A. J. WILHARM.

DUST COLLECTOR.

APPLICATION FILED OCT. 13, 1920.

1,429,006. Patented Sept. 12, 1922.

2 SHEETS—SHEET 1.

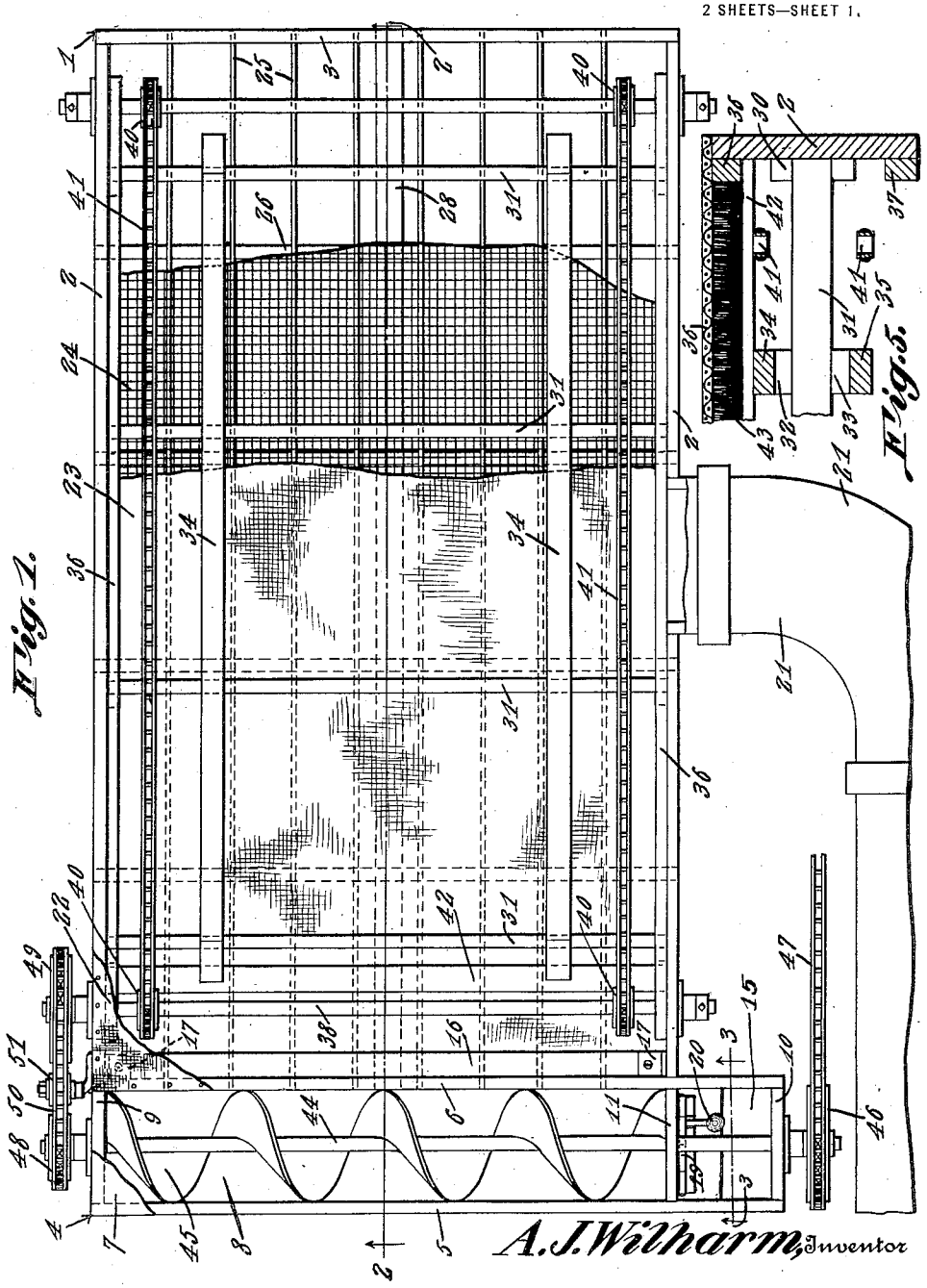


Fig. 1.

Fig. 5.

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By C. A. Snow & Co.

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2 SHEETS—SHEET 2.

Fig. 2.

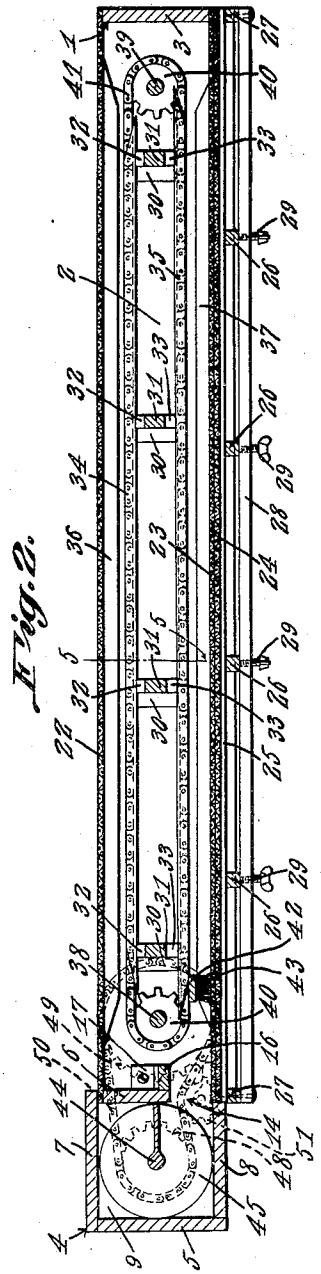


Fig. 4.

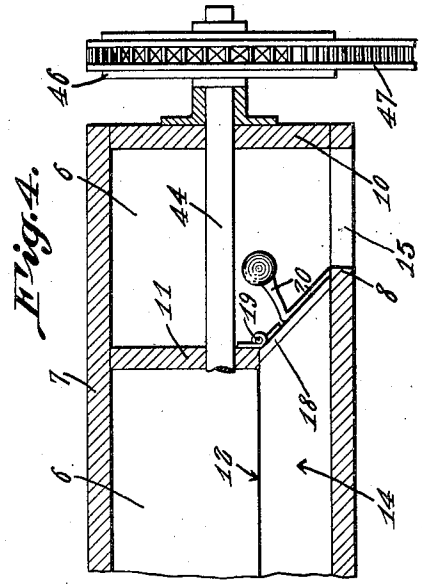
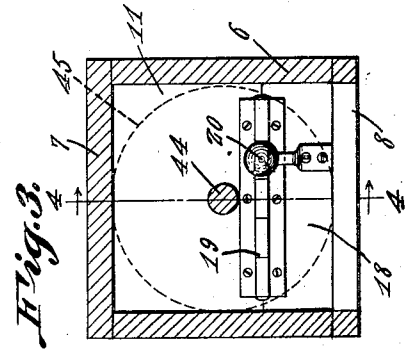


Fig. 3.



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UNITED STATES PATENT OFFICE.

ADOLPH JOHN WILHARM, OF ASHLAND, WISCONSIN.

DUST COLLECTOR.

Application filed October 13, 1920. Serial No. 416,596.

To all whom it may concern:

Be it known that I, ADOLPH JOHN WILHARM, a citizen of the United States, residing at Ashland in the county of Ashland and State of Wisconsin, have invented a new and useful Dust Collector, of which the following is a specification.

This invention aims to provide novel means for saving dust in flour mills and other like places. One object of the invention is to provide novel means for sweeping the dust from the members on which it collects, and for conveying the dust to a point where it may be placed in sacks or disposed of otherwise.

Another object of the invention is to provide novel means whereby contact between the sweeping brush and the members on which the dust collects, may be brought about.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood with, within the scope of what is claimed, changes in the precise embodiment of the invention shown can be made without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in top plan, a device constructed in accordance with the invention, parts being broken away; Figure 2 is a longitudinal section on the line 2—2 of Figure 1; Figure 3 is a section on the line 3—3 of Figure 1; Figure 4 is a fragmental section taken longitudinally of the compartment in which the dust is delivered; and Figure 5 is a fragmental transverse section taken approximately on the line 5—5 of Figure 2.

In carrying out the invention there is provided a supporting structure including a casing denoted by the numeral 1, the casing including sides 2 and an end 3. A compartment 4 extends transversely of the casing 1 at one end thereof, the compartment 4 including an outer side wall 5 and an inner side wall 6, together with a top 7 and a bottom 8. The compartment 4 comprises an end 9 and an end 10. A partition 11 extends transversely of the compartment 4 intermediate the ends thereof, and relatively near to the end 10. As shown at 12, that portion of the inner side wall 6 of the compartment 4 which lies between the partition 11 and the end 9 is spaced from the bottom 8 to form an opening 14 (Figure 2), the opening establishing communication between the casing 1 and the compartment 4. One end of the compartment 4 projects, as shown in Figure 1, beyond the adjacent side of the casing 1 and has a bottom opening 15. A cleaning strip 16 projects into the casing 1 from the inner side wall 6 of the compartment 4, the inner side wall 6 constituting, in effect, one end wall for the casing. The cleaning strip 16 may be sustained from the sides 2 of the casing 1 by means of brackets 17. A gate 18 is hinged at 19 to the lower edge of the partition 11 and cooperates with the bottom 8 of the compartment 4. The gate 18 is held closed by a weighted arm 20 which the gate carries. A delivery conduit 21 communicates with the casing 1 and is mounted in one of the sides 2 of the casing. The top of the casing 1 is formed by a foraminous member 22 preferably made of cloth of any desired kind, the member 22 being attached to the upper edges of the parts 6, 2 and 3. The bottom of the casing 1 is formed by a foraminous element 23 such as a piece of cloth, connected to the lower edges of the parts 2 and 3, and to the member 8. Below the cloth bottom member 23, and in contact therewith, is located a bottom member 24, which, preferably, is made of wire netting, connected to the parts 2, 3 and 8. Flexible rods 25, made of metal, extend longitudinally of the casing 1 and are connected to the end 3 and to the bottom 8 of the compartment 4, the rods 25 supporting the netting bottom member 24 and the cloth bottom member 23. The rods 25 are in contact with cross pieces 26 connected at their ends to the sides 2 of the casing 1, terminal cross pieces 27 being located in vertical alinement with the end 3 of the casing 1. A rigid bar 28 is located adjacent to the longitudinal center or the casing 1 and is connected to the terminal cross pieces 27. Adjusting devices, such as screws 29, are mounted in the rigid bar 28 and bear against the flexible cross pieces 26.

L-shaped brackets 30 are mounted on the sides 2 of the casing 1. The ends of supports 31, preferably in the form of rods, are mounted on the brackets 30. The sup-

ports 31 carry upper blocks 32 and lower blocks 33. Upper tracks 34 extend longitudinally of the machine and are secured to the upper blocks 32. Lower tracks 35 extend longitudinally of the machine and are secured to the lower blocks 33. Upper guides 36 are attached to the sides 2 of the casing 1, lower guides 37 being similarly mounted.

A shaft 38 extended transversely of the casing 1 and is journaled in the sides 2, the shaft 38 being located relatively near to the inner wall 6 of the compartment 4. A shaft 39 is journaled in the sides 2 of the casing 1 and is located near to the end 3 of the casing 1. Sprocket wheels 40 are carried by the shafts 38 and 39. Sprocket chains 41 are trained around the sprocket wheels 40 of the shafts 38 and 39. The chains 41 are connected by a bar 42 carrying a brush 43. Although but one bar 42 and one brush 43 is shown, there may be as many brushes and bars as is found convenient or necessary. A shaft 44 extends longitudinally of the compartment 4 and is journaled in the end 3, the partition 11 and the end 10. The shaft 44 carries a worm conveyor 45 operating in the compartment 4. On one end of the shaft 44 there is a sprocket wheel 46 cooperating with a driving chain 47. The shaft 44, however, may be driven in any desired way. On the opposite end of the shaft 44 is located a sprocket wheel 48. A sprocket wheel 49 is carried by the corresponding end of the shaft 38. The sprocket wheels 48 and 49 are connected by a sprocket chain 50, engaged by a chain tightener 51 mounted on one of the sides 2 of the casing 1.

In practical operation, the blast of air traversing the delivery conduit 21, passes into the casing 1, between the foraminous top 22 and the foraminous bottom 23, the air passing outwardly through the top and the bottom, and the dust in the air collecting on the top and on the bottom, within the casing 1.

When rotation is imparted to the shaft 44 by way of the sprocket chain 47 and the sprocket wheel 46 or otherwise, rotation is imparted to the shaft 44. From the shaft 44, motion is transmitted to the shaft 38 by way of the sprocket wheel 48, the sprocket chain 50, and the sprocket wheel 49. When the shaft 38 is rotated, motion is transmitted to the conveyor chains 41. The bar 42 moves in an orbit with the sprocket chains 41. The ends of the bar 42 move the upper guides 36, the bar sliding along the upper tracks 34, the brush 46 moving along the under surface of the foraminous top 22 of the casing and serving to sweep down the dust which has collected on the top. When the brush passes the cleaning strip 16, any dust which may adhere to the brush is freed therefrom. The bar 42 moves, with the lower runs of the chains 41, beneath the lower tracks 35, the ends of the bar being supported on the lower guides 37, the brush sweeping along the foraminous bottom track 23 and serving to loosen the dust therefrom. The dust is carried by the brush 43 toward the opening 14 and is crowded through the opening, into the field of the worm conveyor 45. The worm conveyor 45 advances the dust against the gate 18 which opens to permit the passage of the dust as the dust is crowded forwardly by the worm conveyor, the gate 18, however, being held closed normally by the action of the weight 20 so that there is no appreciable leakage of draft, or, at least, no pronounced blast through the opening which the gate controls. The accumulated dust, passing by the gate 18, falls through the opening 15 and passes to any convenient point where it may be bagged or disposed of otherwise.

The foraminous top 22 of the casing 1 ordinarily will sag down sufficiently so that the same will have a strong contact with the brush 43, the bottom may be bowed or bellied upwardly, this operation being brought about by advancing the screws 29 in the bar 28, the flexible cross pieces 26, the flexible rods 25, the netting bottom 24, and the cloth bottom 23 being sprung upwardly.

Having thus described the invention, what is claimed is:—

In a device of the class described, a casing having an outlet and comprising oppositely disposed foraminous walls; means for discharging a blast of dust-laden air into the casing, between the foraminous walls; a brush; means located between the walls for mounting the brush for movement in an orbit along the walls; and means for flexing one of the said walls to cooperate with the brush.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ADOLPH JOHN WILHARM.

Witnesses:

J. E. McDONALD,

ARTHUR HANSON.