

(No Model.)

W. D. GOLD.

ANCHOR CHAIN COMPRESSOR AND STOPPER.

No. 311,117.

Patented Jan. 20, 1885.

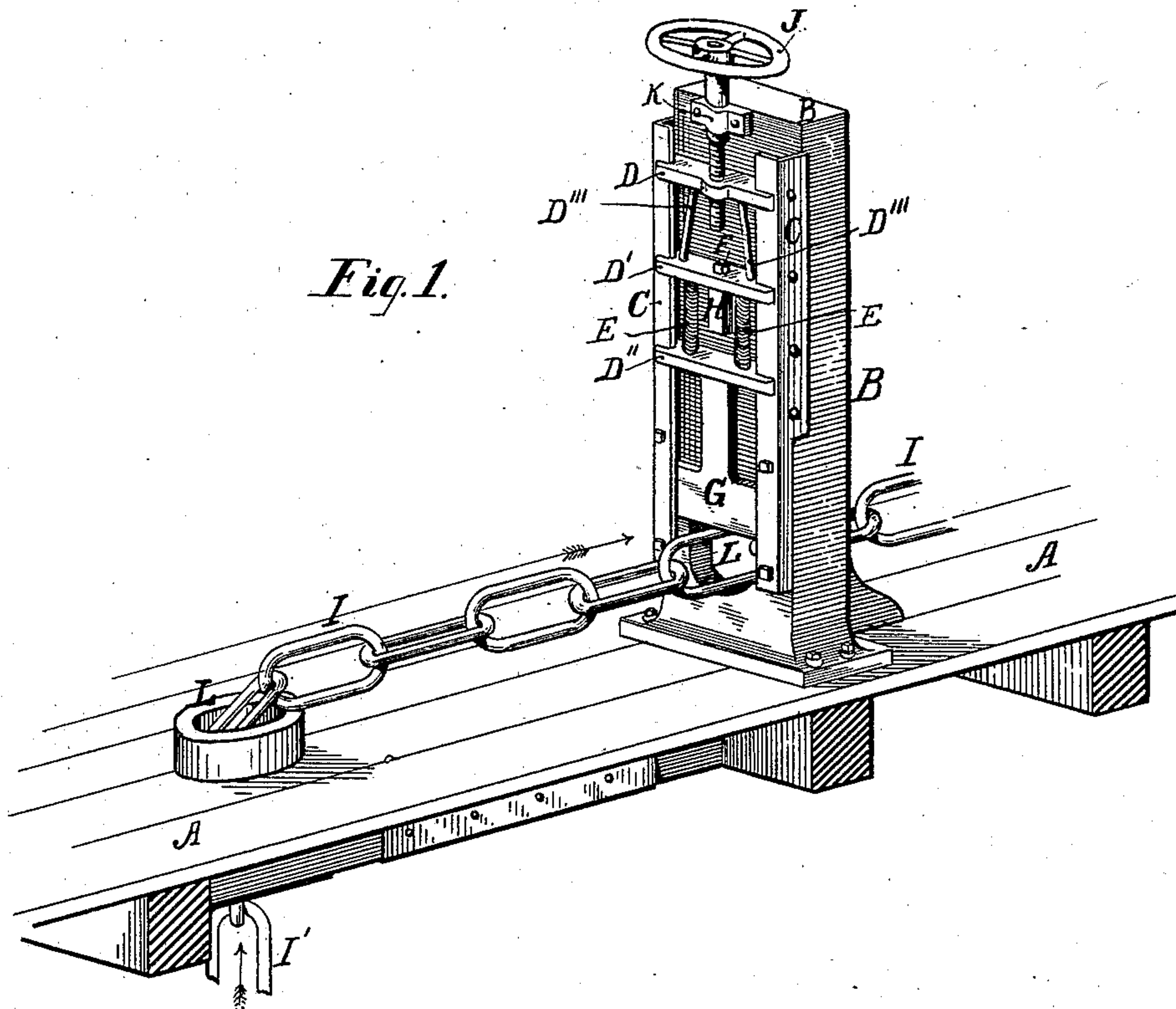


Fig. 2.

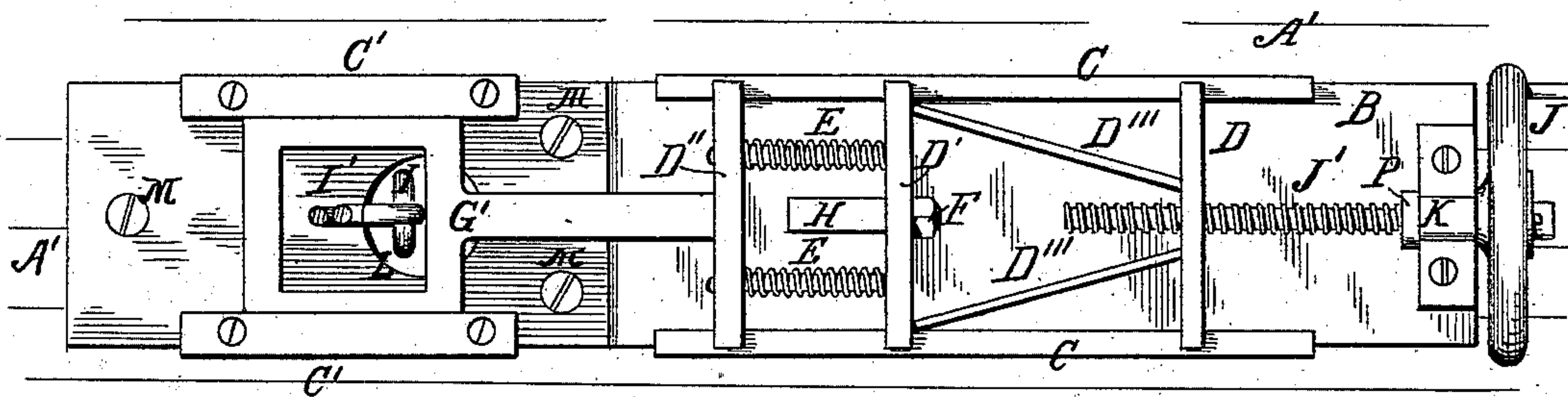
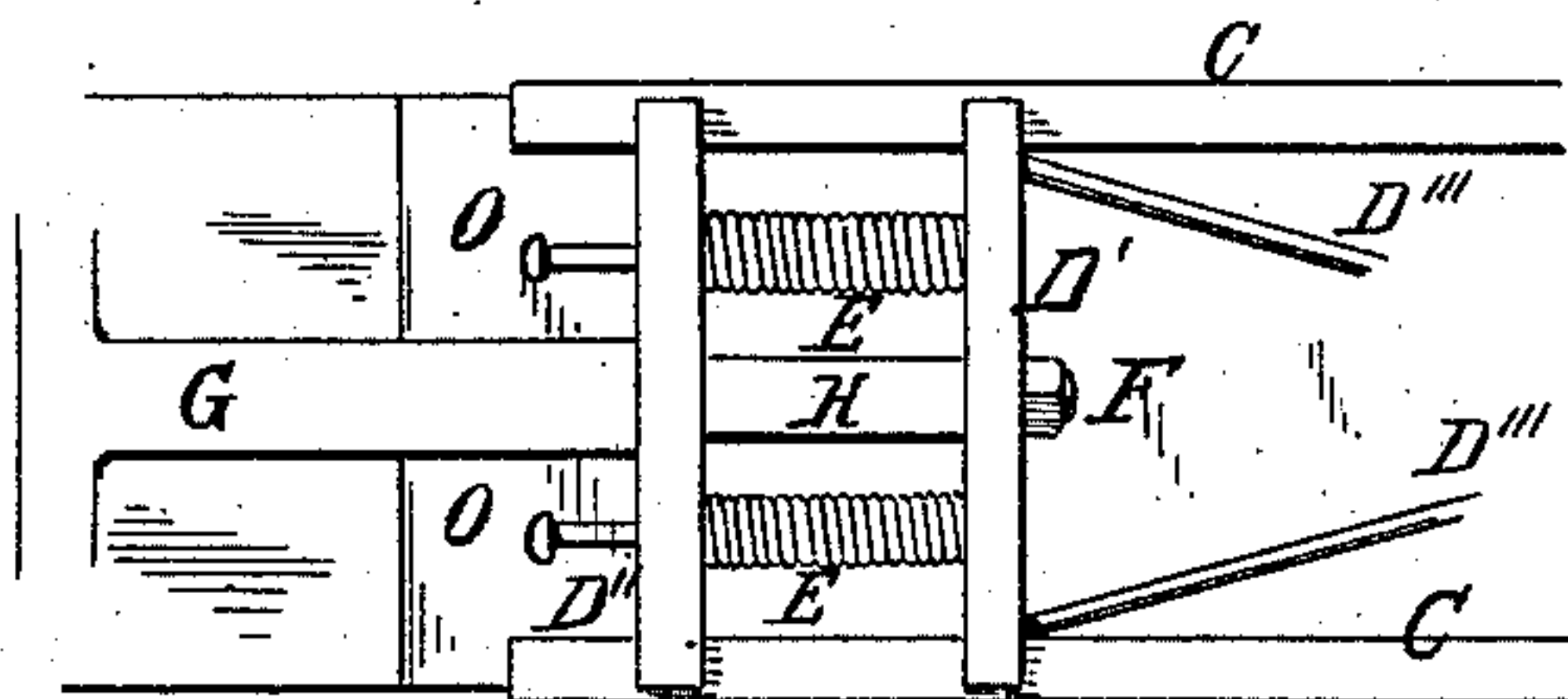


Fig. 3.



WITNESSES:

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ANCHOR-CHAIN COMPRESSOR AND STOPPER.

SPECIFICATION forming part of Letters Patent No. 311,117, dated January 20, 1885.

Application filed April 15, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIS D. GOLD, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented a new and Improved Anchor-Chain Compressor and Stopper; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making part hereof.

The nature of my invention will fully appear from the following description and claims.

The object of my invention is to check gradually, and not so violently as to run the danger of parting the cable when the latter is paying out and the anchor has taken hold and the ship being brought to anchor and swung to. An additional danger in suddenly checking the outgo of the cable is that of carrying away the chain stopper or compressor, or parts supporting them, even if the cables should not part.

In the drawings, Figure 1 is a perspective view of my invention when employed as a vertical stopper upon the deck of a vessel, showing a broken view of the deck and beams. Fig. 2 is a plan view of my invention as I apply it upon the berth-deck of a naval vessel, showing the compressor open to permit the free passage of the chain. Fig. 3 is a broken or detached view showing the springs compressed, and indicating their position when the chain has been checked in its passage.

In Fig. 1, A is the upper deck of a vessel. B is the housing or casing, supporting the operative mechanism of the stopper, which may be made of iron or other suitable material.

C C are guides. D' D'' are cross-bars, which terminate at each end in notches which engage with the upright edges of the guides C C.

E E are spiral springs, supported internally by rods which, while rigidly attached to the cross-bar D', slide freely through openings in cross-bar D'', terminating below the cross-bar D'' in heads similar to bolt-heads.

H is a chock located between the two springs E E, and shouldered up against the lower surface of cross-bar D', with a continuous neck projecting through the latter, termi-

nating in a screw-threaded end upon which is set the nut F. This nut serves to hold the chock rigidly in place.

G is a slide, which is arranged to pass up and down inside of the guides C C, its upper end being rigidly attached to the cross-bar D'' either in the same manner as the chock H is attached to the cross-bar D' or by a neck passing up through cross-bar D'' and riveted upon the upper surface of the latter.

I I' is the chain or cable. I' is that part which, being beneath the deck, is passing up in the direction of the arrows shown.

J is a hand-wheel, which is attached to a screw-threaded bar, J', and adapted by its revolution to turn the latter.

K is a pierced block, attached to the upper end or housing of standard B, through which this screw-threaded rod passes and with which it engages. This rod also passes through a female screw-threaded hole in the cross-bar D.

P is a collar set rigidly upon the screw or screw-rod J', between which collar and the hand-wheel J this screw-rod is smooth, or, in other words, without a thread, by means of which collar the screw is prevented from backing up when the latter is so turned as to drive the cross-bar D in the direction of the opening through which the chain passes.

L is the opening in the deck, which permits the passage of the chain through it as the chain is paid out and brought in.

D''' D'' are braces set between cross-bars D and D', by which the push of the former is communicated to the latter.

That part of the device thus described, which is shown in Fig. 1 as above the deck, stands vertically thereupon, and is firmly secured thereto, as shown, and is known technically, as the "chain stopper."

In Fig. 2 those letters which correspond with those shown in Fig. 1 indicate corresponding parts similar in their action, although the device shown in Fig. 2 is technically known as a "compressor," simply because it is situated below the deck instead of being upon the upper surface thereof.

The compressor illustrated in Fig. 2 is secured in a horizontal position, or thereabout, to the under surface of the deck to which it is attached by screws M M, bolts, or other suit-

able means, the hole L in Fig. 2 corresponding with the lower part or opening of the hole L in Fig. 1.

A' is the lower surface of the deck A, which constitutes the ceiling of the berth-deck of a man-of-war—that is, the lower surface of deck A.

In Fig. 2, G' is a slide equivalent to the slide G in Fig. 1, with this difference in its form, that it terminates in a square frame. This slides in guides C' C', which latter, though shown detached from the guides C C, are practically a continuation of the same. The chain I in this Fig. 2 is intended to be represented as going upward through the opening.

O O represent the bolt-headed rods which pass through and support the springs E E, and which the latter play upon.

The operation of my device is as follows:

The anchor-cable is stowed below the deck of a vessel in what is denominated a "chain-locker." When the anchor is "let go," the chain pays out rapidly, and when the anchor touches bottom and sufficient chain has been run out to let the vessel ride easily, it is of the greatest importance to check the chain or hold the vessel in her then position. In order to accomplish this, the hand-wheel J of the compressor shown in Fig. 2 is turned in such a direction that the threads of the screw J' will force the cross-bar D toward the opening L. The braces D''' D''' will then drive the cross-bar D' in the same direction and compress the spiral springs E E, forcing the rods O O out through cross-bar D'', as shown in Fig. 3. The bearing force of these springs will be brought directly against this cross-bar D'' and force the slide-bar G' against the chain; but the elasticity of the springs will not bring the pressure of the slide G' into rigid contact, but their gradually-increasing pressure will as gradually increase the tension of the chain upon the anchor until it becomes so great that the slide G will engage upon or against a link passing athwartships through the opening L and shoulder against the succeeding link, which is about to run through a fore-and-aft position, and prevent the further running out of the chain, and by the time the springs have been so compressed as to have exerted such power as to have gradually checked the running out of the chain the rigid chock H will have abutted firmly against the back of the cross-bar D'' and lock the chain in its then position. When the mechanism is in this position, there will be a brace of solid metal between the compressed chain and the wheel J. After the chain is thus compressed the stopper shown in Fig. 1 is then, to further secure it, closed down upon the chain by the same operation as is described of the compressor. If it should happen that the slide G in Fig. 1 should come down upon a link in a vertical position, as there illustrated, the force of the screw will either turn the link or can be turned by means of a handspike or rod, which operation will turn the succeeding horizontal link

into so nearly a vertical position that the slide will engage against such succeeding link.

In a vessel of light burden, or, in fact, in any vessel, either the stopper or the compressor may be dispensed with, only one or the other being used, providing that the parts of the one so used are constructed of sufficient strength.

The cross-bars D D' D'' may be further strengthened by braces, equivalent to trussing, or, instead of being straight, as shown, may be curved across so as to be braces in themselves, or may be made thicker in their middles than at their ends. The threads of the screw J', should also be made heavy, and the female-screw-threaded space through the cross-bar D should be made long enough to cover sufficient threads of the screw J' to avoid the danger of breaking the threads off by the pressure of the screw J' pressing against the shoulder-edge of the clamp or slide G', and the block K should be made more nearly square than shown in the drawings, to give it a longer bearing upon the smooth portion of rod J', and to enable it to be firmly secured against back-pressure. The screw-threads of screw J' may be double-square or triple-square threads to increase speed or action.

A crank can be substituted for the hand-wheel J.

Many other mechanical arrangements will suggest themselves to the minds of skillful mechanics to accomplish this purpose; but my object is to accomplish it by means of a screw and a clamp actuated by the screw, and, preferably, with an intermediary spring or springs, by which means space is utilized and time and labor saved.

What I claim as new is—

1. In compressors or stoppers for anchor-cables, slide G, set in suitable guides, C' C', the screw-rod J', adapted to be turned by suitable mechanism, J, cross-bar D, with which the screw engages, cross-bars D' D'', with the intermediate springs, E E, and chock H, said cross-bars sliding in guides C C, motion being imparted from the bar D to the bar D' through the intermediate connecting-pieces, D''' D''', all connected and operating substantially as described.

2. In a compressor or stopper for the anchor-cables of vessels, the combination of the slide G, screw J', actuating mechanism J to turn said screw and parts D D' D'', guided by guides C C, intermediate between the slide G and screw J', with which such intermediate parts said screw engages, whereby by the turning of said screw the slide G is driven against the chamber I or released from it, substantially as described.

3. In a compressor or stopper for the anchor-cables of vessels, the combination of the slide G, screw J', actuating mechanism J to turn said screw, and parts D D' D'', and springs E E, guided by guides C C intermediate between the slide G and screw J', with which such intermediate parts said screw engages,

whereby by the turning of said screw the slide G is driven against the chain I or released from it, substantially as described.

4. In a compressor or stopper for anchor-
5 cables for vessels, the clamp G, actuated to bite the chain by means of a screw-rod, J', actuated by a suitable mechanism, J, and the

springs E E, intermediary between the screw-rod and the clamp G, to graduate the bite of the clamp, substantially as described.

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Witnesses:

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