No. 841,894. PATENTED JAN. 22, 1907.

M. W. QUIRK, JR.

ASH SIFTER.

APPLICATION FILED NOV. 27, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

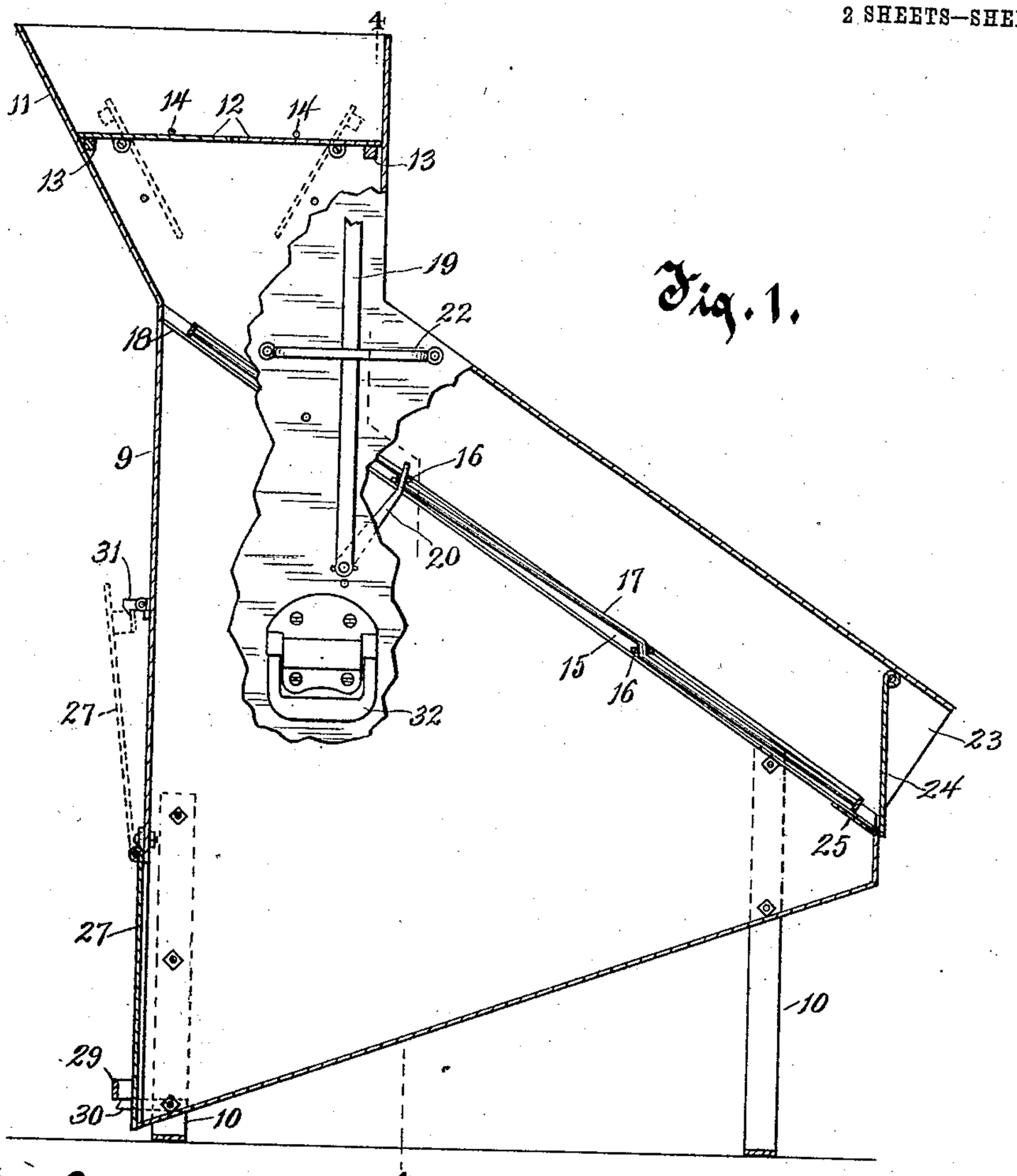
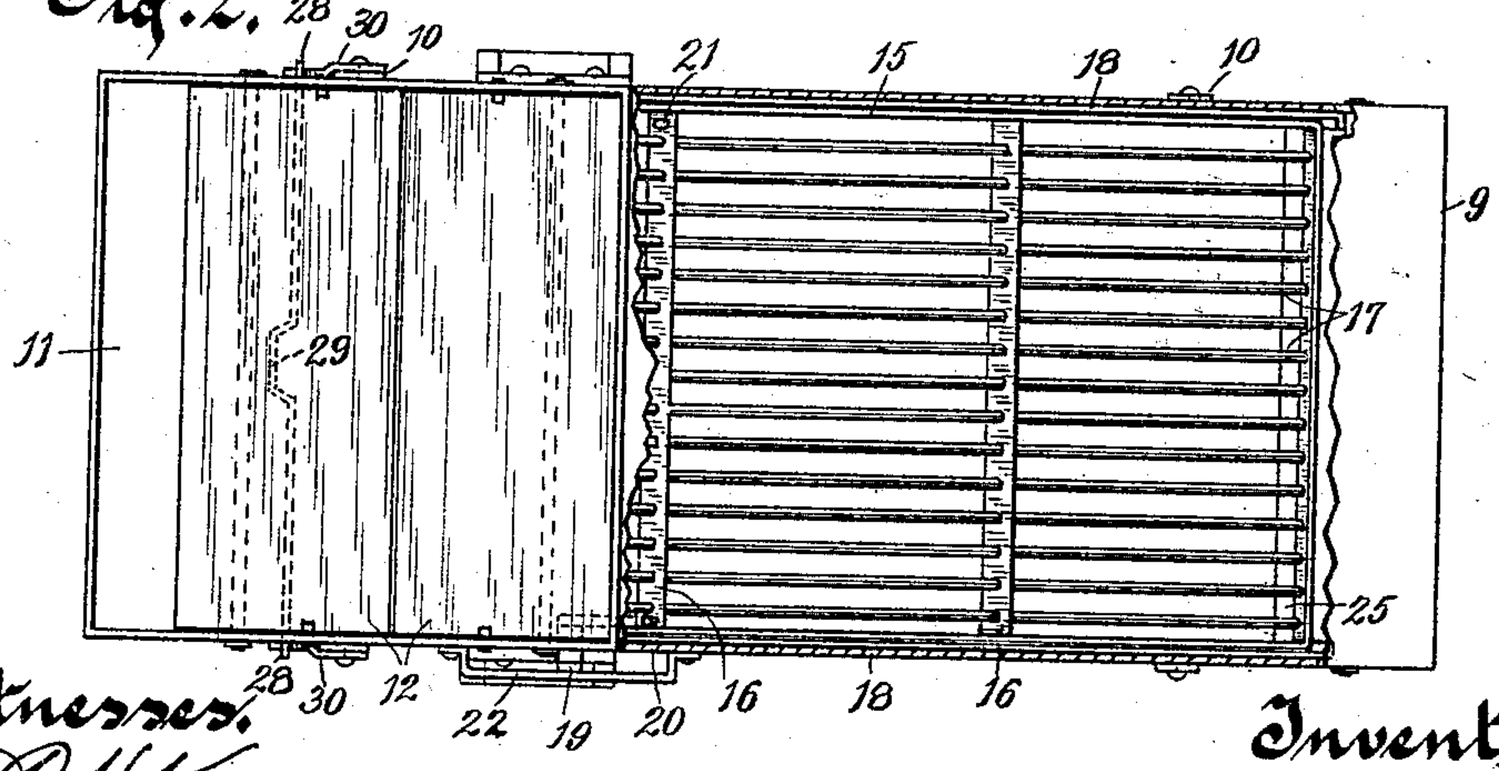


Fig. 2.



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2 SHEETS—SHEET 2.

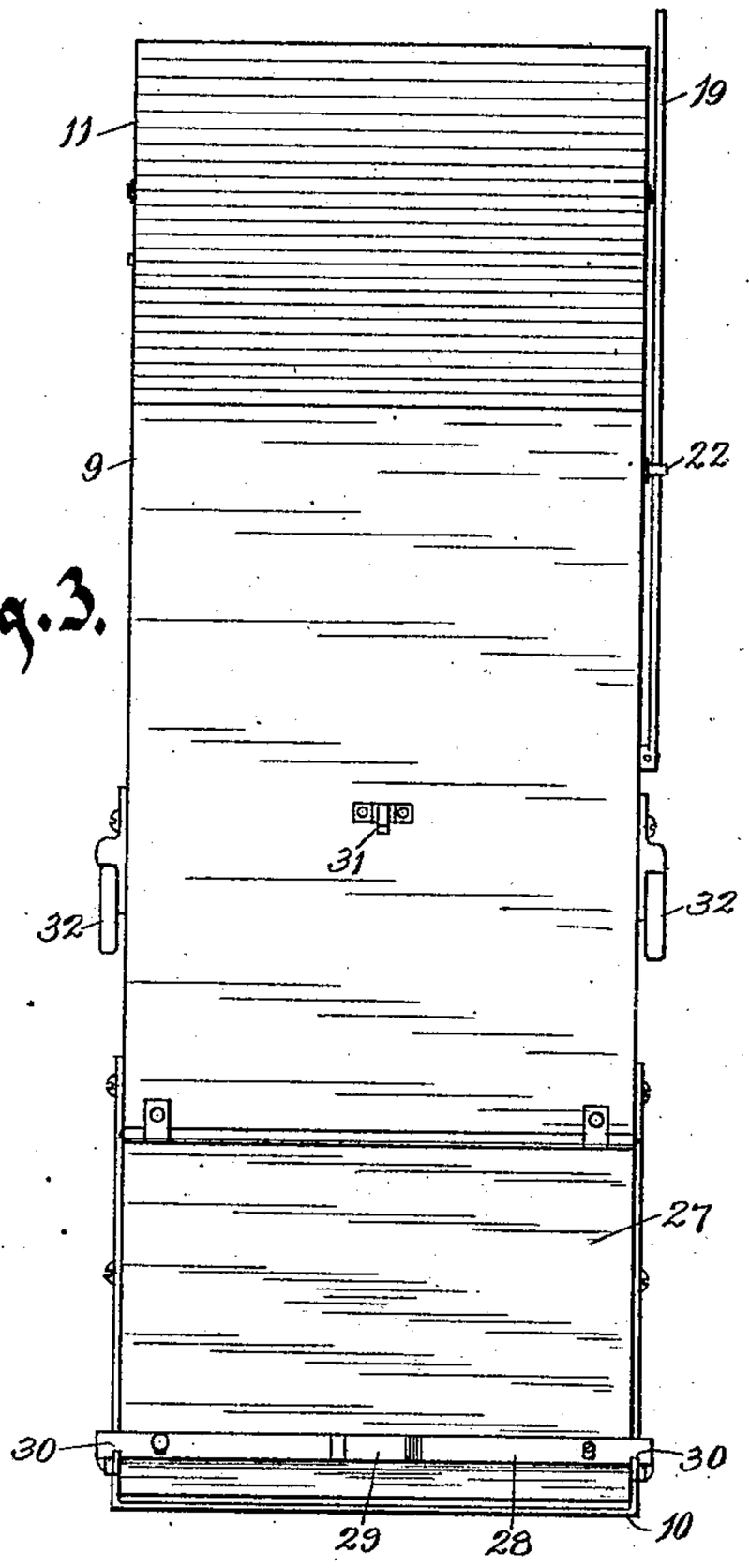


Fig. 3.

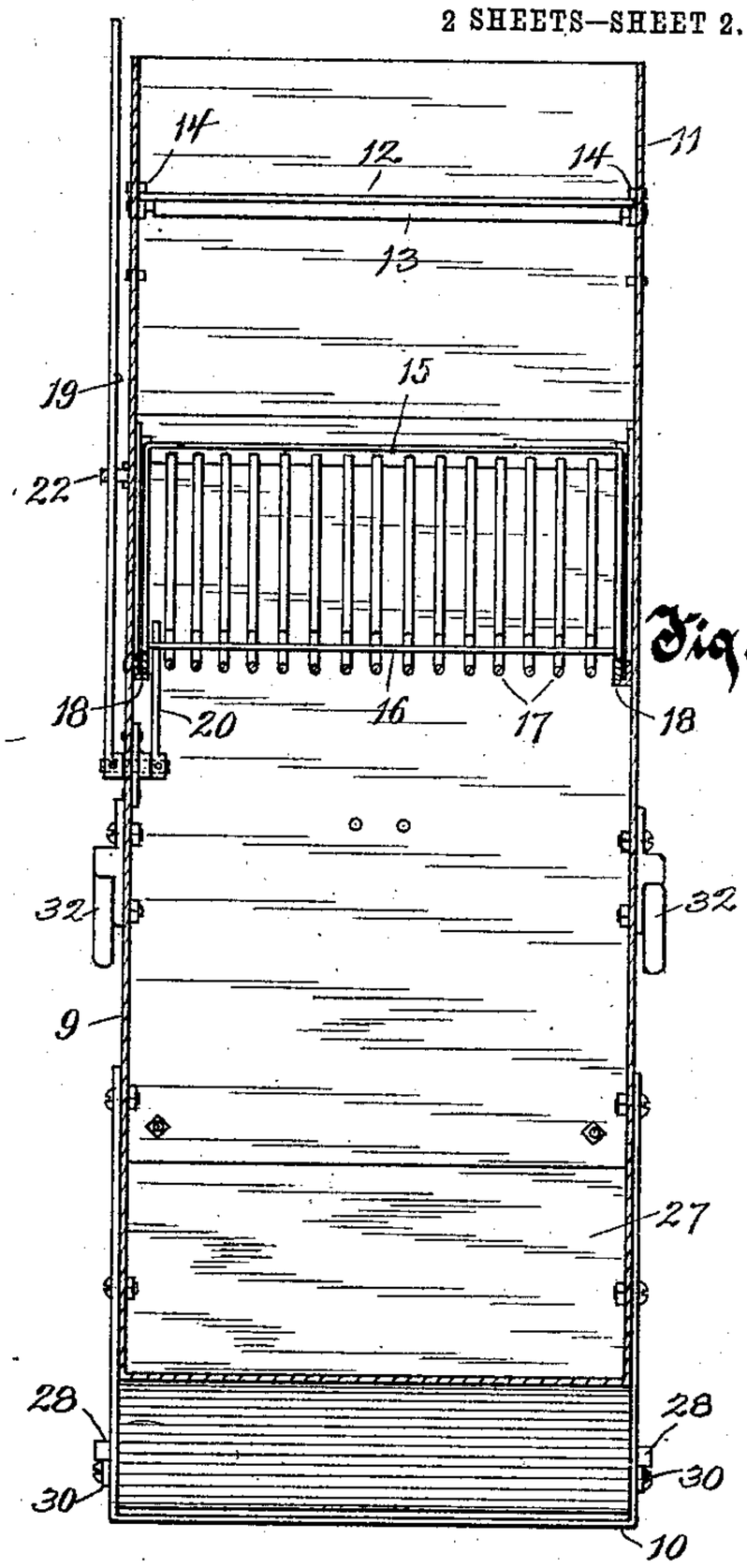


Fig. 4.

Fig. 5.

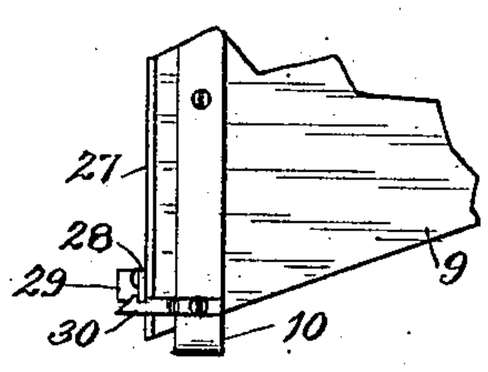
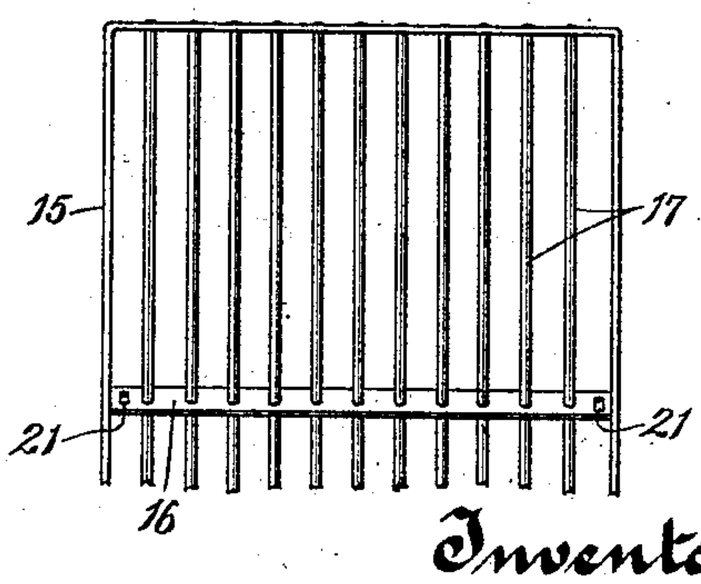


Fig. 6.



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UNITED STATES PATENT OFFICE.

MICHAEL W. QUIRK, JR., OF MILWAUKEE, WISCONSIN.

ASH-SIFTER.

No. 841,894. Specification of Letters Patent. Patented Jan. 22, 1907.

Application filed November 27, 1905. Serial No. 289,275.

To all whom it may concern:

Be it known that I, MICHAEL W. QUIRK, Jr., residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Ash-Sifters, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to ash-sifters, and has for its object to provide a means for sifting ashes automatically which will only require the ashes to be dumped into it from above, so that they descend through it by their own weight over a screen to separate the unburnt coal therefrom, and which discharges the unburnt coal while storing the fine ashes where they will not produce free dust and where they may be readily removed.

Another object of this invention is to provide such an ash-sifter with a removable screen which may be given motion when desired to assist in the passage of ashes and coal thereon.

Another object of this invention is to improve upon details of construction of such an ash-sifter to render it strong and durable in use and efficient in its operation.

With the above and other objects in view the invention consists in the ash-sifter herein described, its parts and combinations of parts, and all equivalents.

Referring to the accompanying drawings, in which like characters or reference indicate the same parts in the several views, Figure 1 is a central longitudinal sectional view of an ash-sifter constructed in accordance with this invention, a fragment of the near side of the casing being shown in elevation to illustrate parts. Fig. 2 is a plan view thereof, the casing being broken away to disclose the screen. Fig. 3 is a front end elevation thereof. Fig. 4 is a sectional view thereof on the line 4 4 of Fig. 1. Fig. 5 is a side elevation in detail of the locking means for the clean-out door, and Fig. 6 is a detail view of a screen for use in the ash-sifter.

In the drawings, 9 represents a sheet-metal casing which is practically triangular in shape with parallel side walls and a vertical front wall and with its top and bottom walls inclined in opposite directions, as shown in Fig. 1. The casing is mounted upon U-shaped strap-iron legs 10 at its front and rear, which are secured to the side walls.

At the upper open end or mouth of the casing is provided a hopper 11, having a pair of flap doors 12 pivoted therein which normally close the mouth of the device, being swung by suitable weights 13 on their shorter ends against stops 14. When ashes are dropped upon the closed flap-doors 12, these doors swing downwardly to open the mouth of the casing and deposit the ashes upon an inclined screen which extends approximately parallel with the top wall of the casing from the front wall to the rear end of the casing.

The screen comprises a rectangular frame 15, which has one or more transverse bars 16 extending thereacross and preferably arranged horizontal, as shown, and a series of parallel rods 17 extend lengthwise of the frame, passing through the ends thereof and through the cross-bars 16 and being bent reversely for the latter purpose. The screen is slidably mounted in the casing by having its frame 15 resting upon the inwardly-extending edges of angle-iron strips 18, which are secured to the sides of the casing along the inclined position of the screen, as above mentioned. A hand-lever 19 is pivoted through one side of the casing with an arm 20 connected thereto on the inside and passing through an opening 21 in one of the cross-bars of the screen, there being such openings in both ends of the cross-bar to enable the screen to be inverted when desired. The lever 19 is limited in its movements by a guide-frame 22, secured to the side of the casing, and may be oscillated therein to slide the screen up and down in its guideways by means of the arm 20 for shaking the ashes when desired.

At the rear end of the casing is a discharge spout or opening 23 for the outlet of unburnt coals which have been separated from the burnt ashes during the downward course of the mixture of coal and ashes along the screen, and this opening is closed by a swinging door 24, which will open outwardly by the weight of the coal bearing thereagainst. At the lower edge of the discharge-opening 23 the sheet metal forming the casing is bent inwardly to form a guard 25, extending beneath the lower end of the screen and preventing coal passing around the end of the screen and into the ash-receiver therebeneath.

The bottom wall of the casing, as before stated, is on an incline, so that the burnt ashes contained in the ash-receiver have a

tendency to move forwardly to the front end of the casing, and as the rear end of the casing is in an elevated position a coal-hod or other receptacle may be placen beneath it to receive the unburnt coal issuing from the discharge-opening.

At the lower end of the front wall of the casing is a clean-out door 27, which is pivoted at its upper end to the casing and is held in its closed position by means of a locking-bar 28. The locking-bar is loosely mounted on the clean-out door, so as to be vertically movable, and has a handhold 29 bent therein at its middle portion, and its ends project beyond the edges of the door to engage with cam-shaped notched catches 30, projecting forwardly from the front leg 26. By this locking means when the clean-out door 27 is allowed to swing closed the locking-bar engages the cam-shaped front edges of the catches 30 and is lifted thereby until it drops into the notches of said catches, when the door is securely held closed. When it is desired to open the door, it is only necessary to lift the locking-bar 28 out of engagement with the catches by means of the handhold, when the door may be swung upwardly and locked in its open position by engaging the handhold of the locking-bar with a swinging hook-catch 31 on the front of the casing, as shown by dotted lines in Fig. 1.

With this invention it is only necessary to deposit the ashes in the hopper 11 upon the flap-doors 12, when said flap-doors will open inwardly, as shown by dotted lines in Fig. 1, and drop the ashes upon the screen therebeneath. The inclination of said screen will cause the ashes to travel downwardly along it, riding over the short drops formed by the bends in the rods 17 at the cross-bars and passing the finer particles between the rods into the ash-receiver below. The downward travel of the ashes on the screen may be facilitated by shaking the screen by means of the hand-lever 19, the screen then sliding lengthwise in its guides 18 and hastening the separation of the ashes from the unburnt coals. Thus the finer-burnt ashes will be deposited in the ash-receptacle beneath the screen, while the unburnt coals are discharged through the valved discharge-opening 23, preferably into a receptacle provided therefor, there being no dust set free into the air, as all openings of the casing are closed to prevent this. The flap-doors 12 and the outlet-door 24 only open while material is passing therethrough, and the clean-out door 27 is normally locked closed. When it is desired to remove the sifted ashes, this may be readily done by opening the clean-out door 27 and shoveling the ashes from the inclined bottom of the casing, such incline serving to feed the ashes toward the door as they are removed therefrom.

Lifting-handles 32 are provided on the sides of the casing, and the entire device is of such a light construction as to be capable of being moved from place to place by means thereof without much effort.

It is obvious that when desired the screen may be readily removed from the casing by lifting it from engagement with the arm 20 and passing it either downwardly through the outlet-opening 23 or upwardly through the hopper 11 and may be inverted or may be substituted by another screen of different mesh, the screen shown in Fig. 6 being of different mesh from the others shown to illustrate such substitution.

What I claim as my invention is—

1. In an ash-sifter, a casing, inclined angle-iron strips forming guideways therein, a screen slidable in the guideways and comprising a rectangular frame with transverse cross-bars arranged horizontally and longitudinal rods extending through the ends of the frame and the cross-bars and being bent reversely where they pass through the cross-bars, a lever pivotally mounted in the casing, an arm connected therewith and passing through an opening in one of the cross-bars of the screen, and a guide-frame on the casing in which the lever is adapted to be moved for sliding the screen in the guideways by means of the arm, said casing having an inlet-opening at the upper end of the screen and an outlet-opening at the lower end of the screen, and an ash-receiver formed beneath the screen.

2. In an ash-sifter, a triangular casing with a vertical front wall and inclined top and bottom walls, a hopper formed at the upper end of the casing, weighted flap-valves in the hopper normally closing the same, inclined guideways comprising angle-iron strips secured to the side walls of the casing, a removable screen slidable in the guideways and comprising a rectangular frame with transverse cross-bars arranged horizontally and parallel longitudinal rods extending through the ends of the frame and through the cross-bars and being bent reversely where they pass through the cross-bars, a hand-lever pivoted in the side of the casing, an arm connected therewith on the inside of the casing and passing through an opening in one of the cross-bars of the screen, a guide-frame on the side of the casing in which the hand-lever may be oscillated for reciprocating the screen in the guideways by means of the arm, there being an outlet-opening in the casing at the lower end of the screen, a swinging door closing the outlet-opening, a guard formed at the lower part of the outlet-opening and extending beneath the lower end of the screen, U-shaped strap-metal legs for supporting the casing, a pivotally-mounted clean-out door at the lower end of the front wall of the casing, a locking-bar slidably mounted thereon and having a handhold

bent therein, cam-shaped notched catches on the casing with which the locking-bar engages, and a pivotal catch on the front wall of the casing adapted to engage the handhold of the locking-bar when the clean-out door is open.

3. In an ash-sifter, a casing, an inclined screen therein, said casing having an inlet-opening at the upper end of the screen and an outlet-opening at the lower end of the screen, an ash-receiver formed beneath the screen with an inclined bottom, a pivotally-mounted clean-out door located at the lower end of the bottom of the ash-receiver, a locking-bar slidably mounted thereon, and cam-shaped notched catches in the path of the ends of the locking-bar to be engaged thereby for locking the clean-out door closed.

4. In an ash-sifter, a casing, an inclined screen therein, said casing having an inlet-opening at the upper end of the screen and an outlet-opening at the lower end of the screen, an ash-receiver formed beneath the screen and having an inclined bottom, a pivotally-mounted clean-out door located at the lower end of the bottom of the ash-receiver, a locking-bar slidably mounted thereon, a handhold formed on the locking-bar, cam-shaped notched catches in the path of the ends of the locking-bar to be engaged thereby for locking the clean-out door closed, and a pivoted catch adapted to engage the handhold of the locking-bar when the clean-out door is open.

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

MICHAEL W. QUIRK, Jr.

Witnesses:

Anna F. Schmidtbauer,

R. S. C. Caldwell.