United States Patent

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[54] BROOM GUIDE

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[52] **U.S. Cl.** **15/171,** 15/189, 300/21

[51] **Int. Cl.** **A46b 15/00**

[58] **Field of Search** 15/159, 171, 172, 170, 168, 15/174, 175, 189; 300/21

[56] **References Cited**

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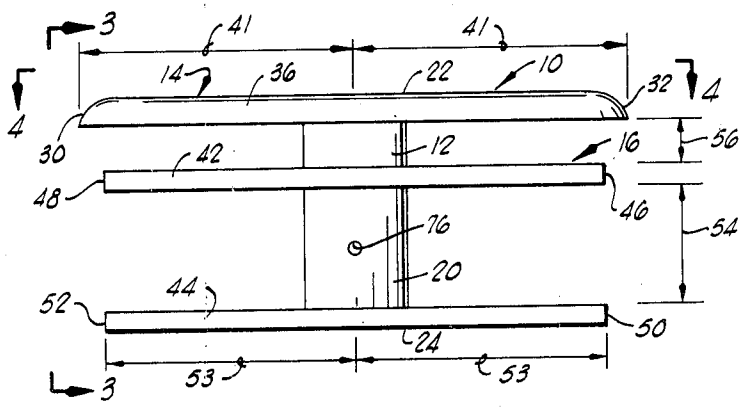
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[57] **ABSTRACT**

A broom guide adapted to facilitate the manufacture of broom assemblies, which includes a base adapted to be secured to a lower end portion of a broom handle. The base includes, a form guide, a first guide bar assembly, and a second guide bar assembly, all of which are secured to the base. The form guide is sized to provide the basic shape about which the final layer of broom corn is formed. The first and second guide bar assemblies are each shaped and disposed to provide a space there between, the space being to accommodate a predetermined amount of broom corn. The first and the second guide bar assemblies are also shaped to accommodate the wire banding, which is utilized to secure the broom corn disposed in the space between the first and the second guide bar assemblies to the broom handle.

16 Claims, 6 Drawing Figures



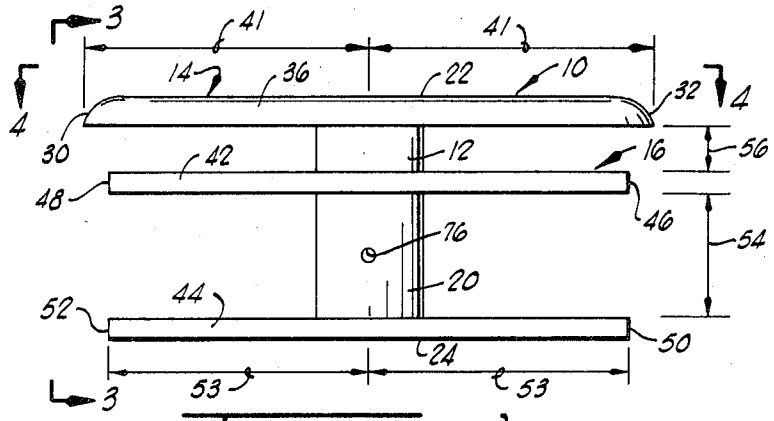


FIG. 1

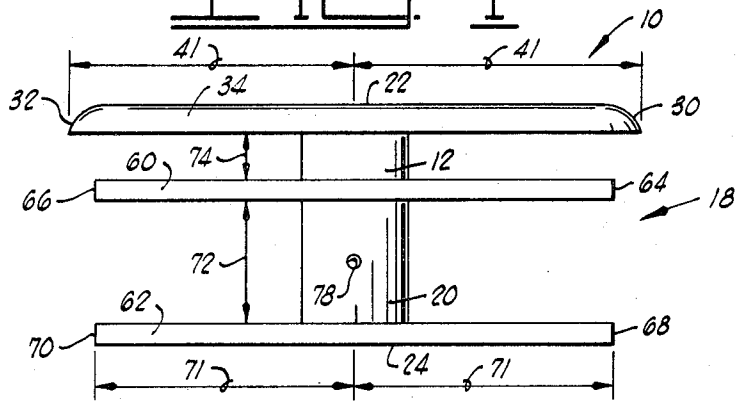


FIG. 2

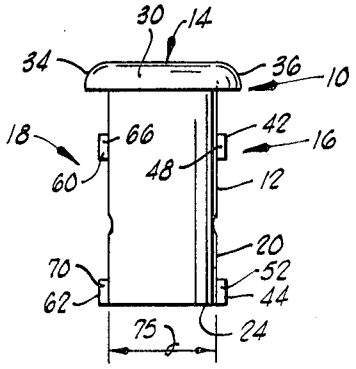


FIG. 3

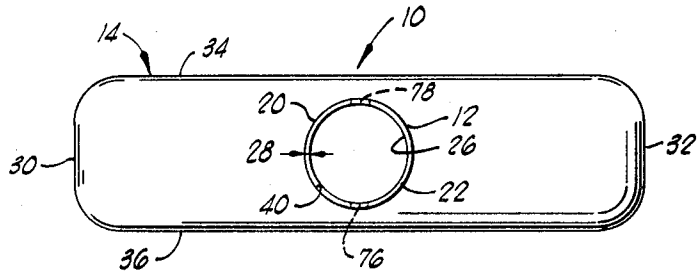


FIG. 4

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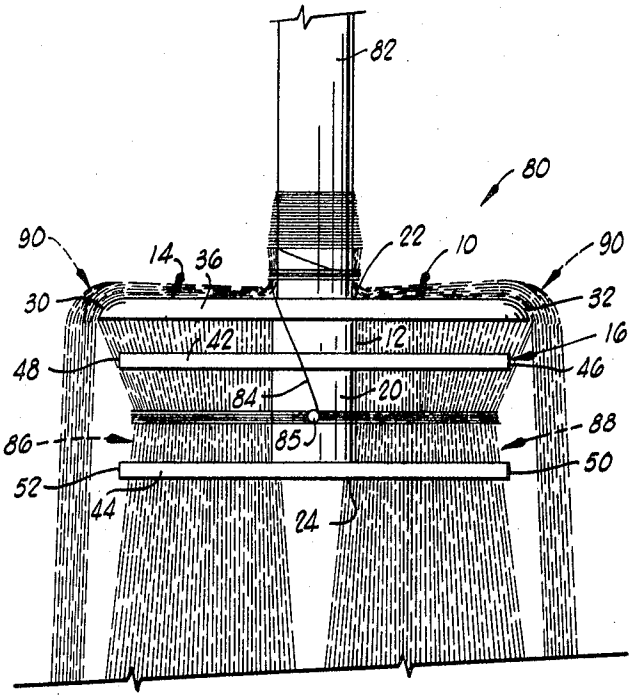


FIG. 5

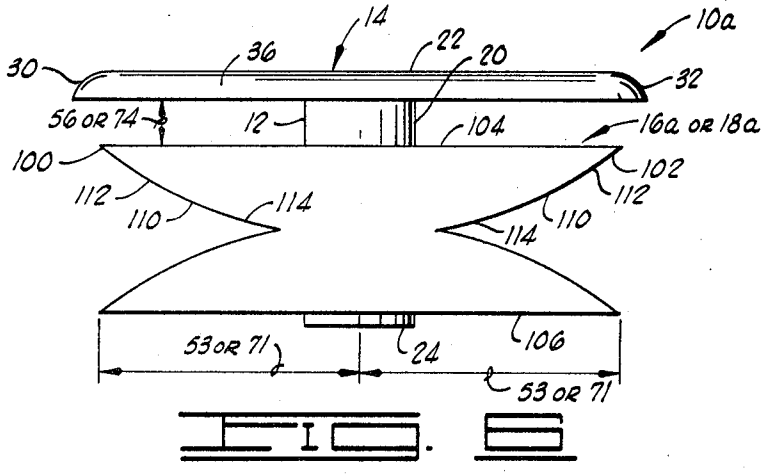


FIG. 6

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BROOM GUIDE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to improvements in a broom assembly and, more particularly, but not by way of limitation, to an improved broom guide adapted to facilitate the manufacture and to provide additional structural strength for broom assemblies.

2. Description of the Prior Art

Broom assemblies, utilizing broom corn, have been constructed basically the same for a number of years. Once the broom corn, having the proper length and consistency, was obtained, it was secured to the broom handle to form the completed broom assembly.

In the broom making industry today, the procedure of securing the broom corn to the broom handle involves the utilization of trained, skilled personnel, and basically begins with the operator securing the broom handle in a chuck, which is attached to a turning machine. A feeding machine is located in close proximity to the turning machine, and is adapted to supply banding wire, which is utilized to secure the broom corn to the broom handle.

The operator then takes a handful of insides and places them generally about the lower end of the broom handle. The term "insides" is utilized in the art to designate a particular quality of broom corn and, more particularly, broom corn of a minimum quality, which is utilized to form the inside portion of the completed broom assembly. The insides are then secured to the handle by rapping the wire about the insides a number of times. These particular insides, initially secured to the broom handle, are referred to in the art as "first-step-insides."

The operator then secures what is referred to in the art as "-second-step-insides" or "shoulders" to the broom handle. In securing the second-step-insides to the broom handle, the operator initially takes a handful of insides and places them on one side of the broom handle, or more specifically, places a first handful of second-step-insides on one side of the first-step-insides. This initial group of second-step-insides is then secured to the broom handle utilizing the wire banding as before. The operator then takes a second handful of insides and places them on the opposite side of the broom handle, and secures this second portion of the second-step-insides to the broom handle. It is apparent from the foregoing, that the second-step-insides actually consists of two portions of broom corn placed on opposite sides of the handle and secured thereto. This procedure is repeated a number of times until the second-step-insides constitute a predetermined width and shape.

The operator then takes a handful of broom corn of the type referred to in the art as "siding" or "short hurl," and places this siding about the first-step-insides and the second-step-insides. The siding is then secured to the broom handle. The siding or short hurl functions to cover the first-step-insides and the second-step-insides and is, therefore, utilized mainly for appearance and final shaping purposes. However, it should be noted, that the utilization of the siding or short hurl also permits the broom manufacturer to utilize the shorter broom corn, which otherwise might be disposed of in a less economical manner.

The operator then secures what is referred to in the art as "-turnovers" about each side of the broom assembly. The operator initially takes a handful of broom corn and places it on one side of the broom assembly, this broom corn being oriented to extend in an opposite direction with respect to the first-step-insides and second-step-insides. This initial portion or, in other words, the first turnover is then secured to the broom handle. The operator then takes a second handful of broom corn and secures it to the opposite side of the broom handle, this second turnover also being oriented to extend in an opposite direction with respect to the first-step-insides and second-step-insides. The second turnover is then secured to the broom handle. The first and the second turnovers are then folded-over or inverted, such that the turnovers extend in the same direction as the first-step-insides and the second-step-insides. A temporary leather strap is generally secured about the turnovers to hold them in position during the remaining operations.

The first-step-insides and the second-step-insides are then cut by hand to form or shape the upper portion of the broom corn and to cooperate with the first and the second turnovers in providing the basic shape for the completed broom assembly.

The operator then applies the finish material to the broom. The finish generally consists of placing an "inside hurl" about the lower portion of the broom, which has been formed by the first-step-insides, the second-step-insides and the turnovers. This inside hurl is of a higher quality broom corn, and is utilized to cover or fill in gaps in the completed broom assembly resulting from the forming of the turnovers, or the uneven displacement of the broom corn, resulting from operator error or inexperience in performing the operational steps generally described above. This inside hurl is then secured about the broom handle.

As a general rule, an "outside hurl" is also provided in the final broom assembly. To secure the outside hurl, the operator again takes a handful of broom corn and places it about the broom and secures it to the handle. The outside hurl, similar to the inside hurl, is also provided to cover spacing gaps resulting from the turnovers or the improper disposition of the inner broom corn about the broom handle and is generally of a higher quality broom corn.

The "girt" of the broom is then formed. The girt of the broom generally consists of wrapping the wire banding about the broom handle, generally at a point near the connection of the broom corn to the broom handle. The wire is then broken off and secured to the broom handle.

It is apparent from the foregoing, that the steps involved in the manufacture of broom assemblies have, in the past, required skilled operators. The operator was required at each step to make an independent judgement as to the amount of broom corn which he would utilize. The quality of the completed broom assembly therefore depended to a large extent upon the particular operator's skill. The amount of broom corn picked up by the operator to form the turnovers determines to a great extent the width of the broom and, of course, the amount of broom corn utilized for the first-step-insides, the second-step-insides and the turnovers generally determines the quality and consistency of the final broom assembly.

Since the general appearance of the final broom assembly is determined by the finish consisting of the inside hurl and the outside hurl, the amount of broom corn utilized in this particular step of the operation determined to a large extent the marketability of the completed broom assembly. Again, this step was largely dependent upon the individual operator's skill.

It might also be noted that the cost of the raw product, that is the broom corn utilized by the operator to complete each broom assembly, of course, determines to a large extent the profit. An operator by utilizing an excessive amount of finish material, that is inside and outside hurl, will raise the manufacturing cost per broom assembly appreciably. The consideration of raw material cost, of course, exists at each step in the manufacture of the broom assembly. As generally indicated above, each step in the manufacture of broom assemblies required operator skill and judgement.

The consumer demand for brooms utilizing broom corn has consistently increased in the past number of years. The consumer has also generally required that the cost-per-broom be maintained at a relatively low level. Due largely to the increased cost of skilled personnel, the increased cost of the raw product, and the availability of broom assemblies of foreign manufacturers, the low cost per broom demand has been increasingly difficult to maintain.

SUMMARY OF THE INVENTION

An object of the invention is to increase the efficiency of manufacturing broom assemblies.

Another object of the invention is to reduce the cost of material utilized in broom assemblies.

A further object of the invention is to provide a broom assembly having an increased structural strength.

Still further object of the invention is to reduce the operator skill and independent judgement required in the manufacturing of broom assemblies.

A yet further object of the invention is to provide broom assemblies having a more uniform, predetermined quality consistency.

Another object of the invention is to provide a broom guide which can be effectively utilized to reduce the cost of manufacturing broom assemblies, without the necessity of substantially altering the present machinery utilized in the broom manufacturing industry.

One additional object of the invention is to provide a broom assembly which is economical in construction and operation.

Another object of the invention is to provide a broom guide which is economical in construction and operation.

Other objects and advantages of the invention will be evident from the following detailed description when read in conjunction with the accompanying drawings which illustrate the various embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a broom guide, constructed in accordance with the invention.

FIG. 2 is a view similar to FIG. 1, but showing a side elevational view of the broom guide, opposite the side of the broom guide shown in FIG. 1.

FIG. 3 is a view of the broom guide of FIG. 1, taken substantially along the lines 3—3 of FIG. 1.

FIG. 4 is a view of the broom guide of FIG. 1, taken substantially along the lines 4—4 of FIG. 1.

FIG. 5 is a side elevational view of the broom guide of FIG. 1, but showing the broom guide secured in position on a broom handle, and partially showing the placement of some of the broom corn about the broom guide.

FIG. 6 is a view similar to FIG. 1, but showing a modified broom guide.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings in general, and to FIGS. 1, 2, 3 and 4, in particular, shown therein and designated by the general reference character 10, is a broom guide, basically comprising: a base 12, having a form guide 14 secured to one end thereof; a first guide bar assembly 16 secured to one side thereof; and a second guide bar assembly 18 secured to a side of the base 12, generally opposite the first guide bar assembly 16. The broom guide 10 as generally described above, is particularly adapted to facilitate the manufacture of broom assemblies and to add structural strength to the completed broom assembly, in a manner which will be more fully described below.

In a preferred form and as shown in FIGS. 1 through 5, the base 12 of the broom guide 10 is generally cylindrically shaped, having an outer surface 20 and opposite ends 22 and 24. As shown more clearly in FIG. 4, an aperture 26 extends axially through the base 12 intersecting the opposite ends, 22 and 24, thereof. The aperture 26 is sized and shaped to receive a portion of the broom handle, in a manner which will be more fully described below.

As shown more clearly in FIG. 4, the base 12 has a radial thickness 28, which is defined as the radial distance between the inner surface formed by the aperture 26 and the outer surface 20 of the base 12. In a preferred form, the radial thickness 28 of the base 12 is sized to cooperate with the first guide bar assembly 16 and the second guide bar assembly 18 to define the amount of inside broom corn to be utilized in the broom assembly, in a manner which will be made more apparent below.

In another form, the base 12 may be rectangularly shaped, thereby providing additional surface area for the securing of the first guide bar assembly 16 and the second guide bar assembly 18 to the base 12. As will become apparent below, a base having a generally rectangular shape may pose certain difficulties in wrapping the wire banding about the base 12, during the manufacture of the broom assembly. Considering the structural strength of the broom guide 10 and the utilization of the broom guide 10 in the manufacture of broom assemblies, it has been found that the generally cylindrically shaped broom guide 12 is a preferrable construction.

The form guide 14 is shaped and disposed to provide a basic form for the shaping of a portion of the broom corn in the final broom assembly, in the manner which will be made apparent below. In a preferred form and as shown in FIGS. 1 through 5, the form guide 14 is generally rectangularly shaped, having opposite end portions 30 and 32 and opposite side portions 34 and 36 extending generally between the opposite end portions 30 and 32 of the form guide 14.

As shown more clearly in FIG. 4 an aperture 40 is formed through a central portion of the form guide 14, generally between the opposite ends 30 and 32 thereof. The aperture 40 is sized to receive a portion of the base 12 which extends a distance therein. As shown in FIGS. 1 through 5, the base 12 is inserted in the aperture 40 of the form guide 14, and the form guide 14 is secured to the base 12, generally adjacent to the end 22 of the base 12.

As shown more clearly in FIGS. 1 and 4, the form guide 14 is secured to the base 12 such that each end 30 and 32 extends a radial distance 41 from the base 12 in a generally opposing direction with respect to the other end 30 or 32. In a preferred from the form guide 14 is secured to the base 12 such that the radial distances 41 are approximately equal.

As shown more clearly in FIGS. 1, 2 and 3, the opposite end portions, 30 and 32, and the opposite side portions 34 and 36, of the form guide 14 are formed on a curvature, thereby eliminating sharp edges. The purpose of forming the edges of the form guide 14 on a curvature is to reduce the possibility of the form guide 14 cutting through the broom corn disposed adjacent thereto, in the final broom assembly, as will be made more apparent below.

The first guide bar assembly 16 basically includes, a pair of first elongated guide bars, 42 and 44, each of the guide bars 42 and 44 being generally rectangularly shaped. The first guide bar 42 has opposite ends 46 and 48, and the first guide bar 44 has opposite ends 50 and 52.

As shown more clearly in FIG. 1, each guide bar 42 and 44, is secured to the base 12, generally near a central portion of each of the first guide bars 42 and 44. In a preferred form, the guide bars 42 and 44 lie in parallel planes, and each guide bar 42 and 44 is secured to the base 12, such that each end of the respective first guide bar extends a distance 53 from the base 12.

As shown more clearly in FIGS. 1 and 2, the first guide bar 42 is axially spaced from the first guide bar 44 a distance 54. The axial spacing 54 is sized to accommodate a portion of the wire banding and to provide additional structural strength for the completed broom assembly, in a manner to be made more apparent below. The first guide bar 42 is also disposed on the base 12 such that the first guide bar 42 is axially spaced a distance 56 from the form guide 14. The axial spacing between the first guide bar 42 and the from guide 14 is sized such that a predetermined amount of broom corn extends between the form guide 14 and the wire banding, for reasons which will be made more apparent below.

As shown more clearly in FIG. 2, the second guide bar assembly 18 basically includes, a pair of second elongated guide bars 60 and 62, each of the guide bars 60 and 62 being generally rectangularly shaped. The second guide bar 60 has opposite ends 64 and 66, and the second guide bar 62 has opposite ends 68 and 70.

Each guide bar **60** and **62** is secured to the base **12** generally near a central portion of the respective guide bar. In a preferred form, the guide bars **60** and **62**, lie in parallel planes, and each guide bar **60** and **62** is secured to the base **12** such that the end of each second guide bar **60** or **62** extends a distance **71** from the base **12**. In a preferred form as indicated in FIGS. **1** and **2**, the radial distances **71** are approximately equal to the radial distances **53**.

As shown more clearly in FIGS. **2** and **3**, the second guide bar **60** is axially spaced from the second guide bar **62** a distance **72**. The axial spacing **72** is sized to accommodate a portion of the wire banding and to provide additional structural strength for the completed broom assembly, in a manner to be made more apparent below. The second guide bar **60** is also disposed on the base **74** such that the second guide bar **60** is axially spaced a distance **74** from the form guide **14**. The axial spacing between the second guide bar **60** and the form guide **14** is sized such that a predetermined amount of broom corn extends between the form guide **14** and the wire banding, as will be made more apparent below.

In a preferred form as shown more clearly in FIGS. **2** and **3**, the second guide bar **60** is disposed on the base **12** such that the second guide bar **60** lies generally in the same plane as the first guide bar **42**. The second guide bar **62** is disposed on the base **12** such that the second guide bar **62** lies generally in the same plane as the first guide bar **44**. Therefore, in a preferred form, the axial spacing **54** is approximately equal to the axial spacing **72**, and the axial spacing **56** is approximately equal to the axial spacing **74**.

The first guide bars **42** and **44** are disposed on the base **12** such that the first guide bars **42** and **44** extend generally parallel to the second guide bars **60** and **62**. The second guide bars **60** and **62** are radially spaced from the first guide bars **42** and **44** a distance **75**. It is apparent from the foregoing, that the radial distance **75** is determined to a large extent by the diameter by the base **12**. It should also be noted, however, that the radial distance **75** may be increased or decreased, by increasing or decreasing the radial thickness **28** of the base **12**, for reasons which will become apparent below. The space between the first guide bar assembly **16** and the second guide bar assembly **18**, partly defined by the radial distance **75** therebetween, is shaped to accomodate a predetermined amount of broom corn, in a manner to be more fully described below.

As shown more clearly in FIGS. **1** and **4**, a pair of apertures **76** and **78** are formed through a portion of the base **12**. The apertures **76** and **78**, in a preferred form, are radially aligned and are generally disposed between the first guide bar **42** and the first guide bar **44**. Each aperture **76** and **78** is sized to accomodate a portion of the wire banding, and each aperture **76** and **78** is disposed to cooperate with a broom handle so that the broom guide **10** is secured in a predetermined location on the broom handle, during the manufacture of the broom assembly, as will be described in greater detail below.

OPERATION OF FIGS. **1** THROUGH **5**

As mentioned before, the broom guide **10** is particularly adapted to facilitate the manufacture of broom assemblies and to provide additional structural strength for the completed broom assembly. A portion of a completed broom assembly **80** utilizing the broom guide **10** is shown in FIG. **5**.

In manufacture of the broom assembly **80**, a broom handle **82** is formed in the usual manner, and is provided with an aperture (not shown) extending therethrough, generally adjacent one end portion thereof. The aperture through the broom handle is disposed to cooperate with the apertures **76** and **78** of the broom guide **10**, to locate the broom guide **10** on the broom handle **82**.

The broom guide **10** is particularly adapted to be utilized in manufacture of broom assemblies, such that the machinery presently available in the broom making industry can be utilized without substantial changes thereto. To manufacture the broom assembly **80**, the operator initially positions the broom handle **82** in a chuck of a turning machine.

The operator then places the broom guide **10** on one end of the broom handle **80**, such that the apertures **76** and **78** through the base **12** are aligned with the aperature through the broom handle, which is generally adjacent or near the end of the broom handle **82**. One end of a wire banding **84** (a portion of the wire banding **84** being shown in FIG. **5**) from a wire dispensing machine is inserted through the apertures **76** and **78** of the broom guide **10**, and through the aligned aperture of the broom handle **82**. The broom handle **82** is then rotated a number of times by the turning machine, thereby wrapping a portion of the wire banding **84** about the outer surface **20** of the base **12**, generally adjacent the apertures **76** and **78**.

After a predetermined number of turns of the wire **84** have been wrapped about the base **12**, in the manner as generally described above, the end of the wire banding is twisted and a final wrap is made, thereby securing this portion of the wire banding **84** in place. This method of securing the wire banding **84** is well known in the art and no further description is required herein.

The initial wrap of the wire **84** about the broom guide **10**, as described above, secures the broom guide **10** to the broom handle **82**. It should also be noted that, in a preferred form, subsequent to the initial wrapping of the wire **84** about the broom guide **10**, a nail **85** or other such means may be driven through one of the apertures **76** or **78** to provide additional structural integrity between the broom guide **10** and the handle **82**, and to further secure the initial portion of the wire banding **84** in place prior to subsequent operations, as will be described below.

The operator will then place a first portion of insides, as diagramatically shown in FIG. **5** and designated by the general reference **86**, generally between the first guide bar assembly **16** and the second guide bar assembly **18**. As shown in FIG. **5** the upper ends of the first insides **86** are placed generally adjacent the form guide **14**. The amount of broom corn utilized to form the first inside **86** is determined by the radial distance **75** between the first guide bar assembly **16** and the second guide bar assembly **18** and the radial distance **53** or **71**. The first guide bar assembly **16** and the second guide bar **18** therefore cooperate to determine the amount of broom corn utilized to form the first insides **86**, and to provide a visual gauge indicating to the operator the correct amount of broom corn to be utilized in the forming of the first insides **86**.

After the first insides **86** are positioned in the broom guide **10**, as described above, the broom handle **82** is rotated, thereby wrapping a portion of the wire banding **84** about the first insides **86**. As shown in FIG. **5**, the first insides **86** are secured to the broom handle **82** by a portion of the wire banding **84**, which is disposed generally between the first guide bars **42** and **44** and between the second guide bars **60** and **62**. Particularly in larger sizes of broom assemblies, it may be desirable to build up the first inside **86** in stages, securing each stage to the broom handle **82**, thereby providing additional securing support for the first insides **86**. In either event, however, the total amount of broom corn utilized to form the first insides **86** is gaugingly determined by the broom guide **10**.

After securing the first insides **86** to the broom handle **82**, the operator will then place a predetermined amount of broom corn, generally between the first guide assembly **16** and the second guide bar assembly, on a side of the broom handle, opposite the location of the first insides **86**. This second portion of broom corn, designated by the reference **88**, is shown diagramatically in FIG. **5** and is referred to below as the second insides **88**.

As shown in FIG. **5**, the upper ends of the second insides **88** are also disposed generally adjacent the form guide **14**. The second insides **88** are secured to the broom handle **82** by a portion of the wire banding **84**, in a manner similar to that described before with respect to the first insides **86**. It is apparent from the foregoing that the broom guide **10** also gaugingly determines the amount of broom corn to be utilized by the operator in forming the second insides **88**, in a manner similar to that described before with respect to the first insides **86**.

It is apparent from FIG. 5, that the axial spacing 54 between the first guide bars 42 and 44 and the axial spacing 72 between the second guide bars 60 and 62, not only provides support for the first insides 86 and the second insides 88, thereby tending to reduce the amount of movement of the first insides 86 and the second insides 88, but also the axial distances 54 and 72 are sufficiently large to accomodate the portion of the wire banding 84 wrapped about the first insides 86 and the second insides 88 in such a manner as to compensate for predetermined changes in axial disposition of the wire banding 84. Although wire feeding machines generally feed the wire in such a manner as to maintain the axial disposition of the wire banding with respect to the handle 82, it has been found that certain changes in the axial disposition of the wire banding from the wire feeding machine inevitably occur, and thus the broom guide 10 is shaped to compensate for such changes, in a manner requiring a minimum amount of operator attention.

After the first insides 86 and the second insides 88 are secured to the broom handle 82, the wire 84 is wrapped about the head portion of the nail 85 turned upwardly and wrapped about a portion of the handle 82 generally adjacent the form guide 14, thereby positioning the wire banding 84 for subsequent operations in the manufacture of the broom assembly 80. The operator will then form the hurl or the outside cover of the broom assembly 80, which is partially shown in FIG. 5 and designated by the general reference 90.

To form the hurl 90, the operator will position a portion of broom corn about the handle 82, such that one end thereof extends a distance above the form guide 14, generally adjacent the handle 82. This initial portion of hurl is then secured to the handle 82 by wrapping a portion of the wire banding 84 thereabout. This procedure is repeated a number of times until the complete hurl 90 is formed about the broom assembly 80. The form guide 14 is shaped to indicate to the operator the amount of broom corn to be utilized in forming the hurl 90, and is also shaped to provide the basic form about which the outside cover or hurl 90 is formed.

After securing the outside hurl 90 to the broom handle 82, as described above, the operator forms the outside hurl about the form guide 14, and in a downwardly direction, generally parallel to the first insides 86 and the second insides 88. After the hurl 90 has been formed about the broom guide 14, the hurl 90 is then secured in position.

The operator then forms the girt of the broom assembly 80, in a manner similar to that presently utilized in the broom manufacturing art. The wire is then broken and secured to the broom handle 82.

As shown in FIG. 5, the axial distances 56 and 74 generally determine the length of broom corn extending between the wire banding 84 and the form guide 14 of the first and the second insides 86 and 88. This additional length of broom corn above the wire banding 84 cooperates with the broom guide 10 to reduce the possibility of movement of the broom corn utilized to form the first insides and the second insides 86 and 88, during the operation of the completed broom assembly. It will be apparent to those skilled in the art that this additional length of broom corn above the wire banding 84 also increases the sweeping power of the completed broom assembly 80.

EMBODIMENT OF FIG. 6

Shown in FIG. 6, and designated by the general reference 10*a*, is a modified broom guide constructed similarly to the broom guide 10 shown in FIGS. 1 through 5. The salient difference between the broom guide 10*a* and the broom guide 10, described before, is that the broom guide 10*a* has a modified first guide bar assembly 16*a* and a modified second guide bar assembly 18*a*. In a preferred form, the first and the second guide bar assemblies 16*a* and 18*a* are constructed similar, as indicated in FIG. 6.

Each guide bar assembly 16*a* and 18*a* is generally rectangularly shaped, and has opposite end portions 100 and 102 and opposite side portions 104 and 106. A notch 100 is formed in a portion of each end 100 and 102 of each guide bar assembly 16*a* and 18*a*.

Each notch 110 extends a distance in each guide bar assembly 16*a* and 18*a* generally toward the base 12 of the broom guide 10*a*. As shown in FIG. 6, each notch 110 is taperingly shaped such that the portion thereof, generally adjacent the end portion 100 or 102 is generally larger than the portion thereof generally near the base 12 of the broom guide 10*a*. Each notch 110 is sized to accomodate the wire banding in a manner similar to the axial distances 54 and 72 of the broom guide 10. The tapering shape of each notch 110 is particularly adapted to compensate for predetermined changes in the axial disposition of the wire banding from the wire feeding machine, as described before, thereby reducing the operator attention required during the banding operation.

The shape of the first and the second guide bar assemblies 16*a* and 18*a* is particularly adapted to provide additional structural strength for the first and the second guide bar assemblies 16*a* and 18*a* generally near the base 12 of the broom guide 10*a*. This additional structural strength provided by the first and the second guide bar assemblies 16*a* and 18*a* may be particularly desirable in those instances where the broom guide 10*a* is constructed as a unitary assembly utilizing such materials as reinforced plastics.

OPERATION OF FIG. 6

The broom guide assembly 10*a* will operate substantially the same as the broom guide assembly 10, described before. The broom guide assembly 10*a* is adapted to be utilized as a gauge and a form during the manufacture of the completed broom assembly, and to provide additional structural strength for the completed broom assembly, in a manner similar to the broom guide 10.

It is apparent from the foregoing that the broom guides, described above, not only provide a gauge whereby the operator may easily determine the required amount of broom corn to be utilized to form the insides or the hurl of the completed broom assembly, but also the utilization of the broom guides eliminates various steps presently required in the manufacture of completed broom assemblies. For example, the utilization of the broom guides eliminates the steps of providing turnovers, siding or short hurl, and the first step insides , and the broom guides, therefore, reduce the total operational steps required to form the completed broom assembly, thereby decreasing the cost and the time required to manufacture a completed broom assembly.

The gauging aspect of the broom guides provides a visual indication, whereby the operator may easily and quickly determine the amount of broom corn to be utilized at the various stages of manufacture. This substantially reduces the amount of operator skill and independent judgement presently required in the broom manufacturing art. In this manner, the broom manufacture will be able to effectually utilize unskilled personnel and substantially reduce the training time presently required.

The reduction in the independent operator judgement required will result in a shorter manufacturing time per broom, and in broom assemblies having a greater quality consistency. It should also be noted that since the amount of broom corn to be utilized is effectually gauged by the broom guides, the utilization of broom guides will substantially reduce the amount of excess or wasted raw material which an operator may presently incorporate in a complete broom assembly.

It should also be noted that although the broom guides have been described herein as being utilized in the manufacture of broom assemblies using broom corn, the guides may also be effectually utilized in broom assemblies using a synthetic broom corn or other such material. Therefore, it should be specifically noted that the term "broom corn" as used in this specification is not limited to a particular type raw material, but rather is used merely for identification purposes.

It should also be noted that the utilization of the broom guides described above eliminates the cutting or hand-shaping of the shoulders presently required in the manufacture of most broom assemblies, which is not only a time consuming opera-

tion but also an operation requiring a high degree of operator skill.

The broom guides may, in some instances, permit the utilization of a shorter broom corn in the broom assemblies, which will also result in a substantial savings in raw material costs.

Changes may be made in the construction and the arrangement of the parts or elements of the various embodiments as disclosed herein without departing from the spirit and scope of the invention as defined in the following claims.

What is claimed is:

1. A broom guide, adapted to facilitate the manufacture of broom assemblies having a broom handle, broom corn secured to one end portion of the broom handle and a wire banding securedly affixed about a portion of the broom corn, the broom guide comprising:

a base having an outer surface, opposite ends, and an aperture axially extending therethrough intersecting the opposite ends thereof, the aperture being sized and shaped to receive a portion of the broom handle;

a first guide bar means, having opposite end portions, and being secured to a portion of the base such that each end portion thereof extends a distance from the base in a generally radial direction therefrom and in a generally opposing direction with respect to the other opposite end portion, a portion of the first guide bar means being shaped to accomodate a portion of the wire banding;

a second guide bar means, having opposite end portions, and being secured to a portion of the base such that each end portion thereof extends a distance from the base in a generally radial direction therefrom and in an opposing direction with respect to the other end portion, a portion of the second guide bar means being shaped to accomodate a portion of the wire banding, the second guide bar means being radially spaced from the first guide bar means and being disposed such that the space between the second guide bar means and the first guide bar means is shaped to accomodate a predetermined amount of broom corn; and form guide means connected to one of the opposite end portions of the base engaging a portion of the broom corn.

2. The broom guide of claim 1 wherein the base is further defined as being cylindrically shaped and having a radial thickness, the base being sized to cooperate with the first guide bar means and the second guide bar means to define the space therebetween, thereby cooperating to define the amount of broom corn to be disposed in the space.

3. The broom guide of claim 1 wherein the four guide means is shaped and disposed to provide a form for shaping a portion of the broom corn of the broom assembly.

4. The broom guide of claim 3 wherein the form guide means is further defined as being generally rectangularly shaped, having opposite end portions and opposite side portions extending generally between the opposite end portions, the form guide means being secured to the base such that each end portion thereof extends a distance from the base in a generally radially direction therefrom, and in a generally opposing direction with respect to the other end portion of the form guide means.

5. The broom guide of claim 4 wherein the opposite end portions and the opposite side portions of the form guide means are further defined as being curved, thereby eliminating sharp edges and reducing the possibility of the form guide means cutting through the adjacent broom corn during the operation of the broom assembly.

6. The broom guide of claim 4 wherein the form guide means is further defined as being secured to the base, generally adjacent one end thereof.

7. The broom guide of claim 1 wherein the first guide bar means is defined further to include:

a pair of first elongated guide bars, each first guide bar being secured to the base generally near a central portion thereof, and wherein the second guide bar means is defined further to to include:

a pair of second elongated guide bars, each second guide bar being secured to the base generally near a central portion thereof.

8. The broom guide of claim 7 wherein one of the first guide bars is axially spaced from the other first guide bar with respect to the base, the axial spacing between the first guide bars being shaped to accomodate a portion of the wire banding and to provide additional structural strength for the broom assembly; and wherein one of the second guide bars is axially spaced from the other second guide bar with respect to the base, the axial spacing between the second guide bars being shaped to accomodate a portion of the wire banding and to provide additional structural strength for the completed broom assembly.

9. The broom guide of claim 8 wherein the axial spacing between the first guide bars and the axial spacing between the second guide bars are each defined further as being of a sufficient distance to compensate for predetermined changes in the axial disposition of the wire banding.

10. The broom guide of claim 1 wherein the first guide bar means and the second guide bar means are each defined further as being axially spaced a distance from the form guide means, the axial spacing between the first guide bar means, the second guide bar means and the form guide means being sized such that a predetermined amount of broom corn extends between the form means and the wire banding disposed about the first and the second guide bar means, thereby increasing the sweeping power of the broom and tending to reduce the movement of the broom corn in the space between the first and the second guide bar means.

11. The broom guide of claim 1 wherein the first guide bar means is further defined as being generally rectangularly shaped, having opposite end portions and opposite side portions, a notch being formed in each end portion of the first guide bar means, each notch extending a distance therein generally toward the base, each notch being tapered such that a portion thereof generally adjacent the end portion of the first guide bar means is larger than the portion thereof generally near the base; and wherein the second guide bar means is further defined as being generally rectangularly shaped, having opposite end portions and opposite side portions, a notch being formed in each end portion of the second guide bar means, each notch extending a distance therein generally toward the base, and each notch being tapered such that the portion thereof generally adjacent the end portion of the second guide bar means is larger than the portion thereof generally near the base.

12. A broom assembly utilizing broom corn, and a wire banding, comprising:

a broom handle, having opposite ends;

a broom guide secured to the broom handle generally adjacent one end portion thereof, the broom guide, comprising:

a base having an outer surface, opposite ends, and an aperture axially extending therethrough intersecting the opposite ends thereof, the aperture being sized and shaped to receive a portion of the broom handle;

means to secure the base to the broom handle;

a first guide bar means, having opposite end portions, and being secured to a portion of the base such that each end portion of the first guide bar means extends a distance from the base in a generally radially direction therefrom, and in a generally opposing direction with respect to the other end portion of the first guide bar means, a portion of the first guide bar means being shaped to accomodate a portion of the wire banding;

a second guide bar means, having opposite end portions and being secured to a portion of the base such that each end portion of the second guide bar means extends a distance from the base in a generally radially direction therefrom and in an opposing direction with respect to the other end portion of the second guide bar means, a portion of the second guide bar means being shaped to accomodate a portion of the wire banding,

the second guide bar means being radially spaced, with respect to the base, from the first guide bar means and being disposed such that the space between the second guide bar means and the first guide bar means is shaped to accomodate a predetermined amount of broom corn; form guide means connected to one of the opposite end portions of the base engaging a portion of the broom corn;

an inner portion of broom corn disposed in the space between the first guide bar means and the second guide bar means, the inner portion of broom corn being secured therein by a portion of the wire banding; and

an outer portion of broom corn disposed and secured about the form guide means, one end portion of the outer portion of broom corn extending beyond the form guide means and being disposed about the broom handle and secured thereto by a portion of the wire banding.

13. The broom assembly of claim **12** wherein the form guide means is shaped and disposed to provide a form for shaping a portion of the broom corn of the broom assembly.

14. The broom assembly of claim **12** wherein the first guide bar means is defined further to include:

a pair of first elongated guide bars, each first guide bar being secured to the base generally near a central portion thereof, and wherein the second guide bar means is defined further to include:

a pair of second elongated guide bars, each second guide bar being secured to the base generally near a central portion thereof.

15. The broom assembly of claim **12** wherein the first guide bar means and the second guide bar means are each defined further as being axially spaced, with respect to the base, a distance from the form guide means, the axial spacing between the first guide bar means, the second guide bar means and the form guide means being sized such that a predetermined amount of broom corn extends between the form guide means and the wire banding disposed about the first and the second guide bar means, thereby increasing the sweeping power of the broom and tending to reduce the movement of the broom corn in the space between the first and the second guide bar means.

16. The broom assembly of claim **12** wherein the first guide bar means is further defined as being generally rectangularly shaped, having opposite end portions and opposite side portions, a notch being formed in each end portion of the first guide bar means, each notch extending a distance therein generally toward the base, each notch being tapered such that a portion thereof generally adjacent the end portion of the first guide bar means is larger than the portion thereof generally near the base; and wherein the second guide bar means is further defined as being generally rectangularly shaped, having opposite end portions and opposite side portions, a notch being formed in each end portion of the second guide bar means, each notch extending a distance therein generally toward the base, and each notch being tapered such that the portion thereof generally adjacent the end portion of the second guide bar means is larger than the portion thereof generally near the base.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,651,531 **Dated** March 28, 1972

Inventor(s) Bill J. Wietelman

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

In Column 9, line 49, "four" should be --form--.

Signed and sealed this 11th day of July 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents