C. H. KEENEY.

DUST SEPARATOR.

APPLICATION FILED SEPT. 3, 1907.

912,686. Patented Feb. 16, 1909.

2 SHEETS—SHEET 1.

Fig. 1

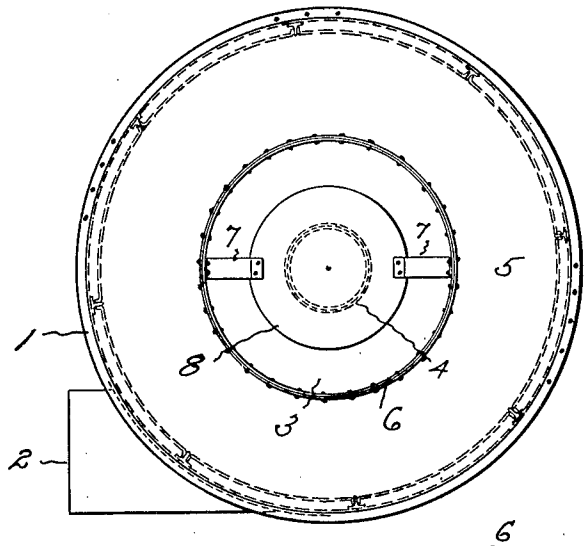
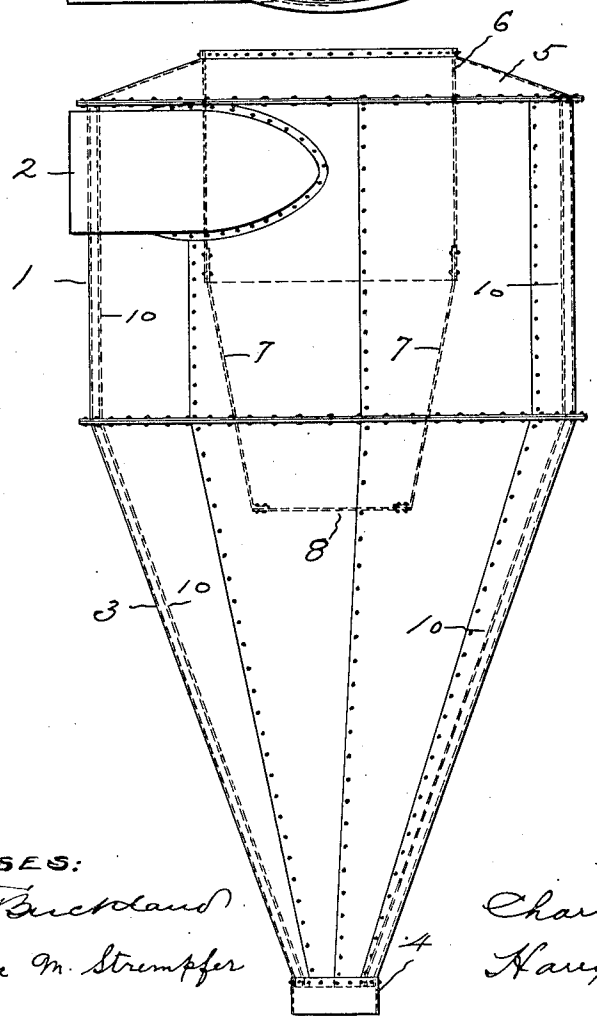


Fig. 2



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Fig. 3

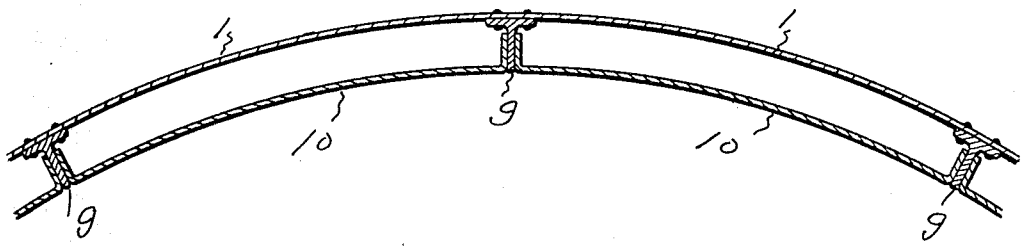


Fig. 4

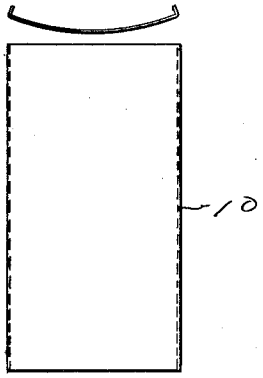


Fig. 5

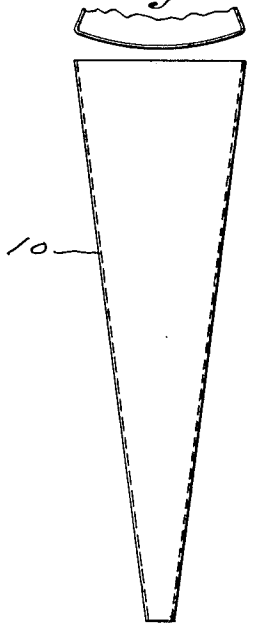
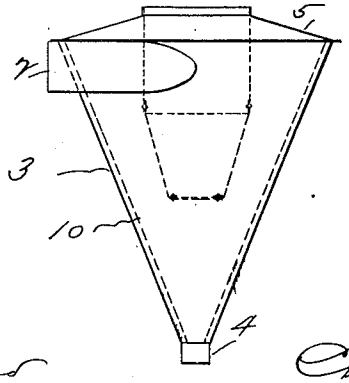


Fig. 6



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UNITED STATES PATENT OFFICE.

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DUST-SEPARATOR.

No. 912,686. Specification of Letters Patent. Patented Feb. 16, 1909.

Application filed September 3, 1907. Serial No. 391,026.

To all whom it may concern:

Be it known that I, CHARLES H. KEENEY, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Dust-Separator, of which the following is a specification.

This invention relates to those devices which, by centrifugal action, cause the separation of heavier from lighter particles of matter, as dust from air, in order that the heavier particles may be deposited quietly where desired and the lighter medium which is employed to convey the heavier to the desired locality allowed to escape free therefrom. In such devices, particularly those which are used to separate chips, blocks, shavings and saw-dust from air, and to free air from emery, or particles which are abraded from polishing wheels, the continual rubbing of the heavier particles thrown out by centrifugal action against the interior of the walls of the device, which are usually made of comparatively thin galvanized iron or steel sheets, in a short time wears holes through the walls. If the device becomes rusty or eaten by reason of exposure to the atmosphere or other matter which tends to deteriorate the sheets from which the device is made, this action is accelerated and of course such openings render the entire machine ineffective and destroy its usefulness. In the present machines wear of this nature can only be remedied by patches applied to the exterior, or as is often the case, by the substitution of an entirely new shell.

The object of this invention is to so construct a device of this character that when any wear of this nature occurs and holes appear the defect can be quickly remedied by any one without requiring the riveting on of patches or the construction of an entirely new shell. To accomplish this object the shell is provided on the interior with ribs between which narrow sheets are so inserted as to leave the interior round and smooth and yet should one sheet become worn and perforated it can be quickly removed and a new sheet inserted, without necessitating patching the outside wall or providing an entire new shell.

Figure 1 of the accompanying drawings shows a plan of a dust separator of the cylinder-cone type that embodies the invention. Fig. 2 shows a side elevation of the same. Fig. 3 shows on larger scale a section of the shell with some of the ribs and interior removable wearing sections. Fig. 4 shows an interior wearing section designed to be placed in the cylindrical portion of the separator shown in Fig. 1. Fig. 5 shows a wearing section designed to be inserted into the conical portion of the separator shown in Fig. 1. And Fig. 6 shows a dust separator of the conical type that embodies the invention.

In the first form of separator shown the cylindrical section 1 is formed of plates or sheets of galvanized iron or steel or other suitable material in the usual way, and is provided with the ordinary tangential inlet 2. Attached to the lower part of this cylindrical shell is the customary conical shell 3 formed of similar plates or sheets, and having the usual outlet 4 at the bottom for the heavier material that is separated from the air.

Over the top of the cylindrical portion is a sheet metal hood 5 with a central tube 6 through which the air passes upwardly and escapes from the separator in the customary manner. Extending downwardly from the air outlet tube are straps 7 to which a disk 8 is attached in such manner as to prevent a straight upward current of air through the separator.

Attached to the inside of the shell are vertical ribs 9. These ribs are preferably formed of T-irons to which the sheets of the exterior shell may be riveted. In order to form a smooth curved working surface in the interior, sections 10 of suitable sheet metal, curve so as to be concentric with the exterior shell, are inserted between the ribs. These sheets preferably have their edges bent outwardly or flanged so they will just fit between the flanges of the tees which form the inwardly projecting ribs. It is preferred to shape these sections so that they fit tightly between the ribs and hold in place without any other fastening means than the spring of the flanges against the sides of the ribs. These wearing sections are of course shaped with parallel edges or inclined edges according as they are to be placed between the ribs on the cylindrical or conical sections of the separator. If the separator is of the conical type all of the interior wearing sections would be formed tapering so as to conform with the exterior shell. If as a result of rust, or more particularly the abrasion of the particles of matter that are blown into a separator constructed in this

manner, openings or perforations are made through any one or more of these interior wearing sections the damaged section can be quickly slipped from place and new sections substituted. This enables a separator to be quickly repaired and kept in the highest state of efficiency without patching or providing an entirely new shell when it becomes worn in only one place.

The invention claimed is:

A dust separator having a fixed exterior shell with a practically homogeneous wall that has a tangential inlet, a dust outlet at the bottom and an air outlet at the top, ribs extending inwardly from the exterior shell and non-perforated independent sections removably inserted between the ribs within the exterior shell and forming an interior wearing lining having a smooth surface that conforms to, is co-extensive with and is adjacent to the exterior shell, substantially as specified.

CHARLES H. KEENEY.

Witnesses:
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LENA C. BERRY.