(No Model.)

W. F. MILLS.

DEVICE FOR LOADING SHIPS.

No. 423,070. Patented Mar. 11, 1890.

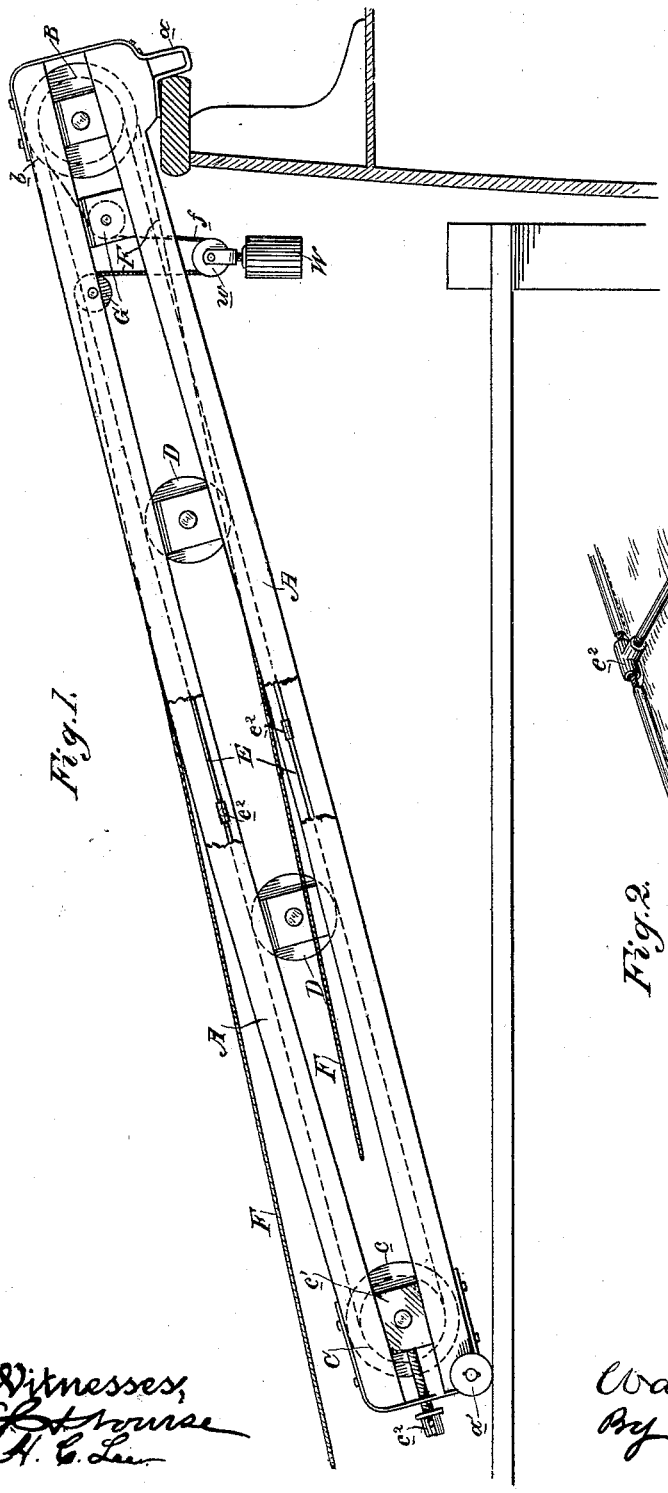

Fig. 1.

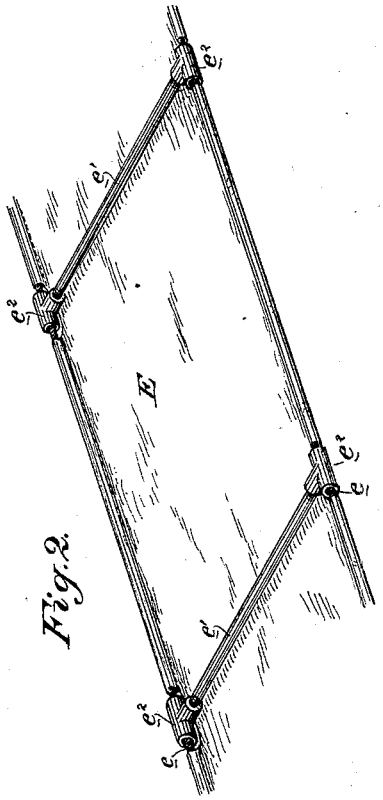

Fig. 2.

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UNITED STATES PATENT OFFICE.

WARREN F. MILLS, OF SAN FRANCISCO, CALIFORNIA.

DEVICE FOR LOADING SHIPS.

SPECIFICATION forming part of Letters Patent No. 423,070, dated March 11, 1890.

Application filed November 22, 1889. Serial No. 331,242. (No model.)

To all whom it may concern:

Be it known that I, WARREN F. MILLS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Devices for Loading Ships; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of ship-loading apparatus; and it consists in the novel construction of elevator and means for driving it and adjusting it, hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide a simple and effective elevator for the purpose of carrying goods up a ship's side, and of such a character as to be readily portable from one place to another and from one ship to another, adapted to be easily placed in position to adjust itself to the rise and fall of the tide and the constant movement of the ship, and to be as a whole well adapted for the purpose intended.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation of my device. Fig. 2 is a perspective view showing the construction of the carrier.

A is a frame-work of any suitable character, having at its upper end the strap-loops *a* or other fastening devices by which said end may be lashed to the rail of the ship, and at its lower end the rollers *a'*, by which the whole frame may move on the wharf to accommodate itself to the movements of the ship.

In the upper end of the frame is mounted a roller or drum B, and in the lower end is mounted a similar roller or drum C, while along the length of the frame at suitable lengths are mounted carrying rollers or drums D. Over all these rollers passes an endless elevator-carrier E, consisting of a belt, which is preferably made of canvas or other strong material, having its two sides secured to ropes *e* and provided with cross-bars *e'*, said cross-bars being preferably made of gas-pipe, having at their ends the ordinary T-couplings e^2, through which the side ropes *e* pass, thereby firmly securing the cross-bars to the carrier.

Upon the upper drum or roller B are the pulleys *b* and upon the lower drum or roller C are the pulleys *c*. The lower drum or roller is made adjustable by being mounted in sliding boxes *c'*, seated in the sides of the frame A, said boxes being movable by means of adjusting-screws c^2, so that the lower roller or drum may be drawn downwardly to take up the slack of the carrier when necessary and so keep it taut.

Though motion may be imparted to the carrier by power mechanism applied to the lower roller or drum, I prefer to apply it to the upper roller or drum, the mechanism consisting of an endless rope or cable F, which passes over one of the pulleys of the upper roller or drum, and thence extends downwardly to the wharf, where its other end is properly connected with a donkey-engine or other source of power, unnecessary herein to show; but to accommodate this cable or rope to the constant movement of the device I have a tightener, consisting of a weight W, provided with the roller *w* in its top, around which a depending portion or bight *f* of the rope or cable passes, said bight being directed properly by guide-sheaves G on the side of the frame A. The weight depends, as shown, whereby the rope or cable is kept constantly taut, no matter what may be the movement of the entire device in accommodating itself to the movement of the ship.

The device is used by placing the goods upon the carrier and causing said carrier to move upwardly so as to carry the goods up to the ship's rail.

It will be seen that this whole device is readily portable and can be quickly and easily secured in place, being adapted to accommodate itself to the movements of the ship due to the tides and to the motion of the water.

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

1. A device for loading ships, consisting of the combination of the frame A, having the fastening devices *a* at its upper end for lashing it to the ship's rail and the rollers at its lower end for adjustably bearing on the wharf, the drum or roller B in the upper end of the frame, and the drum or roller C in its lower end mounted in adjustable boxes, and the screws for moving said boxes, whereby the roller or drum is adjusted, the endless carrier or belt mounted upon the rollers or drums and having

suitable cross-bars of gas-pipe with T-coupling on their ends, and a rope or cable applied to the upper roller or drum, whereby motion is imparted to the carrier or belt, substantially as herein described.

2. A device for loading ships, consisting of the combination of the frame A, having the fastening devices *a* at its top for lashing it to the ship's rail and the rollers *a'* at its lower end for adjustably bearing on the wharf, the upper roller or drum of the frame, and the lower roller or drum and intervening carrier-rollers, the endless carrier or belt mounted upon said rollers or drums and having cross-bars, the power cable or rope applied to the upper drum or roller, the guide-sheaves on the frame for carrying downwardly a bight of said cable or rope, and the tightener-weight carried on the lower end of said bight, whereby the rope or cable is kept taut, substantially as herein described.

In witness whereof I have hereunto set my hand.

WARREN F. MILLS.

Witnesses:
S. H. NOURSE,
H. C. LEE.