

No. 713,648.

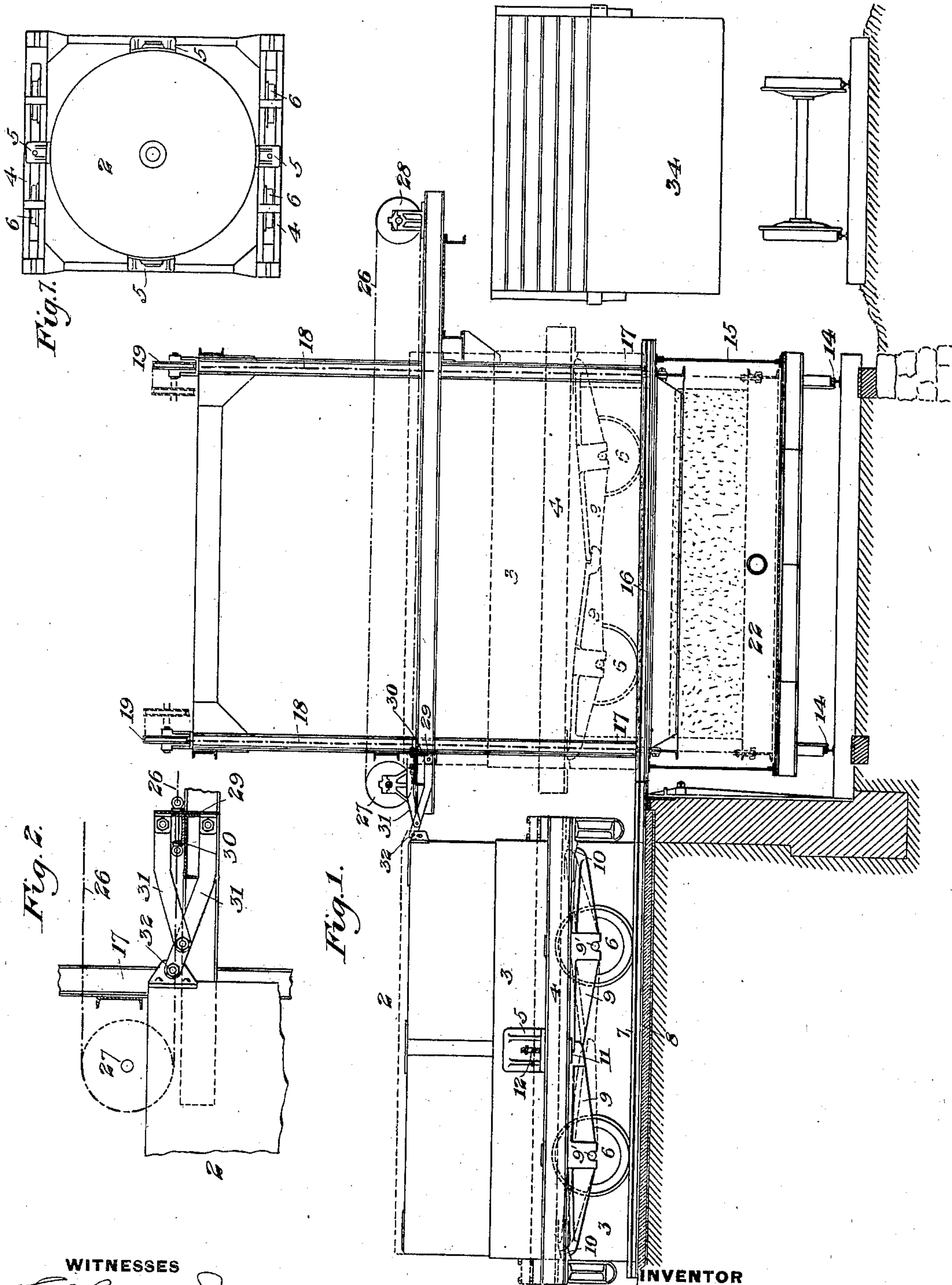
Patented Nov. 18, 1902.

H. KENNEDY.  
COKE OVEN.

(Application filed June 6, 1902.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES

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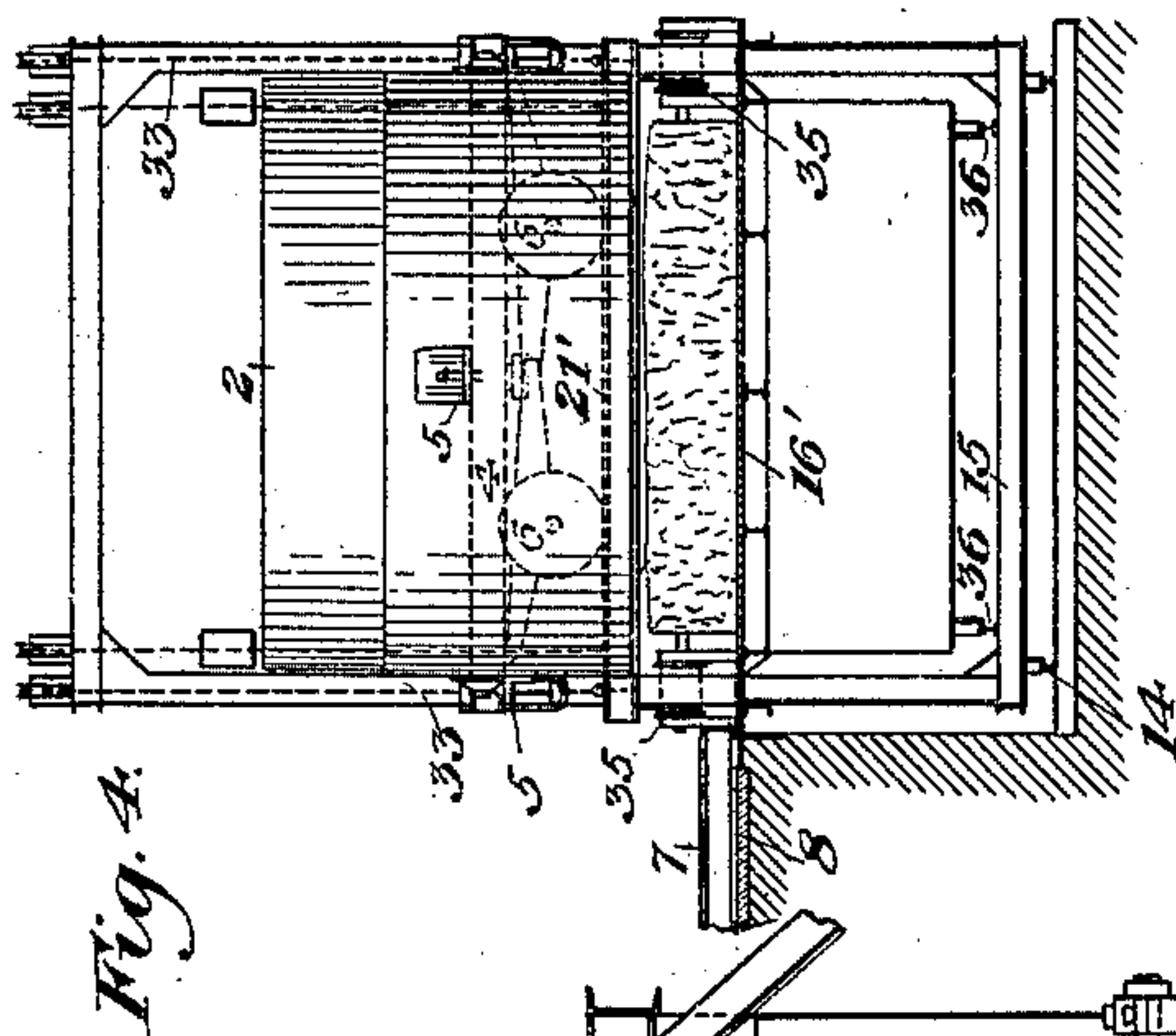


Fig. 4.

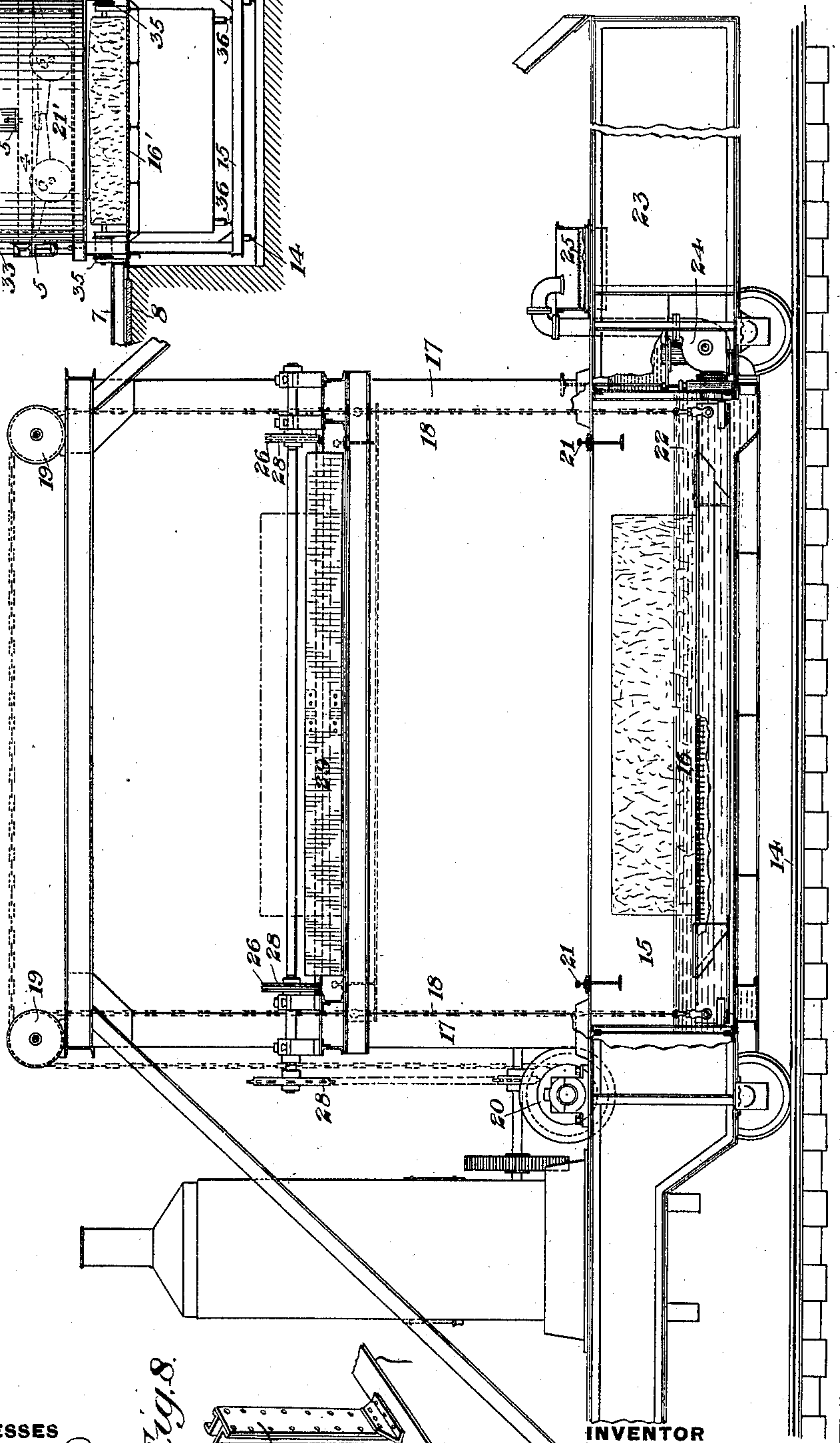
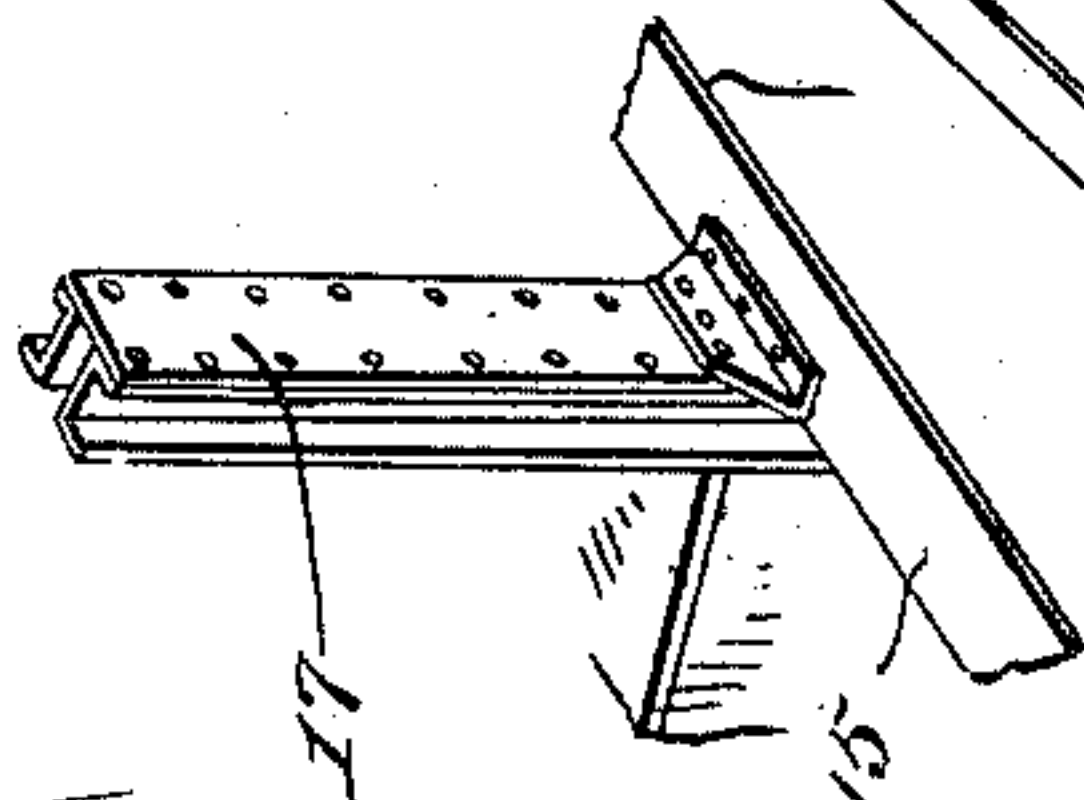


Fig. 3.

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Fig. 8.



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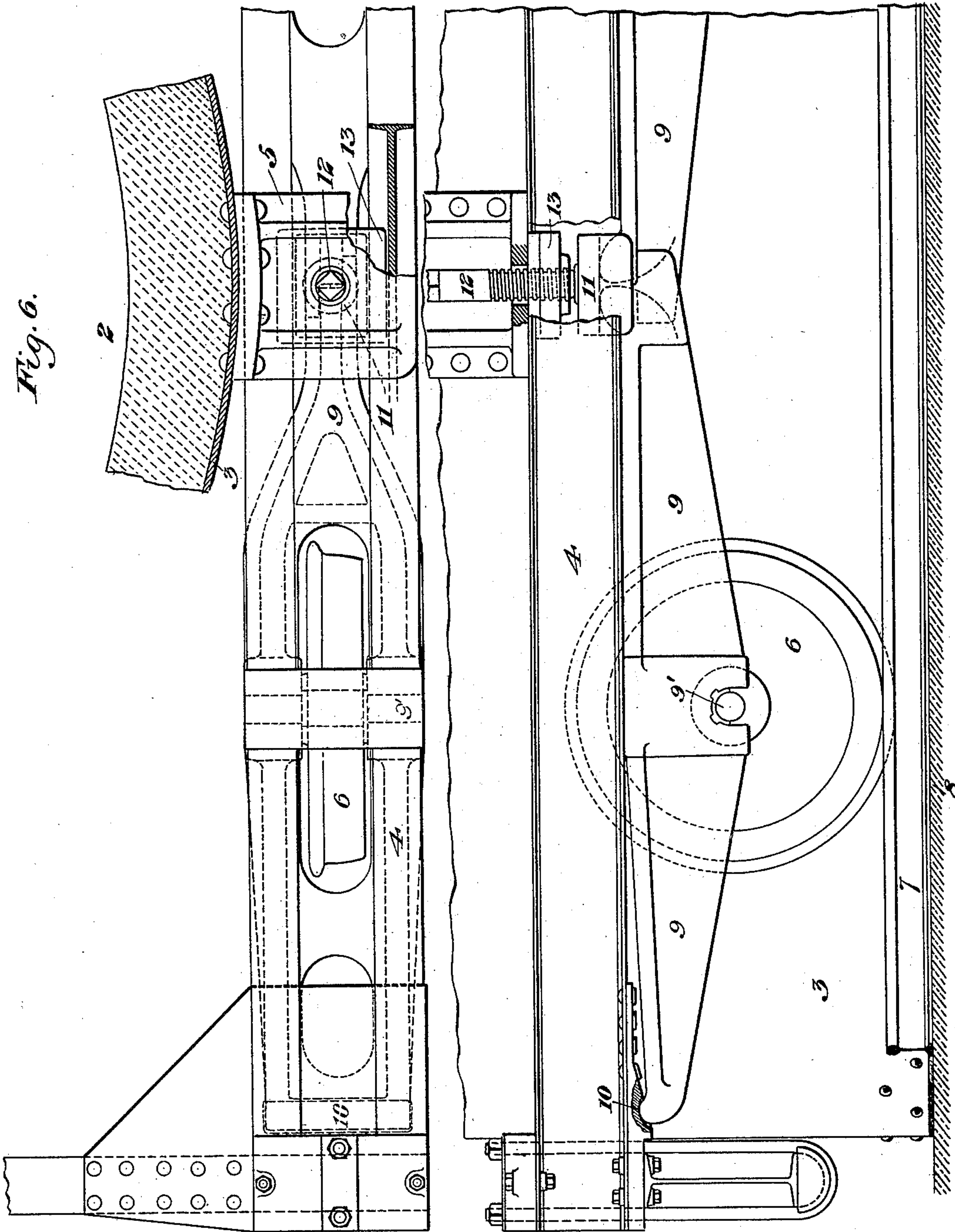


Fig. 6.

Fig. 5.

WITNESSES

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# UNITED STATES PATENT OFFICE.

HUGH KENNEDY, OF SHARPSBURG, PENNSYLVANIA.

## COKE-OVEN.

SPECIFICATION forming part of Letters Patent No. 713,648, dated November 18, 1902.

Application filed June 6, 1902. Serial No. 110,488. (No model.)

*To all whom it may concern:*

Be it known that I, HUGH KENNEDY, of Sharpsburg, Allegheny county, Pennsylvania, have invented a new and useful Coke-Oven, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows in end elevation one of my coke-ovens with the discharging apparatus used therewith. Fig. 2 is a detail view showing the mechanism which I prefer to employ for moving the oven. Fig. 3 is a side elevation, partly in section, of the discharging apparatus. Fig. 4 is a view similar to Fig. 1, on a smaller scale, showing a modified form of apparatus. Fig. 5 is a side elevation of part of the car, showing the lifting mechanism therefor. Fig. 6 is a plan view of Fig. 5. Fig. 7 is a plan view of one of the ovens. Fig. 8 is a detail view.

The object of my invention is to facilitate the manufacture of coke by dispensing with the large amount of manual labor which is required in connection with the means heretofore commonly employed in the coking of coal.

My invention comprises a stationary coking-hearth, an oven movable from the hearth to a floor or platform, and means for lowering the platform or floor, so as to leave the charge of coke free from the oven and upon the floor or platform. I believe this combination of the coking-hearth, the laterally-movable coke-oven, and the vertically-movable platform to be broadly new and desire to cover the same broadly irrespective of the particular manner in which they may be used.

My invention also comprises other matters which are hereinafter described and are stated in the claims.

In the drawings, 2 represents the coke-oven, which is preferably a beehive masonry structure built within a circular metal shell 3. The oven is supported at four or more points by brackets 5, which rest upon and within a truck-frame 4 of metal beams. The truck-frame itself is mounted upon wheels 6, which run upon a track 7, leading over the coking-hearth 8. For the purpose of enabling the oven to be raised somewhat in the truck-

frame I provide the latter with lifting mechanism, which may consist of levers 9, Figs. 5 and 6, having their fulcrums at the journals 9' and bearing at 10 against the beams of the truck-frame and at 11 against the heads of adjusting-bolts 12, which fit in threaded nuts 13 on the brackets 5, this arrangement being duplicated on the opposite sides of the oven. By turning the bolts 12 the outer ends of the levers at 10 are raised, and the oven is lifted relatively to the wheels 6. It will be understood that other means for raising and lowering the oven on the coking-hearth may be substituted.

In front of a line of movable ovens constructed as above described is a track 14, on which travels a car 15, carrying the platform 16, above mentioned. This platform, which I show in the drawings as consisting of a grid or grating, is adapted to be moved within upright guide-posts 17 on the car 15 by suitable lifting mechanism, which may consist of chains 18, passing over pulleys 19 to a power-driven drum 20. The car 15 has rails 21, adapted to register with the rails 7 of the coking-hearth and to afford a track on which the coke-oven may be moved over the platform 16. For the purpose of quenching the coke I may provide a car with a quenching-tank 22, adapted to contain water and situated below the normal level of the platform. I may employ a supply-tank 23, from which water may be admitted into the tank 22, and a pump 24, by which the surplus water may be returned from the tank 22 to the tank 23, an intermediate screen 25 being employed to separate the ashes and other fragments from the water.

I employ devices for discharging the coke into the cars or other receptacle into which it is to be loaded and prefer to locate them above the level of the coking-hearth. I find it convenient to employ a mechanism which will serve the double purpose of pushing the coke from the platform and drawing the oven over the platform. 26 26 are endless chains which pass over pulleys 27 and driven pulleys 28. Attached to these chains is a pusher-bar 29, supported on beams 30, and the chains have also a link or links 31, adapted to be detachably connected at 32 with the frame of the oven.



The operation of the device constructed as described above is as follows: The oven being in position on the coking-hearth 8, as shown by full lines in Fig. 1, and a charge of coal having been coked therein, if it is desired to discharge the contents of the oven the adjusting-bolts 12 are operated, so as to raise the oven slightly above the level of the coking-hearth, and the car 15 having previously been brought into the position shown in Fig. 1 the links 31 are attached to the oven and the chain 26 started in motion, whereupon the oven will be drawn into the position shown by dotted lines. The coked charge is thus drawn by the oven over the coking-hearth and upon the platform 16. The platform is then lowered by operation of the drum 20 and the chains 18 and is lowered into the tank 22. Water is then admitted into the tank and the coke is quenched. Meanwhile by reversing the motion of the chain 26 the oven, now freed from the coke, is pushed back onto the coking-hearth 8, and the links 31 are then detached therefrom. Then by operation of the chains 18 the platform 16 is raised to the level of the pusher 29, the chain 26 is started into motion, and the pusher is drawn along the platform 16, pushing the coke before it and discharging it into the car 34 or other place where it is to be received or stored. The car 15 may then be moved to another oven of the line. The discharged oven having been recharged with coke is lowered upon the coking-floor by a reverse operation of the bolts 12, a packing of asbestos fiber or luting of clay being first interposed between the edge of the oven and the floor in order to exclude the air.

In Fig 4 I show a modified form of my apparatus in which the oven 2 is raised while resting on rails 21', which are provided with lifting-chains 33, which are wound upon drums 35. The weight of the rails 21' and the oven 2 is counterweighted, as shown, so that very little power is required to lift the oven from the platform 16'. This platform 16' is not movable up and down, but is movable upon the tracks 36, mounted on the car 15. The operation of this form of my apparatus is as follows: The oven 2 is moved from the hearth 8 until it rests upon the rails 21' and over the platform 16', the top of the coking-hearth and the top of the platform being at the same level. The drums 35 are then revolved and the oven is lifted to the desired height, leaving the body of coke upon the platform 16' free from the oven, after which it may be moved to the desired point for quenching. The oven is then lowered and placed in position upon the hearth. A fresh charge of coal being supplied to the oven, the coking operation again proceeds.

My invention enables me to operate a coke-oven in much less time and with much less labor than heretofore, and is therefore efficient in reducing greatly the cost of manufacture.

It will be understood by those skilled in the art that the apparatus may be varied in many ways within the principle of my invention, since

What I claim is—

1. In combination with a coking-hearth, a platform movable upwardly and downwardly below the level of said hearth, and a coke-oven movable transversely to and from the hearth and platform; substantially as described.

2. In combination with a coking-hearth, a platform movable upwardly and downwardly below the level of said hearth, a coke-oven movable transversely to and from the hearth and platform, and a car on which said platform is carried; substantially as described.

3. In combination with a coking-hearth, a car carrying a platform, a coke-oven movable transversely from the hearth onto the car and adapted to deposit the coked charge upon the platform, and means for lowering said platform and for moving the oven; substantially as described.

4. In combination with a coking-hearth, a car carrying a platform, a coke-oven movable transversely from the hearth onto the car and adapted to deposit the coked charge upon the platform, means for lowering said platform and for moving the oven, and a quenching device below the level of the hearth; substantially as described.

5. In combination with a coking-hearth, a car carrying a platform, a coke-oven movable transversely from the hearth onto the car and adapted to deposit the coked charge upon the platform, means for lowering said platform and for moving the oven, and a pusher adapted to discharge the coke from the platform; substantially as described.

6. In combination with a coking-hearth, a car carrying a platform, a coke-oven movable transversely from the hearth onto the car and adapted to deposit the coked charge upon the platform, means for lowering said platform and for elevating it above the level of the hearth, and a pusher adapted to discharge the coke when the platform is so elevated; substantially as described.

7. A coking apparatus, comprising a coking-hearth, a truck running on wheels on the hearth, an oven supported permanently in the frame of the truck and adapted to be carried thereby to and from the coking-hearth, and lifting mechanism carried by the truck and adapted to raise said oven to permit travel of the truck; substantially as described.

8. In combination with a coking-hearth, a car carrying a platform, a coke-oven movable transversely from the hearth onto the car and adapted to deposit the coked charge upon the platform, means for lowering said platform and for moving the oven, and a quenching-tank below the level of the hearth; substantially as described.

9. In combination with a coking-hearth, a car carrying a platform, a coke-oven movable

transversely from the hearth onto the car and adapted to deposit the coked charge upon the platform, and means for lowering said platform and for moving the oven, a quenching-  
5 tank below the level of the hearth, and means for admitting water into said tank; substantially as described.

In testimony whereof I have hereunto set my hand.

HUGH KENNEDY.

Witnesses:

L. M. REDMAN,  
H. M. CORWIN.