

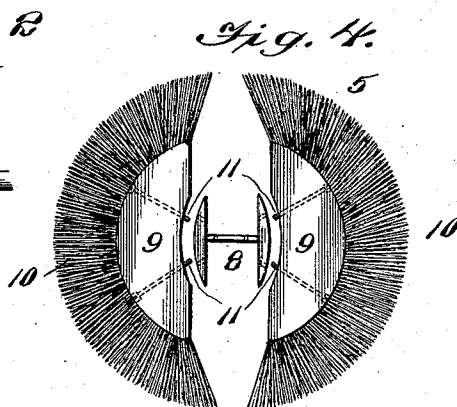
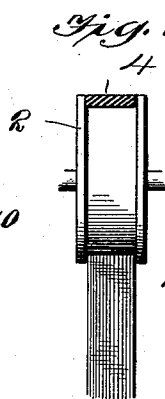
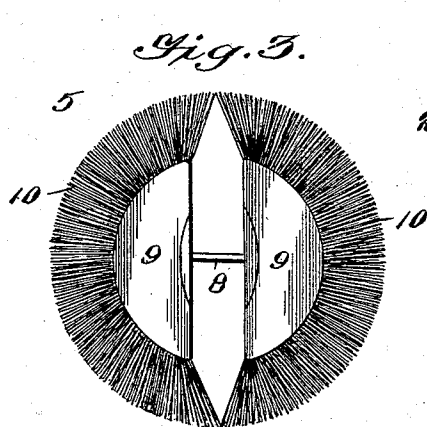
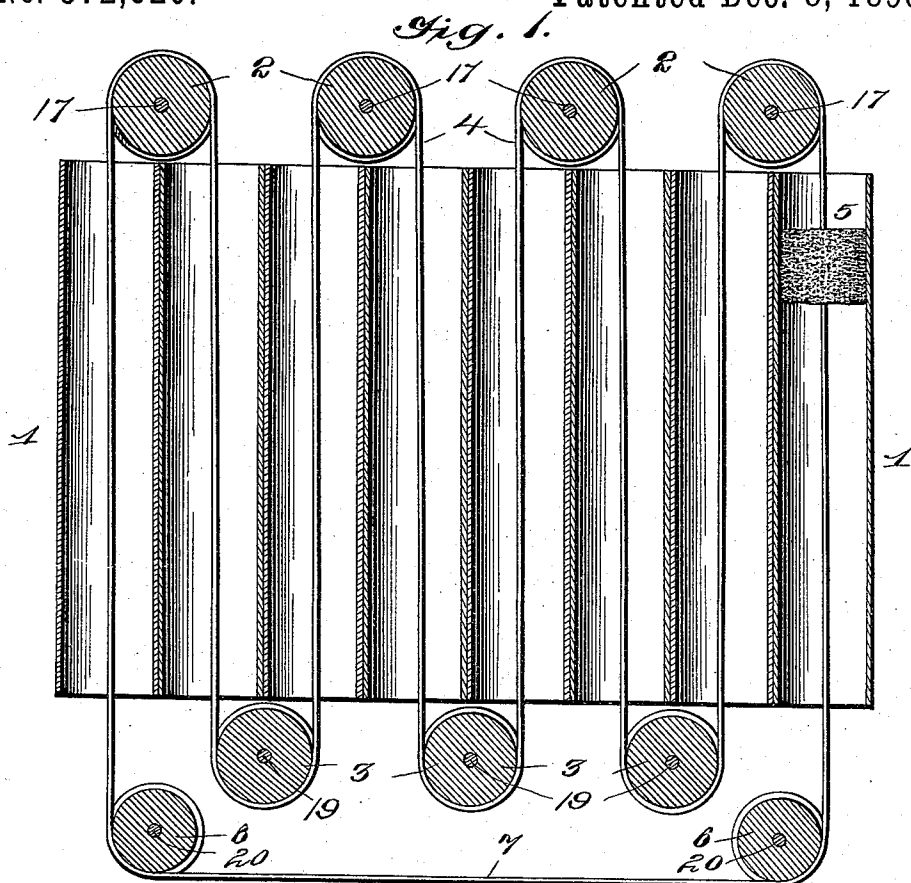
(No Model.)

2 Sheets—Sheet 1.

J. F. STAIGER & G. W. GRABERT.
CLEANER FOR DUST COLLECTORS.

No. 572,620.

Patented Dec. 8, 1896.



Witnesses

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V. B. Hilgard.

By *their* Attorneys,

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FIG. 6.

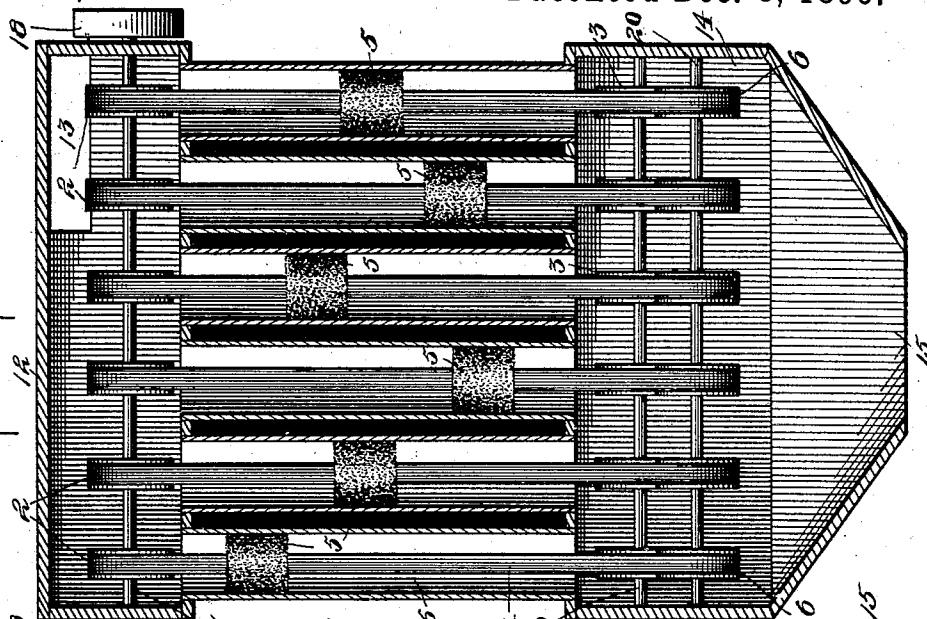
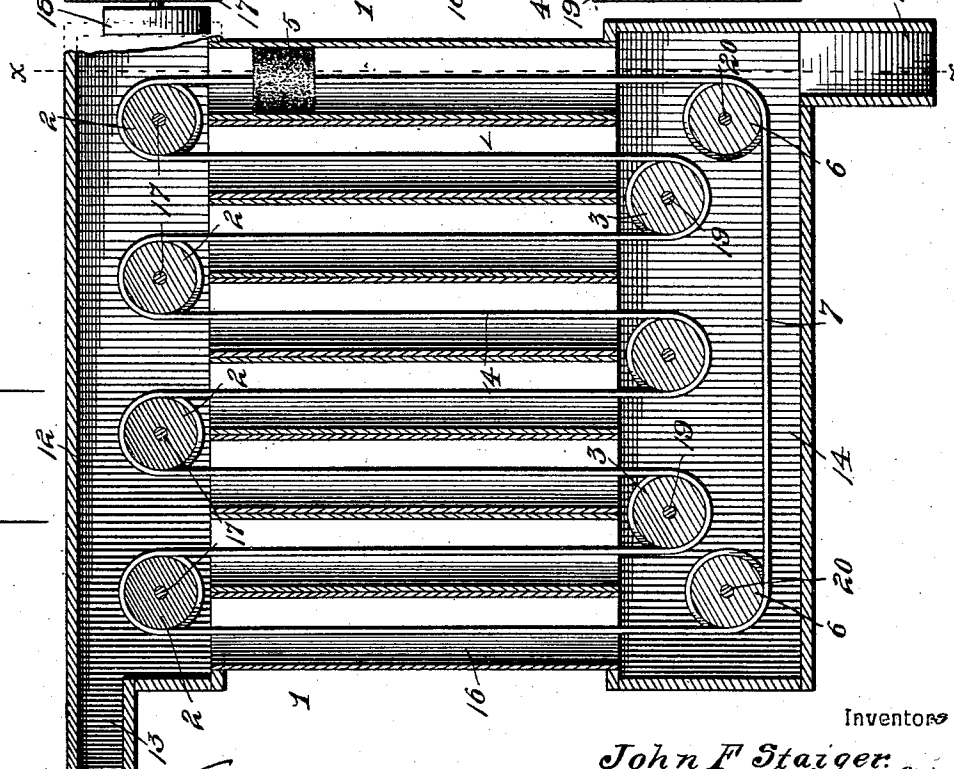


FIG. 5.



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UNITED STATES PATENT OFFICE.

JOHN F. STAIGER AND GUS W. GRABERT, OF MOUNT VERNON, INDIANA;
SAID GRABERT ASSIGNOR TO SAID STAIGER.

CLEANER FOR DUST-COLLECTORS.

SPECIFICATION forming part of Letters Patent No. 572,620, dated December 8, 1896.

Application filed March 21, 1896. Serial No. 584,304. (No model.)

To all whom it may concern:

Be it known that we, JOHN F. STAIGER and GUS W. GRABERT, citizens of the United States, residing at Mount Vernon, in the county of Posey and State of Indiana, have invented a new and useful Cleaner for Dust-Collectors, of which the following is a specification.

Dust-collectors for mills of the tubular type soon choke and require cleaning. This operation is troublesome and consumes time, which not unfrequently cannot be spared. Hence the collector is operated at a disadvantage.

This invention aims to provide and combine with a tubular dust-collector, a cleaner which can be operated at will to clear the tubes in a short space of time, the cleaner comprising a traveling belt bearing a brush and adapted to operate over a system of pulleys arranged at the ends of the tubes, the brush being divided so as to pass by and over the pulleys, and the belt being endless, whereby it can move in the same direction.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a vertical section of a tubular dust-collector of ordinary construction, showing the invention applied. Fig. 2 is a detail view of a pulley and the belt guided and supported thereby. Fig. 3 is a detail view of a brush to be used in connection with the traveling belt. Fig. 4 is a view similar to Fig. 3, showing the parts of the brush separated. Fig. 5 is a vertical longitudinal section of a tubular dust-collector having the invention applied. Fig. 6 is a transverse section on the line X X of Fig. 5, looking in the direction of the arrow.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawings by the same reference-characters.

The dust-collector 1 is of the ordinary tubular type, and is illustrated to show the application of the invention. This collector comprises an upper box or chamber 12, having an inlet 13, through which the dust is discharged into the box 12; a lower box or chamber 14, having an outlet 15 at the end diagonally opposite the inlet 13, and a series of tubes 16, connecting with the upper and lower boxes. A series of pulleys 2 are arranged at one end of the collector directly opposite adjacent tubes, and a corresponding series of pulleys 3 are disposed at the opposite end of the collector and opposite the ends of adjacent tubes, so that the belt 4, traveling over the two sets or series of pulleys, will pass through all the tubes of the series, this being effected by having the pulleys 2 and 3 set staggering, the pulleys 2 being arranged to come opposite the spaces between the pulleys 3, and vice versa. The pulleys are of a diameter corresponding to the distance between the centers of adjacent or contiguous tubes, so that the adjacent portions of the belt 4 occupy a central position with respect to the tubes, thereby causing the brush 5 to travel centrally through the tubes when making a circuit.

The end pulleys 6 are placed out of line with the pulleys 3 and are disposed at a greater distance from the collector, so as to admit of that portion 7 of the belt clearing the pulleys 3 when returning from one end of the collector to the other. The belt 4 may have any desired form in cross-section, and the pulleys will be similarly grooved in their peripheries to receive the belt, and, as shown, the belt is flat and the pulleys are correspondingly grooved in their peripheries to receive the belt, so as to prevent it from slipping laterally, as will be readily understood. This belt is endless and passes through the tubes of the dust-collector in opposite or a zigzag direction, being supported at the ends of the tubes by the pulleys 2 and 3, substantially as shown.

The brush 5 is divided and, as shown, is composed of three parts, a spool 8 and two heads 9, the latter being convex on their outer surfaces and provided with bristle-tufts 10, so as to brush the sides of the tubes of the dust-collector. The spool 8 is of metal, and

its ends are secured to the inner sides of the brush-heads 9 by screws 11, or in any convenient and substantial way. The belt 4 is fastened to the shank of the spool in such a manner as to cause the brush to travel with the belt when the latter is in motion. When the component parts of the brush are assembled, as shown in Fig. 3, a space is formed between the opposing sides of the heads 9 corresponding to the distance between the ends of the spool, and this space gives clearance for the pulleys 2 and 3 to admit of the brush passing by the said pulleys without interference. As many brushes 5 may be provided as desired, usually one being sufficient, and when it is required to clean the collector the belt is operated either by grasping the return portion 7 thereof or by operating any one of the pulleys, as found most convenient, and the belt traveling through the tubes carries the brush therethrough to loosen and remove the matter adhering to the sides of the tubes. When the cleaner is not in use, the belt can be moved so that the brush 5 will occupy a position on the return portion 7 and thereby be out of the way.

On reference to Fig. 6 it will be seen that the collector comprises a plurality of tubes in longitudinal series, and it is to be understood that each longitudinal series of tubes is provided with a cleaner substantially as herein set forth, and for the sake of economy of construction each set of pulleys 2 in transverse alinement is mounted upon a shaft 17, obtaining bearings in the sides of the box or chamber 12, and the projecting ends of this shaft have band-pulleys 18, by means of which motion is imparted to the series of cleaners from any convenient operating part of the mill or machine to which the dust-collector is applied. The pulleys 3 and 6, in transverse alinement, are mounted upon shafts 19 and 20, respectively, which obtain bearings in the sides of the box 14. The lower portion 7 of each cleaner moving toward the dust-outlet 15 acts as a conveyer and prevents the dust settling in the box or chamber 14 from accumulating therein and moves the same toward the outlet, where it escapes in the usual way.

Having thus described the invention, what is claimed as new is—

1. In a dust-collector, the combination of a series of tubes, and a cleaner comprising a traveling belt passing alternately in opposite directions through the series of tubes, and having its lower or return portion in a lower

plane than the lower ends of its folded portions, and a brush applied to the said belt and movable therewith through the series of tubes, substantially as and for the purpose set forth.

2. In a dust-collector, the combination of a series of tubes, pulleys arranged at opposite ends of and between adjacent tubes, the extreme lower pulleys being in a lower plane than the intermediate pulleys at the lower ends of the tubes, a belt passing over and supported by the said pulleys and adapted to travel alternately in opposite directions through the series of tubes, the lower or return portion of the belt being straight and supported below the intermediate pulleys by the said extreme lower pulleys, and a brush applied to and movable with the belt, substantially in the manner and for the purpose specified.

3. In a tubular dust-collector, the combination of a pulley arranged opposite and between the adjacent ends of contiguous tubes, a belt passing through the tubes and over the pulley, and a brush applied to the belt and divided centrally so as to pass by and clear the pulley, substantially as set forth.

4. In a dust-collector for mills, the combination of a pulley arranged opposite and between the ends of adjacent tubes, a belt passing through the said tubes and over the pulley, and a brush comprising two heads spaced apart and connected at an intermediate point to the said belt, substantially in the manner set forth for the purpose described.

5. In a dust-collector for mills, the combination of two sets of pulleys set staggering and arranged opposite the ends of adjacent tubes, the terminal pulleys at one end of the collector being arranged out of line with the pulleys at the same end of the collector to support the return portion of the belt, an endless belt supported by the said pulleys and passing alternately through the series of tubes, and a divided brush applied to the belt and movable therewith through the series of tubes, and adapted to clear the said pulleys, substantially in the manner specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

JOHN F. STAIGER.
GUS W. GRABERT.

Witnesses:

W. M. PEARSE,
M. W. BARNETT.