

A. G. GEKELER.
DUST COLLECTOR.
APPLICATION FILED APR. 11, 1910.

990,542.

Patented Apr. 25, 1911.

FIG. 1

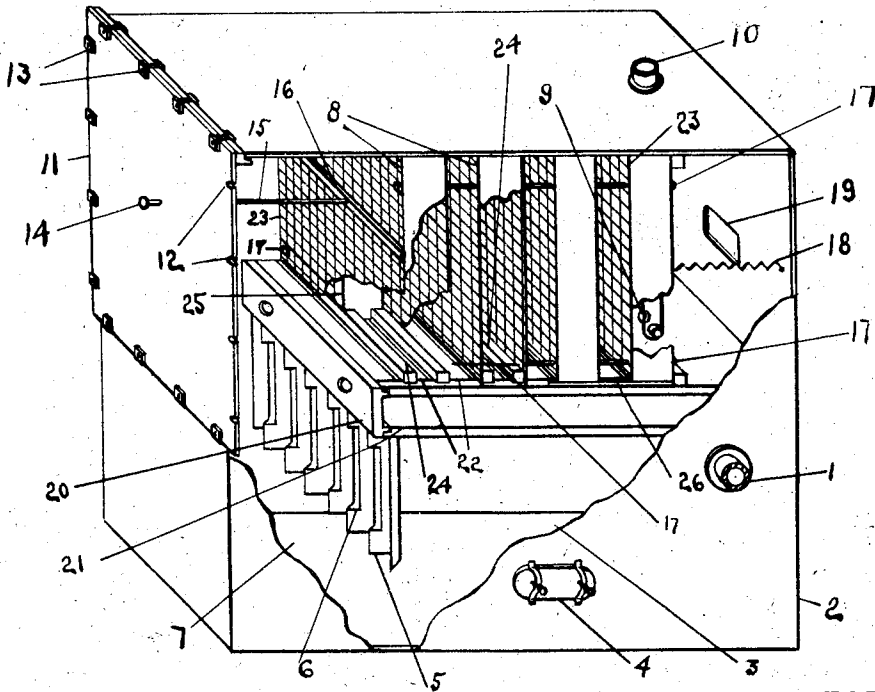
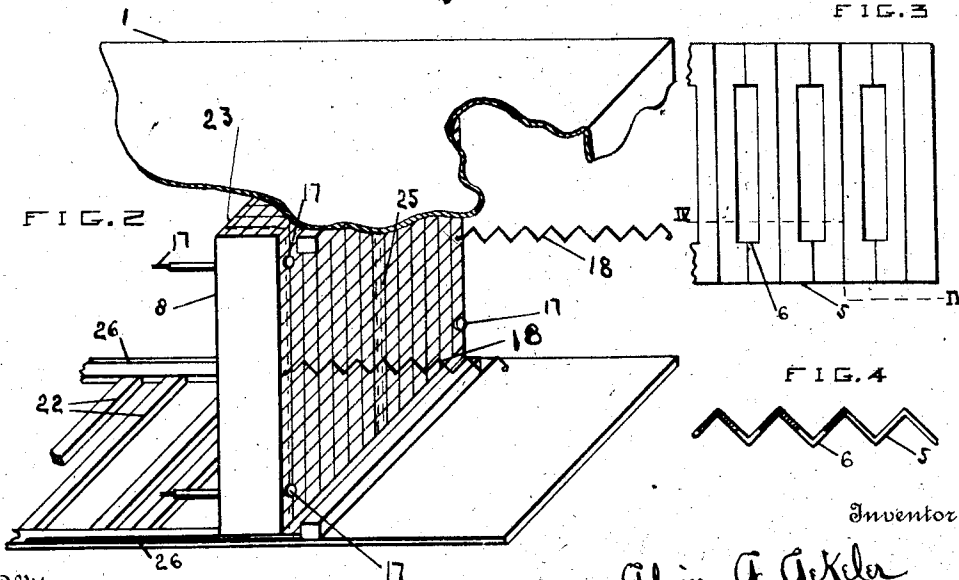


FIG. 3



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UNITED STATES PATENT OFFICE.

ALVIN G. GEKELER, OF LIMA, OHIO.

DUST-COLLECTOR.

990,542.

Specification of Letters Patent.

Patented Apr. 25, 1911.

Application filed April 11, 1910. Serial No. 554,708.

To all whom it may concern:

Be it known that I, ALVIN G. GEKELER, a citizen of the United States, residing at Lima, Allen county, Ohio, have invented a new and useful Dust-Collector, of which the following is a specification.

This invention relates to devices for effecting the removal of dust or other particles of matter from air or gas.

This invention has utility when adapted as a dust collector, especially in connection with air cleaning apparatus.

Referring to the drawings: Figure 1 is a perspective view with parts broken away showing an embodiment of the invention adapted for use in air cleaning work; Fig. 2 is a fragmentary view with parts broken away showing the rear screen frame slightly drawn away from its position adjacent the ends of the ways; Fig. 3 is a fragmentary view in elevation of the zig-zag apron; and Fig. 4 is a view thereof on the line IV-IV of the Fig. 3.

Leading from the sweeper nozzle, or other dust gathering device is the line 1 discharging into housing 2, the lower portion of which housing is shown as having a large receiving chamber 3, wherein the velocity of air travel is suddenly greatly reduced, at once resulting in a considerable precipitation of the traveling dust, which may be occasionally removed therefrom through the manhole 4. Suspended in said chamber, remote from the inlet pipe 1, is the zigzag apron or baffle 5, having an opening 6 in each of the valleys facing toward the portion of the chamber 3 receiving the intake 1. These openings are accordingly in the ridges adjacent the eddy creating valleys on the side of the apron 5 remote from the intake 1. While there is considerable opening below the baffle 5 allowing air travel to chamber 7, in usual rate of operation, air travel is not so low, but through the openings 6 and about the region of the apron, where the valleys of the zig-zag baffle create eddies aiding the extraction of dust from the air. The air in passing through chamber 7 works its way through a plurality of screens 8 in the upper portion of the housing to the diffusion outlet, comprising a plurality of distributed openings 9 communicating with the outlet pipe 10. This separation of openings, reduces draft or air travel rate, and thereby materially enhances the effectiveness of the device by insuring a uniform air distribu-

tion through the screens and avoiding local dust raising disturbances, as well as avoiding clogging due to current striking the screens at one point.

The screens are mounted for vibration, to aid in the removal of dust accumulations therefrom. The screens are disposed to obstruct the dust travel area, sliding in ways 26 the full size of the chamber portion. To permit access to said screens, the housing 2 is provided with a removable end plate 11, having notches 12 therein to permit of firmly locking same in position by the bolts 13. As the flanged housing is also notched for the bolts 13 along the top and two sides of the plate 11, slight loosening of said bolts allows of their removal laterally, while loosening of the nuts along the lower side will then permit of raising the end plate upward and then out of position.

The handle 14 is upon rod 15 extending through the end plate 11, to engage cross brace 16 upon the first screen frame 8. The group of screen frames are held in spaced assembled relation by four rods 17, having spacing sleeves thereon between the frames 8. Engaging the screen frame remote from brace 16, are two springs 18 extending to have detachable engagement with the housing 2. These springs may be released by access through handhole 19, to thus allow removal of the screen group for repairs. For vibration of the screen frames, the handle 14 is pulled and released, thereby shaking the full set of screens to cause them to travel in unison along the common ways in the chamber portion.

The removable door 20 permits of access for cleaning out the dust receiving chamber 21 disposed below the series of screens. This chamber has slotted openings 22 in the top thereof, through which the dirt from the screens may fall in regular operation, or when handle 14 is pulled outward and released, to give the shaking to the screens as retracted by the springs 18.

The top and two sides of the screens 8 are shown of full width of the frame, while the fourth or bottom side thereof embodies two narrow strips connecting the two sides. These strips have an opening or slot 24 therebetween, through which the accumulated dust in the frame may fall, passing registering slots 22 into dust chamber 21.

The screen proper comprises the cloth 23 or other substance which offers but little re-

sistance to air travel, but which will readily stop dust particles. This cloth 23 is shown as about the frame 8 in the form of a U, being attached to the two bottom strips at its ends and stretched over the top solid piece of the frame between said strips, thereby leaving the slot 24 in communication with the inside of the frame having three sides closed by frame sides and two sides by the screening substance. Centrally of these frames and vertically disposed are brace members 25, to prevent the screening substance 23 from sagging inward to contact each other and thereby reduce the effectiveness of the machine.

What is claimed and it is desired to secure by Letters Patent is:

1. A dust collector comprising a housing having a receiving chamber provided with an inlet and a single vertically disposed apron on the side thereof remote from the inlet being of zigzag contour forming valleys and ridges which are vertically extending in said chamber, said ridges being provided with openings having the adjacent receding vertical valleys providing eddy

creating baffles, to aid in the removal of dust from the incoming air, on each side of said openings, said valleys facing open areas unobstructed by deflecting means, thereby permitting free accumulation of dust in the valleys and undisturbed settling of said dust from said valleys.

2. A device for removing dust from dust laden air comprising a housing providing a longitudinally horizontally disposed air passage having a slideway, a plurality of vertically disposed screens transversely of said passage, said screens being of similar area, parallel and in the line of common air travel from one to the other along said passage and mounted on the common slideway, means for vibrating said screens along said way, and a dust receiving chamber disposed below said screens for receiving dust from said screens.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

ALVIN G. GEKELER.

Witnesses:

U. M. SHAPPELL.
H. S. PROPHET.