

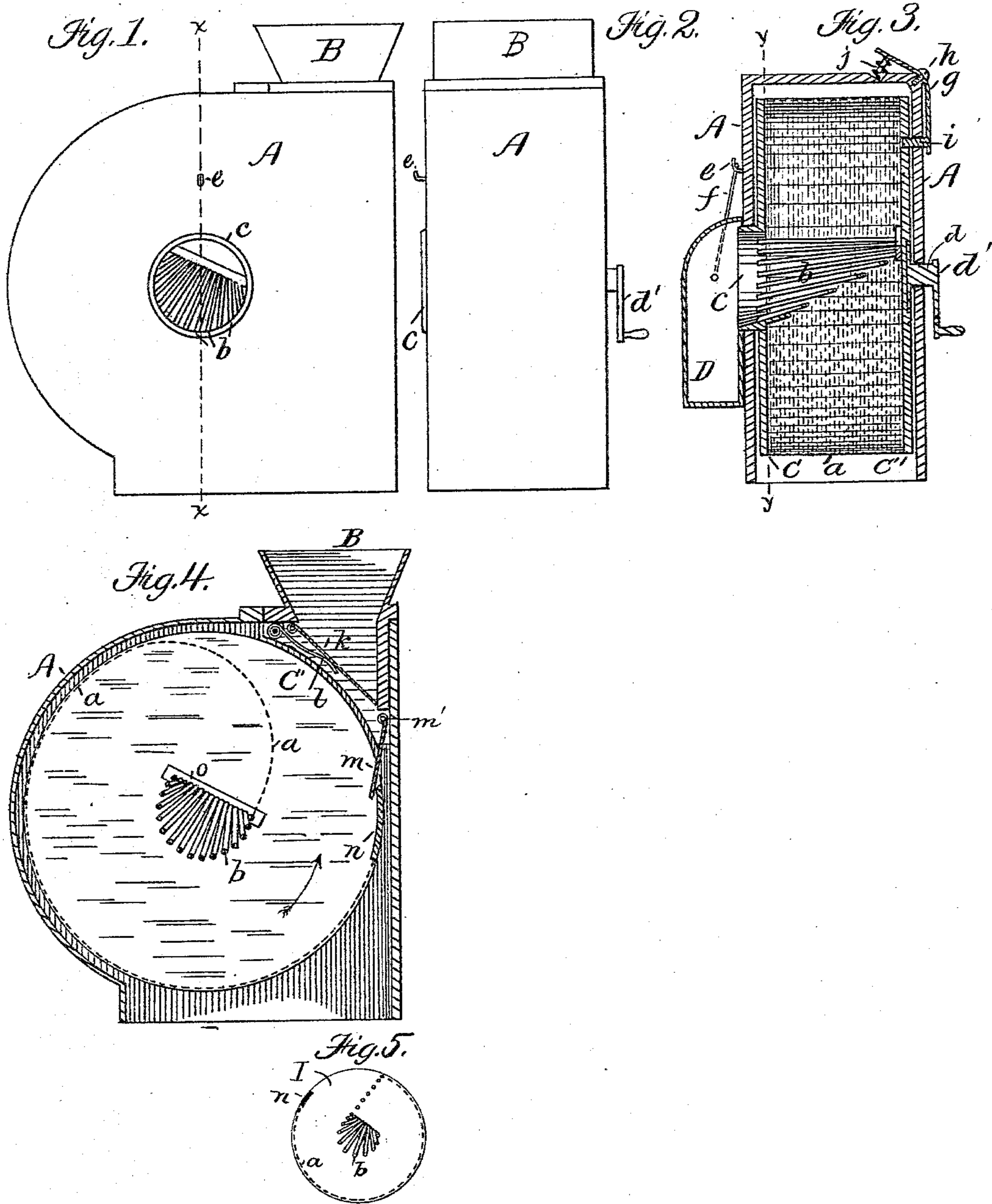
(No Model.)

J. H. PORTER.

ASH SIFTER.

No. 286,484.

Patented Oct. 9, 1883.



Witnesses.
Joseph Leutner
A. L. White.

Inventor.
J. H. Porter
by Night & Son
Atty.

UNITED STATES PATENT OFFICE

JAMES H. PORTER, OF BOSTON, MASSACHUSETTS.

ASH-SIFTER.

SPECIFICATION forming part of Letters Patent No. 286,484, dated October 9, 1883.

Application filed February 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. PORTER, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Ash-Sifters, of which the following is a specification.

This invention has for its object to provide an improved sieve or sifter for quickly separating comminuted material or dust from coarse material without permitting the escape of dust during the operation.

The invention consists in a rotary sieve of a scroll or volute form in transverse section, adapted to present a large extent of screening-surface in a compact form, and to accumulate the coarse fragments at the inner end of the volute after the fine or comminuted material has escaped through the meshes of the sieve, and provided with an inclined chute at the inner end of the volute, adapted to automatically deliver the coarse fragments into a receptacle outside of the sieve.

The invention also consists in certain details of construction, all of which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of an ash-sifter embodying my invention. Fig. 2 represents a front elevation of the same. Fig. 3 represents a vertical section on line *x x*, Fig. 1. Fig. 4 represents a vertical section on line *y y*, Fig. 3. Fig. 5 represents a modification.

The same letters of reference indicate the same parts in all the figures.

In carrying out my invention I construct a sieve, *a*, of a sheet of wire-cloth or other suitable material, in the form of a scroll or volute, and secured to suitable ends or heads, *C C'*, preferably of circular form. The space between the outer end, *n*, of the sieve and the adjacent convolution of the same constitutes a mouth, *I*, (see Fig. 5,) through which the coal-ashes or other material to be sifted is introduced.

In the form shown in Figs. 1, 3, 4, and 5 the inner end of the sieve *a* is inclined to form a chute, *b*, which is preferably composed of inclined metal rods.

It will be seen that when the sieve is rotated in the direction indicated by the arrow in Fig.

4 a quantity of ashes dropped into the mouth of the sieve, when the latter is in the position shown in said figure, will be caused to move over the surface of the sieve from the outer to the inner end thereof.

The extent of sifting-surface is such that all the ashes will pass through the meshes of the sieve *a* before they can reach the chute *b*; hence only the coarse fragments of coal, &c., will reach said chute. Said fragments, upon reaching the chute, will slide out through a hollow trunnion or wing, *c*, on the head *C* into a receptacle, *D*, secured by a bail, *f*, to a hook, *e*, upon the side of the case *A*, in which the sieve is journaled. The hollow trunnion *c* rotates in an enlarged bearing in one side of the casing, and a trunnion, *d*, on the head *C'* rotates in a bearing in the other side of the casing. The trunnion *d* is provided with a crank or handle, *d'*, by which the sieve is rotated. It will be seen, therefore, that a single rotation of the sieve *a* will not only separate the ashes from the coarse material, but will eject the latter from the casing containing the sieve.

The casing *A* (shown in Figs. 1, 2, 3, and 4) is provided with a hopper, *B*, for the introduction of the ashes to be sifted. Said hopper is provided with a trap-door, *k*, which is held normally by a spring, *l*, in position to close the opening through which the material to be sifted passes from the hopper to the sieve, said spring being attached at one end to the casing *A*, and bearing at its free end against the trap-door *k*. The hopper is arranged at one side of the center of the sieve, as shown in Figs. 1 and 4. When the mouth of the sieve is directly under the hopper, a spring-bolt, *i*, on the casing springs into an orifice in the head *C'* of the sieve, as shown in Fig. 3, and locks the latter in the position shown in Fig. 4, so that it can receive ashes from the hopper. The bolt *i* is secured to a lever, *g*, pivoted at *h* to the casing, and provided with a spring, *j*, which forces the bolt *i* into the orifice in the head *C'*. When the sieve is in said position, the trap-door *k* can swing downwardly into the mouth of the sieve to allow ashes to fall into the sieve, and a flap, *m*, pivoted to the casing at *m'*, hangs downwardly over the outer edge, *n'*, of the sieve, as shown in Fig. 4, and prevents the ashes, &c., from falling

into the space between the outer edge of the sieve and the adjacent wall of the casing.

When the sieve is rotated in the direction indicated by the arrow from the position shown in Fig. 4, the cylindrical portion of the sieve comes in close relation to the trap-door *k*, and prevents the latter from swinging downwardly, so that the ashes can only be admitted to the casing when the mouth of the sieve is under the hopper. This position of the sieve is indicated by the locking of the sieve by the bolt *i*. Liability of pouring ashes into the casing when the sieve is not ready to receive it is thus prevented. When the sieve is being rotated, the flap *m* is raised by the outer edge, *n'*, of the sieve and rests on the cylindrical portion thereof, and drops to the position shown in Fig. 4 only when the mouth of the sieve comes under the hopper.

It will be seen that when ashes are poured into the hopper, the sieve being in the proper position, the trap-door yields and allows the ashes to enter the sieve and immediately closes and prevents the escape of dust. The casing rests on a suitable receptacle for the sifted ashes, such as a box or barrel.

The above-described construction constitutes a convenient device for sifting coal-ashes, or other material containing light dusty particles, and automatically discharging the coarse portions from the sieve. I do not limit myself, however, to the employment of the peculiarly-constructed casing above described, as the sieve, with its inclined chute, may be used with a different casing or support.

An equivalent of the scroll or volute shaped sieve is shown in Fig. 5, in which the wire-cloth is turned inwardly at an abrupt angle from the periphery to the center. I do not, therefore, limit myself to a scroll shape in all cases.

I do not limit myself to any particular construction of the shifting portion of the sieve. The same may be of wire-cloth, or may be composed of parallel bars extending from head

to head parallel with the axis of the sieve, or scroll-shaped bars parallel with the heads.

I claim—

1. A rotary scroll or equivalently shaped sieve secured to suitable ends or heads, one of which has a central opening, and terminating at its inner end in a chute inclined relatively to the axis of the sieve, and adapted to automatically discharge all of the separated material through said opening, as set forth.

2. A rotary scroll or equivalently shaped sieve having an inclined chute and secured to ends or heads *C C'*, the former having a hollow trunnion or ring, *c*, at one end of the chute, and the latter a trunnion, *d*, combined with a casing having bearings for said trunnions, as set forth.

3. The rotary scroll or equivalently shaped sieve, combined with the casing having the hopper *B* and an automatically-closed trap-door, *k*, as set forth.

4. The rotary scroll or equivalently shaped sieve, combined with the casing having the hopper *B*, the trap-door *k*, and the flap *m*, as set forth.

5. The rotary scroll or equivalently shaped sieve, combined with the casing having the hopper *B*, trap-door *k*, and spring locking-pin *i*, as set forth.

6. The combination of the rotary sieve having the inclined chute, the casing having an opening receiving one end of said chute, and a receptacle, *D*, adapted to be secured to the casing and cover the open end of the chute, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 10th day of February, 1883.

JAMES H. PORTER.

Witnesses:

C. F. BROWN,
A. L. WHITE.