

The spring H is for the purpose of preventing breakage or injury to the teeth of the worm-gear or the threads of the screw or a cable proceeding from the windlass while a vessel may be riding at anchor.

It is often the case, particularly when a vessel is at anchor and the sea is running high, that a great and sudden strain is brought upon the cable. This strain tends either to damage or break the cable or the machinery of the windlass, or pull the fluke of the anchor out of the earth; but with the worm-gear and screw arranged and applied together, and with respect to the windlass and a vertical shaft and a spring, as described, the screw under a sudden strain on the windlass can descend on the spring, or the latter will permit it to give way in a manner to gradually ease or diminish the effect of the strain, and so as to prevent it from doing injury either to the mechanism or to the cable.

The capstan may be employed for other purposes than those of rotating the vertical shaft on which it is fixed.

We do not claim the combination of a capstan and a windlass with mechanism by which the former may be caused to actuate the latter;

nor do we claim a screw and a worm-gear as applied together and to a windlass in a manner so as to cause it to be revolved when the screw may be rotated.

We would remark that, in order to condense or contract the spring lengthwise, it will only be necessary to so rotate its supporting-shoe as to cause it to rise on its screw. Thus, it will be seen, that by means of the adjustable shoe or spring-supporter an upward strain on the screw may be produced when such may be desirable.

We claim—

1. Our improved windlass motor or operative mechanism, consisting of the screw D, the worm-gear C, the separate shaft E, and the elastic screw-supporter H, arranged and applied together and to the windlass, or to the latter, and a capstan in manner and so as to operate substantally as above specified.

2. The above-described arrangement of the external cylindrical surfaces of the spring-socket cylinder *d* and the adjustable cup *b*, the said arrangement being for the purpose herein-before specified.

BENJAMIN MERRITT.
F. M. GIBSON.

Witnesses:
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