No. 673,547. Patented May 7, 1901.

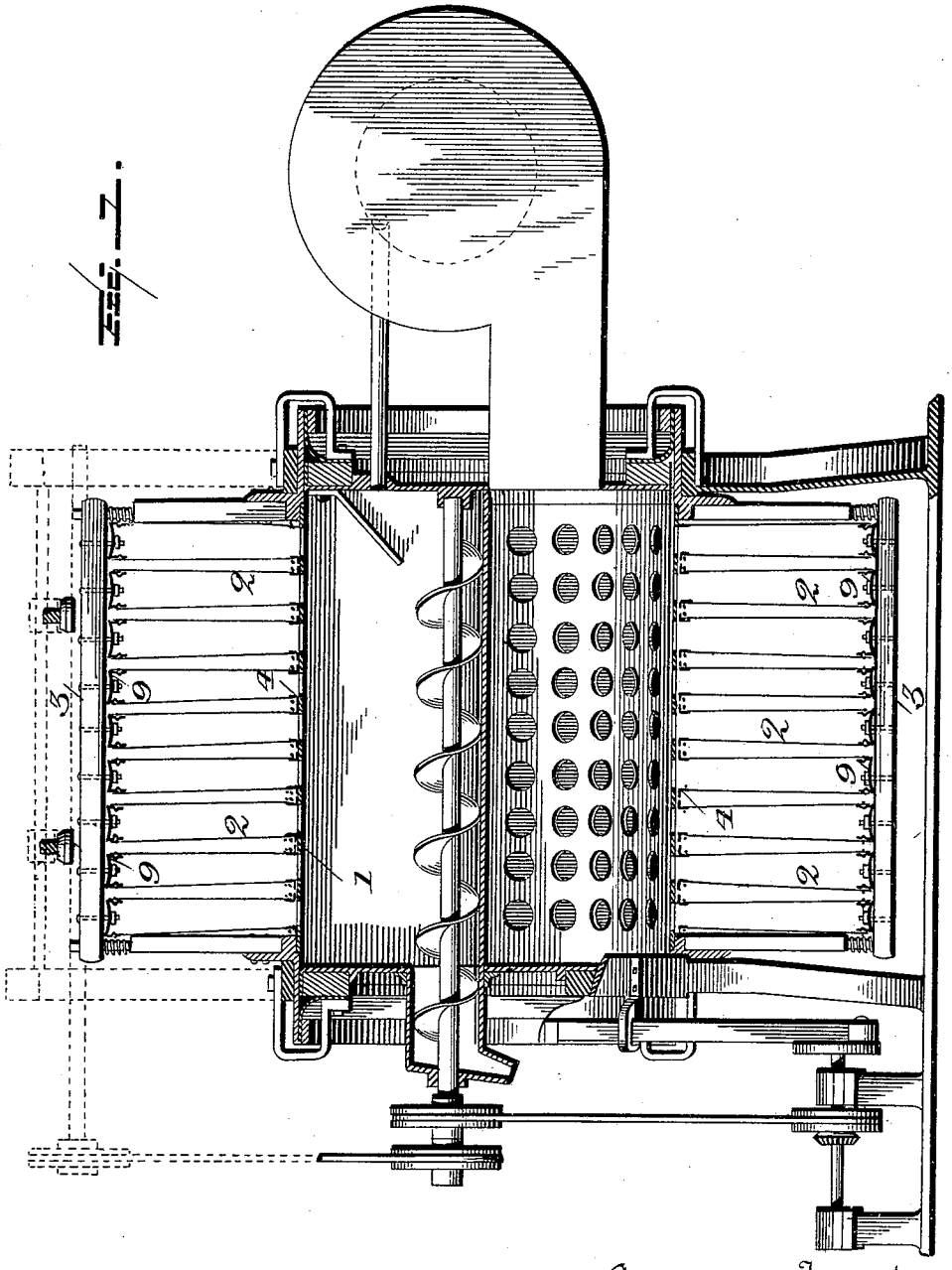
F. PRINZ.

DUST COLLECTOR.

(Application filed May 24, 1899.

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.



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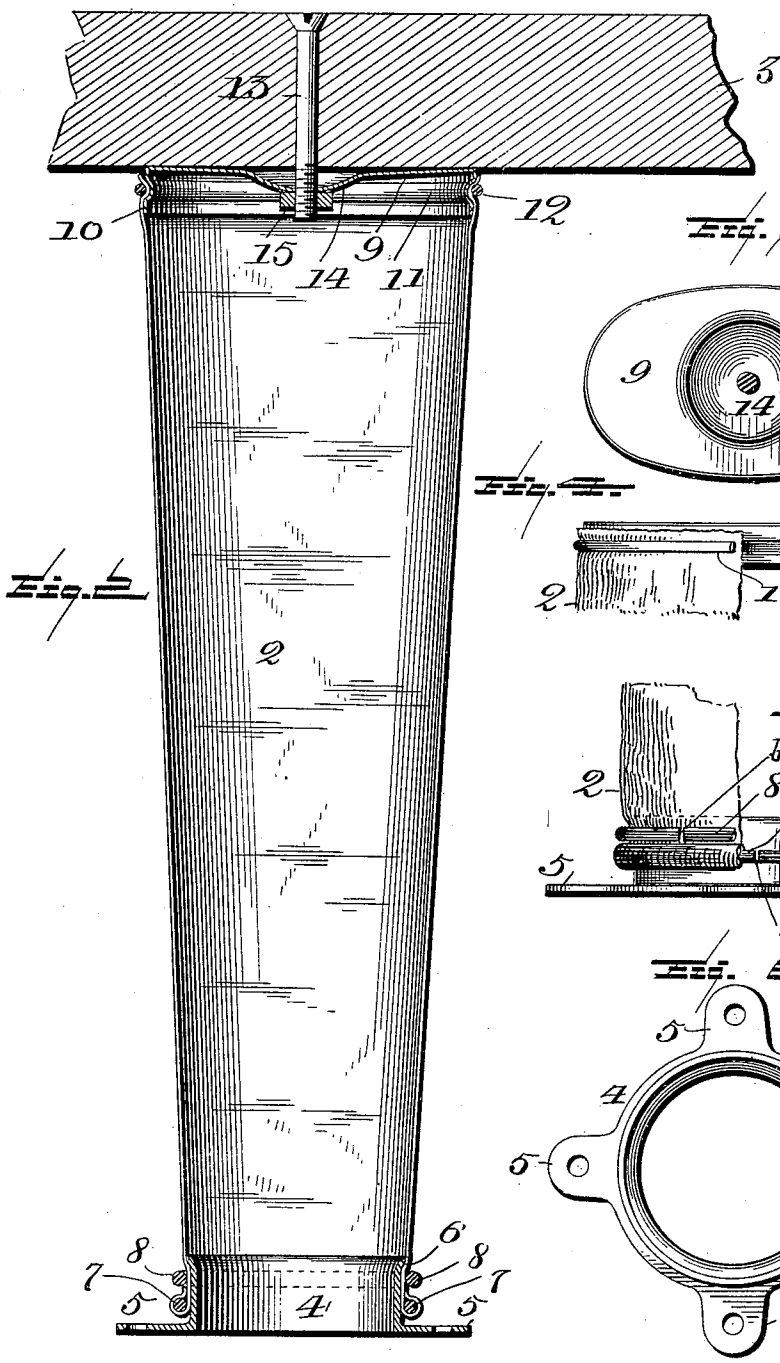


Fig. 1.

Fig. 4.

Fig. 5.

Fig. 6.

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UNITED STATES PATENT OFFICE.

FAUSTIN PRINZ, OF MILWAUKEE, WISCONSIN.

DUST-COLLECTOR.

SPECIFICATION forming part of Letters Patent No. 673,547, dated May 7, 1901.

Application filed May 24, 1899. Serial No. 718,066. (No model.)

To all whom it may concern:

Be it known that I, FAUSTIN PRINZ, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Dust-Collectors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to dust-collectors, more particularly to that class of dust-collectors in which a textile bag or tube is used for collecting the dust while permitting the air to pass through the material, the bag or tube being connected at opposite ends to suitable sustaining means—for instance, such as are illustrated in the patent granted to me May 12, 1896, No. 560,107. Heretofore in constructing machines in accordance with the invention illustrated and described in that patent the drum into which the dust-laden air is conducted has been made of wood and the lower ends of the tubes or bags connected to the drum about the openings therein, while the upper ends of the tubes or bags have been closed by a wooden block or head, which blocks or heads have been connected to a wooden cross-bar, by depressing which the tubes or bags would be collapsed and then suddenly distended, so as to jar or shake the fabric composing the tubes or bags, and thus dislodge the dust therefrom. In practice it has been found that in time under some conditions the wooden heads to the tubes or bags will shrink more or less, and also that the wooden bar to which the heads are connected will to some extent shrink, which will cause the wooden blocks or heads to the dust-tubes to loosen at their connection with the tubes. It has also been found in practice that the wood composing the surface of the dust-receiving drum will shrink more or less under some conditions, and thus to some extent impair the close connection or joint between the lower or receiving ends of the tubes or bags and the drum.

To overcome the objections mentioned, where the machine may be used under conditions calculated to produce the objections noted and for other purposes and to provide a better connection between the lower ends of the dust tubes or bags and the drum to meet such conditions and also to provide an improved closing head or cap for the opposite ends of the tubes or bags and also an improved connection between the same and the cross-bar, to which the heads or caps of the tubes are attached, are some of the objects of this invention.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the construction and also in the combination of parts, which will be hereinafter particularly described, and then sought to be clearly defined by the claims, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a vertical section through a machine having my invention embodied therein. Fig. 2 is a vertical section through a dust-collecting bag with my attachments. Fig. 3 is a top plan view of the bag cap or head. Fig. 4 is a side view of the same, showing a portion of the bag and its securing-ring. Fig. 5 is a side view of one of the collars with the bag and binding-rings broken away; and Fig. 6 is a plan view of one of the collars.

In the accompanying drawings the numeral 1 designates a dust-receiving drum, which may be supported upon suitable standards and rotated by suitable means, for instance, as illustrated in my patent before mentioned, said drum having dust-collecting bags or tubes 2 connected therewith to receive the dust-laden air from the openings in the drum and the opposite ends of the bags connected to supporting cross-bars 3, which may be sustained and jarred as in my said patent or otherwise.

In the present form of my invention I make the drum 1 of metal—say of sheet-iron—preferably about one-eighth of an inch thick, instead of making it of wood, which, while perfectly satisfactory under ordinary conditions, may not be so much so under special conditions, where the air is quite hot or where the material to be blown is very coarse and harsh. I attach the receiving ends of the tubes or

bags 2 to the drum by means of metal collars 4, which are provided with ears 5, through which rivets are passed, so as to secure the collars to the drum, the collars fitting around the openings made in the periphery of the drum. The outer edge of the collars is formed with a lip or flange 6, made by outturning the edge or otherwise, as may be preferred. Over this collar is fitted the receiving end of the collecting tube or bag, said end of the tube being provided with an expansible ring or bead 7, which may be and preferably is a split ring, being, for instance, split at *a*, so that it will expand in passing over the flanged edge of the collar and then contract, so as to clasp the tube or bag to the collar. To prevent the possibility of the end of the tube or bag being pulled from off the collar by the tension on the bag, I employ an expansible ring 8, which I prefer to make of steel and split, for instance, at *b*, so as to pass over and lie beneath the flange of the collar, between said flange and the ring, which is secured to the tube or bag, thus preventing the possibility of the bag or tube being accidentally withdrawn from the collar and which split ring may for convenience be designated as an "expansible clamping-ring;" but it is to be understood that I do not limit myself to the use of the two split rings under conditions where it is found that one will answer the purpose. By making the drum of sheet metal and forming the collars as specified and securing them to the periphery of the drum there is no possibility of shrinkage, and the joint between the collecting tubes or bags and drum will always remain the same, and there will be no leakage at the lower ends of the tubes or bags under the special conditions that may sometimes exist, as before stated.

The outer ends of the collecting tubes or bags instead of being provided with wooden blocks or heads, as usual, and which may answer all purposes under ordinary conditionss, are provided with metal heads or caps 9. These heads or caps I make of steel, stamped into shape and formed with depending flanges 10, which preferably are made with a circumferential groove 11, so that the ends of the tubes or bags may be drawn over the flanges and clamped thereto by binding-wires 12, which will lie in the grooves of the flanges and press the material of the tubes or bags therein, so as to make a close joint. By making these heads or caps of non-shrinkable material—for instance, of metal—a close joint is always maintained between the caps or heads and tubes, and there can be no leakage of dust-laden air at such point under any circumstances. In order to effect a somewhat-elastic connection between the caps or heads of the tubes and the cross-bars to which they are connected by screws or bolts 13, I make a depression 14 in each head or cap and pass through the head or cap at such point the bolt or screw 13, which connects the cap to the cross-bar, the threaded end of the bolt taking into a nut 15, which may be brazed to or otherwise made as a part of the head or cap and is located at the depressed portion of the head, so that when the screw or bolt is screwed home the cap is clamped to the cross-bar by something of an elastic connection which will compensate for or take up any shrinkage that may occur in the cross-bar, and will thus always maintain the bolt in a tight condition, even if the wood shrinks under special conditions. The depression in the cap or head may extend over a greater or less area of the surface to the head. I have mentioned the head as made of steel, but the metal used for the head may be other than steel without departing from this feature of my invention, although steel is preferred, as it is considered best for the purpose.

I have illustrated the features of my invention as applied to the type of dust-collectors illustrated by my patent hereinbefore mentioned, as I contemplate using the invention with that type of machine; but it is obvious that the invention is not limited to that form, as it may be used in any form of machine to which it is adapted to be used with advantage. It is also obvious that changes can be made in the details of the collar and its attachment to the drum and also in the caps or heads to the dust tubes or bags without departing from the essentials of some features of the invention.

Having described my invention and set forth its merits, what I claim is—

1. A dust-collector comprising a drum to receive dust-laden air, said drum having openings in its periphery and shouldered collars extending beyond the openings, dust-collecting tubes fitting to said collars, a contractile split ring interlocking with the shoulder of each collar, for securing the tube thereto, metallic heads closing the outer ends of the tubes, and wooden cross-bars having said heads secured thereto, substantially as described.

2. A dust-collector comprising a metallic drum to receive dust-laden air formed with openings in its periphery and provided with metallic shouldered collars extending beyond the openings in the periphery of the drum, dust-collecting tubes fitting to said collars, means securing the tubes to the collars, elastic metallic heads closing the outer ends of the tubes, and cross-bars to which said heads are connected, substantially as described.

3. A dust-collector comprising a rotatable drum with openings in its periphery and provided with shouldered collars extending beyond said openings, porous dust-collecting tubes fitting to said collars, a contractile split ring interlocking with the shoulder of each of the collars and binding the tube to the collar, elastic heads for closing one end of the tubes, cross-bars extending across said heads, and means for clamping the heads and cross-bars together, substantially as described.

4. In a dust-collector having porous dust-

collecting tubes, a hollow sheet-metal head for closing one end of a tube and having the tube secured to a flange formed as a part of the head, in combination with means for holding the other end of the tube, substantially as described.

5. In a dust-collector having porous dust-collecting tubes, a head for closing one end of a tube, said head being formed of elastic sheet metal and having the tube secured thereto in combination with means for holding the other end of the tube, substantially as described.

6. In a dust-collector having porous dust-collecting tubes, a sheet-metal head for closing one end of a tube, said head having its central portion depressed to render the same yielding or elastic, in combination with means for securing the other end of the tube in position, substantially as described.

7. In a dust-collector having porous dust-collecting tubes, sheet-metal heads for closing one end of the tubes, said heads having a centrally-depressed portion, a supporting-bar passing across the metal heads, and means passing through the cross-bar and depressed portion of the heads for clamping the cross-bar and heads together, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FAUSTIN PRINZ.

Witnesses:
W. F. FILTER,
ROBT. W. OLDENBURG.