

**No. 684,251.**

Patented Oct. 8, 1901.

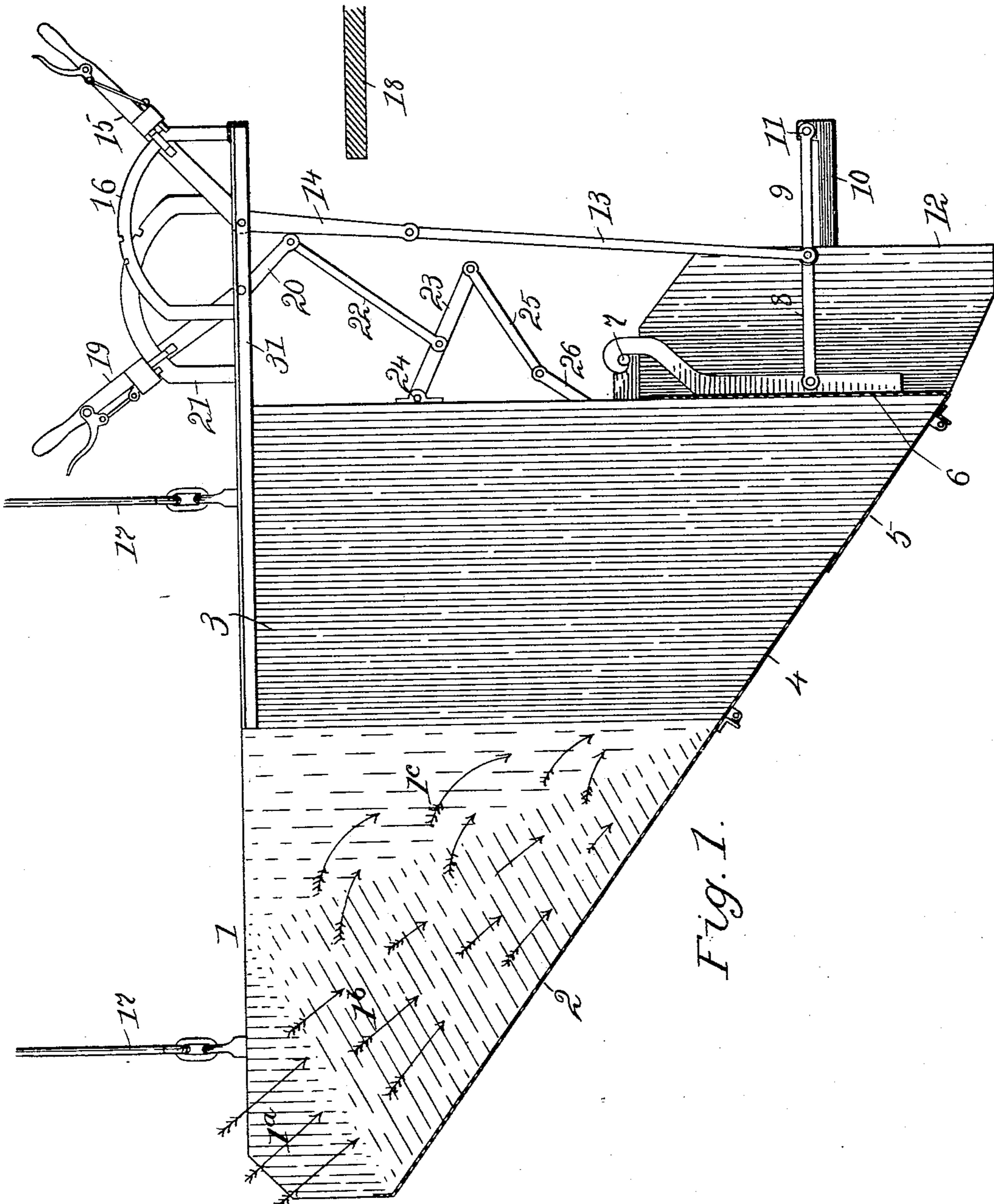
**G. HOLMES.**

**WEIGH PAN FOR WEIGHING COAL.**

(Application filed May 31, 1901.)

(No Model.)

**3 Sheets—Sheet 1.**



Witnesses.  
Nora Graham.  
Isa Graham.

*Inventor,*  
*Grant Holmes,*  
*by L. P. Graham*  
*His attorney*

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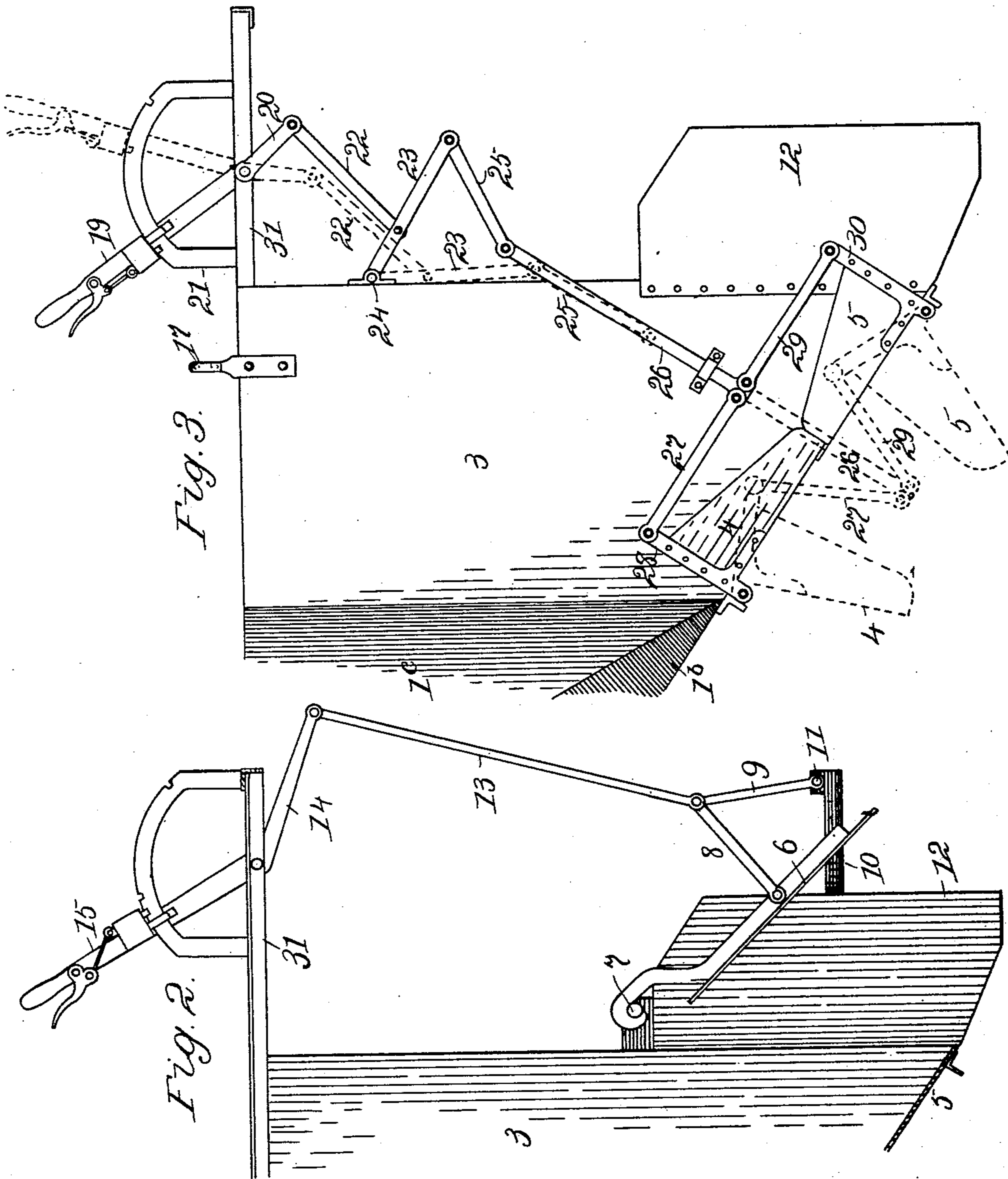
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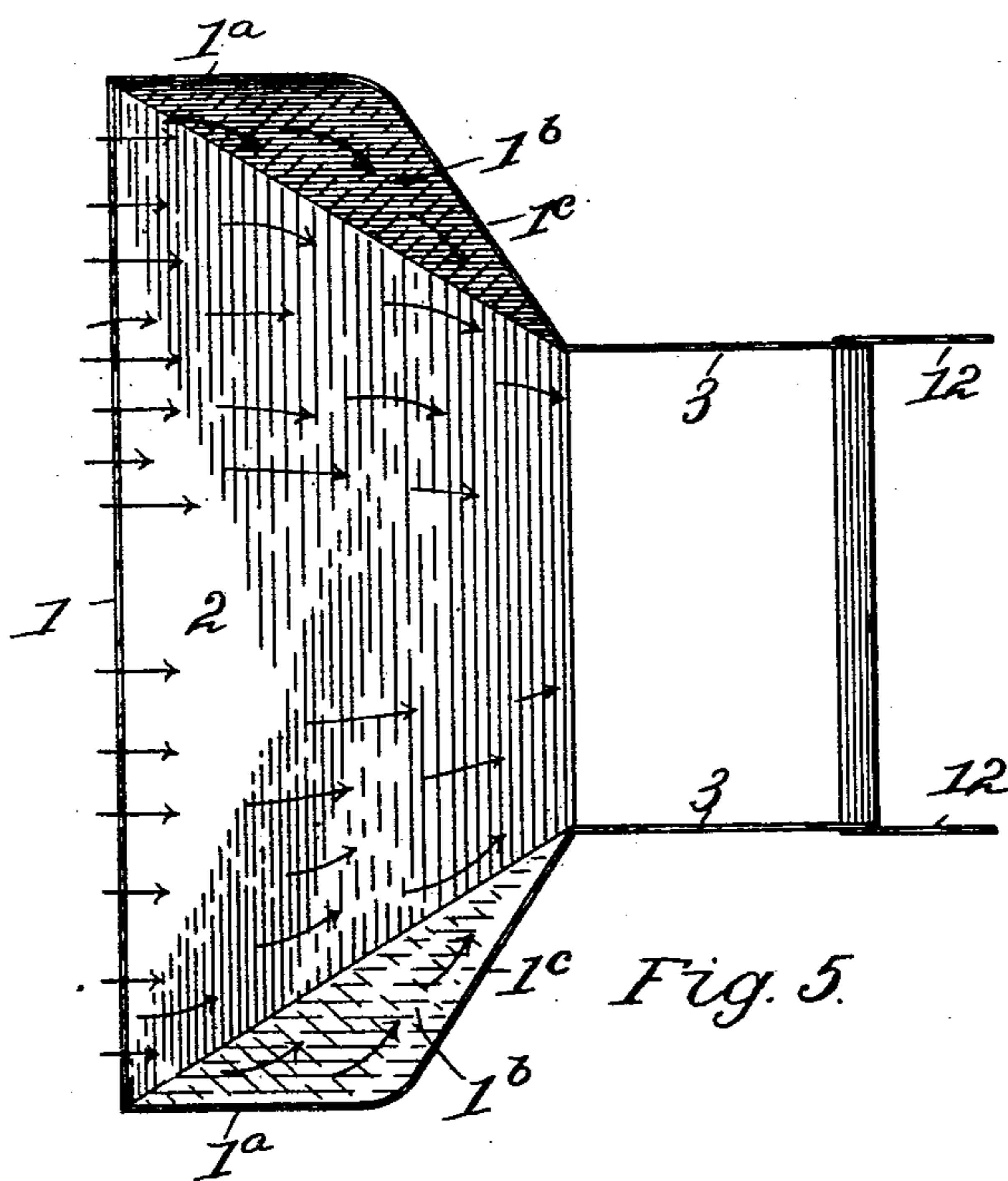
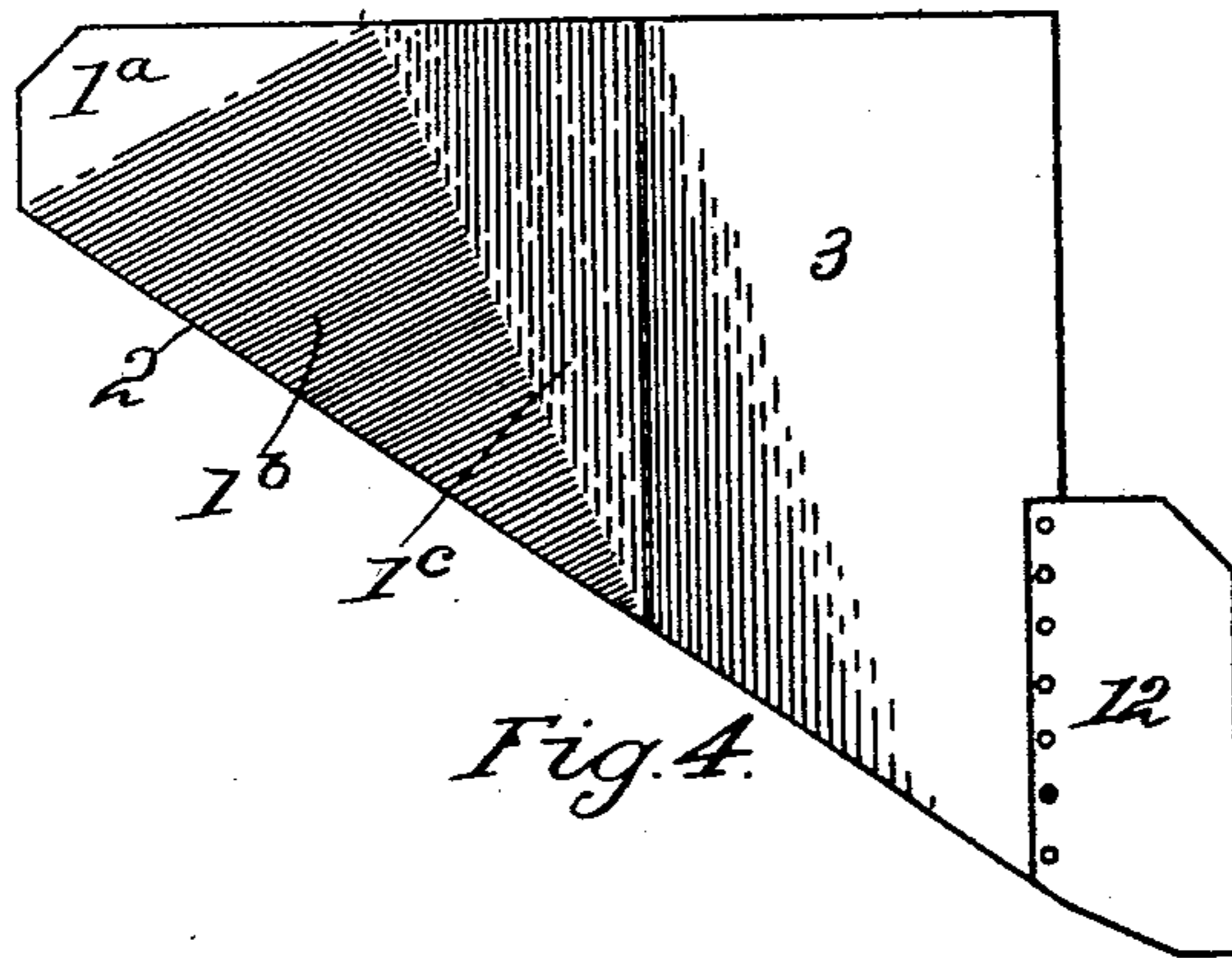
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Witnesses

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Inventor,

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# UNITED STATES PATENT OFFICE.

GRANT HOLMES, OF DANVILLE, ILLINOIS, ASSIGNOR TO ROBERT HOLMES & BROS., OF SAME PLACE.

## WEIGH-PAN FOR WEIGHING COAL.

SPECIFICATION forming part of Letters Patent No. 684,251, dated October 8, 1901.

Application filed May 31, 1901. Serial No. 62,560. (No model.)

*To all whom it may concern:*

Be it known that I, GRANT HOLMES, of the city of Danville, county of Vermilion, and State of Illinois, have invented a certain new and useful Weigh-Pan for Weighing Coal, of which the following is a specification.

This invention is in the nature of a combined weigh-pan and chute, and it provides means whereby coal may be received from two cages running side by side, may be weighed in the pan before passing to a separating-screen, and may be discharged onto a separating-screen or into a wagon, as may be desired.

The invention resides in part in the peculiar form of the pan, whereby coal from either of the adjoining cages may be diverted centrally while traveling downward, so as to bring the coal in line with the separating-screen.

It resides in part in the peculiar arrangement of doors in the pan, whereby the coal after being weighed may be discharged onto the separating-screen or into a wagon-bed; and it also resides in certain mechanism for opening and closing the different doors.

The combined width of two cages is considerably greater than the width of a separating-screen. The entire contents of a car are dumped at once into the front end of the pan, at one side or the other of the center thereof, and provision must be made to retain all the coal, while diverting it sidewise and carrying it downward toward the discharge end of the pan.

A great many mines deliver coal in part to wagons for local use and in part to cars for shipment, and this demands provision for discharging the coal from the weighing-pan in two different directions. The coal is weighed in the pan before being screened, so that the miner may get credit for all the coal mined, and this requirement is enforced by law in some localities.

In the drawings forming part of this specification, Figure 1 is a central vertical section lengthwise through a weigh-pan embodying my improvements. Fig. 2 is a detail in central vertical section of the mechanism used to open and close the door leading to the separating-screen. Fig. 3 is a detail in side elevation of the mechanism used to open and

close the doors that discharge into wagons. Fig. 4 is a side elevation showing the conformation of the pan. Fig. 5 is a plan of the pan.

The receiving end 1 of the weigh-pan is as wide as the combined width of the two cages of the coal-shaft, and its bottom 2 is inclined downward and away from the shaft at an angle sufficient to permit the coal to slide freely. The side edges of the bottom converge downward until the bottom is as narrow as the separating-screen, and the lower edges of the sides conform to the converging bottom. The upper edges of the sides of the pan extend parallel one with the other for some distance, forming right angles with the front edge of the pan, and then converge rapidly to coincide at their rear ends with the rear terminations of the converging edges of bottom 2, as shown at 1°. As a result of this conformation the sides form two vertical triangles 1<sup>a</sup>, extended parallel, with their upper edges horizontal and their apexes in such upper edges. The parts 1° of the sides also form vertical triangles, but such triangles are in converging planes and the apexes thereof are at the rear corners of bottom 2, and the intermediate surfaces 1<sup>b</sup> are of triangular conformation, with their apexes adjoining the apexes of triangles 1° and their bases adjoining the lower sides of triangles 1<sup>a</sup>. The planes of triangles 1<sup>b</sup> are convergent and oblique, the lower edges being closer together than the upper edges, and the bases of such triangles are lowest next to the front edge of the pan. The different triangles are rounded one into another in each side as a matter of preference and are not separated by sharply-defined lines.

When coal is dumped into the pan near one of the sides, the vertical part 1<sup>a</sup> holds the coal against sidewise displacement, the vertical sidewise-inclined part 1° acts partly as a barrier and partly as a diverter, and the obliquely-inclined and divergent part 1<sup>b</sup> forms a chute to direct the coal downward and sidewise into the contracted end of the pan.

From the rear ends of the sides 1° vertical walls 3 extend one parallel with the other. Doors 4 and 5 form continuations of bottom 2 when they are closed, and door 6 closes against the rear ends of walls 3. The door

6 is hinged at its upper end, as shown at 7, and it is held closed by a toggle-joint composed of members 8 and 9. The member 9 is hinged at 11 in the horizontally-extended bar 10, and member 8 is hinged to member 9 and to the door 6. When the door is closed, the toggle-joint is extended, as shown in Fig. 1, and the door is firmly secured. A frame, as 31, is attached to the upper end of the pan and extended rearward therefrom, and in such frame is fulcrumed a lock-lever 15. Arm 14 of lever 15 extends downward beyond the fulcrum of the lever, and a rod 13 connects the arm of the lever with the toggle-joint 8 9. The arm 14 and rod 13 form a second toggle-joint, so that the door 6 is held closed by one toggle-joint and the primary toggle-joint is locked by the second toggle-joint. In Fig. 1 the door 6 is shown closed, and in Fig. 2 it is shown open.

The door 6 abuts against the rear edges of walls 3 when closed, and the lips 12 extend from the walls and inclose the door. When the door is opened, the lips direct the coal toward the separating-screen.

The doors 4 and 5 have sides that embrace the walls 3 when the doors are closed, as shown in Fig. 3. Door 4 is hinged at the termination of floor 2. Door 5 is hinged at the rear of walls 3, and the bottom of door 5 is adapted to underlap the bottom of door 4. The two doors close one toward the other, and conjointly they form a bottom for the space inclosed by walls 3. Arms, as 28 and 30, extend upward from the hinges of the doors 4 and 5 at approximately right angles with the bottoms thereof. Toggle-bars 27 and 29 are pivotally connected one with arm 28 and the other with arm 30, and both bars are hinged to the lower end of reciprocating bar 26. An arm 23 is pivoted to the pan at 24, and a strut-link 25 connects the swinging end of arm 23 with the upper end of reciprocating bar 26. A lock-lever 19 is fulcrumed in frame 31. It has a downward-extended arm 20, and a stiff link 22 connects the arm of the lever with swinging arm 23.

The doors 4 and 5 are held closed by swinging lever 19 to the position shown in solid lines in Fig. 3, and they are opened by swinging the lock lever to the position shown in broken lines in the same figure.

When the doors 4 and 5 are opened, the end door 6 is closed, and when the end door is opened the bottom doors are held closed. The end door may discharge coal onto the receiving end of a separating-screen, and the doors 4 and 5 may discharge coal from the pan into a wagon.

A notched segment 21 coacts with lever 19 to control doors 4 and 5, and the notched segment 16 coacts with lever 15.

The pan is suspended from scale-timbers by means of links, as 17, and at 18 in Fig. 1 is indicated the location of a platform on which the pan operator may stand.

The door-actuating mechanism, particularly the mechanism for actuating doors 4 and 5, is preferably in duplicate, one set on each side of the pan.

I claim—

1. A coal-weighing pan having an open receiving end and a narrower discharge end, in which pan the bottom tapers on straight lines from the receiving end toward the discharge end and inclines from the receiving end downward, and in which the sides have their lower edges conjoined to the tapering edges of the bottom while their upper edges extend horizontally for some distance at right angles with the front of the pan and then converge to terminate in approximate vertical alignment with the terminations of their lower edges, whereby the sides form the parallel vertical side guides, the vertical, converging diverting-surfaces and the oblique chute-surfaces, substantially as described.

2. In a coal-weighing device, the combination of a pan having an inclined bottom, a door to close vertically against the lower end of the pan, a pair of doors forming the lower end of the inclined bottom, arms on the doors, toggle-arms connected with the arms of the doors and with a reciprocating bar, a lock-lever and a connection between the lock-lever and the reciprocating bar, substantially as described.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

GRANT HOLMES.

Witnesses:

FRANK LINDLEY,  
FRED. B. PENWELL.