

No. 748,447.

PATENTED DEC. 29, 1903.

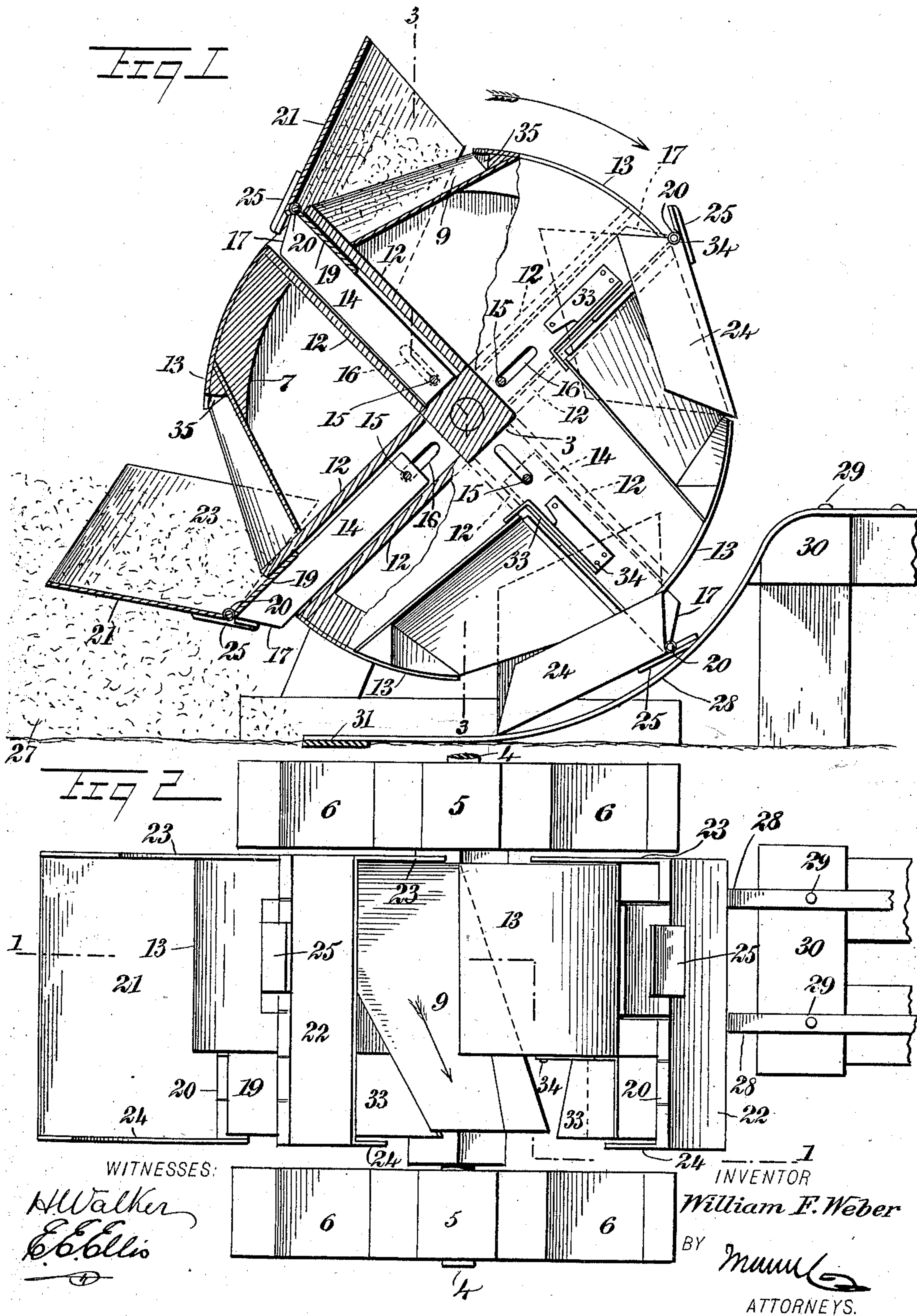
W. F. WEBER.

COMBINED HOISTING AND DUMPING APPARATUS.

APPLICATION FILED JUNE 3, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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Fig 3

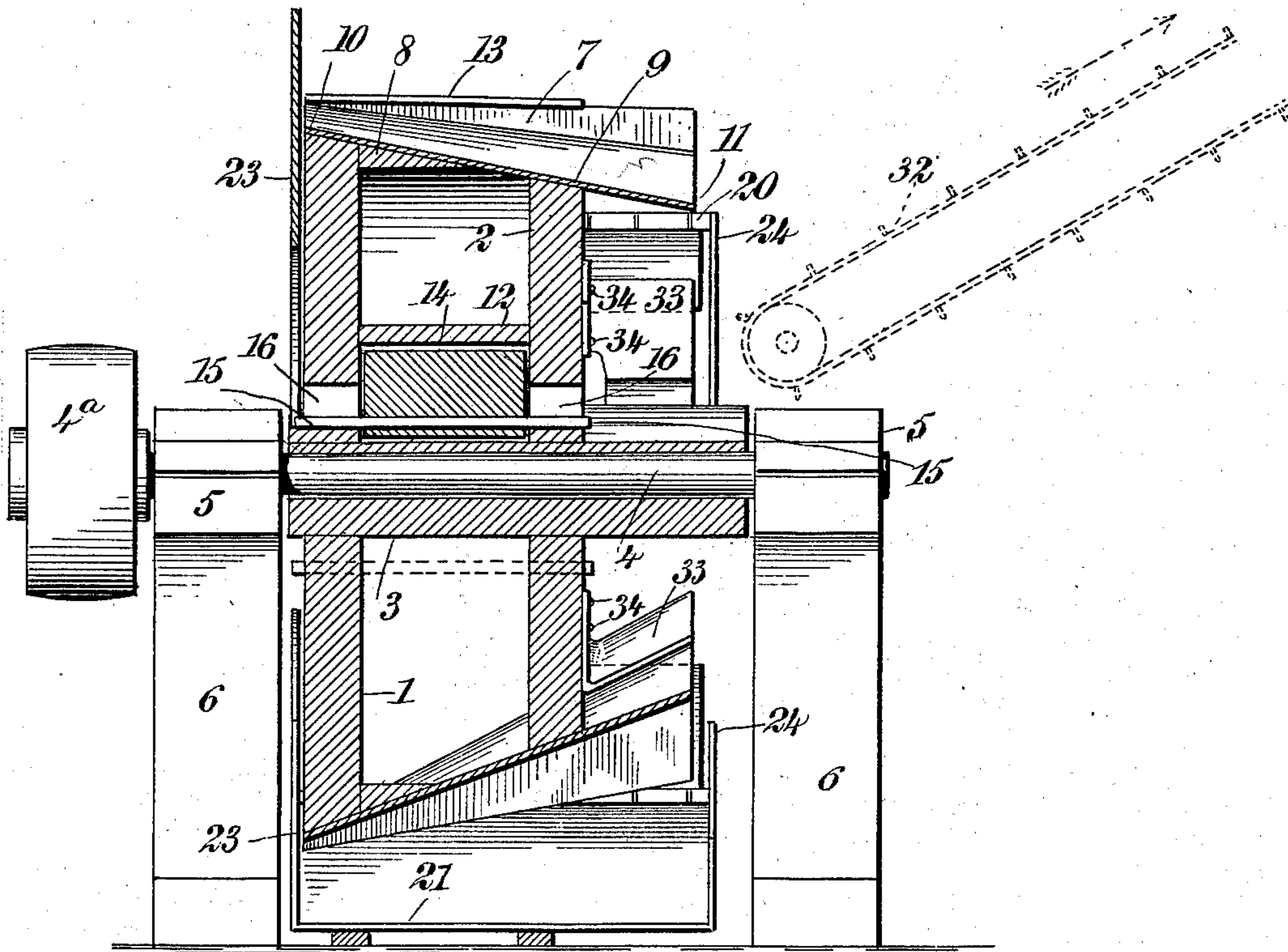
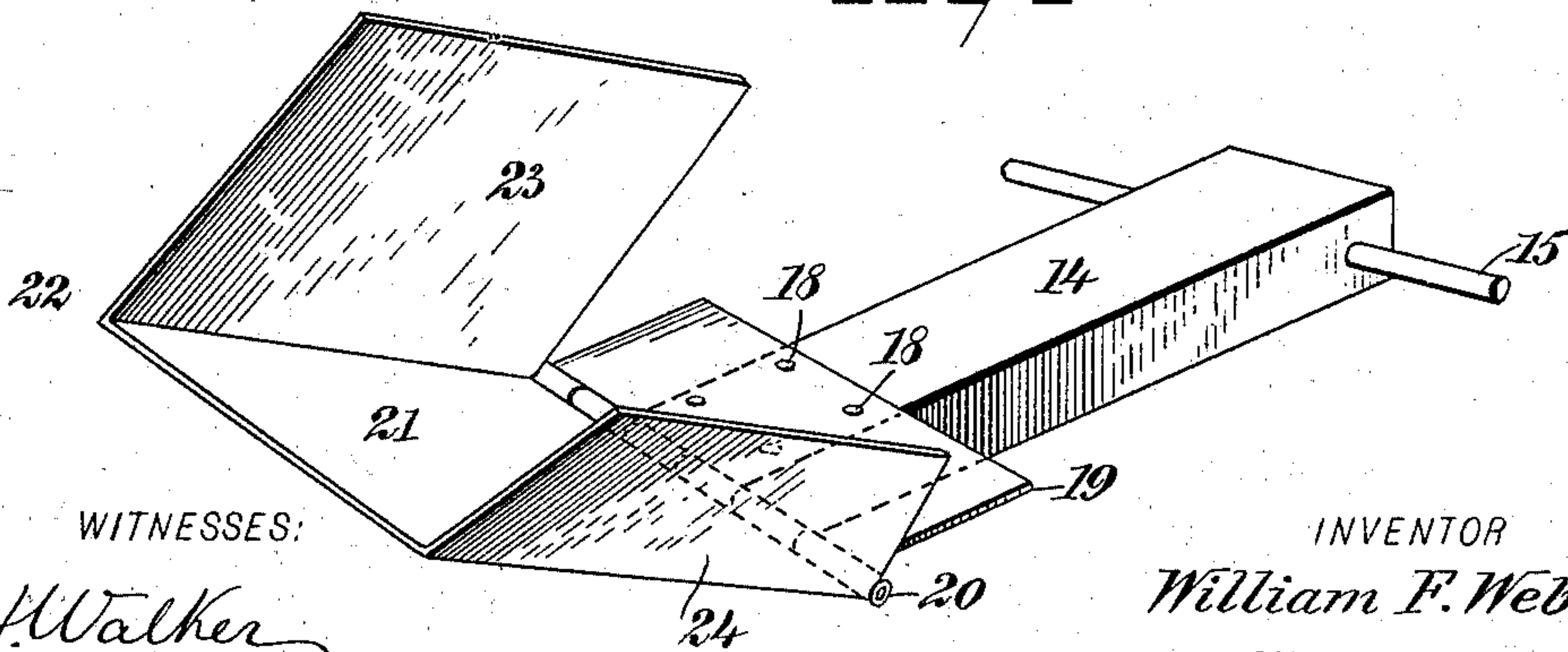


Fig 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM F. WEBER, OF NEW YORK, N. Y.

COMBINED HOISTING AND DUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 748,447, dated December 29, 1903.

Application filed June 3, 1903. Serial No. 159,883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. WEBER, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Combined Hoisting and Dumping Apparatus, of which the following is a full, clear, and exact description.

10 This invention relates to combined hoisting and dumping apparatus; and it consists substantially in the construction, organization, and combinations of parts hereinafter particularly described, and pointed out in the claims.

15 Though applicable to analogous purposes in the arts, my improvements are intended more especially for use in hoisting quantities of coal or other loose material to a suitable height and automatically dumping or delivering the same to a receiver therefor—as an elevator, for instance—by which the material may be conveyed to any desired place or places.

25 One of the principal objects of my invention is to provide means for overcoming numerous disadvantages and inconveniences frequently encountered in the use of many forms of apparatus hitherto devised for similar purposes and to provide an apparatus of this kind which is simple in construction and operation, as well as strong and durable, and comprising but few parts or elements not liable to get out of order nor easily broken.

35 A further object of the invention is to provide an apparatus of the character referred to which may be easily handled or manipulated in use and one also which is thoroughly effective and reliable in the performance of its intended functions, besides being comparatively inexpensive to construct and possessing the capacity for long and repeated service.

45 The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the views.

50 Figure 1 is a part vertical longitudinal sectional elevation of a combined hoisting and dumping apparatus embodying the features of my improvements, said view being taken on the broken line 1 1 of Fig. 2. Fig. 2 is a

top plan view of the apparatus. Fig. 3 is a vertical transverse sectional elevation taken substantially in the plane of the broken line 3 3 of Fig. 1; and Fig. 4 is an enlarged detail view in perspective of one of the radially-slidable stocks and its connected independently-movable bracket or scoop, said view showing the construction and organization of these parts more clearly.

Before proceeding with a more detailed description it may be stated that in the form of my improvements herein shown I employ a rotatable structure of special embodiment in connection with which are assembled specially-devised radially-slidable stocks, to each of which is connected an outwardly-swinging bucket or scoop, also of special construction, the organization of the different elements or parts being such that in the operation of the apparatus quantities of coal or similar material are successively hoisted to a given elevated place, where such quantities are also discharged or dumped in the manner hereinafter explained. The apparatus is rapid in operation, as well as easily controlled, suitable means being employed for preventing (during dumping operations) any of the coal or other material from falling either to the ground or back into the mass or pile from which the hoisted quantities thereof may be taken. Other advantageous features will be brought out more fully hereinafter, and while I have herein represented my improvements in a certain preferred embodiment it will be understood, of course, that immaterial changes therein may be resorted to coming within the scope of my invention.

Specific reference being had to the accompanying drawings by the designating characters marked thereon, 1 and 2 represent two approximately circular disks or plates which are practically rigid, with a hub or sleeve passing centrally therethrough and projecting somewhat beyond said disk 2, as shown, said hub or sleeve being in turn rigid with a shaft 4 for the structure, provided at one end with a drive-pulley 4^a and mounted in suitable bearings or pillow-blocks 5 therefor, located at the upper ends of frames or supports 6, the latter being of suitable height and situated the proper distance apart to

permit rotation therebetween of the structure, as presently explained. The said disks are maintained the required distance apart by means of a circumferential body or section 7, the outer surface of which at predetermined intervals is beveled or inclined outwardly and downwardly at 8, and each of these surface portions has applied thereto a plate 9, one end of which is substantially even or flush with the outer surface of the disk 1 at 10 and the other end of which projects beyond the outer surface of the disk 2 at 11, this latter disk being notched or cut out in radial directions at suitable intervals of its periphery, so as to conform to this organization as well as to provide means for supporting said plates in their described positions, it being noted in Figs. 1 and 2 that the said inclined surface portions 8 of said section 7 are also oblique to the sides of the disks, as are also the said plates 9. Rigid with the said hub or sleeve 3 of the disks and radially disposed with reference thereto are the inner ends of sets of duplicate guides 12, which are of a width practically equal to the distance between the disks 1 and 2, said guides of each set being located a distance from each other, as shown, with the outer ends thereof fitted to the sides of suitable openings formed at corresponding intervals in the body or section 7, (see Fig. 1,) it being noted that the portions of this body or section intermediate of or alternating with the hereinbefore-described inclined portions 8 are otherwise substantially intact and provided, preferably on their outsides, with curved metal sections 13 to impart additional strength thereto.

Working between the guides 12 of each set thereof is a radially-slidable stock 14, (see Fig. 4,) provided at or near the inner end thereof with a transverse rod 15, projecting a suitable distance beyond the sides of the stock, as shown, the end portions of each of said rods being guided between the edges or sides of corresponding radial slots 16, formed therefor in the said disks 1 and 2 a suitable distance from the hub 3. The inner ends of said stocks 14 are preferably squared, as shown, so as to adapt them to fit evenly against adjacent surface portions of the hub 3 when said stocks are in their innermost radial positions, and the outer end of each stock is beveled at 17 for a purpose hereinafter mentioned, while that side of each stock lying in the direction of rotation of the structure has attached thereto, near said outer end, (as at 18 in Fig. 4,) a plate 19, forming one member of a hinge or movable joint 20, the other member of which is constituted by the bottom or outer side 21 of a bucket or scoop 22, said bottom having connected thereto at the edges, substantially at right angles thereto, the side portions 23 and 24, the former of which moves in a vertical plane beyond the outer face of the disk 1 and the latter being somewhat less in height

to facilitate dumping of the coal or other material and moving in a vertical plane beyond the outer face of the disk 2. (See Fig. 2.) Each of the said buckets or scoops is formed or provided on the outer part thereof, practically at said movable joint 20, with a stop 25, which in conjunction with the said beveled surface 17, with which the outer end of each stock is formed, constitutes a stop for limiting the outward swinging movement of the corresponding bucket, the inward movement of the buckets being limited by outer or peripheral portions of the structure, as is apparent. During the rotation of said structure in the direction indicated by the arrow in Fig. 1 each radially-movable stock, together with its connected swinging bucket or scoop, is first caused to move outwardly and downwardly by its own weight as it is successively carried around by the disks, and cooperating with said buckets at one side of the structure is a suitable stationary guide for causing the buckets to be successively presented to a mass or pile of coal or other broken or loose material 27, said guide consisting in the present instance, preferably, of duplicate parallel curved strips 28, the upper ends of which are secured in any suitable manner at 29 to a stand or other support 30 and the other ends of which pass beneath the structure for a suitable distance, resting practically on the ground and being secured to a stay 31 therefor, if desired. After each bucket gathers up a quantity of the loose material (see Fig. 1) said bucket is of course hoisted or elevated in virtue of the driving power for the structure applied to the shaft 4, and as the hinged or movable joint for said bucket is carried to and past the angular position of substantially forty-five degrees then the bucket begins to swing or tilt inwardly, as is apparent, the coal or other material starting at once to fall therefrom onto the laterally beveled or inclined plane for that particular bucket until by the time the structure has been carried far enough around to cause this bucket to move to its innermost position the full quantity of material thus hoisted will have been discharged or dumped onto an elevator or carrier 32—for instance, see dotted lines Fig. 3—whence such material may be conveyed away to any other place or places desired, and so on in rotation for each bucket and parts cooperating therewith. In order to prevent any of the loose material dropping or falling back as it is being dumped from each bucket or scoop onto the corresponding beveled or inclined plane therefor, I preferably employ a guard-plate 33 for each of said planes, said guard-plates being secured at 34 to the other side of the disk 2 in proper position relatively to or within the outer inclined ends of the said plates 9 hereinbefore mentioned. The oblique direction given to said beveled or inclined planes facilitates rapid discharge of the material therefrom onto the elevator or other device without

tendency of banking up of such material, and it may be stated that at each side of each of said planes there is a wall, such as 35, which assists in giving direction to the material passing or flowing outwardly from the structure.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

10 1. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, and buckets or scoops having swinging movement with reference
15 to said planes.

2. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, and buckets or scoops
20 having swinging movement with reference to said planes, the latter being also oblique to the sides of the structure.

3. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, outwardly and inwardly swinging buckets operating with reference to said planes, and stops for limiting the outward movement of said buckets.

30 4. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, buckets or scoops having outward and inward swinging movement
35 with reference to said planes, and a stationary guide located to one side of said structure, for successively maintaining said buckets or scoops in position to take up a quantity of material located in the path of travel
40 thereof.

5. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, buckets having outward and inward movement with reference to said planes, and stops for limiting such outward movement, the said inward movement of the buckets being limited by peripheral portions of the structure, as set forth.

50 6. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, each having applied thereto a plate projecting beyond the structure, and pivoted buckets having outward and inward movement with reference to said planes.

7. A combined hoisting and dumping apparatus, comprising a rotatable structure having lateral inclined planes at intervals of its circumference, radially-slidable stocks carried by the structure, and outwardly and inwardly movable buckets connected to said stocks.

65 8. A combined hoisting and dumping apparatus, comprising a rotatable structure having lateral inclined planes at intervals of its

circumference, radially-slidable stocks carried by the structure, independently-movable buckets connected to said stocks, and stop
70 devices limiting the movement of the buckets in an outward direction, the inward movement of said buckets being limited by peripheral portions of said structure.

9. A combined hoisting and dumping apparatus, comprising a rotatable structure having lateral inclined planes at intervals of its circumference, radially-slidable stocks carried by the structure, independently-movable buckets connected to the stocks, and a
80 stationary guide located to one side of the structure, for successively maintaining the buckets in position to take up a quantity of material lying in the path of travel thereof.

10. A combined hoisting and dumping apparatus, comprising a rotatable structure having radial guides and provided with lateral inclined planes at intervals of its circumference, radially-slidable stocks working in said guides, independently-movable buckets connected to the outer ends of the stocks, and a
90 stationary curved guide, located to one side of the structure, for successively maintaining the buckets in position to take up a quantity of material lying in the path of travel
95 thereof.

11. A combined hoisting and dumping apparatus, comprising a rotatable structure, formed of two disks spaced apart, and a circumferential section having lateral inclined
100 planes at intervals thereof, said disks having corresponding radial slots therein, radial guides located between the disks, radially-slidable stocks located in said guides and provided with means working in said slots, and
105 independently-movable buckets connected to said stocks.

12. A combined hoisting and dumping apparatus, comprising a rotatable structure, formed of two disks spaced apart and a circumferential section having lateral inclined
110 planes at intervals thereof, said disks having corresponding radial slots therein, radial guides located between the disks, radially-slidable stocks located in said guides and provided with means working in said slots, independently-movable buckets connected to said
115 stocks, and a stationary guide located to one side of the structure, for successively maintaining the buckets in position to take up a quantity of loose material lying in the path of travel thereof.

13. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, radially-slidable
125 stocks carried by the structure, each beveled at its outer end, independently-movable buckets connected to the stocks and having stop plates cooperating with said beveled ends thereof, and means for successively maintaining the buckets in position to take up a quantity of loose material lying in the path of travel thereof.

14. A combined hoisting and dumping apparatus, comprising a rotatable structure provided at intervals of its circumference with lateral inclined planes, radially - slidable
5 stocks carried by the structure, outwardly and inwardly movable buckets connected to the outer ends of said stocks, and guards disposed relatively to the lower ends of said planes, for preventing falling of the material

to the ground while the buckets are discharging or dumping their contents.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM F. WEBER.

Witnesses:

AUGUST MENKEN,
AUG WEHMEYER.