

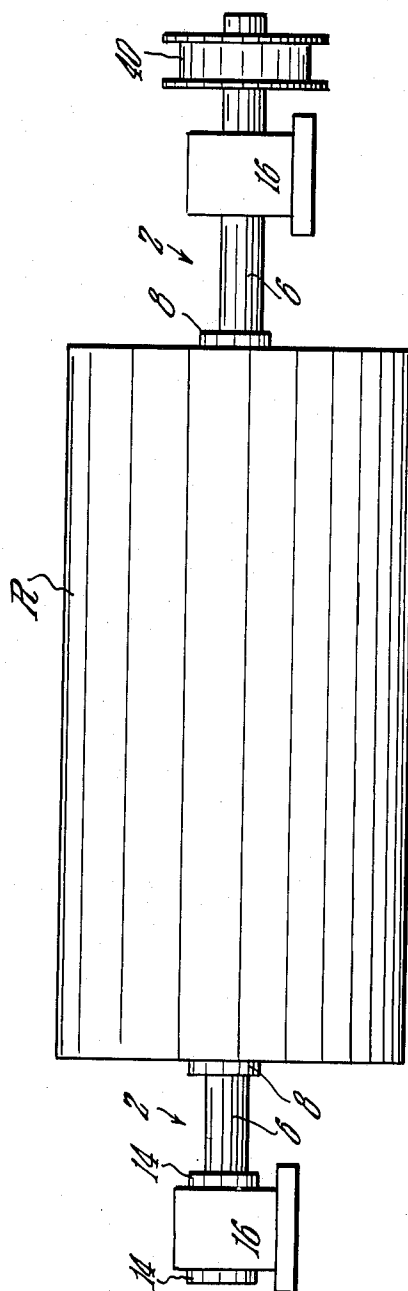
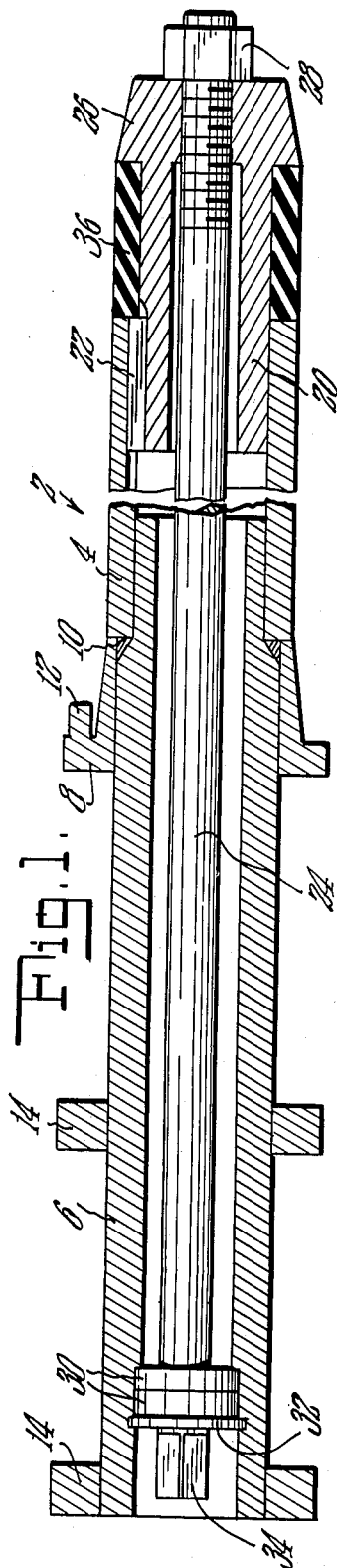
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STEEL SHAFT FOR ROLLS OF PAPER AND THE LIKE

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STEEL SHAFT FOR ROLLS OF PAPER AND THE LIKE

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1 Claim. (Cl. 242—72)

This invention relates to stub shaft for rolls of paper and the like.

The principal objects of the invention are directed to the provision of a stub shaft having particular use for insertion in the core of a roll of paper or the like.

A pair of stub shafts are inserted in opposite ends of a core and are provided with means adapted to expand in the core whereby to hold the shafts and core and thereby the roll against relative rotation and a friction drum may be carried by a shaft for the application of means to tension the web as it is unwound from the roll.

As a further feature of the invention, the shaft may include means for engaging the end of a core.

All of the above objects I accomplish by means of such structure and relative arrangements of parts thereof, as will fully appear by a perusal of the description below and by various specific features which will be hereinafter set forth.

To the above cited and other ends and with the foregoing and various other novel features and advantages and other objects of my invention as will become more readily apparent as the description proceeds, my invention consists in certain novel features of construction and in the combination and arrangement of parts as will be hereinafter more particularly pointed out in the claim hereunto annexed and more fully described and referred to in connection with the accompanying drawings wherein:

Fig. 1 is a longitudinal sectional view through a shaft embodying the novel features of the invention; and

Fig. 2 is a small scale view, more or less diagrammatic showing a pair of stub shafts associated with a roll and supporting the same from a pair of stands.

Referring now to the drawings more in detail, the invention will be fully described.

A steel shaft is represented generally by 2. There will be shafts insertable in opposite ends of the core of a roll and in describing the shaft in Fig. 1, it will be understood that the shafts are substantially alike in function.

The shaft 2 includes an inner elongated tubular section 4 and an outer tubular section 6. The inner end of the outer section is secured within the outer end of the inner section as by a shrink fit. A collar 8 around the inner end of outer shaft is secured thereto as by welding at 10 or in any suitable manner.

The collar 8 may be provided with one or more dogs 12 adapted to engage in the recess or recesses at the end of a core or arranged to impinge the end of a core depending upon the nature of the core.

Collars 14 are secured by shrinking or otherwise to the outer section 6. These will be arranged to engage opposite ends of a bearing stand 16 in which the shaft is rotatable.

An actuator 20 is slidable in the inner end of shaft section 4 and is held against rotation relative thereto by a key 22.

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An elongated actuating rod 24 within the shaft has a threaded end extending through a head end 26 of the actuator and engages a nut 28 held against rotation relative to the head 26.

Collars 30 within the outer shaft section 6 and adjacent the outer end thereof support the rod 24 for rotation. A snap ring 32 seated in a suitable groove in the bore of the outer section retain the collars in place. The outer end of rod 24 is squared or otherwise formed for engagement by a tool.

A tubular expander 36 around the actuator 20 is formed from rubber, rubber composition or the like and adapted to expand in diameter as the head 26 of the actuator is moved towards the inner end of section 4.

As rod 24 is turned in one direction, the head is moved towards the end of the inner section so that the expander is shortened in length and increased in diameter whereby in the core of a roll the expander and core are operatively engaged. As the rod is turned in an opposite direction, the expander assumes its normal condition to release the core.

In operation a pair of shafts are inserted in opposite ends of the core of a roll and other sections of the shafts are supported in stands such as 16. The expanders are operated to engage within the core and the projection or projections 12 may engage the end of the core.

One of the shafts may be provided with a brake drum engageable by a brake band device so that with the core held against rotation relative to the shafts the rotation of the roll R is controlled to the extent desired.

From the foregoing, it will be observed that the steel shaft is constructed and arranged to engage the core of the roll internally as well as at the end or ends in some cases thereby to hold the core and shaft against relative rotation and that brake means may be applied to control the rotation of the roll and core.

The invention may be embodied in other specific forms without departing from the essential characteristics thereof. Hence, the present embodiments are therefore to be considered in all respects merely as being illustrative and not as being restrictive, the scope of the invention being indicated by the appended claim rather than by the foregoing description, and all modifications and variations as fall within the meaning and purview and range of equivalency of the appended claim are therefore intended to be embraced therein.

What it is desired to claim and secure by Letters Patent of the United States is:

A stub shaft construction for inserting in the tubular core of a roll of paper or the like for rotation thereof, comprising an elongated outer shaft section and an elongated inner shaft section having a bore, the inner end of the outer section secured in the outer end of the bore of the inner section to provide an elongated shaft structure, said outer section provided with a longitudinal bore, an elongated actuator slidable in the bore of the inner section having an inner annular end head spaced inwardly of the inner end of the inner section, means holding said actuator and inner section against relative rotation, an annular resilient expander on said actuator between the head thereof and the inner end of the inner section adapted to be expanded radially by said actuator, collar means seated in the bore of the outer section adjacent the outer end thereof, an elongated actuating rod journaled in said collar means and extending through the bores of said sections and actuator having an inner threaded end, thread means carried by said actuator operably engaging the threaded end of said rod, a collar fixed to said outer section at the outer end of said inner section for engaging an end of a core in which said shaft is inserted, and journal means for a

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bearing at the outer portion of said outer section, all adapted and arranged whereby as said actuating rod is rotated in one direction or the other said actuator acts to expand said expander into a core or release the same.

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