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(54) Coupling for a rotary printing screen.

(57) A rotary printing screen (10) comprises a cylindrical screen (12) of fine nickel mesh removably connected to two coupling devices (14). Each coupling device (14) has a fixed end ring (18) and a movable ring (22) biased by an internal screw threaded ring (32). The adjacent faces of the rings (18, 22) are profiled to form a groove which constitutes a seat for the endless band (26). Movement of the ring (32) causes the band (26) to be compressed and frictionally engage the screen (12).

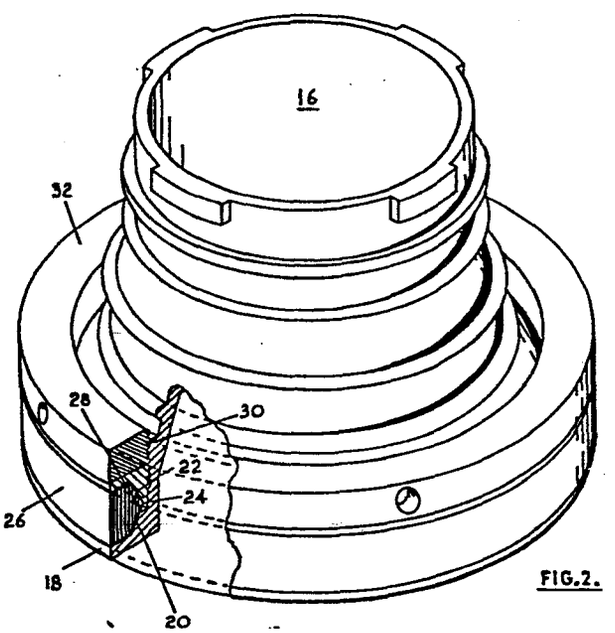

FIG.2.

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This invention relates to a coupling device for a rotary screen and in particular to a device that is removably engageable with the screen.

In the prior art there are basically two types of rotary printing screens, in the one type the end ring is fixed to the screen while in the other type the end ring is removable. In United States Patent 4,026.208 (Horne, Jr et al) a rotary printing screen is described in which the end ring is bonded to the cylindrical screen to withstand axial tension. A releasable mounting device is described in United States Patent 4,044,669 (Luther) in which inner peripheral flanges are formed at the ends of the screen for engaging a groove formed in a metal band having overlapping ends. The band is biased outwardly by an inflatable member or by means of wedges. The flange is formed using an adhesive tape and it is difficult to accurately apply the tape to the screen.

It is an object of the invention to provide a removable coupling device for a rotary screen.

According to the invention there is provided a coupling device for releasably mounting on a rotary screen, having a zone including two spaced apart rings for insertion in an end of the screen, a deformable endless band having an inner face for

seating in an annular groove formed by the rings and means for biasing at least one of the rings towards the other for deforming the band and frictionally engaging the screen.

Preferably the adjacent faces of the rings are angled in opposite senses to form a groove and the inner face of the endless band is complementally shaped. The means for biasing the rings preferably comprises a nut which rides on a screw threaded zone formed on the device. One of the rings is preferably fixed on the device while the other is slidable. Preferably the adjacent faces of the rings are profiled to slope inwardly and provide a substantially vee shaped groove for receiving a complementally shaped inner face of the endless band. The opposite face of the endless band is preferably planar for mating with the inner surface of the screen.

Preferably two devices are provided at the ends of a printing screen. The ends of the devices opposite the zone for insertion into the screen includes formations for coupling with a rotatable member of a printing machine.

The endless band is preferably formed from a polymeric material and has an outside diameter slightly less than the inner diameter of the rotary screen which is

formed from a fine nickel mesh.

An embodiment of the invention is described by way of example with reference to the accompanying drawings in which:

Figure 1 is a perspective view of a rotary printing screen incorporating a coupling device according to the invention; and

Figure 2 is a perspective view of the coupling of Figure 1 with parts broken away.

Referring to the drawings a rotary printing screen 10 comprises a cylindrical screen 12 removably connected to two coupling devices 14.

The coupling device 14 has a tapered hollow body 16 formed with a fixed end ring 18 having an inwardly sloping face 20. A movable ring 22 having a sloping face 24 is slidably movable on the device 14 to form a vee shaped annular groove of variable width. Seated in groove formed by the faces 20, 24 is an endless polymeric band 26 having a tapered inward projection 28. The body 16 is screw threaded at 30 on to which rides an internally screw threaded ring 32. The external diameter of the ring 32 is slightly less than the internal diameter of the screen 12.

The body 16 has four spaced apart projections 34 at the edge remote from the end ring 16 for coupling to a printing machine. The screen 12 comprises an elongate cylindrical member manufactured from a fine nickel mesh.

In use of the invention two coupling devices 14 are located at the ends of the screen 12. The ring 32 is screwed towards the end ring 18 thus sliding the ring 22 in that direction and consequently reducing the width of the groove formed by the faces 20, 24. This motion causes the tapered projection 28 of the band 26 to be compressed and expand radially towards the circumference. The correct amount of expansion may be obtained by a specially designed tool having an indicator for the present torque. This causes the device 14 to frictionally engage the screen 12.

An advantage of the invention is that the device permits the use of a single screen on a plurality of different types of machines. Furthermore, the screens may be stored more economically due to the resiliency of the screens without the coupling devices. In addition the groove between the rings provides a positive locking arrangement for the endless band.

CLAIMS

1.

A coupling device for releasably mounting on a rotary screen characterised in having a zone including two spaced apart rings for insertion in an end of the screen, a deformable endless band having an inner face for seating in an annular groove formed by the rings and means for biasing at least one of the rings towards the other for deforming the band and frictionally engaging the screen.

2.

A coupling device according to claim 1 characterised in that there are two rings having adjacent faces angled in opposite senses to form an annular groove.

3.

A coupling device according to claim 2 characterised in that the inner face of the endless band is shaped complementally to the annular groove.

4.

A coupling device according to any one of claims 1

to 3 characterised in that the means for biasing the rings comprises a nut which rides on a complementally screw threaded zone of the device.

5.

A coupling device according to any one of claims 2 to 4 characterised in that the adjacent faces of the rings are profiled to slope inwardly to form a vee shaped groove and one of the rings is slidable relative to the other ring.

6.

A coupling device according to any one of claims 1 to 5 characterised in that the endless band is manufactured from a polymeric material and its outer diameter is slightly less than the inner diameter of the rotary screen.

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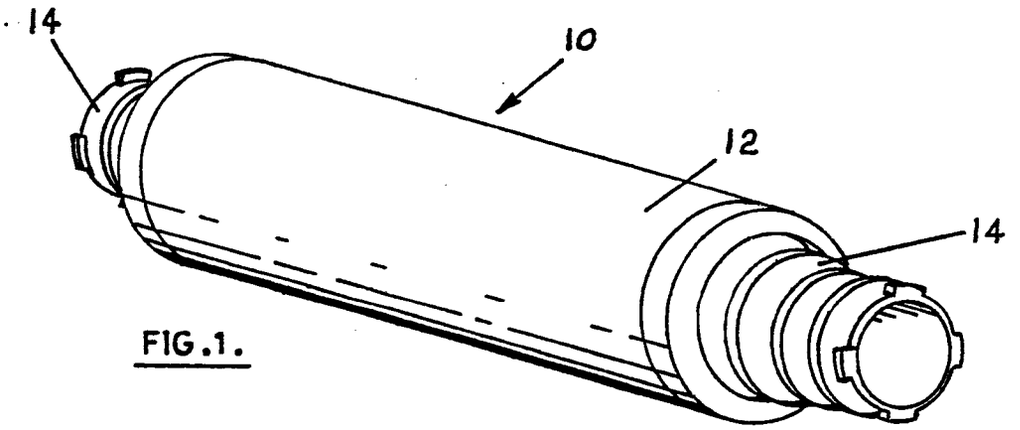

FIG.1.

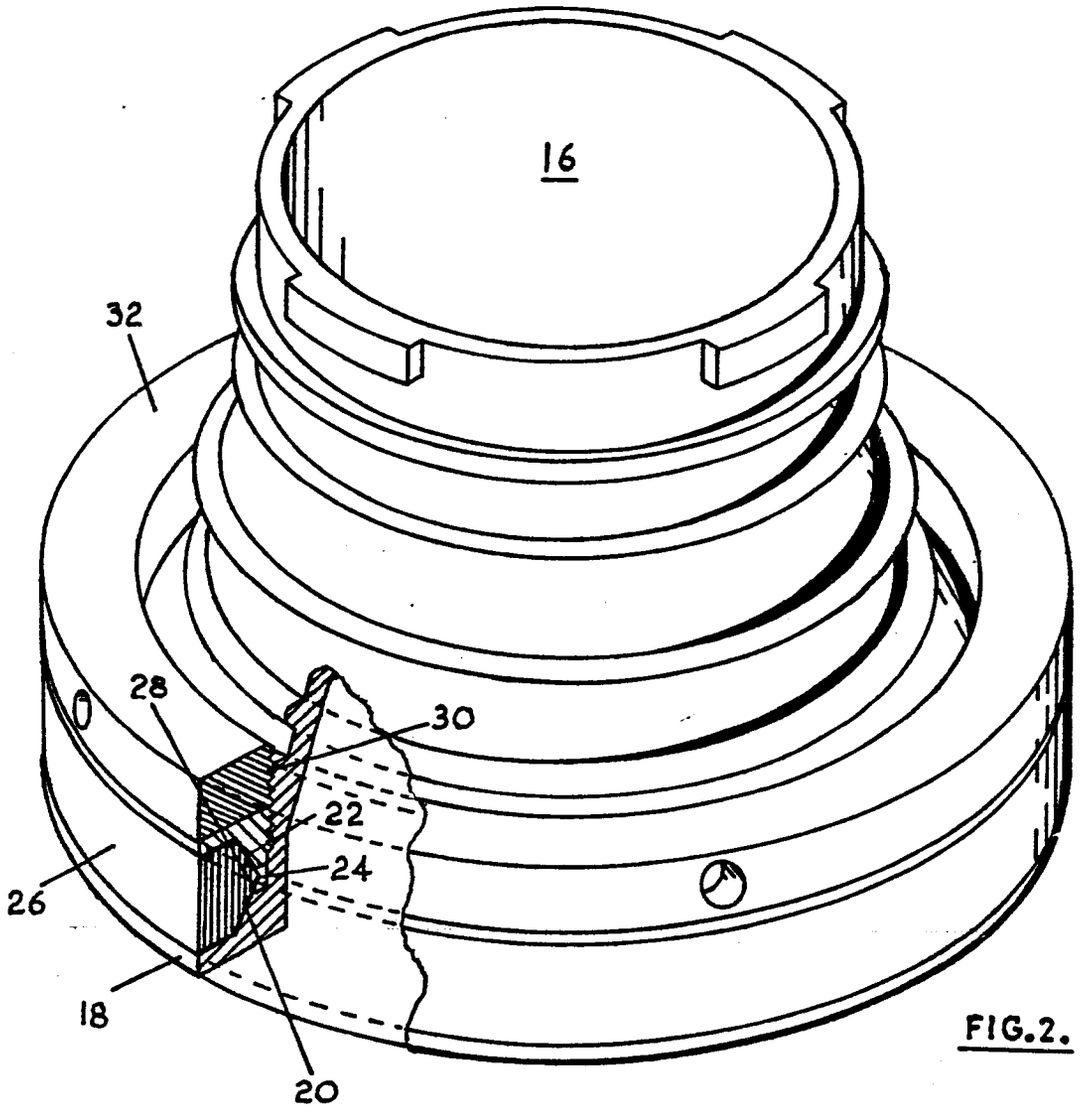

FIG.2.