

(No Model.)

3 Sheets—Sheet 1.

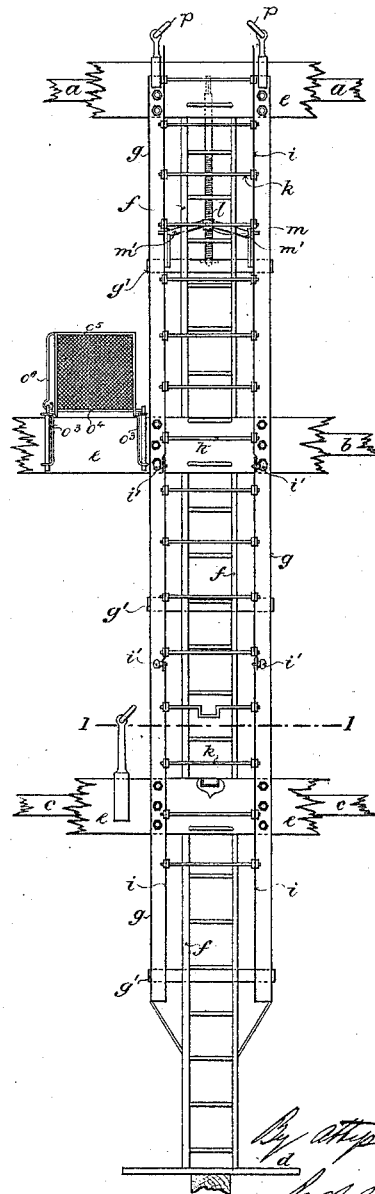
R. C. SCOTT.

SAFETY APPARATUS TO BE APPLIED IN SHIPS' HOLDS.

No. 302,784.

Patented July 29, 1884.

Fig. 1.



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(No Model.)

3 Sheets—Sheet 2.

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Fig: 2.

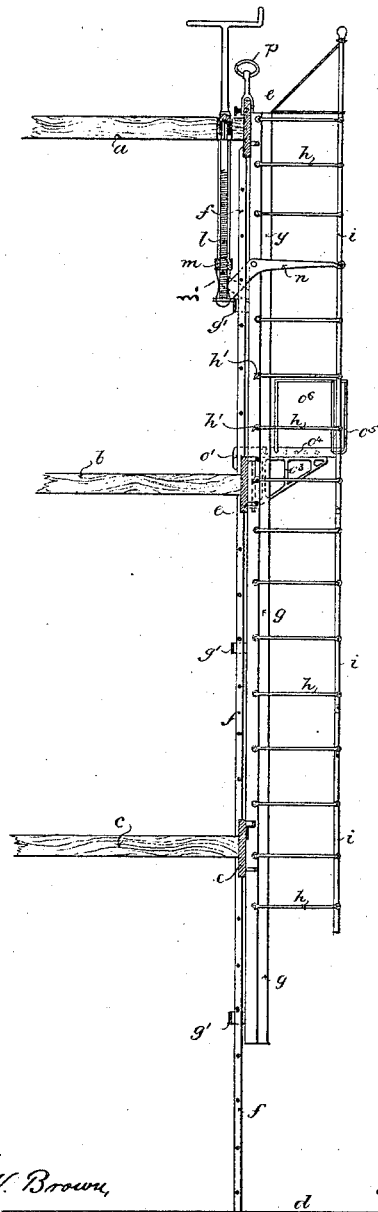
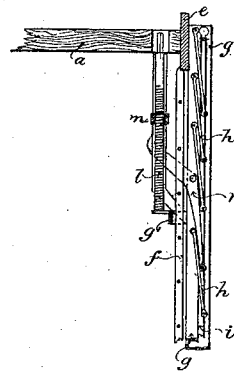


Fig: 3.



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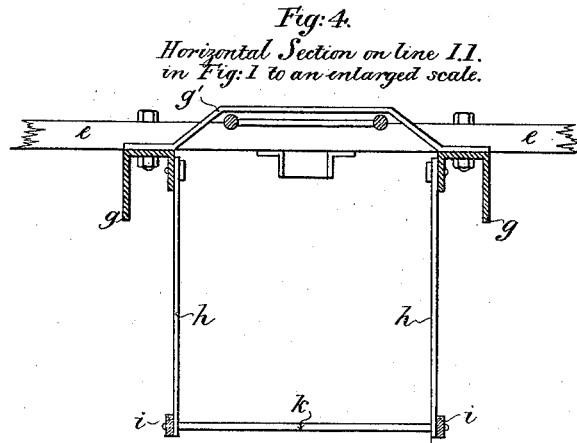


Fig. 5.
Plan of landing
platform to an enlarged
scale.

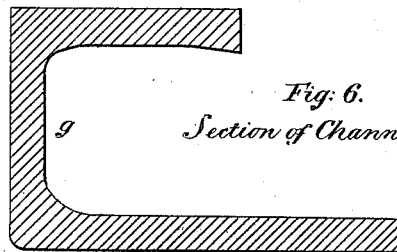
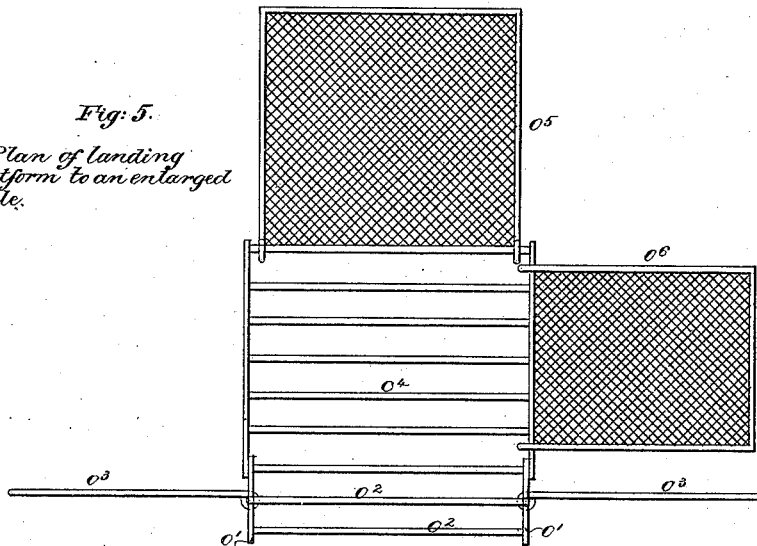


Fig. 6.
Section of Channel Iron

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UNITED STATES PATENT OFFICE.

RICHARD CLARKSON SCOTT, OF BANKFIELD HOUSE, LITHERLAND, COUNTY OF LANCASTER, ENGLAND.

SAFETY APPARATUS TO BE APPLIED IN SHIPS' HOLDS.

SPECIFICATION forming part of Letters Patent No. 302,784, dated July 29, 1884.

Application filed July 14, 1883. (No model.) Patented in Eng^{land} and December 13, 1882, No. 5,949; in France June 12, 1883, No. 155,993; in Germany June 28, 1883, No. 25,682, and in Belgium July 2, 1883, No. 61,902.

To all whom it may concern:

Be it known that I, RICHARD CLARKSON SCOTT, a subject of the Queen of Great Britain, residing at Bankfield House, Litherland, near Liverpool, in the county of Lancaster, England, have invented a Safety Apparatus to be Applied in Ships' Holds, (for which I have received Letters Patent in Great Britain, No. 5,949, dated December 13, 1882; in France, No. 155,993, dated June 12, 1883; in Germany, No. 25,682, dated June 28, 1883, and in Belgium No. 61,902, dated July 2, 1883,) of which the following is a specification.

This invention has for its object a safety apparatus to be applied in ships' holds. The ladders by which ships' holds are descended and ascended are usually carried by stanchions or supports between the decks and clear of the hatchway. This position is inconvenient and dangerous for the men; but the ladders cannot be otherwise placed in consequence of its being necessary that the hatchway should be kept entirely free from obstruction for the loading and unloading of cargo. Falls from these ladders into the hold are of frequent occurrence. To prevent such accidents I provide a folding cage, which, when the ladder is in use, can be raised into a position to protect the men in passing up and down.

Figure 1 is a front elevation, and Fig. 2 is a vertical section, of a safety apparatus or cage constructed and arranged in the hold of a ship in accordance with my invention. Fig. 3 is a section of a portion of the apparatus as it appears when folded and out of use. Fig. 4 is a horizontal section on the line 1 1 in Fig. 1, and Fig. 5 shows a landing-platform. Fig. 6 shows, on an enlarged scale, a section of a channel-iron.

At *a*, *b*, and *c* the ships' decks are indicated. Three only are represented, but often there are four. *d* is the bottom of the hold. *e e e* are parts of the combings around the hatchways. *f f* is the stanchion-ladder. It is shown in its ordinary position, on the aft side of the hatchway, but the position may be varied. It is for the protection of persons ascending and descending this ladder that my safety apparatus or cage is applied. For this purpose I

fix two channel-irons or channel-bars, *g g*, vertically in the hatchway, one on either side of the ladder, (Fig. 6 shows the section of the channel-iron,) and to strengthen the structure cross-bars of flat iron, *g' g'*, are bolted to the backs of the channel-irons. In the projecting flanges of the channel-bars holes are formed at intervals, and these receive the ends of bars *h h*, forming parts of the cage; or, as is the case in the drawings, the ends of these bars *h* may be formed with eyes, and bolts may connect them to the channel-bars in such manner as to leave them free to turn. The back or back frame of the cage is composed of two vertical bars, *i i*, connected by horizontal bars *k k* at intervals. The horizontal bars *k* pass through holes in the vertical bars *i*, and also through holes or eyes in the outer ends of the bars or links *h*, which form the sides of the cage. Outside all these the ends of the horizontal bars *k* are secured by split pins passed through them. The side bars, *h*, as previously stated, are provided with eyes at their other or inner ends; or they may be bent at right angles, passed through the holes in the fixed channel-irons, and secured by split pins inserted through them. The whole forms a folding cage, the bars forming the sides of which have jointed connection at their opposite ends, respectively, with the fixed bars *g* and the bars *i* of the back frame. The cage, when raised for use, will protect the men ascending and descending the ladders, both at the sides and back, and a man slipping on the ladder can at once steady himself by taking hold of any part of the cage.

When not required for use, the cage is lowered, and it then folds, as seen in Fig. 3, in between the channel-irons, and forms no impediment in the hatchway.

The upright bars *i* of the back frame of the cage are made in lengths which can be disconnected the one from the other by hand bolts or pins *i'*, or other convenient fastenings, so that after the lower decks have been stowed the portion of the cage serving the upper decks may remain in use.

To raise the cage for use the following arrangement of gear is often convenient: *l* is a screw carried in a suitable frame beneath the

upper deck. *m* is a nut on the screw *l*. *m' m'* are arms upon the nut, guided at their ends in slotted plates fixed to the bars *g*, and links pass from them to the ends of a pair of levers, *n n*, which are mounted upon the channel-irons *g*. The other ends of the levers *n* are made to engage with one of the horizontal bars *k* of the back frame. Thus when the nut *m* is moved down upon the screw the levers *n* turn about the joint-pins which connect them with the channel-irons, which serve as fulera for the levers, and the cage is raised into a position to be a protection to a person descending by the stanchion-ladder.

In some cases, especially in shallow ships, where the weight of the cage is not great, a hand-lever with suitable connections is applied for working the cage; or it may be otherwise raised, when required, and lowered out of the way when it is not wanted. When folded, the movable part of the cage is protected by the angle-bars within the space between which it folds, as seen in Fig. 3.

At the intermediate decks I provide landing-platforms, when in use supported on brackets, and folded down when not required.

The platform consists of the following parts: *o' o'* are a pair of hooks which will hang on the edges of the hatchway-combing. The hooks are connected by two horizontal bars, *o² o²*, and brackets *o³ o³* can turn around the vertical stems of the hooks. These brackets, when the platform is in use, serve to support the floor-grid *o⁴*, which is connected with the hooks *o'*, the outer bars of the grid being jointed by eyes with lugs projecting from the hooks. *o⁵* and *o⁶* are frames covered with netting, if considered desirable, which turn up as guards, as seen in Figs. 1 and 2, and are secured by a pin. They serve to prevent persons slipping from the landing-platform. The side bars, *h*, of the cage opposite to these landing-platforms are connected by hooks *h'* to the fixed bar *g*, to permit them to be raised and disconnected, in

order that the men may pass in and out of the cage from and to the intermediate decks.

p p are grip-handles which, when the ladder is in use, can be clipped onto the upper combing in the positions shown by the drawings. Binding-screws or other fastenings may be employed to secure the grip-handles.

I am aware that it is not new, broadly considered, to combine a folding cage, or what may be considered its equivalent, with a fixed ladder, such combination being old in fire-escapes, and therefore I limit my claims to the organization of parts specified by them, whereby the folding cage is especially adapted for use in connection with ladders of ships' holds.

Having thus described the nature of my said invention and the manner of performing the same, I would have it understood that I claim—

1. The combination, with a ladder fixed in a ship's hold, of a folding safety-cage arranged about the ladder and wholly independent thereof, said cage consisting of fixed bars *g g*, upright bars *i i*, side bars, *h h*, jointed to the bars *g g* and *i i*, and the horizontal bars *k*, connecting the bars *i i*, substantially as described.

2. The combination, in a folding safety-cage adapted to be arranged about a ladder in a ship's hold, of the back frame, the bars *g g*, and the side bars, *h h*, having jointed connection with said bars *g g*, and the back frame, whereby said frame is adapted, when raised, to extend to the top of the hatchway, and to descend into the hatchway and be protected when lowered, substantially as described.

3. The folding landing-platform, consisting of the hooks *o' o'*, the horizontally-connecting bars *o² o²*, the brackets *o³ o³*, the grid *o⁴*, and the guard frame or frames, substantially as described.

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Witnesses:

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Clerks to Messrs. Hill, Dickinson & Co., Solicitors, Liverpool.