

J. F. ANDREWS.

Coal Sifter.

No. 235,061.

Patented Dec. 7, 1880.

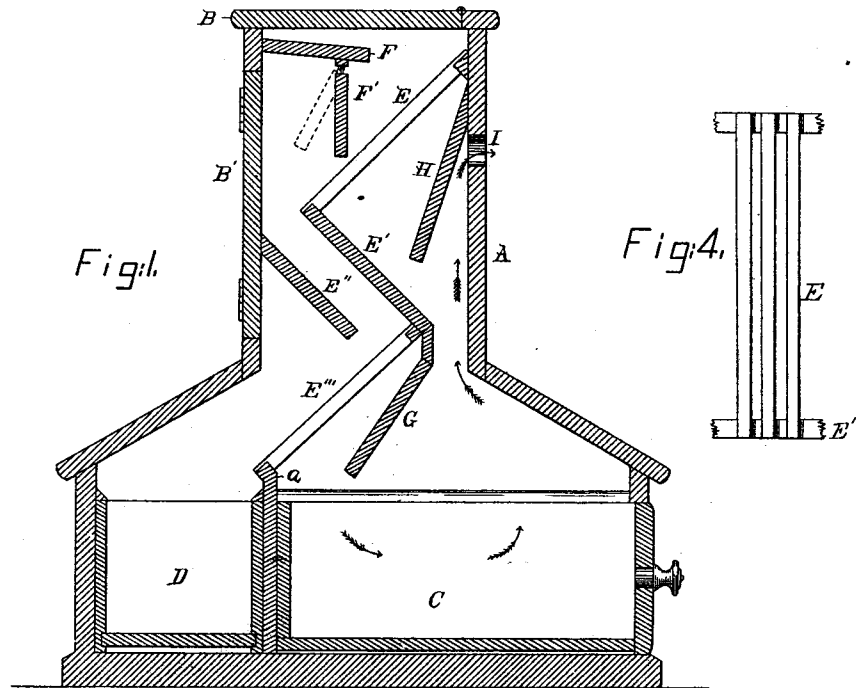
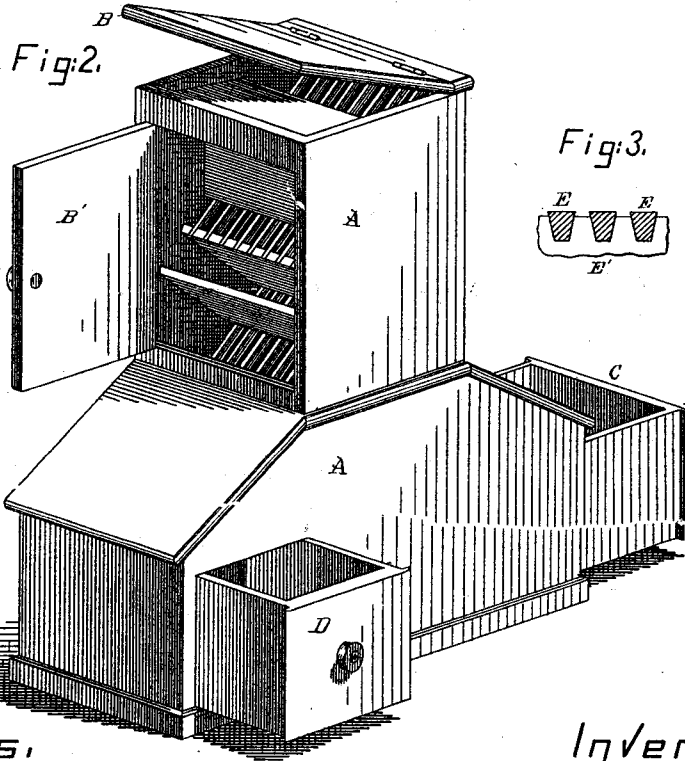
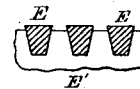


Fig. 3.



Witnesses,

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UNITED STATES PATENT OFFICE.

JOSEPH F. ANDREWS, OF NASHUA, NEW HAMPSHIRE.

COAL-SIFTER.

SPECIFICATION forming part of Letters Patent No. 235,061, dated December 7, 1880.

Application filed January 6, 1880.

To all whom it may concern :

Be it known that I, JOSEPH F. ANDREWS, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Coal-Sifters, of which the following is a specification.

Figure 1 of the drawings is a perspective view showing my invention. Fig. 2 is a vertical section of Fig. 1, taken in the direction of its greatest dimension. Fig. 3 is a detail view.

My invention relates to that class of automatic sifters in which the coal is separated from the ashes by sliding over an inclined screen; and it consists in a certain novel construction and combination of parts, which will first be fully described, and then specifically pointed out in the claims.

A in the drawings indicates the outer casing of my apparatus. It may be constructed of any suitable wood, and the form and proportions may be greatly varied, though for some reasons I prefer that shown. The upper portion I make square, or nearly so, while the lower part extends outward in two directions to give increased space below, and at the same time afford a firm, broad base of support. The upper part of the case A may be opened at two points, one being the trap or lid B, and the other the door B'. The lower portion is divided by a light partition, *a*, and into the larger compartment is fitted a sliding drawer, C, entering from the end of the extended base, and the smaller space receives a similar drawer or sliding receptacle, which enters the casing from one side, as seen at D in Fig. 1.

In the interior of the case and near the top I set a screen, E, inclined at an angle of about forty-five degrees, and facing toward the side upon which the trap B opens. Opposite the top of the screen is placed a hopper-shelf, F, slightly inclined toward the screen, and to the edge, or near it, is hung a vibrating piece, F', the lower edge of which clears the screen E by a short distance. This hinged flap F', I do not use as a means of closing the entrance to the sifter. Its position would preclude the possibility of its performing this function. My object in suspending it in the manner shown, so that it shall vibrate freely, its lower edge

closely approaching the screen, is that it may serve to prevent the coal and ashes from "flushing" or rebounding from the first screen and being thrown against the upright wall of the case opposite the screen.

When the machine is used by a domestic, and coal is thrown in carelessly or in very great quantities, it is not unusual for a portion of it to be thrown completely across the first screen, in which case no separation, or scarcely any, is effected until it reaches the second screen. The interposition of the hinged flap F' obviates this objection.

Directly beneath the screen E is a solid chute, E', extending from side to side of the case and supporting the lower end of the screen-bars E. This chute receives the ashes which fall through the screen and conducts them to the ash-receiver C. In front of this chute E', and inclined at about the same angle, is another similar chute, E'', which receives the coal discharged from the screen and conducts it to the second and similar screen E'''. In passing over this second screen the partially-sifted coal is separated from its ashes in a most perfect manner, the coal being shot over the edge of the screen E''' into the coal box or receptacle D, while the ashes falling through are received by the partition or chute G and fall from it into the ash box or drawer C.

Behind the upper screen, E, is placed a solid partition, H, so inclined as to form a vertical angle with the top of the screen E. This partition serves, in part, to conduct the ashes so that they shall fall upon the chute E', and thereby be caused to fall in a thin sheet from the edge of the chute. This tends in a measure to prevent the dust rising, but is more particularly valuable from the fact that partition H controls the draft, and thereby tends to accomplish a similar result. The body of air in the case, being agitated and in a measure displaced by the descent of the body of coal and rubbish, will naturally seek an outlet. If the escaping air meets a cloud of dust, it will carry a large proportion thereof with it and drive it out through the top of the case and over the person of the operator. By my arrangement of chutes and partitions, however, the displaced air in the ash-chamber will be

directed along the wall of the case and behind the partition H, where it will find vent through an opening, I, and escape in a direction contrary to the position of the person using the apparatus. Moreover, the draft-partition H serving to conduct the ashes to the chute E', a space is left between the edge of the chute and the case, through which the current of air may flow upward without mingling with the falling ashes, while the second partition, G, contributes to this result, conducting the ashes falling upon it to the end of the ash-drawer, thereby giving a slight impetus to the body of air in the case and causing it to flow upward in the direction indicated by the arrows.

The screens E and E''' are each made of parallel bars of metal set at a short distance apart, each bar being a little wider upon its upper than upon the under or lower end.

By this construction the space between any two of said bars increases from the top toward the bottom edges, so that pieces of coal or other material which lodge between will not be likely to choke the screen. No transverse bars are employed, and when particles stick between the longitudinal bars they will be either carried down by the next coal which shoots over the screen or they will be pushed through and fall into the ash-box. The screens are thus self-cleaning, and will not become choked, as is so frequently the case with a grating having transverse bars made of the usual form.

This construction is shown in Fig. 4 of the drawings. The axial line of each bar is at the same distance from the center of the next bar throughout its whole length; but the bars are tapered from the top downward, so that the

space increases gradually from the upper to the lower end.

I am aware that a hinged flap serving to close the top of the sifter is not new, such a device being seen in United States Letters Patent No. 18,430, and I make no claim to such a device.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a coal-sifter, the combination, with the inclined screen E, of an inwardly-projecting shelf, F, and a loosely-suspended flap, F', the shelf and flap being arranged beneath the trap or lid B, all substantially as and for the purpose described.

2. The combination, in a coal-sifter, of the case A, the inclined screens E and E''', the flap F', chutes E' and G, partition H, and coal and ash chambers or receptacles D C, all substantially as and for the purpose set forth.

3. The combination, in a coal-sifter, with the screens E E''', of the chutes E' and G and the draft-partition H, all substantially as and for the purpose set forth.

4. A coal-sifter consisting of the upright case A, the inclined screens E E''', the chutes E', E'', and G, the draft-partition H, perforated wall I, and coal and ash chambers D C, all as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH F. ANDREWS.

Witnesses:

CHAS. B. TILDEN,
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