Dec. 11, 1928. 1,694,515

W. H. NUTTING

LOWERVATOR

Filed Aug. 10, 1927

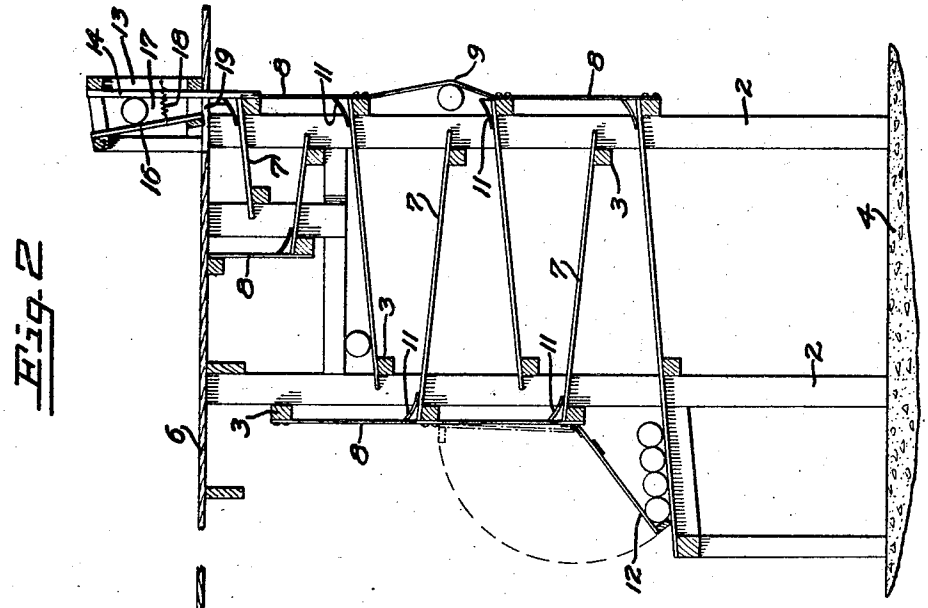


Fig. 2

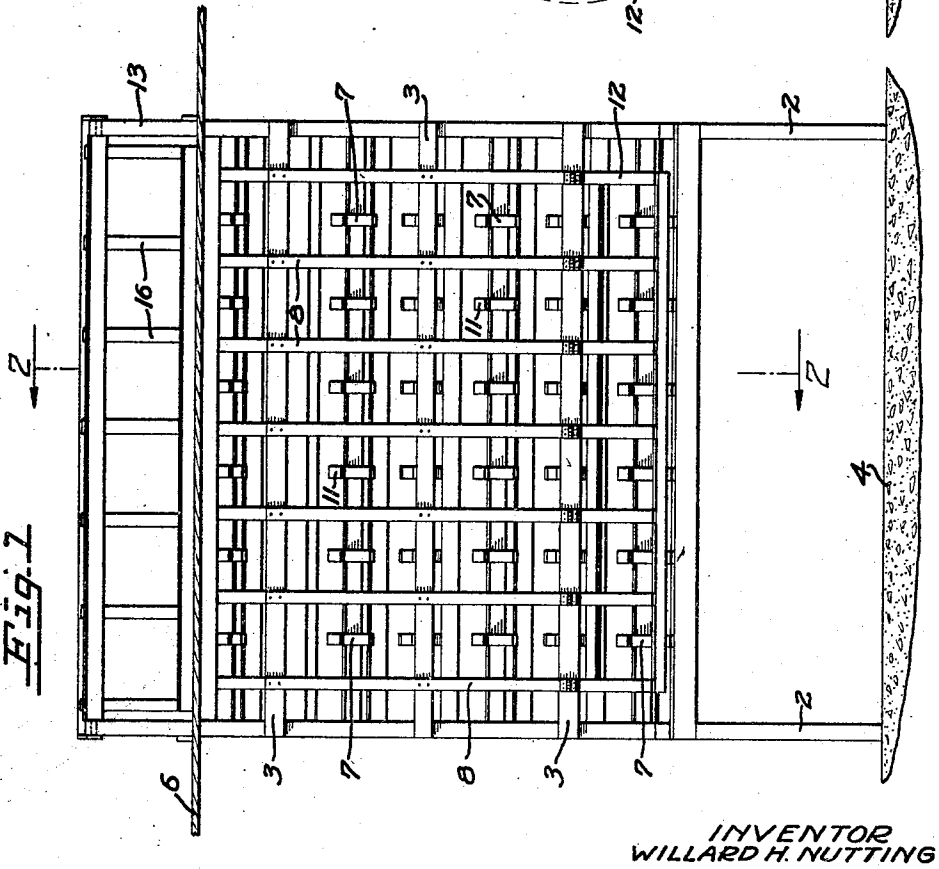


Fig. 1

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UNITED STATES PATENT OFFICE.

WILLARD H. NUTTING, OF OAKLAND, CALIFORNIA, ASSIGNOR TO THE PARAFFINE COMPANIES, INC., OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF DELAWARE.

LOWERVATOR.

Application filed August 10, 1927. Serial No. 211,993.

My invention relates to a lowervator for gravitally conducting articles from one level to another and the broad object of my invention is the provision of a lowervator which will resist the free falling of objects therethrough.

Another object of my invention is to provide a lowervator of the character described and including a vertical series of inclined guideways.

Another object of my invention is to provide a lowervator of the character described with a passage for gravitally conducting articles.

Another object of my invention is to provide a lowervator of the character described, with means for holding the articles in the bottom thereof.

Another object of my invention is to provide a lowervator of the character described, and including resilient means adjacent the lower ends of the guideways for resisting the force of gravity upon articles falling from one guideway to another.

Other objects of the invention together with the foregoing will be set forth in the following description of the preferred embodiment of means for practicing the invention, and which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said description and drawings, as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims.

Referring to the drawings:

Figure 1 is a front elevational view of the lowervator of my invention.

Figure 2 is a section taken on line 2—2 of Figure 1.

In industrial plants, it is often necessary to lower articles from one floor level to another without injuring them. A device which occupies comparatively little space, and which gravitally conducts the articles in such a manner as to resist the action of gravity thereon so as to prevent injury thereto is quite desirable.

In terms of broad inclusion, my invention comprises a frame on which are supported a vertical series of inclined guideways. The adjacent guideways of the series are sloped in opposite directions, so as to permit an article passing therethrough to follow a zig-zag path. Means are provided for resistingly passing the article to the upper guideway, and means are also provided, at the discharge end of each guideway, for breaking the fall of the article in its passage from one guideway to another. At the bottom, means are provided for holding the articles until it is desired to carry them away, and then the articles can be released and discharged into a truck or any other conveyor.

In greater detail, my invention comprises a frame which is preferably constructed of an open network of columns 2 and horizontal joists 3, and which is located between the lower floor 4, and upper floor 6 of a building. The joists 3 support a vertical series of inclined guideways 7 which are spaced from each other, and the adjacent ones slope in opposite directions. In order to permit the passage of an article from one guideway to another, the lower end of each guideway, except that of the bottom, is inwardly spaced from the upper end of an adjacent one.

Resilient means such as parallely spaced rubber or canvas flaps 8 are vertically fixed on the frame adjacent the lower ends of the guideways to resist and absorb the force of the fall of an article passing from one guideway to another, in a manner illustrated by the bent portion 9 of flap 8 in Fig. 2. If the lower edges of the guideways are all adjacent and near to one side of the frame, the flaps may be fastened to each joist 3 on that side, to which the inclines are adjacent. However, if the lower end of a guideway does not extend near to the side of the frame, as is shown by the upper guideway in Fig. 2, separate flaps are provided, and these are also fastened to similar joists within the frame. At the upper end of the guideways is fixed a curved plate 11 to prevent the object from being caught between the edge and the flap.

Means are provided for holding the conducted articles on the bottom guideway, until it is desired to discharge a number of them into a truck or any other conveyor to be carried away. A trap door 12 is hinged on that joist which is above the lower end of the bottom guideway. This guideway preferably projects out farther than the others, so that the door, when closed, can rest obliquely

thereon, and thereby hold the articles on the guideway until it is opened to permit them to fall therefrom. In the open position, the door is adapted to rest against the flaps on the side of the frame; so that if a workman should neglectfully forget to close it, the first article hitting the portion of the flaps adjacent the door will cause them to spring outwardly and push the door into closed position before the article falls to the bottom guideway. This will prevent the article from rolling upon the floor.

Means are provided for gravitally passing the articles to the lowervator. Upon the upper floor 6 is mounted a frame 13 comprising a stationary or fixed wall 14 and a hinged movable wall 16 to form a passageway 17. The bottom of the movable wall is yieldingly held toward the stationary wall 13 by means of resilient means such as a spring 18 in order to resist the action of gravity upon an article passing thru the passage. This causes it to fall, gently, thru a hole 19 in the floor 6, upon the upper guideway.

From the above it can be seen that when an article such as an elongated cylindrical carton is deposited in the passage formed by the walls 14 and 16, it will fall gently upon the upper guideway and be gravitally conducted along the guideways. As the article falls from one incline to another, the flaps 8 will absorb the force of the fall and at the same time tend to straighten the alinement of the carton, to cause it to roll evenly on the guideway to which it falls.

I claim:

1. In a lowervator, a frame, a vertical series of inclined guideways supported on said frame so that adjacent guideways slope in opposite directions, resilient means secured to the side of the frame terminating above the lower end of the bottom guideway and adjacent the upper end of the guideway above the bottom guideway, and a trap pivotally mounted adjacent the upper end of the guideway above the bottom guideway and adapted to rest on the bottom guideway in closed position and against the resilient means in open position.

2. In a lowervator, a frame, a vertical series of inclined guideways supported on said frame so that adjacent guideways slope in opposite directions, a rubber flap secured to the side of the frame terminating above the lower end of the bottom guideway and adjacent the upper end of the guideway above the bottom guideway, and a trap pivotally mounted adjacent the upper end of the guideway above the bottom guideway and adapted to rest on the bottom guideway in closed position and against the flap in open position.

In testimony whereof, I have hereunto set my hand.

WILLARD H. NUTTING.