

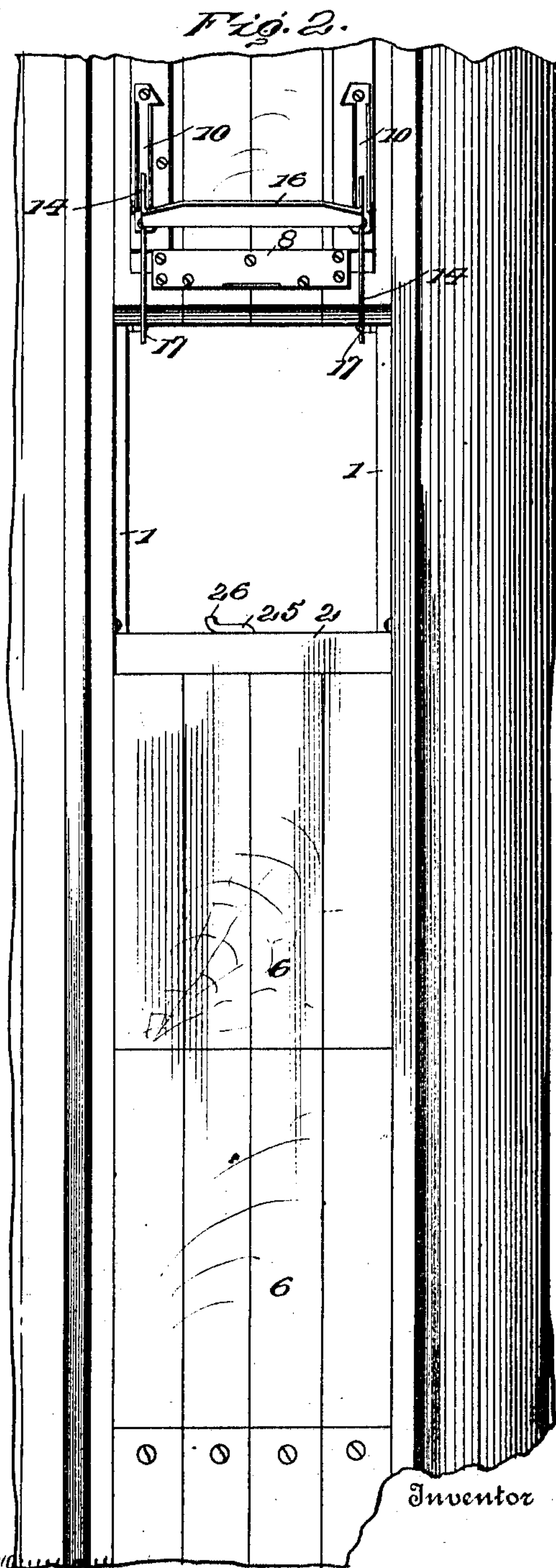
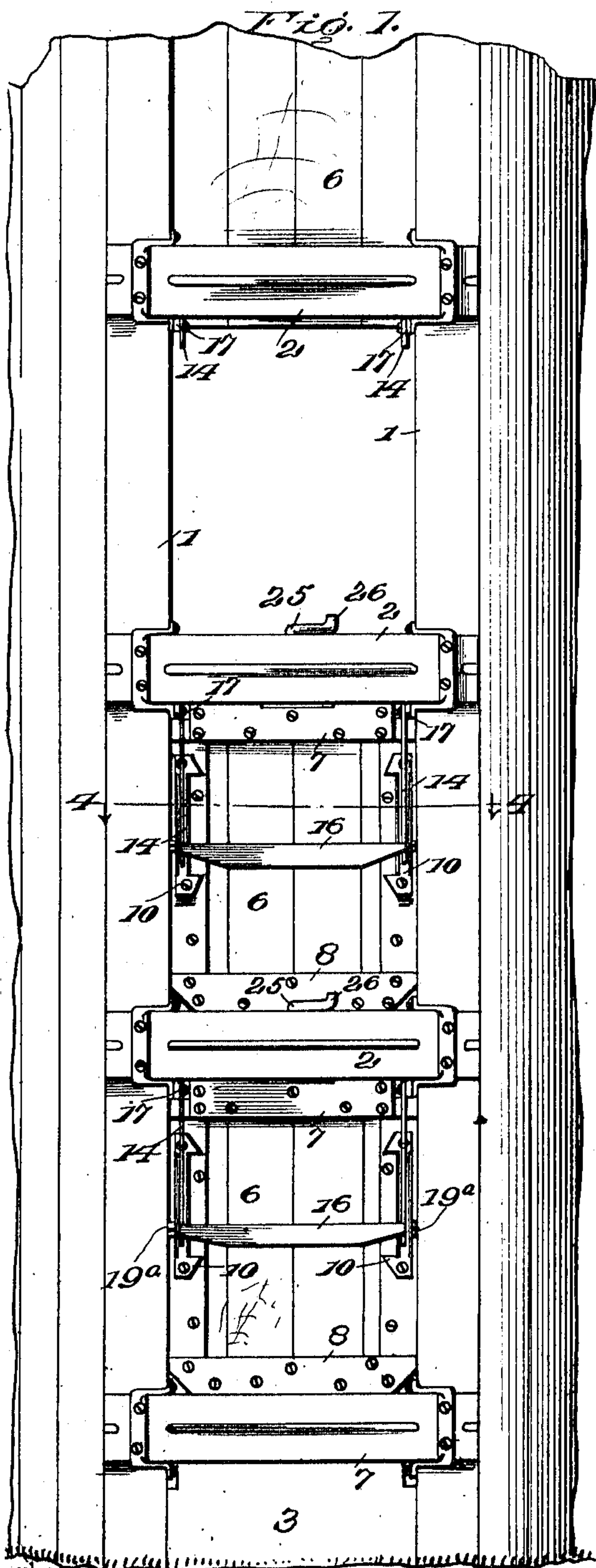
G. W. REESE.  
SILO DOOR.

APPLICATION FILED JAN. 20, 1911.

993,873.

Patented May 30, 1911.

2 SHEETS-SHEET 1.



Witnesses  
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2 SHEETS-SHEET 2.

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Fig. 3.

Fig. 3a

Fig. 4.

Fig. 5.

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# UNITED STATES PATENT OFFICE.

GEORGE W. REESE, OF IOWA CITY, IOWA.

SIL0-DOOR.

993,873.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed January 20, 1911. Serial No. 603,735.

*To all whom it may concern:*

Be it known that I, GEORGE W. REESE, of Iowa City, in the county of Johnson and State of Iowa, have invented certain new and useful Improvements in Silo-Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The primary object of this invention is to so construct and arrange the doors of a silo that they will be securely held in place, when in their closed positions, under the weight of the contents of the silo, and may be readily and easily swung into and held in their opened positions, the hinging means serving, when the doors are closed, as ladders, and also as means to enable the doors to be readily manipulated both when being moved into their opened as well as into their closed positions.

Briefly outlined, my invention contemplates a series of vertically-disposed doors which are designed to close openings in the side of a silo formed between horizontal cross pieces connected to the vertical portions of the silo. The several doors have overlapping beveled edges so that when they are in their closed positions a continuous unbroken surface is presented to the entire silo, and each door has a sliding connection to a hinging bracket, which latter serves as a ladder when the doors are closed, and may be swung inwardly when a door is to be moved into its opened position, the several doors being thus inverted and secured at their upper ends by retaining bolts, such bolts serving also to lock the doors when in their closed positions.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a face view of a portion of a silo equipped with my invention. Fig. 2 is a view similar to Fig. 1 from the inside of the silo. Figs. 3 and 3<sup>a</sup> are vertical sectional views of a portion of a silo showing, respectively, one of

the doors in its closed and opened position. Fig. 4 is a cross sectional view on line 4—4, Fig. 1. Fig. 5 shows a door when being swung from one position to another.

Referring to the drawings, 1, 1, designate the parallel uprights forming opposite sides of a continuous longitudinally extending opening of a silo, which uprights are rabbeted on their inner faces; 2, horizontally disposed spaced-apart cross pieces rigidly secured to uprights 1; and 3, a base connecting the uprights at their bottoms, such base having its upper edge beveled, as at 4.

6 designates a series of doors, each of which may be made of any suitable material, but preferably of tongue and groove boards fastened together by cleats 7 and 8 extending across their outer faces. To these outer faces are secured hinging plates 10, each plate in itself being shown as composed of spaced-apart corresponding sides in each of which is formed a longitudinal slot 12.

14 designates the hinging members, each of which is shown as composed of two curved arms which are connected at their lower ends by a transverse bar 16, slightly offset at its ends. The upper ends of these curved arms are hinged at 17 at points beneath the cross pieces 2. The lower ends of the curved arms of each hinging member fit between the spaced-apart sides of plates 10, and through such ends are passed rods 19 which extend also through slots 12 of the hinging plates, such rods 19 at their ends being provided with nuts or other stops 19<sup>a</sup> to hold them as against longitudinal movement.

Each door at its top and bottom is beveled as at 22, the bevel at the bottom of the lowermost door fitting against the bevel of the base, while the beveled bottom of each superposed door fits against the beveled top of the next lower door so that when all of the doors are closed a smooth unbroken surface will be presented at the interior of the silo.

The upper cross cleat 7 of each door, when the latter is closed fits beneath one of the cross pieces 2, and is locked thereto by a



bolt 25 which is shown in the form of a straight rod having an upper right angular hooked portion 26 which serves as a handle for inserting and removing the bolt in locking and unlocking the doors in their closed positions.

From what has been said it will be seen that when the several doors are in their closed positions the cross bars of the several hinging members will constitute ladders for permitting access to be had to the top of the silo.

It is understood that in discharging the contents of a silo the topmost door is the first opened and the remaining doors are opened as the quantity of material in the silos is reduced. To open a door, the operator first withdraws the locking bolt 25 and then pushes inwardly on the door, preferably by applying pressure to the cross bar of its hinging member. Sufficient material is first removed from the interior of the silo to permit the door to move slightly inward; the operator then lifts upwardly on the door, and gives it a quarter turn, the cross rod 19 serving as a pivot therefor, whereupon the door is then moved into an upright position, with its normally inner face turned outwardly the hinging members 14 turning on their pivots to complete the opening of the door. The latter then fits in the rabbeted faces of the uprights but its upper end is somewhat short of the upper cross piece 2, allowing sufficient space for the operator to insert his hand to place the bolt 25 in the opening of such cross piece and to permit such bolt to be turned so that its hooked end will engage the now upper end of the door and hold it in its opened position.

When it is desired to close the doors it is necessary to first remove the retaining bolt 25 and allow the door and its hinging member to swing downwardly, turning on the pivots of the latter, and after the door has reached its lower position it is drawn upwardly, the slots in plates 10 permitting this to be done, and its lower end is placed in engagement with the upper beveled edge of the next lower door or base 3 in closing the lowermost door. The operator then again inserts locking bolt 25 and the door is firmly secured in place.

Thus it will be seen that I have provided extremely simple and highly efficient means for securing the doors of a silo both in their closed and opened positions; that when closed the weight of the contents of the silo tends to force the doors to their seats, that the hinging members constitute ladders when the doors are closed and serve as means for moving such doors into their different positions. Mention should also be made of the fact that the curved arms of the hinging

members form hand-holes in mounting the ladder, and that no portion of the hinging members is on the inside of the silo.

I claim as my invention:

1. A silo having a continuous vertical opening, a series of doors for closing such opening, a hinging member for each door pivotally connected to the silo and to the door, and means forming a sliding connection between each door and its respective hinging member to permit the door to be fitted against the sides of the opening in both its closed and opened positions.

2. A silo having a continuous vertical opening, a series of doors for closing such opening, such doors being beveled at their tops and bottoms and designed to fit one against another, a hinging member for each door pivotally connected to the silo and to the door, and means forming a sliding connection between each door and its respective hinging member to permit the door to fit against the sides of the opening in both its closed and opened positions.

3. A silo having a continuous vertical opening, a series of doors for closing such opening, a hinging member for each door comprising oppositely-disposed bars hinged to the silo and having a cross bar connecting such bars, and means forming a sliding connection between each door and its respective hinging member.

4. A silo having a continuous vertical opening, a series of doors for closing such opening, a hinging member for each door comprising oppositely-disposed outwardly curved arms which are pivotally secured to the silo, and a cross bar connecting such arms, and means forming a sliding connection between each door and said arms.

5. A silo having a continuous vertical opening, a series of doors for closing such opening, oppositely-disposed plates secured to each door and having longitudinally extended slots, a hinging member for each door comprising spaced-apart arms pivotally secured to the silo and having a cross rod extended through the slots of said plates, and a cross bar connecting such arms.

6. A silo having a continuous vertical opening, spaced-apart cross pieces connecting the sides of such opening, a series of doors for closing such opening, a hinging member for each door pivotally connected to the silo and to the door, means forming a sliding connection between each door and its respective hinging member to permit the door to be fitted against the sides of the opening in both its closed and opened positions, and a locking bolt carried by each cross piece for engaging and holding each door in either its closed or opened positions.

7. A silo having a continuous vertical opening, spaced apart cross pieces connect-



ing the sides of such opening, a series of  
doors for closing such opening, such doors  
being beveled at their tops and bottoms and  
designed to fit one against another, a hing-  
5 ing member for each door pivotally con-  
nected to the silo and to the door, means  
forming a sliding connection between each  
door and its respective hinging member to  
permit the door to fit against the sides of  
10 the opening in both its closed and opened  
positions, and a series of locking bolts car-

ried by said cross pieces for engaging and  
holding each door either in its opened or  
closed position.

In testimony whereof, I have signed this 15  
specification in the presence of two subscrib-  
ing witnesses.

GEORGE W. REESE.

Witnesses:

C. F. HAMBRECHT,  
ALBIA KOS.

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

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