April 9, 1940.

F. P. BENNETT

2,196,489

PAPER ROLL CHUCK

Filed June 5, 1937

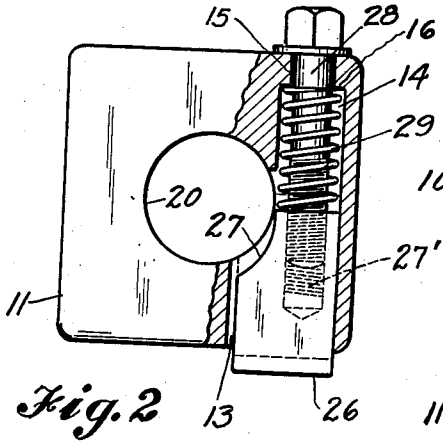


Fig. 2

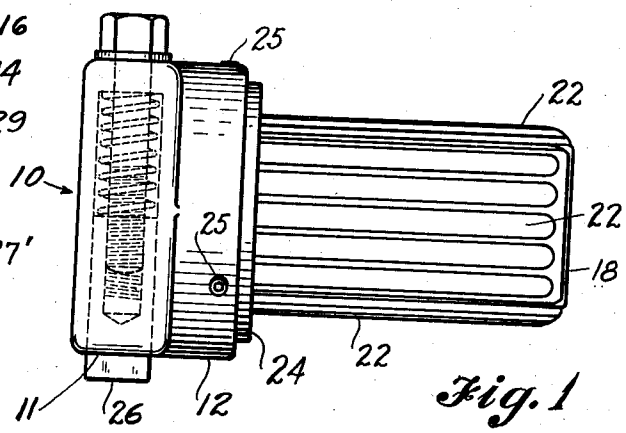


Fig. 1

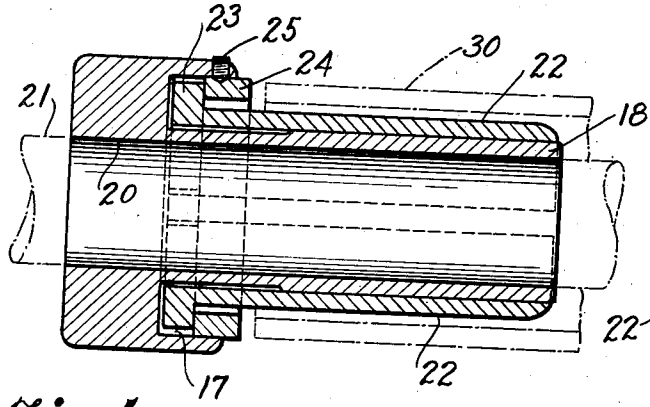


Fig. 4

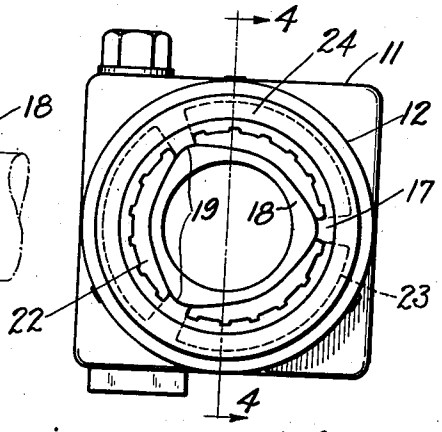


Fig. 3

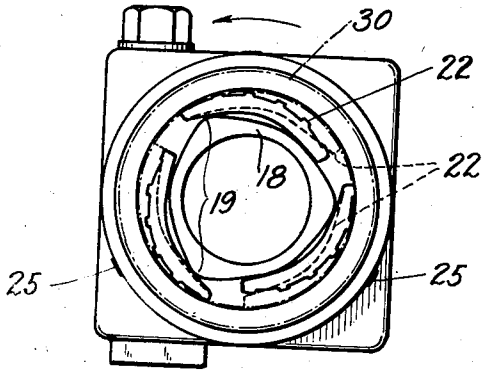


Fig. 5

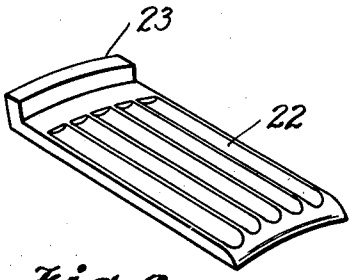


Fig. 6

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PAPER ROLL CHUCK

Franklin Pierce Bennett, Seattle, Wash.

Application June 5, 1937, Serial No. 146,569

1 Claim. (Cl. 242—72)

This invention relates to clamping and chucking devices, more especially to the type of chuck that is used for clamping rolls of paper to shafts such as is done for printing presses.

The object is to provide a chuck that is simple, efficient, easily as well as quickly operated.

While there are many chucks on the market for this purpose most of them have serious objections, some do not center praperly or are injurious to the shaft or paper, some need special wrenches which are easily misplaced or lost and some do not clamp properly. Still others are slow and cumbersome to manipulate when time is a big factor. I accomplish these and other objects by the peculiar arrangement and combination of parts as will be more fully explained in the accompanying specifications shown in the drawing and finally pointed out in the appended claim.

Fig. 1 is a side view of my chuck.

Fig. 2 is a left end view of Fig. 1 with parts broken away.

Fig. 3 is a right end view of Fig. 1.

Fig. 4 is a section upon line 4—4 of Fig. 3.

Fig. 5 is a view similar to Fig. 3 but shows the chuck expanded.

Fig. 6 is a perspective of one of the leaves.

Referring now more particularly to the drawing, reference numeral 10 represents the body of my device in its entirety. The head end of the body consists of a square portion 11 with an adjoining cylindrical portion 12. The square portion 11 is provided with a hole 13 the top end of which is diminished in size as shown at 14 and terminates in a round hole 15 leaving a shoulder 16. The cylindrical portion 12 is provided with a circular groove or annular recess 17 out of which extends an integral bearing sleeve 18 having a plurality of exterior, longitudinally extending lobes 19, three being preferred. The body of the sleeve is bored out along its axis as at 20 so it may be slipped on a shaft 21 as indicated by dot and dash lines.

In Figs. 3, 4, and 6 it will be seen that an expansible and contractible, divided, cam-sleeve is mounted on the bearing sleeve, which cam sleeve comprises three segmental leaves 22, each located between a pair of adjoining lobes 19. At their inner ends, each leaf is fashioned with an arcuate, exterior, flange or shoulder 23, and these flanges fit loosely in the annular recess 17 of the head. The leaves are loosely held in place by means of an encircling retainer ring 24 which is slipped into the groove or recess 17 and clamped in place by means of set screws 25. The hole in the retainer ring 24 is enlarged and of sufficient diameter to permit the leaves 22 to be rotated onto the lobes 19 of the bearing sleeve 18, thus expanding the chuck (Fig. 5).

Slidably mounted in hole 13 is a clamping block 26 (Figs. 1 and 2) which is cut away at one corner as at 27 to the same radius as the hole 20. The block 26 is tapped as at 27' to receive the screw 28.

A spring 29 is interposed between the clamping block 26 and shoulder 16, and coiled about the screw-bolt 28, and it will be apparent that the spring tends to project the clamping block away from the shaft 21, as indicated in Figure 1. By turning the screw 28 in the proper direction it is evident that the face 27 of the clamping block 26 will be drawn tightly up against the shaft and by its wedging action the block rigidly secures the chuck to the shaft. By turning the screw in the opposite direction it is evident that the spring 29 will force the clamping block 26 away from the shaft consequently releasing the chuck.

The method of operation is as follows—The chuck is slipped into the core of the roll of paper, as indicated by the dot and dash lines 30, (Figs. 4 and 5) after the roll has been placed on the shaft. The clamping screw 28 is now drawn up and the chuck securely clamped to the shaft as previously described. The body of the chuck is then given a slight rotation in the opposite direction to which the paper roll is to be rotated, expanding the leaves and clamping the chuck in the core of the paper roll. First the leaves take the position shown by the solid lines (Fig. 5) and upon continued rotation take the position as indicated by the dotted lines so that the entire surface of the leaves bear against the inner surfaces of the core of the paper roll. The rotation of the paper roll in the direction indicated by the arrow (Fig. 5) only tends to more securely clamp the chuck in the core.

From the design of the cam and leaves it is evident that the chuck is adaptable for either direction of rotation of the paper roll.

Having shown and described a particular form of embodiment of my invention, I am aware that many minor changes will readily suggest themselves to those skilled in the art without departing from the spirit and scope of my invention. I therefore desire to avoid being limited to the particular form which I have hereinabove shown and described. I thus have described my invention, which I claim is new, and desire to protect by

Letters Patent said invention, to be known as "Bennett paper roll chuck."

I claim:

In an expansion chuck for use with a paper roll and its shaft, the combination with a bearing sleeve having an integral head and a socket in the head extending transversely of the sleeve, of a clamping block mounted in the socket and having a face concentric with the bore of the sleeve, a screw-bolt rotatable in the head and threaded in the inner end of the block whereby the block is drawn into clamping position against the shaft, a spring engaging the block and head for unclamping the block when the screw-bolt is released, said bearing sleeve having exterior cam faces, and a longitudinally divided cam sleeve mounted on the bearing sleeve, whereby a rotary movement of the head expands the cam sleeve into frictional engagement with the core of the paper roll.

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