

E. W. TAYLOR.
 MEANS FOR HANDLING FREIGHT IN STORAGE BUILDINGS.
 APPLICATION FILED AUG. 3, 1911.

1,008,218.

Patented Nov. 7, 1911.
 3 SHEETS—SHEET 1.

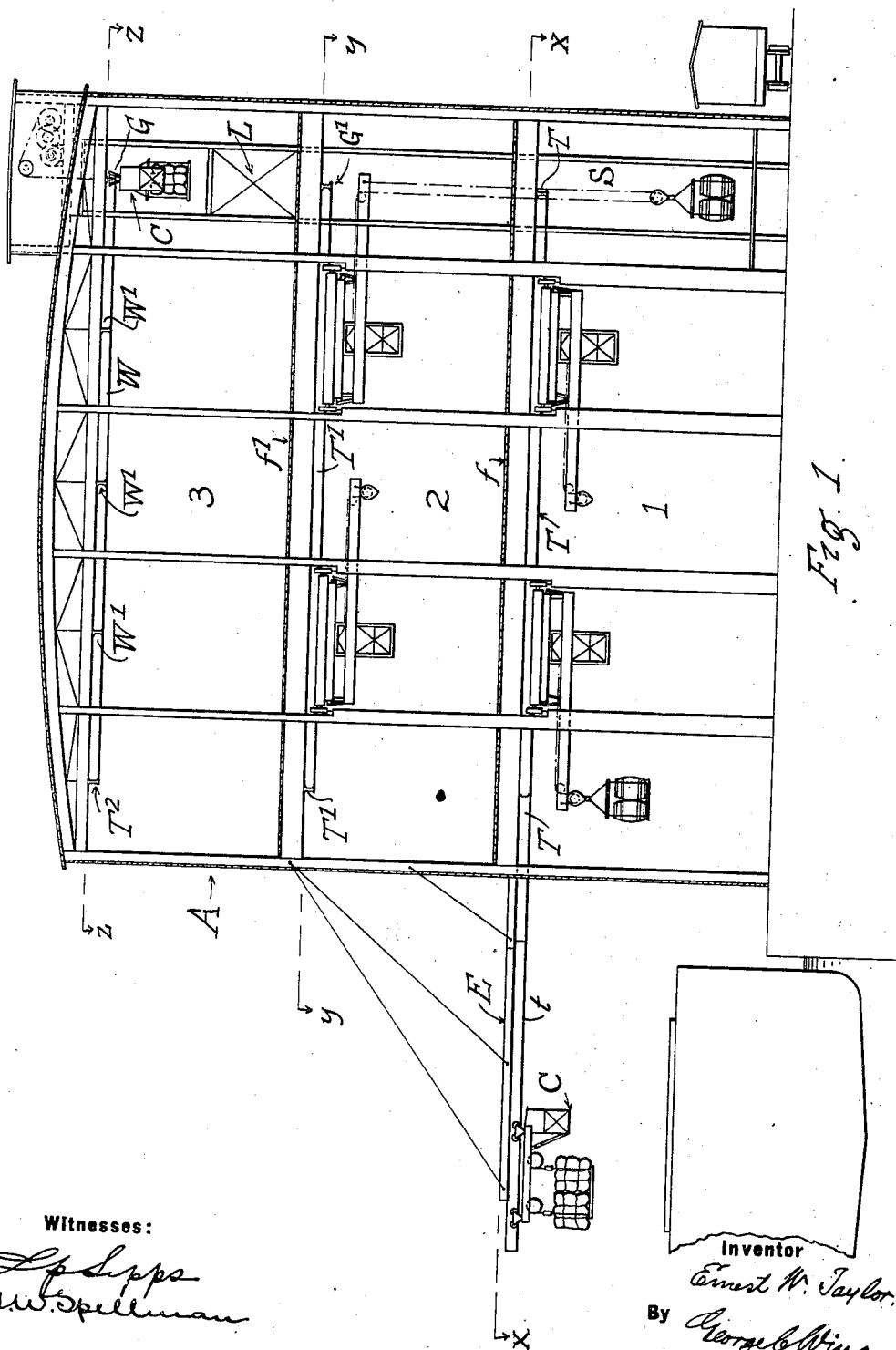


Fig. 1.

Witnesses:

L. J. Supps
G. W. Spellman

Inventor

Ernest W. Taylor

By

George C. Wing
 his Attorney.

E. W. TAYLOR.
 MEANS FOR HANDLING FREIGHT IN STORAGE BUILDINGS.
 APPLICATION FILED AUG. 3, 1911.

1,008,218.

Patented Nov. 7, 1911.

3 SHEETS—SHEET 3.

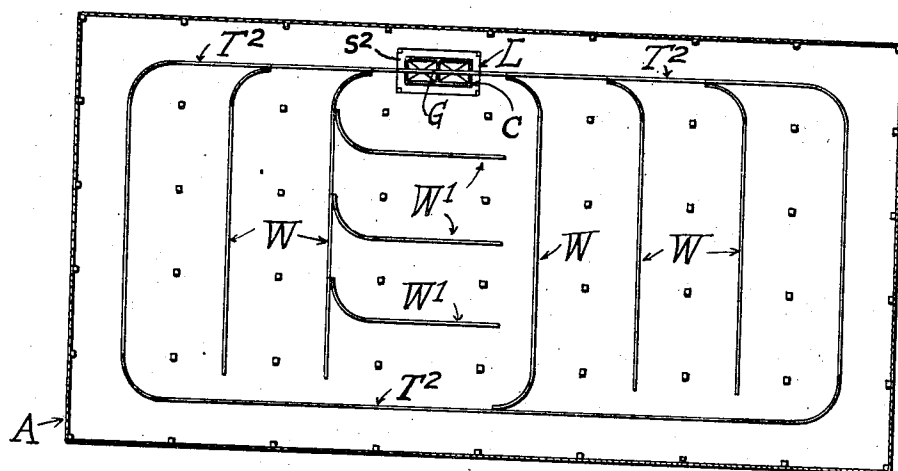


Fig. 4

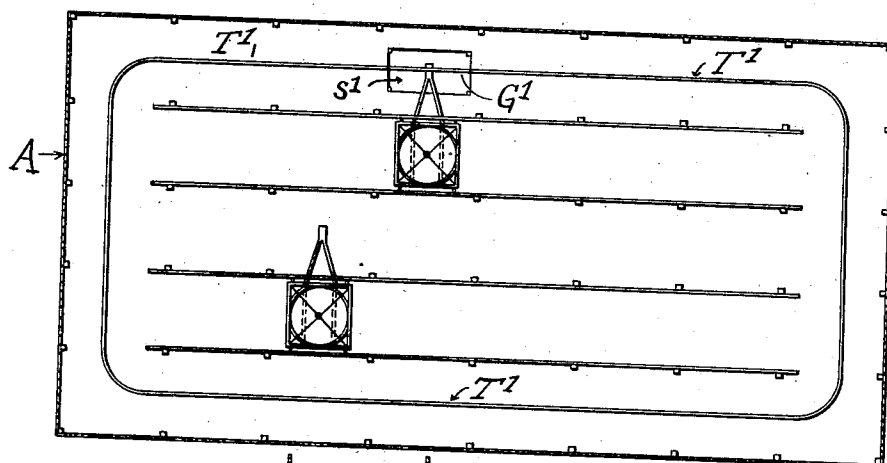


Fig. 3.

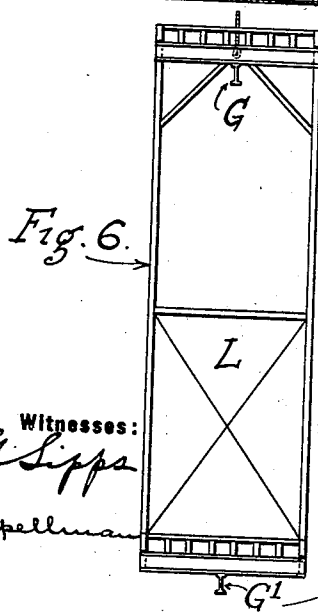


Fig. 6.

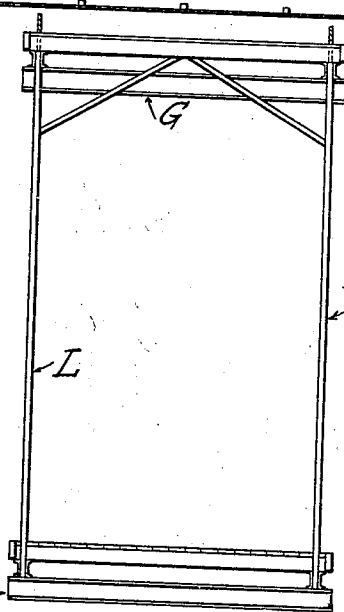


Fig. 5.

Witnesses:
L. J. Lipps
G. W. Spellman

Inventor
Ernest W. Taylor
 By *George A. Wing*
 his Attorney

UNITED STATES PATENT OFFICE.

ERNEST W. TAYLOR, OF CLEVELAND, OHIO, ASSIGNOR TO THE BROWN HOISTING MACHINERY COMPANY, OF CLEVELAND, OHIO.

MEANS FOR HANDLING FREIGHT IN STORAGE-BUILDINGS.

1,008,218.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed August 3, 1911. Serial No. 642,209.

To all whom it may concern:

Be it known that I, ERNEST W. TAYLOR, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Means for Handling Freight in Storage-Buildings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of the specification, wherein similar parts are designated by similar letters in each case.

The invention is directed to the arranging of a coördinating system of freight-handling in and with respect to a storage-building of large capacity, which said system shall readily serve the several floors of the structure, without regard to the particular number or height of the same from the point, or, story, at which the freight enters or is carried away from the building.

The arrangement involves a permanent warehouse structure of two or more stories or floors, an overhead tramway system tributary thereto that essentially includes, as a part of the same, segmental tracks within trolley-hoisting elevators, and cranes that are adapted to travel throughout said track-system and when desired, be brought thereby into position to operate through the elevator shaft that extends between the several floors.

In the drawings, Figure 1 is a cross-sectional view of a warehouse arranged to handle freight according to the ideas herein-after explained, the view being taken in the direction of the arrow through the dotted line *w w* in Fig. 2. Fig. 2 is a broken sectional plan view on the line *x x* of Fig. 1 in the direction of the arrow. Fig. 3 is a like view on the line *y y* in Fig. 1. Fig. 4 is such a view, on the line *z z* in Fig. 1. Fig. 5 is a side view of an elevator used in the system with segmental sections of rails transversely within the same at the top, and at the under side of the floor, and Fig. 6 is an end view thereof.

A represents said warehouse, which is located close to and along the dock-front in convenient relation thereto to receive and discharge cargoes. The building is divided into three stories, numbered 1, 2, and 3, by the floors *f*, *f*¹, which, in a particular adaptation of the invention, above the first or ground floor, should be of the same height,

and equidistant from each other. At the front, or dock-side of the warehouse, extending downwardly from the floor *f* above, are open spaces or doorways *d* and *d*¹, through which freight may be introduced or carried away, and, projecting respectively from said doorways near the top of the same, are hinged cantalivers or aprons *E* and *E*¹, suitably connected to the building and to actuating mechanism and power, to be raised and lowered, as occasion demands, above the vessels the apparatus in question is to serve, and to be retracted in an upright position to or within the dock-front, when the apparatus is idle. At the side of the warehouse opposite to said doorways, and extending through the several floors to the top, is an elevator shaft *S* provided with a freight-car or lift *L*. The car is adapted to admit conveyers and loads to enter or leave at the sides, and, is shown as of the same height as the distance between the tops of any two adjoining stories.

An overhead service-track or tramrail *T* is suspended within the entrance story 1, to and beneath the supports of the floor *f* of the next story above. Said track is preferably an I beam from and upon whose lower flanges the trolley or freight-carrier is to be suspended and run. It extends from the inner end of the apron *E*, at the doorway *d*, around the interior of story 1, and at a suitable distance therefrom to have its circuit interrupted by the hatchways of the elevator-shaft *S*. In alinement with this track at its terminals at the doorways *d* and *d*¹, corresponding extension tracks *t* and *t*¹ are hung beneath and from one end to the other of the aprons *E* and *E*¹, and, cross-wise of the elevator car *L*, through the upper part of its interior, a segmental or traverse-piece or track *G*, corresponding in character with the track *T*, is located. A similar traverse-piece *G*¹, is affixed in the same relative location, to and beneath said car, and, at or near the ceiling of the remaining stories 2 and 3, tramrails *T*¹ and *T*², of the same design and relative location as *T* extend respectively from the opposite sides of the elevator's hatchways *s*¹ and *s*², continuously around said floors. For the purpose of traversing these several tramrail-circuits and said extensions and carrying freight along the same, one or more electric man-trolleys *C*, may be suspended by their

wheels from the flanges thereof, in the usual manner, and, their loads being hoisted for instance from a barge beneath the extensions E and E¹, the same may be quickly
 5 carried into and around to any point for lowering beneath the overhead track T. Should but one trolley be used on the track, the entire cycle may be made without pause by simply bringing the elevator-car L into
 10 such position that either the upper or the lower of the traverse-pieces G or G¹ is in alinement with said track T, and bridges over, for the time being, the portion thereof interrupted by the hatchway s. Should it
 15 be desired, however, to place or obtain a load at any point within the runway system in the stories above, the trolley being thus run on to the lift L may, instead, be elevated thereby until the segmental piece G
 20 or G¹, from which it hangs, registers or is in alinement with the tramrail T¹ or T², as the case may be, that serves the desired floor, whereupon the trolley may be instantly run off along the track to its destination. The reverse or return movement of
 25 the trolley, either with or without a load, is of course similarly made.

When the elevator is held midway between any two floors it is manifest that the
 30 segmental-pieces G and G¹ will each be in alinement with a service-rail, and the trolley-circuits in the two stories be then uninterrupted throughout their length.

A series of switches or siding W, W, (Fig.
 35 4) may lead off from the main-service tracks at definite intervals, and secondary or sub-switches or sidings W¹, W¹, again lead off from these so that a runway system can thus be laid out, wherein, by reason of the co-
 40 action of the elevator and its segmental track explained, a trolley, with equal facility, can serve any floor of a warehouse and any predetermined storage place on such floor. As further adjunctive and sup-
 45 plemental to the general system explained, and in lieu of said secondary switches, a series of overhead boom cranes may be installed within operative reach of the main-service tracks T, T¹ and T²,—as indicated
 50 particularly in Figs. 2 and 3. In such case the location and number of their tracks upon which the cranes travel will, of course, be determined, with relation to the main-service tracks, by taking into account the
 55 radial capacity of the cranes themselves, and that capacity will be limited by the clearance the boom is to have from posts, archways or other interference or fixed structures in the range of its use. When
 60 cranes are thus arranged in connection with the trolley and elevator system described, it is manifest that those systems will so co-ordinate with said cranes that hoisting and lowering through the shaft of the elevator
 65 may be carried on at times as a subordinate

function and result of the general arrangement referred to.

Although in illustrating my invention I show an elevator car or freight lift as the movable support of the essential segmental
 70 pieces G and G¹, it is plain that the system could be put into practice without such a car, inasmuch as the place of the same could be supplied by a mere platform or framework whose chief or only function would be
 75 to hold said pieces in their transverse relation to the shaft and enable them to be raised and lowered therein.

What I claim and wish to secure by Letters-Patent is:—

1. In a warehouse, or similar structure, having a series of storage-floors, the combination of a tramrail-circuit above said
 80 floors, a trolley movably suspended from said tramrail, an elevator-shaft extending through said floors intermediately of and
 85 interrupting said circuits at such points, a segmental tramrail suitably arranged within said shaft to be brought into alinement with said tramrail across said shaft, and allow
 90 the trolley to run on to the same, together with suitable means for raising and lowering said segmental tramrail within said shaft when said trolley is thereon, as afore-
 95 said, substantially as shown and described.

2. In a warehouse, or similar structure, having a series of storage floors, the combination of an overhead trolley-system above
 100 said floors, an elevator-system passing through the same, and interrupting the tramrail circuit of said trolley-system at such points, the car of said elevator-system being open at the sides and having a trans-
 105 verse segmental rail suitably arranged to be brought into alinement with and bridge over the interrupted portion of said circuit at said points when said car is moved within the elevator-shaft for the purpose, substantially as shown and described.

3. The combination, with a warehouse or
 110 similar structure, having two or more stories, of a tramway-system comprising an overhead service-rail extending throughout said floors, a trolley-carrier movably suspended therefrom, an elevator system, extending through said floors and interrupt-
 115 ing said service-rail at said floors and having an overhead segmental-rail transversely of its car and suitably located to fit in the interrupted spaces in said service-rail and
 120 register therein with said rail when said car is moved vertically to a position between any two floors of said structure for the purpose, together with an extension apron at an entrance or door-space in said structure,
 125 provided for the purpose, with a continuation thereon of said service-rail, substantially as shown and described.

4. In combination, a storage-building, comprising two or more floors, having an
 130

opening for the admission of freight in the side thereof, hatchways in vertical alinement with each other in said floors, overhead tramrails, extending around and above
5 said floors to opposite sides of said hatchways, a segmental tramrail suitably arranged within said building to be raised or lowered to a position cross-wise of said hatchways between said terminals of said
10 overhead tramrails at said sides, an apron carrying an extension of said tramrail at said openings, a trolley mounted thereon, and means for raising and lowering said segmental-piece, as aforesaid, and for traversing said trolley on said tramrails, substantially as shown and described. 15

ERNEST W. TAYLOR.

In presence of—

L. P. LIPPS,

G. W. SPELLMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."