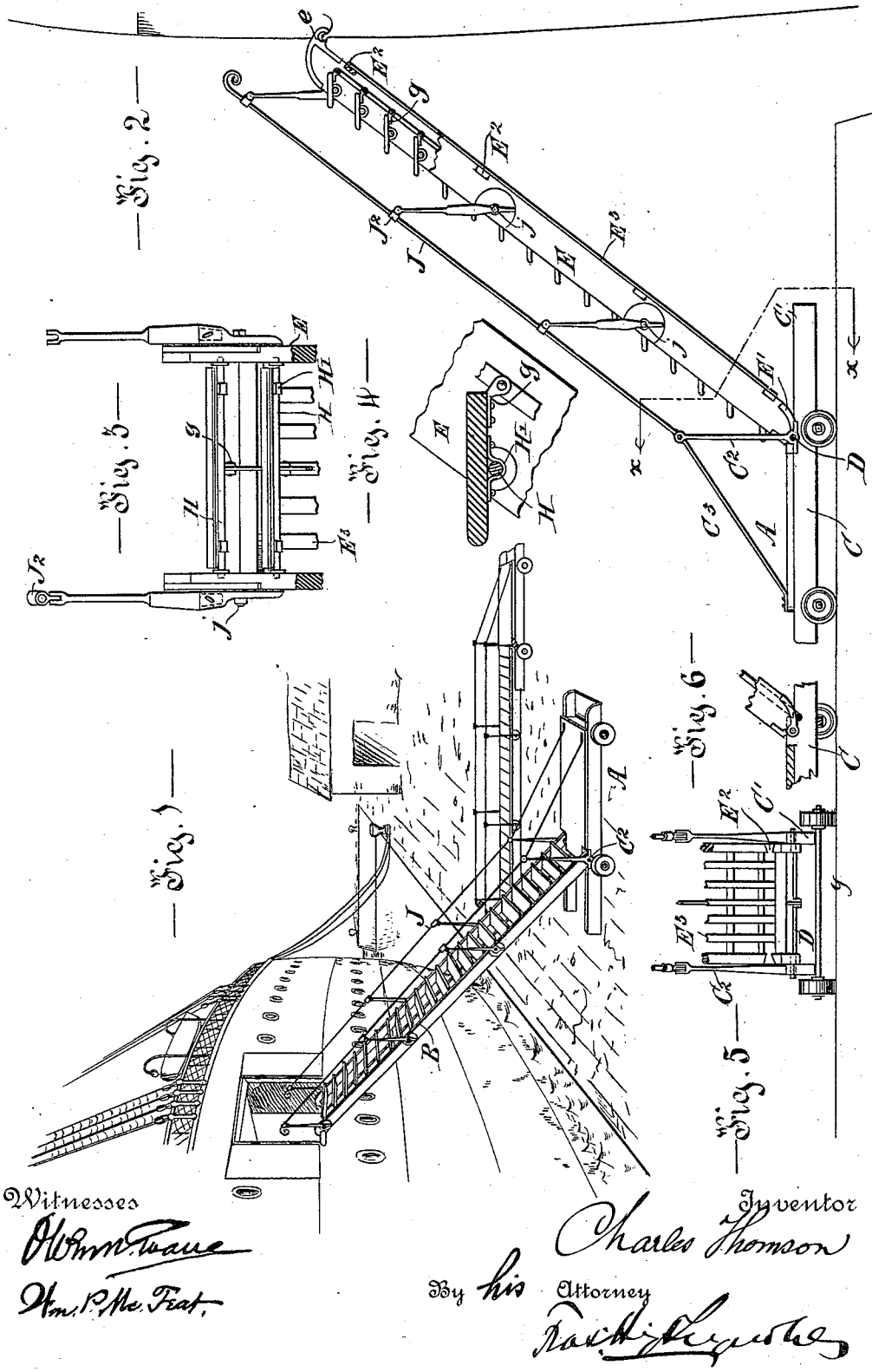
(No Model.) 2 Sheets—Sheet 1.

C. THOMSON.

PASSENGER GANGWAY AND SHIP'S LADDER.

No. 427,378. Patented May 6, 1890.



Witnesses
H. Wm. Towne
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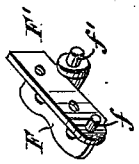
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C. THOMSON.

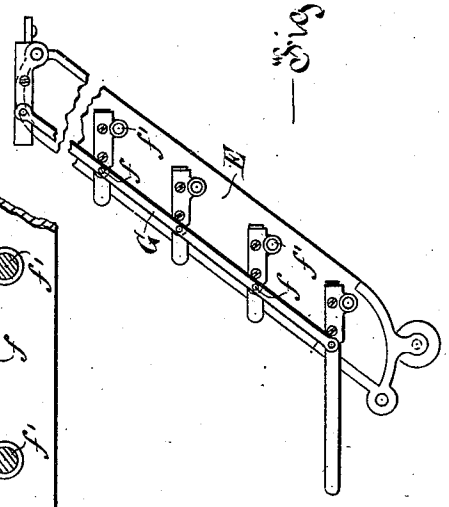
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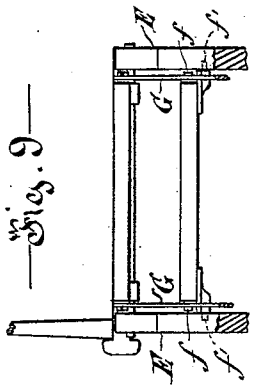
—Fig. 10.—



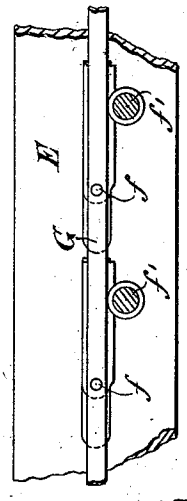
—Fig. 8.—



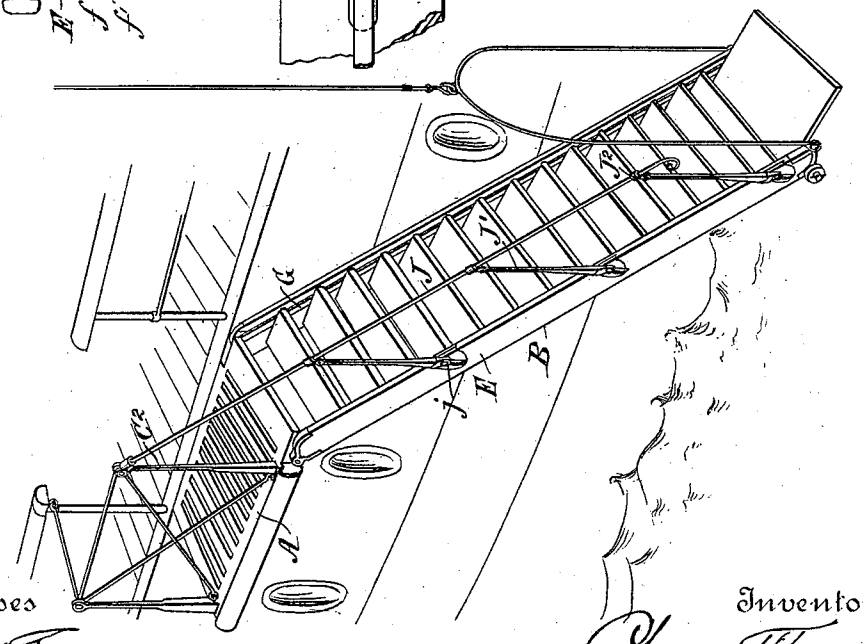
—Fig. 9.—



—Fig. 11.—



—Fig. 7.—



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES THOMSON, OF MONTREAL, QUEBEC, CANADA.

PASSENGER-GANGWAY AND SHIP'S LADDER.

SPECIFICATION forming part of Letters Patent No. 427,378, dated May 6, 1890.

Application filed February 10, 1890. Serial No. 339,912. (No model.)

To all whom it may concern:

Be it known that I, CHARLES THOMSON, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Passenger-Gangways and Ships' Companion Ladders; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to that class of gangways having treads which remain in a horizontal position notwithstanding the various angles of inclination the frames carrying them may assume, and has for its object to considerably simplify and improve the construction and to avoid the necessity of using iron for the side frames or any ropes or tackling to secure such gangways to the ship, the several improvements being also combined with mechanism whereby the steps of a companion ladder are similarly confined to a level plane. For full comprehension, however, of the invention reference must be had to the annexed drawings, in which—

Figure 1 is a perspective view showing two gangways embodying my invention, one being in position to connect the wharf with a ship and the other out of use. Fig. 2 is a side elevation, partly broken away, of the gangway in use; Fig. 3, a front view of the top portion or ship end of same; Fig. 4, a detail cross-section of one of the treads of same. Fig. 5 is a cross-sectional elevation taken on the line *x x*, Fig. 2; and Fig. 6 is a detail showing point of connection between the variable and invariable portions of the gangway. Fig. 7 is a perspective view of a companion ladder embodying my invention. Fig. 8 is a longitudinal section of portions of same showing frame of ladder at an angle of inclination and treads in a horizontal position. Fig. 9 is a front view of upper end portion of such ladder; Fig. 10, a detail of metal shoes with which treads are provided, and Fig. 11 a section showing position of treads when the ladder is placed in a horizontal position.

Like symbols indicate corresponding parts.

A is the wheeled platform of the gangway located on the wharf, and in the case of the companion ladder the same letter indicates the usual platform on the ship from which such ladders extend. The portion B of gangway and ladder is in each case a wooden frame-work carrying the treads and hand-rails.

On each longitudinal C (extended as shown at C′, for a purpose to be hereinafter described) of the horizontal wheeled platform and at its forward end a vertical standard C^2 is mounted, having a journal for the end of a shaft D extending from side to side of the platform, and a pivoted connection is formed between such platform and the frame carrying the treads by means of such shaft or spindle passing through eyes in metal shoes E′ on the ends of the longitudinals or side pieces E of such frame. These side pieces or string-boards, which are of any desired length and terminate in metal claw-pieces *e* to fit any convenient coaming on the ship, as shown in Fig. 2, are connected together by cross-bars E^2, whose ends are preferably dovetailed into the lower edges of the side pieces, while parallel with these latter and secured to such bars are slats E^3, which serve to form the whole into a compact and rigid frame.

The claw-pieces *e*, while serving to hold the gangway securely to the ship, allow it to adjust itself to the several angles of inclination required.

I have illustrated two methods of arranging the treads in the frame just described, although the one shown in Figs. 8, 9, and 10 is the most suitable where the frame is used considerably in horizontal positions, and I will describe it first.

Fig. 10 shows the form of a metal shoe adapted to be secured at the ends of the tread-boards. This consists of a right-angled plate, one section F of which extends beneath the board, and the other F′ along the side of same, holes being provided for screws to fasten it in place. The shoe is cast with pivot-pins *f f′*, projecting, respectively, outward from a central position in the side face of the section F′ near one end, and from the side face of a boss or knuckle at the opposite end, and lower than the bottom edge of such side section. Suitable recesses are formed in the inside faces of the string-boards E in

lines near their lower edges, and metal eyes are fixed in place in such recesses to form bearings for the pivot-pins f', which, when the shoes are in place on the ends of the tread-boards, project from a point beneath such boards and near the rear edge of same.

As shown in Figs. 8 and 9, the pins f are situated at the end of the shoe near the front of the tread, and they do not project far enough to touch the string-boards E, but only sufficient to pass through eyes in metal rods G, extending between such string-boards and the ends of the tread from the fixed platform to the lowest step, and being pivotally connected to such platform and all the treads through such pins. The advantages of this method are a support at both rear and front edges of the tread, so that there is no possibility of wabbling, and a support for the rods G by the several bosses from which the pins f' project.

The construction shown in Figs. 2, 3, and 4 consists of a round bar H, with its ends let into recesses in the string-boards and carrying the treads, which are held centrally in place on same by suitable straps H′ or other means, a rod similar to G extending from the wheeled platform, and behind each tread to the top one, and being pivotally secured to forked lugs g, projecting from such platform and all the treads. It will be seen that the arrangement of the rods G below the level of the treads and within the frame will prevent chances of bending or dislodgment of the pivotal connections. The hand-rails J consist of metal rods extending the full length of the tread-frame, being pivoted at one end directly to the heads of the standards C^2, and connected with the vertical supports J′ by means of sleeves J^2 fitted on them, and which have projecting lugs pivoted to the heads of such supports. These supports J′ correspond to the height of the standards C^2, which is selected as being most convenient to the reach when the gangway is flat, as shown in Fig. 1, and are pivoted at j toward their lower ends on the outside of the string-boards, as shown in Figs. 2 and 3, so that as the tread-frame rises upward from a horizontal position the rails and frame will come closer together, thus always keeping the rails conveniently in front of the passenger. The standards C^2 are suitably trussed by rods C^3.

The reason for extending the longitudinals of the wheeled platform, as shown at C′, is that in the event of the vessel rising to an excessive height, and being more than the ordinary distance from the wharf, the ends of the longitudinals will come in contact with its side and so keep the platform extended horizontally to bridge the space.

I prefer to construct the hand-rail supports, as shown clearly in Fig. 3, in two parts, so that the upper portions with the rails can be removed, if desired.

What I claim is as follows—

1. In a passenger-gangway, the combination of a wheeled platform, a frame pivoted to same, treads pivotally carried by such frame, means for keeping such treads in a horizontal position, a fixed standard carried by such platform in line with the pivot-point of same with frame, pivoted standards carried by said frame, hand-rails, sleeves, and pivotal connections between them and said standards, and a brace-rod connected with the head of said fixed standard and the platform, as shown and described.

2. In a passenger-gangway, the combination of a wheeled platform, a frame pivoted to same, treads pivotally-carried by such frame, rods extending the full length of such frame between its sides and the ends of said treads, and means for pivotally connecting such rod or rods with said platform and each of said treads, for the purpose set forth.

3. In a passenger-gangway having a wheeled platform and a frame pivoted to same and adapted to connect at one end with the ship, horizontal arms extending beyond the inner wheel-supports of said platform and adapted to come in contact with the side of the ship in the event of excessive rising of same, for the purpose set forth.

4. In a companion ladder, the combination, with a fixed platform, of a movable frame pivoted thereto, treads pivotally carried by such frame, rods extending the full length of such frame between its sides and the ends of said treads, and means for pivotally connecting such rod or rods with said platform and each of said treads, for the purpose set forth.

5. In a passenger-gangway, the combination, with string-boards and treads and with rods extending between such boards and the ends of the treads, of a pivot between such rods and the treads near their front edges, and pivotal connections between such treads and the string-boards having a bearing-surface for the under sides of such rods when the gangway is in a horizontal position, as shown and described.

6. In a passenger-gangway or companion ladder, the combination, with the string-boards of the tread-frame, with a platform the plane of which is always substantially horizontal, to which such frame is pivoted, and with rods also pivoted to such platform, of adjustable tread-boards directly pivoted at their ends and toward their rear and front edges, respectively, to said step-frame and said rods in different planes, for the purposes set forth.

7. In a passenger-gangway, the combination, with a platform, string-boards, and treads, of pivotal connections between said treads and string-boards, located centrally of the transverse width of such treads, one or more rods extending beneath said treads, and pivotal connections between such rod or rods, each of said treads, and said platform, as shown and described.

8. In passenger-gangways and ships' companion ladders having platforms to which

movable frames carrying the steps are pivoted, the combination, respectively, with such platforms and movable frames, of a fixed standard or standards and pivoted standards and a hand rail or rails connected with same so as to be automatically adjusted in distance to and from said movable frames, for the purpose set forth.

9. In a passenger-gangway, the combination, with the string-boards, of metal claw-pieces *e*, having spurs *e'*, arranged at the outer ends of said string-boards, for the purpose set forth.

Montreal, 3rd day of February, 1890.

CHARLES THOMSON.

In presence of—

OWEN N. EVANS,

WM. P. MCFEAT.