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Rancourt

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[54] **CORE CHUCK**

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[51] **Int. Cl.** **B65h 19/02**

[58] **Field of Search** 242/68.4, 71.8, 68.6; 308/20

[56] **References Cited**

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[57] **ABSTRACT**

The chuck includes smooth concentric spaced inner and outer cylindrical walls interconnected by annular end plates. One end plate defines an outwardly projecting annular flange for engagement against the end of a roll core. The inner wall receives an elongated sleeve bearing mounted therein for rotation of the shell thereabout. The sleeve includes a clamping head for a locking thereof to a roll supporting shaft. Handling holes are provided through the outermost plate which holes are enable easy access to an internal grease fitting.

6 Claims, 4 Drawing Figures

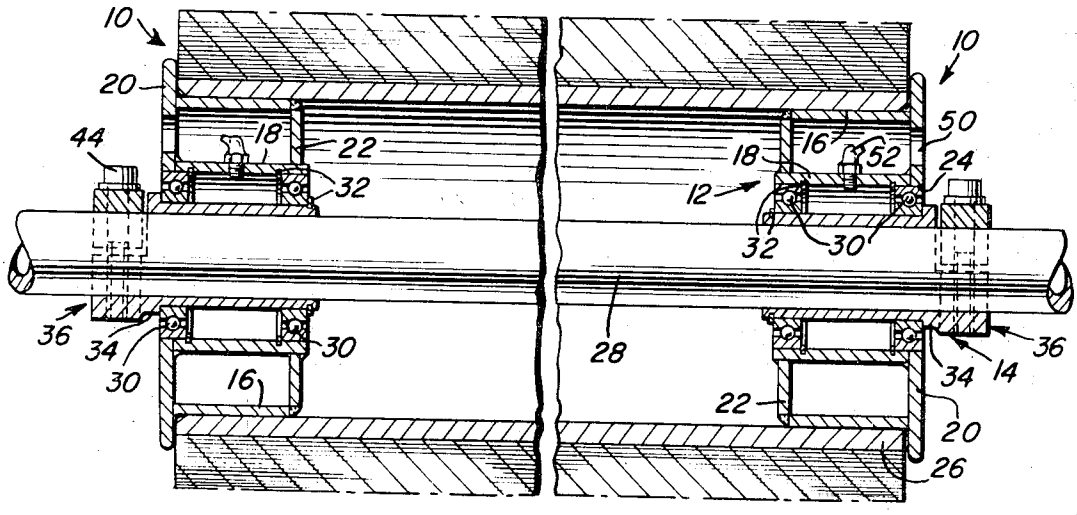


Fig. 1

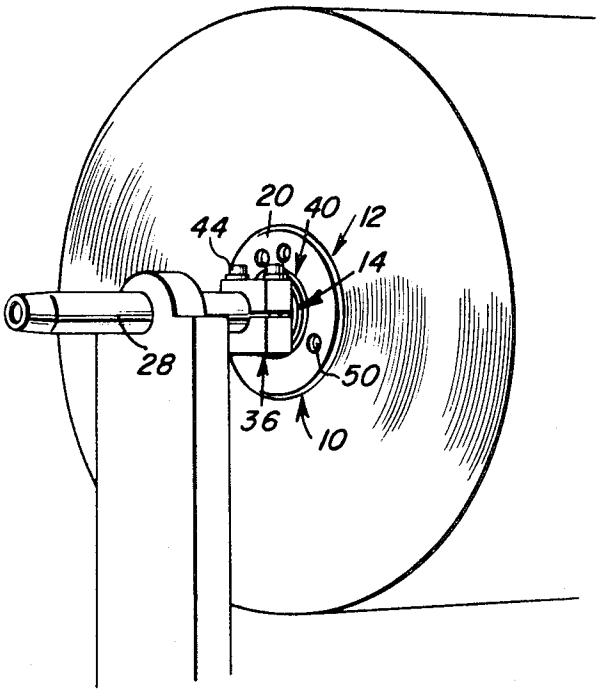


Fig. 3

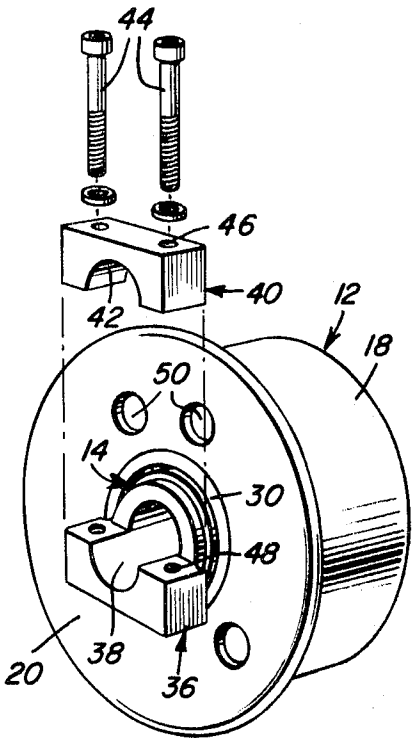


Fig. 2

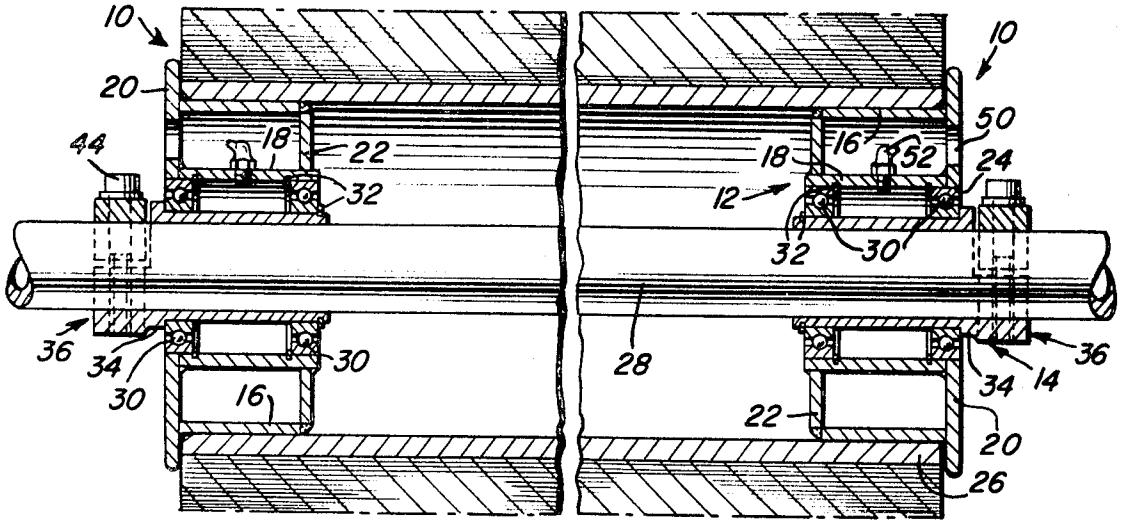
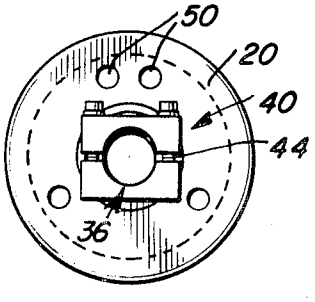


Fig. 4



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CORE CHUCK

The invention herein is directed to new and useful improvements in core chucks, particularly of the type utilized in the support and handling of parent paper rolls from which paper is to be delivered to paper winders or other paper handling machines requiring a smooth and free delivery.

It is a primary object of the instant invention to provide a core chuck which, while relatively simple in structure, constitutes a significant improvement over conventional core chucks, providing a chuck which enables a smooth substantially friction free turning of the core, both noiselessly and without wear on either the chuck or the roll core.

The conventional chuck heretofore utilized has normally been formed of cast iron or a semi-steel casting with a plurality of core gripping ribs provided about the exterior thereof. Such ribs are highly conducive to both noise and wear, the ribs tending to peen over and produce dangerous slivers which injure the hands when handling and cause excessive wear on the interior of the core which it supports. The ribbed chuck also tends to cause a tumbling effect between the chuck and the core.

In providing a chuck which overcomes the above noted deficiences, the shell of the chuck herein is provided with a smooth outer wall which is closely fitted to the interior diameter of the core with the core turning with the shell, rather than relative thereto, about a central shaft mounted sleeve. Ball bearings are utilized between the shell and sleeve to provide for the noiseless substantially wear free rolling of the core,with the shell being specifically constructed so as to facilitate access to the bearings for greasing purposes.

Structurally, the core chuck of the instant invention includes a shell having inner and outer cylindrical walls interconnected by opposed annular end plates. One of the end plates has a peripheral portion thereof projecting beyond the outer wall so as to define a flange engageable against the core end. An elongated sleeve is received through and rotatably positioned within the inner cylindrical wall, and incorporates a clamping head for a fixing thereof to the roll supporting shaft. The outer cylindrical wall of the shell is smooth and intimately engages the end portion of the core completely thereabout.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a perspective view of one end of a paper roll supported by the core chuck of the instant invention;

FIG. 2 is an enlarged cross-sectional view through a chuck supported roll illustrating the manner in which a chuck is to be associated with each end thereof;

FIG. 3 is a perspective view of the chuck with a portion of the sleeve clamp exploded therefrom; and

FIG. 4 is an outer end view of the chuck.

Referring now more specifically to the drawings, reference numeral **10** is used to generally designate the core chuck comprising the instant invention. The chuck includes two major portions, the shell **12** and the sleeve **14.**

The shell **12** includes smooth concentric spaced outer and inner cylindrical walls **16** and **18** interconnected at the opposite ends thereof by outer and inner annular end plates **20** and **22.** The inner cylindrical wall **18** has one end thereof welded to the plate **20** directly about the central opening **24** provided therein. The plate **20** in turn projects peripherally beyond the outer cylindrical wall **16,** which is also welded thereto, so as to define an annular outer flange portion which abuts against the end of the roll and roll core **26.**

The inner plate **22** surrounds the opposite end of the inner wall **18** and is welded thereto, with the outer periphery of the plate **22** being substantially coextensive with and welded to the corresponding end of the outer cylindrical wall **16.**

The sleeve **14** is of a size so as to be closely although slidably received about the roll supporting shaft **28.** The sleeve **14,**which is cylindrical, is positioned in inwardly spaced concentric relation to the inner shell wall **18** with the shell **12** being mounted on the sleeve **14** for rotation thereabout. This mounting for rotation is effected by inner and outer ball bearing units **30** positioned between the sleeve **14** and the shell wall **18** and retained by appropriate retaining rings **32** groove mounted in the opposed sleeve and wall. It will be appreciated that the retaining rings are so orientated as to prevent a longitudinal shifting of either the sleeve or the shell.

The outer end portion of the sleeve **14** is provided with a small annular outwardly directed shoulder portion **34** which seats against the outermost bearing unit **30** and assists in confining the bearing unit and stabilizing the sleeve relative thereto. Just outward of the shoulder **34,** the sleeve is provided with an integral rectangular upwardly directed head portion **36** which includes an arcuate or semicircular seat **38** positioned beneath and cradling the shaft **28.** A similar independent upper head portion **40,** including a downwardly directed arcuate seat **42,** is provided to overlie the seated shaft **28** and, through clamping bolts **44,** clamp the shaft **28** in a manner whereby rotation be-tween the sleeve **14** and the shaft **28** is precluded. The bolts **44,** for purposes of convenience, may slide longitudinally through bores **46** through the upper head portion **40** and be threadedly received within internally threaded bores **48** on the lower head portion **36.** Both head portions incorporate horizontal meeting faces to the opposite sides of the arcuate seat portions **38** and **42** formed therein. In fact, as one means of forming the sleeve **14** with head portions, both head portions **36** and **40** can be formed integrally with the sleeve **14** with the upper head portion **40** then severed therefrom, thus insuring properly sized cooperating head portions which will effectively clamp about and to the shaft **28.**

The outer shell end plate **20** is provided with a series of holes **50** therethrough which communicate with the interior of the shell between the outer and inner cylindrical walls **16** and **18.** These holes **50** reduce the weight of the chuck, provide finger holes for facilitating a handling and mounting of the chuck, and at least one of the holes **50** is so orientated as to enable the introduction of a conventional grease gun to an internally mounted grease fitting **52** which communicates with the chamber provided between the bearing units **30** so as to provide a convenient and highly unique manner of lubricating the bearing units.

From the foregoing, it will be appreciated that a highly unique core chuck has been defined. This core chuck, adapted to be used in pairs in the supporting of the opposite ends of a paper roll from which paper is to be drawn, is highly stable and provides for a non-slipping engagement with the roll core in conjunction with a relatively friction free rotation of the core with the chuck shell about the central sleeve which is affixed to the roll supporting shaft. The engagement between the chuck shell and the core is effected about the entire smooth cylindrical outer periphery of the outer shell wall whereby an extremely close fit can be provided therebetween without any projecting ribs or the like which tend to result in slippage between the shell and the core and effect damage to both. This close fit between the shell and the core, in conjunction with the easily lubricated bearing units, results in a smoothly and noiselessly operating arrangement wherein substantially no operational wear is experienced.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed as new is as follows:

1. A core chuck for mounting a paper roll on a roll supporting shaft, said chuck comprising a shell and a sleeve, said shell including a smooth projection-free core conforming cylindrical outer wall and a cylindrical inner wall in inwardly spaced concentrical relation to said outer wall, said sleeve extending concentrically through said inner wall, and bearing means mounting said shell on said sleeve for rotation thereabout, said bearing means being engaged between said inner wall and said sleeve and defining a hollow interior therebetween, said sleeve being adapted to clamp to a roll supporting shaft for rotation of a shell engaged roll core thereabout, said shell including a pair of opposed plate-like end walls extending between and fixed to the corresponding ends of the spaced inner and outer concentric cylindrical walls to define a hollow interior within said shell, a first one of said end walls having a peripheral edge portion thereof projecting outwardly beyond said outer wall and defining a core end engaging flange for limiting the inward insertion of the shell within a roll core.

2. The chuck of claim **1** wherein said bearing means comprises a pair of ball bearing units spaced longitudinally from each other along the length of the concentric sleeve and inner wall.

3. The chuck of claim **1** wherein said first end wall is provided with at least one hole therethrough, said hole communicating with the interior of the sheel between the inner and outer walls.

4. The chuck of claim **4** wherein said inner wall is provided with a grease fitting accessible through the end wall hole and interiorly communicated with said bearing means for a selective lubrication thereof from exteriorly of said shell.

5. A core chuck for mounting a paper roll on a roll supporting shaft, said chuck comprising a shell and a sleeve, said shell including a smooth projection-free core conforming cylindrical outer wall and a cylindrical inner wall in inwardly spaced concentrical relation to said outer wall, said sleeve extending concentrically through said inner wall, and bearing means mounting said shell on said sleeve for rotation thereabout, said bearing means being engaged between said inner wall and said sleeve, said sleeve being adpated to clamp to a roll supporting shaft for rotation on a shell engaged roll core thereabout, said shell including a pair of opposed plate-like end walls extending between and fixed to the corresponding ends of the spaced inner and outer concentric cylindrical walls to define a hollow interior within said shell, a first one of said end walls having a peripheral edge portion thereof projecting outwardly beyond said outer wall and defining a core end engaging flange for limiting the inward insertion of the shell within a roll core, said first end wall being provided with at least one hole therethrough, said hole communicating with the interior of the shell between the inner and outer walls, said inner wall being provided with a grease fitting accessible through the end wall hole and interiorly communicated with said bearing means for a selective lubrication thereof from exteriorly of said shell, said sleeve including an upwardly directed seat integrally formed therewith outward of said first end wall of the shell, said seat being conformable to a roll supporting shaft for a reception of the shaft therein, and a shaft clamping portion removably positionable over the seat for a clamping of a shaft therein.

6. The chuck of claim **6** including a series of retaining rings precluding a longitudinal shifting between the shell, bearing means and sleeve.

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