Oct. 25, 1938. R. V. GREEN 2,134,475

SELF-HOLDING PLUG

Filed April 3, 1937

Fig. 1

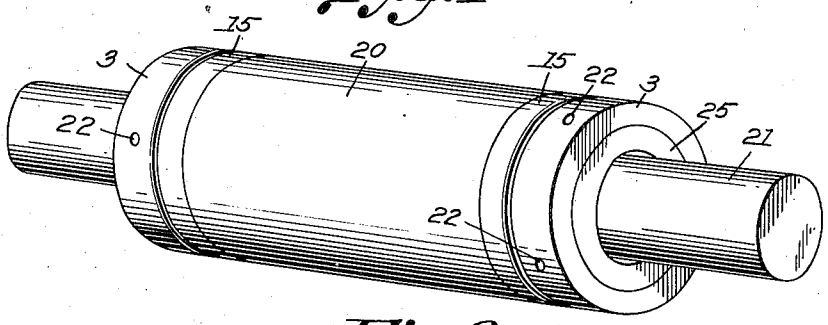


Fig. 2

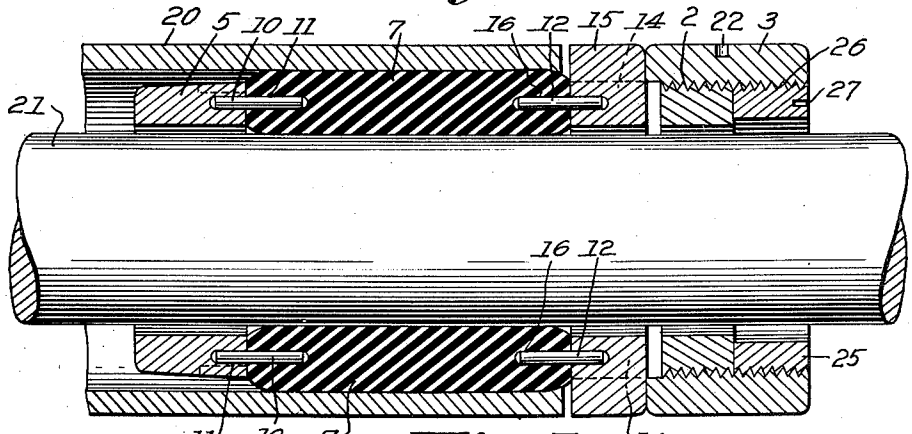
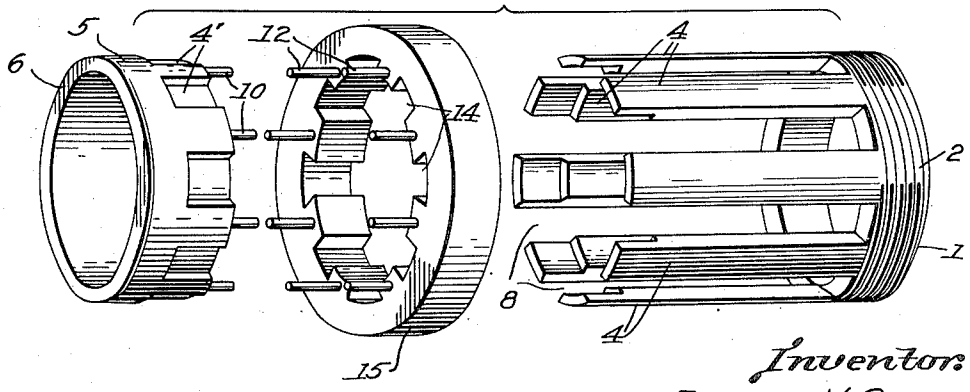


Fig. 3



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SELF-HOLDING PLUG

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Application April 3, 1937, Serial No. 134,833

1 Claim. (Cl. 242—68)

My invention relates to a self holding plug and I declare the following to be a full, clear, concise and exact description thereof sufficient to enable anyone skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing in which like characters refer to like parts throughout the specification.

In paper mills the paper sheeting is wound on a hollow metallic core which is supported in a removable manner on the paper machine by a centrally disposed shaft that is projected through said hollow core and is also removable from the paper machine.

The core turns with the shaft for winding the paper thereon, and when the roll of paper has accumulated to a certain size, it is detached by removing the core from the shaft. To this end it is desirable to have some means for effecting in as quick a manner as possible a tight fit between the said core and shaft. Heretofore set screws and keys have been employed. These are unsatisfactory, however, for the reason that they wear out or damage both the core and the shaft and do not prevent slipping of said parts.

The object of this invention is to provide a simple plug that avoids set screws, keys and the like for holding said hollow core to its corresponding shaft in such a tight manner that it will prevent slipping, whereby the core will rotate with the shaft and in addition can be easily and quickly manipulated.

The object will be understood by referring to the drawing in which

Fig. 1 is a perspective view showing a core mounted on a shaft and the holding plug in assembled position relative thereto.

Fig. 2 is an enlarged view showing a central vertical section of the plug in relation to the core and shaft.

Fig. 3 is a detail enlarged view showing certain parts in exploded position.

Referring more particularly to the drawing the holding plug or clamp embodies a hollow cylindrical member 1 having external screw threads 2 on its outer surface at one end for the screw mounting of an annular follower nut 3. Member 1 is provided with outer surface extensions 4 formed integral therewith. These are brazed or otherwise mounted in corresponding recesses 4' at their opposite ends to member 5 which is hollow and tapers slightly towards its outer or free end 6. Member 1 with its extensions 4 and end member 5 form a cage for holding rubber pads or strips 7. Pads 7 are mounted between extensions 4 within elongated slots 8 formed therebetween. Eight such slots 8 are shown in the drawing. Six such slots 8 at regular intervals have been found sufficient. Rubber pads 7 are held in place within slots 8 between extensions 4 of members 1 at one end by pins 10.

Pins 10 are mounted rigidly to member 5 so as to project into slots 8 and engage corresponding recesses 11 made in rubber pads 7. At the opposite end pads 7 are engaged by similar shaped pins 12 rigidly mounted to inwardly radially projecting lugs 14 formed integral with annular follower ring 15. Pins 12 likewise project into slots 8 formed between extensions 4 and into corresponding recesses 16 made in the other ends of rubber pads 7.

Follower ring 15 mentioned above is mounted to slide longitudinally or axially on extensions 4 of member 1 within the limits of slots 8, whereby to exert an end to end pressure on rubber pads 7. This pressure will cause said pads 7 to bulge laterally and effect a frictional contact with the inside surface of core 20 on its outer surface and frictional contact with the outer surface of shaft 21 on its inner surface.

The means for forcing annular follower ring 15 against the ends of rubber pads 7 embodies the annular follower nut 3 above mentioned. Nut 3 has internal screw threads that engage the external threads 2 on cylindrical member 1. Three sockets 22, 22, 22 are made at equal distances apart in follower nut 3, for the application of a spanner wrench, not shown, in turning said nut 3 on member 1.

An annular locking nut or ring 25 having external threads 26 to engage the internal threads, of nut 3 is used, whereby to lock the parts in adjusted position. However, ring 25 may be omitted.

In operation, when the paper, not shown, has accumulated on core 20 to a predetermined degree and it is found desirable to remove the core 20 with the paper thereon from shaft 21, whereby to replace said core 20 with a new or empty one, shaft 21 with the core 20 is removed from the machine; locking nut 25 loosened by a spanner wrench, not shown, engaging sockets 27 therein and by loosening also by a spanner wrench engaging sockets 22 in follower nut 3. The loosening of follower nut 3 will relax the tension on rubber pads 7. This will allow for slipping member 1 and its connective parts including extensions 4, end member 5, rubber pads 7, follower ring 15, follower nut 3 and locking ring 25 on 21.

In actual use it will be found desirable to use

one of the self holding plugs above described on each end of the core 20.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is as follows:

In a self holding plug, a member mounted to a shaft, whereby to engage a core and a shaft, open recesses formed in said member, yielding pads mounted within said recesses, pins fastened to said member, whereby to hold said pads in given position, an annular member having projections for engaging said first named member, pins mounted in said projections for engaging said pads and a follower nut for moving said last named member, whereby to expand said yielding pads into frictional engagement with said core and said shaft.

RAYMOND V. GREEN.