STOPPER ROD ASSEMBLY

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2 Claims. (Cl. 251—337)

This invention relates to stopper rod assemblies. More particularly stated, the invention relates to the use of a split insert or sleeve for connecting the stopper rod to the stopper.

The invention has for its salient object to provide a stopper rod with a split threaded sleeve and a stopper with a threaded bore into which the split sleeve can be threaded and co-actioning means on the rod and sleeve sections for preventing the split sleeve sections from turning when the rod and sleeve are threaded into the stopper.

Another object of the invention is to provide a stopper having a threaded bore and a stopper rod having threaded sleeve sections mounted on the rod and adapted to be screwed into said bore, the rod and sleeve sections being so mounted that the sleeve sections will be held on the rod against turning when the rod and stopper are assembled.

Further objects of the invention will appear from the following specification taken in connection with the drawings which form a part of this application and in which:

FIGURE 1 is a vertical sectional elevation of a stopper rod assembly embodying the invention;

FIGURE 2 is a sectional elevation substantially on line 2—2 looking in the direction of the arrows;

FIGURE 3 is an elevational view of the stopper rod and assembly sleeve sections mounted thereon;

FIGURE 4 is a view similar to FIGURE 3 showing the sleeve sections separated from the rod;

FIGURE 5 is a sectional elevation taken substantially on line 5—5 of FIGURE 4 looking in the direction of the arrows;

FIGURE 6 is a transverse sectional elevation and partial plan view of a modified form of stopper rod and assembly sleeve sections;

FIGURE 7 is a sectional elevation taken substantially on line 7—7 of FIGURE 6 looking in the direction of the arrows; and

FIGURE 8 is an elevational view taken substantially on lines 8—8 of FIGURE 4 looking in the direction of the arrows.

In the particular embodiment of the invention illustrated in FIGURE 1, there is shown a pouring spout 10 on which is mounted a stopper 11 having a substantially flat upper surface 12 and a downwardly extending threaded bore 13 which extends downwardly from the upper surface 12. The stopper rod 15 is connected to the stopper in the following manner. As shown particularly in FIGURES 4 and 5 the rod is reduced in section adjacent its lower end as shown at 16, thus forming a flange 17 at the lower end thereof and an annular abutment shoulder spaced upwardly of said flange. The reduced portion 16 has extending downwardly thereon in diametrically opposite positions fins 18.

In order to secure the stopper rod to the stopper a pair of split sleeve sections 19 and 20 are mounted on the reduced portion 16 of the rod and encircle the rod.

When the rod and stopper are assembled the sleeve sections 19 and 20 are placed on the rod and the rod and sleeve sections are screwed into the threaded opening 13 on the stopper. Since the edges 22, 23, 24 and 25 of the sleeve sections 19 and 20 abut against the fins 18 and 19, the sleeve sections 19 and 20 are prevented from turning on the rod when the sleeve sections are screwed into the bore 13.

FIGURES 6 and 7 illustrate a modified form of the invention in which the rod 15A is formed elliptical in cross section as shown at 30. The sleeve sections 31 and 32 in this modification are shaped to fit the elliptical cross section of the rod and are prevented from turning as the rod and sleeve sections are threaded into the bore of the stopper.

Although different embodiments of the invention are illustrated and described it will be understood that further changes may be made in the construction and arrangement of the cooperating parts without departing from the spirit or scope of the invention, as expressed in the following claims.

I claim:

1. A stopper rod assembly comprising a solid stopped having a threaded bore extending downwardly thereinto from the upper end thereof and a stopper rod having an end portion reduced in section and a flange at the lower end thereof and an annular abutment shoulder spaced upwardly of said lower end flange defining said reduced portion, and a split sleeve arranged to fit into said reduced portion between said flange and shoulder, said sleeve sections having external threads arranged to fit into the threaded bore in the stopper and means on the rod between the flange and shoulder and engaged by said sleeve sections for holding the sleeve sections against turning when the rod and split sleeve sections are threaded into the stopper bore.

2. A stopper rod assembly comprising a solid stopped having a threaded bore extending downwardly thereinto from the upper end thereof and a stopper rod having an end portion reduced in section and a flange at the lower end thereof and an annular abutment shoulder spaced upwardly of said lower end flange defining said reduced portion and a split sleeve arranged to fit into said reduced portion between said flange and shoulder, said sleeve sections having external threads arranged to fit into the threaded bore in the stopper and longitudinal and diametrically opposite outwardly extending projections on the rod between said flange and shoulder engageable with the sleeve sections to prevent the sleeve sections from turning on the rod when the rod, sleeve sections and stopper are assembled.

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