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STOCK ROLL SUPPLY ARBOR

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Fig. 1

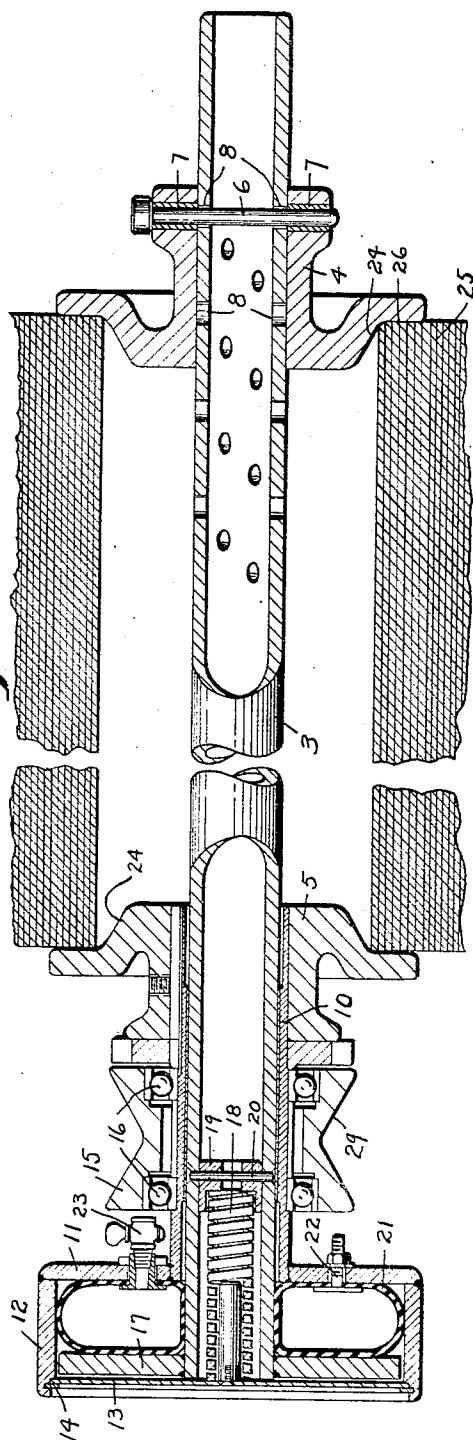
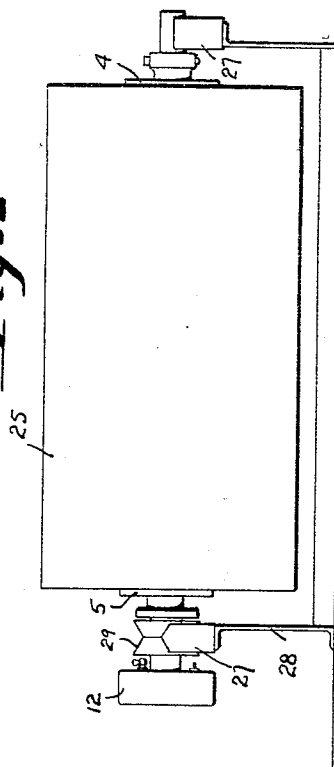


Fig. 2



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STOCK ROLL SUPPLY ARBOR

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6 Claims. (Cl. 242-73)

The invention relates to supply or stock roll arbors for carrying rolls of paper or other materials which may be unwound therefrom on the turning of the arbor.

The main object of the invention is to provide an arbor of the type above described which permits ready installation of the roll on the arbor and the clamping of the core or the roll to the arbor, the arbor being adjustable to accommodate supply rolls of different widths.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings:

Fig. 1 is a side elevation view of an arbor embodying the invention, parts being broken away and parts being shown in section;

Fig. 2 is an elevation view of the arbor and the supply roll mounted on a supporting cradle or frame.

Referring to the drawings, the arbor includes a roll carrying shaft 3 and roll mounting core plugs or collars 4 and 5 mounted on said shaft.

The core plug 4 is adapted to be secured in different positions of lengthwise adjustment relative to one end of the shaft 3 to accommodate supply rolls of material of different widths by a pin 6 which passes through aligned holes 7 in the hub of said collar and through any one of the spaced sets of diametrically disposed holes 8 in the shaft 3.

The core plug 5 is keyed to a sleeve 10 surrounding the other end of shaft 3 and slidably movable thereon, said sleeve at its rear end carrying a housing formed by an end plate 11, cylinder 12, and end plate 13 secured to the outer end of cylinder 12 by a split retainer ring 14. The sleeve 10 has a cradle bearing member 15 journaled thereon by spaced ball bearings 16.

A plate or disk 17 is welded or otherwise suitably fixed to the housing end of shaft 3 within the housing above referred to.

A spring 18 is mounted in the hollow of the shaft 3 between the end plate 13 and a fixed stop 19 anchored to said shaft by a pin 20, said spring, when tensioned, acting to move the shaft 3 and the plug 4 toward the right and away from the plug 5.

An inflatable pneumatic tube 21 having the usual self-closing tire valve 22 is secured to the end plate 11 by the valve fitting and by a fitting including an exhaust valve or cock 23 and is adapted to bear at its other side against the disk 17.

The plugs 4 and 5 have tapered surface 24 so that either the inner diameter of the stock roll 25 or the core for said roll will ride up on said tapered surfaces and come to seat against the shoulders 26 of said plugs when said plugs are drawn toward each other.

With the above arrangement, the plug 4 having been removed from the shaft 3, this shaft is run through the hollow center of the supply roll 25 until the plug 5 abuts one side of the roll and the plug 4 is then replaced on shaft 3 and run up on this shaft to a position adjacent the other side of the roll and locked by the pin 6 passed through one of the sets of holes 8, the spring 18 then being in its expanded position. Then air under pressure is introduced into the tube 21 from a suitable source of compressed air past the valve 22 to inflate the tube as shown in Fig. 1 and thus cause it to exert pressure on the disk 17 to move the arbor shaft 3 with plug 4 toward the left and thus bring plug 4 closer to plug 5 and bring these plugs into clamping engagement with the inner diameter of the roll 24 as shown in Fig. 1

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or with a core on said roll and the same time putting tension in the spring 18. With the roll thus mounted on the arbor it is placed in half-bearings 27 of a cradle 28 so that the shaft 3 can rotate on said bearings as the stock is unwound from the roll 25, it being noted that the plugs 4 and 5 are held against the roll by air pressure. On a reduction of air pressure in the tube 21 by the opening of the exhaust cock 23, spring 18 will act to quickly separate the plugs 4 and 5 from clamping engagement with the roll 24 or a part thereof remaining on the arbor.

The bearing member 15 is preferably a roller provided with a V-groove 29 and the half bearing 27 is formed with a complementary V-shaped peripheral surface, as shown in Fig. 2, engaged by said groove 29 so that when these parts are in mating relation, any end movement of the arbor relative to the cradle is prevented.

I desire it to be understood that this invention is not to be limited to any particular form or arrangement of parts except in so far as such limitations are included in the appended claims.

What I claim as my invention is:

1. In a stock roll arbor, the combination of an arbor shaft, core plugs, means for adjustably mounting one of said plugs lengthwise of said shaft, the other of said plugs being slidably mounted on said shaft, fluid pressure operated means interposed between said shaft and said other plug for producing relative movement between said shaft and said other plug to move said plugs into clamping relation with a stock roll disposed therebetween, and resilient means acting in opposition to said fluid pressure and facilitating separation of said plugs from engagement with said stock roll.

2. In a stock roll arbor, the combination of an arbor shaft, core plugs, means for anchoring one of said plugs to the shaft, the other of said plugs being slidably mounted on said shaft, an abutment member secured to said shaft adjacent said other plug, a housing operatively connected to said other plug, a pneumatic tube mounted in said housing and engageable with said abutment member for moving said anchored plug toward said other plug to clamp a stock roll between said plugs, and means for supplying air pressure to said pneumatic tube.

3. The stock roll arbor as defined in claim 2 in combination with a spring interposed between said shaft and housing for said tube and acting in opposition to the fluid pressure in said tube to facilitate separation of said plugs from engagement with said stock roll when said tube is deflated.

4. In a stock roll assembly, the combination of an arbor, core plugs, means for adjustably mounting one of said plugs lengthwise of said shaft, the other of said plugs being slidably mounted on said shaft and having a hub, fluid pressure operated means interposed between said shaft and said other plug for producing relative movement between said shaft and said other plug to move said plugs into clamping relation with a stock roll disposed therebetween, a roller having a V-groove mounted on the hub of said other plug, a cradle for said arbor having a bearing for one end of said arbor and a V-bearing complementary to the V-groove of said roller to prevent endwise movement of said arbor relative to said cradle.

5. In a stock roll assembly, the combination of an arbor, core plugs, means for adjustably mounting one of said plugs lengthwise of said shaft, the other of said plugs being slidably mounted on said shaft and having a hub, fluid pressure operated means interposed between said shaft and said other plug for producing relative movement between said shaft and said other plug to move said plugs into clamping relation with a stock roll disposed therebetween, supporting bearings for said shaft including a bearing cooperating with the hub of said other plug to prevent endwise movement of said arbor relative to said cradle and maintain a constant distance between said other plug and its associated bearing.

6. In a stock roll assembly, the combination of an arbor, core plugs, means for adjustably mounting one of said plugs lengthwise of said shaft, the other of said

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plugs being slidably mounted on said shaft, fluid pressure operated means interposed between said shaft and said other plug for producing relative movement between said shaft and said other plug to move said plugs into clamping relation with the stock roll disposed therebetween, supporting bearings at the extended ends of said arbor, and means for maintaining a constant distance between said other plug and the supporting means for this end of the arbor.

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