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Brennan

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[54] **PACKING BRACE FOR A WASHING MACHINE**

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[52] **U.S. Cl.** **206/320;** 206/498; 206/523

[51] **Int. Cl.²** **B65D 81/06;** B65D 85/00

[58] **Field of Search** ..... 206/320, 437, 498, .83, 206/523, 3; 217/53; 229/14 C

[56] **References Cited**

UNITED STATES PATENTS

2,012,535	8/1935	Herrold	206/437
2,727,738	12/1955	Lindley	217/53
3,057,459	10/1962	Burdick	206/.83
3,292,778	12/1966	Enderle	217/53
3,620,365	11/1971	Elwell	206/320
3,812,959	5/1974	Brennan	206/320

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Attorney, Agent, or Firm—Hill, Gross, Simpson, Van Santen, Steadman, Chiara & Simpson

[57] **ABSTRACT**

A packing brace for a washing machine is made selectively adaptable for use in washing machines having either thick or thin center post agitators. A recess is provided inwardly of a wall adapted to engage an adjoining center post agitator so that the wall may be yieldably displaced into the recess. One or more frangible sections are also located between the recess and the adjoining outside portions of the brace so that the adjoining outside portions of the brace may be selectively broken away to foreshorten the brace.

6 Claims, 9 Drawing Figures

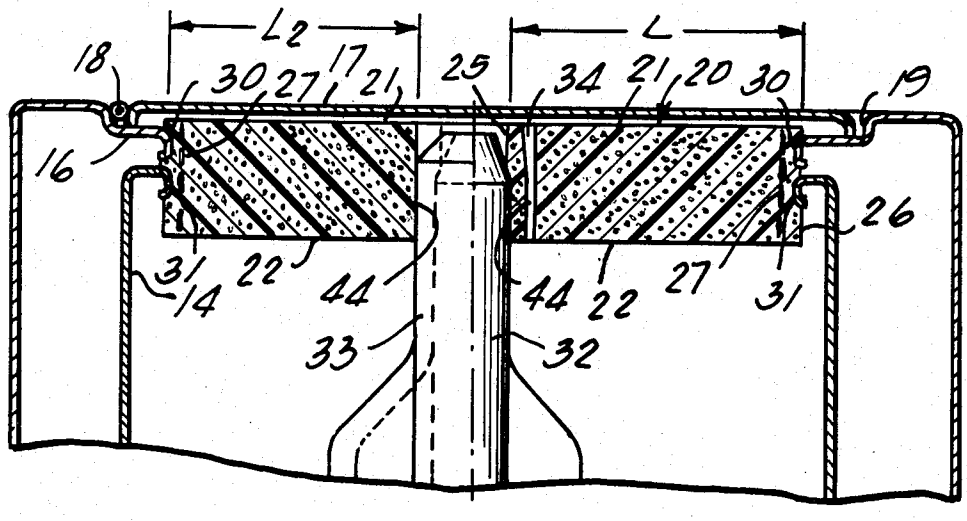
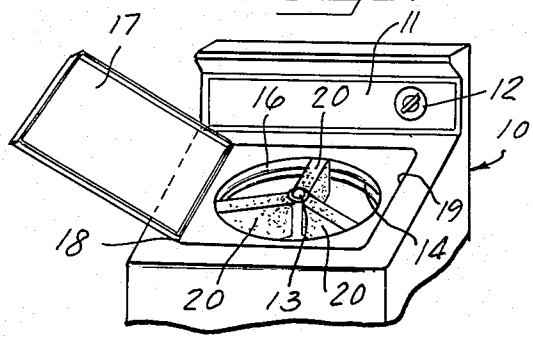


Fig. 1



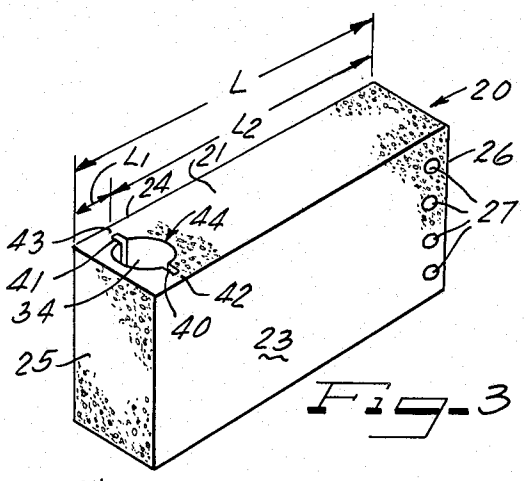


Fig. 3

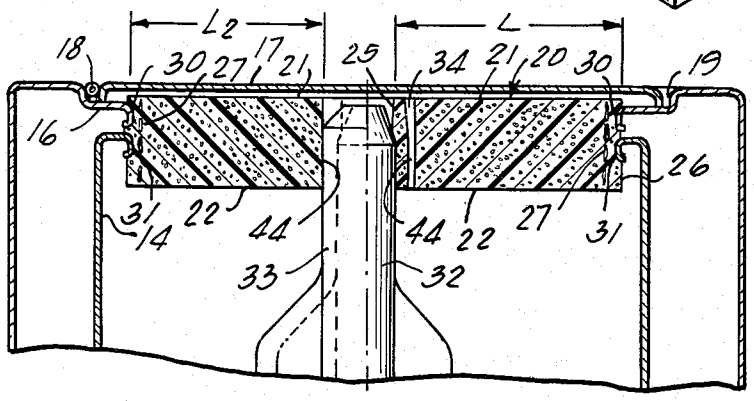


Fig. 2

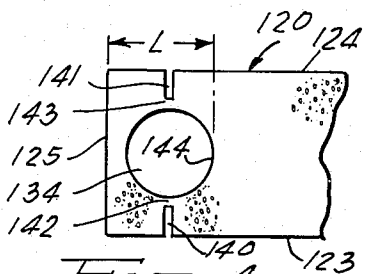


Fig. 4

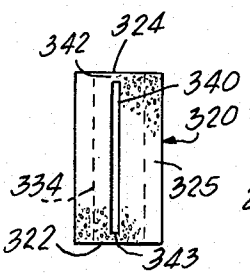


Fig. 9

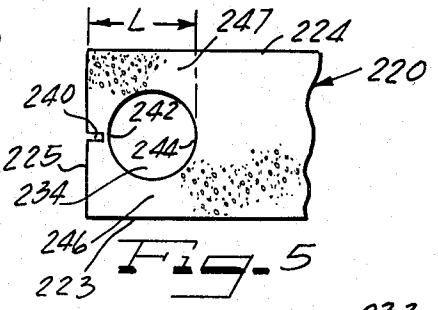


Fig. 5

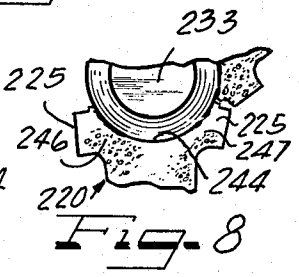


Fig. 8

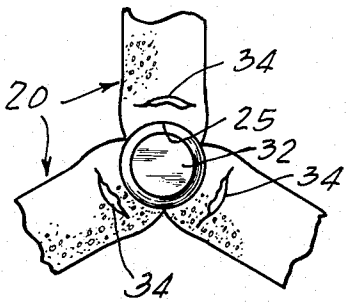


Fig. 6

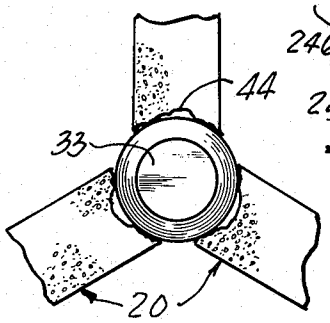


Fig. 7

PACKING BRACE FOR A WASHING MACHINE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to packing braces utilized for bracing the parts of automatic vertical washing machines during transit.

2. The Prior Art

The prior art is exemplified by my prior application Ser. No. 294,025 filed Oct. 2, 1972 and now U.S. Pat. No. 3,812,959 and by prior application of Joseph B. Kennington, Ser. No. 282,391 filed Aug. 21, 1972, assigned to Francis P. Brennan and now Pat. No. 3,809,232.

SUMMARY OF THE INVENTION

In washing machines of the type having a vertical center post agitator, there are two general size configurations depending upon the thickness of the center post. Accordingly, packing braces heretofore provided and particularly suitable for utilization with dimensional parameters suited to one thickness of center post have not been suitable for use with machines having a different thickness of center post.

That problem is overcome in accordance with the principles of the present invention by providing a package brace which has a recess inwardly of a wall adapted to engage the adjoining center post agitator so that the wall may be yieldably displaced into the recess, which contributes to its horizontal stability and prevents any possibility of twisting. However, at least one frangible section or line is located between the recess and the adjoining outside portions of the brace so that such adjoining outside portions of the brace may be selectively broken to foreshorten the brace, thereby selectively adapting the brace to be used with center post agitators of greater thickness while retaining a junction contour.

Several different frangible arrangements may be provided. For example, transverse slot means may be provided either extending outwardly from the recess or extending inwardly from the outside walls, thereby permitting the adjoining outside portions of the brace to be broken away and removed, to foreshorten the brace.

On the other hand, it is also contemplated within the scope of this invention to provide a single slot means extending either inwardly from the end wall or outwardly from the recess towards the end wall, or completely through the end wall except for short frangible spans at top and bottom whereby the outer portions may be easily separated and hinged respectively outwardly or broken away so that the back wall of the recess may be used as the prime surface for engaging the center post, thereby effectively foreshortening the length of the brace and additionally preventing any horizontal or twisting motion with the supplementary material provided therefrom.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a fragmentary elevational view of an automatic washing machine having a vertical center post agitator and showing the machine equipped with packing braces provided in accordance with the principles of the present invention.

FIG. **2** is a composite cross-sectional view, showing on the left-hand side of the center line a washing machine with a thick center post agitator and wedged in position for shipping by a packing brace in accordance with the principles of the present invention, while the right-hand side of FIG. **2** shows a thinner center post agitator correspondingly wedged in condition for shipping by a package brace in accordance with the principles of the present invention.

FIG. **3** is a perspective view of the packing brace, per se, provided in accordance with the principles of the present invention.

FIG. **4** is a fragmentary top elevational view showing a modified form of the invention.

FIG. **5** is a view similar to FIG. **4** and showing yet another alternative form of the invention.

FIG. **6** is a fragmentary top elevational view showing the packing brace of FIG. **3** wedged against a center post agitator of a given dimension.

FIG. **7** is a corresponding view but showing the packing brace of either FIG. **3** or FIG. **4** with the end portions selectively broken away and removed to accommodate wedging of a thicker center post agitator.

FIG. **8** is a corresponding view but showing the form of the invention of FIG. **5** in engagement with a thicker type center post agitator.

FIG. **9** is an end view of yet another form of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

An automatic washer is shown generally at **10** and includes a console **11** having a presettable sequential control means **12** for operating the washing machine through an automatic series of washing and drying steps.

Whether such machines be of the type utilizing a perforated rotatable basket, or an imperforate rotatable basket, many automatic washing machines are provided with a vertical axis center post agitator shown generally at **13.** For purposes of illustrating the principles of the present invention, the basket of the automatic washing machine is shown at **14** and the stationary tub is shown at **16.** It will be understood that depending on the particular details of the washing machine construction, the part indicated at **16** may actually constitute a frame or a casing, rather than a tub and it is not the purpose of this disclosure to unnecessarily restrict the scope of the invention by identification of the washing machine parts under any specific name designation. Accordingly, it will be appreciated that the basket herein shown at **14** may be perforated or imperforate. A cover **17** is hinged at **18** and is received in a recess **19,** thereby to close the top of the machine.

In order to place the machine in condition for transit, it is desirable to wedge all of the relatively movable parts so that they are fixed and cushioned with respect to one another. For that purpose, a plurality of packing braces may be used as provided in accordance with the principles of the present invention. The packing brace of the present invention is shown generally at **20** and constitutes a generally rectangular block of deformable plastic material, for example, a material such as lightweight expanded plastic resilient material such as Ethafoam. The packing brace **20** has a top wall **21** and a bottom wall **22,** side walls **23** and **24,** respectively and end walls **25** and **26,** respectively. As shown in FIG. **3,** the longest dimension may be between the end walls **25** and **26.**

Adjacent one end of the packing brace **20,** for example, adjacent the end wall **26,** the block of material is

relieved by a plurality of recesses **27.** Thus, each recess may comprise a through passageway or hole extending generally transversely between the side walls **23** and **24** and spaced inwardly from the end wall **26.** The respective recesses or holes **27** are disposed in vertically spaced relationship between the top wall **21** and the bottom wall **22.** By virtue of such provision, the end wall **26** may be selectively displaced into one or more of the recesses or holes **27,** thereby facilitating accommodation of an inner rim **30** provided on the casing or tub **16** and a corresponding inner rim **31** on the basket **14.** It will be appreciated that the recesses **27** may be of any selected geometrical cross-sectional shape and may be formed in any convenient manner, for example, as by the use of a hot wire or tube when the packing brace **20** is made of an expanded plastic material.

The total elongated length of the packing brace **20** is shown at L and such dimensional length is selected to make the packing brace **20** of particular utility for a center post agitator of a conventional standard size, for example, as shown at **32** in FIG. **2** on the right-hand side of the drawing. In terms of relatively, the center post agitator **32** is relatively small, however, it will be understood that there are other types of center post agitators in which the center post is considerably thicker and such an agitator is shown at **33** on the left-hand side of FIG. **2.**

In accordance with the principles of the present inveniton, there is provided a through recess **34** extending between the top wall **21** and the bottom wall **22** inwardly of the end wall **25.** Thus, the center of the end wall **25** when engaged with the adjoining center post agitator **32** will be deformably displaced into the recess **34.** As shown in FIG. **2,** the packing brace **20** is positioned in wedging relationship between the center post agitator **32** and the respective inner edges **30** and **31** of the tub or casing and the basket **31.** Corresponding portions of the end wall **26** are displaced by the rims **30** and **31** into the recesses **27** and a corresponding portion of the wall **25** is displaced into the recess **34.** A plurality of packing braces **20** can be disposed in circumferentially spaced relation, as shown in FIG. **1,** thereby firmly wedging all of the relatively movable parts in firm position with the casing, thereby placing the washing machine in condition for shipment, or other movement in transit.

It is specifically contemplated by the present invention that special means be provided to facilitate selective foreshortening of the length of the packing brace **20,** thereby permitting each packing brace **20** to be fully utilized with any kind of washing machine. Thus, it will be noted that in the form of the invention shown in FIG. **3,** there is a slot means provided constituting two separate transversely extending slots **40** and **41** disposed to extend outwardly from the recess **34** in a transverse direction towards the respective side walls **23** and **24.** The slots **40** and **41** extend vertically and are commensurate in length with the through recess **34.** By virtue of such provision, the remaining portions of the packing brace **20** outwardly of the slots **40** and **41** constitute a frangible connection **42** and **43,** respectively. Thus, if the user desires to foreshorten the packing brace, the end portion is readily separated or broken away and in the form of the invention of FIG. **3** when broken away at the frangible sections **42** and **43,** the entire end portion may be removed, thereby leaving the block with an abutment surface **44** constituting the back wall of the recess **34** which can then abut up against the adjoining surface of a center post agitator such as the center post agitator **33.**

In the left-hand side of FIG. **2,** such a packing brace **20** is shown wherein the end portions have been removed and the abutment surface **44** is engaged against the adjoining surface of the agitator **33.**

The distance of foreshortening amounts to the distance between the end wall **25** and the wall **44** of the recess **34,** which distance is shown in FIG. **3** at L_1. Thus, the remaining length of the packing brace **20** is shown at L_2.

FIGS. **6** and **7** shown additional details. Thus, in FIG. **6** there is a relatively thin center post agitator **32** and it will be noted that the end wall **25** of each respective packing brace **20** is displaced into a corresponding recess **34.** In FIG. **7,** a relatively thicker center post agitator is provided and the respective packing braces **20** have been foreshortened by breaking away and removing the end portions of the respective packing braces, thereby leaving the wall **44** as the effective abutment surface engaging the adjoining center post agitator.

While the slot means **40** and **41** of the present invention constitute an effective configuration for the packing brace **20,** it will be apparent that other structural features can be utilized without departing from the spirit of the present invention. Thus, as shown in FIG. **4,** there is a packing brace **120** having a recess **134** and wherein the slot means are shown respectively at **140** and **141** in a reversed position, i.e., the respective slot means **140** and **141** extend inwardly from a corresponding side wall **123** and **124,** respectively, towards the recess **134.** Accordingly, there is provided a frangible connection **142** and **143** between the recess **134** and the respective slot means **140** and **141,** which permits the portions of the block outwardly of the relief area to be broken away selectively. Accordingly, either the original end wall **125** may engage the center post agitator or the back wall of the recess **134,** as shown at **144,** may be utilized as the abutment surface if and when the outer portions of the packing brace **120** are broken away and removed.

In the form of the invention shown in FIG. **5,** the packing brace is shown generally at **220** and again includes side walls **223** and **224.** A relief through recess **234** is provided and in this form of the invention, the slot means is shown at **240** and is located between the end wall **225** and the recess **234,** thereby leaving a frangible connection **242.** The back wall of the recess **234** as shown at **244** may again be utilized as the abutment surface if a foreshortened packing brace is desired, the amount of foreshortening being shown at L. In the form of the invention shown in FIG. **5,** upon breaking away the frangible section **242,** it will be appreciated that the sides outwardly adjacent the recess **234** will readily hinge, which hinge portions are shown at **246** and **247,** respectively, and the arrangement is illustrated in FIG. **8** wherein the packing brace **220** is shown with the surface **244** in abutment with a center post agitator indicated generally at **233.**

It will be apparent that the slot means **240** can either extend inwardly from the end wall **225,** or could be reversed and extend outwardly from the recess **234** towards the end wall **225.**

Furthermore, it will be appreciated by those skilled in the art that the slot means **240** could be utilized with other permutations, for example, in a packing brace

having other slot means such as the slot means **40** and **41,** or the slot means **140** and **141.**

In FIG. **9** an alternative form of the invention is illustrated wherein the face is shown at **320** and has an end face **325.** The recess inwardly of the end face **325** is designated at **334.** In accordance with this particular form of the invention, an elongated slot **340** intersects the end wall **325** as well as the recess **334.** However, it will be noted that the slot **340** terminates short of the top wall **324** and the bottom wall **323,** thereby leaving frangible sections at opposite ends of slot **340** which are designated at **342** and **343** respectively.

In usage, if it is desired to selectively foreshorten the brace **320,** the end portions of the brace are separated or broken away by producing a fracture or rupture of the frangible sections **342** and **343,** whereupon the end portions are hingedly displaced in the manner previously described in connection with the description of FIGS. **5** and **8.**

Throughout the foregoing description I have used the word "slot" and have illustrated in the drawings a perceptible "slot" for understanding the principles of my concept. It should be understood, however, that the actual separation formed by a hot wire, for example, may be what artisans will recognize as a slit. Thus, the terms "slot" and "slit" are used synonymously herein.

Although minor modifications might be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warranted hereon all such modifications as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. A packing brace selectively adapted for use in a washing machine having a casing, a tub within said casing and either a thick or thin center post within said tub, comprising:

a plurality of cooperating generally rectangular blocks, each having top, bottom, side and end walls,

a through-recess extending from the top wall to the bottom wall of each block inwardly of one end thereof an forming a relief area generally conforming the adjacent end wall to the form of the center post when the end wall is displaced therein as the packing brace is disposed between the casing, tub and center post of the washing machine,

and slot means extending between the inside and the outside of the block in the vicinity of the through-passage and forming a frangible area for facilitating the selective breaking away of the portions of said block outwardly of said relief area to selectively foreshorten the effective length of the block and maintain the foreshortened end wall to conform to the circumferential portion of the center post engaged thereby.

2. A packing brace as defined in claim **1** wherein said slot means more particularly comprise slots disposed transversely and vertically and extending radially from the inside of said through-recess outwardly toward the respective side walls, to accommodate the broken-away portions to be removed and to provide a back surface of the relief area convex in form to conform to the adjoining circumferential portion of the center post engaged thereby when interposed between the center post and the casing and tub of the washing machine.

3. A packing brace as defined in claim **1** wherein said slot means comprise slots disposed transversely and vertically and extending from the outside of said side walls inwardly toward the inside of said throughrecess, to accommodate the end of said center post adjacent said throughrecess to be removed and form the back surface of said relief area to form a convex abutment surface for engaging an adjoining center post.

4. A packing brace as defined in claim **1** wherein said slot means more particularly comprise a slot means disposed vertically in the block between said end wall and said through-recess to accommodate the brokenaway portions to be hingedly displaced generally outwardly and form the back surface of the relief area into an abutment surface conforming to an adjoining center post to engage and retain said center post from movement relative to said casing and tub.

5. In a washing machine packing brace of the type comprising a generally rectangular block, the improvement of

a recess inwardly of a wall adapted to engage an adjoining center post of a washing machine, whereby the wall may be yield by displaced into the recess,

and means forming at least one frangible section between said recess and the adjoining outside portions of said brace,

whereby the adjoining outside portions of the brace may be selectively broken away to foreshorten the brace for adaptation to center posts of greater thickness and conform the foreshortened end of the brace to a center post of large diameter than the wall of the brace adapted to engage an adjoining center post of a washing machine.

6. In a washing machine packing brace of the type comprising a generally rectangular block, the improvement of

a cylindrical recess inwardly of a wall adapted to engage an adjoining center post whereby the wall may be yieldably displaced into the recess, said wall being slotted by a vertical slot intersecting said recess but terminating short of the top and bottom walls of the block to form top and bottom frangible sections between said recess and the adjoining outside portions of said brace whereby the adjoining portions of the brace may be selectively separated and form a recess for reception of a center post of greater thickness and conforming thereto.

* * * * *