Jan. 13, 1942. M. P. JANISCH 2,269,939

CORE PLUG

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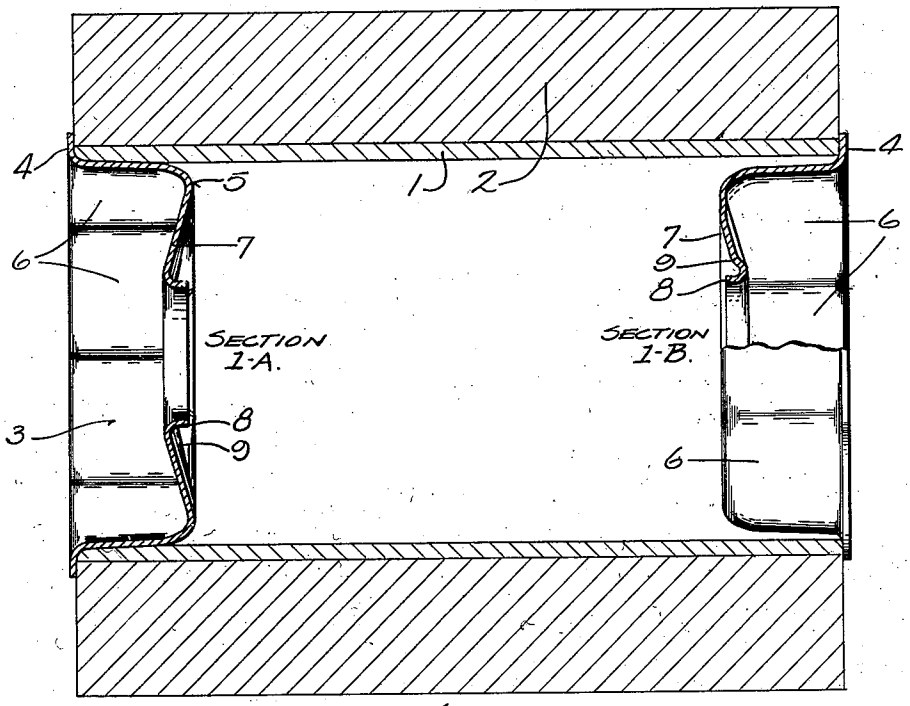


Fig. 1.

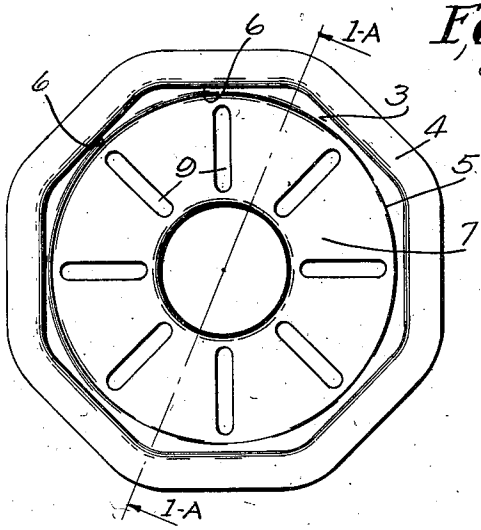


Fig. 2.

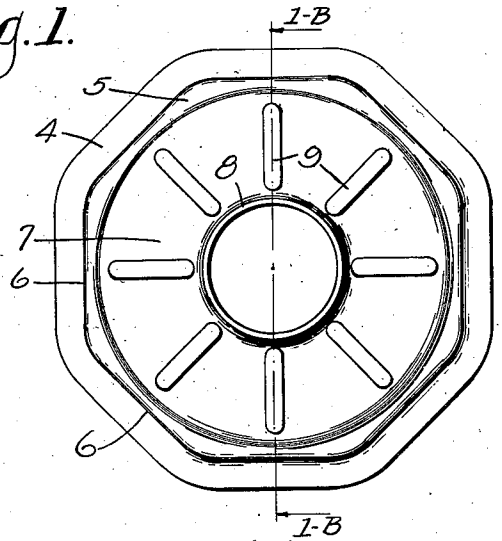


Fig. 3.

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CORE PLUG

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3 Claims. (Cl. 206—59)

This invention relates to improvements in core plugs.

It is the primary object of the invention to provide a novel, simple, inexpensive and compact core plug of unique design which will fit tightly into the core of a paper roll and provide suitable bearing support for the shaft extending through such core, the bearing support being located within the projected surface dimensions of the core plug without requiring a central sleeve of such a design as to cut or mutilate the fingers of an operator in the course of its manipulation.

In order that the device may be as strong as may be consistent with the light weight of material used, it is considered undesirable for the bearing sleeve portion of a core plug to project beyond the plug. For this reason, it has been conventional in commercial practice to turn the bearing sleeve reversely toward the interior of a metal core plug. The result has been that either such sleeve must be unduly elongated to such an extent that the metal cannot readily be drawn or it terminates at such a depth within the hollow of the core plug that it is inaccessible and cannot be smoothed by any simple or economical finishing operation. In consequence, the operators manipulating paper rolls by the introduction of their fingers into the bearing openings in the core plugs have sustained numerous injuries in the way of cuts and abrasions due to sharp and unfinished edges of the bearing sleeves.

In accordance with the present invention, the bearing sleeve is turned to project from the exterior of the end surface of the core plug, but is located within the projected external dimensions of the plug and is thus exposed for finishing. By means of an ordinary tumbling operation, the sharp edges can be completely removed, thus greatly facilitating the handling of a roll equipped with a core plug in the present invention.

Other objects of the invention include the provision of a core plug which fits more smoothly and firmly into a paper roll than plugs heretofore devised and at the same time has increased strength in proportion to the weight of metal used.

In the drawing:

Fig. 1 is a view in cross section through a paper roll equipped with core plugs embodying the present invention, one such plug being shown in section on the line 1—A of Fig. 2 and the other being broken away to the section 1—B of Fig. 3.

Fig. 2 is an end elevation of one of the plugs as viewed from its outside end.

Fig. 3 is an end elevation of one of the plugs as viewed from its inside end.

Like parts are identified by the same reference characters throughout the several views.

The core 1 and the web 2 of the paper wound thereon are illustrated merely for the purpose of showing the use of the plug in service.

The improved plug comprises a body portion 3 which is preferably octagonal in cross section and preferably tapers slightly from its exterior flange 4 toward its inner end portion 5, to constitute the frustum of an octagonal pyramid having substantially flat surfaces at 6 merging gradually into the curved annular inner end portion 5. This is of materially less diameter than any cross section through the frusto-pyramidal body portion 3.

From the annular end wall portion 5, close to the outside of the plug, the end wall portion 7 is dished slightly inwardly to constitute the frustum of a very shallow cone and is thence formed reversely outwardly to constitute a bearing sleeve at 8 terminating very close to the plane to which the curve of wall portion 5 is tangential. The frusto-conical wall portion 7 preferably, though not necessarily, is provided with radial ribs at 9 which open into the bearing sleeve 8 and extend in gradually decreasing size toward the centers of the flat surfaces 6 in the body portion 3 of the plug. There being an excess of metal at the flat surfaces, as compared with the intervening corners of the plug, it is easier to draw the plug if the ribs are located as shown.

Because the free edge of the bearing sleeve 8 is located in a relatively exposed position adjacent the plane of the annular bottom surface 5, it is possible, by a simple tumbling operation or any other finishing operation to remove sharp and rough edges, thereby obviating the danger of injury to the workmen's fingers. At the same time, the support provided by the bearing sleeve is located within the external dimensions of the plug proper, and the frusto-conical wall surface 7, even without the ray-like ribs 9, is very strong in proportion to the weight of metal employed.

I claim:

1. A core plug comprising an integral sheet metal article formed to provide a plug portion constituting the frustum of a pyramid polygonal in cross section, an inwardly dished wall generally having the shape of the frustum of a shallow cone and merging at its periphery with the smaller end of said plug portion, and a central sleeve merging at its inner end with the inner

periphery of said dished wall and extending thence outwardly within the wall to a termination approximately in the plane of the outer periphery of said wall.

2. A core plug comprising an integral sheet metal article formed to provide a plug portion constituting the frustum of a pyramid polygonal in cross section, an inwardly dished wall generally having the shape of the frustum of a shallow cone and merging at its periphery with the smaller end of said plug portion, and a central sleeve merging at its inner end with the inner periphery of said dished wall and extending thence outwardly within the wall to a termination approximately in the plane of the outer periphery of said wall, said wall being provided with ray-shaped ribs opening into said sleeve and extending outwardly toward the faces of the frusto-pyramidal plug portion.

3. In a core plug, an integral sheet metal article comprising a plug portion having the form of the frustum of a pyramid polygonal in cross section and having a plurality of flattened faces provided at its outer end with a positioning flange, a frusto-conically dished wall peripherally merging with the inner end of said plug portion, and said wall being annular and provided at its inner periphery with an integral sleeve extending reversely with respect to said wall and terminating approximately in the plane of the outer periphery of the wall, said wall having radial ribs each being disposed approximately opposite the center of one of said flattened faces.

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