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BOTTLE WASHING MECHANISM

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Fig. 1.

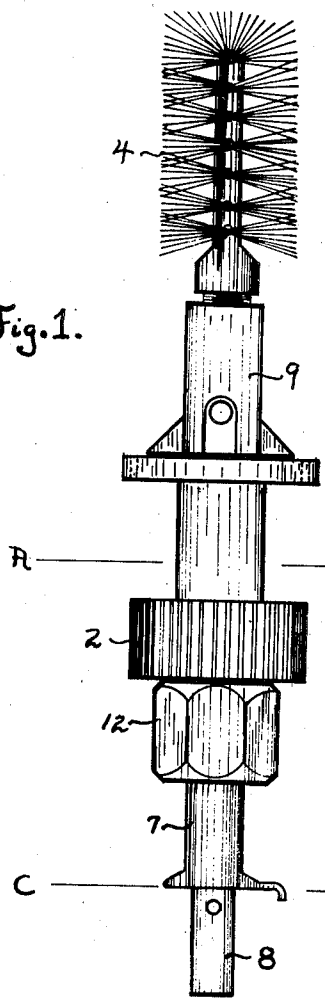
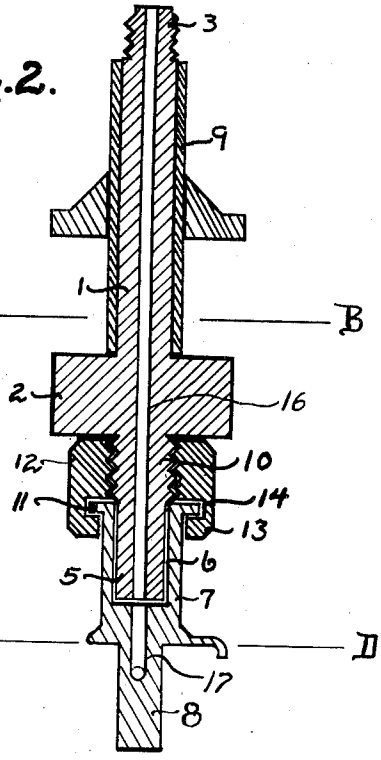


Fig. 2.



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BOTTLE WASHING MECHANISM

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2 Claims. (Cl. 285—97.7)

This invention relates to an improvement in the bottle-washing machines, and especially to the construction of the brush spindle employed in such machines.

In the use of bottle-washing machines there are employed multiple spindles for the proper washing of the bottles going through the machines. In some machines these spindles work in oil and in other machines in water. In each instance, however, the constant rotation of the spindles induce considerable wear at the rotating joints, which wear results in the spindles wobbling in their rotation. This wobbling of the spindles produces a reaming out of the necks of bottles which are inserted over the tops of the spindles in the washing operation. To avoid the reaming of the bottle necks, frequent replacement of the spindles is now necessary.

It should also be mentioned that where the spindles are lubricated by oil, upon wear of the spindles in the rotating joints, oil leaks from the exterior of the spindle through the spindle joint to the tubular opening in the spindle shaft, and is thence carried by the flow of water into the bottle. This injection of oil in the washing water prevents a thorough cleansing of the bottle, and leaves an oil film on the interior of the bottle, necessitating a rewashing of those bottles in which the oil has been injected.

One object of my invention is to provide a tubular spindle, workable in oil, and subject to a minimum wear.

Another object of my invention is to provide a tubular spindle, workable in oil, so constructed as to prevent any leakage of oil from the exterior of the spindle to the tubular opening within the spindle.

Other objects of the invention are to provide a tubular brush spindle simple in construction and operation and easy of adaptation.

These and other objects of the invention will become apparent upon reading the specifications in connection with the accompanying drawing.

In the drawing—

Figure 1 is a side view in elevation of the invention.

Figure 2 is a cross sectional view thereof.

Referring now to the drawing in detail wherein like numerals designate like parts, the numeral 1 designates the tubular spindle stem having a bore 16 therethrough, having disposed thereon at a predetermined position the gear 2, by means of which the spindle is rotated. The upper end of the stem 1 is threaded at 3 to which is attached the brush 4.

The lower end 5 of the stem 1 is journaled to seat in the cylindrical socket 6 of the tubular stem coupling 7.

The tubular stem coupling 7 is provided at the lower end thereof with a stem 8, which fits snugly in a socket provided in the base of the bottle-washing machine which is not illustrated. A bore 17 in the coupling 7 is adapted to communicate with the bore 16 of the stem 1 when the device is assembled. The tubular stem coupling 7 so disposed in the base of the bottle-washing machine, supports the tubular spindle 1 in rigid position, as illustrated.

In full assemblage of the unit, a collar 9 is disposed about the tubular spindle 1 between the gear 2 and the brush 4.

The assemblage as above described illustrates the brush spindle now employed generally in bottle-washing machines; and with such a construction of the brush spindle, it is apparent, on operation of the spindle in oil between the lines A—B and C—D an oil seepage will occur from the exterior to the interior of the tubular spindle 1 through the socket 6 and the tubular stem coupling 7, thereby causing oil to reach the bottle being washed, as previously described.

The present invention comprises a threaded shoulder 10 disposed on the spindle 1 immediately below the gear 2, and sitting on the neck of the tubular stem coupling 7, as illustrated in Figure 2.

The tubular stem coupling 7 has disposed at the top of its periphery the annular rib 11. A collar 12 is threaded interially so as to screw on the threaded shoulder 10, and is provided with an annular flange 13 extending under the annular rib 11 of the tubular stem coupling 7. An annular groove 14 is provided interially of the collar 12, being disposed immediately above the annular flange 13. The annular rib 11 of the tubular stem coupling 7 fits within the annular groove 14, as illustrated in Figure 2. As the spindle 1 rotates the collar 12 is tightened thereon until it abuts the shoulder formed by the gear 2. At this point, as is shown in the drawing, the adjacent shoulders of the rib 11 and flange 13, as well as the lower end 5 of the spindle and the bottom of the socket 7 are in near abutting relation but cannot jam because further tightening of the collar is impossible.

Thus it is seen when the collar 12 is screwed over the shoulder 10 a tight joint is made between the tubular spindle 1 and the tubular stem coupling 7, thereby preventing oil seepage from the exterior to the interior of the tubular spindle stem 1. It is also apparent, with the improve-

ment described, the lower end 5 of the tubular spindle stem 1 will be held firmly positioned in the cylindrical socket 6 of the tubular stem coupling 7, thereby preventing excessive wear of the revolving parts resulting in a wobbling of the tubular spindle stem 1 as occurs in the present type of spindle construction.

The construction operation and advantages of our invention will, it is believed, be understood and appreciated by those skilled in the art when the foregoing description has been read in connection with the accompanying drawing. The degree of adjustment of the several members in relation to each other is such as to take care of any expected requirements; and while we have here shown and described and pointed out certain novel features of our invention, it is to be understood that various omissions, substitutions and changes in the form and details of the device may be made by those skilled in the art, and that we do not wish to be restricted to the prestructure disclosed, but hold ourselves to make such changes therefrom as fairly fall within the scope of what we claim.

What we claim is:

1. In a rotary, bottle-washing brush, comprising a stationary socket member having a base therein, a rotary, brush-mounting spindle member having a bore therein in said socket member with an end of said spindle member seating against the bottom of said socket member, and the bore thereof communicating with said base in the socket member; a coupling collar for connecting said members together, said collar having a threaded connection between one of said members and said collar, an annular rib on said other member, an inwardly directed annular flange on said collar overlying said rib and connecting said members together, and means limiting the tightening of said collar on said first member to prevent jamming of said connection, said means being positioned to maintain the adjacent faces of said rib and flange as well as the end of said spindle and said socket in near abutting relation.

2. The structure of claim 1, said means limiting the tightening of said collar comprising a shoulder formed on said spindle.

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