Dec. 25, 1951 G. E. MILLER 2,579,689

SACK TIE

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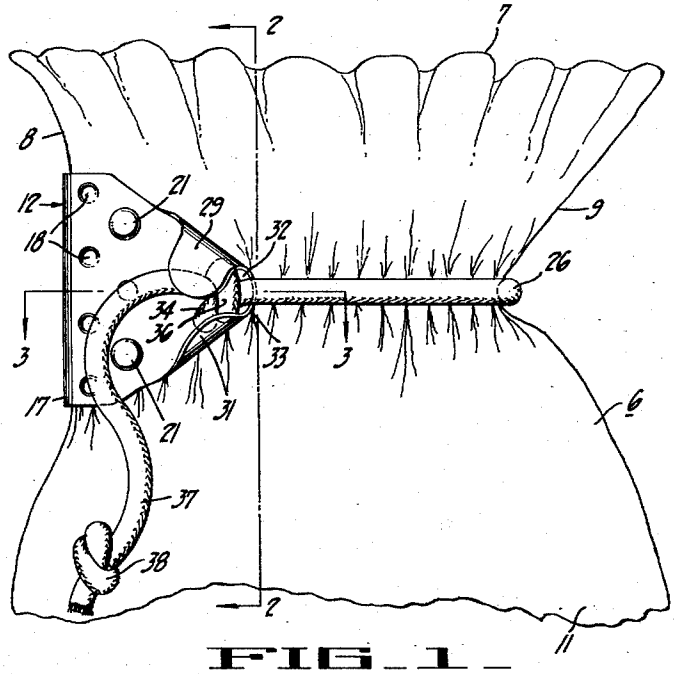

FIG_1_

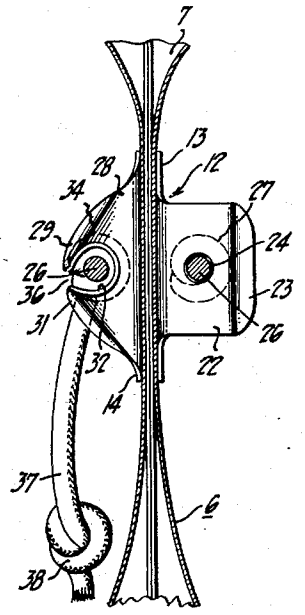

FIG_2_

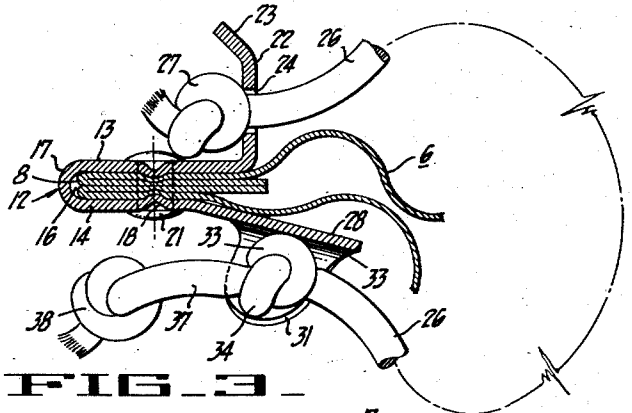

FIG_3_

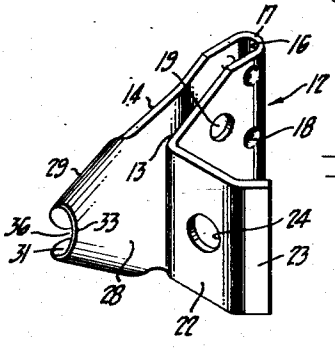

FIG_4_

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SACK TIE

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4 Claims. (Cl. 24—30.5)

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My invention relates to securing means especially of a kind capable of repeated reuse, particularly for the quick closure and release of flexible sacks, such as hop sacks or bags.

In the handling of hops, particularly the harvesting thereof, it is customary to carry the hops in relatively large fabric sacks. It is important effectively to close the sack quickly and readily when it is full, and it is equally important to open the sack quickly and readily when it is to be disgorged of its contents. Even more important is the fact that the sacks are reused and being relatively expensive, must be reused a large number of times. The closure or sack tie correspondingly must be capable of repeated reuse without any substantial deterioration as a secure closure. It is also of importance that the sack tie be readily adapted to sacks at present in use and be effective without substantially changing the normal routine of the user. It is likewise of importance that the sack tie be readily manufactured, be relatively inexpensive, and be easily installed and easily removed if necessary.

It is therefore an object of my invention to provide an improved sack tie.

Another object of my invention is to provide a sack tie economically and readily manufactured and utilized in connection with present sacks and related equipment.

A further object of the invention is to provide a sack tie susceptible to repeated reuse without substantial deterioration.

A further object of the invention is to provide a sack tie which can readily be manipulated by operators without radically new techniques.

A further object of the invention is to provide a sack tie which is quite secure when closed but is readily opened.

Other objects together with the foregoing are attained in the embodiment of the invention described in the accompanying description and illustrated in the accompanying drawings, in which

Figure 1 is a side elevation of a sack tie constructed in accordance with my invention and in position on a hop sack illustrated in its closed condition.

Figure 2 is a cross-section, the plane of which is indicated by the line 2—2 of Figure 1.

Figure 3 is a cross-section, the plane of which is indicated by the line 3—3 of Figure 1.

Figure 4 is an isometric view of the clip portion of my sack tie.

In its preferred form the sack tie of my invention comprises a clip usually fabricated of a single sheet of metal contoured and folded upon itself to provide a pair of walls defining a recess to receive a part of the sack and to secure the clip to the sack. One of the walls of the sheet is out-turned to provide a lug formed with an

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aperture therein to receive one end of a cord having a knot to preclude passage of the cord through the aperture. The other wall of the clip is formed into a pair of wings defining a generally conical channel of a size to receive the cord when it is passed around part of the sack but to prevent the passage of another knot in the cord which wedges into the conical channel. In order to afford ready engagement of the cord with the channel and ready withdrawal of the cord and knot therefrom, the channel is provided with an opening between the wings which is inclined in direction to the direction of the cord so that a twisting motion is necessary to insert or withdraw the cord from the channel to preclude accidental dislodgement thereof.

While it has been successfully utilized in connection with hop sacks, my sack tie is likewise useful in other environments and with other closures but is most readily described in connection with a hop sack. As an example, there is provided a hop sack 6 of fabric or comparable flexible material having an open end 7 disposed between one side margin 8 and another side margin 9. The sack end 7 is adapted to be opened to pass a charge of hops into the body 11 of the sack and then to be gathered together to serve as a closure to preclude discharge of the contained hops.

In accordance with my invention, I dispose along the margin 8, the seamed margin for example, a clip generally designated 12. This preferably is an article of manufacture fabricated from a single sheet of material such as metal, conveniently stainless steel. The clip is contoured and formed to provide a fold made up of a pair of side walls 13 and 14 between them establishing or defining a recess 16 of a suitable size and shape to receive the margin 8 of the sack. A bend 17 at the end of the recess between the walls 13 and 14 is slightly resilient so that a tight frictional engagement of the clip with the material of the sack margin can be afforded. While this alone might, in some instances, be a sufficient interengagement of the clip and the sack, I provide additional securing means. Preferably the material of the clip itself is deformed into indentations 18 which can be forced partly into the material of the sack or can displace the material of the sack for firm intermeshing. Additionally the clip is provided with perforations 19 so that rivets 21 passing through the perforations and the sack clamp or rivet the clip in position so that a relatively permanent attachment is provided.

One of the walls defining the recess 16, for example the wall 13, is deformed to provide an outstanding lug 22 having a flared terminal 23 and is pierced to afford an aperture 24. Adapted to pass through the aperture 24 is a flexible cord 26 tied into a knot 27 adjacent one end. While the

cord 26 passes freely through the aperture 24, the knot 27 is of sufficient extent to abut the lug and preclude passage of the cord entirely through the aperture so that a firm anchor is afforded.

The remaining one of the walls, for example the wall 14, is shaped with an inclined off-set 28 affording a generally planar backing and is also contoured to provide a pair of wings 29 and 31 in turn defining a channel 32. The channel 32 is approximately of a conical contour and is open at both ends 33 to receive the cord 26 after the cord has been passed about the body or neck of the sack 6. The convergence of the wings 29 and 31 is sufficiently abrupt so that they are able to retain an abutting knot 34 also formed in the cord 26 effectively lodged within the converging conical channel 32.

In order that the cord and knot can readily be engaged with the clip, even though the sack 6 is full of hops, the wings 29 and 31 do not touch or meet and do not form a completely conical channel. Rather they are spaced apart to define an opening 36 between them of substantially the same width as the cord 26 but inclined somewhat to the general direction of the cord as it passes around the sack. The cord must be slightly twisted or deflected in order that it may engage in the channel by passing through the opening 36.

The contour and edge and shape of the wings and particularly of their margins are such that they are blunt and rounded and do not afford any sharp edges which might wear or cut the cord 26. Rather, they facilitate its entry into and removal from the channel 32. Also to assist in the interengagement of the cord and the channel, the cord is preferably of an extra length to provide a grip portion 37 terminating in a knot 38 to afford a good finger or hand-hold.

In the usual use of the sack tie, the cord 26 is not in engagement with the wings 29 and 31 until the sack has been substantially filled. At that time, the operator or user grasps the body of the clip and passes the cord 26 around the neck of the sack gathering it together into a tight closure. By overpulling on the grip portion 37 of the cord, he is able to provide enough tension so that the knot 34 lies slightly behind and outside of the wings 29 and 31. Then by giving the body of the cord 26 a slight turn or twist, he is able to pass the cord adjacent the knot through the channel 36. He then slackens his cord grip and permits the cord to straighten as the knot enters into the conical channel 32. The knot continues to do this after the operator releases the grip portion 37 because of the tendency of the sack and its contents to expand near the throat or opening. This expansion is not enough to make any sizable opening and does not permit any contained hops to discharge, but simply maintains a sufficient tension upon the cord so that the knot is wedged tightly into the conical channel between the wings. This is sufficient to hold the sack closed during all ordinary usage and prevents the contents from spilling or being discharged inadvertently.

When the contents are to be discharged, the operator again grasps the clip and by taking hold of the grip portion 37 and putting extra tension on the cord 26, he is able to withdraw the knot from the channel 32. By then putting a slight twist on the cord 26, he is able to withdraw it through the opening 36. This removes the knot from engagement with the clip, and when the user then releases the grip portion 37, the cord 26 falls free, except for its attachment to the lug 22, and the sack 6 is readily opened to release its contents.

I claim:

1. A sack tie comprising a clip having a pair of walls defining a recess, means for securing said clip to a part of a sack disposed in said recess, a lug outstanding from one of said walls, said lug having an aperture therein, a pair of wings outstanding from the other of said walls, said wings defining a channel therebetween, and a cord having a pair of knots therein passing through said aperture and said channel with said knots engaging said lug and said wings respectively.

2. A sack tie comprising a clip including a single sheet of metal having a pair of walls defining a recess, means for securing said clip to a part of a sack disposed in said recess, a lug outstanding from one of said walls, means for securing a cord having a knot therein to said lug, and a pair of wings outstanding from the other of said walls, said wings defining a channel therebetween adapted to receive said cord with said knot abutting said wings.

3. A sack tie comprising a clip having a pair of walls defining a recess, means for securing said clip to a part of a sack disposed in said recess, a lug outstanding from one of said walls, a cord having a knot therein, means for securing said cord to said lug, and a pair of wings outstanding from the other of said walls, said wings defining a channel therebetween adapted to receive said cord with said wings abutting said knot, there being an opening between said wings into said channel inclined to the direction of said cord when extending from said lug around part of a sack and into said channel.

4. A tie for use with a sack comprising a single sheet of material folded upon itself to provide a recess defined by two substantially parallel walls adapted to lie on either side of a part of a sack disposed in said recess, one of said walls being bent to afford an outstanding lug, said lug having an opening therein, the other of said walls having its opposite sides bent toward each other to afford wings defining a conical channel therebetween, means extending into said recess from said walls to engage a part of a sack in said recess, and a cord passing through and engaging the boundaries of said opening and said channel.

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