(No Model.)

S. SEELEY & W. E. LANGLEY.

COAL, ASH, OR GRAVEL SIFTER.

No. 344,603. Patented June 29, 1886.

Fig: 1.

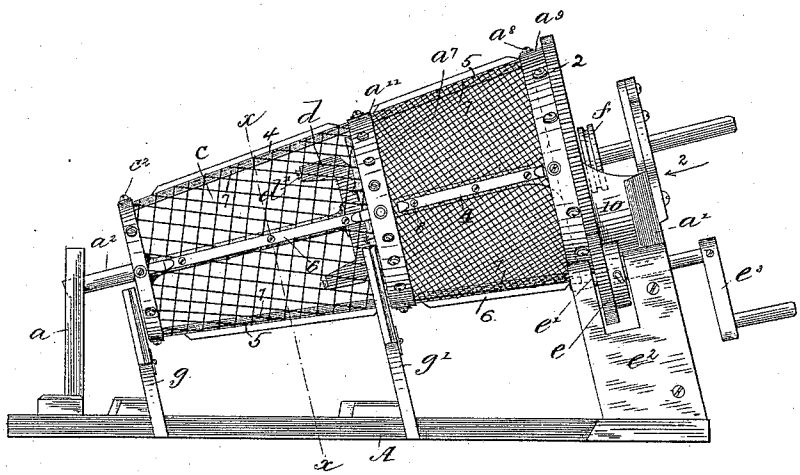


Fig: 3.

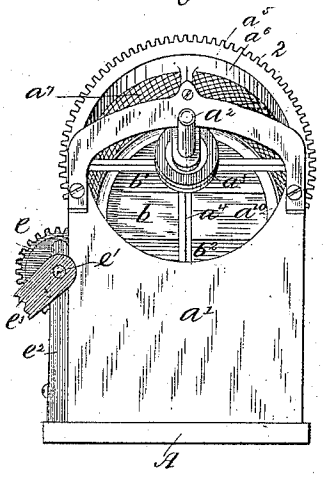


Fig: 2.

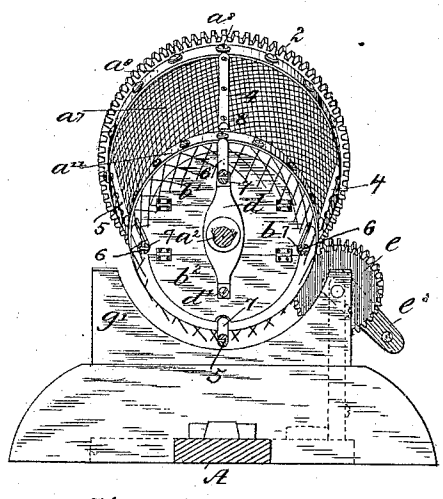


Fig: 4.

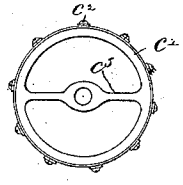
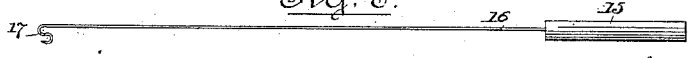


Fig: 5.



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UNITED STATES PATENT OFFICE.

STEPHEN SEELEY, OF BOSTON, MASSACHUSETTS, AND WILLIAM E. LANGLEY, OF BURLINGTON, VERMONT.

COAL, ASH, OR GRAVEL SIFTER.

SPECIFICATION forming part of Letters Patent No. 344,603, dated June 29, 1886.

Application filed February 1, 1886. Serial No. 190,430. (No model.)

To all whom it may concern:

Be it known that we, STEPHEN SEELEY, of Boston, county of Suffolk, and State of Massachusetts, and WILLIAM E. LANGLEY, of Burlington, county of Chittenden, and State of Vermont, have invented an Improvement in Coal, Ash, or Gravel Sifters, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to construct a coal, ash, or gravel sifter whereby the material to be sifted is passed through two or more screen-compartments, the meshes of the screen of each compartment being of different size, so that particles of different degrees of fineness may be separated from the material, and each grade or degree collected by itself.

The invention consists, substantially as hereinafter particularly set forth and claimed, in the combination, with two or more revolving compartments having screen-walls to receive the material to be sifted or graded, of pivoted valves, which when closed separate the said compartments, and when open permit the material to pass from one compartment to another. The screen-covered compartments, placed end to end to thus form a continuous chute when the valves are opened, are mounted upon an inclined rotating shaft, that the material may pass by gravity from one to another compartment. The inclined rotating shaft has its bearings in a suitable frame-work, the bed of which is provided with suitable partitions located beneath the division-walls of the compartments, to prevent the material once sifted from again commingling.

The rotating shaft is driven either by hand or by power, as desired.

Figure 1 shows in side elevation a coal, ash, or gravel sifter constructed in accordance with this invention; Fig. 2, a cross-section of Fig. 1, taken on the dotted line *x x;* Fig. 3, a right-hand end view of Fig. 1; Fig. 4, a detail showing the exit end of the revolving compartments, and Fig. 5 an elevation of a tool employed by the operator for opening and closing the valves.

The bed A of the frame-work has suitable uprights, *a a'*, which serve as bearings for the main rotating shaft a^2, placed at an angle with relation to the bed A. A hub, a^3, is mounted upon the inclined rotating shaft a^2, from which spokes a^4 radiate, which latter support a ring or frame, a^5, having a toothed periphery, as at 2, and a flange, a^6, to which the screen a^7, bent into frusto-conical shape, is secured by screws a^8, a suitable band, a^9, passing around the flange a^6, to cover the ragged edges of the screen. The opposite end of the screen a^7 is secured to a ring or frame, a^{10}, of less diameter than the ring a^5, and a band, a^{11}, also encircles the said ring. Thus a frusto-conical compartment or chamber is formed. The ring or frame a^{10} is supported by a cross-piece, *b*, fixed to the inclined rotating shaft a^2, said cross-piece having valves b' b^2, here shown as hinged thereto at opposite sides, and of such dimensions that, when closed, a division-wall is formed, closing the exit of the said compartment. Another screen, *c*, bent into frusto-conical shape, surrounds the inclined rotating shaft a^2, one end of the said screen being secured to the ring or frame a^{10}, while its opposite end is secured to a ring or frame, *c'*, by screws c^2, the said ring or frame *c'* being of less diameter than the ring a^{10}, and supported by a cross-piece, c^5, fixed to the said shaft a^2, so that a second frusto-conical compartment is formed, similar to the first one above described.

The meshes of the screen *c*, forming the walls of the second compartment, are larger than the meshes of the screen a^7, to permit particles to pass through which could not pass through the said screen a^7.

Suitable ribs or braces, 4 5 6 7, located on the outside and inside of the screens a^7 and *c*, respectively, are secured to each other by screws or other fastenings 8, to retain the surface of the screens in position and protect them from harm. Thus it will be seen that when the valves b' b^2 are open a continuous frusto-conical chute is formed, through which the material passes, the finer particles passing through the screen a^7, and the next grade through the screen *c*, while the largest particles pass from the second compartment through its open end. (Shown in Fig. 4.)

The valves b' b^2 are permitted to be opened and closed by a turn-button, *d*, mounted loosely upon the shaft a^2, the opposite arms of the button bearing upon the said valves.

The turn-button *d* is herein shown as rotated

by a hand-tool, constructed as shown in Fig. 5, it consisting of the handle 15, having the shank 16, and the hooked end 17, which latter engages one of the pins d', projecting from the ends of the arms of the turn-button, the tool being inserted through one of the meshes of the screen c, yet it is obvious that other means may be devised for turning the button d when desired, which may be equally as efficient.

I have herein shown the inclined rotating shaft as driven by a toothed wheel, e, mounted upon a shaft, e', having its bearings in the upright e^2, and rotated by a crank, e^3, said toothed wheel e meshing with the toothed ring or frame a^5, yet it is obvious that if it is desired to drive the sifter by power a belt-pulley, f, fixed to the rotating shaft and driven by any suitable means, may be substituted therefor.

The coal, ashes, or gravel to be sifted is fed into the sifter in the direction of the arrow 2, over the curved shield 10, secured to the framework, its free edge overlapping the inner surface of the ring or frame a^5, the valves b' b^2 being at such time closed. The inclined shaft a^2 is then rotated, while the finer particles pass through the screen a^1, falling upon the bed A or into any suitable receptacle placed in position to catch the same. The valves b' b^2 are then opened, and the material passes into the second compartment, the next grade particles passing through the screen c, while the largest particles pass out of the open end of the said second compartment.

Suitable partitions, g g', are secured to the bed A, beneath the division-walls of the compartments, if desired, to prevent the sifted particles from again commingling.

It will be seen that by the sifter herein described coal, ashes, gravel, or other material may be separated into numerous degrees of fineness, the number depending upon the number of compartments employed in the construction of the sifter, and the operation is performed speedily.

I claim—

1. A coal, ash, or gravel sifter comprising two or more compartments to receive the material to be sifted, the rotating shaft a^2 therefor, and pivoted valves interposed between and completely separating said compartments, and adapted to be opened to establish communication between them, all arranged substantially as described.

2. A coal, ash, or gravel sifter comprising two or more revolving frusto-conical screen-compartments of different mesh, hinged valves interposed between said compartments and completely separating them, and adapted to be opened to establish communication between the adjacent compartments, and partitions g g', substantially as described.

3. A coal, ash, or gravel sifter comprising two or more compartments to successively receive the material to be sifted, means to rotate the same, and hinged valves b' b^2, interposed between said compartments, and provided with a turn-button, d, constructed and arranged substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

STEPHEN SEELEY.
WILLIAM E. LANGLEY.

Witnesses:
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C. M. CONE.