

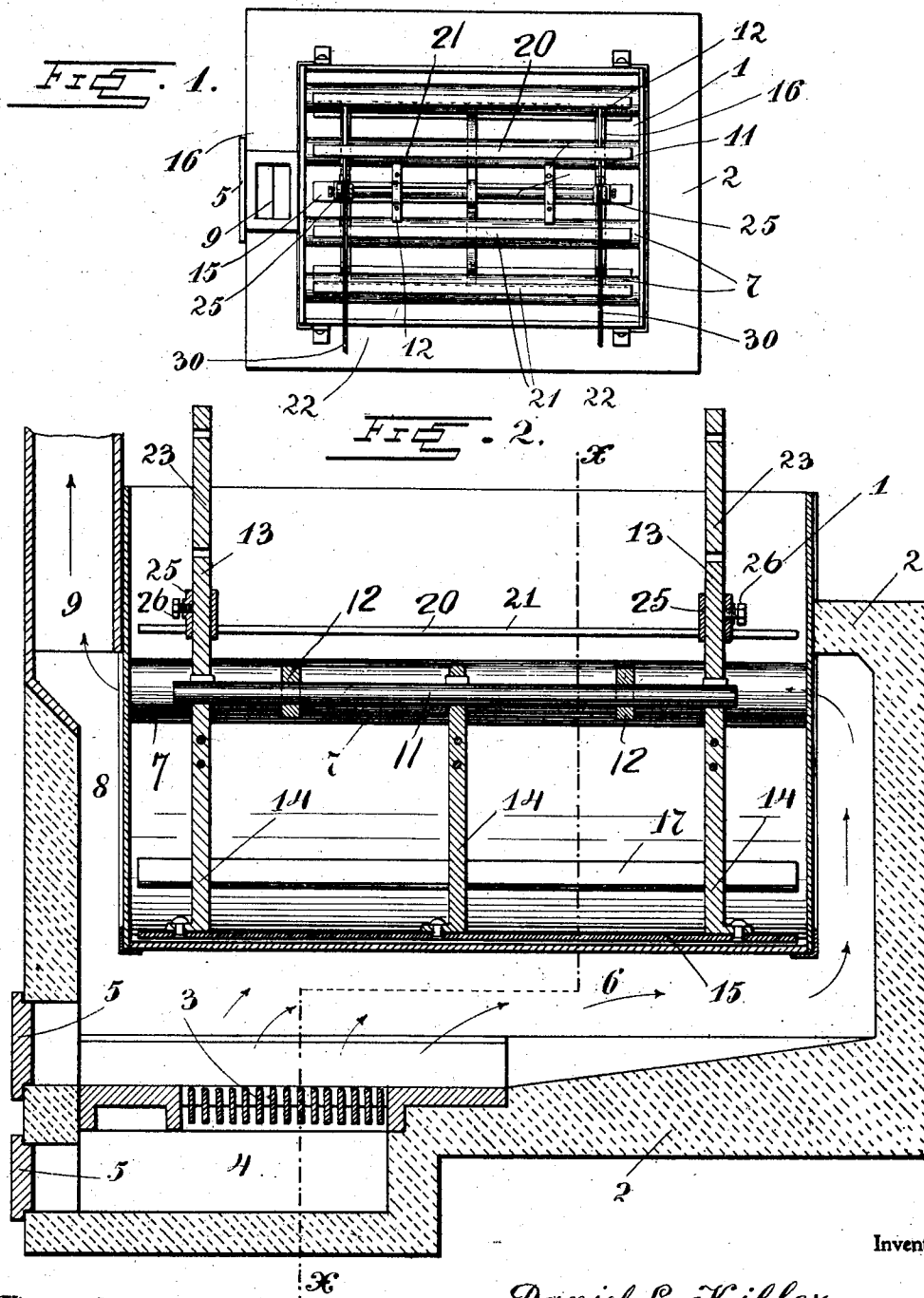
No. 761,684.

PATENTED JUNE 7, 1904.

D. L. KIBLER.
CALCINING APPARATUS.
APPLICATION FILED FEB. 1, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

FIG. 3.

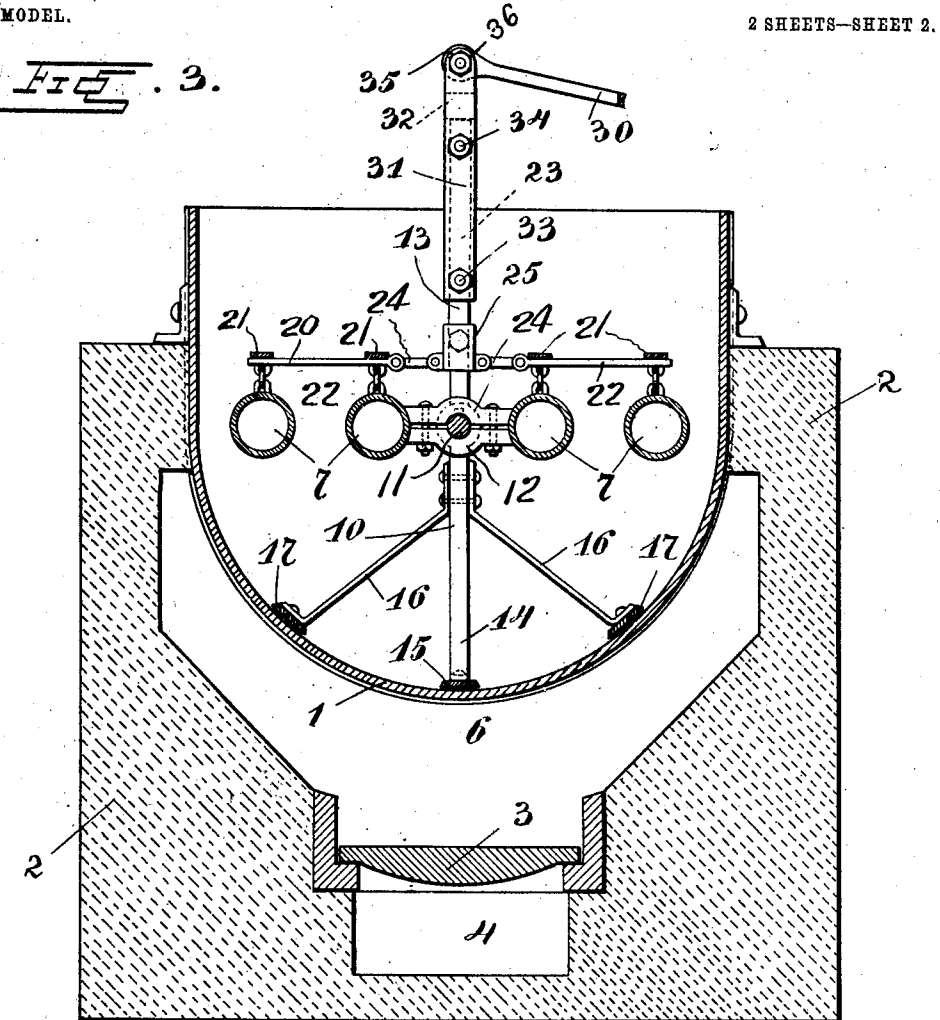
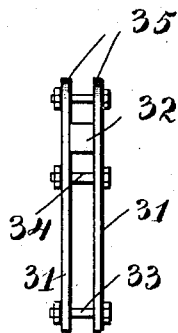


FIG. 4.

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UNITED STATES PATENT OFFICE.

DANIEL L. KIBLER, OF ACME, TEXAS.

CALCINING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 761,684, dated June 7, 1904.

Application filed February 1, 1904. Serial No. 191,537. (No model.)

To all whom it may concern:

Be it known that I, DANIEL L. KIBLER, a citizen of the United States, residing at Acme, in the county of Hardeman and State of Texas, have invented certain new and useful Improvements in Calcining Apparatus; and I do 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.

My invention relates to improvements in apparatus for calcining plaster of all kinds.

The object of my invention is to provide an apparatus of this character which will be simple in construction, durable in use, efficient in operation, and comparatively inexpensive to produce.

With this and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of my improved calcining apparatus. Fig. 2 is a vertical longitudinal sectional view through the same. Fig. 3 is a vertical transverse sectional view taken on the line *xx* of Fig. 2. Fig. 4 is a detail view of one of the detachable connections between the agitator and one of its operating pitman-rods.

In the embodiment of my invention illustrated in the drawings the numeral 1 denotes a semicylindrical shell or kettle mounted horizontally in a brickwork setting 2 similar to the ordinary steam-boiler setting. This setting entirely envelops the lower portion of the shell, so as to expose it to the heat generated on one or more grates 3, disposed in the setting beneath the front end of the shell. Beneath the grate is the usual ash-chamber 4, and the front wall of the setting or furnace is provided with suitable doors 5, which permit of access to the ash-chamber 4 and the space above the grate, which space forms the usual combustion-chamber 6. The heat, smoke, and other products of combustion generated on the grate pass rearwardly under the shell or kettle to its rear end and then for-

wardly to the front of the setting or furnace through flues or pipes 7, disposed longitudinally in said shell or kettle. Preferably four of said flues are provided, and they are all disposed in the same horizontal plane, as shown, their front ends communicating with a space 8, formed between the front end of the shell and the front wall of the setting or furnace. The smoke and other products of combustion pass off from this space through the usual smoke-stack or chimney 9.

In order to agitate the contents of the shell or kettle to prevent it from adhering thereto and becoming overheated, I provide an oscillatory agitator 10. The same comprises a horizontal shaft 11, disposed longitudinally between the two inner flues 7 and concentric with the curvature of the bottom of the shell or kettle. The said shaft is preferably mounted to rotate or oscillate in bearings formed in two or more yokes or brackets 12, secured to said flues. Secured at right angles to said shaft adjacent to each of its ends and also at its center are agitator-levers 13, the lower ends or arms 14 of which terminate slightly above the bottom of the shell or kettle and are connected by a longitudinally-disposed scraper bar or strip 15. Projecting transversely from each side of each of the arms 14, adjacent to the shaft 11, are arms 16, the ends of which are connected by longitudinal scraper bars or strips 17, similar to the bar or strip 15. Since the shaft 11 is concentrically disposed in the shell or kettle, it will be seen that when the same is oscillated the arms 13 and 16 will be rocked and the bars or strips 15 and 17 will scrape the bottom and sides of the kettle or shell to agitate its contents and prevent the latter from adhering thereto and becoming overheated.

In order to prevent the contents of the shell or kettle from piling up upon the tops of the flues 7, I provide a sweeping or knocking device 20, which comprises a series of bars 21, disposed longitudinally above the flues 7 and loosely connected to cross-bars 22 upon the upper portions 23 of the levers 13. The loose connections between the bars 21 and 23 are preferably in the form of double hinges, as shown

at 24; but it may be a short chain or any similar flexible connection. The cross-bars 22, and hence the bars 21, may be adjusted toward or from the flues 7 by means of collars 25, which are held at any desired points on the portion 23 of the levers 13 by set-screws 26. The loose connections 24 are shown in the present instance as connecting the bars 21 with the collars 25, by which said bars 21 are connected to the said portions 23 of the levers 13. By adjusting said collars 25, from which the cross-bars 22 project, the throw or movement of the same and also the bars 21 may be varied as desired.

The central lever 13 terminates a short distance above its connection with the shaft 11; but the two end levers 13 have their upper ends 23 projecting above the open top of the shell or kettle and provided with suitable operating devices, which, as illustrated in the drawings, are in the form of pitman-rods 30. The connection between these rods 30 and the levers 13 may be effected in any desired manner; but I preferably make it detachable, so as to permit the agitators of one kettle or apparatus to be thrown out of operation, where there are two or more operated from the same source of power, without affecting the operation of the others should it be desired or necessary to do so. This detachable connection comprises two strips 31, which are spaced apart by a block 32, adjacent to their ends. The said strips are placed upon the levers 13, so that they engage opposite faces or sides of the upper ends 23 of said levers 13, and the spacing-blocks 32 rest upon the top ends of said levers. Two bolts 33 and 34 are passed through alining openings in said strips and said lever to secure them together. The pitman-rods 30 are adapted to enter between the projecting ends 35 of the strips 31, and they are pivotally connected by a bolt 36, passed through alining openings in said ends 35 and pitman-rods. It will be seen that since the strips 31 are attached to the levers by the two bolts 33 and 34 the movement of the pitman-rods will be imparted to the levers 13; but should it be desired to throw the agitator out of operation the bolt or pin 34 is removed, so that the bolt 33 will serve as a pivot for the strips 31, which will then be permitted to oscillate with the pitman-rods without imparting motion to the levers.

The operation and advantages of my invention will be readily understood from the foregoing description, taken in connection with the accompanying drawings. It will be seen that when the levers 13 are oscillated by means of the pitman-rods 30 or any other suitable connections the agitator 13 and the knocking device 20 will be simultaneously oscillated to thoroughly agitate the contents of the kettle or shell and to prevent it from adhering to the kettle and the flues. It will be understood that as the cross-bars 22 are rocked or

oscillated the knocker strips or bars 21 will be alternately elevated from and lowered upon the flues to sweep or knock the accumulated material from them.

While I have shown and described my invention in the form best known to me at the present time, I do not wish to be understood as limiting myself to the construction herein disclosed, since various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. In a calcining apparatus, the combination with a kettle or shell having flues extending into the same, of an agitator in said kettle, and means actuated by said agitator for removing the portions of the contents of the kettle which adhere to said flues, substantially as described.

2. In a calcining apparatus, the combination with a kettle or shell having flues extending into the same, of an agitator in said kettle, and oscillatory knockers actuated by said agitator and coacting with said flues to remove adhering material therefrom, substantially as described.

3. In a calcining apparatus, the combination of a horizontally-disposed semicylindrical shell or kettle, and an oscillatory agitator mounted in said kettle and comprising a horizontal shaft disposed longitudinally in said kettle, levers carried by said shaft, arms upon the lower ends of said levers within said kettle, longitudinally-disposed bars connecting said arms and adapted to scrape the interior of said kettle, and means for oscillating said levers, substantially as described.

4. The combination of a shell or kettle having flues extending into the same, an oscillatory sweep or agitator coacting with the bottom of said shell, and means carried by said sweep or agitator for knocking or sweeping the upper surfaces of said flues, substantially as described.

5. The combination of a shell or kettle having flues extending into the same, a horizontal shaft in said kettle, levers secured intermediate their ends upon said shaft, scraper-bars carried by the lower portions of said levers and coacting with the bottom of said shell, and knocker-bars carried by the upper portions of said levers and coacting with said flues to remove material adhering thereto, substantially as described.

6. The combination with a semicylindrical shell or kettle having horizontal flues extending longitudinally through the same, a shaft concentrically mounted in said shell, levers secured to said shaft, agitating devices carried by said levers and coacting with the bottom of said shell, cross-bars carried by said levers,

and longitudinally-disposed bars loosely connected to said cross-bars and adapted to coact with said flues to remove material adhering thereto, substantially as described.

5 7. In a calcining apparatus, the combination of a shell or kettle having an oscillatory agitator mounted therein, an operating pitman-rod, and a detachable connection between said agitator and said pitman-rod whereby
10 said pitman-rod may be operated without ac-

tuating said agitator, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DANIEL L. KIBLER.

Witnesses:

E. S. MALONE,

M. M. HAWKINS.