April 27, 1926. 1,582,293

C. J. MILLER

ASH SEPARATING SHOVEL

Filed Jan. 27, 1926

Fig. 4.

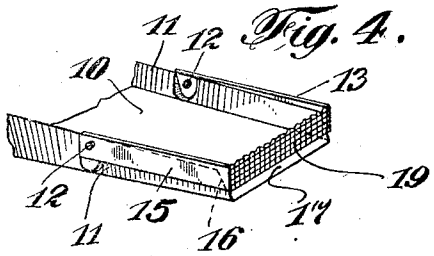


Fig. 1.

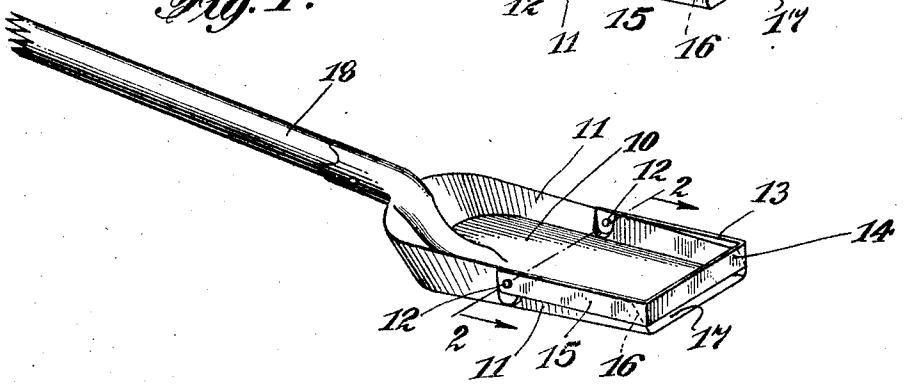


Fig. 2.

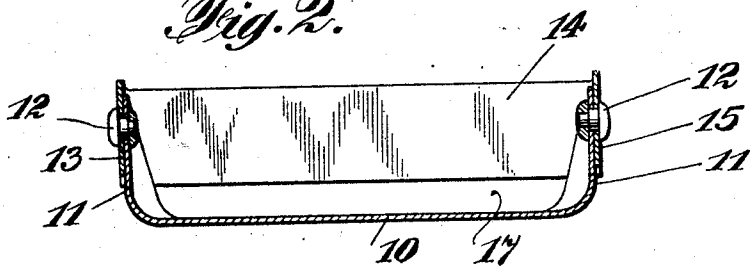
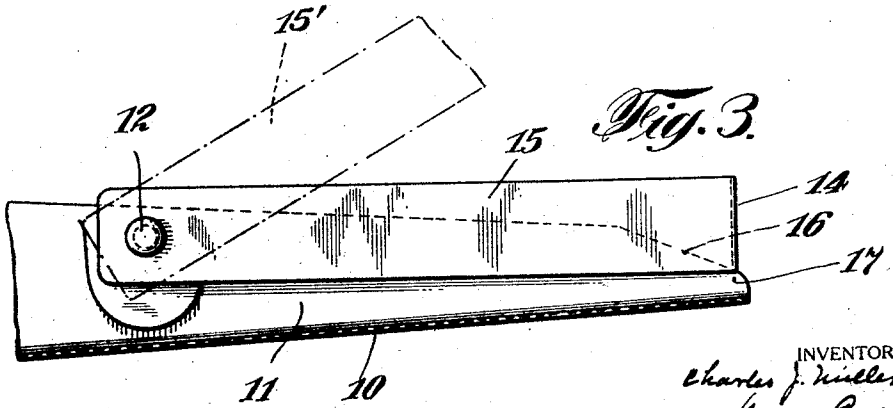


Fig. 3.



INVENTOR
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UNITED STATES PATENT OFFICE.

CHARLES J. MILLER, OF SUMMIT, NEW JERSEY.

ASH-SEPARATING SHOVEL.

Application filed January 27, 1926. Serial No. 84,016.

To all whom it may concern:

Be it known that I, CHARLES J. MILLER, a citizen of the United States, residing at Summit, county of Union, and State of New Jersey, have invented new and useful Improvements in Ash-Separating Shovels, of which the following is a full, clear, and exact specification.

My invention relates to shovels and refers particularly to shovels adapted for the separation of particles of different sizes.

My device is specially adaptable to the separation of ashes from unburned coal and clinkers.

The usually employed process for the separation of coal ashes from the larger particles consists in placing the mixture of materials upon a screen and then by vibration of the screen causing the fine particles to fall therethrough.

This process requires the removal of the mixture by means of a shovel, the placement of the mixture upon a sieve, or screen, the agitation of the latter, and the removal of the retained particles from the sieve. In addition to these many steps of operation, the dust arising from the sifting step is extremely objectionable.

My device reduces these steps of operation and the objectionable formation of dust to a minimum and presents a means whereby the operations can be readily and economically performed.

In the employment of my device, the mixture is shoveled, the ashes removed without dust, and the final products left within the shovel for final disposition.

The advantages of the device of my invention will be evident upon a consideration of this specification and its accompanying drawings.

Figure 1 is a perspective view of one form of my device with the guard in operative position.

Figure 2 is a cross-section through the line 2—2 of Figure 1.

Figure 3 is a broken side view, showing the guard in partially raised position.

Figure 4 is a broken perspective view of the delivery end of a device of my invention in which the forward portion of the guard is of sieve construction.

The particular form of the device of my invention shown in Figures 1 to 3 inclusive comprise a shovel having a non-foraminous bottom 10 and an upturned edge 11 around three sides thereof. Pivotally attached at 12 to opposite sides of the edge 11 is a U-shaped guard having the sides 13, 14 and 15. The guard is so positioned that when in its forward, or operative, position, it will rest upon the angular edge 16 of the edge 11, allowing a space 17 between the guard element 14 and the bottom 10 of the shovel at its forward part. A handle 18 is carried by the shovel.

In operation, the guard is thrown back on its pivots 12, 12 until it rests upon the handle 18. The device is then used as an ordinary shovel to remove a mixture of unburned coal, clinkers, and ashes. The device is then held in a horizontal position, the guard thrown forward into the operative position, the shovel tapped to cause the ashes to settle, and then inclined in a forwardly downward position allowing the ashes and small particles to escape under the guard element 14 through the space 17 into a suitable receptacle. When the device is returned to a horizontal position, the coal and clinkers may be readily separated by hand.

It is to be noted that the device is simple in construction and retains the valuable and useful attributes of an ordinary shovel, coupled with which is the property of separating the ashes without the formation of dust incident to a sieve shaking operation.

It is to be further noted that my device saves considerable time during the several steps of its operation, in that the materials remain in the shovel during their separation, as for instance, the clinkers may be removed leaving the coal in the shovel for final disposition, or the reverse operation may be performed.

The modification shown in Figure 4 is similar to that previously described except that the guard element 19 is of sieve construction, instead of non-foraminous as is guard element 14.

Other means for supporting the guard above the shovel bottom may be employed.

I do not limit myself to the particular size, shape, number, material or arrangement of parts as shown and described, as these are given simply for the purpose of clearly describing my invention.

What I claim is:—

1. In an ash separating shovel, in combination, a shovel having a non-foraminous bottom, a guard having a continuous bottom

edge capable of placement across the open end of the shovel and means preventing the bottom edge of the guard from abutment upon the delivery end of the shovel bottom.

2. In an ash separating shovel, in combination, a shovel having a non-foraminous bottom, a hinged guard having a continuous bottom edge capable of placement across the open end of the shovel and means whereby a space will be formed between the bottom edge of the placed guard and the delivery end of the shovel bottom.

3. In an ash separating shovel, in combination, a shovel having a non-foraminous bottom, a hinged guard having a continuous bottom edge capable of placement across the end of the shovel, the placed guard abutting upon the shovel side forming a space between the bottom edge of the guard and the delivery end of the shovel bottom.

4. In an ash separating shovel, in combination, a shovel having a non-foraminous bottom, a hinged guard having a continuous bottom edge being at least in part foraminous, a foraminous portion of which is capable of placement across the end of the shovel forming a space between the bottom edge of the guard and the delivery end of the shovel bottom.

Signed at New York city, in the county and State of New York, this 26th day of January, 1926.

CHARLES J. MILLER.