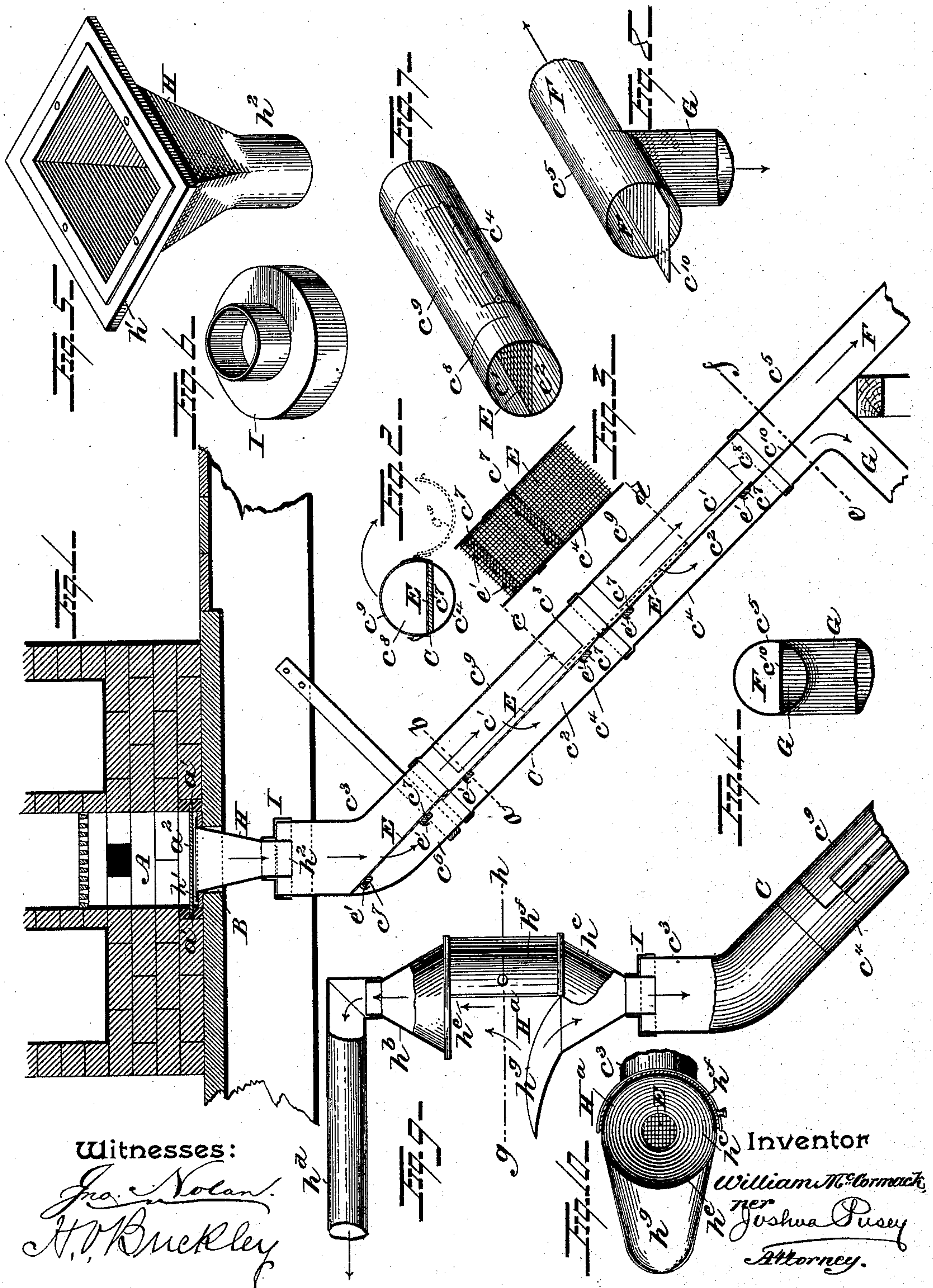


Patented Oct. 22, 1889.



UNITED STATES PATENT OFFICE.

WILLIAM McCORMACK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO DANIEL J. BIRMINGHAM, OF SAME PLACE.

SCREEN.

SPECIFICATION forming part of Letters Patent No. 413,202, dated October 22, 1889.

Application filed September 28, 1888. Serial No. 286,707. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM McCORMACK, a citizen of the United States, residing at the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Screens, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a vertical longitudinal section of the apparatus as applied to a range. Figs. 2, 3, and 4 are sections taken through the lines *a b*, *c d*, and *e f*, respectively, on Fig. 1. Fig. 5 is an enlarged view of the feed-hopper detached. Fig. 6 is a like view of the connecting-collar. Fig. 7 is a view of a section of the chute. Fig. 8 is a view of the discharge-section. Fig. 9 is a sectional elevation of a hopper attachment and adjuncts. Fig. 10 is a horizontal section on the line *g h*, Fig. 9.

The nature of this invention is a screen for automatically sifting ashes or other material and discharging the separated particles at different points. It is particularly, though not exclusively, adapted to be connected with ranges or other similar fire-places, in which case the device is disposed with such relation to the ash-pit that the ashes will fall directly into the screen.

The invention consists in a certain construction and arrangement of parts, which will be hereinafter described and claimed.

Referring to the annexed drawings, A represents the ash-pit of an ordinary range; B, an opening in the bottom thereof; C, an inclined chute communicating with said opening; E, a transverse screen disposed lengthwise in said chute, and F and G discharge-pipes communicating with the upper and lower divisions *c'* *c''*, respectively, formed by said screen. By this construction it will be seen that the ashes will fall from the fire directly into the chute C and upon the screen E therein, whereupon the cinders and coal will slide down said screen and be discharged by the pipe F, and the dust and fine particles will drop through the screen and escape by way of the pipe G, as indicated by the arrows in Fig. 1. These discharge-pipes may lead to opposite points of the cellar or room and deliver the

ashes, &c., into suitably-disposed boxes or other receptacles, if desired.

I preferably, though not necessarily, form the chute C in jointed sections *c'* *c''* *c'''* and connect the whole to the ash-pit A in the following manner: H is a tapering hopper, whose upper or large end is provided with an external flange *h'*, which fits snugly within the ash-pit, as shown, and whose lower or contracted end *h''* projects into the adjacent or elbow-shaped section *c'* of the chute, which is held in place by means of a surrounding collar I. The diameter of the end *h''* of the hopper is less than that of the chute C, as shown, the object being to avoid the choking of said chute by preventing the sudden delivery therein of an excessive quantity of ashes. In the inclined part *c''* of the section *c'*, extending up beneath the hopper, and also in the other sections *c''*, are sheets of screening E, of wire or other suitable material, which are supported upon and secured by hooks *e'* or other means to cross-bars *c''*, formed in said sections. When the latter are united, so as to form the chute, the contiguous ends of the adjacent sheets E slightly overlap, as seen, thus forming a practically continuous body.

On the upper side of the sections *c''* are formed elongated openings *c'''*, which are provided with hinged doors *c'''*, and the section *c'''* is provided with two discharge-pipes F G, which are separated from each other by means of a plate *c'''*, that extends up to and slightly under the screen E, being in effect an imperforate extension of the latter. The chute may be suspended from the ceiling or joists by means of bands or straps or supported upon suitable trestles, or both.

It will be seen that by means of the openings *c'''* in the sections *c''* the interior of the chute may be readily inspected at any point and any foreign articles or accumulations therein removed, and also that the sections of screen, if they become worn or broken, may be taken out and others substituted therefor. It will also be seen that the chute may be readily disconnected from the hopper at the collar I, if it be desired to use the screen independently of the range—as, for instance, to sift ashes from a cellar-furnace with which

the chute is not or could not be connected. In such event it is preferable to apply a suitable feed-hopper to the mouth of the detached chute. Although the hopper H may be re-
 5 moved from the ash-pit and used for this purpose, or a separate similar hopper used, if desired, I have designed and prefer to use a hopper of the following construction, reference being had to Figs. 8 and 9: H^a indicates
 10 the hopper, which is provided with tapering or contracted ends h^b h^c , the lower one h^b of which fits into the elbow-section c^3 , and is held in place by means of the encircling collar I. The upper end is connected with a
 15 pipe h^d , which leads to an adjacent flue. The hopper has a suitable side opening h^e , which may be closed when required by means of a sliding door h^f . For convenience in feeding the ashes into the hopper I provide a project-
 20 ing chute h^g , upon which the ashes may be dumped, whereupon they will slide into the hopper and fall down the inclined screen, being sifted thereby and discharged in the man-
 25 ner hereinbefore described. The dust which arises passes up through the pipe h^d into the flue. The upper end of the hopper, extending out over the top of the opening h^e , and being contracted, as seen, not only effectually catches the arising dust, but tends to create a
 30 continuous upward draft, which carries away the same. This hopper and pipe may be permanently connected with the flue, and the chute C or sections thereof may be readily attached to or detached from said hopper
 35 when required.

In order to prevent the ashes from falling through the hopper or opening in the bottom of the ash-pit when the chute is detached therefrom, as above described, I usually pro-

vide the sides of said ash-pit with guide-
 40 grooves a' , into which may be inserted a covering-plate a^2 . This plate, however, is withdrawn when the chute is connected with the ash-pit, and intended to be used in the man-
 45 ner first described.

Having thus described my invention, I claim as new and wish to secure by Letters Patent—

1. The combination, with a range, &c., of the hopper opening into the ash-pit thereof, the inclined chute connected with said hop-
 50 per and composed of attachable and detachable pipe-sections, each of which is provided with an opening and door on one side thereof, the longitudinal screen or partition contained within said chute and composed of a series of
 55 separable sections successively supported within said pipe-sections, together with the independent discharge-pipes communicating with the upper and lower divisions, respect-
 60 ively, formed by said screen, substantially as described.

2. The combination of the hopper provided with the external supporting-flange at its upper end, the elbow-pipe section c^3 , the collar
 65 I, connecting the same with the hopper, the inclined chute - sections c^4 , the cross - bars therein, the screen-sections supported upon said bars and provided with the stop-hooks
 70 e' , and the lower section c^5 , provided with the independent discharge-pipes, substantially as described.

In testimony whereof I have hereunto affixed my signature this 24th day of September, A. D. 1888.

WILLIAM MCCORMACK.

Witnesses:

JNO. NOLAN,
 GEO. W. REED.