(No Model.)

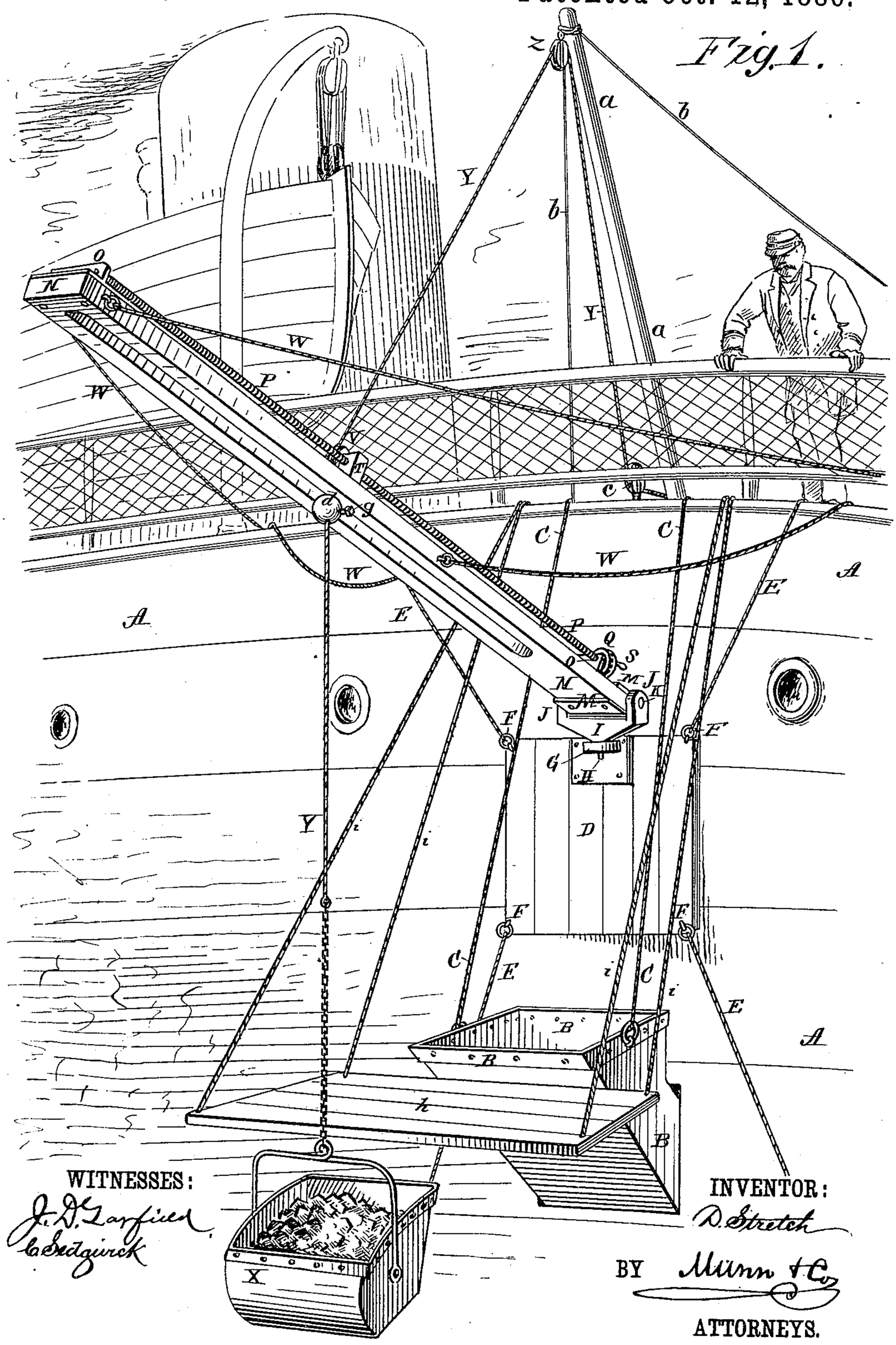
2 Sheets—Sheet 1.

D. STRETCH.

FREIGHT HANDLING MECHANISM.

No. 350,704. Patented Oct. 12, 1886.

Fig. 1.



WITNESSES:

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C. Sedgwick

INVENTOR:

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(No Model.) 2 Sheets—Sheet 2.

D. STRETCH.

FREIGHT HANDLING MECHANISM.

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Fig. 3.

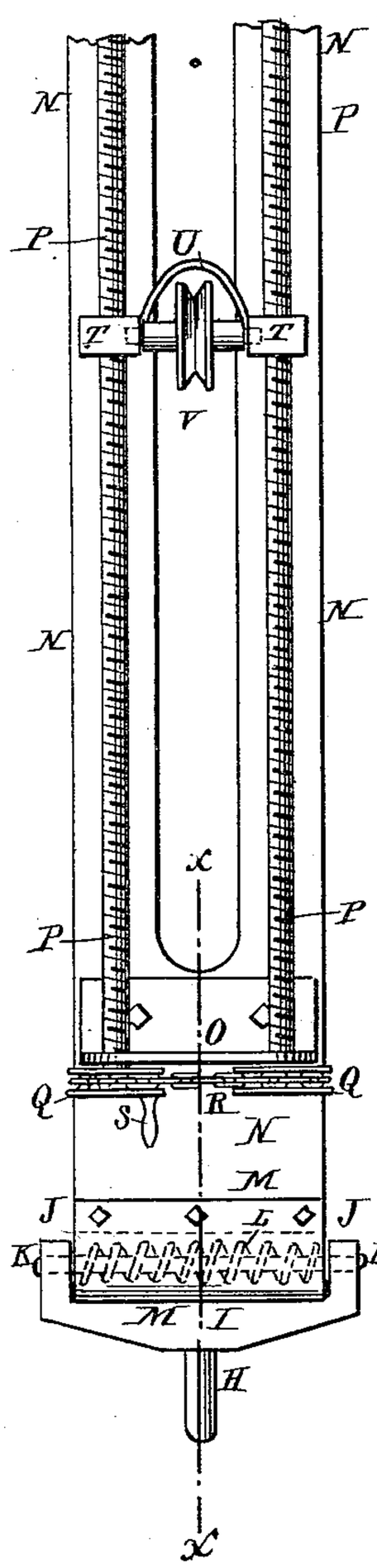


Fig. 4.

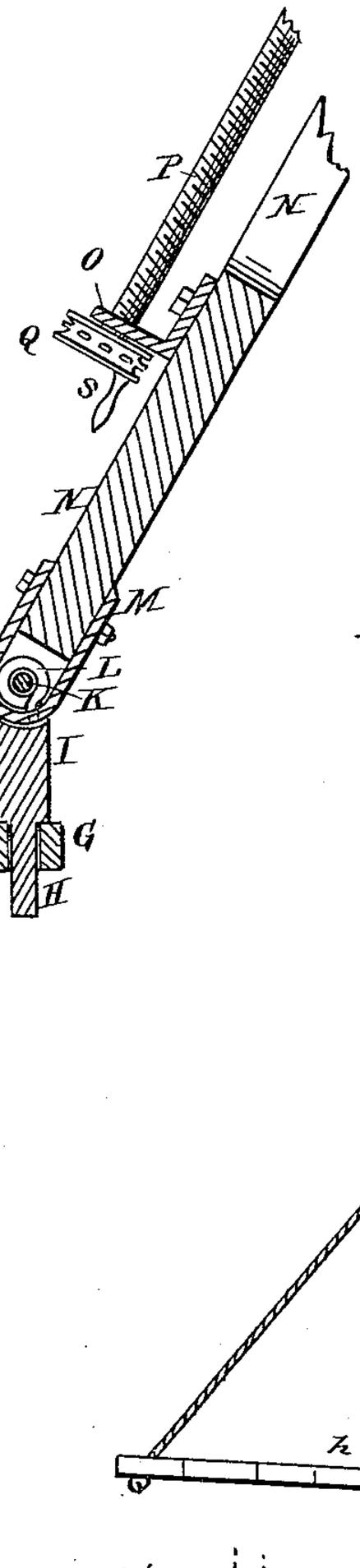


Fig. 2.

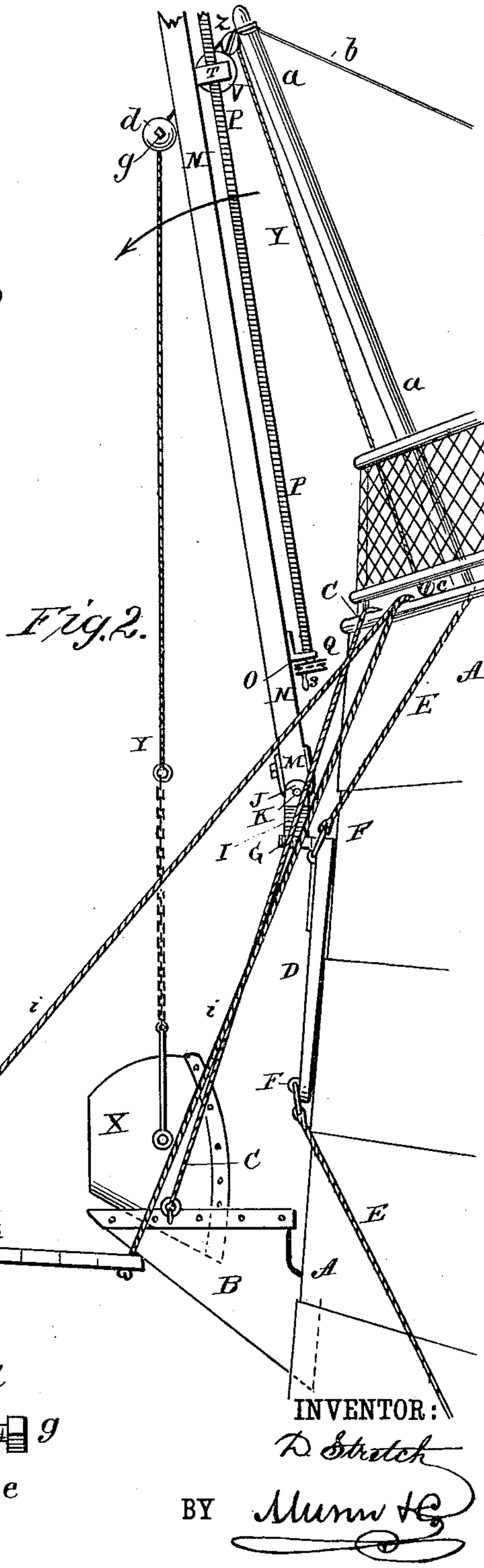
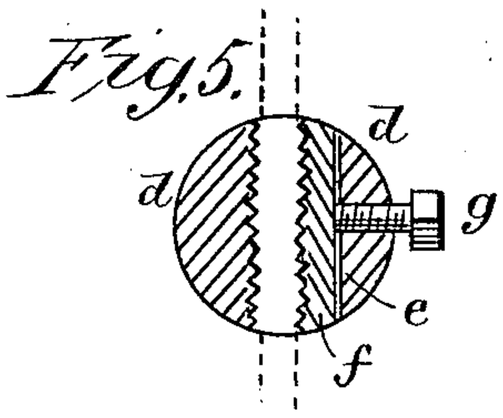


Fig. 5.



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UNITED STATES PATENT OFFICE.

DREW STRETCH, OF LIVERPOOL, ENGLAND.

FREIGHT-HANDLING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 350,704, dated October 12, 1886.

Application filed June 3, 1886. Serial No. 203,992. (No model.)

To all whom it may concern:

Be it known that I, DREW STRETCH, of Liverpool, England, have invented a new and useful Improvement in Freight-Handling Mechanisms for Vessels, of which the following is a full, clear, and exact description.

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

Figure 1 is a perspective view of my improved freight-handling mechanism shown as applied to a steamship. Fig. 2 is a side elevation of the same, shown in a raised position. Fig. 3 is a plan view of a part of the same. Fig. 4 is a sectional side elevation of a part of the same, taken through the line *x x*, Fig. 3. Fig. 5 is a sectional elevation of the adjustable hoisting-rope stop.

The object of this invention is to provide freight-handling mechanisms for vessels, constructed in such a manner as to cause the freight to be raised and lowered vertically, and to bring the said freight into position to be dumped into the chutes or other desired places.

The invention consists in the construction and combination of various parts of the freight-handling mechanism, as will be hereinafter fully described and then claimed.

A represents a steamship. B is the chute through which coal is conducted to the bunkers, and which is supported in place by ropes C, attached to it and to the steamship A. Against the side of the steamship A, and a little above the chute B, is placed a plate or skid, D, which is secured in place by ropes E, attached at one end to eyebolts or ring-bolts F, attached to the corners of the said skid. The other ends of the ropes E are secured to any convenient part of the steamship A. To the upper part of the skid D is secured by bolts or rivets the base-plate of the socket G, in which is placed the pivot H, formed upon or attached to the center of the lower side of the bar I. Upon the ends of the coupling or pivot bar I are formed or to them are attached upwardly-projecting lugs J, into which are rigidly secured the ends of the short rod or shaft K. Upon the rod K is placed a spiral spring, L, one end of which is secured to the said rod K. The other end of the spring L is attached to the bearing M, through which the rod K passes, and which is firmly secured to the inner end of the long boom N. The spring L prevents the outer end of the boom N from moving too quickly or too far when swung upward and inward by the hoisting-rope, as will be hereinafter fully described.

The boom N is slotted longitudinally nearly to its ends, and to the end parts of the upper side of the said boom are attached bearings O, in which are journaled the ends of two parallel screws, P. The inner ends of the parallel screws P project, and to them are rigidly attached small chain-wheels Q, around which passes a short endless chain, R, so that the two screws will always turn together. To one of the chain-wheels Q is attached a crank-pin, S, to serve as a handle for conveniently turning the screws P. Upon the screws P are placed nuts T, the lower sides of which are extended to rest upon or be close to the upper surface of the boom N, so that the said nuts will be held from turning. The nuts T are connected by a curved bar, U, which serves as a guard to keep the hoisting-rope, hereinafter described, in place upon the pulley V, journaled in bearings in the adjacent sides of the nuts T.

The downward movement of the outer end of the boom N is limited, and the said boom is supported when in its lowest position by guy-ropes W, the lower ends of which are connected with the said bar at its side edges. The other ends of the guy-ropes W are secured to some convenient part of the steamship.

X is a coal-bucket, to the bail of which is attached the lower end of the hoisting-rope Y, either directly or by means of a short chain interposed between the said bail and rope to prevent the said rope from being worn or cut by contact with the coal in the hold of the lighter. The hoisting-rope Y passes over the pulley V, and over a pulley, Z, the block of which is secured to the upper end of a spar, *a*, secured at its lower end to the steamship, and held in the desired position by guy-ropes *b*. From the pulley Z the hoisting-rope Y passes around a pulley, *c*, the block of which is secured to the deck or other convenient part of the steamship. From the pulley *c* the hoisting-rope Y passes to the donkey-engine or other power by means of which it is operated.

Upon the hoisting-rope Y, beneath the boom N, is secured a stop, *d*, which in the drawings is represented as being made in the form of a ball; but the shape is immaterial so long as it has such a shape and size that it cannot pass through the slot of the boom N, and will take a substantial bearing upon the lower side of the said boom. The stop-ball *d* is perforated for the passage of the hoisting-rope Y, and within the said stop, at one side of the perforation, is formed a groove, *e*, in which is placed a clamping-strip, *f*. The strip *f* is forced inward to clamp the hoisting-rope Y by a screw, *g*, which passes in through a screw-hole in the side of the stop *d*, and its forward end rests against the center of the clamping-strip *f*, so that the said strip can be forced inward against the side of the hoisting-rope Y by turning the said screw *g* forward. The inner surface of the stop *d* and the face of the clamping-strip *f* are corrugated or roughened to cause them to take a firm hold upon the said rope. The stop *d* is attached to the hoisting-rope Y at such a point as to rest against the lower side of the boom N when the said boom is at its highest point of upward movement and the bucket X is in position to be dumped, as shown in Fig. 2. With this, construction when the various parts of the apparatus are in the position shown in Fig. 2 and the hoisting-rope Y is slackened, the outer end of the boom N will swing downward and the bucket X will swing outward, the pulley V being so arranged that the said bucket X will be directly over the hatchway of the lighter, and will thus pass through the said hatchway without striking its combing as the hoisting-rope continues to be slackened. As the hoisting-rope Y is wound up the bucket X will pass up vertically until the stop *d* strikes the under side of the boom N, when the outer end of the said boom N will be raised, and the bucket X will be swung inward, so that the said bucket, when the boom N reaches the limit of its upward movement, will be in position to be dumped into the chute B. The boom, by adjusting its guy-ropes W, can be swung laterally upon its pivot H to either side, as the position of the lighter may require.

I have shown and described my invention as applied to coaling steamships, but do not limit myself to that application, as it can be used with advantage in transferring cargoes to and from vessels and for various other purposes.

h is a platform placed a little below the mouth of the chute B, for the men who dump the buckets to stand upon, and which is supported by stay-ropes *i*, attached to it and to the vessel A.

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

1. A freight-handling mechanism for vessels, containing the following elements, namely: a boom supported at one end on the vessel and jointed to swing vertically and laterally therefrom, a pulley-wheel and devices for longitudinally adjusting the pulley on said boom, a hoisting-rope, the latter passing over the adjustable pulley, to lift and swing in the cargo, and guy-ropes to steady the boom, all in combination, as herein shown and described.

2. The longitudinally-slotted boom carrying the parallel screws having actuating mechanism, in combination with the pulley, with its axis supported in nuts traveling upon said screws, substantially as and for the purpose set forth.

3. The longitudinally-slotted boom carrying the parallel screws having actuating mechanism, in combination with the pulley with its axis supported in nuts traveling upon said screws, and the hoisting rope or chain having an adjustable stop, substantially as and for the purpose specified.

4. The combination, with the skid having upon its one side, at the upper edge, a socket or eye, of the boom and its pivot-supporting bracket or bar, having a central pivot entering the eye or socket of said skid, substantially as and for the purpose described.

5. The combination, with the boom and its pivotal pin and bracket or bar, of the spring connected to said bracket or bar and pin, substantially as and for the purpose specified.

6. The combination, with the adjustable skid, of the boom and its pivot-supporting bracket or bar having a pivotal connection with said skid, substantially as and for the purpose specified.

7. In a freight-handling mechanism for vessels, the combination, with the boom N, coupling-bar I, and rod K, of the spring L and means for supporting the coupling or pivotal bar, substantially as and for the purposes specified.

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Witnesses:
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