

No. 776,133.

PATENTED NOV. 29, 1904.

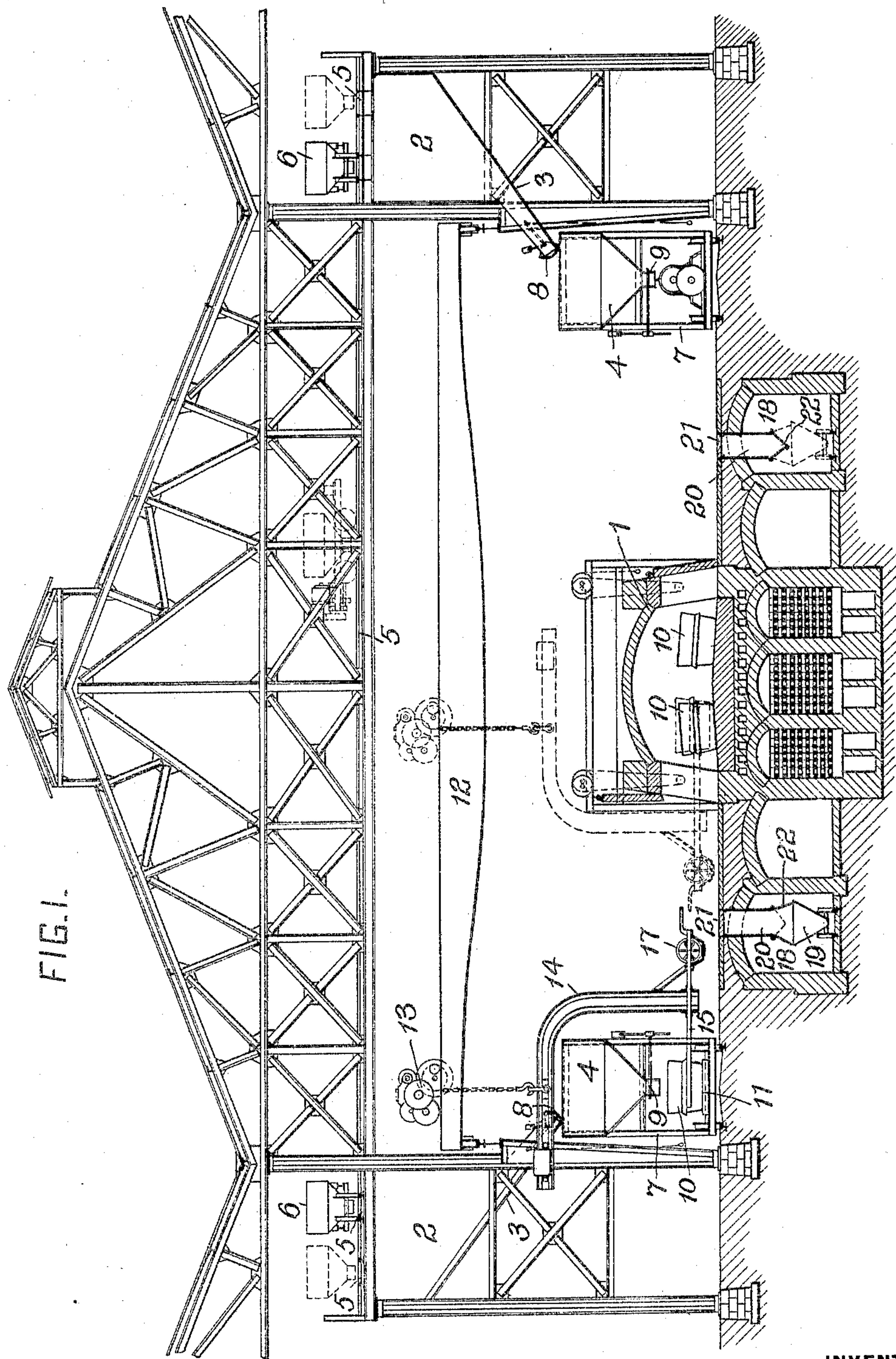
W. D. HARTUPEE.

# APPARATUS FOR HANDLING MATERIAL IN GLASS HOUSES.

APPLICATION FILED FEB. 15, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



**WITNESSES:**

Witnesses:  
*James E. Mahoney*  
*Robert Bradley*

**INVENTOR**

William D. Hartup  
by Christy & Christy, Atty's.

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2 SHEETS—SHEET 2.

FIG. 2.

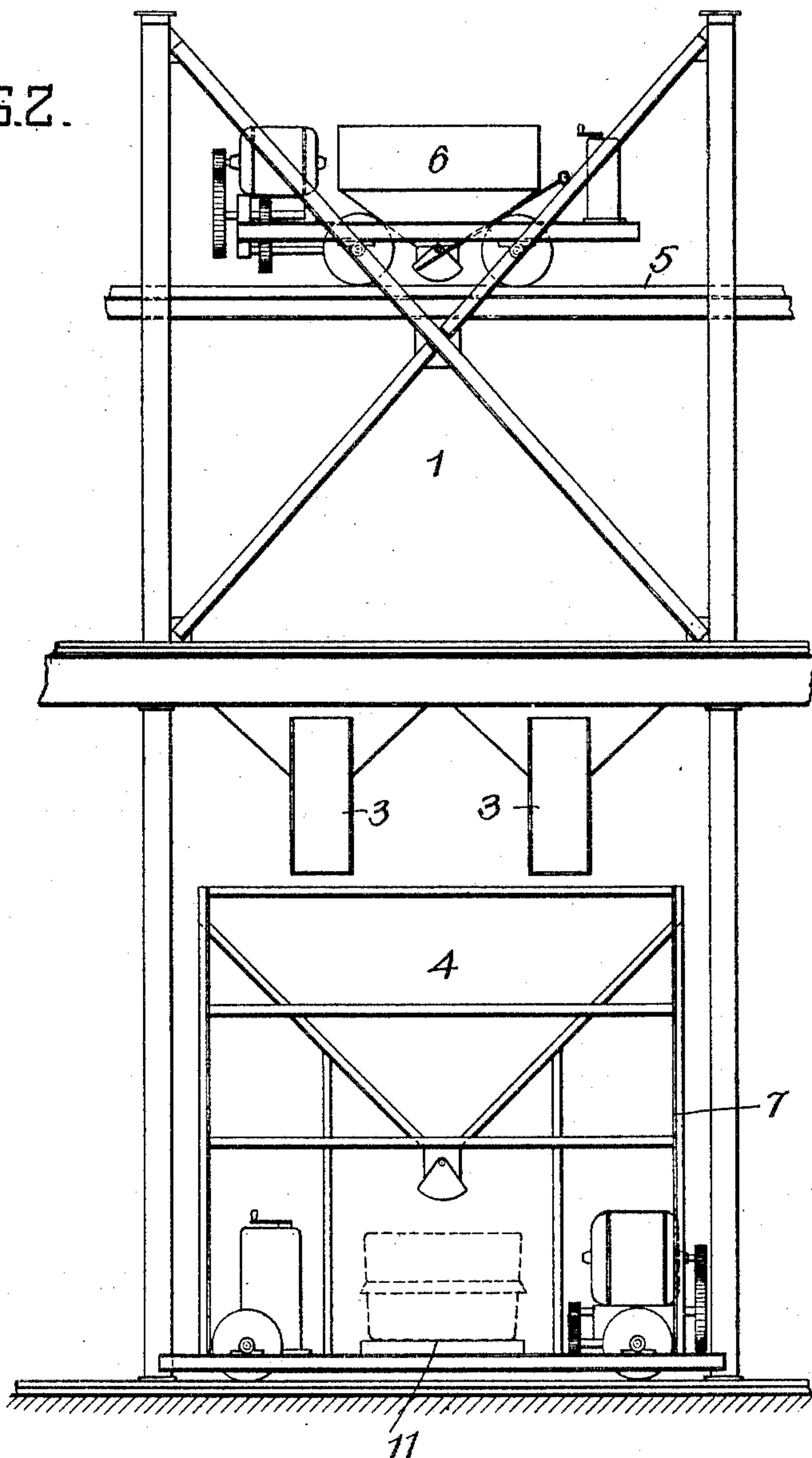
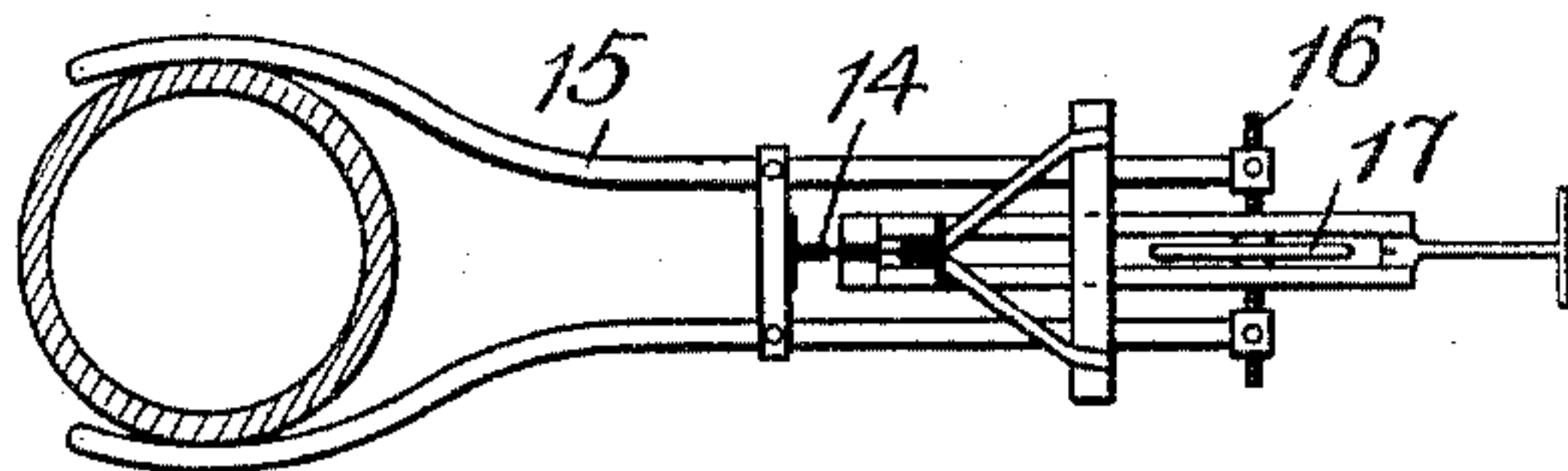


FIG. 3.



WITNESSES:

*Geo. S. Mahony*  
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# UNITED STATES PATENT OFFICE.

WILLIAM D. HARTUPEE, OF PITTSBURG, PENNSYLVANIA.

## APPARATUS FOR HANDLING MATERIAL IN GLASS-HOUSES.

SPECIFICATION forming part of Letters Patent No. 776,133, dated November 29, 1904.

Application filed February 15, 1904. Serial No. 193,681. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM D. HARTUPEE, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Apparatus for Handling Material in Glass-Houses, of which improvement the following is a specification.

10 The invention described herein relates to certain improvements in charging material into glass-melting pots; and in general terms the invention consists in the storage of the material in convenient proximity to the furnace, removing the heated pots from the furnace, filling the pots, and replacing them in the furnace.

The invention is hereinafter more fully described and claimed.

20 In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a glass-house having my improvements incorporated therein. Fig. 2 is an elevation showing the storage-bin and a traveling hopper in position to receive material. Fig. 3 is a detail view illustrating a form of mechanism for clamping and holding the glass-pots.

30 In the practice of my invention the furnace or furnaces 1 may be arranged in one or more lines, preferably along the middle of the glass-house proper. At points in convenient relation to the furnaces I provide one or more storage-bins 2. In the construction shown, where the melting-furnaces are arranged along the middle of the glass-house, the bin or bins are preferably arranged along one or both sides of the building and having spouts 3 projecting over the path of movement of the hopper-cars 4. Provision is made for charging the storage-bins 2 by means of elevated tracks 5, along which pass cars 6, adapted to be shifted in any suitable manner, as by electric motors. The tracks for the movable hopper-cars are arranged along the sides of the building, and on these tracks are mounted the wheels of a frame 7, carrying the hoppers 4. It is preferred to operate these hopper-cars by means of electric motors, although 50 other suitable means may be employed for

that purpose. The spouts 3 of the storage-bins are provided with suitable regulating-doors 8, and the flow of material from the traveling hopper is controlled by suitable valves or doors 9.

55 In charging the pots 10 they are lifted out from the furnace and shifted onto a platform 11 on the hopper-car immediately below the spout therefrom. The door 9 is opened and the contents of the bin discharged into the pot, which is then moved back into position into the furnace. In case the storage-bins are not in line with the pots to be charged, the hopper 4 is filled or a suitable quantity of material charged thereto and then moved 65 into line with the pot to be filled.

A convenient means for removing the pots from the furnace to the hopper-trolley consists of a traveling crane 12, movable from end to end of the building or glass-house and provided with a traveling buggy 13, having the usual winding-drum, from which is suspended the bent beam 14'. This beam carries arms 15, pivotally mounted thereon, so that their outer ends can be caused to grip a pot, 75 while the opposite ends of the arms are so engaged by any suitable actuating mechanism whereby the gripping ends may be closed—such, for example, as a right and left hand screw 16, having a suitable operating-wheel 80 17 thereon.

In order to provide for the removal of furnace-lappings, &c., and other waste material from the floor of the glass-house, one or more tunnels 18 are formed below the floor-level of the glass-house and preferably parallel with the furnace. Along this tunnel moves a hopper-car 19 for the reception of broken glass, &c., which is swept onto chutes 20, having covers 21 and doors 22 and extending through 90 the floor of the glass-house into the tunnel.

At the present time it is the general practice to charge the pots by hand, the material being carried to the front of the furnaces in barrows and shoveled into a long-handled 95 scoop, which is thrust into the furnace and dumped into the pots. This operation is objectionable not only on account of the time and labor involved, but also on account of the cooling of the furnace and pots.



It is characteristic of my improvement that the charging can be effected in a very short time and with a minimum of labor, and while the pot is withdrawn from the furnace the  
5 time elapsing between its withdrawal and restoration to the furnace is so short that very little cooling will occur, and, further, as the door of the furnace is open only during the withdrawal and insertion of the pot practi-  
10 cally no cooling of the furnace or its contents takes place.

I claim herein as my invention—

1. In a glass-house the combination of a furnace adapted to contain a series of two or  
15 more pots, mechanism for shifting a pot from and into the furnace, a hopper and means independent of the pot-shifting mechanism for moving the hopper, substantially as set forth.

2. In a glass-house the combination of a furnace containing a series of pots, a storage-bin,  
20 a movable hopper-car, and means for shifting a pot from the furnace to the car, substantially as set forth.

3. In a glass-house the combination of a series of two or more furnaces, a storage-bin, a

hopper-car movable from the storage-bin along the series of furnaces and means for shifting the pots from the furnaces to the car, substantially as set forth.

4. In a glass-house the combination of a series of two or more furnaces containing pots,  
30 a storage-bin, a line of track above such bin, cars movable along said track, a hopper-car movable from the bin along the furnaces, and means for shifting the heated pots from the  
35 furnace to the car, substantially as set forth.

5. In a glass-house the combination of a series of two or more melting-furnaces, a tunnel arranged under the flow of the glass-house  
40 and parallel or approximately parallel with the line of furnaces, a car movable along the tunnel and chutes extending through the floor of the house, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM D. HARTUPEE.

Witnesses:

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