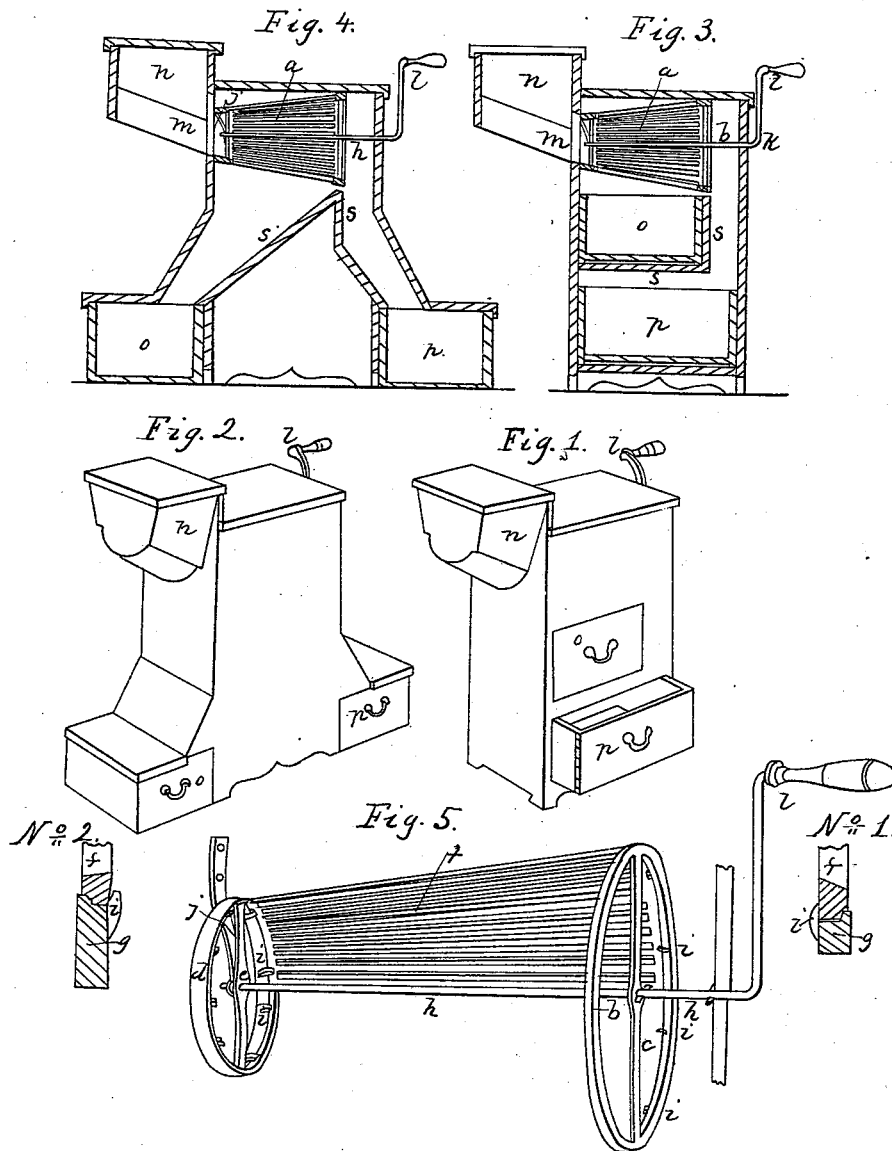


Doane & Denney,

Coal Screen.

N^o 2,863.

Patented Nov. 28, 1842.



UNITED STATES PATENT OFFICE.

JOHN J. DOANE AND WM. H. DENNY, OF NEW YORK, N. Y.

COAL-SIFTER.

Specification of Letters Patent No. 2,863, dated November 28, 1842.

To all whom it may concern:

Be it known that we, JOHN J. DOANE and WM. H. DENNY, of the city, county, and State of New York, have invented a new and useful machine for sifting coal-ashes, which we entitle "Doane and Denny's patent coal-sifter;" and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view; Fig. 2 is also a perspective view of the same machine, with a different arrangement of the drawers; Fig. 3 is a longitudinal section of Fig. 1; Fig. 4 is a longitudinal section of Fig. 2; Fig. 5 is an illustration on a larger scale of the conical sifter.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction, and operation.

We construct a case of wood, of any convenient size; we generally make the case 20 inches long, 13 inches wide, and 3 feet high. We then construct a cylindric grating, in the form of a frustum of a cone, of cast iron; we make the diameter of this cylinder about 10 inches at the greatest, and $6\frac{1}{2}$ inches at the smallest end; the length of the cylinder about 14 inches; we vary the size of the cylinder as required, keeping the above proportions; this cylinder is placed in the inside of the case, and near the top of it; as shown at *a, a*, in Figs. 3 and 4. The construction of this conical cylinder is as follows: *b* Fig. 5 is a cast iron rim, with a bar *c*, crossing it on the diameter; this rim is 10 inches diameter; another rim of cast iron is also provided as shown at *d*, $6\frac{1}{2}$ inches diameter, with a bar *e*, crossing at its diameter, similar to the rim *b*; the inner edges of the rims *b*, and *d*, are rabbeted to receive the grating *f*, which is cast in section, and fitted to the rabbets; the grating is supported by small cams cast with the rims as shown at *i, i, i*. A section of the rim *b*, is shown at *g*, No. 1, when *f*, also represents the grating fitted into it, and *i*, one of the cams; No. 2 is a section of the rim *d*, the letters having the same reference as in No. 1; the bars *c*, and *e*, have a square hole in the center of each, through which we pass a shaft of iron about $\frac{5}{8}$ of an inch square as shown at *h*; a key is passed through this shaft immediately outside of the bars *c*, and *e*, though keys keep the rims *b*, and *d*, close against the ends of the grating, which completes the construc-

tion of the cylinder sifter; the shaft *h*, has its bearing at one end in the strap of wrought iron as shown at *j*; the other end of the shaft has its bearing resting in the side of the case as shown at *k*, Figs. 3 and 4; the end of the shaft at *k*, is bent so as to form the crank *l*. We then cut a circular hole through the case as shown at *m*, this opening corresponds with the small end of the conical cylinder; we then construct a hopper as shown at *n*, on Figs. 1, 2, 3, and 4. The bottom of this hopper is semicircular formed of sheet iron, is placed in an inclined portion and corresponds to the circular opening in the case at *m*; the hopper and likewise the case are furnished with cover to shut in the dust during the operation of the machine; *o*, is a drawer fitted into the case to receive the ashes; *p* is also a drawer fitted to the case to receive the coal that may be sifted from the ashes; *s, s*, are partitions made in the case to separate the sifted ashes from the coal.

The operation of this machine is as follows: The coal ashes as it comes from the grate is thrown into the hopper *n*, the shaft *h*, and the cylinder grating is then made to revolve by the crank *l*; the ashes pass through the opening at *m*, into the cylinder *a*; the finer parts fall through the grating into the drawer *o*, and the coal being separated from the ashes passes out at the large end of the cylinder and falls into the drawer *p*.

We also use our machine for screening sand so as to separate the pebbles and lumps from the sand; also for screening coal before it is burned to separate the coarse lumps or masses from the finer. In applying this invention to these last mentioned purposes we construct the conical cylinder of large dimensions and place a hopper at the small end of the cylinder the axis of which is supported on a frame instead of a case to confine the dust as when used for sifting coal ashes.

What we claim as our invention and desire to secure by Letters Patent is—

The peculiar arrangement of the cylinder *a*, in the form of a frustum of a cone in combination with the hopper *n*, and the arrangement of the drawers *o, p* the whole combined substantially as herein set forth.

JOHN J. DOANE.
WM. H. DENNY.

Witnesses:

JOHN B. DENNY,
I. H. B. WEAVER.