United States Patent [19]

Musante

[11] **3,762,614**

[45] **Oct. 2, 1973**

[54] **GARMENT HANGER ASSEMBLY**

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[73] Assignee: **Necessa Products Co., Inc.**, East Orange, N.J.

[22] Filed: **May 9, 1972**

[21] Appl. No.: **251,745**

[52] **U.S. Cl.** **223/98**

[51] **Int. Cl.** **A47j 51/086**

[58] **Field of Search** 223/85, 87, 88, 89, 223/90, 91, 92, 98

[56] **References Cited**

UNITED STATES PATENTS

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3,401,853	9/1968	Lane	223/87
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FOREIGN PATENTS OR APPLICATIONS

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Primary Examiner—George H. Krizmanich

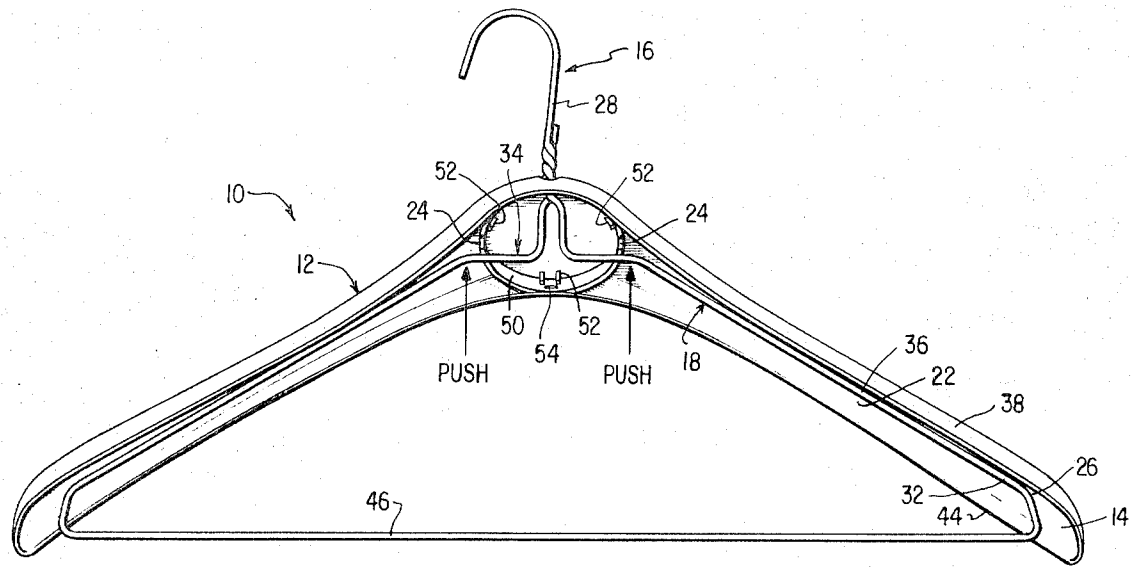
Attorney—Colton & Stone

[57] **ABSTRACT**

A hollow coat hanger attachment is formed with integral, coacting fulcral engagement areas and cam surfaces which deflect portions of a resilient wire hanger assembled therewith to provide a spring restoring force for camming the attachment and wire hanger into firm interlocking engagement.

Alternate embodiments employ abutments and/or removable locking tabs which positively preclude inadvertent disassembly of the attachment and wire hanger under all conditions except a deliberate disassembly procedure.

11 Claims, 9 Drawing Figures



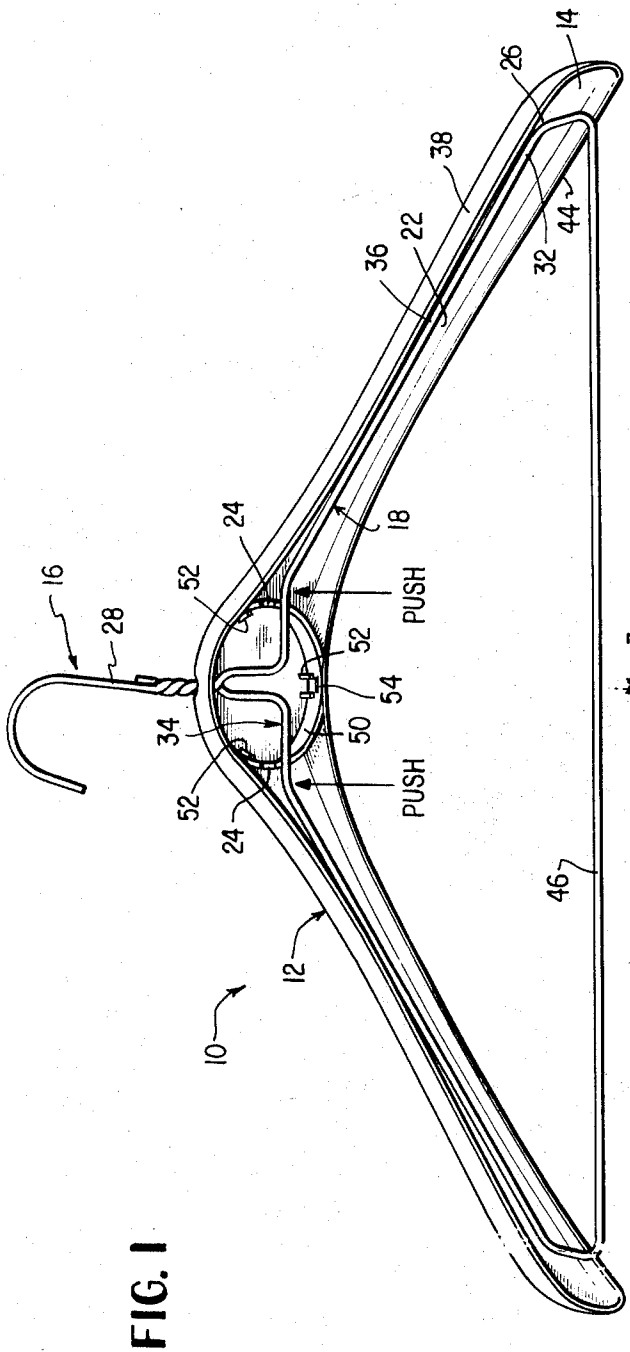

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FIG. 1

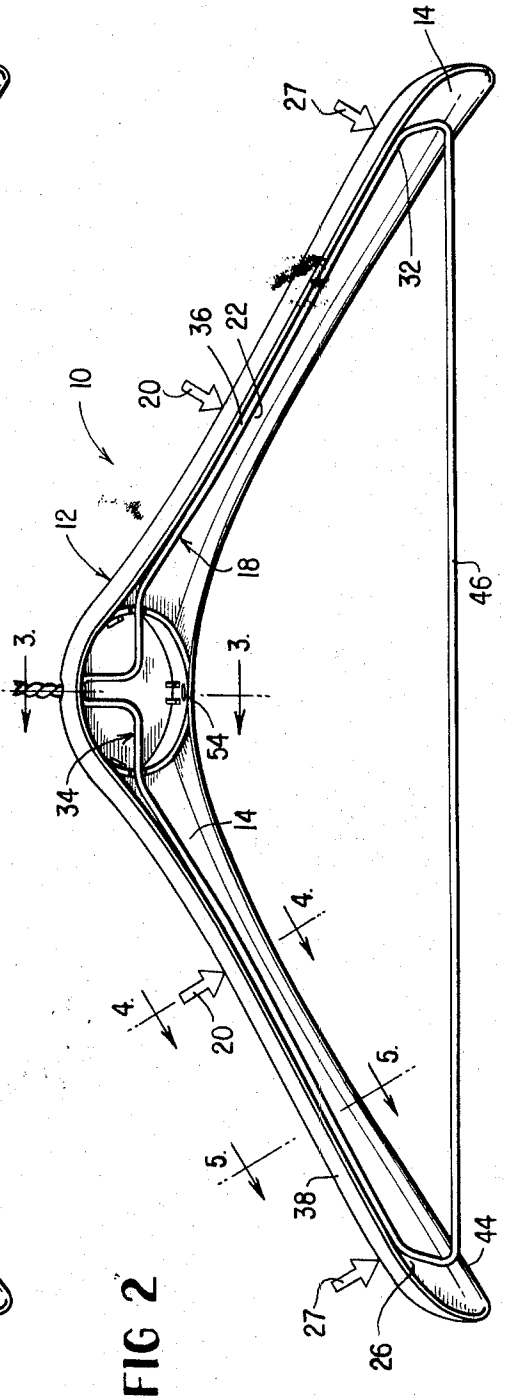

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FIG 2

FIG. 9

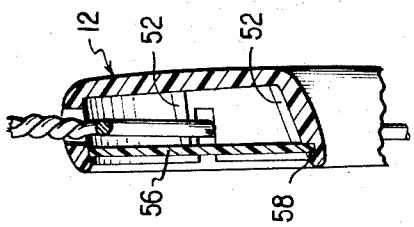


FIG. 8



FIG. 5

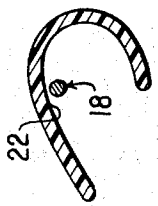


FIG. 4

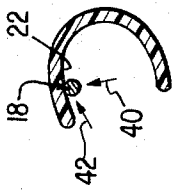


FIG. 3

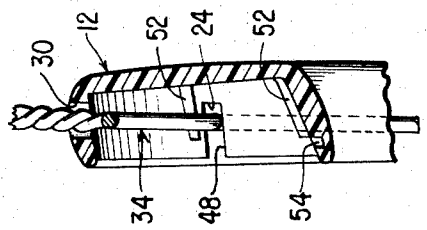


FIG. 7

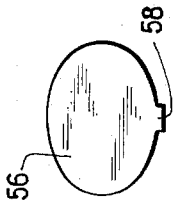


FIG. 6

GARMENT HANGER ASSEMBLY

BACKGROUND OF THE INVENTION

Wire coat hangers are expendable items conventionally provided as a free service by dry cleaning and similar establishments. large numbers of these wire hangers are normally retained by the consumers for subsequent home and other usage. The disadvantages in the initial use of such wire hangers as well as in their subsequent home use are matters of common knowledge with perhaps the greatest disadvantage being the inherent inability of a wire coat hanger to retain a desired garment shoulder conformance. Thus a freshly pressed coat, for example, frequently exhibits creased and/or misshapen shoulders due to having been supported on a wire hanger. Other disadvantages are derived from the inherent flexibility of wire hangers which tend to be bent out of shape under any substantial clothing load, such as by a heavy topcoat for example; and the likelihood of clothing damage by contact with cracked paint or corroded portions of an older hanger. The foregoing and other inherent disadvantages have long been tolerated in the marketplace on the basis of cost. Although contoured coat hangers capable of supporting virtually any garment weight in proper shoulder conformance are readily available and in widespread usage; the cost factor, alone, dictates that their home usage cannot extend to every garment hanger employed. Such contoured hangers are conventionally made of wood to provide the required strength and may, obviously, not be regarded as expendable or giveaway items for cleaning establishments whose cleaning charges would frequently not even equal, much less defray, the cost of such hangers. Similarly, in the home, requirements in excess of hundreds of hangers for storage, guest and other uses are typical and though contoured coat hangers may be purchased for use with particular garments, the typical home user relies upon the giveaway service provided by cleaning establishments for the great majority of the required hangers.

The obvious desirability of providing an economical, shoulder conforming attachment which could be readily assembled with a wire coat hanger to convert the same into a garment hanger possessing some of the advantages of a conventional contoured hanger has long been recognized. Typical prior art approaches have employed plastic moldings conforming generally to a desired shoulder shape and adapted for interfitting engagement with a wire hanger to overlie the shoulder supporting portions thereof. The interfitting engagement is normally effected by forming the attachment with expansible slots or friction locking detents into which portions of the wire hanger may be snapped. Exemplary are the disclosures in U. S. Pat. Nos. 2,420,101; 2,675,948 and 3,301,447. The maintenance of the assembly is thus obviously dependent upon the frictional grip imposed by plastic detents. Because of the fact that such friction locking detents are primarily designed to preclude disassembly of the parts as opposed to effecting a rigidly interrelated assembly; the "feel" of a quality contour hanger is lacking because of the relative movement between the wire hanger and the attachment as the same is handled. A far greater disadvantage in the use of plastic, friction locking detents is that they are unable to resist substantial disassembly forces. Thus as one starts to remove a coat from such a hanger attachment, substantial separating forces are

imparted which are only resisted by the necessarily small, plastic friction locking detents. The situation is aggravated by the small relative movement which is inherently permitted by hanger attachments of this type.

Notwithstanding such disadvantages from the standpoint of the home user; the test of the marketplace will depend upon acceptance by commercial users who must purchase and then supply the attachments as a free service. Because of the obvious, though modest cost increase, the commercial user must not only be satisfied that his trade will increase through the offering of such an additional service, but that his own operations will not be adversely affected by the use of the attachment. Exemplary is the typical rough handling of hangers in a cleaning establishment. Thus if an attachment tends to become separated from its wire hanger by dropping on the floor or even throwing a group of the assembled hanger attachments into a pile; then most commercial establishments would tend not to use them because of the extra time and effort required for reassembly.

It has been found that hanger attachments employing plastic, friction locking detents do not provide a sufficient gripping force on the wire hanger to preclude either small relative movement therebetween or disassembly of the same under conditions of even normal, much less rough usage.

It is the object of the present invention to provide a hanger attachment that may be firmly interlocked with a wire hanger by virtue of deflecting the wire hanger, within its elastic limits, to produce a spring restoring force coacting with a particularly configured attachment to maintain the same in firmly assembled relation. Although wire hangers have previously been bent as a deliberate incident of an assembly procedure, as in U. S. Pat. No. 2,630,254; the concept of utilizing the spring restoring force of a wire hanger to maintain a hanger attachment assembly has, apparently, not been previously recognized.

Another important feature is the fact that manufacturing tolerances are not critical in order to realize the objects of the invention.

SUMMARY OF THE INVENTION

A hollow coat hanger attachment includes a hollow interior adapted to overlie the shoulders of a wire hanger. The hollow interior is configured to, in effect, create spring lever arms of both wire hanger shoulder portions. Each wire hanger shoulder portion, at opposite ends thereof, engages a fulcral surface on the attachment about which fulcral surfaces the wire shoulders are deformed, within their elastic limits, during the assembly operation. The hollow attachment interior includes a compound cam surface intermediate the fulcral surfaces which produces the deformation and against which the spring restoring force of each wire shoulder is directed. The net result of the compound cam surfaces is to bias the wire hanger upwardly and inwardly relative to the assembled attachment. The fulcral surfaces adjacent the hook portion of the hanger preferably take the form of slots into which the collar portion of the wire hanger is fitted. A removable locking tab may then be fitted over the fulcral surfaces adjacent the hook portion to positively preclude any but a deliberate disassembly. Alternatively, or in addition, a pair of rigid stops or abutments may be formed inte-

grally with the attachment adjacent the cam surfaces to provide a positive stop precluding disassembly.

An important feature of the invention as it relates to precluding any relative movement between the assembled parts irrespective of manufacturing tolerances is the presence of an additional pair of fulcral engagement surfaces positioned adjacent to but displaced approximately 90° from the lower fulcral engagement surfaces previously discussed. The reaction of the spring restoring forces against the compound cam surfaces thus results in seating the wire hanger firmly both upwardly and inwardly of the hollow attachment.

DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a wire hanger and contoured hanger attachment during an intermediate assembly stage;

FIG. **2** is a similar view showing the completed garment hanger assembly;

FIG. **3** is a broken cross section taken along line **3—3** of FIG. **2**;

FIG. **4** is a cross sectional view taken along line **4—4** of FIG. **2**;

FIG. **5** is a cross sectional view taken along line **5—5** of FIG. **2**;

FIG. **6** is a perspective view of the modified garment hanger assembly;

FIG. **7** is a plan view of the separable locking tab employed with the attachment of FIG. **6**;

FIG. **8** is a cross sectional view taken along line **8—8** of FIG. **6**; and

FIG. **9** is a broken cross section taken along line **9-9** of FIG. **6**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIG. **2** is illustrated a garment hanger assembly **10** comprising a plastic hanger attachment **12** having a hollow interior **14** adapted for interlocking assembly with a conventional wire hanger **16** in the manner generally indicated in FIG. **1**. Thus, as indicated in FIG. **2**, the generally straight wire hanger shoulder support arms **18** are deflected downwardly intermediate the ends thereof adjacent the position of arrows **20** by a longitudinally extending portion of a compound cam surface **22** formed integrally with the hollow interior of the attachment **12** which cam surface **22** extends across a straight line joining the fulcral surfaces **24, 26** engaging opposite ends of each wire shoulder **18**. The upper fulcral surfaces **24** associated with the collar support portion of the wire hanger and attachment take the form of downwardly inclined slots adapted to receive the shoulder portion of the wire hanger while the other of the fulcral engagement pairs simply comprise an upper, inner surface of the hollow attachment interior at the position of the arrows **27**. Prior to final assembly of the parts but after insertion of wire hook **28** through a central surrounding aperture **30** in attachment **12**; the parts are in the position of FIG. **1** with the lower end **32** of each wire hanger shoulder portion **18** spaced outwardly of and slightly below its associated fulcral engagement surface **26**. Exertion of an upward and rearward pressure on the collar support portion **34** of wire hanger **16**, to snap the same into slots **24** in the manner generally indicated by the arrows in FIG. **1**, results in the concomitant deflection of a medial portion **36** of wire shoulder arms **18** due to deflecting engagement with cam surface **22** while the lower ends **32** of each wire shoulder arm come into engagement with lower fulcral engagement surfaces **26**. The deflection of the wire arms **18** within their elastic limits creates an upward restoring force adjacent the mid-point of the contoured attachment shoulder supports **38** as indicated by the force vector **40** in FIG. **4**. Cam surface **22** presents a compound cam surface which not only projects across a straight line joining each fulcral engagement surface pair **24, 26,** as already explained, but also slopes upwardly and inwardly relative to the direction of assembly. Accordingly, the spring restoring force also exhibits a force vector **42** (FIG. **4**) which is directed inwardly or away from the open side of the attachment. The hollow interior of attachment **12** is formed, in part, by a downwardly and outwardly (relative to the direction of assembly) curved lower flange **44** against which the lower ends **32** of wire shoulders **18** and/or the cross arm **46** of wire hanger **16** are biased by the inwardly directed force vectors **42**.

The wire hanger is thus firmly biased upwardly into engagement with a lower interior surface of the attachment by the collar portion of the wire hanger engaging a lower wall **48** of each of the fulcral engagement surfaces or slots **24** while the lower end of each wire hanger engages a fulcral surface **26** and is biased into upward engagement therewith by force vector **40** resulting from the deformation and consequent spring restoring force of intermediate wire arm portions **36**. Additionally the biasment of wire hanger **16** against flanges **44** adjacent opposite ends of cross arm **46** provides a distinct four point engagement (the cam surfaces and the flanges) between the wire hanger and attachment.

In order to effect a disassembly of the hanger assembly shown in FIG. **2** it is necessary to apply separating forces in excess of the spring biasing forces and in directions generally opposed thereto since it will be apparent that separating forces which are not directly opposed to the force vectors of FIG. **4** will require a greater magnitude to effect separation. In practice it has been found that the hanger attachment of FIG. **2** may be dropped from standing height without separation and without affecting the feel of solidarity of the assembly.

The fact that wide manufacturing tolerances are permissible while yet retaining the advantages of the invention will be apparent from an inspection of FIGS. **4** and **5**; a comparative inspection of which Figures also makes clear the longitudinally curved nature of cam surface **22**. Thus, it will be seen that the wire hanger shoulder portions need not engage the attachment at an area between the lowest portion of cam surfaces **22** and the lower fulcral engagement surfaces (FIG. **5**) though it is apparent that if such engagement did take place, it would not appreciably alter the restoring forces exerted on the compound cam surfaces. Similarly, the precise degree of inward placement of the wire hanger within the hollow attachment as would be defined by the outward extent of lower flanges **44** and the depth of slots **24** is not critical since substantially the same inward force vector **42** would be exerted if the hanger were displaced in either direction from the position of FIG. **4**.

It will be noted that slots **24** are formed in an integral, annular extension **50** of the hollow attachment interior which includes spaced integral stops **52** and a small re-

cess 54 for positioning locking tab 56 (FIG. 7) in overlying relation to wire hanger collar portion 34. This assembly is shown in FIG. 6 wherein it will be appreciated that tail 58 on tab 56 is received in recess 54 and the tab bottoms in a friction fit against stops 52. This provides one additional means of insuring against inadvertent separation of the assembly which is particularly attractive because of the susceptibility of removable tab 56 to being inscribed with advertising and/or other information. Thus, the tabs could be prepared and inscribed for each individual commercial user, such as a cleaning establishment, and the same sold in bulk lots for subsequent assembly without affecting the overall standardized manufacture of the attachments shown in FIGS. 1 and 6.

A very Simple addition to the attachment of FIGS. 1 and 2 which may be formed integrally therewith to positively resist all but a determined effort to disassemble the parts comprises a pair of integral stops or abutments 60 which extend downwardly from upper attachment flanges 62 a distance just less than that which would result in permanent deformation of wire shoulder arms 18 during assembly. Thus, in the embodiment of FIG. 6, the assembly procedure of FIG. 1 must be accompanied by a downward, manual deflection of intermediate wire arm portions 36 to slip beneath abutment 60. It will be apparent that nothing less than a similar deflection will permit separation of the parts and, in actual use, the assembly of FIG. 6 has been thrown against walls and into piles with other hangers without separation.

I claim:

1. An assembled combination of a resiliant wire coat hanger frame including an upper support hook, a lower cross arm and opposed shoulder support arms having a predetermined relaxed configuration in unassembled condition; and a garment hanger attachment having an exterior garment support surface defining collar and shoulder supports and a hollow accessible interior, the attachment including means for rigidifying the hanger to the attachment including means restraining the frame adjacent the support hook and means deflecting the support arms from he relaxed configuration to an elastically deformed configuration bearing against the attachment.

2. The combination of claim 14 wherein said deflecting means comprise compound surfaces of curvature defining a portion of the hollow interior of said attachment.

3. The combination of claim 2 wherein said attachment shoulder supports overlie and extend beyond the ends of said wire support arms; said restraining means including fulcral engagement pairs engaging each said wire support arm adjacent opposite ends thereof; and said deflecting means including a longitudinally extending surface of hollow interior curvature within each said attachment shoulder support projecting across a straight line extending between each said fulcral engagement pair for deflecting said resilient wire support arms therebetween.

4. The combination of claim 3 wherein said deflecting means further include a hollow, interior surface of curvature extending generally transverse to said longitudinal surface within each said attachment shoulder support for biasing said hanger upwardly and inwardly of said hollow interior as a function of the spring restoring force imposed by said deflected wire support arms.

5. The combination of claim 4 including wire hanger engagement surfaces on each said attachment shoulder support engaging one side of said wire hanger adjacent the juncture of the wire support arms and cross arm for limiting the inward movement thereof relative to the attachment under the influence of said spring restoring force.

6. The combination of claim 3 wherein said fulcral engagement pairs are defined, adjacent one end of each said wire support arm, by an undersurface of said attachment shoulder support and, at the other end of each said wire support arm, by a slot receiving the same.

7. The combination of claim 6 wherein a straight line joining said fulcral engagement pairs is crossed by said deflecting means.

8. The combination of claim 7 wherein each said slot is downwardly inclined whereby the weight of a garment on said attachment supplements this restoring force for maintaining interlocking engagement between said wire hanger and attachment.

9. The combination of claim 8 wherein each said slot is formed in an arcuate wall surface continuous with the hollow interior of said attachment at the collar supporting portion thereof; and removable tab means for locking said wire hanger in engagement with each said slot.

10. The combination of claim 6 wherein the neck of said wire hanger supporting hook extends through an opening formed in the collar supporting portion of said attachment.

11. The combination of claim 1 including fixed locking abutments extending downwardly from an upper surface of said hollow attachment interior for precluding movement of said wire support arms outward of the hollow interior of said attachment.

* * * * *

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,762,614 Dated October 2, 1973

Inventor(s) Thomas J. Musante

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In column 1, line 6, "large" should read --Large--.

In column 2, line 28, after the word "rough", a comma should be inserted.

In column 5, line 16, "Simple" should read --simple--.

In column 6, line 34, "this" should read --said--.

Signed and sealed this 25th day of December 1973.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

RENE D. TEGTMEYER
Acting Commissioner of Patents