Aug. 20, 1929. F. PAVLIK 1,725,100

SMOKE CLEANING DEVICE

Filed June 7, 1926

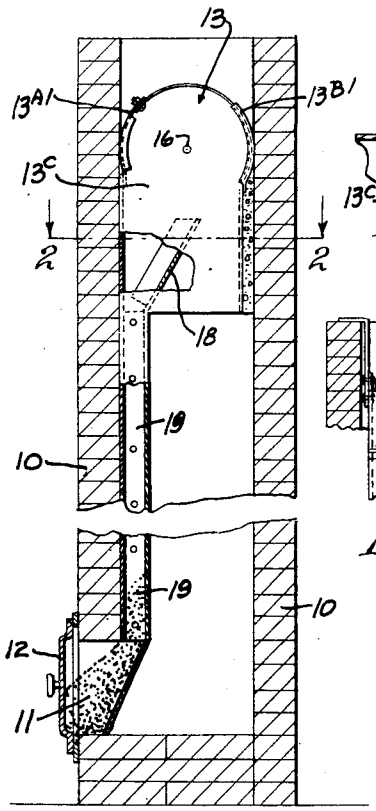


Fig. 1

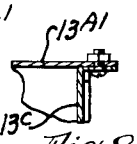


Fig. 8

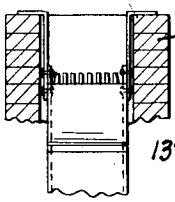


Fig. 9

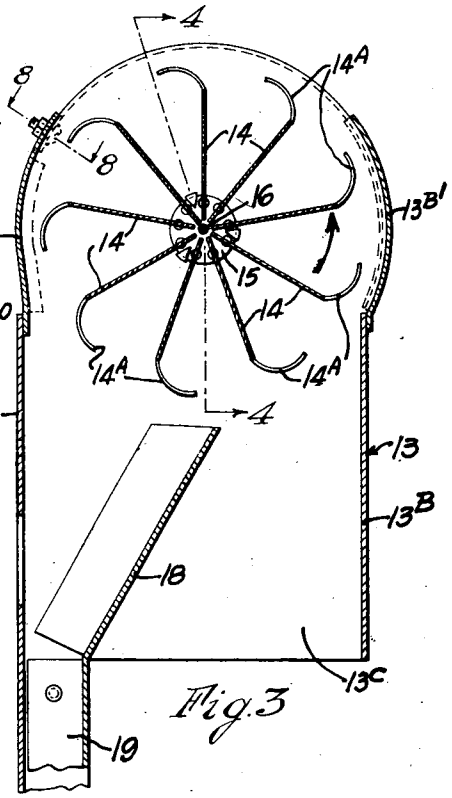


Fig. 3

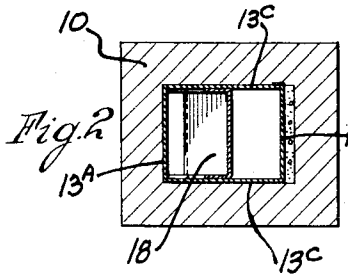


Fig. 2

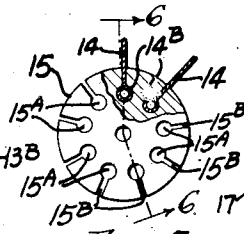


Fig. 5.

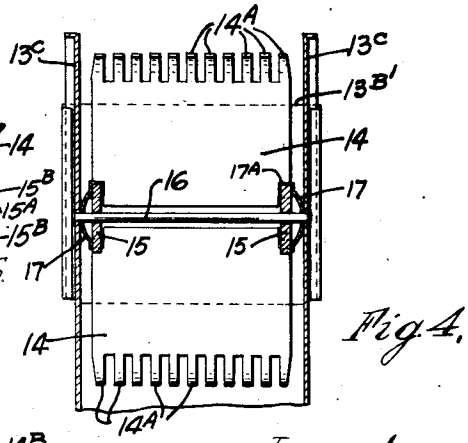


Fig. 4.

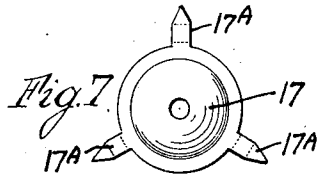


Fig. 7

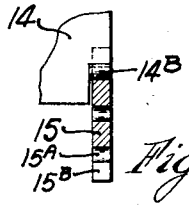


Fig. 6.

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Patented Aug. 20, 1929. 1,725,100

UNITED STATES PATENT OFFICE.

FRANK PAVLIK, OF CHICAGO, ILLINOIS.

SMOKE-CLEANING DEVICE.

Application filed June 7, 1926. Serial No. 114,286.

This invention relates to improvements in smoke cleaning devices and has among its objects to provide a simple and novel means for cleaning the issuing smoke from stacks or chimneys by separating therefrom the soot or cinders.

Another object of the invention is found in the provision of mechanical means operable by the stack or chimney draft for extracting the soot or cinders from the smoke or gases passing through the device.

A still further object of my invention contemplates the provision of a plurality of rotatable vanes interposed in the path of the smoke or gases for separating the soot and cinders therefrom.

With the above and other objects in view, my invention consists in the combination, construction and arrangement of the parts and members set forth in the following specifications illustrated in the attached drawings and particularly pointed out in the appended claims.

Referring to the drawings:

Figure 1, is a vertical section of a chimney showing an application of my invention;

Figure 2, is a cross section through the chimney and my improved device taken on line 2—2 of Figure 1;

Figure 3, is an enlarged vertical section of the device;

Figure 4, is a vertical section taken on line 4—4 of Figure 3;

Figure 5, is an enlarged elevation of one of the hub disks showing the connection of the vanes thereto;

Figure 6, is a cross section through the hub disk taken on line 6—6 of Figure 5;

Figure 7, is a developed elevation of one of the disked separators for the hub disks;

Figure 8, is a section taken on line 8—8 of Figure 3, showing the connection of the removable front section to the side walls;

Figure 9, shows a modified method of supporting my device within a chimney by means of bar hangers.

Referring to the illustrations in more detail, 10 indicates the walls of a chimney or smoke stack having an opening 11 in the bottom thereof equipped with a clean-out gate 12.

My improved device is generally indicated by numeral 13 and comprises a housing of general rectangular cross-section having end walls 13^A and 13^B and side walls 13^C. The upper portions of the side walls 13^C have their upper edges preferably rounded and flanged as shown in Figure 4. The wall 13^B has an upper separate arcuate extension $13^{B'}$ which is flanged over the edges of the side walls 13^C; likewise, the end wall 13^A has a separate upper removable extension $13^{A'}$ which is flanged over the side walls 13^C and bolted to the flange of the side wall 13^C, as shown in Figure 8.

The upper portion of the housing 13 forms an interior chamber for a plurality of rotatably mounted vanes 14. The outer edges of the flat vanes 14, are provided with a plurality of integral spaced arcuate fingers 14^A and the inner corners of these vanes 14 are cut and the cut portions are formed into cylindrical bearings 14^B which are set into the apertures 15^A of the hub disks 15. The hub disks 15 are also provided with slot extensions 15^B from the apertures 15^A for supporting the lower ends of the sides of the vanes 14.

The hub disks 15 are loosely mounted for rotation on a shaft 16 which is securely mounted in the side walls 13^C.

In order to maintain a clearance between the walls 13^C and the revolving vanes 14, and also provide a minimum of friction against the walls 13^C, I provide a pair of circular separators 17 which are stamped with a dished surface and with integral spaced extensions 17^A which extensions are bent over the hubs 15, as shown in Figures 3 and 4, to rotate therewith; the dished sides having a small part of their surface in contact with the walls 13^C.

In order to effectively rotate the vanes 14, I provide a deflector floor 18 which will direct the smoke or gases to one side of the revolving vanes to cause their rotation on the shaft 16 in the direction of the arrow shown in Figure 3.

The soot or cinders which are caught by the vanes and their extending fingers is deposited on top of the floor 18 for discharge into the tubular compartment 19 which extends downwardly to the bottom of the stack or chimney. The collected soot or cinders may be removed through the opening 11.

In operation, the smoke or gases passing upwardly through the stack or chimney are deflected by the floor 18 against one side of the vanes 14 and thus cause their rotation. The particles of soot and cinders which engage the straight portions of the vanes are arrested in their upward movement and

brought to rest in the space between the vanes and thereafter discharged onto the floor 18. The arcuate fingers 14^A permit the passage of the gases through the slots between them and also act as partial separating means.

I claim:

1. In a device of the kind described, and in combination, a housing, a shaft supported in said housing, a pair of disks loosely mounted on said shaft, said disks having a plurality of apertures therein, a plurality of vanes having integral portions seated in said apertures for retaining said vanes in spaced relation to each other on said disks, said vanes being radially disposed from said shaft and having integral spaced fingers on their outer edges to permit the passage of gases therethrough, and a deflector for deflecting the gases to one side of said shaft and vanes whereby said vanes will be rotated with said disks about said shaft for arresting the movement of the heavier particles in said gases to separate said particles from the issuing gases.

2. A device as embodied in claim 1, and including a separator between each of said disks and the walls of said housing, said separators comprising a circular dished member having integral arms bent over the periphery of said disks for rotation therewith.

In witness whereof I affix my signature.

FRANK PAVLIK.