

(No Model.)

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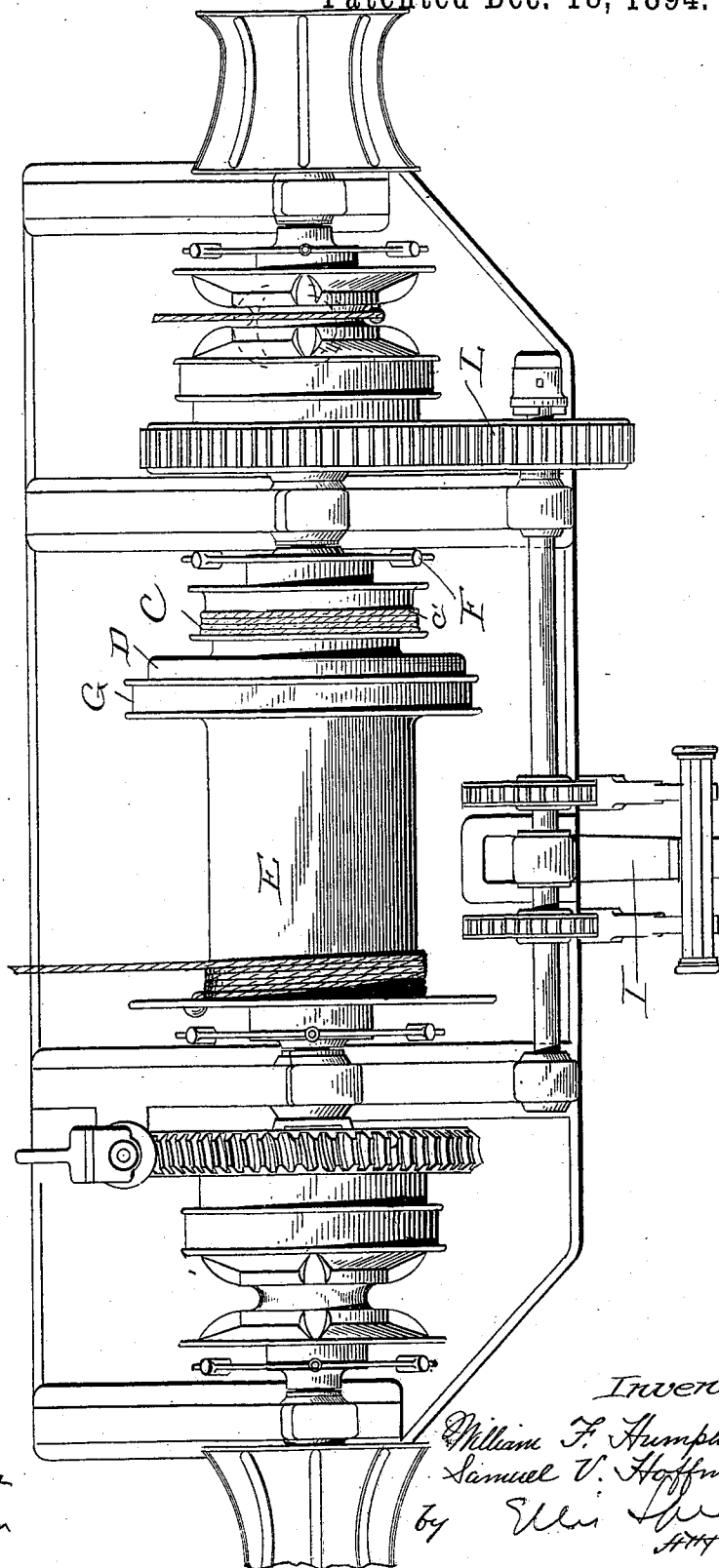
W. F. HUMPHREY & S. V. HOFFMAN.

TENSION DEVICE FOR TOWING CABLES.

No. 530,995.

Patented Dec. 18, 1894.

Fig. 1.



Attest
F. L. Middleton

Inventors
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Samuel V. Hoffman
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H447

(No Model.)

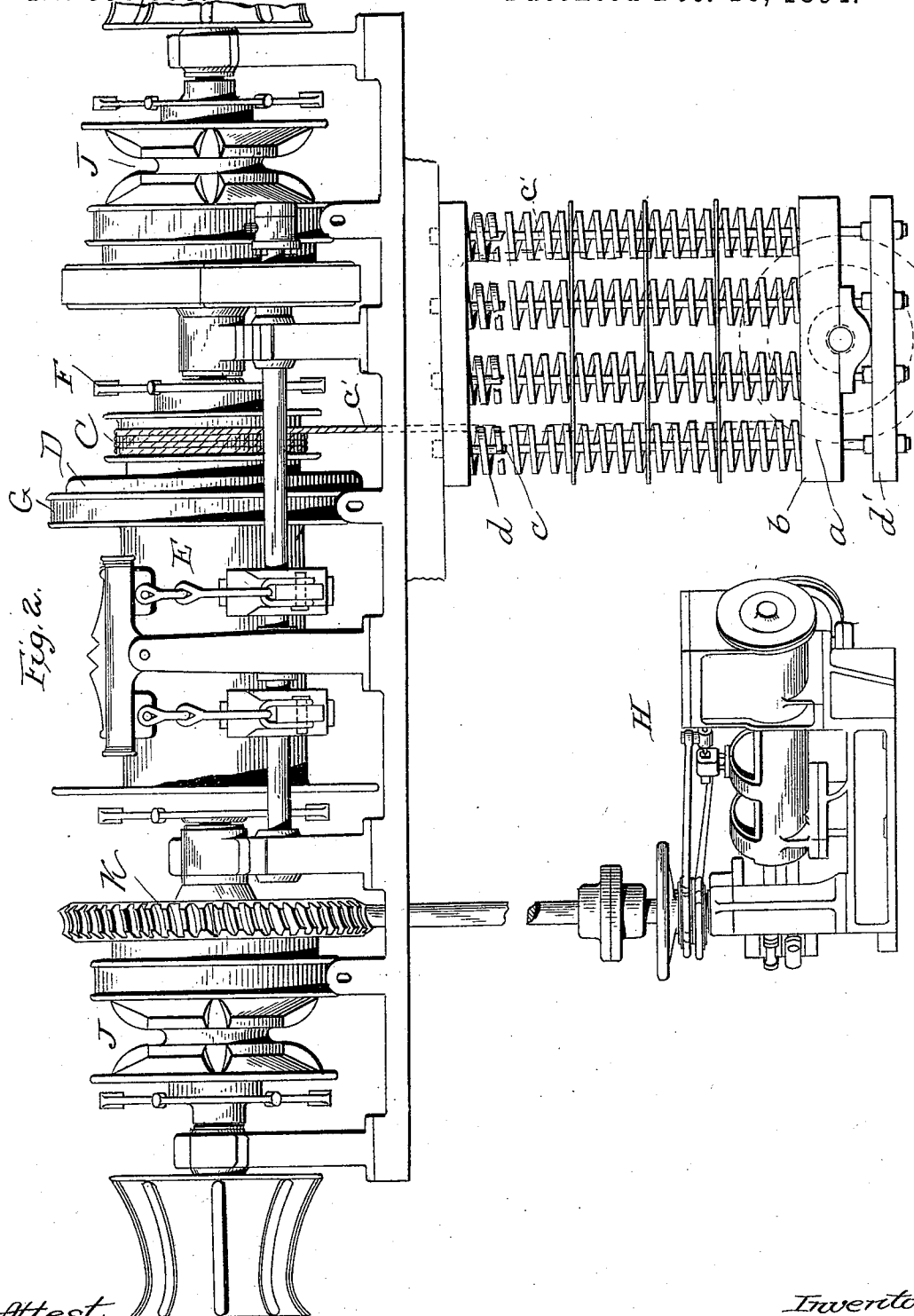
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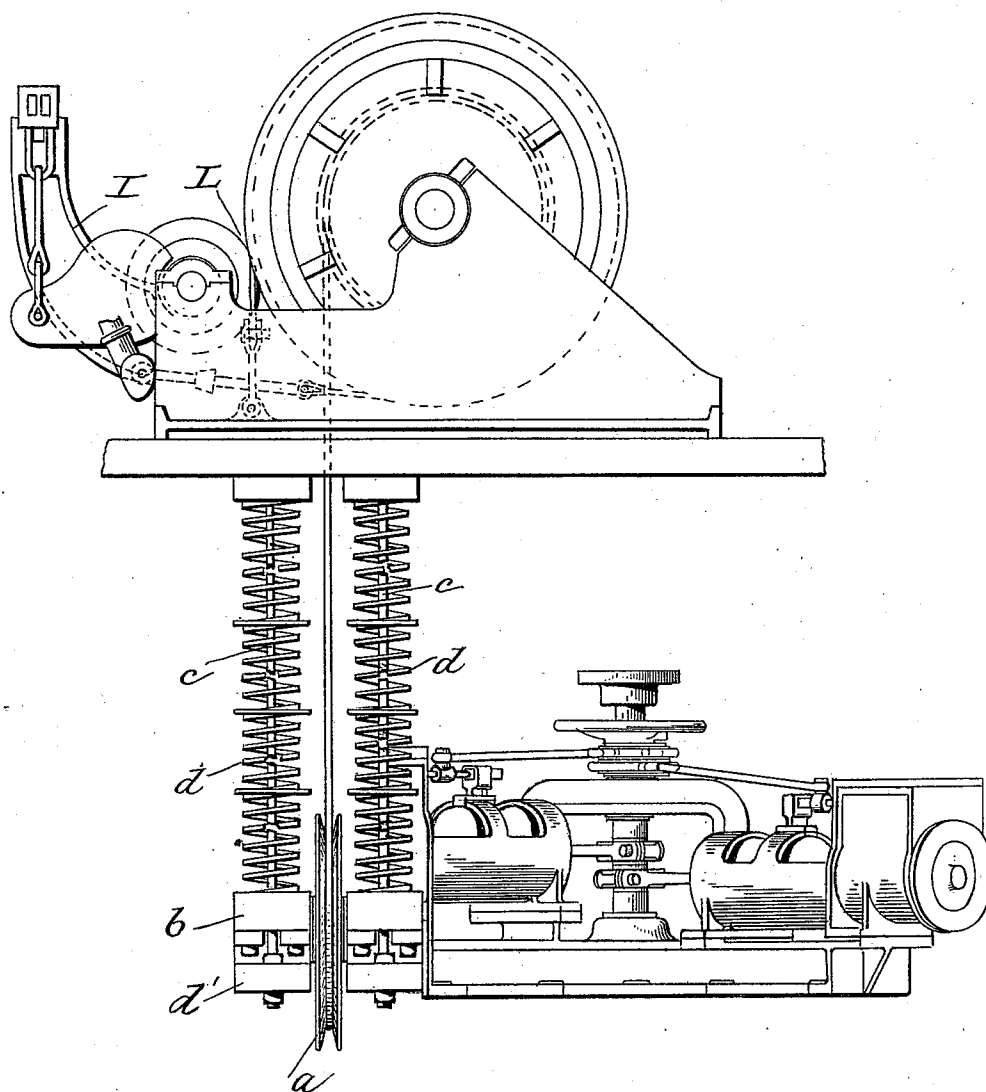
W. F. HUMPHREY & S. V. HOFFMAN.

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Patented Dec. 18, 1894.

Fig. 3.



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(No Model.)

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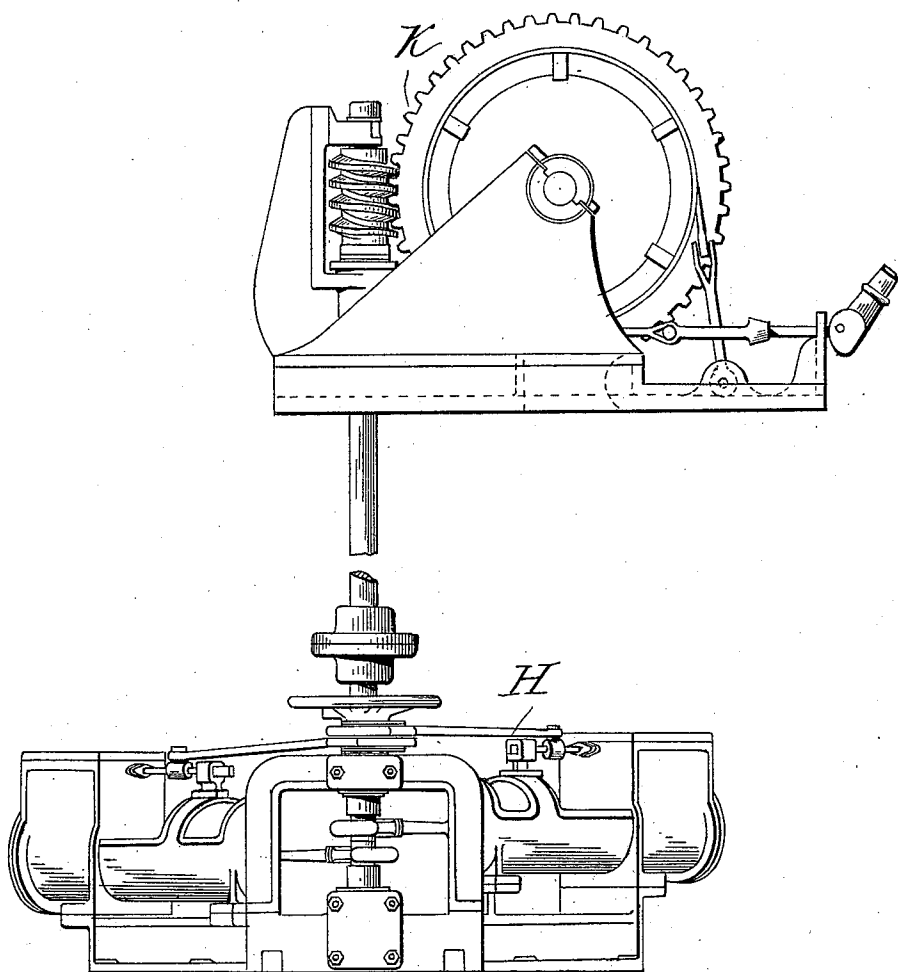
W. F. HUMPHREY & S. V. HOFFMAN.

TENSION DEVICE FOR TOWING CABLES.

No. 530,995.

Patented Dec. 18, 1894.

Fig. 4.



Attest
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Samuel V. Hoffman
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UNITED STATES PATENT OFFICE.

WILLIAM F. HUMPHREY AND SAMUEL V. HOFFMAN, OF BOSTON,
MASSACHUSETTS.

TENSION DEVICE FOR TOWING-CABLES.

SPECIFICATION forming part of Letters Patent No. 530,995, dated December 18, 1894.

Application filed June 7, 1894. Serial No. 513,799. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. HUMPHREY and SAMUEL V. HOFFMAN, citizens of the United States of America, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Tension Devices for Towing-Cables, of which the following is a specification.

Our invention is to provide a tension device for the cable of a towing machine or for the cable of a vessel, adapted to take the strain upon the cable by the use of a series of springs in connection with the parts carrying the cable or upon which the cable is wound.

We have shown our invention as applied to a combined towing drum and windlass of that class in which the towing cable is coiled on a drum and we connect this drum through a second drum and cable with a series of springs to automatically take up the strain on the cable during the towing operation.

We have aimed to overcome the difficulties in the machinery now in use for regulating the varying tensions on the cable by providing a construction in which springs are used to automatically regulate the varying said tension on the cable, as hereinafter explained.

In the drawings:—Figure 1, is a plan view of the towing machine with windlasses and operating connections. Fig. 2, is a front elevation of the same, and Figs. 3 and 4 are end elevations.

In the figures the winding drum is shown at E. This drum has a friction rim encircled by an ordinary friction band G and may be locked to the main shaft of the machine by a locking head D also of ordinary construction, the locking together being effected by the locking gear F F well known for this purpose. The drum may thus run free on the main shaft or be locked thereto as desired. A second drum C is fitted to run loose on the shaft or be locked thereto by the head D and the cable C' of this drum C passes to a pulley a carried in a frame b which is guided by rods c encircled by a series of springs d. These springs are arranged in a series of short springs with plates interposed between the springs of each vertical series, these springs

being located between the vertically movable frame b and the under surface of the machine frame, so that the pulley a is under the full tension of the springs and any pull on the cable of the drum C is absorbed by said springs. It will thus be seen that when the drums E and C are connected so as to move together any strain on the towing cable will rotate the drum E giving a like rotation to the drum C with the effect of winding up its cable and compressing the springs by this action. This presents a spring effect to the strain of the towing cable and as soon as this is relaxed the springs exert their force to regain their normal position. The frame b it will be understood slides on the rods which pass through the centers of the springs, the lower ends of the rods being secured in a base plate d'.

The cable may be wound on to the drum E by power or hand, as may be desired. We have shown an engine at H adapted to rotate the shaft through a worm and worm gear K and also a hand lever I operating to rotate the shaft through the gears L.

In the form shown in the drawings where the towing machine is shown in combination with a windlass, the benefit of the springs may be obtained when the vessel is riding at anchor from the chain cables over the wild-cats J J. In this case, it is presumed that the towing drum would not be in use and would be unlocked from the shaft, and one or both of the wild-cats J J and the drum C would be locked to the shaft. Thus with means provided for unlocking the worm gear K through which power from the engine is transmitted to the drum shaft and the gear L through which power is transmitted by the brakes, a strain on the cables which run over the wild-cats J J would be taken by the springs A through the cable C'.

The tension furnished by the springs may be furnished by weights as will be obvious.

What we claim is—

1. In combination with the main shaft, the towing drum, the take-up drum, means for locking said drums together and to the shaft, and a sliding frame under tension of a spring, and connections between said frame and the take-up drum, substantially as described.

2. In combination with the main shaft, the

towing drum thereon, the take-up drum, the cable thereon, the series of spiral springs, the frame beneath the same, and a pulley carried by said frame, the cable of the take-up
5 drum bearing on said pulley, substantially as described.

3. In combination with a main shaft, a drum C thereon, a spring frame connected to said drum by a cable, a towing drum and a wild
10 cat also on said main shaft, and locking means for said drums and wild cat, whereby one or

the other may be locked to the shaft, and the tension of the springs applied to the cable of the locked part, substantially as described.

In testimony whereof we affix our signatures 15
in presence of two witnesses.

WILLIAM F. HUMPHREY.
SAMUEL V. HOFFMAN.

Witnesses:

JAS. A. FLEMING,
CLARENCE W. WILEY.