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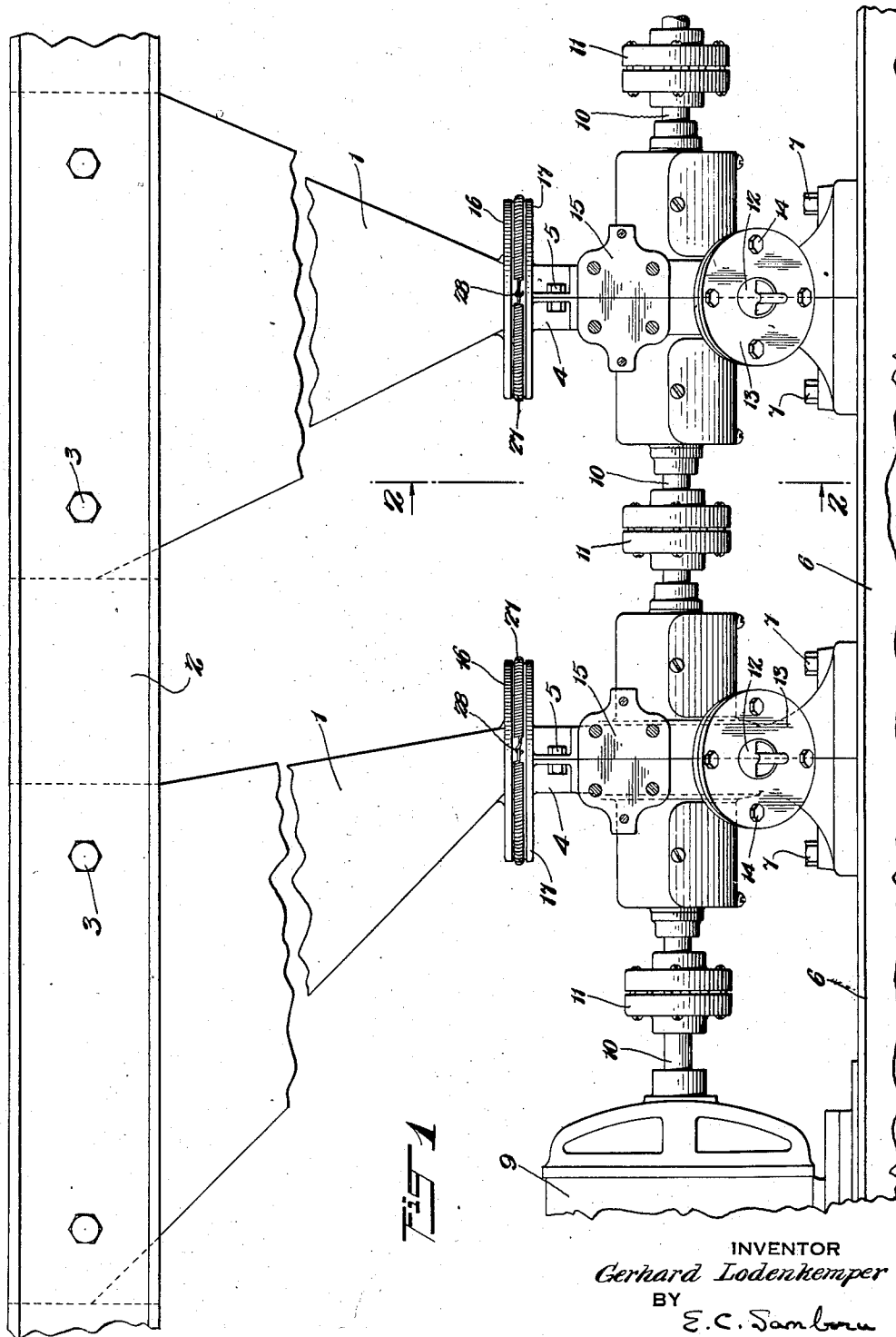
G. LODENKEMPER

1,997,385

DUSTPROOF SEAL FOR BAG FILLING MACHINES

Filed Oct. 9, 1931

2 Sheets-Sheet 1



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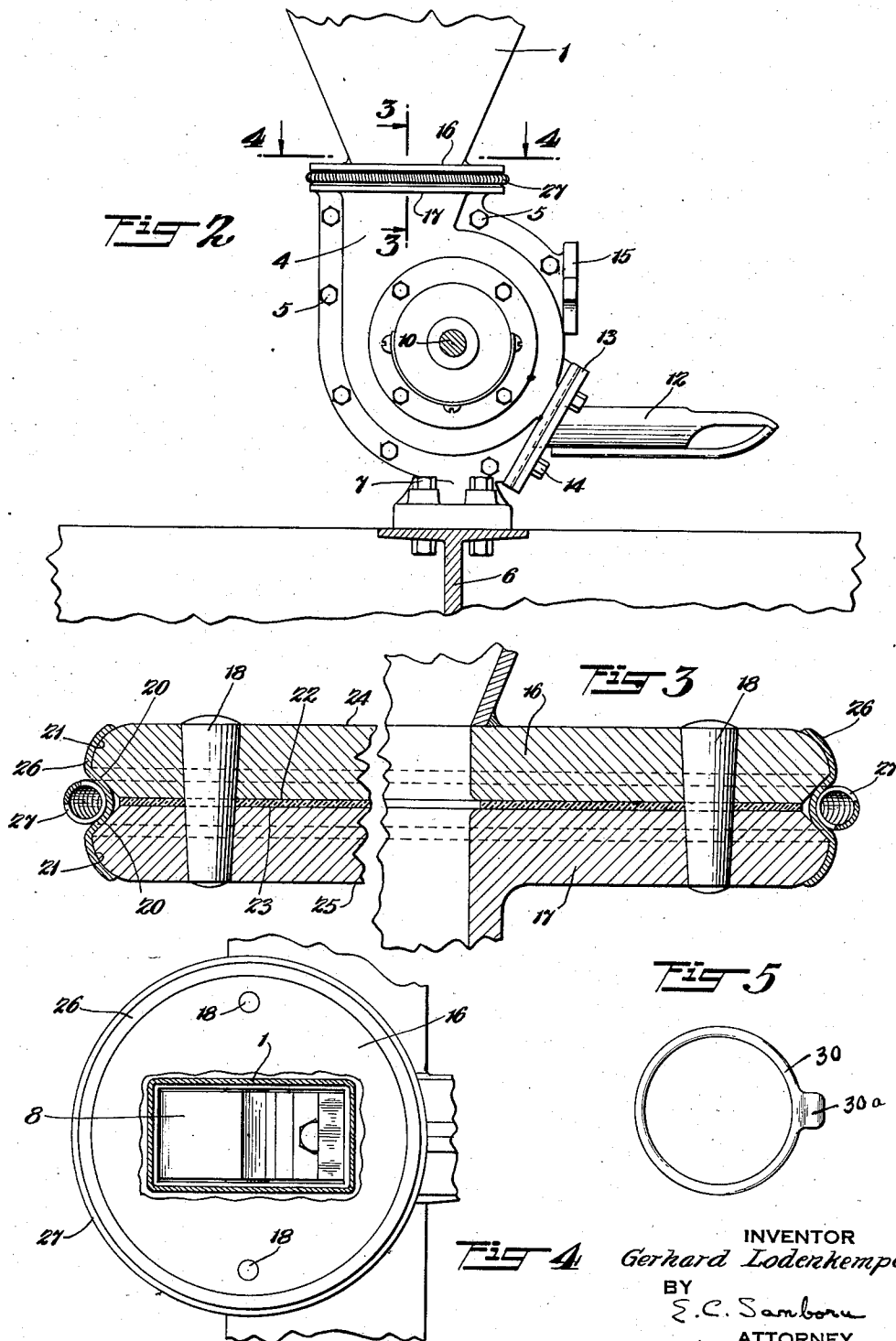


Fig. 4 INVENTOR
Gerhard Lodenkemper
BY
E.C. Samboe
ATTORNEY

UNITED STATES PATENT OFFICE

1,997,385

DUSTPROOF SEAL FOR BAG FILLING
MACHINESGerhard Lodenkemper, Turners Falls, Mass., as-
signor to Andreas G. m. b. H., Munster, West-
phalia, Germany

Application October 9, 1931, Serial No. 567,866

6 Claims. (Cl. 285—129)

This invention relates to package filling machines, and especially to those which include a turbine for feeding pulverulent material such as cement into packages, and a hopper for supplying material to the turbine. It is customary, if not absolutely essential, to drive the turbine propeller at a constant, high rate of speed and when the propeller is rotating in the cement, or the like, a very fine dust escapes from between the joints adjacent the propeller. This is, of course, highly objectionable. Hence, the principal purpose of the invention resides in the provision of improved means, which are easily assembled, for sealing such joints against dust, particularly the joint between the hopper and the propeller casing, although the same construction is effective between the propeller casing and the spout through which the propeller commonly delivers the material to packages, and at other similar joints.

With this object in view, I will now describe a preferred embodiment of my invention, as illustrated in the accompanying drawings wherein: Fig. 1 is a front elevation of a machine including my improved construction. Fig. 2 is a side elevation taken on the line 2—2 of Fig. 1. Figs. 3 and 4 are sections taken on the lines 3—3 and 4—4, respectively, of Fig. 2. Fig. 5 is a perspective view of the elastic band in alternate form.

There are shown at 1 a plurality of hoppers secured to frame 2 by bolts 3. Propeller or turbine casings 4 are formed in sections bolted together as at 5, and bolted to frame I-beam 6 by bolts 7. For driving propellers 8 in the propeller housings a motor 9 is provided, connected to propeller shafts 10 by flexible couplings 11. For discharging material from the propeller housings into bags or other containers, spouts 12 are secured to the housings by flanges 13 and bolts 14, the spouts being, of course, aligned with suitable openings for exhaust of the material on which the propeller operates. Suitable flanges 15 may be formed on the propeller housings for carrying various control mechanism. Carried at the lower end of each hopper and the upper part of each propeller housing are flanges 16 and 17 which are preferably similar. These flanges may be secured to or formed with the hoppers and propeller housings in any desired manner. Openings are formed in the flanges to enable the hopper to communicate with the inlet opening in the propeller housing, and a gasket 19 may be interposed between the flanges, though this gasket is not essential in my construction. These flanges are preferably formed with tapered openings for receiving wedge-shaped studs 18 which align the

flanges and maintain them in proper relation to one another.

Flanges 16 and 17 are preferably formed circular as shown in Fig. 3, with their outer sides tapered as at 20, toward the adjacent faces 22 and 23. It is also advantageous to taper or round the sides, as at 21, toward the exposed faces 24 and 25 of the flanges. In other words, the outer side of each flange is generally V-shaped, or tapers off toward either face of the flange from its maximum perimeter. This provides a groove between the flanges and angular surfaces for engagement by elastic band 26 of rubber-like material. A coiled spring 27 surrounds the band and resides at least partially in the groove. The ends of the spring are hooked together as at 28.

In assembling the present construction, it is merely necessary to secure the hopper and propeller to the frame with the flanges 16 and 17 opposed and adjacent to one another. The wedge members 18 can then simply be tamped into the openings in the flanges. The rubber band 26 which has previously been placed over one of the flanges is then adjusted to the position shown in Fig. 3, and the coiled spring 27 is placed around the band in the groove between the flanges and hooked together.

It sometimes happens that it is desirable to replace a turbine, and this is accomplished in a very simple manner in my construction by disconnecting the flexible couplings 11, knocking out the studs or wedge members 18, and slipping off the spring and rubber band, whereupon after unbolting the propeller housing from the I-beam 6, the whole turbine can be removed. It will thus be appreciated that my novel joint between the hopper and propeller housing not only has the advantage of being superior in its dust-proof qualities but also simplifies the assembly and disassembly of the machine.

In Fig. 5 there is shown an alternate form of elastic band which consists of a portion 30 of circular cross-section adapted to seat in the groove between the flanges and a handle portion 31 adapted to be gripped for stretching the band in placing or removing it.

The terms and expressions which I have employed are used as terms of description and not of limitation, and I have no intention, in the use of such terms and expressions, of excluding any equivalents of the features shown and described or portions thereof, but recognize that various modifications are possible within the scope of the invention claimed.

Certain features are shown but not claimed

herein because they are claimed in my copending applications.

I claim:

1. In a machine for filling packages with pulverulent material, such as cement, having a feed hopper and a propeller casing, means to connect the hopper to the casing including proximate flanges carried therewith and having outer sides tapered toward the adjacent faces of the flanges, respectively, a band of impervious elastic material lying against the tapered sides, and resilient retaining means surrounding the band and lying at least in part in the groove between the tapered sides.
2. In a machine for filling packages with pulverulent material, such as cement, having a propeller casing with an opening for material and an adjacent hollow member for communication with said opening, means to connect the member to the casing including proximate flanges carried therewith, respectively, aligned stud-receiving openings in the flanges, studs in said openings, and a tightly adherent band of impervious elastic material surrounding the outer sides of the flanges.
3. In a machine for filling packages with pulverulent material, such as cement, having a propeller casing with an opening for material and an adjacent hollow member for communication with said opening, means to connect the member to the casing including proximate flanges carried therewith, said flanges having outer sides tapered, respectively, both toward the adjacent faces of the flanges and toward the exposed faces thereof, an impervious elastic band surrounding said outer sides of the flanges, and a tension spring surrounding the band and residing at least in part within the groove formed between the flanges.

4. In an apparatus for filling containers with pulverulent material, such as cement, having a fixed hopper and a propeller casing: means to connect the hopper to the casing including conduits, proximate flanges located at the junction of said conduits and having outer sides tapered toward the adjacent faces of said flanges, and a tightly adherent expanded band of impervious elastic material lying against the tapered sides of said flanges and following the contours of said flanges into the groove therebetween.

5. In an apparatus for filling containers with pulverulent material, such as cement, having a fixed hopper and a propeller casing: means to connect the hopper to the casing including conduits, proximate flanges located at the junction of said conduits and having outer sides tapered toward the adjacent faces of said flanges, a band of impervious elastic material lying against the tapered sides of said flanges, and resilient retaining means surrounding said band and lying at least in part in the groove formed by said tapered sides.

6. In an apparatus for filling containers with pulverulent material, such as cement, having a fixed hopper and a propeller casing: means to connect the hopper to the casing including conduits, proximate flanges located at the junction of said conduits and having outer sides tapered toward the adjacent faces of said flanges, a band of impervious elastic material lying against the tapered sides of said flanges, resilient retaining means surrounding said band and lying at least in part in the groove formed by said tapered sides, and a plurality of studs inwardly spaced with respect to the outer edges of said flanges for connecting said flanges to each other.

GERHARD LODENKEMPER.