

J. W. McKEEVER.
MEANS FOR TRANSPORTING COAL, &c.
APPLICATION FILED FEB. 24, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

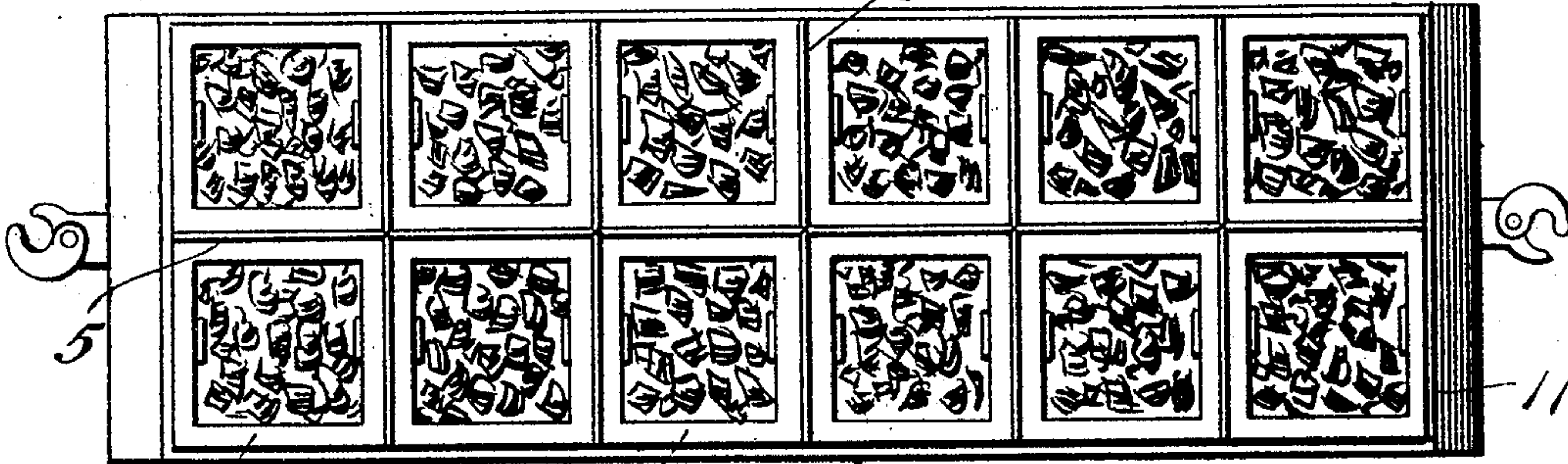


Fig. 2.

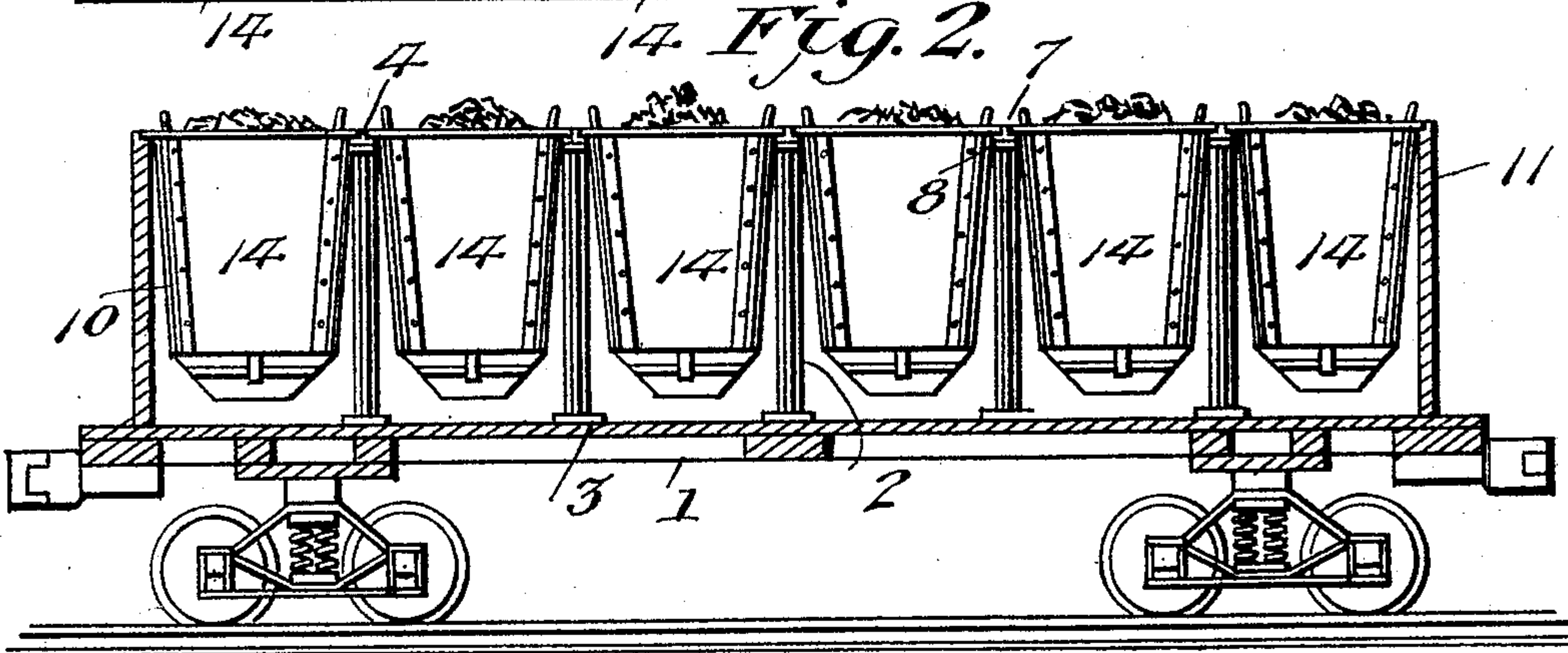
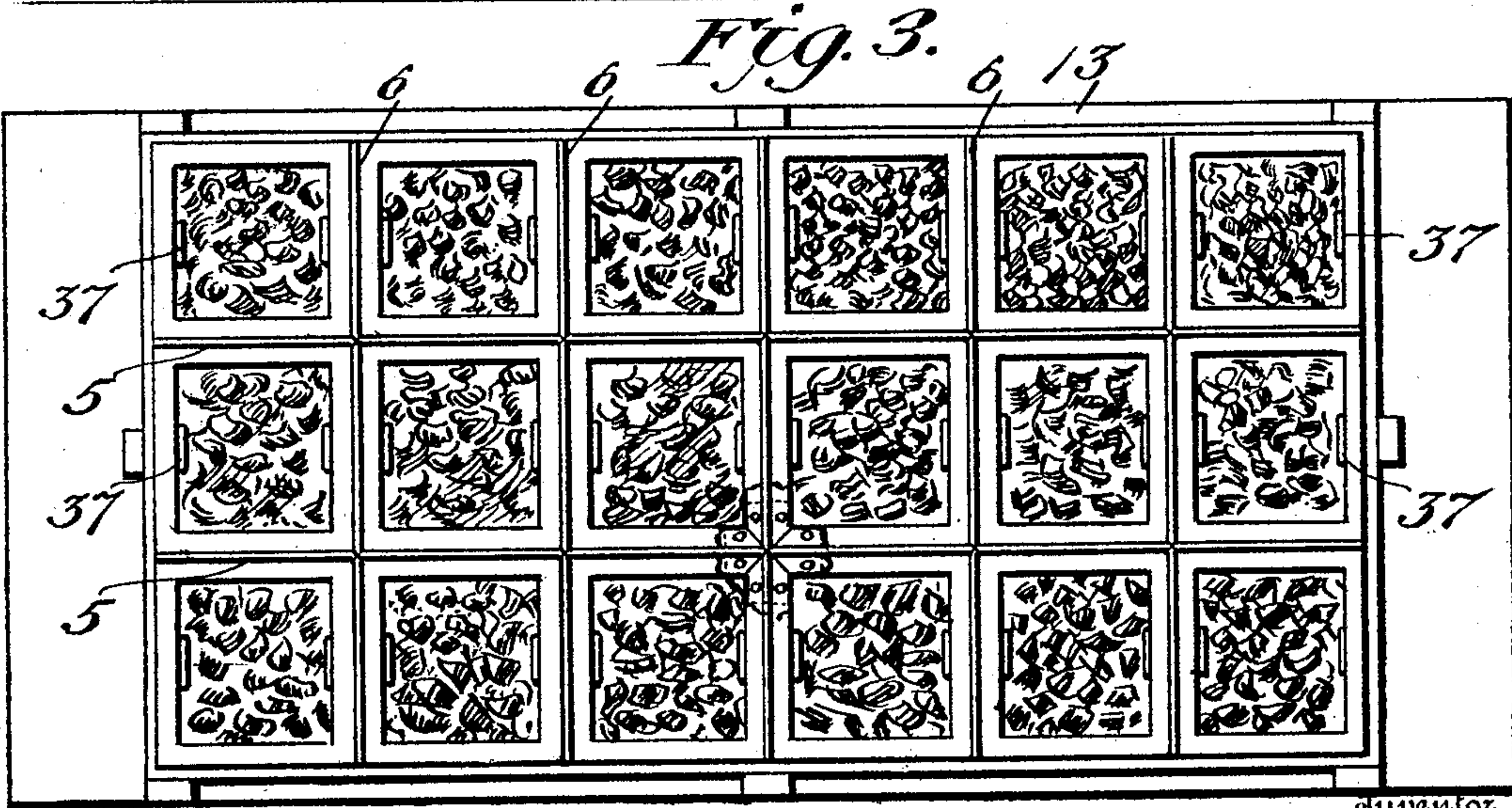


Fig. 3.



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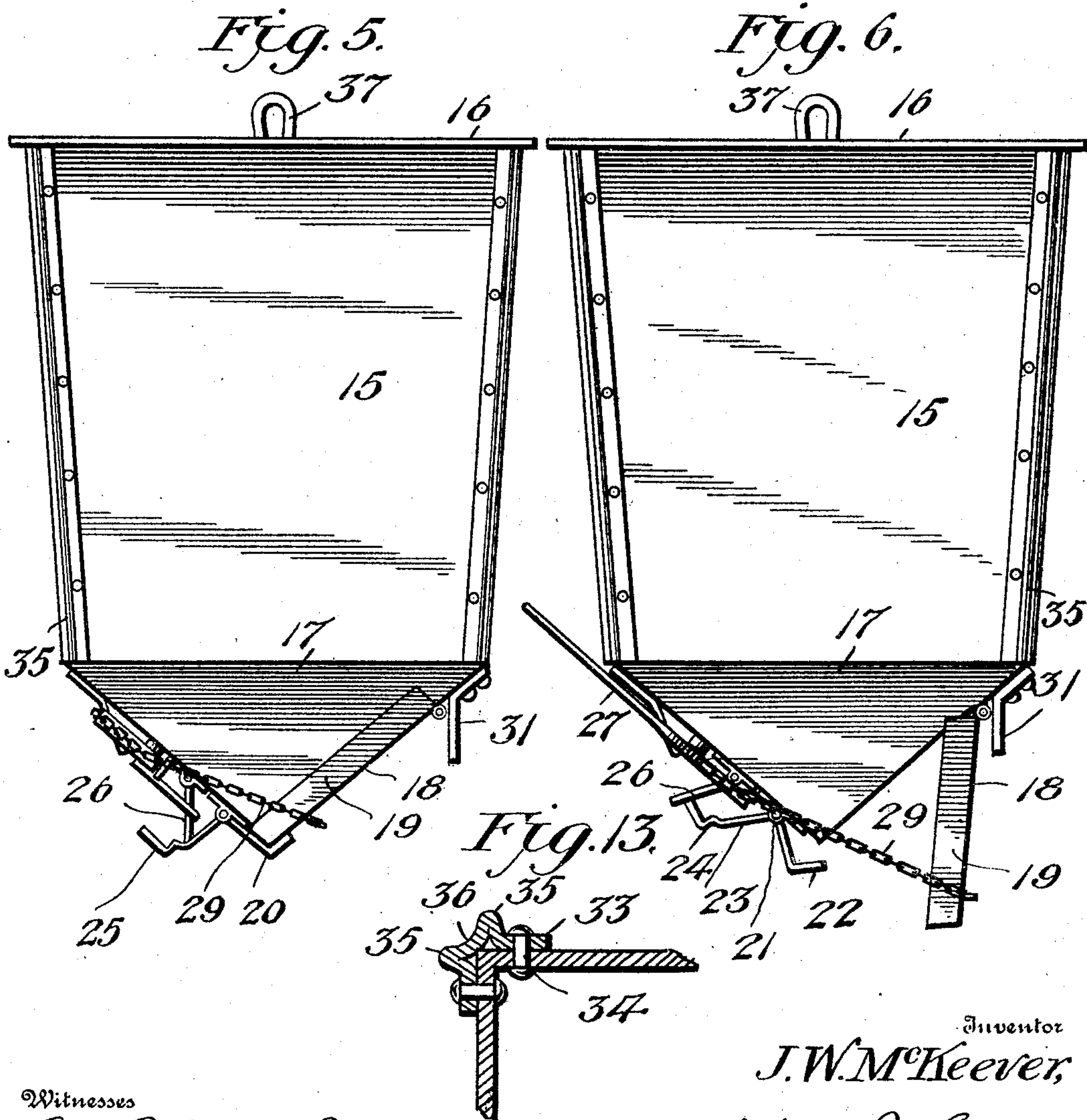
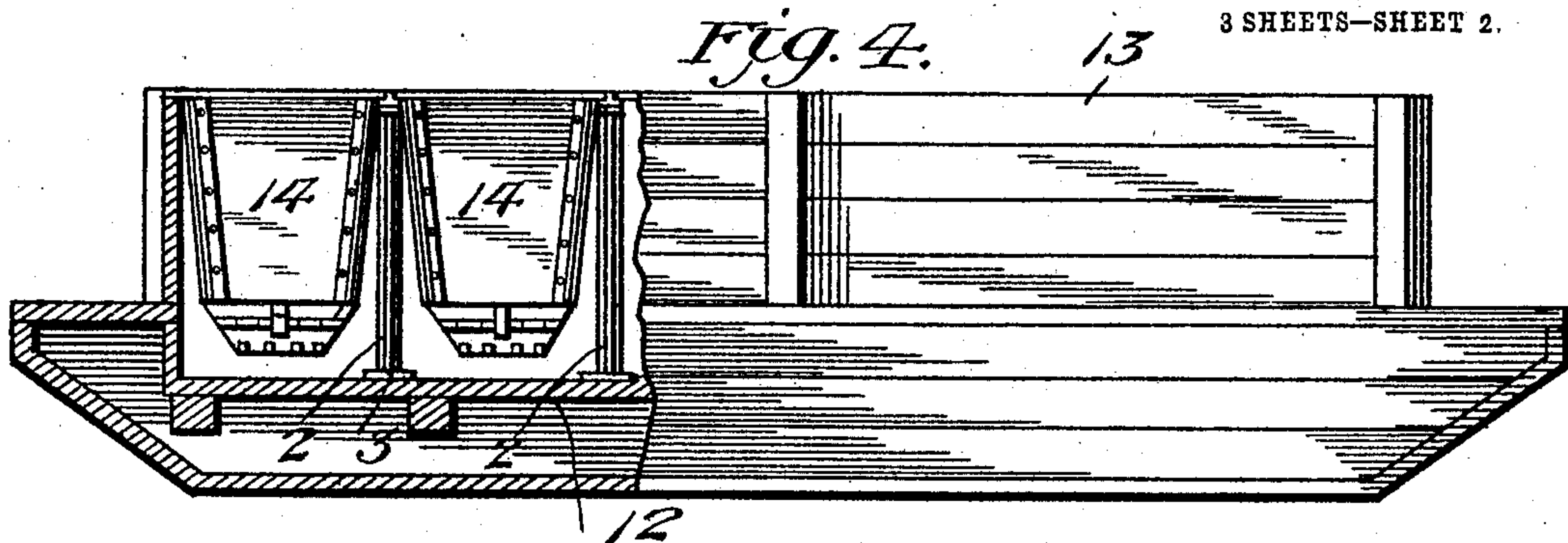
No. 795,722.

PATENTED JULY 25, 1905.

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MEANS FOR TRANSPORTING COAL, &c.

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3 SHEETS—SHEET 2.



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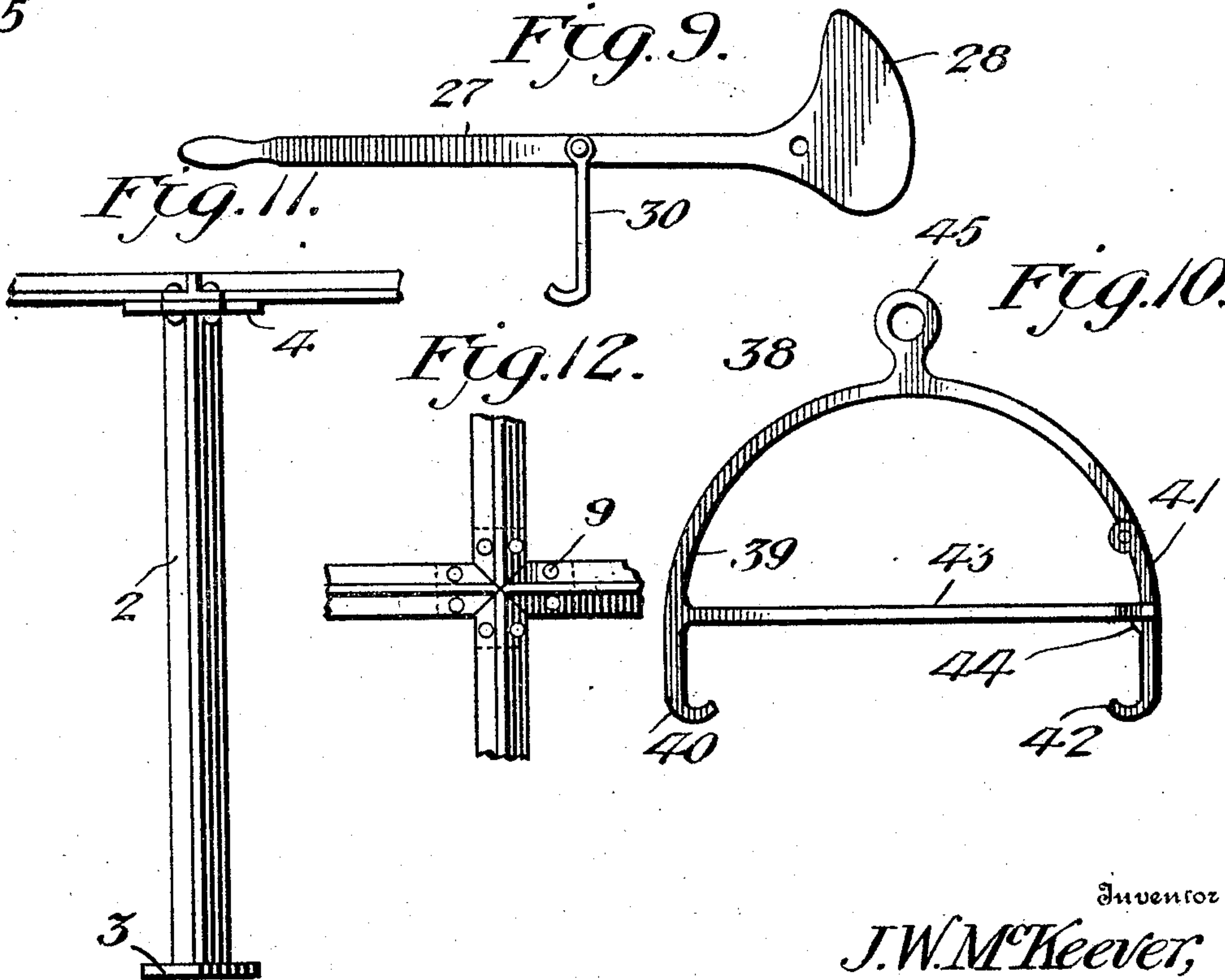
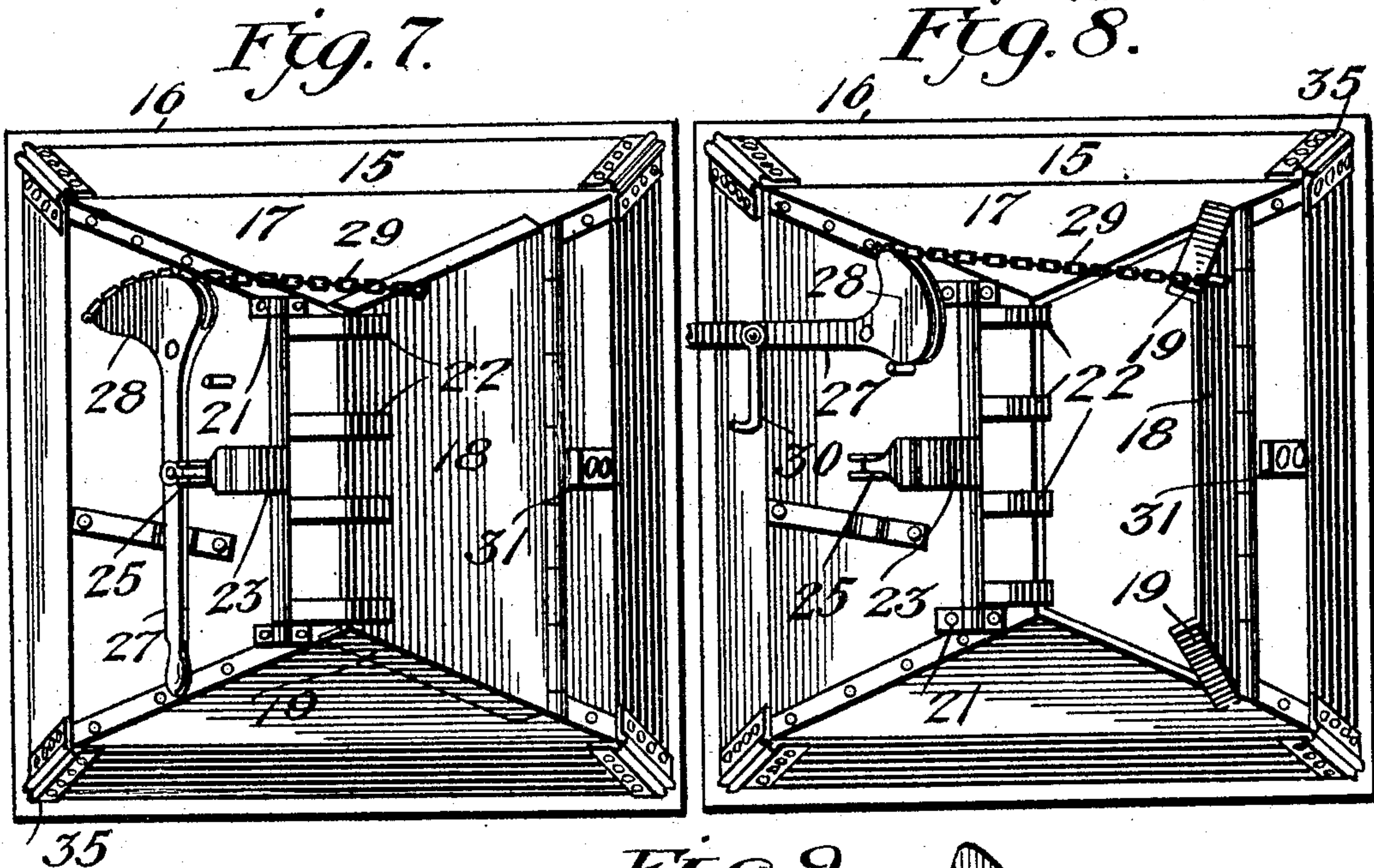
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JAMES WILLIAM MCKEEVER, OF FLEMINGTON, WEST VIRGINIA.

MEANS FOR TRANSPORTING COAL, &c.

No. 795,722.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed February 24, 1905. Serial No. 247,180.

To all whom it may concern:

Be it known that I, JAMES WILLIAM MCKEEVER, a citizen of the United States, residing at Flemington, in the county of Taylor and State of West Virginia, have invented new and useful Improvements in Means for Transporting Coal, &c., of which the following is a specification:

This invention relates to an improvement in means for transporting and facilitating the loading and unloading of coal, coke, ore, sand, and other substances, the object of the invention being to obviate the present practice of storing such substances in bulk or a single mass in transporting-conveyers—such as railway-cars, barges, and the like—and to provide a construction which will permit of the material being divided up or stored in convenient quantities in receptacles which may be removed for loading and unloading, and will thus facilitate the operation of transporting and handling substances of this character.

The invention contemplates the provision of a railway-car, barge, or like conveyer having a body provided with a plurality of chambers or compartments to receive and support buckets which may be primarily loaded and then swing into said compartments for transportation and upon arriving at the point of destination may be swung out to discharge their contents at the loading-point, also in the provision of a cellular supporting structure which may be readily applied to existing box or flat cars or barges to properly convert them for the reception of the buckets. It will be understood that this system of loading and transporting will in some measure reduce the carrying capacity of the conveyer; but this will be more than compensated for by the ease with which the cargo may be loaded and unloaded, which will result in the saving of a large part of the expense now attending these operations, which saving will more than counteract that lost through the reduction of the cargo.

The invention consists in the organization and combination of elements hereinafter described and claimed, reference being had for a full disclosure of the invention to the accompanying drawings, in which—

Figure 1 is a top plan view of a railway-car equipped with my invention. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a view similar to Fig. 1, showing the application of the invention to a barge. Fig. 4 is a side elevation of the barge, a portion of

the same being broken away to show the cellular or skeleton supporting-frame forming compartments or receiving-spaces for the buckets, two of the buckets appearing supported in position. Fig. 5 is an elevational view of one of the buckets, showing the door thereof closed to retain the load therein. Fig. 6 is a similar view showing the door opened to discharge the load. Fig. 7 is a bottom plan view of the bucket, showing the door closed. Fig. 8 is a similar view showing the door opened. Fig. 9 is a detail view of the door-operating lever. Fig. 10 is a similar view of a bail for the bucket. Fig. 11 is a view in elevation of one of the supporting posts or standards and the frame-bars applied thereto. Fig. 12 is a top plan view thereof, showing the joint at the meeting ends of the frame-bars where they are secured to the post; and Fig. 13 is a detail section through one of the corners of a bucket, showing the brace and wear-plate.

Referring now more particularly to the drawings, wherein like reference characters designate corresponding parts throughout the several views, the numeral 1 designates the bed or platform of an ordinary gondola or platform car, such as is used for transporting certain kinds of freight. Mounted upon the bed or platform 1 is a skeleton supporting-frame or cellular structure comprising transverse and longitudinal series of centrally-positioned posts or standards 2, arranged in alinement with each other and each having a base or foot piece 3, which may be bolted or otherwise rigidly fastened to the platform 1. Each post is of cruciform shape in plan or cross-section in order to secure maximum strength and rigidity, and each post is formed at its upper end with a head 4, also of cruciform shape or having a series of flat radial arms, four in number, arranged equidistantly at each quarter-point around its surface. This series of standards supports the inner ends of a longitudinal row of beams 5 and transverse rows or series of beams 6, each beam being of inverted-T form to provide a vertical stop-shoulder 7 and oppositely-projecting ledges 8 at the base of said shoulder. At the points where the beams converge and are fastened to the heads of the standards the horizontal webs or flanges of the beams forming the ledges 8 are beveled to form V-shaped or pointed ends, the arrangement being such that the V-shaped ends of those beams arranged in alinement will fit into the correspondingly-

shaped recesses formed by the V-shaped ends of the adjacent pair of beams arranged at right angles thereto, as shown in detail in Fig. 12, thus providing for a tight connection of the beams at the joint portions. The ends of the beams are secured to the arms of the heads 4 of the supporting posts or standards by rivets 9. By this construction a skeleton or cellular frame is provided having a series of receiving chambers or compartments 10, which may be in open communication, as shown, or divided by suitable partitions, the skeleton or open formation being preferred on account of its lightness of weight. The outer sides of the side and end cells or compartments are shown in the present instance as being closed by a wall 11, secured to and rising from the platform 1, and which may be constructed of wood or metal, and when this structure is employed the edge of the wall will be shouldered or otherwise provided with means to support the outer ends of the two series of beams 5 and 6. Instead of providing the wall 11, however, the outer ends of the two series of beams may be supported by standards similar to the central supporting-standards 2, thus providing a frame structure which is open on all sides. By so forming the supporting-frame ordinary flat or gondola cars may be conveniently converted for transporting materials in accordance with the principles of the invention by simply mounting upon the platform thereof the supporting-standards and securing the beams thereto in the manner described.

In Figs. 3 and 4 I have shown the application of the invention to a barge, in which the supporting posts or standards are illustrated as being secured at their lower end to the floor or inside deck or platform 12 of the barge, the cellular frame being closed at its outer sides by a surrounding wall 13. This construction may be varied in this instance also by dispensing with the wall 13 and by providing outer supporting-posts to support the outer ends of the frame-bars.

The cells or compartments 10 are adapted to receive buckets 14, designed to contain divided portions of the cargo which is to be shipped. These buckets are of the construction shown in Figs. 5 to 8, inclusive, each bucket comprising a body portion 15, preferably rectangular in form and composed of metal side pieces suitably connected at the corners, the bucket being provided at the upper end of its body with a surrounding flange 16 to rest upon the ledges 8 of the inverted-T beams 7, and where the car or barge is provided with a side wall to rest upon the shoulder or ledge at the upper edge of said wall at one side thereof, the buckets being thereby suspended in the compartments 10. Each bucket has a hopper-shaped bottom 17, provided upon one side with a discharge-opening adapted to be closed by a hinged door 18,

which is provided at its sides with flanges 19 to lap over the opposite sides of the wall of the door-opening to form a tight closure and to serve as side guards to adapt the door to serve as a chute to effect the ready discharge of the load when the door is opened. In order to hold the door closed, a catch 20 is provided, which is pivoted to a bracket 21 on the opposite side of the hopper-bottom from the door-opening and is provided at one end with a lip 22 to engage the free edge of the door and hold it closed. The latch has an angular bent arm 23 disposed on the opposite side of its fulcrum from its lip 22 and formed with a shoulder 24 and a right-angularly-projecting extension 25. A pivoted brace or detent 26 is provided to engage the shoulder 25, as shown in Fig. 5, and hold the latch projected to secure the door in closed position and prevent accidental disengagement of the latch. Fulcrumed to the hopper-bottom is a door-operating lever 27, having a cam-shaped end 28, grooved to receive a chain 29, secured at one end thereto, the said chain being secured at its other end to the free edge of the door 18, so that when the lever is swung in one direction or the other the chain will be tightened or relaxed by the action of the cam portion 28 and will close the door or permit it to be opened. Pivoted to the lever is a hooked link 30, the hooked portion of which is engaged with the pivoted detent 26 when the door is closed. When the lever 27 is swung to open the door, this hook will draw upon and release the detent 26 from the shoulder 24, thus permitting the door to swing open by gravity. The opening of the door retracts the latch, which swings to the position shown in Fig. 6, in which its extension engages the detent 26 and holds it elevated. To close the door, the lever 27 is swung to tighten up the chain 29, thus swinging the door to closed position. Then the latch is adjusted to engage the door, the detent 26 set to engage the shoulder 24 and hold the latch in projected position, and the hook 30 engaged with the detent, so that when the lever is swung in the opposite direction the detent will be retracted and the door permitted to drop open by gravity. The lever may be locked in its two positions by a pawl and rack or any other suitable preferred locking means. A stop 31, carried by the bottom 17, is provided to limit the outward movement of the door 18.

In order to strengthen the corners of the body 15 and relieve the same from wear and tear when the buckets are raised out of and lowered into the compartments 10, each bucket is provided at its corner with a brace and wear plate or strip 33, whose side edges are bent to lie against the adjacent edges of the body-plates of the buckets and are fastened thereto by rivets 34, while the intermediate portion of the brace is crimped to form spaced ribs

35 and an intermediate recessed or inwardly-deflected web 36, the latter abutting against the corner portion. The ribs 35 project outwardly and shield the rivets and sustain the wear when the bucket is inserted and removed, thus relieving the bucket from excessive wear and strain.

Each bucket is provided with oppositely-disposed loops or eyes 37 to receive the hooked ends of a bail 38, which may be of the construction shown in Fig. 10, wherein the body portion of the bail is shown as being provided with an integral arm 39, having a hooked end 40, and an opposite pivoted arm 41, having a hooked end 42, the arm 41 when closed being adapted to fit within the notched or bifurcated outer end of a brace 43 integral with and extending from the arm 39, said arm having a lug or shoulder 44 to take under said brace and hold the parts in rigid engagement when strain falls thereon. The hook 40 is adapted to engage one of the eyes 37 and the hook 42, adjusted by the movement of the arm 41 into engagement with the other eye, thus connecting the bail with the bucket. The bail has a central eye 45 for connection with the carrying-hook on a crane or derrick.

I do not limit the invention to the specific construction of parts of the bucket herein shown, as these parts may vary materially from the form and construction shown. I may also provide each bucket with two drop-doors instead of one and vary the arrangement of the locking mechanism accordingly.

In operation a car or barge equipped with the invention is run under or adjacent to a tippie, elevator, loading-stage, or other loading apparatus and loaded by conducting the material from the storage-point through a chute or other suitable conductor to the buckets, which may thus be filled by the ordinary process of loading cars and barges. Upon arriving at its point of destination the car or barge is unloaded by means of a crane employed to swing the buckets out of their compartments to the point where the load is to be dumped, at which the door is swung open to allow the load from the bucket to discharge. This enables the operation of loading and unloading a car to be performed with greater facility than where the cargo or load is carried *en masse* or in a body and at considerably less expense, which, as before stated, will more than counteract the reduced carrying capacity of the car or barge. My system of transportation may therefore be employed with great advantage in shipping and handling coal, coke, or other like heavy substances.

A further advantage of the invention is that when the barge or car is filled it may be con-

veyed directly to the point where the load is to be discharged and the cargo transported immediately to a steamer, storage-receptacle, or into carts or like conveyances intended for its reception and removal. In case of the sinking of a loaded vessel or barge equipped with my invention the cargo may be conveniently saved by hoisting the buckets one by one and transporting the same to an empty barge, thereby obviating the necessity of raising the entire barge.

From the foregoing description, taken in connection with the accompanying drawings, the construction and mode of operation of the invention will be understood without a further extended description.

Changes in the form, proportions, and minor details of construction may be made within the scope of the invention without departing from the spirit or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

1. A car, barge or other conveyer having a series of compartments formed by a superposed frame, and buckets removably mounted in said compartments and having supporting means at their upper ends engaging and holding them suspended from said frame.

2. A car, barge or other conveyer having a frame composed of standards carrying angle-metal beams and forming compartments, and buckets removably mounted in said compartments and having flanges to rest upon said beams.

3. In a car, barge or other like conveyer, the combination of a platform, posts rising therefrom, beams secured to the upper ends of the posts and arranged to form a skeleton frame having compartments, and buckets removably mounted in said compartments and having supporting-flanges at their upper ends to rest upon said beams, whereby they are suspended in the compartments from the frame.

4. In a car, barge or other container, the combination of a platform, cruciform posts rising therefrom and provided with armed heads at their upper ends, inverted-T-shaped beams secured to the arms of the head and forming a skeleton frame having receiving spaces or compartments, and buckets removably mounted in said compartments and having flanges to rest upon the webs of the beams.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES WILLIAM McKEEVER.

Witnesses:

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B. H. McKEEVER.