Jan. 20, 1970 W. NIEMEYER 3,490,681

BAGS

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FIG. 1

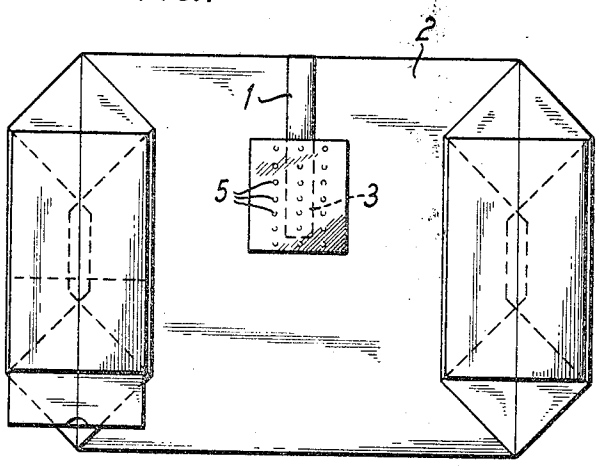
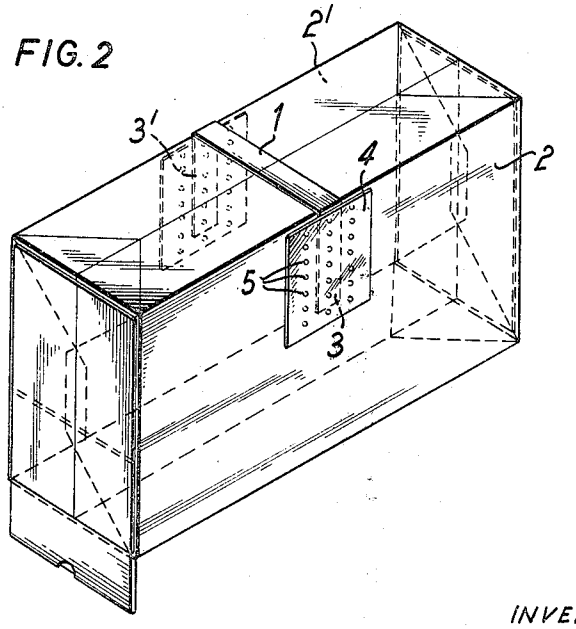


FIG. 2



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FIG. 3

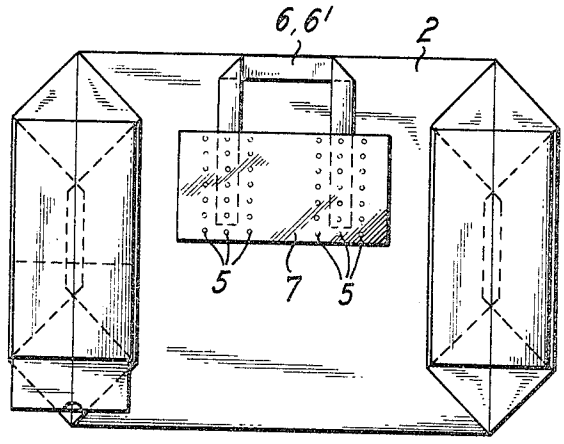
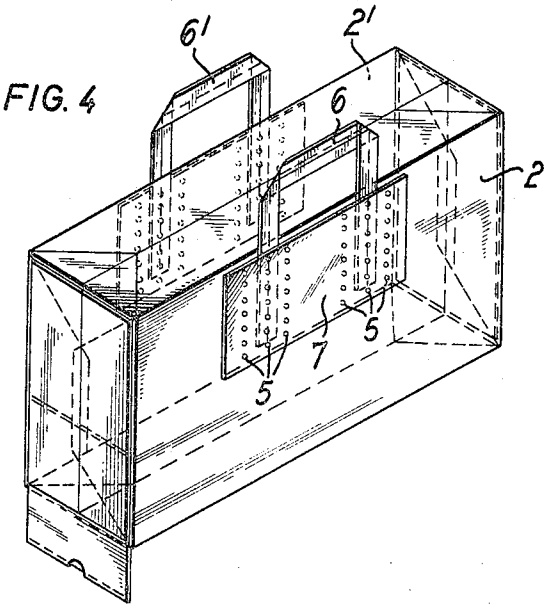


FIG. 4



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U.S. Cl. 229—54 8 Claims

ABSTRACT OF THE DISCLOSURE

A rectangular bag of paper or plastic sheet has a carrying handle arrangement midway along its length. In one embodiment a single handle has opposite ends secured to opposite wider sides of the bag and bridges the adjacent shorter side of the bag while in another embodiment a U-shaped handle is fitted to each of the opposite wider sides of the bag adjacent the longer edges thereof, directly opposite the handle on the other side so that the two handles can be gripped in one hand. Both embodiments allow the bag to be carried horizontally like a suitcase.

This invention relates to sacks or bags, hereinafter referred to as bags, of flexible sheet material and provided with carrying handles.

It is an object of the present invention to provide a handle arrangement for a bag which can be gripped to lift the bag when the latter has its longest dimension horizontal so that even large sacks can be carried comfortably like a suitcase without their touching the ground, and which does not hinder filling or emptying of the bag.

According to the invention we provide a generally rectangular bag of flexible sheet material having one or more carrying handles attached to opposite sides of the bag and disposed symmetrically with respect to a plane transverse to said opposite sides and passing through the mid-points of the longer edges of said sides. With this arrangement, the handles can be fairly easily joined to a folded bag by a machine, filling and closing of the sack are not impeded by the handles, the filled, closed sack can be easily carried like a suitcase and the sack can be manipulated with the handles during emptying.

In one embodiment of the invention, the bag has a handle which extends generally in said plane, each end of the strip being attached to one of the wider sides of the bag, and an intermediate part of the strip forming a grip portion of the handle, bridging one of the narrower sides of the bag.

Alternatively the bag has two U-shaped handles of strip material each handle being attached by its free end to one of the wider sides of the bag in such a way that the grip portion of the handle formed by the base of the U, extends parallel to said longer edges of the sides of the bag. The latter handle arrangement is particularly suitable for heavy sacks, because it enables two persons, each gripping one handle, to carry the sack comfortably.

The novel handle arrangement of a bag according to this invention leaves the bottom and filling ends of the bag free, and is therefore suitable for bags having any conventional bottom and filling closures.

Two embodiments of the invention are illustrated in the accompanying drawings, in which:

FIGURE 1 is a side elevation view of a valve-type bag with block closures at opposite ends and one form of carrying handle the bag being folded in a flat condition:

FIGURE 2 is a perspective view of the bag of FIGURE 1 in a filled condition;

FIGURE 3 is a side elevation of a valve-type bag with block closures at both ends and two U-shaped carrying handles; and

FIGURE 4 is a perspective view of the bag of FIGURE 3 in a filled condition.

The bag shown in FIGURES 1 and 2 has a handle **1** comprising a strip consisting of paper, folded longitudinally several times and reinforced with a thread or fabric insert, or of plastics having high tensile strength. The handle extends approximately in the transverse median plane of the bag (i.e. a plane normal to the plane of the wider sides of the sack and passing through the mid-points of the longer edges of said wider sides) from one wider side **2** to the other wider side **2'**, and its ends **3**, **3'** are attached to the wider sides **2**, **2'** respectively either with adhesive or, if the handle and the bag are made from thermoplastic material, by welding. The grip of the handle bridges one of the narrower sides of the bag, so that it is readily accessible to the hand of the carrier.

For better transmission of the forces from the handle to the bag the wider sides of the sack are reinforced in the region of the ends of the handle by paper or plastic sheets **4** bonded to the wider sides on the inside and outside of bag. The inner reinforcing sheets are bonded on during production of the bag tubes, and the outer reinforcing sheets are bonded over the ends of the handle after the handle is applied.

In the case of multi-ply sacks, it is advisable to spot cement or spot weld the individual plies together in the region of the handle ends, in order to transmit the forces exerted during carrying of the full sack uniformly to all plies. Spot cementing or spot welding **5** is used, as this joins the individual plies firmly together without reducing the flexibility of the sack in the region of the join.

The length of the grip part of the handle **1** is such that it does not project beyond the longitudinal edge of the sack when the latter is folded flat as shown in FIGURE 1. The handles therefore do not protrude when the folded sacks are stacked or packed but remain close to the sack and are therefore protected from damage.

The bag shown in FIGURES 3 and 4 has two handles **6**, **6'** of strip material pre-formed or pre-folded into a U-shape. The ends of each handle are attached to one wider side **2** or **2'** of the sack, in such a way that the grip extends parallel to the longer edge of said wider side of the sack.

As shown, the handles are attached with their ends symmetrical with respect to the transverse median plane of the bag. One hand can grip both handles, or each handle can be gripped by one hand so that particularly heavy bags can easily be carried by two persons.

In this embodiment, also, the handles are so arranged that they do project beyond the longitudinal edge of the bag when it is folded flat as is shown in FIGURE 3.

As with the bag shown in FIGURES 1 and 2, the handle ends are attached to the sack by cementing or welding, and the sides of the bag are reinforced in the region of the handle ends by bonding on internal and external cover sheets **7** and connecting the plies in the sack by spot cementing or spot welding **5**.

I claim:

1. A substantially rectangular, non-gusseted bag of flexible sheet material comprising, in its empty or folded-flat condition, two opposite rectangular sides connected at their longer edges by a single integral fold line each, at least one carrying handle attached to the outer surface of said sides of the bag and disposed symmetrically with respect to a plane transverse to said sides and passing through the mid-point of said longer edges of said sides of the bag, the length of said carrying handle and its point of attachment on said outer surface of said sides of the bag being such that said carrying handle is substantially

flush with one of said longer edges of said sides of the bag.

2. The bag of claim 1, wherein said carrying handle comprises a single strip of flexible material extending substantially in said plane and having each end attached to the outer surface of said sides of the bag and an intermediate part of said strip forming a grip portion of the handle bridging the fold line of said one longer edge of said sides of the bag.

3. The bag of claim 1, comprising two U-shaped handles of strip material each attached by its free ends to one of said sides of the bag, a grip portion of each handle formed by the base of the U extending parallel to said longer edges of said sides of the bag.

4. The bag of claim 3, in which said two handles are exactly opposite each other so that both can be gripped in one hand.

5. The bag of claim 1, in which the or each handle comprises a strip of flexible material, each end of the strip being bonded to one of said one pair of opposite sides, the bag comprising reinforcing sheets bonded to said one pair of opposite sides of the bag on the inside thereof in the region of the handle ends.

6. The bag of claim 1, in which the or each handle

comprises a strip of flexible material, each end of the strip being bonded to one of said one pair of opposite sides, the bag comprising reinforcing sheets bonded to said one pair of opposite sides of the bag on the outside thereof in the region of the handle ends, said reinforcing sheets covering said handle ends.

7. The bag of claim 1, which comprises a plurality of plies of flexible sheet material bonded together in the region of the or each said handle.

8. The bag of claim 7, in which said plies are bonded together at spaced apart spots in the region of the or each said handle.

References Cited

UNITED STATES PATENTS

2,603,409	7/1952	Crary	229—54
3,208,492	9/1965	Braithwaite	150—12
3,335,941	8/1967	Gatward	229—54

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229—52; 150—12