

(No Model.)

4 Sheets—Sheet 1.

V. H. ROOD.
COAL OR ORE JIGGER.

No. 490,793.

Patented Jan. 31, 1893.

Fig. 1.

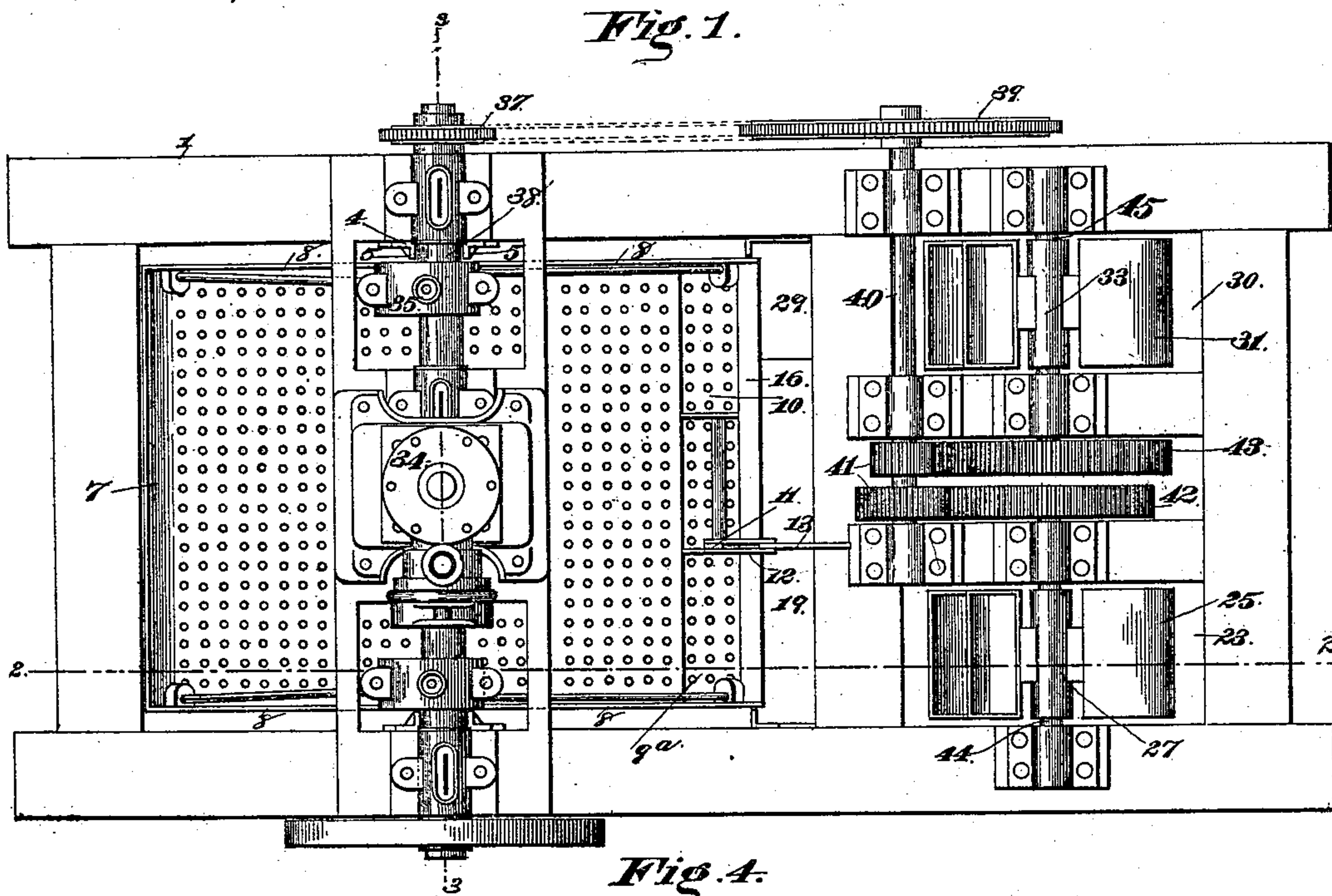
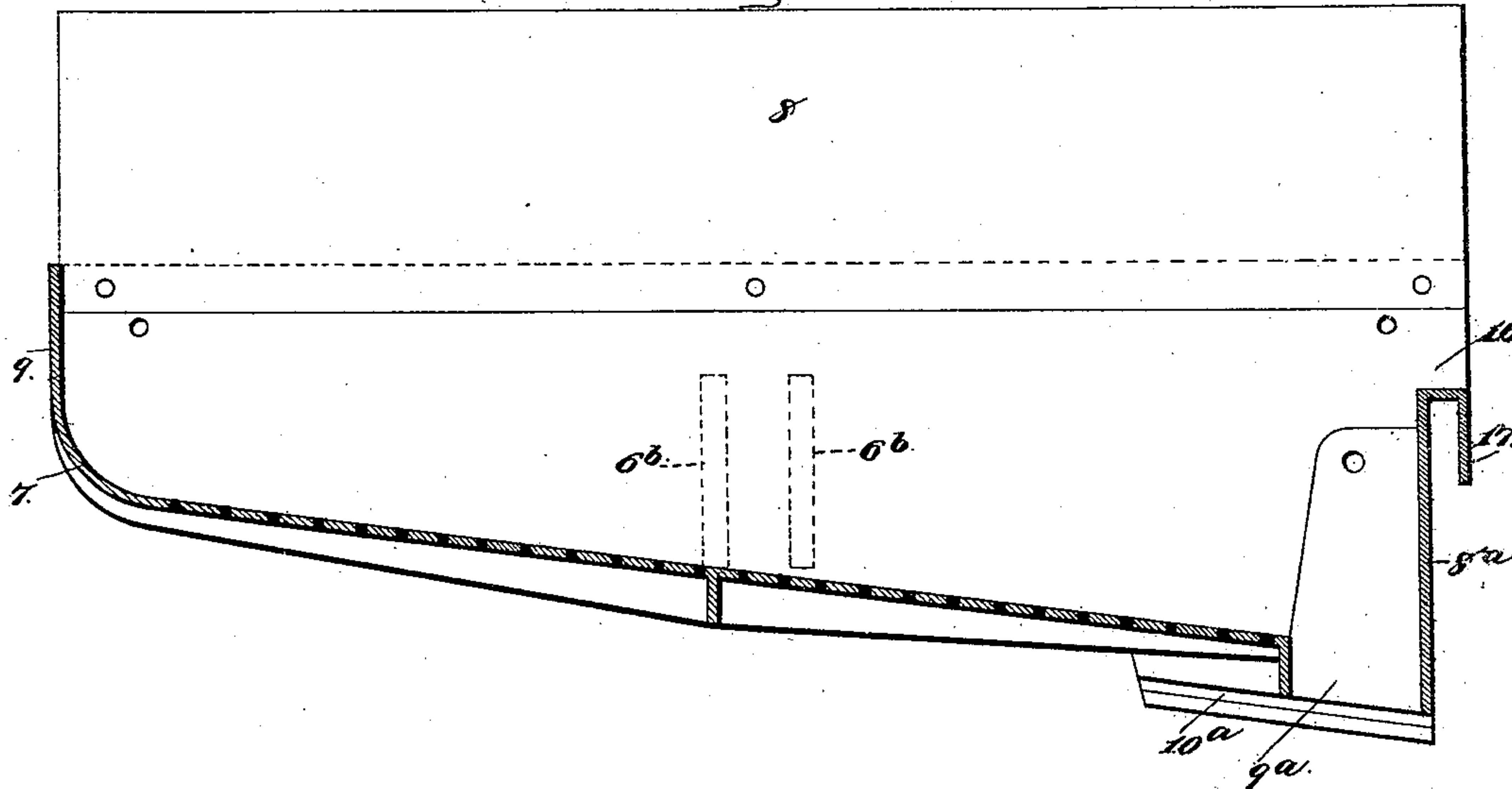


Fig. 4.



Witnesses

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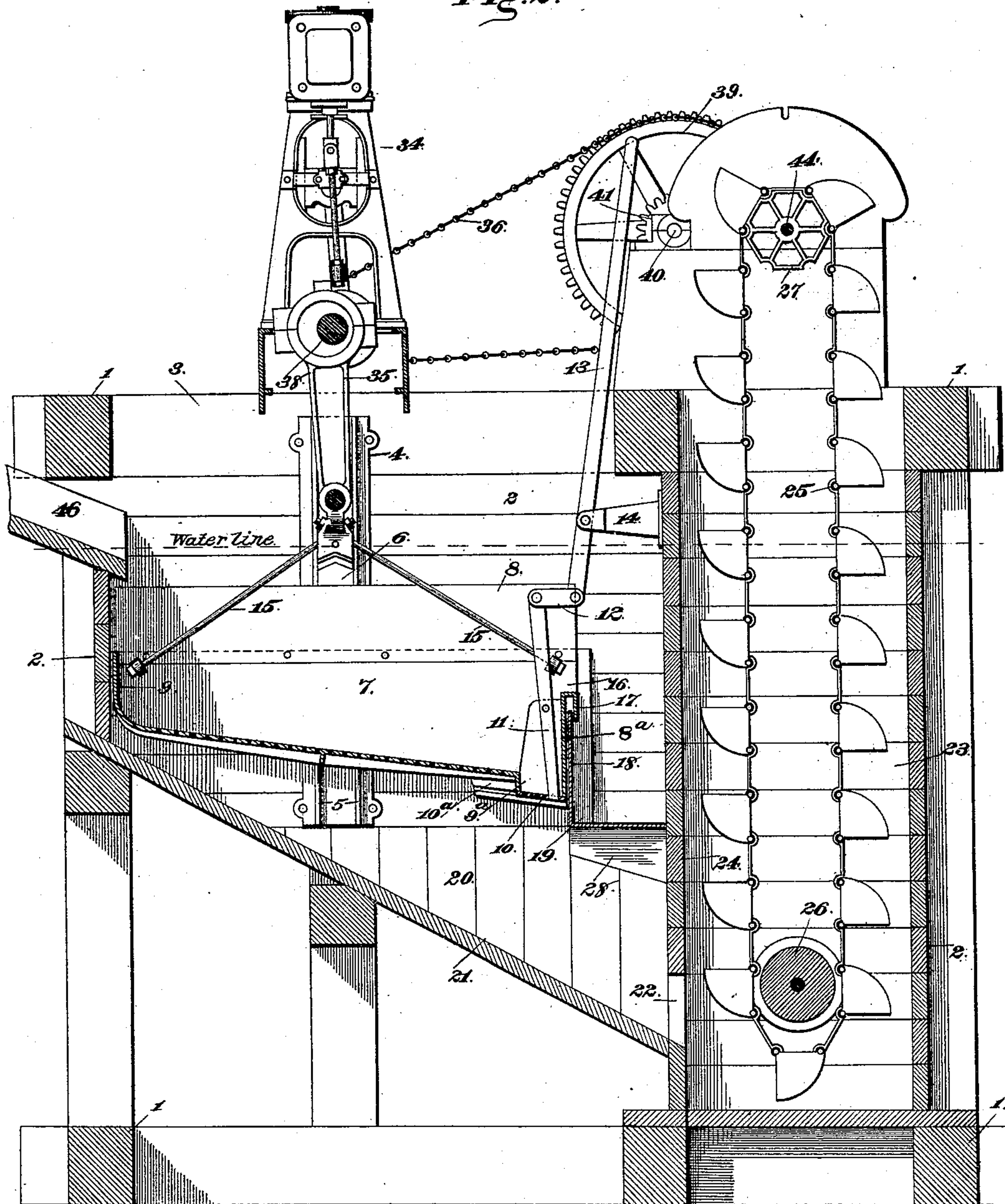
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Fig. 2.



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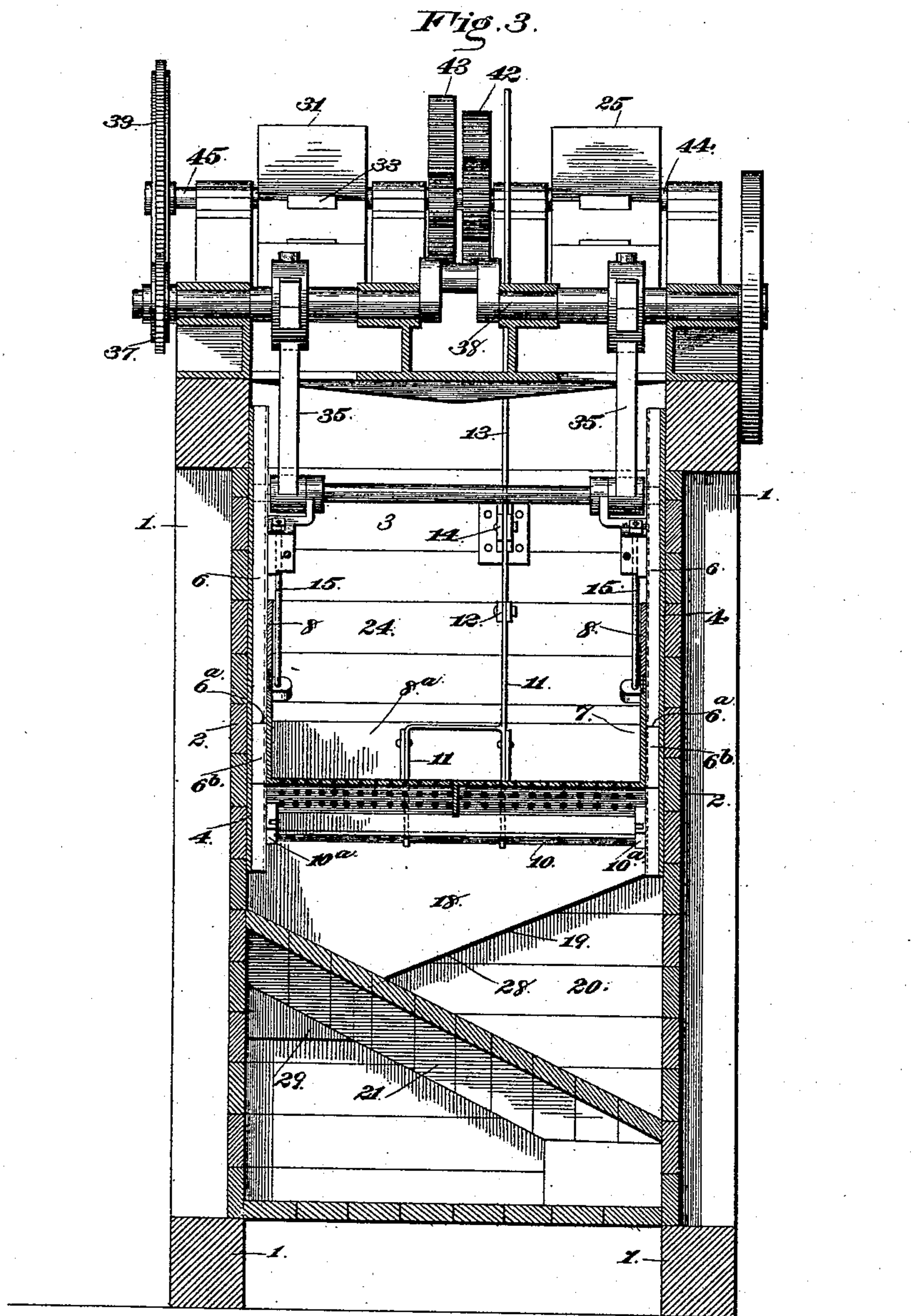
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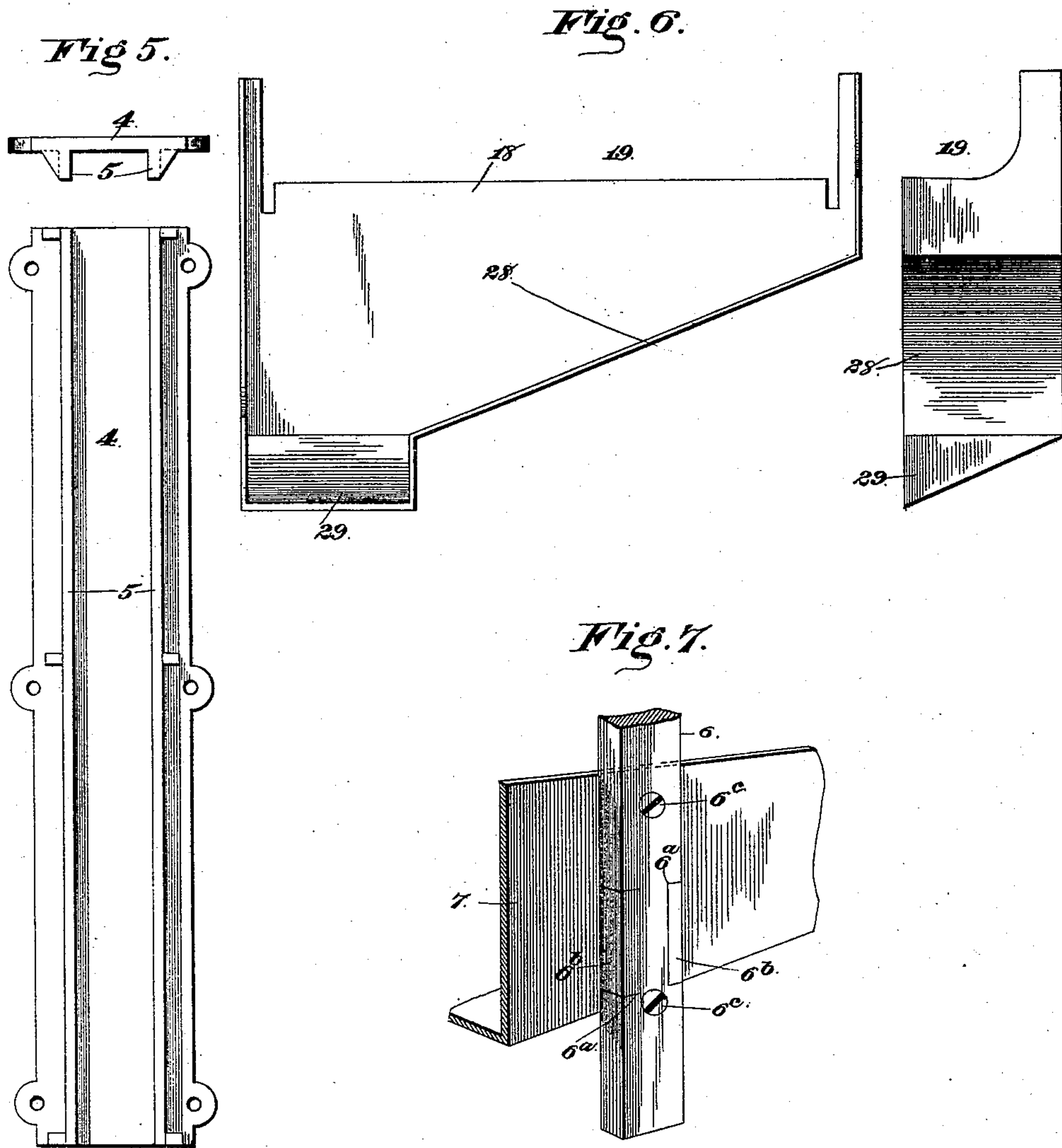
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UNITED STATES PATENT OFFICE.

VERNON H. ROOD, OF JEANSVILLE, PENNSYLVANIA.

COAL OR ORE JIGGER.

SPECIFICATION forming part of Letters Patent No. 490,793, dated January 31, 1893.

Application filed March 30, 1892. Serial No. 427,049. (No model.)

To all whom it may concern:

Be it known that I, VERNON H. ROOD, a citizen of the United States, residing at Jeansville, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Coal and Ore Jigger, of which the following is a specification.

This invention relates to coal and ore jiggers; and it has for its object to provide an improved machine of this character which is adapted for use in separating all kinds of coal, and one in which the separations are completely and effectively obtained, and it further has as its main object to provide a jigger which is so constructed that the separating receptacle thereof is firmly steadied in its movement and is so constructed with relation to the chutes into which the same discharges its contents, that leakage of any of the separations into wrong chutes is avoided.

With these and many other objects in view which will readily appear as the nature of the invention is better understood, the same consists in an ore jigger constructed in the novel manner hereinafter more fully described, illustrated and claimed.

In the accompanying drawings:—Figure 1 is a top plan view of an ore jigger and separator constructed in accordance with this invention. Fig. 2 is a vertical longitudinal sectional view on the line 2—2 of Fig. 1. Fig. 3 is a vertical transverse sectional view on the line 3—3 of Fig. 1. Fig. 4 is an enlarged detail vertical sectional view of the separating pan. Fig. 5 is a detail plan view of the pan guides and a projected end view of the same. Fig. 6 is a detail elevation and projected end view of the coal chute. Fig. 7 is a detail elevation of a portion of the pan or receptacle and the guide block secured thereto.

Referring to the accompanying drawings;—1, 1 designate vertical and horizontal sills and beams joined together to form a rectangular frame inclosed by the closely fitting end and side walls 2, composed of suitable material joined together in order that the interior space inclosed thereby may be filled with water to cleanse the material separated therein. The said side and end walls 2, inclose a main central compartment 3, within which are located the separating devices to be presently described. Suitably secured to opposite sides

of the main compartment 3 are the opposite guide blocks 4, provided with the projecting parallel flanges 5, accommodating the sliding blocks 6, having the cut-away or notched side portions 6^a, embracing the short parallel lugs 6^b, fast on opposite sides of the pan or receptacle, which lugs take the entire strain off of the securing bolts 6^c, removably securing the blocks to said pan or receptacle. The operating pan or receptacle 7, supported and carried by said sliding blocks, is of a rectangular shape, constructed of suitable metal, and provided with a perforated bottom either cast or separately bolted in place, and is inclosed by the extended sides 8. The pan is inclined at a suitable angle from one of the sides 9, to the other designated 8^a, which according to its location within the jigger, may be termed the rear end of the separating pan. At this rear end of the separating pan is located a series of reduced discharge openings 9^a, which are alternately opened and closed by the inclosing perforated gate 10, covering said openings and held in position to slide beneath the bottom of the pan by means of guide flanges 10^a. Operating levers 11, are suitably connected to said gate and have their upper ends pivoted to the connecting link 12, pivotally secured to the operating lever 13, mounted in the bracket 14 secured in the inside of the jigger, and extending above the top of the same, whereby it may be operated for either sliding the gate from under the openings to allow a discharge of the slate, as will be hereinafter described, or to close the same when required.

In order to provide for firmly bracing the pan to relieve the same from undue strain caused by unevenness of weight therein, or by striking accumulations in the upper end of the jigger below the same, and in order to also equalize such strain I preferably employ the diagonal brace-rods 15 bolted or otherwise suitably secured to opposite sides of the pan and converging to and passing through the sliding supports thereof to which the same are securely bolted. The perforated bottom, as usual, not only allows the dirt and other accumulations of foreign matter within the pan to work out from the same, but also allows the water within the jigger to be forced through the material within the pan by the

vibrations thereof. The inner or rear end 8^a directly above the gate located at the lowest point of the bottom, is provided with an end discharge opening or dam 16 extending across the entire width of the end 8^a at the top thereof, and which is designed to allow the coal, which on account of its lighter specific gravity is upon the top of the slate designed to be separated from the same, to run out of the pan into the chute designed therefor and to carry the same to its separate compartment. The end 8^a of said pan is turned outwardly and downwardly to form said top discharge opening 16, and also to form the integral depending joint flange or overhanging lip 17 off from and parallel with the end of the pan and which is designed to fit over the upper edge of the straight side 18 of the coal chute 19, said discharge opening being inclosed by the extended sides 8. The said side 18 of said coal chute extends up between said flange or overhanging lip and the end wall of the pan, and thereby prevents the fine particles of coal from working between said pan and the chute 19, and thereby mingle with the slate discharged from the pan and into the slate chute 20. The said slate chute 20 extends across the entire width of the separating pan directly beneath the same, but inclines downwardly and laterally as at 21, to one corner or side of the inclosed jigger compartments, and communicates with the opening 22, through which the separated slate passes into the vertical slate elevator shaft 23, inclosed within one of the end walls 2 and the supplemental interior wall 24, forming the main compartment 3, and said elevator shaft accommodates the endless bucket chain 25 working over the chain pulleys 26 and 27, located at the bottom and top respectively of the machine. Said elevator is designed to elevate the slate and discharge the same into its separate chute or separate point of discharge from that of the coal separated therefrom. The coal chute 19 walled in on one side by the wall 18 is secured to the intermediate or interior wall 24, directly above the slate chute 20, and has its bottom inclined laterally and downwardly as at 28, until it strikes the opposite side to that where the slate is discharged, and there communicates with a short supplemental chute 29, that discharges the coal into the coal elevator shaft 30, parallel with and opposite to the shaft 23 and accommodating the chain bucket 31, working over the chain pulleys, located at the bottom and top of said shaft respectively, and carrying the chain bucket which elevates the separated coal to its point of discharge.

As illustrated in the drawings, an ordinary engine 34 is mounted transversely upon the top of said jigger and is provided with the eccentric operated arms 35, which are pivoted to the sliding blocks 6, carrying the vibrating separating pan 7, which as can be readily seen can be conveniently reciprocated in this

manner, although other suitable means may be employed. By means of suitable belting 36, operated by the sprocket or belt wheel 37 carried upon the outer end of the engine shaft 38, motion is communicated to the sprocket or belt wheel or pulley 39, carried by the shaft 40, transversely mounted upon the cross-beams of the machine directly in advance of the parallel elevators. The said shaft terminates intermediate of said elevators and is provided at such a point with the cog-wheels 41, meshing respectively with the cog-wheels 42 and 43, mounted upon the shafts 44 and 45, journaled transversely in the top timbers and carrying the upper chain pulleys 27 and 33 respectively, thus communicating motion to each elevator as will be readily apparent.

In operation the coal to be cleaned is fed through the feeding chute 46, located at the upper end of the main compartment 3, directly above the top of the vibrating separating pan, into which the coal and slate, mixed together, and designed to be separated, pass. By the rapid reciprocations or vibrations of said separating pan, the slate which is the heavier substance settles upon the bottom of the pan, while the coal which is of lighter specific gravity remains on top of the slate and passes over and through the end discharge opening 16, at the rear wall of said pan and into its respective chute and elevator, in the manner as previously described and set forth.

The entire machine is filled with a sufficient quantity of water so that during the vibrations of the pan, the coal may be thoroughly washed from all impurities, which will sink with the slate to the bottom of the pan, and pass through the perforated bottom into the slate chute. The slate is discharged from the pan by the lever operated gate in the manner set forth.

Having thus described my invention, what I claim and desire to secure by Letters Patent is;—

1. In a coal and ore-jigger, the casing, opposite side guide blocks having parallel flanges, the vertically reciprocating pan or receptacle, opposite guide blocks removably secured to opposite sides of the pan or receptacle and working between said parallel flanges, independent diagonal brace rods connected to opposite inner sides of said pan at one end and having their other ends passing through and bolted to opposite sides of the removable guide blocks to equalize the strain, and means for reciprocating said removable guide blocks in said side guides, substantially as set forth.

2. In a coal and ore jigger, opposite side guides, a vertically reciprocating pan or receptacle having short parallel lugs 6^b, fast on opposite sides thereof, and sliding blocks removably secured to opposite sides of the pan and moving in said guides, said blocks being provided with cutaway or notched side portions registering with said short lugs, which

are fast on the pan sides to relieve the fastenings of the blocks from undue strain substantially as set forth.

3. In a coal and ore jigger, the casing having opposite elevator shafts at one end and an inclosed well having a bottom declining diagonally from one side of the casing to one elevator shaft, an elevated inclosed coal chute secured to one of the walls of the well above the declining bottom and provided with a straight side wall, and an oppositely inclined bottom leading to the other elevator shaft, a vertically reciprocating separating pan mounted in the well between the straight wall of the coal chute and the opposite wall of the well, and having its inner integral wall or end bent from its upper edge over the straight wall of the chute and depending at the inner side thereof, forming an overflow dam and seal, and means for reciprocating said pan, substantially as set forth.

4. In a coal and ore jigger, the combination

with the casing having the elevator shafts at one end; of a coal chute supported within the casing above its bottom and provided with a straight inclosing side wall, a sharply declining bottom and a short supplemental chute at the lower terminal of said bottom and itself declining into one of the elevator shafts, and the vertical reciprocating separating pan mounted in the casing and having upwardly extended sides and an integral outwardly depending overhanging lip or flange turned down from one end to take over the straight wall of the chute and form an overflow dam and seal, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

VERNON H. ROOD.

Witnesses:

JOHN H. SIGGERS,
GERTRUDE M. ATHEY.