No. 634,788. Patented Oct. 10, 1899.

A. A. YOUNG.

AIR GOODS.

(Application filed Apr. 10, 1899.)

(No Model.)

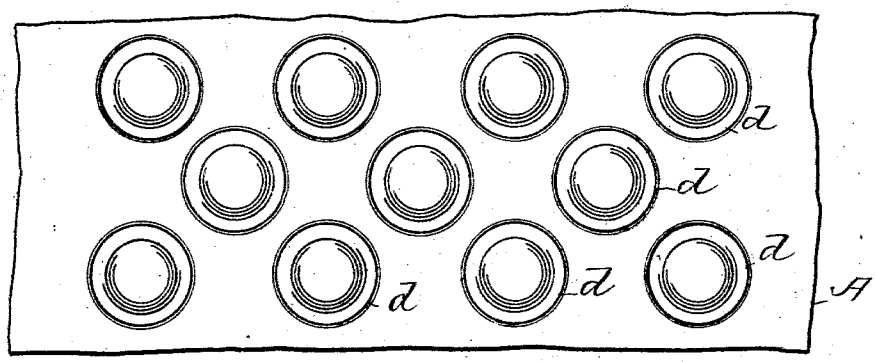


Fig. 1.

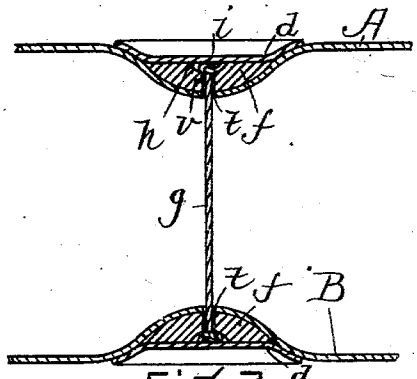


Fig. 2.

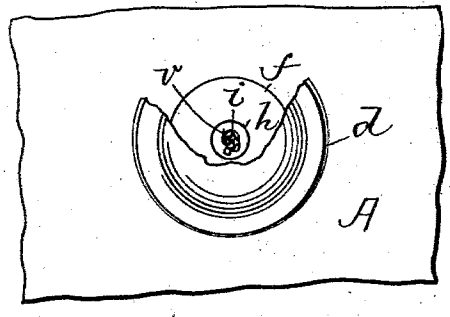


Fig. 3.

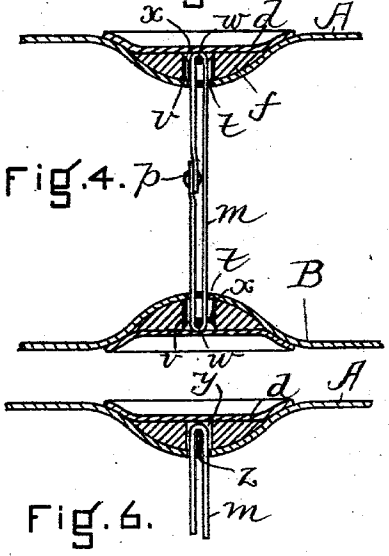


Fig. 4.

Fig. 6.

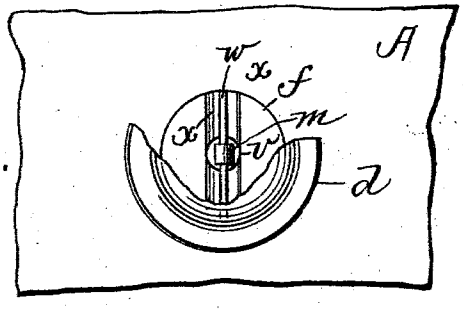


Fig. 5.

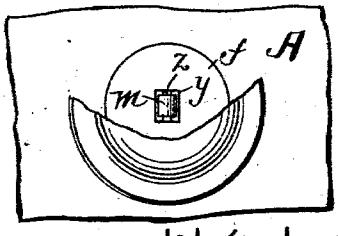


Fig. 7.

WITNESSES

Matthew M. Blunt

C. W. Wilbur

INVENTOR

Albert Augustus Young,

By O. M. Shaw

ATT'Y.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALBERT AUGUSTUS YOUNG, OF WAKEFIELD, MASSACHUSETTS.

AIR GOODS.

SPECIFICATION forming part of Letters Patent No. 634,788, dated October 10, 1899.

Application filed April 10, 1899. Serial No. 712,378. (No model.)

To all whom it may concern:

Be it known that I, ALBERT AUGUSTUS YOUNG, of Wakefield, county of Middlesex, and State of Massachusetts, have made certain new and useful Improvements in Air Goods, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a plan view of a portion of a pneumatic mattress-wall; Fig. 2, a sectional view showing two walls of an air bag or mattress connected by my improved stay; Fig. 3, a plan view of the same, a portion of the gum cap being represented as broken away to show the stay-holder; Figs. 4 and 6, views similar to that in Fig. 3, showing modifications in the method of fastening the stay; and Figs. 5 and 7, respectively, plan views of the parts shown in Figs. 4 and 6.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My present invention is designed especially as an improvement on the device shown and described in my United States Letters Patent dated December 27, 1898, and issued to me for improvement in air goods, the object being to produce a simpler, cheaper, and more effective means for staying the walls of the air-sack to each other, whereby the necessity of slitting said walls to enter the stay is avoided and yet a sufficient bearing-surface is attained on the outer faces of said walls to afford a requisite lock for said stays.

The nature and operation of the improvement will be understood from the following explanation.

In the drawings, A B represent the two walls, respectively, of a pneumatic mattress or other air-sack. These walls, as is commonly understood, are stayed together at intervals by flexible stays, which permit slight lateral movement, but hold said walls against distortion in any part when weight is applied at another portion of the mattress. This lateral or torsional movement has always been a menace in that as the flexible stay, usually a tape, was passed through a slot in the walls and secured to the outer wall-faces by vulcanizing. Therefore such movements tended to enlarge the slots and cause leakage. In my improvement I connect the flexible stay to the mattress-walls by means of an interposed non-flexible material and by the use of which a circular hole of materially small diameter in said walls may be employed for the flexible stay to pass through.

Referring again to the drawings, *g* represents the stay in Figs. 2 and 3, which in this example is a braided or twisted cord of suitable length. The ends of this cord are passed centrally through segmental wooden disks *f* similar to the ordinary "button-mold." The flat faces of these disks *f* are countersunk centrally at *h*, and the knotted ends *i* of the stay *g* rest therein.

It will be understood that the stays *g* are passed through the small circular punctures *t* in the mattress-walls A B before the wooden heads *f* are attached thereto, and as thus disposed the spherical surface of said heads engages the outer or rubber-faced surfaces of said walls. These wooden heads *f* are then capped or covered by a cap *d* of gum or "repair" cloth, and the whole is vulcanized together.

I find in practice that the caps *d* and rubber faces of the walls A B will vulcanize securely to the wood, whereas if metal or many other rigid materials are employed the joint is less perfect and the parts more liable to work loose.

Now it will be seen that while the cord *g* holds the mattress-walls in the same position relative to each other vertically they admit all the play desired in other directions, and torsional action is neutralized by the rotation of the stay in the heads. Moreover, in resisting the pull longitudinally of the stay there is the same strain on all sides of the wall-opening *t* and for such distance therefrom as the curved face of the heads engages or is secured to the walls A B, because the point of force applied is centrally of the flat face of the disk or at the knot *i*.

In the form shown in Figs. 4 and 5 a tape *m* is substituted for the twisted cord *g*. The hole *v* through the button is enlarged and a diametrical groove *x* is formed in the flat face of said button. In this groove a pin or rod

w lies, so sunken that it will be out of contact with the gum-cloth cap *d*. The tape *m* is threaded through holes *t v* around or over the rods *w*, and its ends are riveted together at *p*, forming a double stay for use where strength not possessed by cord *g* is needed.

In Figs. 6 and 7 the hole *y* through the button may be rectangular and forked or forming a bridge *z*, over which the tape *m* may be passed, said bridge being merely a substitute for the rod *w*.

It will be seen that in addition to the advantages recited in the specification the necessity of using more than one cap *d* or supplemental pieces of friction-cloth in order to close the slots in the bag-walls and prevent them tearing is entirely avoided in my device. In its use as pressure is applied to one portion of the air-sack and the air driven to another section, where it tends to expand the walls, said walls are securely held by my improved stay, and the strain thereof being central of the segmental buttons there is substantially no pull at all exerted on the fabric at the edges of the hole *t* therein. Such pull is distributed equally on all portions of the fabric that are in contact with the curved face of the head or button *f*. Practically the only place in which a leak can occur is through the buttonhole *v*, and as this is sealed by the rubber-coated air-proof cap *d*, upon which no material strain or wear ever comes, it will be seen that the danger from such leakage is reduced to a minimum.

Having thus described my invention, what I claim is—

In combination the sack-walls, A, B, having the perforations, *t;* the buttons, *f*, having openings, *v*, and a curved face engaging the outer faces of said walls respectively; a flexible cord having its ends respectively secured in said openings and passing through said perforations; and the caps, *d*, covering said buttons and vulcanized to said walls, all being arranged to operate substantially as specified.

ALBERT AUGUSTUS YOUNG.

Witnesses:

O. M. SHAW,

C. M. WILBUR.