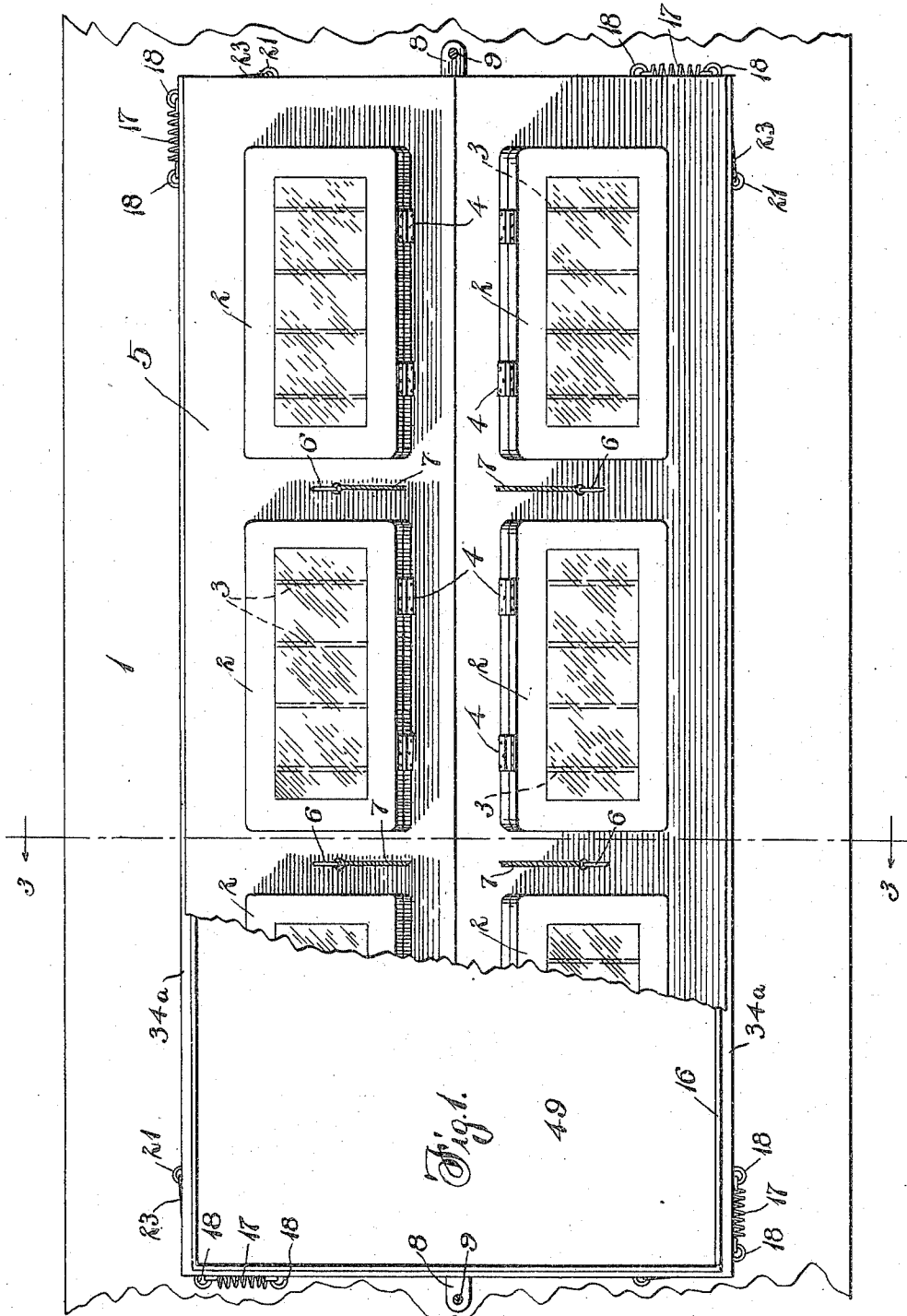


J. CRATES.
SKYLIGHT AND VENTILATING CONSTRUCTION FOR SHIPS.
APPLICATION FILED NOV. 8, 1909.

957,846.

Patented May 10, 1910.

4 SHEETS—SHEET 1.



Witnesses:
Homer E. Miller
Edward M. Wire.

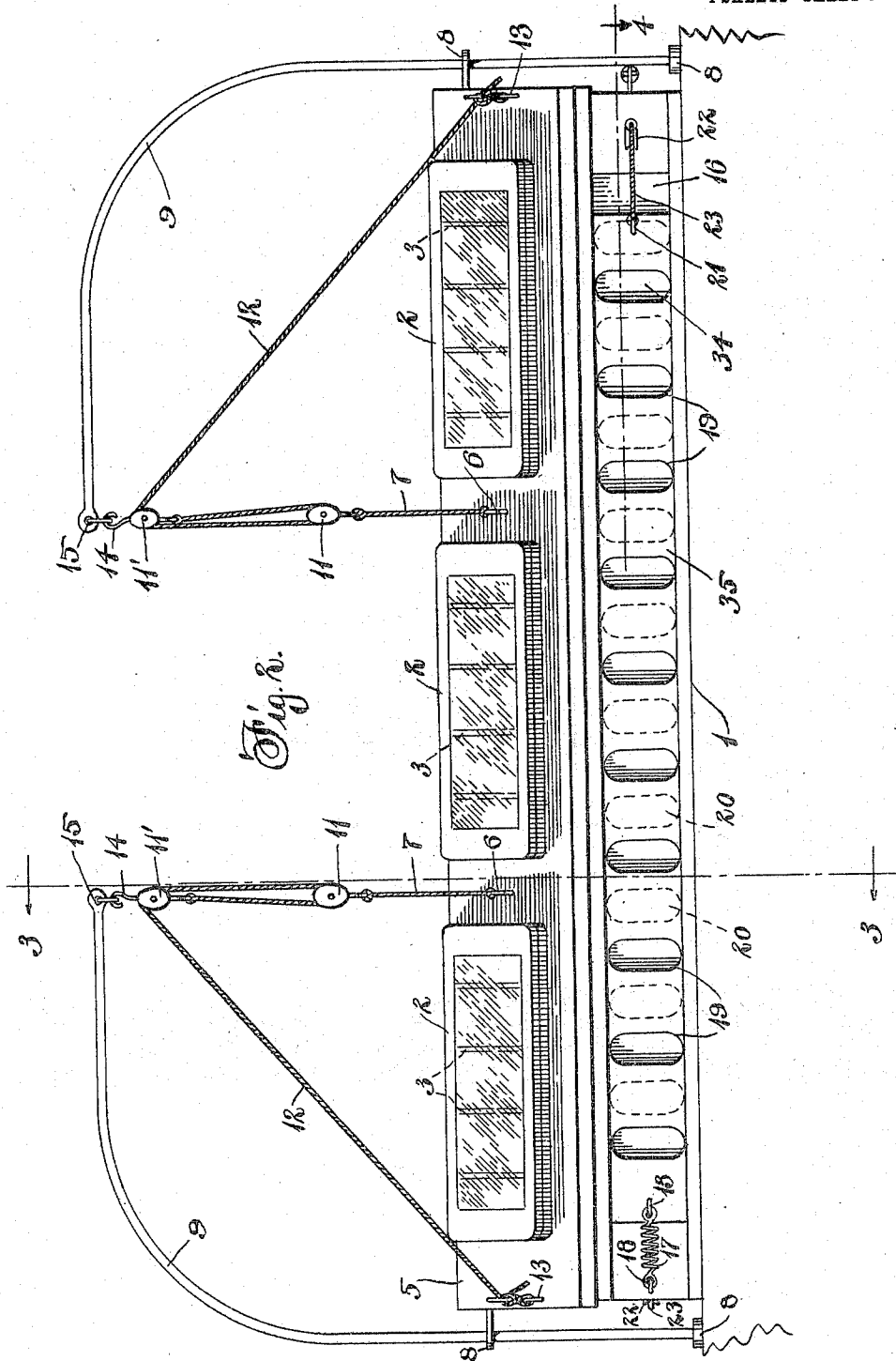
James Crates, Inventor,
by E. E. T. [Signature]

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4 SHEETS—SHEET 2.



Witnesses:
 Homer E. Miller
 Edward M. Wise.

James Crates, Inventor,
 by Geo. E. Jewett

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4 SHEETS—SHEET 3.

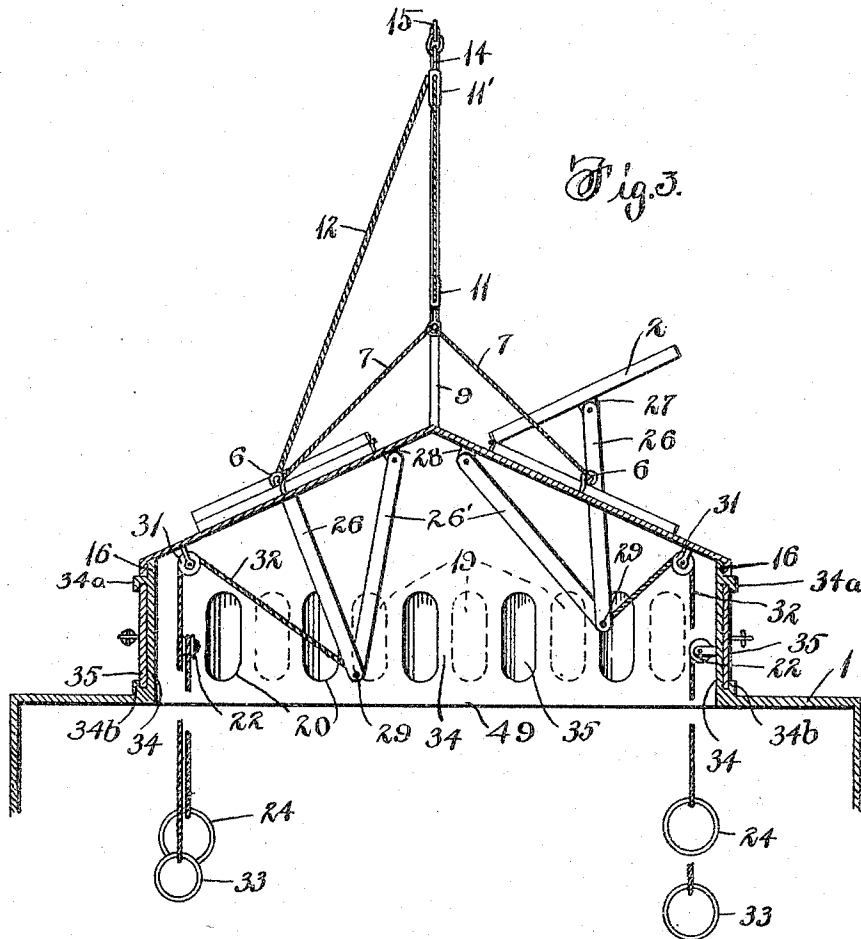
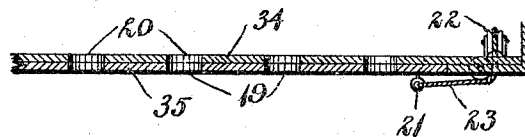


Fig. 4.



Witnesses:

Monroe E. Miller
 Edward M. Wise.

James Crates, Inventor,

by E. E. Jewett

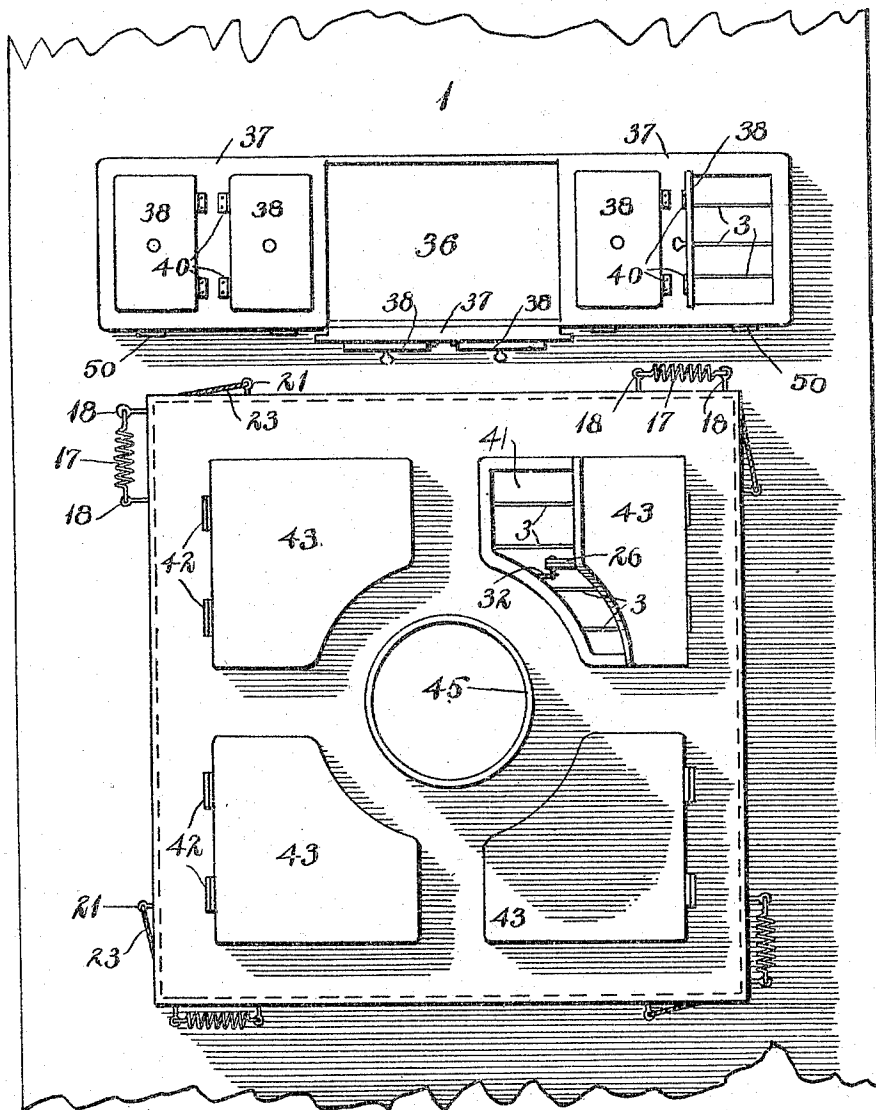
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4 SHEETS—SHEET 4.

Fig. 5.



Witnesses:

Monroe E. Miller
 Edward M. Wise.

James Crates, Inventor,

by E. E. Jewell

UNITED STATES PATENT OFFICE.

JAMES CRATES, OF LORAIN, OHIO.

SKYLIGHT AND VENTILATING CONSTRUCTION FOR SHIPS.

957,846.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed November 8, 1909. Serial No. 526,782.

To all whom it may concern:

Be it known that I, JAMES CRATES, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Skylight and Ventilating Construction for Ships, of which the following is a specification.

This invention relates to means for ventilating and lighting ships, and comprises an improved skylight and ventilating construction, together with means whereby the skylight may be bodily removed for the purpose of forming a hatch or the like, on occasion.

The construction herein described may be applied to the roof of the engine room, boiler room, coal bunker, dining room or elsewhere on the roof or upper deck of an ordinary steam vessel, and in the accompanying drawings several arrangements are illustrated applicable to various places as hereinafter described.

In the accompanying drawings—Figure 1 is a plan view of a construction suitable for the roof of the engine room. Fig. 2 is a side elevation thereof. Fig. 3 is a cross section on the line 3—3 of Fig. 1. Fig. 4 is a horizontal section on the line 4—4 of Fig. 2. Fig. 5 is a plan view of the construction applied to the boiler room and around the smoke stack, for the purpose of lighting and ventilating the space below.

Referring specifically to the drawings, a roof opening is indicated at 49, which forms the hatchway when the skylight is removed. This opening is surrounded by a coaming 16 which has openings 20 on all sides as shown. These openings may be opened or closed by means of slides 35, having openings 19 adapted to register with the openings 20, to form ventilating outlets. The valves 35 slide in guides 34^a and 34^b and are operated from within the room below by means of ropes 23 which pass over pulleys 22 and are fastened to the slides 35 by means of eyes 21. The ropes 23 are conveniently provided with hand rings 24 whereby they may be attached to any suitable hook in the room. When the ropes 23 are released the slides are closed by the action of springs 17 connected to the slides and the coaming by eyes 18 and acting in opposition to pull on the ropes 23. These ventilators are particularly useful in stormy weather when the windows in the skylight cannot be opened.

The cover or body of the skylight is indi-

cated at 5 and has a plurality of openings provided with glazed covers 2 which are hinged to open and close. Bars 3 extend across the openings to prevent accident when the covers are open. The covers or windows can be raised or lowered by means of ropes 32 which pass over guide pulleys 31 and are connected to the free end of levers 26' which are fulcrumed at 28 and are connected to the covers by bars 26 pivoted at 27 and 29, whereby, when any rope is pulled, the appropriate window will swing open on its hinges 4.

In order to lift and remove the entire skylight hoisting tackle is provided, consisting conveniently of davits 9 with ropes 12, lower and upper blocks 11 and 11', and hooks 14 engaging links 15 to support the upper blocks, and ropes 7 connected from the lower blocks 11 to eyes 6 on the skylight. The davits 9 swing in supports 8 at the ends of the skylight. By the means described the whole skylight may, on occasion, be lifted from the coamings and swung to one side to form a hatchway. This will be found particularly useful in letting down machinery into the engine room, or loading large pieces of furniture, or other bulky objects which may have to be let down into the vessel.

As illustrated in Fig. 5, the opening 36 to the fire or boiler room has three hinged covers 37, swinging on hinges 50, and each of these covers has openings provided with covers 38 hinged at 40, and with safety bars 3. By swinging open all the covers 37 a convenient hatch is formed for access to the fire room, and one or more of the smaller covers may be swung open for ventilation when desired.

Around the smoke stack 45 there is conveniently arranged four openings 41, with safety bars, and covers 43 which may be swung open from the boiler room in the same manner as above described with respect to the covers 2, the covers 43 being hinged at 42. The structure around the smoke stack will also preferably be provided with the slide valves at the side, the same as above described, and will be opened or closed from below in a similar manner.

The deck of the ship is indicated at 1, forming the roof of the rooms below.

When the skylight constructed as above described is applied to the engine room, for example, it may be lifted off in case of

emergency, to allow quick repairs to the engine or pumps by removing or replacing any part of the machinery, thereby serving the function of a hatch as well as that of a skylight and ventilator.

What I claim as new is:—

1. A roof structure for vessels, comprising coamings around a hatchway in the roof deck, a skylight frame resting on said coamings and provided with openable windows, means to open said windows from below the deck, and means above the deck to remove the whole frame to open the hatchway.

2. A ventilating skylight comprising a cover, a hinged window therein, a lever fulcrumed at one end, a thrust bar connecting the other end of the lever and the window, and a rope connected to the lever, for swinging the same to open the window.

3. A ventilating skylight comprising a cover, a window hinged to the upper side thereof, to open and close an opening in the

cover, a lever fulcrumed at one end to the under side of the cover, a bar connecting the free end of the lever and the under side of the window and arranged to work through said opening when the window is raised, and means to swing the lever upwardly, to open the window.

4. A ventilating skylight structure for vessels comprising coamings around an opening in the roof deck, the coamings having openings therein, slides mounted in guides on the coamings, springs connected to said slides and tending to close the same, and ropes connected to said slides and depending through said opening in the deck, to operate said slides from below the deck.

In testimony whereof, I affix my signature in presence of two witnesses.

JAMES CRATES.

Witnesses:

CHRISTOPHER CRATES,
MONROE E. MILLER.