F. D. CARNEY & R. V. McKAY.

CHARGE LEVELING MECHANISM.

APPLICATION FILED FEB. 5, 1915.

1,197,263.

Patented Sept. 5, 1916.

2 SHEETS—SHEET 1.

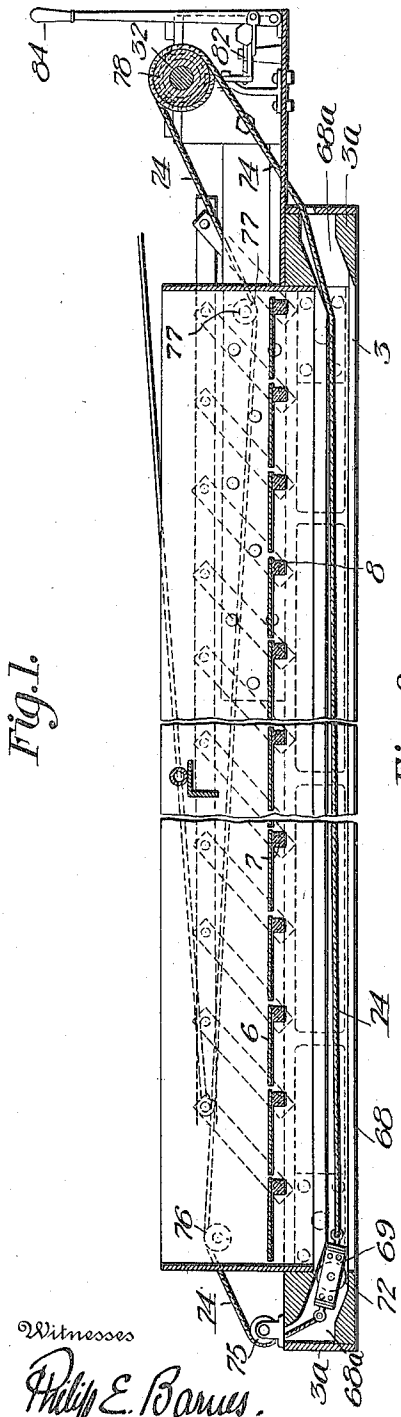


Fig. 1.

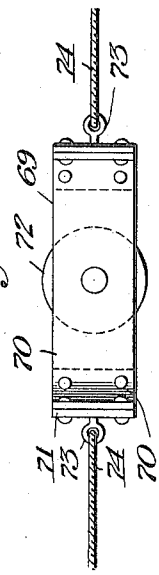


Fig. 2.

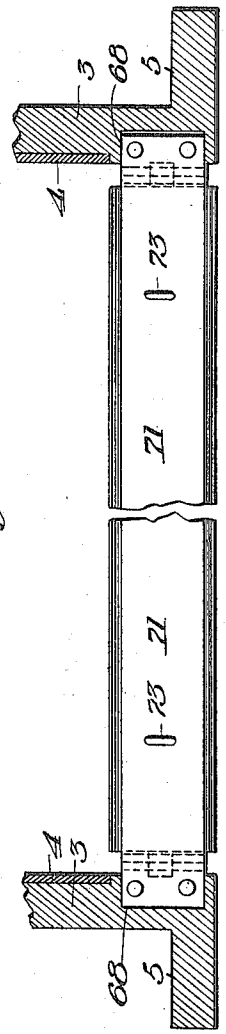


Fig. 3.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

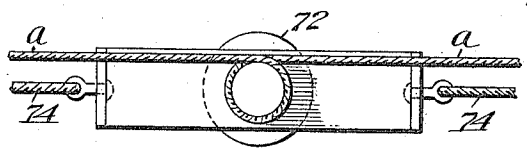


Fig. 5.

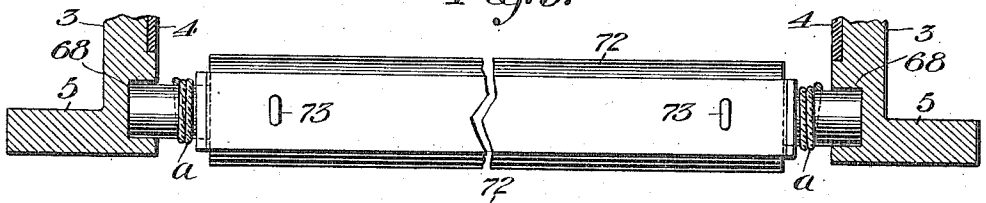


Fig. 6.

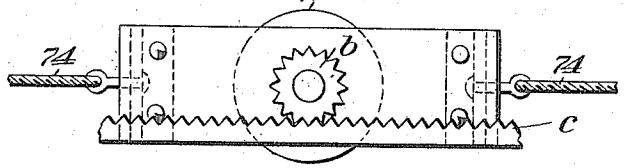


Fig. 7.

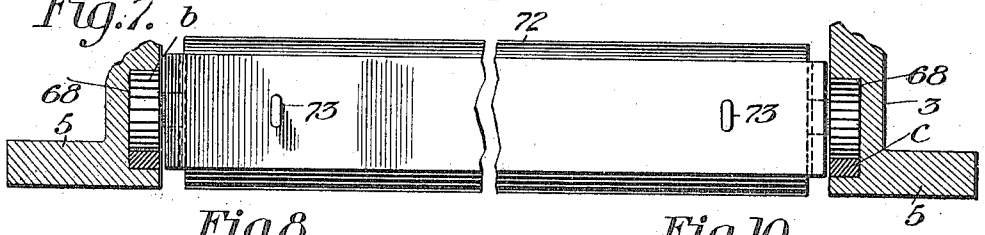


Fig. 8.

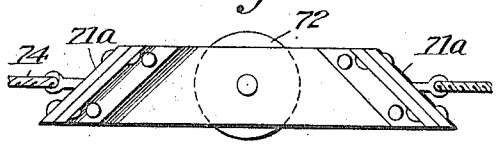


Fig. 10.

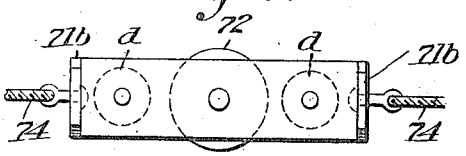


Fig. 9.

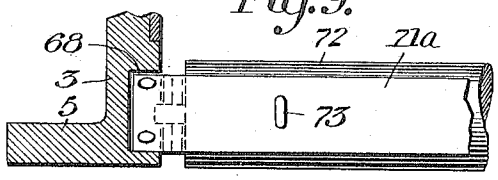
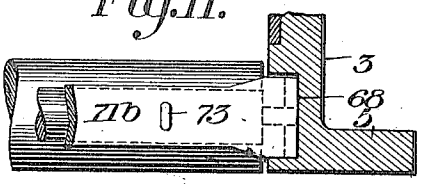


Fig. 11.



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UNITED STATES PATENT OFFICE.

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CHARGE-LEVELING MECHANISM.

1,197,263. Specification of Letters Patent. Patented Sept. 5, 1916.

Application filed February 5, 1915. Serial No. 6,336.

To all whom it may concern:

Be it known that we, FRANK D. CARNEY, and RICHARD V. McKAY, citizens of the United States of America, residing at Steelton, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Charge-Leveling Mechanism; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to leveling mechanism such as shown in our application for patent Serial No. 833,514, filed April 21, 1914, and is a continuation in part of the invention shown therein, and has for its object to provide mechanism for leveling the charge in a sintering pan after the charge has been deposited therein from a charging car or cover, which car or cover is removable from the pan after the sintering operation has been started.

As shown in the drawings, this leveling device is mounted in the car or cover, and is traversed across the pan, after the charge has been deposited, by a suitable power mechanism carried by the cover, and comprises a suitable frame containing one or more rollers for leveling and compacting the surface of the charge, prior to its ignition.

Referring to the drawings, in which like parts are similarly designated Figure 1 is a vertical longitudinal section of a sintering pan cover and charging device containing the leveling mechanism, the structure of which cover is more particularly described in our application hereinbefore referred to. Fig. 2 is a side elevation of the leveling device on a larger scale. Fig. 3 is a front elevation thereof. Fig. 4 is a side elevation. Fig. 5 is a front elevation of a modification in which the leveling and compacting roller is positively rotated by means of a rope. Fig. 6 is a side elevation. Fig. 7 is a front elevation of a further modification showing other means for positively rotating the compacting roller. Fig. 8 is a view similar to Fig. 2, showing a modified form of frame for the roller, and Fig. 9 is a partial front elevation thereof. Fig. 10 is a side elevation, and Fig. 11 is a partial front elevation showing the use of three rollers mounted in a single frame.

The car or cover comprises a suitable body, consisting of a lower frame 3, preferably of heavier construction than the remaining portion 4 of said body. The portion 3 is provided with an outwardly extending bottom flange 5 dimensioned to rest upon the top of a sintering pan. Between the upper and lower edges of the body are provided a series of louvers 6 mounted on shafts 7, preferably but not necessarily, square in cross section, whose end trunnions 8 are journaled in the portion 3 of the body. Each side portion 3 of the body is provided with a guideway in the form of a groove 68 that is continued at 68^a into box-like extensions or ends 3^a on the portions 3 of the cover. In these grooves which face one another, travels a carriage or frame 69 extending across the cover. This carriage comprises two sliding blocks or plates 70 connected at each end to front and rear leveler bars 71, preferably but not necessarily, rectangular in cross section, to form a substantially rectangular carriage. Between the leveler bars 71, and mounted to rotate in the side plates 70 is a compacting roller 72 of somewhat larger diameter than the vertical depth of the leveler bar 71, as more clearly shown in Figs. 2 and 3.

The carriage 69 is provided at front and rear with a pair of eyes 73, secured in the front and rear leveler bars 71. To the eyes 73 of one of the leveler bars 71 is connected one end of a rope 74 which passes over guide pulleys 75, 76 and 77, and thence around a drum 78 loose on a shaft 32, from whence the rope passes to a corresponding eye 73 in the other leveler bar of the carriage 69. The drum 78 is loose on the power shaft 32, and is connected thereto by suitable clutch mechanism 84, 82, and, preferably but not necessarily, with a brake drum, as more particularly described in our before mentioned application. There are two parallel tractor ropes 74 operated by two drums 78, controlled by a single lever 84, so that the carriage is drawn by tractive power applied at each side thereof.

The operation is such that the leveling device 69 is located in the pocket 68^a at one end of the cover at the time the charge is dumped or discharged from the louver bottom 6 into the sintering pan, and after the raising of this bottom, the lever 84 is ma-

nipulated to clutch the drum 78 to the driven shaft 32, and thereby draw the leveling device 69 by means of rope 74 along the slots 68 back and forth, the shaft 32 being reversed for returning the carriage to the position shown in Fig. 1. The front edge or front leveler bar 71 strikes off the peaks of a charge and moves them into the adjacent valleys in the direction of movement of the carriage, the roller 72 passing over them immediately thereafter.

In Fig. 4 we have shown means such as a stationary rope *a* having one or more turns about the axle of the roller 72, so that when the leveling device is drawn back and forth by the tractor ropes 74 the roller 72 will be positively rotated.

In Figs. 6 and 7 we have shown the roller 72 provided with a gear or equivalent wheel *b* at each end of the roller arranged to engage with racks *c* placed in the bottoms of the grooves 68.

In Figs. 8 and 9 the front and rear plates 71^a are inclined toward one another and the roller 72 may be positively rotated by means such as shown in Figs. 4 and 5, or in Figs. 6 and 7.

In Fig. 10 the front and rear leveler bars 71^b are made narrower in their middle, and the carriage is provided with two rollers *d* of substantially the same diameter as the width of the narrower portion of plates 71^b, the larger roller 72 being located between the two rollers *d*, the object being to effect a preliminary rolling and compacting of the surface of the deposited charge by the rollers *d* in advance of the action of the roller 72. The roller 72 only may be positively rotated, as shown in Figs. 4 and 6, or all three rollers may be positively rotated by mechanism such as shown in Figs. 6 and 7.

We claim—

1. A sintering pan cover disconnected from its pan, having a plurality of louvers forming a charge supporting and dumping mechanism extending throughout substantially the entire length of the cover, a traversable leveling and compacting device mounted in the cover below said mechanism, and means for operating said device.

2. A sintering pan cover disconnected from its pan, having a plurality of louvers forming a charge supporting and dumping mechanism extending throughout substantially the entire length of the cover, a traversable leveling and compacting device mounted in the cover below said mechanism, means for operating said device, and end extensions in the cover to receive said device when the charge is being dumped.

3. The combination with a sintering pan cover having lateral guideways; of a leveler carriage movable in said guideways and having front and rear leveler bars, a roller between said bars whose diameter is greater than the vertical height of said bars, and means to traverse the carriage in the guideways.

4. The combination with a sintering pan cover having guideways in its sides; of a carriage having front and rear leveler bars and a plurality of rollers mounted in said carriage between said bars, means to traverse the carriage, and means to positively rotate one of the rollers.

5. The combination with a sintering pan cover having guideways therein; of a leveling device traversable in said ways, comprising a carriage having front and rear leveler bars, a small roller parallel to each bar, and a roller of larger diameter mounted between the aforesaid rollers, and means on the cover to traverse the device.

6. A sintering pan cover disconnected from its pan having a plurality of louvers forming a charge supporting and dumping mechanism extending throughout substantially the entire length of the cover, a traversable leveling and compacting device mounted in the cover below said mechanism, and means for operating said device when the louvers are in closed position.

In testimony that we claim the foregoing as our invention, we have signed our names in presence of two subscribing witnesses.

FRANK D. CARNEY.
RICHARD V. McKAY.

Witnesses:
WM. R. MILLER,
H. B. ROYER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."