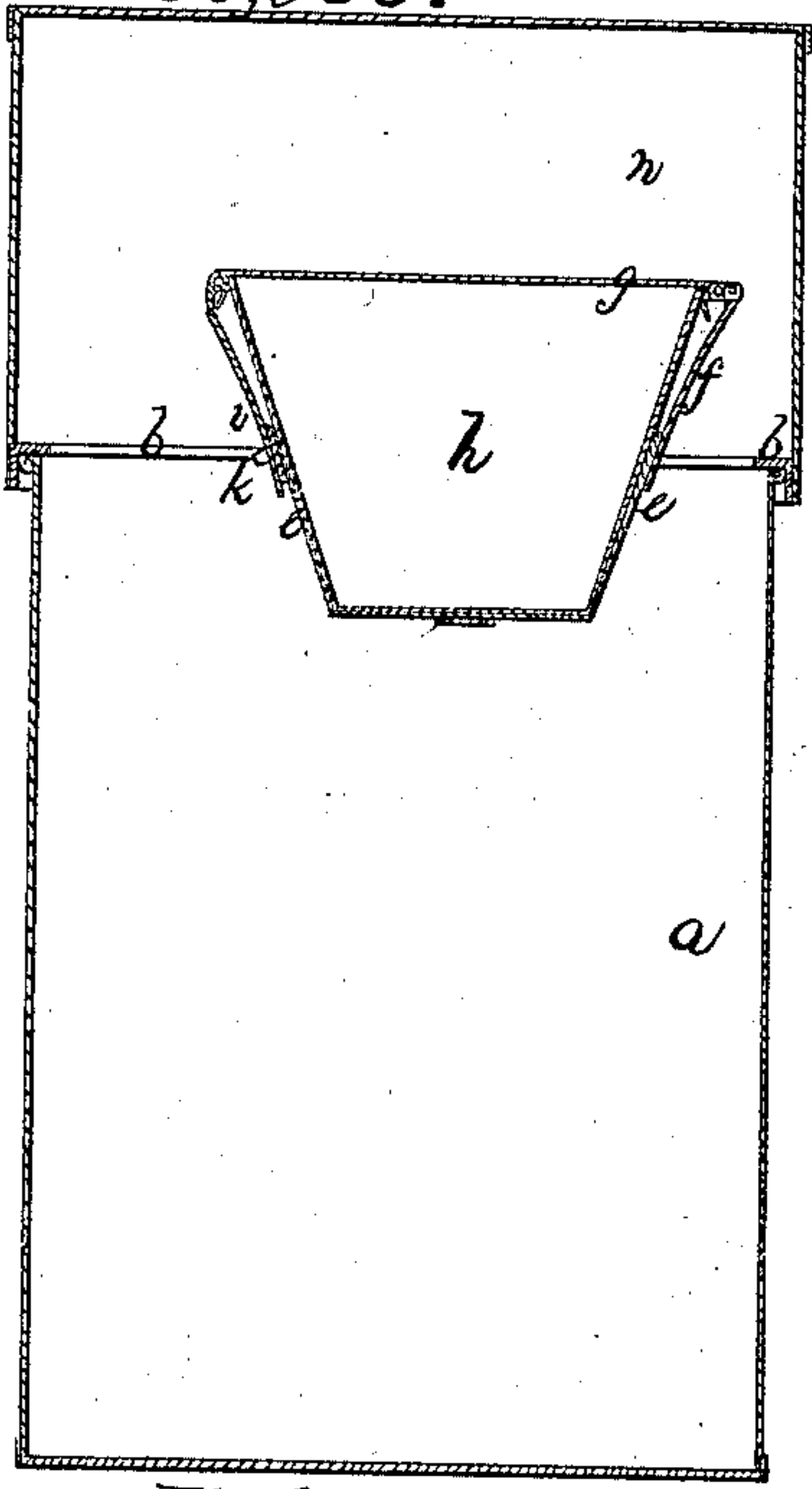


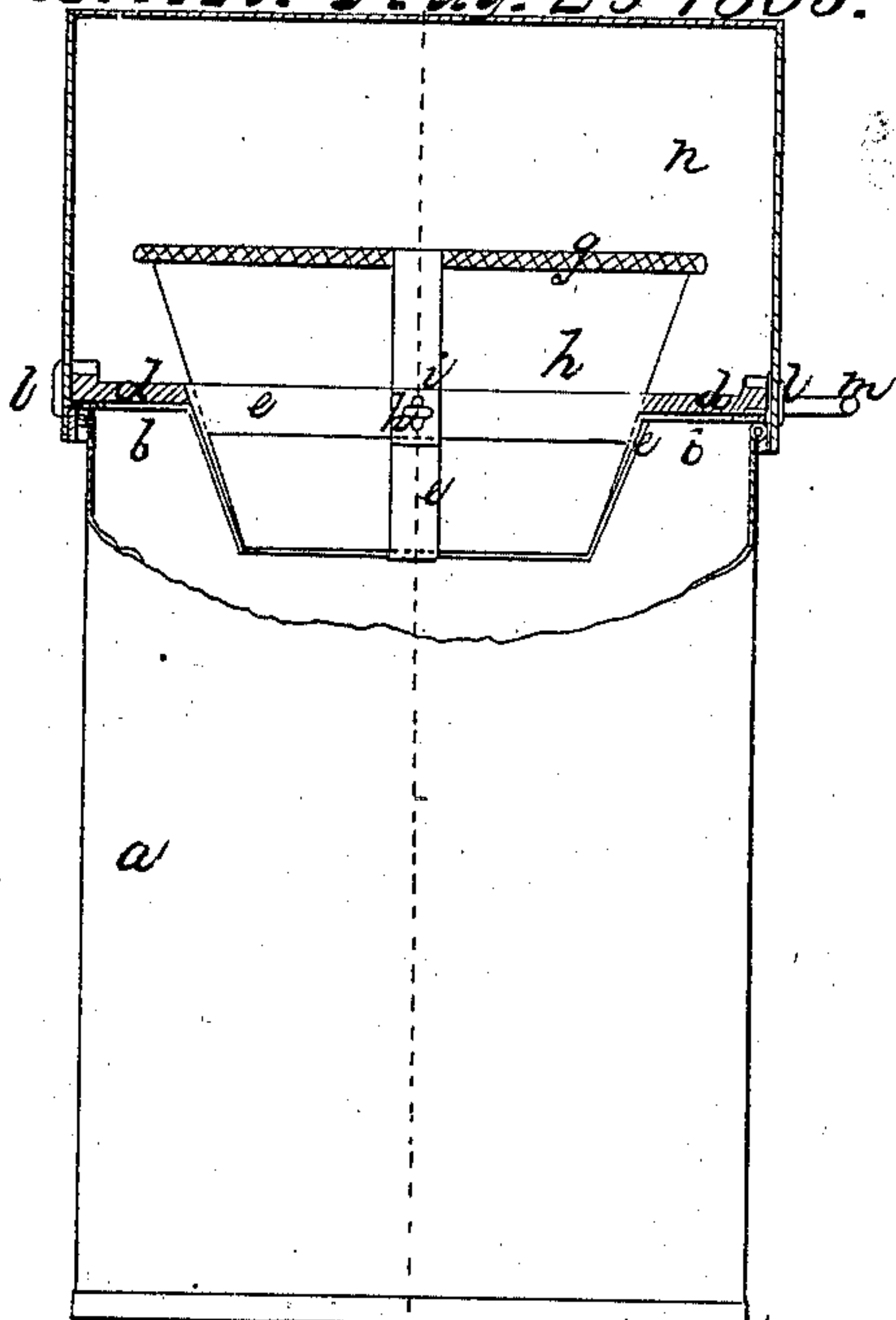
*R. C. Nichols,*  
*Coal Screen.*

*N<sup>o</sup> 39,668.*

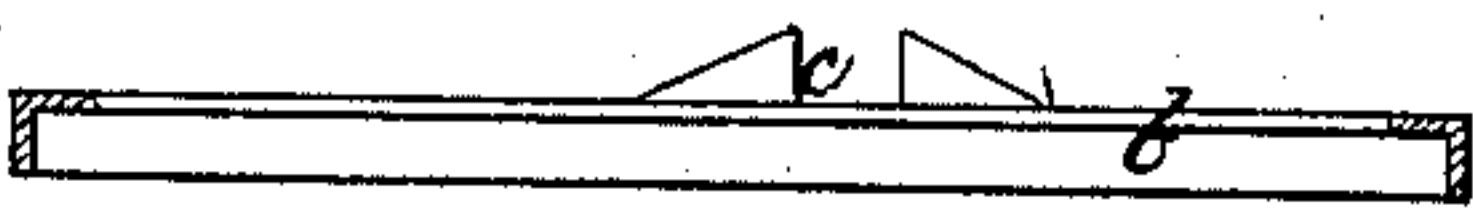
*Patented Aug. 25 1863.*



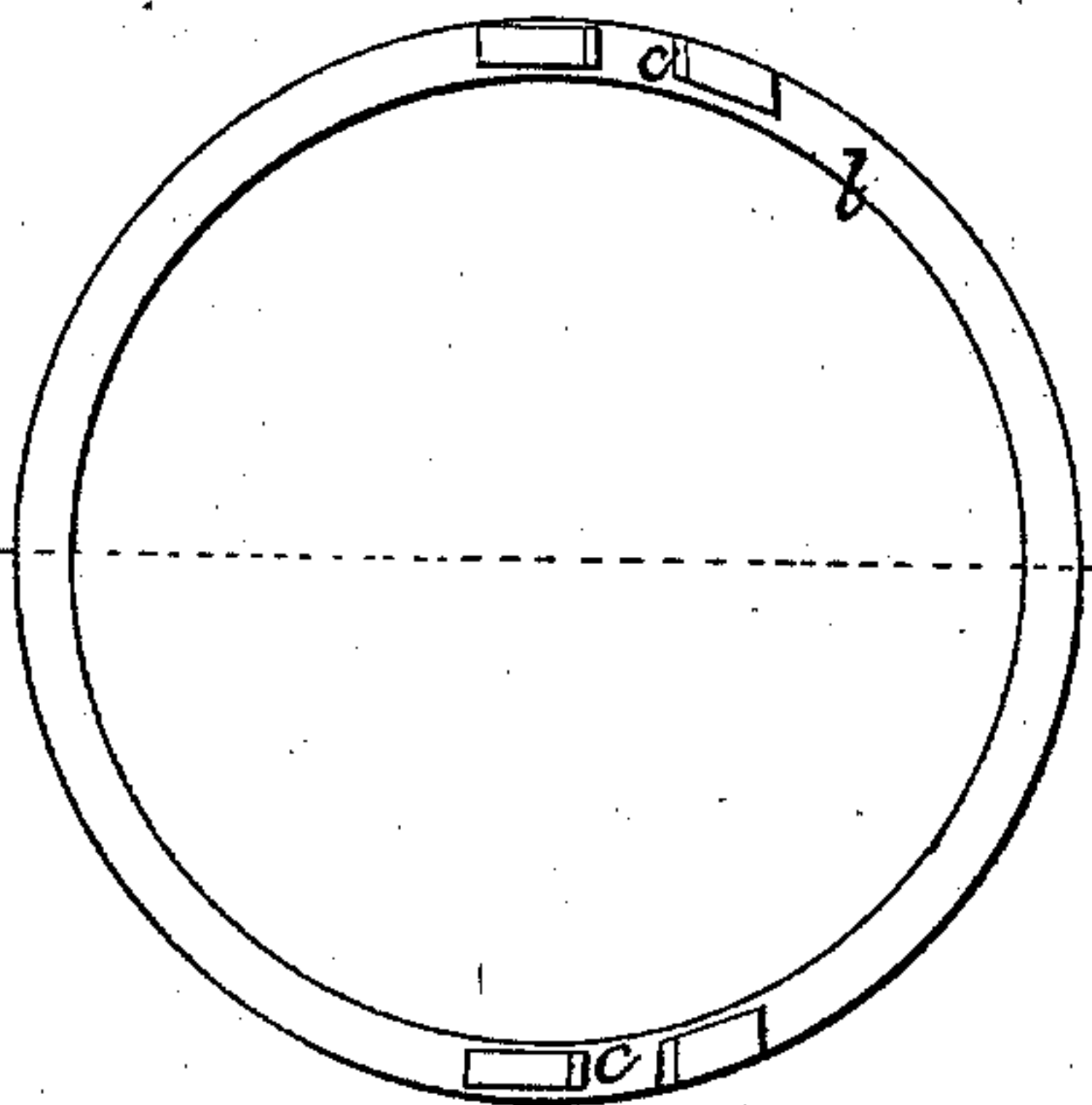
*Fig. 3.*



*Fig. 1.*



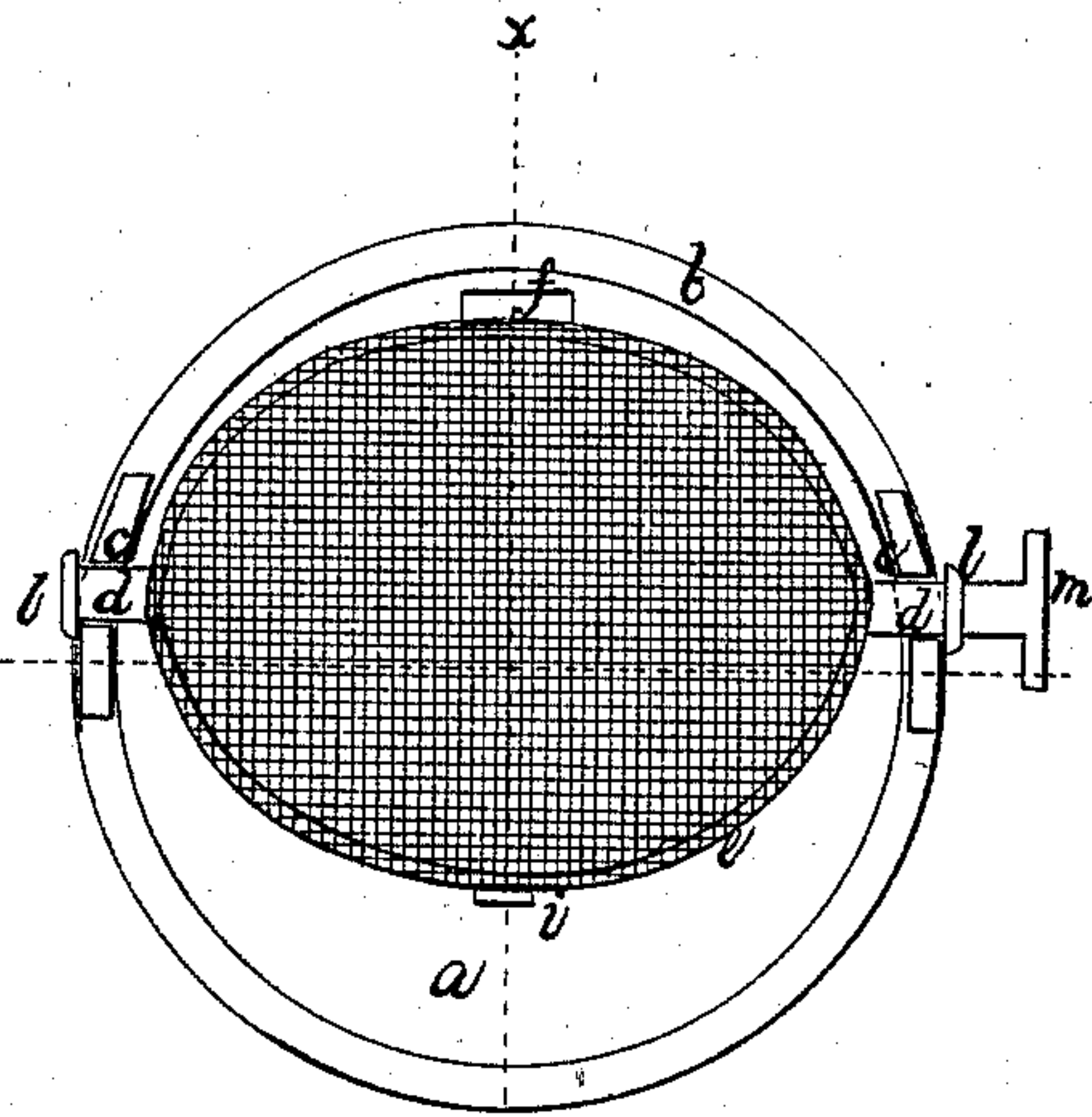
*Fig. 5.*



*Fig. 4.*



*Fig. 6.*



*Fig. 2.*

*Witnesses.*

*Francis Gould.*  
*Joseph O. Cook.*

*Inventor*

*Robert C. Nichols.*



# UNITED STATES PATENT OFFICE.

ROBERT C. NICHOLS, OF BOXBURY, MASSACHUSETTS.

## IMPROVEMENT IN COAL-SIFTERS.

Specification forming part of Letters Patent No. 39,668, dated August 25, 1863.

*To all whom it may concern:*

Be it known that I, ROBERT C. NICHOLS, of Roxbury, in the county of Norfolk and State of Massachusetts, have invented a new and Improved Coal-Sifter; and I do hereby declare that the following, taken in connection with the drawings, which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My invention relates to an improved construction of a sifting apparatus for separating coal from ashes; and it consists in the manner of arranging and combining the sifter or screen with the pan or vessel containing the material to be sifted.

Figure 1 of the accompanying drawings represents a side elevation of my separating apparatus, (part of which is shown in said figure in section.) Fig. 2 is a top view of the sifter and its supporting-ring. Fig. 3 is a vertical section taken on the line *x y* of Fig. 2. Fig. 4 is a plan, and Fig. 5, a cross-section, of the bearing ring or hoop on which the coal-pan, sifter-frame, and sifter are supported and operated.

In the drawings, *a* denotes a barrel or ashes-receptacle, upon and around the upper edge of which a ring or hoop of metal or other suitable material is made to fit, and this ring is provided with bearings *c c*, which receive two journals or axles, *d d*, extending from opposite ends of a frame or basket, *e*, as seen in Figs. 1 and 2. This frame is suspended by its journals over the ash-barrel *a*, and from its rear side an arm, *f*, extends upward, said arm having hinged to its upper end a screw or sifter, *g*, as seen in Fig. 3.

The frame is so constructed as to receive and support the coal hod or pan *h*, containing the coal and ashes to be sifted, and in such manner that when the pan is placed in the frame the sifter can be turned over upon and so as to closely cover the top of the pan. A hasp, *i*, on the sieve, and a catch, *k*, projecting from the frame, serve to fasten the sieve, pan, and frame together. The journals *d*, bearings *c*, and hoop *b* are so arranged together and with respect to the vessel *a* as to permit rocking or rotating motion to be given to the frame, and the frame may be prevented from endwise movement by projections or collars *l* on the shaft *d*, as will be readily understood

from inspection of Fig. 2. The top and bottom surfaces of the journals *d* are not made round in shape, but are flattened, as seen in Fig. 6, which denotes a cross-section of one of the journals, these surfaces being parallel or about parallel to the plane of the surface of the sifter *g*, and the top and bottom of the pan *h*. The surfaces of the bearing *c* against which the journals rest, being also made flat, the pan *h*, when at rest, will be kept steady, and either in an upright position or with the sifter *g* lowermost and horizontal.

The operation of the apparatus is as follows: The ashes from the stove or grate having been placed in the coal-pan *h*, it is carried to the vessel *a* and placed in the frame *e*, the screen *g* being then turned down upon the top of the pan and fastened. The frame and pan are kept stationary, while the pan is being placed and fastened by the contact of the lower flat surface of the journals, and the contiguous surface of the bearings *c*. The frame, pan, and sieve are then reversed or turned over by means of a handle, *m*, on one of the journals. This brings the sieve under the pan, or so as to form a bottom thereto, and now, by agitating or rocking the frame and pan by means of the handle, the coal and ashes are separated, the ashes falling into the barrel *a*, while the coal remains on the sieve, and in this operation the flat under surface of the journals serves to give a jarring motion to the sifter, accelerating the falling of the ashes through the meshes of the sieve. After the coal is screened, the pan is again rotated into an upright position, where it is held, as before described, while the sifter *g* is turned and the pan removed. Instead of making the under surfaces of the journals flat, the weight of the coal and ashes may serve to keep the pan in position, or the frame may be weighted.

In the process of sifting coal-ashes as usually conducted the ashes are poured or emptied into or upon the sifter, and after being sifted the coal is restored to the hod or pan. This operation is troublesome, uncleanly, and annoying from the diffusion of the fine particles of ashes, and the deposit of the same on the clothes and person of the party using the sifter. I avoid this trouble by adapting a screen directly to the mouth of the pan, suspending the whole in the frame *e*, and over the ash-barrel, as set forth, the dust and ashes being pre-



vented from arising while being sifted, if necessary, by covering the apparatus with a top or cover, *n*.

The coal-pan is shown as made of oval form, for the purpose of conveniently discharging the coal into a stove or grate; but I do not propose to confine myself to such form, or to any particular manner of applying the apparatus to the barrel or ash-receptacle, meaning to vary the same as circumstances may require, while I retain the main feature of my invention of arranging a sieve-frame and coal hod or pan together, to operate substantially as described.

I would also remark that though I have described my apparatus as used for the purpose of sifting coal-ashes, it will be evident that it may be applied for separating a sift-

ing, or screening other substances, such as seeds, grains, spices, ores, &c., so that I do not confine myself to the particular process of sifting coal-ashes.

What I claim is—

1. The combination of a sifter or screen, *g*, and pan *h*, when arranged and made to operate together in the manner and for the purpose substantially as described.

2. Making the journals *d* with the flat surfaces, as set forth, for the purpose of keeping the pan in position and imparting the jarring motion to the sieve, as above specified.

R. C. NICHOLS.

Witnesses:

FRANCIS GOULD,  
JOSEPH O. COLE.