G. E. TITCOMB.

APPARATUS FOR FREIGHT TRANSFERENCE.

APPLICATION FILED APR. 24, 1920.

1,373,464.

Patented Apr. 5, 1921.

2 SHEETS—SHEET 1.

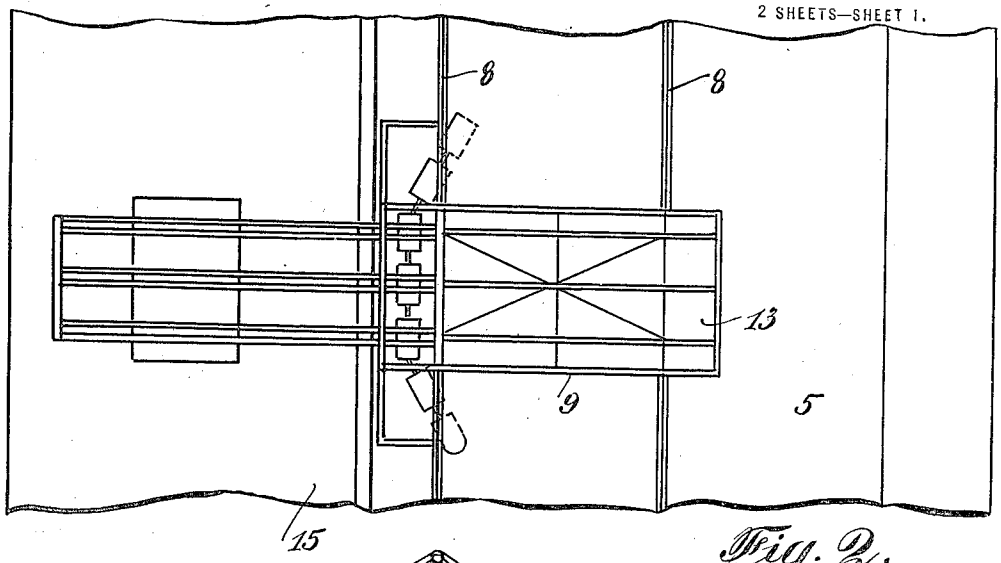



Fig. 2.

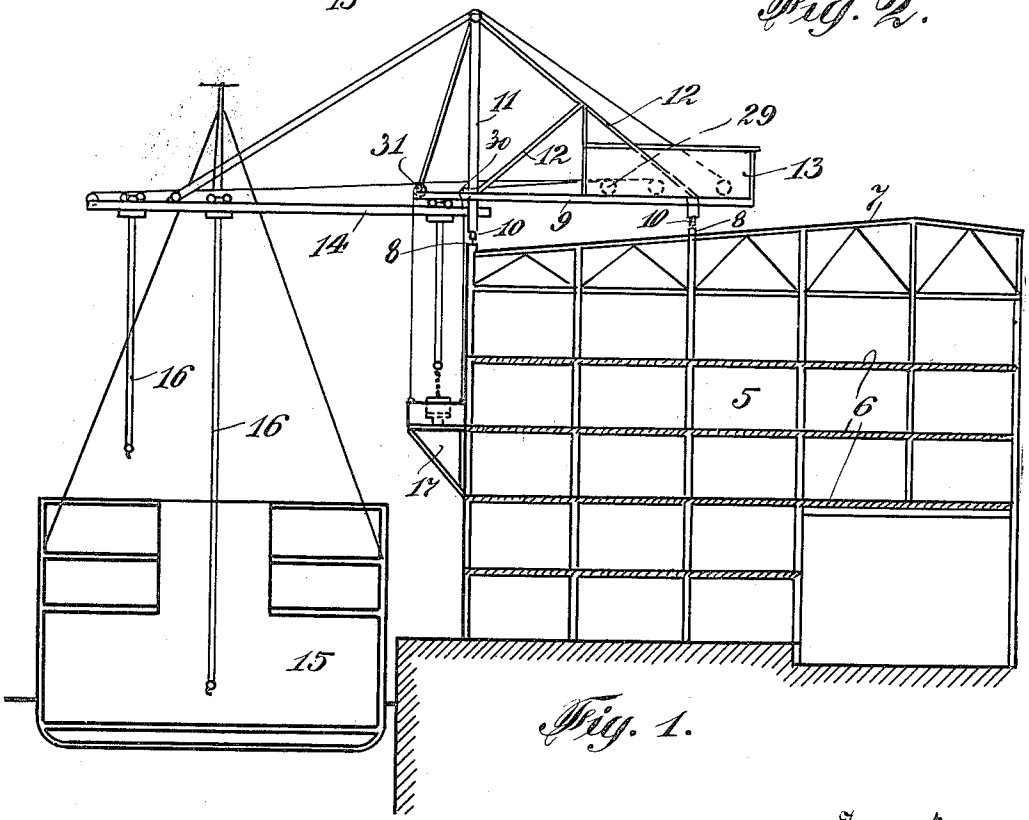



Fig. 1.

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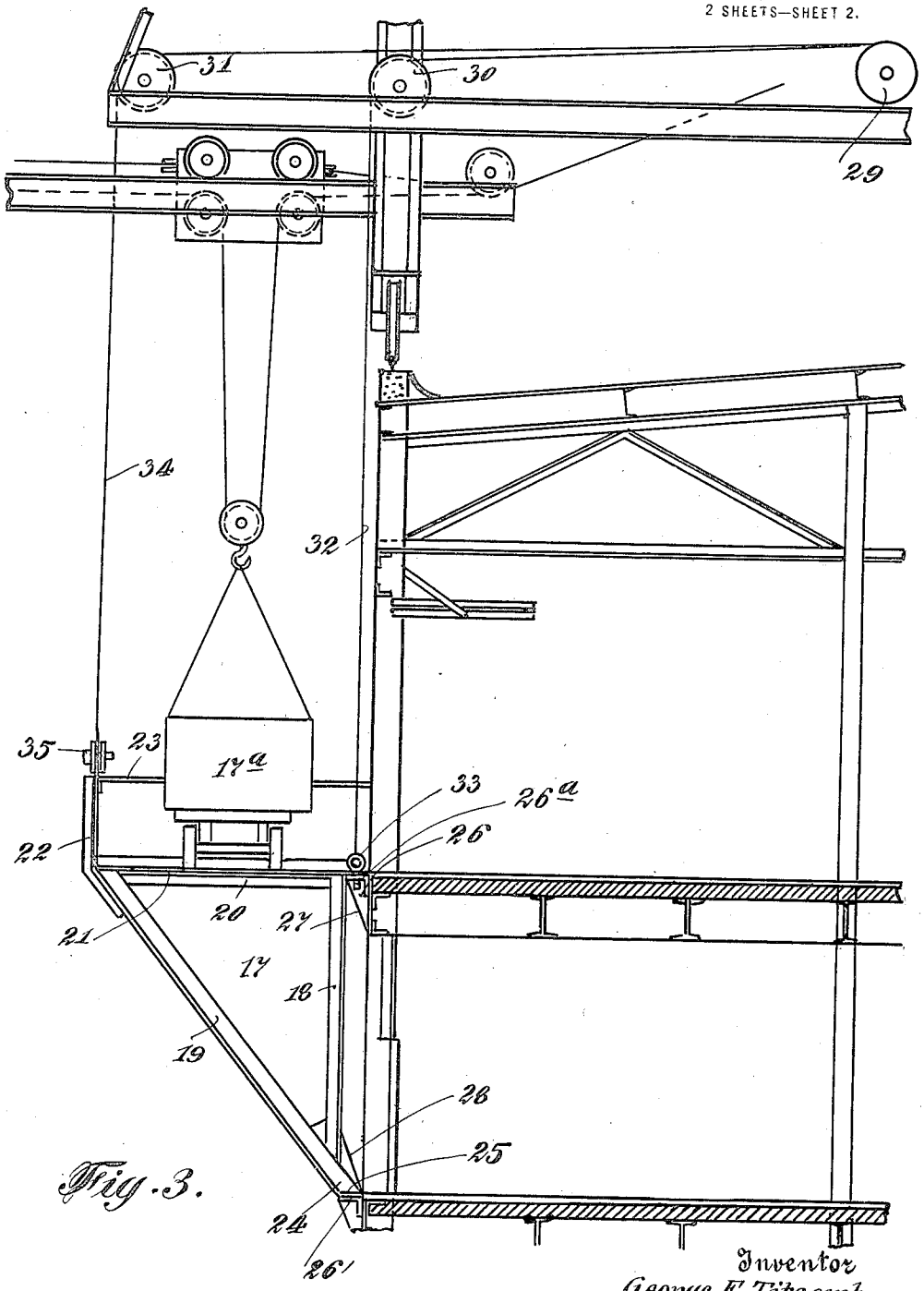



Fig. 3.

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# UNITED STATES PATENT OFFICE.

GEORGE E. TITCOMB, OF BROOKLYN, NEW YORK.

## APPARATUS FOR FREIGHT TRANSFERENCE.

1,373,464. Specification of Letters Patent. Patented Apr. 5, 1921.

Application filed April 24, 1920. Serial No. 376,221.

*To all whom it may concern:*

Be it known that I, GEORGE E. TITCOMB, a citizen of the United States, and resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Apparatus for Freight Transference, of which the following is a specification.

This invention relates to the removal of freight from floating vessels or railroad cars and its delivery to the various floors of a suitable transit shed or warehouse, or the removal of freight from the various floors of the transit shed or warehouse and its delivery to the hold of vessels or to railroad cars.

The object of this invention is the provision of a detachable extension of the warehouse floor for the receipt or delivery of freight. This extension is moved along the pier line to suit the delivery point of the freight and is raised or lowered from one floor to another. A traveling tower or crane forms another feature of this invention and is provided with hoisting and conveying machinery for hoisting the load from the vessel and conveying it to the warehouse, or for lowering the load taken from the warehouse into the hatchways of a ship and for transferring the detachable extension of the building floor. The tower is moved along the pier line on suitable tracks so that its booms coincide with the hatchway of a vessel located alongside the pier.

A transit shed or warehouse forms another feature of the invention and is provided with one or more storage floors. The side walls have a series of doors for each floor for the reception or discharge of freight and the framework of the warehouse provided with connections for securing the detachable extension of the warehouse floor.

In shipping terminals heretofore known for this same general purpose an extension of the warehouse floor has been obtained by stepping back each floor sufficiently to permit the landing of freight for delivery to the warehouse or vessel. This results in a large reduction in the area of the various floors of the shed.

The accompanying drawings illustrate the invention in one of its forms, in which—

Figure 1 is partly in an elevation and partly in section, showing a portion of a warehouse, a crane, a detachable extension of the warehouse floor, and a vessel adjacent thereto.

Fig. 2 is a diagrammatic top plan view, exhibiting one use of my invention, wherein a string of warehouse cars are loading upon the movable floor extension; and

Fig. 3 is a broken detail view, partly in elevation and partly in section.

Referring to the drawings in detail, 5 represents a storage warehouse, located contiguous to a body of water, and having a plurality of floors 6. Upon the roof 7 are rails 8 providing a trackway for a traveling crane 9 mounted upon wheels 10. The crane is provided with a vertical frame 11, supported by struts 12 and weighted at its inner end by the power house 13. A horizontal arm 14 is shown in Fig. 1, in operative position over the hull of a vessel 15, and having the usual fall lines 16 for handling the loads.

The movable floor extension is preferably a right-angled triangle in cross section, and is shown in whole at 17, supporting a car 17ª. It comprises the upright portion 18, inclined side 19, and top 20. Preferably it is made up of a series of interlaced girders, arranged to form a truss, supporting a floor 21, and may be provided with sides and ends as at 22, 23, respectively, to prevent cars from rolling off the same. The inclined side portion 19 has a lower extension 24, with a horizontal flat face, upon its under side, as at 25, and which is intended to coöperate with and rest upon the brackets to be described. The brackets referred to are shown in Fig. 3 at 26, each of them having a horizontal flat face on its upper end, as at 26′ arranged in the same plane as the floor of the building, and having an outer inclined portion 27, the latter being intended to cooperate with the inclined guide 28 on the lower portion of the movable floor extension, so that in passing over the brackets 26 the movable floor extension will be forced outwardly until the lower end completely passes over the same, when it will swing inwardly and may be made to rest on the top of the bracket, and locked to the building by pin 26ª passing through suitable openings in the floor 21 and bracket 26. Therefore, the

height of the floor extension will be such that when the lower end rests upon these brackets, the floor of the extension 17 will be in the plane of next upper floor of the warehouse building.

The elements of the crane essential to the operation of the floor extension 17 are the drum 29 and sheaves 30, 31, the former carrying the line 32 connected to the floor extension at 33, and the latter carrying the line 34 connected to the floor extension at 35.

The floor extension 17 is raised from floor to floor of the warehouse by operating the drum 29 to take in lines 32 and 34 equally, but in lowering the same from floor to floor, the line 34 will be taken in relatively to line 32 in order to cause the lower end of the floor extension to move outwardly and clear the brackets 26, and will be held in this position if it is desired to pass over several brackets. Before the floor is reached where it is desired to rest the floor extension, line 34 will be paid out relatively to line 32 so as to permit the lower end of the floor extension to reach its place on the desired bracket.

What I claim is:

1. The combination with a building having a plurality of floors, of freight-handling devices comprising a movable floor-extension and power-operated means for delivering loads thereto and for moving the same horizontally and vertically along the walls of the building.

2. The combination with a building having a plurality of floors, of freight-handling devices comprising a movable floor-extension, power-operated means for delivering loads to the extension and for moving the latter horizontally and vertically along the walls of the building, and means on said extension coöperating with means on the building for swinging the extension on its upward movement first outwardly and then inwardly into alinement with one of the floors and holding it supportingly against downward movement.

3. The combination with a building having a plurality of floors, of freight-handling devices comprising a movable floor-extension and a traveling crane for delivering loads thereto and for moving the same horizontally and vertically along the walls of the building.

4. The combination with a building having a plurality of floors and a trackway at the top thereof, of a movable floor-extension adapted to be held in the plane of any of said floors, and a crane mounted on said trackway for delivering loads to the floor-extension and for moving the latter vertically and horizontally along the walls of the building.

5. The combination with a building having a plurality of floors, of a movable floor-extension, power-operated means for delivering loads to the extension and for moving the latter horizontally and vertically along the walls of the building, a series of brackets located on the wall of the building, and means on the brackets and on the floor-extension coöperating with each other for swinging the extension on its upward movement first outwardly and then inwardly into alinement with one of the floors and holding it supportingly against downward movement.

6. The combination with a building having a plurality of floors, of a movable floor-extension, power-operated means for delivering loads to the extension and for moving the latter horizontally and vertically along the walls of the building, a series of brackets on the wall of the building, means on the brackets and on the floor-extension coöperating with each other for swinging the extension on its upward movement first outwardly and then inwardly into alinement with one of the floors and holding it supportingly against downward movement, and means for locking said extension in position on the brackets.

7. The combination with a building having a plurality of floors, of a movable floor extension, power devices coöperating therewith to move the floor extension from floor to floor of the building and longitudinally of the same, brackets adapted to form rests for the floor extension, and means for locking said extension to its position on the brackets.

GEORGE E. TITCOMB.