May 8, 1928. 1,668,542

A. M. BATES ET AL.

PAPER BAG

Filed June 15, 1925

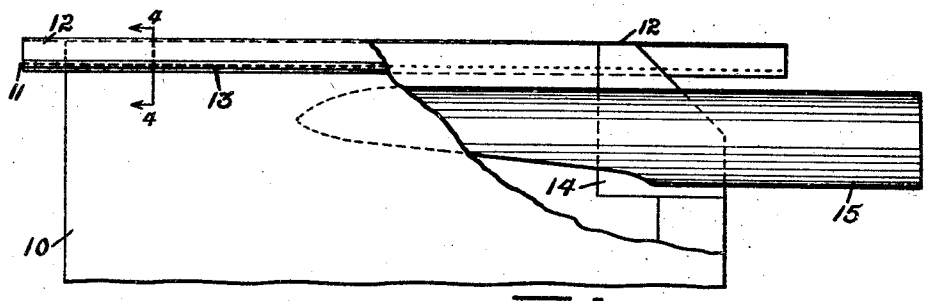

FIG. 1.

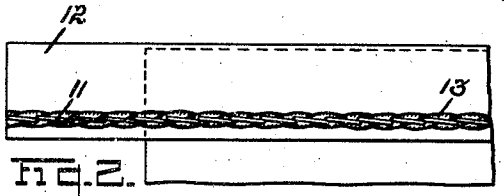

FIG. 2.

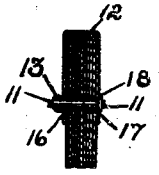

FIG. 4.

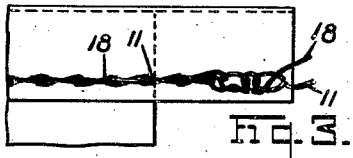

FIG. 3.

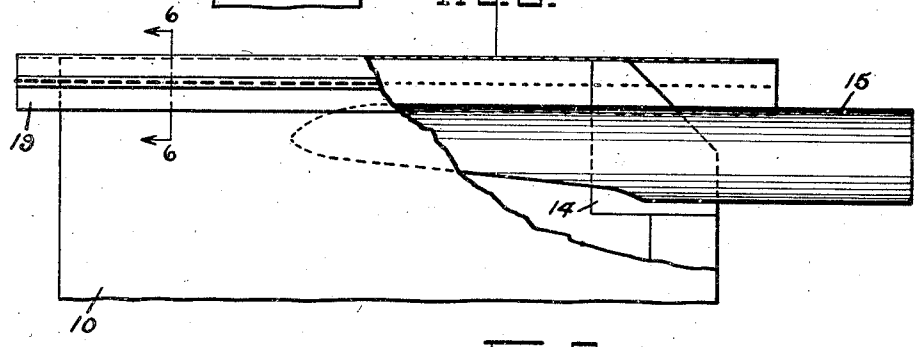

FIG. 5.

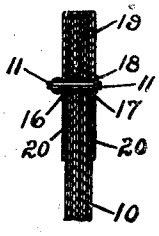

FIG. 6.

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Patented May 8, 1928. 1,668,542

UNITED STATES PATENT OFFICE.

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PAPER BAG.

Application filed June 15, 1925. Serial No. 37,054.

This invention relates to a paper bag and particularly to a closure for a bag. The purpose of the invention is to provide a closure consisting of a sewed seam which will prevent any material escape of pulverulent materials. Our seam is particularly useful when applied to the valved end of paper valve bags, and will be described so applied.

In the accompanying drawings, forming a part of this specification, Fig. 1 is a side elevation of the valved end of a bag, with a portion broken away.

Fig. 2 is an enlarged portion of the closure, showing the side of the seam which the needle enters.

Fig. 3 is an enlarged detail, showing a portion of the opposite side of the seam.

Fig. 4 is a section substantially on the line 4—4 of Fig. 1.

Fig. 5 is a view similar to Fig. 1, showing an additional feature which may be employed with our closure.

Fig. 6 is a section on the line 6—6 of Fig. 5.

Our bag consists of a paper tubular section 10 closed at the end by a sewed seam, the needle thread of which is designated by the reference 11. A binding tape or strip 12 is bent over the end of the bag and has the seam sewed through its edges. Extending along the seam on the side which the needle enters is a soft filter cord 13.

The bag shown is provided at one corner with a valve 14 through which the filling tube 15 is thrust to fill the bag. Pulverulent material cannot escape to any appreciable extent from between the bag walls at the end thereof because of the binding strip 12. In the form shown, this strip is bent snugly over the ends of the bag walls, but it may be more loosely applied at time and allow the escape of some air at its ends. This, however, can be properly directed and taken care of so as to form no great inconvenience.

In such material as paper, the needle, which is necessarily larger than the sewing thread, leaves a hole substantially full sized through the walls of the bag. Unless some means is provided to prevent the escape of dust through these perforations around the sewing thread, there is sufficient escape, especially during the filling of a valved bag, to create some annoyance as well as loss of material. When a thick, soft cord, such as cord 13, is held along the bag wall on the side which the needle enters, the entrance end 16 of each needle hole is covered by this cord and, while air or other gases may escape through this cord, it acts as a filter to catch any dust in the air and prevent the escape thereof.

In the form of seam shown, there are two threads used, and the exit ends 17 of the needle holes are covered by loops of a second thread 18 as well as by the sewing thread 11. Where a single thread is used, the loops on the side opposite where the needle enters cover the needle holes much more effectually than on the entrance side, but a two-thread seam is more satisfactory than a single-thread seam for this purpose.

In the form shown in Figs. 5 and 6, a comparatively broad tape 19 is used, and the edges of this tape extend an appreciable distance below the seam, so that lines of adhesive 20 may be provided between the binding tape and the bag walls below the seam. Preferably, this adhesive is applied along a strip so narrow that the adhesive does not spread beyond the edge of the tape or into the path of the needle, because sewing through adhesive material is somewhat troublesome and preferably is avoided, and any adhesive extending beyond the edges of the binding tape may prove troublesome by adhering to other bags when the bags are stacked in bundles.

In the form of bag shown, the walls are indicated as being formed of a plurality of layers of paper. For large size bags this is preferable for many reasons, amongst which is the fact that a needle hole through such walls does not leave as clear a passage around it as it does through similar paper formed in a single, thick sheet.

It will be clear that the application of our invention is susceptible to various modifications and that the seam may be applied to bags other than valved bags as well as to both ends of the valved bag, although the usefulness of the seam is enhanced where it is applied to the valved end of a valve bag. In the usual filling process, such bags are placed on a filling tube and the filling material is forced through the tube into the

bag. There is usually some air in the bag at the commencement of the filling process, and some air enters the bag with the filling material, so that the bag has a considerable amount of dust-laden air therein before it is filled. If this air is allowed to escape through the seam, it not only causes a loss of material but is very objectionable because of annoying the workmen. With the form of seam disclosed, air is allowed to escape through the needle holes, but the looped sewing thread on the one side and the filter cord on the other side effectually prevent the passage of an objectionable amount of dust with the air.

With some forms of seams it might be desirable to use a filter cord on both sides of the seam, and it might be possible to use a cord looped around the sewing thread on the side where it enters the fabric, or to form loops of the sewing thread itself on the entrance side as well as on the exit side of the needle, but the form of seam disclosed is the one we have found preferable for ordinary use.

Adherence of the binding tape to the bag-wall on the side of the seam away from the end of the bag is advantageous as it aids in preventing tearing out of the bag-walls between the tape. The adhesive is not needed elsewhere between the tape and bag-wall, and may be a detriment. The specific location of the adhesive disclosed in Figs. 5 and 6 would be useful whether or not a filter cord was used and whether a wide binding tape is used or two strips, one on each side of the bag, are used.

It will be understood that various changes may be made in the details of the disclosure within the terms of the appended claims, which define the scope of the invention.

By the terms "filter cord" as used in the claims we intend to include any form of filtering strip or cord, the material of which will close or substantially close the holes made by the needle after the seam is formed.

Having fully disclosed our invention, and the manner of its use, what we claim is:

1. A paper bag having an end closed by a sewed seam, means beyond the seam for preventing the escape of dust between the walls of the bag and a filter cord along the line of the seam outside of the bag and having the thread of the seam sewed therethrough.

2. A paper bag having an end closed by a sewed seam, a binding tape bent over the ends of the walls beyond the seam so as to prevent the escape of dust from between said walls, and a filter cord along the line of the seam outside the bag and having the thread of the seam sewed therethrough.

3. A paper bag having an end closed by a sewed seam, means beyond the seam for preventing the escape of dust between the walls of the bag and a filter cord along the line of the seam on one side and having the thread of the seam sewed therethrough, the sewing thread being arranged to form a filter at the ends of the needle holes on the other side of the seam.

4. A valved paper bag having its valved end closed by a sewed seam, means beyond the seam to prevent the escape of dust between the walls of the bag and textile material so arranged at the outer ends of the needle holes as to act as a filter and prevent the escape of dust from said needle holes.

5. A valved paper bag closed at its valved end by a double thread sewed seam, a binding strip bent over the end of the bag walls and having the seam sewed through its edges, and a filter cord along the side of the seam which the needle enters and having the sewing thread sewed therethrough.

In testimony whereof, we have hereunto signed our names to this application.

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