

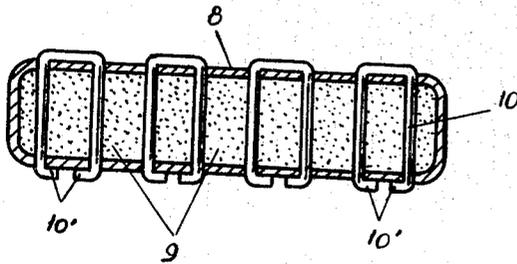
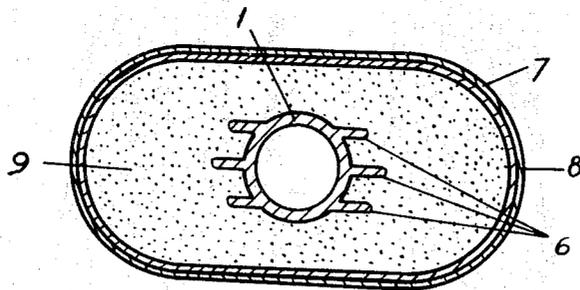
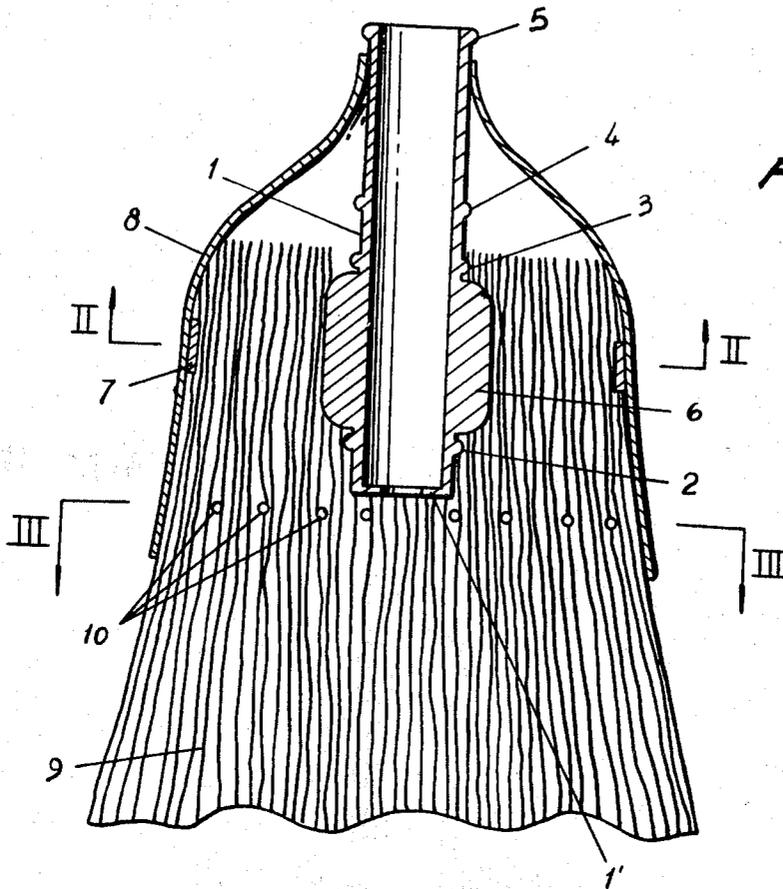
Oct. 13, 1970

A. J. BRUNELLO

3,533,123

BROOMS

Filed June 24, 1968



INVENTOR

Americo Jose Brunello

BY

Alvin Browdy

ATTORNEY

1

3,533,123
BROOMS

Americo Jose Brunello, 341 Surpacha Este St.
Cordoba City, Argentina

Filed June 24, 1968, Ser. No. 739,512

Claims priority, application Argentina, July 27, 1967,
208,775; Nov. 2, 1967, 210,671

Int. Cl. A46b 3/00

U.S. Cl. 15-171

9 Claims

ABSTRACT OF THE DISCLOSURE

A broom construction with a tubular handle holder in the central interior part of the broom, the holder having at least two annular external rings and a plurality of radial pins; a hoop on the exterior of the broom and a soft laminar material covering the upper end of the broom which is pierced by metallic staples.

This invention relates to improvements in brooms. More particularly, the invention is concerned with improvements in brooms of the type formed by a bunch of filiform elements gathered together at one end, at which these elements are pressed together, besides being held down at or near their central part so as to give the whole a flat trapezoidal form and keep this form stable during the whole life of the broom.

There are known many constructions of brooms of this type in which the filiform elements, bunched together at one end, are tied, by means of wire, around a nucleus which, prolonged, constitutes the handle of the broom. In this type of broom said end is of circular section and the flat form of the broom is attained by means placed at the central part, so that the other end of the filiform elements are spread out giving the whole a substantially rectangular section two of which sides are much larger than the other two, which section is ideal for sweeping the widest field with a given number of filiform elements. But all these constructions require very long filiform elements, together with normally long ones, if the broom has to perform satisfactorily. That means a higher cost than in constructions in which the very long element could be dispensed with and, on the other hand, compels the use of stuffings which, besides increasing the cost, frequently are cause of trouble after the broom is used a long time.

It is also known to sew together, at mid-length, the bundles of filiform elements by means of organic yarns which are of relatively high cost and on the other hand of short durability which makes that, after a time, the initially trapezoidal bunch becomes subdivided in a plurality of smaller bunches, the number of which is practically the same as the one of sewing loops produced by the sewing machine, which converts the originally continuous sweeping surface in a kind of rake that naturally has low sweeping efficiency, especially for small particles.

The novelty of this invention resides in that at the end of the broom, in which the filiform elements are bunched together, is placed a tubular handle holder which has a plurality of external rings and a plurality of radial fins against which said filiform element ends are pressed by means of a hoop, and that the sewing, instead of organic yarn, is done with metallic wire staples. This way said end can be formed so that it has an oval section which is nearly rectangular, which, in turn, permits to dispense of the very long filiform elements and to place the handle removably from the broom. In this form the broom is cheaper in cost as well as in transportation expense, since it can be placed in separate containers from the containers holding the handles, therewith saving a substantial amount of freight charges because of bulky disposition. On the other hand the

2

pressing together of the filiform elements with metallic staples keeps them unit with more strength, during a longer time, since it practically impedes the lateral and axial displacement of them and the formation of smaller bundles as well as the deformation of the trapezoidal form of the broom.

The scope of this invention is defined as follows: Improvements in brooms of the type formed by a plurality of filiform elements bunched together at one end in which these elements are tied firmly against a handle besides being tied together at or close to their central part so as to give the broom a substantially trapezoidal form, characterized by the fact that at the central interior part of said end is placed a tubular handle holder having at least two annular external rings, one close to its lower end and the other at its central part, as well as a plurality of radial fins; on the exterior of the filiform elements being placed, in said zone, a hoop and the whole covered by a soft laminar material having low elasticity which extends from said hoop upwards to the superior end of said handle holder and downwards a certain distance where one of its faces is pierced by metallic staples the central part of which goes through the bunch of filiform elements at right angles to them whereas the ends are bent back against the opposite face of said cover of laminar material.

To explain in more detail this invention so that it can be best understood in its construction and method of operation it will be described in connection with the accompanying drawings in which:

FIG. 1 is a transversal section of the upper part of a bunch of filiform elements forming a broom, taken along its principal plane of symmetry.

FIG. 2 is a transversal section taken along line II—II of FIG. 1 of the same broom; and

FIG. 3 is a transversal section taken along line III—III of said broom.

The handle of the broom (not shown) is inserted in the interior of tube 1 which preferably is of plastic material and has its lower end half closed by means of ring 1' so as to avoid that said handle can penetrate further and emerge below tube 1. The interior diameter of tube 1 is somewhat smaller than the exterior diameter of said handle so its introduction and extraction from tube 1 has to be accomplished using a certain amount of force thus guaranteeing its not getting out when not wanted to.

On its outer surface tube 1 has annular rings protruding, the more important being the lowermost 2 and the central one 3. The other central ring 4 and the superior one 5 are optative, the later one having the purpose of stopping the possible displacement of cover 8 upwards, and ring 4 serving as a guide for the cutting machine that cuts the upper ends of filiform elements 9 close to it. Between rings 2 and 3 are radial fins 6 (see FIG. 2) which preferably are parallel to each other and the main symmetry plane of the broom. Surrounding rings 2 and 3, and fins 6, are the upper ends of filiform elements 9 (guinea straw, vegetal fibres, plastic filaments, etc.) which are pressed together and against said tube 1, by a hoop 7, in form of a steel band, whose extremes are fixed together by stapling, riveting, welding or the like.

Cover 8, in form of a hood, has an upper tubular part which fits over the exterior surface of tube 1, below ring 5, although if the elasticity of cover 8 is very small, ring 5 has to be eliminated so as to facilitate the placement of cover 8. The lower part of hood 8 is pierced by steel wire staples 10, the central part of which is normal to the longitudinal axis of filiform elements 9 and whose free ends 10' are bent back upon the face of hood 8 opposite so the one through which said staples have been introduced. As can be seen in the drawings, between the central part of staples 10 and the interior walls of hood 8

3

are formed rectangular spaces filled with filiform elements 9 which are thus tightly pressed to the extent that those close to said interior walls are practically incrustated in them.

The construction of a broom according to this invention is very easy and simple as well as economic and fast. The extremes of "normally long" filiform elements (the extra long one are not needed any more) are bunched together around the lower extreme of tube 1, between the rings 2 and 3 and tied together by means of hoop 7. Then the upper ends are cut (using ring 4 as guide for the cutting knife) and cover 8 is placed and sewn on the zone indicated in FIG. 1 by means of wire staples 10. Then the lower end of filiform elements 9 is cut to level them off. All this can be performed in a fraction of the time used in the manufacture of the known brooms and does not need specialized men as in the case in the known brooms. Also there is no need for nails, wire, stuffings, etc. All this makes this invention very important and a great advance upon the known brooms and their manufacture.

Of course numerous modifications of details can be introduced in the method and broom described. Hoop 7, for example, instead of being a simple band of steel can be made of several bands or of one or several wires; the fins 6 could be more or less than the ones illustrated and of greater or smaller surface or inclination; the rings 2 to 5 could be more protruding or of different section than illustrated; the cover 8 could have another form, etc., all being within the scope of the invention.

What is claimed is:

1. Improvements in brooms of the type formed by a plurality of filiform elements bunched together at one end in which these elements are tied firmly against a handle besides being tied together at or close to their central part so as to give the broom as substantially trapezoidal form, characterized by the fact that in the central interior part of said end is placed a tubular handle holder having at least two annular external rings, one close to its lower end and the other at its central part, as well as a plurality of radial fins; on the exterior of the filiform elements being placed in said zone, a hoop, and the whole covered by a soft laminar material, having low elasticity, which extends from said hoop upwards, to the upper end of said handle holder and, downwards, a certain distance where one of its faces is pierced by metallic staples, the

4

central part of which goes through the bunch of filiform elements at right angles to them, whereas the ends are bent back against the opposite face of said cover of laminar material.

2. Improvement in broom, according to claim 1 characterized by the fact that on said tube are placed two additional rings, one in the central part and one in the upper part.

3. Improvement in brooms, according to claim 1, characterized by the fact that said radial fins are six and that they are all parallel to the main symmetry plane of the broom.

4. Improvement in brooms, according to claim 1 characterized by the fact, that said loop is at least one steel band with ends riveted together.

5. Improvement in brooms, according to claim 1 characterized by the fact, that said loop is at least one steel band with ends stapled together.

6. Improvement in brooms, according to claim 1 characterized by the fact, that said loop is at least one steel band with ends crimped together.

7. Improvement in brooms, according to claim 1 characterized by the fact, that said loop is at least one steel band with ends welded together.

8. Improvement in brooms, according to claim 1 characterized by the fact, that said loop is at least one wire with ends tied together.

9. Improvement in brooms, according to claim 1 characterized by the fact, that said staples are of steel wire.

References Cited

UNITED STATES PATENTS

674,899	5/1901	Bradt et al.	15—189
1,170,040	2/1916	Boeckh	15—189
1,315,194	9/1919	Yamamoto	15—171
1,764,876	6/1930	Lauber	15—175
2,070,448	2/1937	Nork	15—168
3,416,179	12/1968	Wiese	15—171

FOREIGN PATENTS

330,423 7/1958 Switzerland.

PETER FELDMAN, Primary Examiner

U.S. Cl. X.R.

15—175, 189