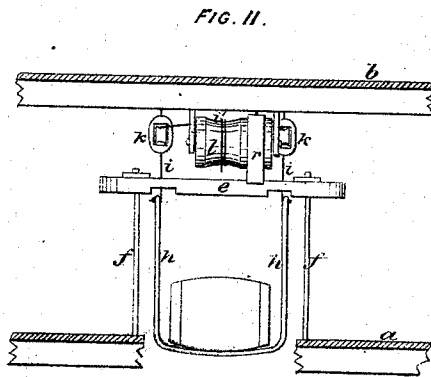
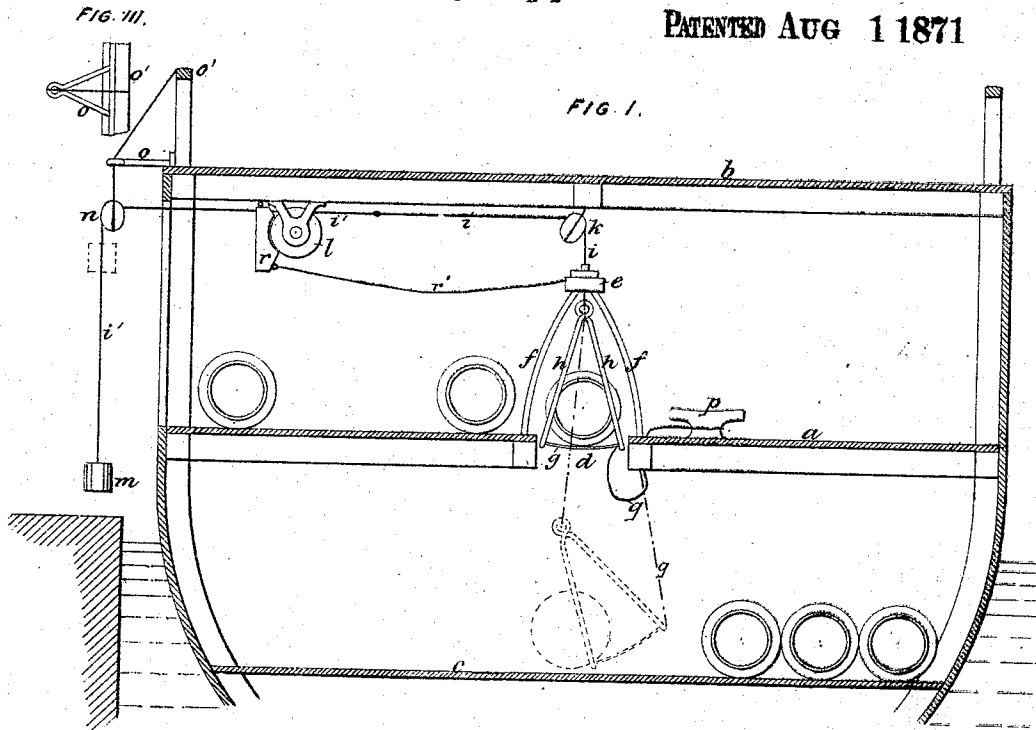


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F. Paterson's
"Loading Apparatus."

PATENTED AUG 1 1871



Francis Paterson

Witnesses

Charles Legge
Arthur Kellond.

Inventor

UNITED STATES PATENT OFFICE.

FRANCIS PATERSON, OF MONTREAL, CANADA.

IMPROVEMENT IN APPARATUS FOR LOADING SHIPS.

Specification forming part of Letters Patent No. 117,673, dated August 1, 1871.

To all whom it may concern:

Be it known that I, FRANCIS PATERSON, of the city of Montreal, in the district of Montreal, in the Province of Quebec, master mariner, have invented new and useful Improvements on Apparatus for Loading Ships and other vessels, and for use in store-houses, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawing, where—

Figure I represents a transverse section of a vessel with side elevation of the apparatus. Fig. II represents an end elevation of apparatus. Fig. III represents detail of bracket.

This invention has reference to improvements on the apparatus at present in use for lowering barrels, boxes, and other packages into the hold of vessels, for loading them, or it may be used on shore in store-houses for lowering packages from the upper stories to any of those below them for saving both time and labor.

In the drawing hereunto annexed similar letters of reference indicate like parts.

a is the main deck of a vessel and *b* the upper or promenade-deck, while *c* is the lower deck of the hold in which the cargo is placed; or *a*, *b*, and *c* may correspond with the floor of a store-house. *d* is the hatch; over this a beam, *e*, supported by a pair of sheer-legs, *f*, at each side of the hatch. These may be secured or stepped at their lower extremity into a plank laid upon and secured to the deck, or the combings of the hatch may be provided with any suitable sockets for their reception. In either case they will be so arranged that the beam *e* with legs *f* may be readily shipped or unshipped as required for use or for storing away after the loading of the hold has been completed. In the center of the beam *e* two holes are formed for the two ends of a line to pass freely through, and serve as guides to the cradle, constructed as follows: The platform *g* of the cradle is made of a wood or iron framework or grating, and may be made concave on its upper surface, so that barrels or other similarly-shaped packages will have no tendency to roll off when fairly placed in the cradle while it is held in an upright position. At the same time boxes may be placed on it equally well as on a flat grating; but, if preferred, a flat grating may be used. The bars *h*, which suspend the platform of the cradle, are taken up preferably

in the manner shown in Fig. I and provided with eyes *h'* at top, to which are secured ropes or lines *i*, passing up through the above-mentioned holes in the beam *e* and through blocks *k* suspended from the beams of the deck or floor above. The lines *i* are each brought in an oblique direction till they meet in a single line, *i'*, which is carried over a drum, *l*, with one or more turns, as desired, and provided with a weight, *m*, of such gravity that it not only balances the weight of the cradle, but also causes it to be drawn up when unloaded to the position shown on the drawing. The weight *m* may be, if desired, carried outside the vessel which is being loaded, as shown in Fig. I, the line *i'* being in that case carried through a block, *n*, suspended from a carrier, *o*, of the shape shown in Fig. III. This carrier *o* may have its ends turned down so as to be inserted into sockets in the upper deck of the vessel, or may simply butt against the lower or guard-rail and be held in position by a line fastened to the upper rail *o'* of the deck and connected with the eye of the carrier *o*. This line *i'*, holding the weight *m*, may also, if desired, be conducted down any convenient aperture in the main deck, such as the stoke-hole, engine-room, or any place where it will not interfere with the stowage of the cargo, or as found most desirable; or, especially when used in a warehouse or store, may be incased in tubing in any convenient or ordinary manner. Where desirable or practicable it may be returned down the hatchway through which the goods are lowered; or, if desired, instead of the weight *m* an ordinary scroll or other spring may be used to cause the return of the cradle. *p* shows a "bit" of any ordinary form, and placed in any suitable position on the main deck of a vessel, or on the floor of a warehouse, on which it is most required. To this is attached one end of a rope, *q*, which we will call the "tilting-line," passing through any hole in the combings of the hatch, or wherever found most convenient, and connected at the other end with the under side of the platform *g* of the cradle, and may be shortened by taking one or more turns of it, as may be required, round the bit *p*. A brake, *r*, for controlling or stopping the action of the drum *l*, is provided with a line, *r'*, either connecting it with the beam *e* or not, as desired.

The operation of my invention is as follows: The apparatus is put in working order, which

can easily be done in a very short time by stepping the sheer-legs *f* into the sockets prepared for them or securing them in any other convenient way, and suspending the pulley *k* and drum *l* in their proper places. This last may be a fixture, as it would in no case be in the way. If it is preferred to arrange the apparatus as in Fig. I the carrier *o* may with equal rapidity be put in position and secured to the rail *o*, and the lines *i* and *i'*, being respectively brought through the block *n* and round the drum *l*, and through the beam *e* and block *k*, are connected, the weight *m* holding the eyes of the bars *h* close up against the under side of the beam *e*, and the platform *g* nearly flush with the deck or floor *a*. The barrel or package to be deposited in the hold or floor below being placed on the platform *g*, the cradle so weighted overcoming the resistance of the weight *m*, the line *i'*, revolving round the drum *l*, descends rapidly by its own gravity (the lines *i*, passing through the beam *e* and through the blocks *k*, keeping the cradle in the proper position) till the tilting-line *g*, having run out to its full length, holds up one side of the platform *g*, assuming the position shown by the dotted lines in Fig. I, and cants out the barrel or package resting thereon. The length of the tilting-rope is adjusted so that the lower edge of the platform *g* may not be more than a very small space

above the floor or tier of barrels or packages on which the delivered barrel or package is to rest. So soon as the cradle is free from the barrel or package it is brought back again to its former position by the weight *m* at the end of the line *i'* passing over the revolving drum *l*. To prevent the cradle, when loaded, from descending too rapidly, the break *r* is provided, acting in the ordinary manner in such cases either by the line *r* or any desired or suitable means.

Having now described the construction and operation of my invention, to which I have given the name of "Paterson's Loading Apparatus," what I claim as my invention, and wish secured by Letters Patent, is the new and useful improvements on apparatus for loading ships and other vessels, and for use in store-houses, &c., as follows:

The combination of the cradle *g h*, beam *e*, and sheer-legs *f* or their equivalents, blocks *k*, double line *i*, single line *i'*, friction-drum *l*, weight *m*, break *r*, and tilting-line *g*, all working together substantially in the manner and for the purpose set forth.

Montreal, 31st day of May, A. D. 1871.

FRANCIS PATERSON.

Witnesses:

CHARLES LEGGE,
ARTHUR KELLOND.