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(54) Mounting mechanisms for cloth rolls on press cylinder cleaning devices

(57) A cleaning material supply system for a printing press having a supply core disposed around a supply shaft, the supply core having an internal polygonal cross-sectional shape corresponding to an outer shape of the supply shaft to couple the shaft and core together so as to prevent relative rotation between the supply core and the supply shaft. The cleaning system for a cylinder of a printing press may also include a supply core having a key receiver dimensioned to receive a key to couple the supply core to a supply shaft to prevent relative rotation between the supply core and the supply shaft. A slot receiving arrangement for the take-up shaft having a movable finger and the receiving slot is also depicted. In addition, a take-up shaft having an external polygonal cross-sectional shape is also disclosed.

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Description

Background of the Invention

1. Field of the Invention

The present invention relates generally to cleaning systems for use in cleaning a cylinder of a printing press and, more particularly, to mounting mechanisms for cloth rolls on press cylinder cleaning devices.

2. Description of the Related Art

In the past, cleaning systems have been used for cleaning a press cylinder of a printing press. In particular, systems have been used wherein a supply of cleaning cloth, which is disposed around a supply core and supply shaft, is fed through a cleaning apparatus to contact and clean a press cylinder. After use, the used cleaning cloth is taken-up on a take-up shaft. Such a system is disclosed in U.S. Patent No. 5,176,080 to Gasparrini et al., herein incorporated by reference.

In use, a cylinder-operated take-up shaft is used to rotate the shaft, thereby drawing cleaning cloth from a supply roll towards the take-up shaft. This incremental cloth advancing system is utilized to prevent an excessive amount of cleaning cloth from being drawn off of the supply roll, thereby preventing excess cleaning cloth usage and interference with the printing system. In order for such an incremental cloth advancing system to be effective, relative rotation between the supply core and supply shaft must be prevented. To date, a jaw system has been utilized to couple the supply core to the supply shaft to prevent relative rotation therebetween. This jaw system utilizes a series of pins or jaws to simultaneously grip both the supply shaft and the supply core. This assembly has a brake mechanism and, once the assembly is coupled to the shaft sockets, an applied spring rewind force.

The use of such jaws, however, has proven inadequate at times to insure the prevention of relative rotation between the supply shaft and the supply core in view of a problem known as core shrinkage. Core shrinkage is a problem which results from the manufacturing process and materials used to make a supply core. This problem results in a particular supply core being shorter than a supply shaft on which the core is to be mounted. Accordingly, if an attempt is made to utilize the jaws to couple the shorter core to the longer shaft, the jaws are incapable of coupling the core to the shaft in view of the shortened length of the core. In particular, because the jaws are unable to adequately reach the core as the jaws are being mounted onto the shaft, the core remains uncoupled to the shaft. Therefore, as a cylinder causes the take-up shaft to index in an attempt to draw cleaning material off of the supply core, the incremental advancing system associated with the supply shaft will fail to prevent excess cleaning cloth from feeding into the printing system, since the brake and spring rewind are ineffective when the core remains uncoupled to the shaft. Rather, as the take-up shaft rotates, the supply core can rotate with respect to the supply shaft thereby feeding an excessive amount of cleaning cloth into the system. Accordingly, the printing system may jam in view of this excess cleaning cloth. As such, this excess amount of cleaning material is wasted when the supply core is not properly coupled to the supply shaft.

Accordingly, there exists a need to address the core shrinkage problem to assure proper press cylinder cleaning and to alleviate system jamming during use of such cleaning systems for press cylinders.

Other problems also exist in present day cleaning systems for press cylinders. In particular, the systems currently use a take-up roll having a serrated surface which provides an exceptionally jagged frictional surface so that cleaning cloth will stick to the take-up shaft as that shaft rotates. The use of such a jagged surface prevents relative rotation between the used cleaning material and the take-up shaft as the take-up shaft rotates. Accordingly, as the cylinder rotates the take-up shaft, the used cleaning cloth adheres to the jagged surface of the take-up shaft thereby drawing additional cleaning material off of the supply core as the take-up roll rotates.

However, the use of such a jagged frictional surface, particularly when the take-up shaft is metal, can be a nuisance to a user. Accordingly, there exists a need to prevent relative rotation between used cleaning cloth and a take-up shaft without exposing a user to possible cuts and scratches.

Another problem associated with current cleaning systems for press cylinders is the difficulty associated with removing the supply or take-up shafts during an exchange of cleaning cloth. Accordingly, there exists a need for an enhanced engagement system which facilitates removal and reinsertion of the supply and take-up shafts during an exchange of cleaning cloth.

The present invention fulfills the aforementioned needs.

Summary of the Invention

In accordance with the present invention, it is an object of the present invention to overcome the aforementioned problems associated with existing cleaning systems for press cylinders.

In particular, it is an object of the present invention to prevent relative rotation between the supply core and the supply shaft of a cleaning system for press cylinders.

It is also an object of the present invention to overcome problems associated with core shrinkage for cleaning systems of press cylinders.

It is a further object of the present invention to eliminate the need for jaws coupling a supply core to a supply shaft of a cleaning system for press cylinders.

It is a further object of the present invention to elim-

inate the need for jagged frictional surfaces on shafts of cleaning systems for press cylinders.

It is a further object of the present invention to provide an enhanced engagement system for facilitating removal and reinsertion of supply and take-up shafts during an exchange of cleaning material in press cylinder cleaning devices.

It is a further object of the present invention to provide safe and economical enhancements for mounting mechanisms for cloth rolls on press cylinder cleaning devices.

It is a further object of the present invention to enhance safe operation of cleaning systems for press cylinders.

Additional objects and advantages of the invention will be set forth in the description which follows and, in part, will become apparent from that description. The objects and advantages realized and obtained by the instrumentation, parts, methods and assemblies, and apparati are particularly pointed out in the appended claims.

In accordance with these objects, the present invention is directed to a cleaning material supply system for a printing press mounted cylinder cleaning apparatus including a supply core disposed around a supply shaft, the supply core having an internal structure with an internal polygonal cross-sectional shape corresponding to an outer shape of the supply shaft, the supply core coupled to the supply shaft through engagement of the internal structure of the supply core with the supply shaft to prevent relative rotation therebetween; and a supply of printing press cylinder cleaning material disposed on the supply core. In various embodiments of the present invention, the internal polygonal cross-sectional shape of the supply core may have a number of sides selected from the group of 3, 4, 5, or 6. The invention might also include a supply shaft having an external structure with an external polygonal cross-sectional shape and a housing in which the supply shaft is rotatably mounted. The present invention might also include a take-up shaft having an external structure with an external polygonal cross-sectional shape. Moreover, the cleaning material supply system of the present invention may also include two plugs in which a portion of these plugs is disposed within the supply shaft, and a portion of each of these plugs being disposed outside the supply shaft and extending beyond a periphery of the supply shaft to prevent the supply core from sliding off the supply shaft.

In an alternative embodiment of the present invention, the cleaning material supply system of the present invention may include a supply core having an inner surface with an oval cross-section coupled to an outer surface of a supply shaft to prevent a relative rotation there between.

As such, the present invention is also directed to a supply core having an internal cross-section having a center point and a perimeter, the perimeter having at least two points disposed at different distances from the center, at least a portion of the supply core disposed around a rotatable shaft and coupled to the rotatable shaft through engagement of an internal surface of the supply core with the rotatable supply shaft.

Along these lines, the present invention is also directed to a method of cleaning a cylinder of a printing press including: mounting a cleaning material on a supply core having an internal cross-section with a polygonal shape, engaging the supply core with a supply shaft having an external cross-section with a polygonal shape to prevent relative rotation between the supply core and the supply shaft, rotating the supply shaft to unravel the cleaning material, and passing the cleaning material through the cylinder cleaning apparatus associated with the printing press.

In yet another alternative embodiment of the present invention, the present invention includes a cleaning system for a cylinder of a printing press including a supply core having a key receiver, and printing press cylinder cleaning material disposed on the supply core. The key receiver is dimensioned to receive a key to couple a supply core to a supply shaft to prevent relative rotation between the supply core and the supply shaft. Along these lines, the present invention also includes a method of preventing rotation between the cleaning material supply core and the cleaning material supply shaft of a printing press, including placing a cleaning material supply core around a cleaning material supply shaft, and engaging a coupling key to couple the cleaning material supply core to the cleaning material supply shaft.

Other aspects of the present invention will be readily apparent from the detailed description of the preferred embodiments which follows.

Brief Description of the Drawings

Figure 1 is an overall view of the cleaning system of the present invention.

Figure 2 is a side view of a supply core disposed about a supply shaft (in dotted lines) of the present invention as shown in isolation from the remaining elements of the cleaning system of the present invention.

Figure 3A is a cross-sectional view of one embodiment of the present invention along lines 3-3 of figure 2.

Figure 3B is another cross-sectional view of an additional embodiment of the present invention along lines 3-3 of figure 2.

Figure 3C is a cross-sectional view of another embodiment of the present invention along lines 3-3 of figure 2.

Figure 3D is a cross-sectional view of another embodiment of the present invention along lines 3-3 of figure 2.

Figure 3E is a cross-sectional view of another embodiment of the present invention along lines 3-3 of figure 2.

Figure 3F is a cross-sectional view of another em-

bodiment of the present invention along lines 3-3 of figure 2.

Figure 4 is a side view of the take-up shaft of the present invention as shown in isolation from the remaining elements of the cleaning system of the present invention.

Figure 5A is a cross-sectional view of one embodiment of the present invention along lines 5-5 of figure 4.

Figure 5B is another cross-sectional view of an additional embodiment of the present invention along lines 5-5 of figure 4.

Figure 5C is a cross-sectional view of another embodiment of the present invention along lines 5-5 of figure 4.

Figure 5D is a cross-sectional view of another embodiment of the present invention along lines 5-5 of figure 4.

Figure 6 is a side view of another embodiment of the present invention utilizing a key system.

Figure 7 is a top view of the embodiment shown in figure 6 of the present invention utilizing a key system.

Figure 8 is a cross-sectional view along the lines 8-8 of figure 6 of the embodiment of the present invention utilizing a key system.

Figure 9 is a cross-sectional view along the lines 9-9 of figure 6 of the embodiment of the present invention utilizing a key system.

Figure 10 is a perspective of a supply core with a key receiver to receive a key of a supply shaft in accordance with another embodiment of the present invention.

Figure 11 is a perspective view of a two plugs and a supply shaft with a key in the form of a protrusion extending from the shaft to be placed within the key receiver of figure 10.

Figure 12 is a side view of a supply shaft and supply core having a key system in the form of a plurality of notches disposed on the shaft and core in accordance with another embodiment of the present invention.

Figure 13 is a side view of an additional feature of the present invention along the lines 13-13 of figure 1.

Detailed Description of the Preferred Embodiments of the Present Invention

With reference to the drawings, the following is a detailed description of each of the preferred embodiments of the present invention.

With reference to figure 1, a view of a cleaning system **10** for a press cylinder of a printing press is disclosed. The cleaning system **10** comprises generally a rotatable supply shaft **20**, a supply core **30**, a take-up shaft **40** and a housing **50**, each of which will now be described in greater detail below.

With continuing reference to figure 1, rotatable supply shaft **20** is shown as it extends from a first end **60** to a second end **70**. Preferably, rotatable supply shaft **20** generally has a solid structure except for a hollow portion at each end for receiving a portion of a plug. A first plug **80** is disposed at and within first end **60** of rotatable supply shaft **20**. A second plug **90** is disposed at and within second end **70** of rotatable supply shaft **20**. Each of these plugs **80,90** has a portion disposed in a hollow end portion of rotatable supply shaft **20**. Each of these plugs **80,90** also has laterally extending side portions which extend beyond the circumference of rotatable supply shaft **20** to prevent a supply core **30**, which is disposed around rotatable supply shaft **20**, from sliding off of rotatable supply shaft **20**. Each plug **80,90** also has a socket-engaging portion **100,110** which allows the plugs (and therefore rotatable supply shaft **20**) to engage within rotatable sockets **120,130**. Once engaged, the supply shaft **20** and plug arrangement can move/rotate with respect to the sockets **120,130** under brake load and spring rewind tensions. Rotatable sockets **120,130** are rotatably disposed within housing **50** such that, when a rotational force is applied to rotatable supply shaft **20**, rotatable supply shaft **20**, in conjunction with plugs **80,90** and sockets **120,130,** rotate about a rotational axis **140** of rotatable supply shaft **20**.

Preferably, rotatable shaft supply **20** is made of aluminum. Plugs **80,90** and sockets **120,130** are preferably made of plated steel and housing **50** is preferably made of aluminum. It is to be understood, however, that other suitable materials may be used for these elements.

With continuing reference to figure 1, supply core **30** is shown disposed around rotatable supply shaft **20**. As with rotatable supply shaft **20**, supply core **30** extends from a first end **150** to a second end **160**. Supply core **30** has an internal elongated hole which extends from first end **150** to second end **160** for receiving rotatable supply shaft **20** therein. Preferably, supply core **30** is made of cardboard, although it is to be understood that other suitable materials may be used.

Disposed about supply core **30** is an amount of cleaning material **170**. Preferably, this cleaning material **170** is such as those disclosed in U.S. Patent No. 5,368,157, herein incorporated by reference, although it is to be understood that other types of cleaning materials **170**, such as cleaning films, may be used.

With reference to figures 2 and 3A-3F, views of the supply core **30** disposed about a supply shaft **20** are shown in isolation from the remaining elements of the cleaning system **10** of the present invention. With particular reference to figures 3A-3F, various embodiments of the present invention are shown. In general, the rotatable supply shaft **20** has an outer cross-sectional shape **180** and the supply core **30** has an inner cross-sectional shape **190** which couples the rotatable supply shaft **20** with the supply core **30** to prevent relative rotation therebetween. As can be seen in these figures, rotatable supply shaft **20** has an cross-section with a polygonal (figs. 3A-3E) or oval (fig. 3F) outer shape, while supply core **30** has a cross-section with a polygonal (figs. 3A-3E) or oval (fig. 3F) inner shape. In particular, the outer cross-sectional shape **180** of the supply shaft **20** and the inner cross-sectional shape **190** of the supply

core **30** may be triangular (figure 3A), rectangular (figure 3B), pentagonal (figure 3C), hexagonal (figure 3D) or oval (figure 3F). As shown in figure 3E, it is to be understood that the external cross-sectional shape of the supply core **30** may vary from the internal cross-sectional shape of the supply core **30**. Accordingly, in Figure 3E, a core with a round external shape and an internal cross-sectional square shape is shown. Accordingly, the core may outwardly appear to be a cylindrical shape, while the internal structure may have a non-cylindrical shape.

In sum, the outer cross-sectional shape **180** of the supply shaft **20** and the inner cross-sectional shape **190** of the supply shaft **20** may be any non-circular shape. A circle, by definition, is a closed plane curve every point of which is equidistant from a fixed point (the center) of the curve. Accordingly, a non-circular shape has a center point and a perimeter whereby the perimeter has at least two points disposed at different distances from the center. As such, the outer cross-sectional shape **180** of the supply shaft **20** and the inner cross-sectional shape **190** of the supply core **30** may be any shape which has a center point and a perimeter whereby the perimeter has at least two points disposed at different distances from the center.

It is also to be understood that the outer cross-sectional shape **180** of the supply shaft **20** need not be the same as the inner cross-sectional shape **190** of the supply core **30** provided that these shapes cause the supply shaft **20** and supply core **30** to couple so as to prevent relative rotation therebetween.

In use, such a structural arrangement allows the rotatable supply shaft **20** and supply core **30** to rotate in unison thereby facilitating the dispensing of cleaning material **170** as the supply shaft **20** and supply core **30** rotate together.

With reference to figure 1, 4 and 5A-5D, a rotatable take-up shaft **40** of the present invention is shown. The rotatable take-up shaft **40** extends from a first end **192** to a second end **194**. Disposed at each respective end is a protrusion **196,198** disposed in communication with the housing **50**. As shown in figures 5A-5D, the take-up shaft **40** preferably has a polygonal shape such as triangular (fig.5A), rectangular (fig.5B), pentagonal (fig. 5C) or hexagonal (fig. 5D), so that used cleaning material **170** may be wound around the take-up shaft **40** without needing to resort to a rough jagged surface texture on the take-up shaft **40**. As with the supply shaft **20** and supply core **30**, the take-up shaft **40** may assume various non-circular shapes.

With reference to figure 1, cylinder **199** is disposed in communication with a take-up shaft **40** to rotate the take-up shaft **40** during cleaning of a press cylinder. In use, the cylinder **199** rotates the take-up shaft **40** thereby drawing cleaning material **170** off the supply core **30** and rotating the supply core **30** and supply shaft **20** (in conjunction with the incremental advancing system disclosed in U.S. Patent No. 5,176,080).

Preferably, take-up shaft **40** is made of aluminum although it is to be understood that other suitable materials may be used.

With reference to figures 6-9, an alternate embodiment of the present invention utilizing a key system is shown. In this embodiment, a supply shaft **200** is coupled to a supply core **210** by utilizing a key system. As best seen in figure 8, the supply core **210** contains key slots or key receivers **220,230** for receiving keys **240,250**. As best seen in figures 8 and 9, the supply shaft **200** has an internal lumen **260** which contains essential elements of the key system. The supply shaft **200** also contains slots **270,280** in its sidewall. In general, as best seen in figure 9, the keys **240,250** pass through slots **270,280** to engage the supply core **210** via key receivers **220,230** to couple the supply shaft **200** to the supply core **210** to prevent relative rotation therebetween. While the key receivers **220,230,** at a minimum, must be large enough to receive the keys **240,250,** the key receivers **220,230** are preferably somewhat larger than this minimum size so as to provide a clearance gap to facilitate manufacturing tolerances for the supply shaft **200**, supply core **210** and key system.

With continuing reference to figures 8 and 9, a transverse pin **290** is preferably utilized to prevent the key system from being pushed too deeply into the lumen **260**. In the alternative, the supply shaft **200** may simply be made solid in the region to the right of the transverse pin **290** in figure 8 so as to maintain the entire key system to the left thereof. A spring **300** is disposed to the left of the transverse pin **290** in figure 8. This spring **300** may be attached at one end to the transverse pin **290** via clip. The other end of the spring **300** is placed into contact with a slidable camming member **310**. Preferably, the spring **300** is attached to at least transverse pin **290** or the slidable camming member **310** to assure that the spring **300** is always disposed between the slidable camming member **310** and the transverse pin **290**. Such an arrangement assures that the spring **300** will impart a force against the slidable camming member **310** and the transverse pin **290** as the camming member **310** is slid from retracted (unlocked) position, as shown in figure 8, to a locked position, as shown in figure 9.

Slidable camming member **310** has a first inclined camming surface **320** to engage a first key **240**, and a second inclined camming surface **330** to engage a second key **250**. Slidable camming member **310** also has an elongated neck **340** disposed between its inclined surfaces **320,330**. In addition, slidable camming member **310** has a slot **350** to receive a fixed pin **360**. As slidable camming member **310** slides from the unlocked position of figure 8 to the locked position of figure 9, this fixed pin **360** engages the ends of the slot **350** to prevent further movement of the slidable camming member **310** within the lumen **260** of the supply shaft **200**.

With continuing reference to figures 8 and 9, a first key **240** having an inclined surface **370** and a second key **250** having an inclined surface **380** are also shown. The inclined surface **370** of the first key **240** is config-

ured to engage the first inclined camming surface **320** of the slidable camming member **310**. The inclined surface **380** of the second key **250** is configured to engage the second inclined camming surface **330** of the slidable camming member **310**. Each of theses keys **240,250** has a pin for engaging a spring **390** which imparts a force drawing the two keys **240,250** together. As such, when the key system is in the unlocked position, both springs **300,390** act to force slidable camming member **310** toward its leftmost position as shown in figure 8. While spring **300** imparts a force urging the slidable camming member **310** into this position, spring **390** also pulls the keys **240,250** together thereby causing the inclined surfaces **370,380** of the keys **240,250** to engage the inclined surfaces **320, 330** of the slidable camming member **310** to urge the slidable camming member **310** into this unlocked position.

To urge the slidable camming member **310** from this unlocked position to the locked position shown in figure 9, a plug **400** having a plunger **410**, a laterally extending protrusion **420** and a locking pin **430** is preferably used. The plunger **410** is dimensioned to be received within the lumen **260** of the supply shaft **200**. As the plunger **410** enters the lumen **260**, the plunger **410** engages the slidable camming member **310**. As a user continues to push the plunger **410** into the lumen **260**, the slidable camming member **310** is forced from its unlocked position to its locked position. As the slidable camming member **310** is forced into this locked position, first inclined camming surface **320** engages the inclined surface **370** of the first key **240**, and second inclined camming surface **320** engages the inclined surface **380** of the second key **250**, thereby forcing the keys **240,250** to slide through the slots **270,280** disposed in the sidewall of the supply shaft **200**, and into the key receivers **220,230** of the supply core **210**. The plunger **410** is preferably as long as (1) the slot **350** plus (2) any distance between the end of the slidable plunger **410** and the end of the supply shaft **200**. The laterally extending protrusion **420** of the plug **400** extends beyond the circumference of the supply shaft **200** so that the protrusion **420** assists in preventing the supply core **210** from sliding off the supply shaft **200**. However, because the key system prevents the supply core **210** from sliding off the supply shaft **200**, the plug **400** need not have such a laterally extending side member. The plug **400** also has a locking pin **430** which is slid through a locking pin receiving slot **440** in the sidewall of the supply shaft **200** to a locking slot **450** which is also in the sidewall of the supply shaft **200**. To lock the plug **400** onto the first end **60** of the supply shaft **200**, the plug **400** need only be turned a small amount such that the locking pin **430** enters the locking slot **450** and engages the sidewall of the supply shaft **200** surrounding this locking slot **450**. It should be noted that such a key system can be built with only one key and one slot in the core and shaft, rather than two key/two slot arrangement shown in the drawings.

Preferably, plated steel and other metallic materials are to be used in such a key system, although it is to be understood that other suitable materials may be used.

With reference to figures 10 and 11, another embodiment of the present invention also utilizing a key system is disclosed is shown. In this embodiment, the key **500** protrudes from the sidewall of the supply shaft **510**. This key **500** may be integral with this sidewall. This key **500** is received in a key receiver or slot **520** in the supply core **530** which extends from the end of the supply core **530** to an intermediate point (between the ends) of the supply core **530**. Although two plugs **540,550** are shown in the embodiment of figures 10 and 11, it is to be understood that the first plug **540** shown in figure 11 is unnecessary to keep the supply core **530** from sliding off the supply shaft **510** (the key system adequately prevents the supply core **530** from sliding off of the supply shaft **510** at that end). Once this supply core **530** is slid onto this supply shaft **510** so that the key **500** is received in the key receiver **520**, relative rotation between the supply shaft **510** and supply core **530** is prevented.

With reference to figure 12, another embodiment of the present invention is shown. In this embodiment, a supply shaft **600** and supply core **610** have a key system in the form of a plurality of notches **620,630** disposed on the shaft **600** and core **610**, respectively, to prevent relative rotation therebetween.

With reference to figure 13, a unique arrangement for rotatably coupling the take-up shaft **40** to the housing **50** is shown. In this arrangement, the take-up shaft **40** may be slid into housing **50** via a slot **700**. Once the take-up shaft **40** is disposed in communication with housing **50** via slot **700**, a tightening screw **710** may be used to tighten a movable locking finger **720** from an unlocked position to a locked position. The unlocked position of movable locking finger **720** is shown in phantom in figure 13 while the locked position is shown in solid lines in figure 13. Such an arrangement may also be used to dispose the supply shaft in communication with the housing **50**.

While specific embodiments of the present invention have been shown and described, it should be apparent that many modifications can be made thereto without departing from the spirit and scope of the invention. Accordingly, the present invention is not limited by the foregoing description, but is only defined by the scope of the claims depended hereto.

Claims

1. A cleaning material supply system for a press cylinder, comprising:

   a supply core disposed around a supply shaft, said supply core having an internal structure with an internal polygonal cross-sectional shape corresponding to an outer shape of said supply shaft, said supply core coupled to said

supply shaft through engagement of said internal structure of said supply core with said supply shaft to prevent relative rotation therebetween; and
a supply of press cylinder cleaning material disposed on said supply core.

2. The cleaning material supply system of claim 1 wherein said supply core has an external structure with an external cross-sectional shape which is different from said internal polygonal cross-sectional shape of said supply core.

3. The cleaning material supply system of claim 1 wherein said internal polygonal cross-sectional shape of said supply core has a number of sides selected from the group of: three, four, five or six sides.

4. The cleaning material supply system of claim 1 further comprising a supply shaft having an external structure with an external polygonal cross-sectional shape , said supply core disposed around said supply shaft.

5. The cleaning material supply system of claim 4 further comprising a housing in which said supply shaft is rotatably mounted, a take-up shaft having an external shape with an external polygonal cross-sectional shape , said take-up shaft rotatably mounted in communication with said housing.

6. The cleaning material system of claim 5, wherein said take-up shaft has a plurality of sides.

7. The cleaning material supply system of claim 5 wherein said housing comprises a receiving slot and a movable locking finger, said movable locking finger having a locking finger unlocked position and a locking finger locked position, wherein said take-up shaft is rotatably coupled to said housing via said receiving slot when said movable locking finger is in said locking finger locked position.

8. The cleaning material supply system of claim 1, wherein said supply core has two ends, said supply shaft has two ends, and further comprising a first plug mounted on one end of said shaft, and a second plug mounted on the other end of said shaft, a portion of each said plugs being disposed within said supply shaft, and a portion of each said plugs being disposed outside said supply shaft and extending beyond a periphery of said supply shaft to prevent said supply core from sliding off said supply shaft.

9. The cleaning material supply system of claim 1 wherein said press cylinder cleaning material is a cloth fabric.

10. The cleaning material supply system of claim 1 wherein said press cylinder cleaning material is paper.

11. A cleaning system for a press cylinder, comprising:

core means for receiving an amount of cleaning material there around, said core means having a lumen to receive rotatable shaft means therethrough, said core means having an interior with a polygonal cross-section dimensioned to engage said rotatable shaft to prevent relative rotation between said core means and said rotatable shaft; and
cleaning material means for cleaning a cylinder of a printing press, said cleaning material means wrapped around said core means.

12. The cleaning system of claim 11 wherein said polygonal cross-section is selected from the groups of triangular, rectangular, pentagonal, or hexagonal.

13. The cleaning system of claim 11 further comprising supply shaft means for rotatably unravelling said cleaning material means, at least a portion of said supply shaft means disposed within said core means, said supply shaft means having an external surface in engagement with said core means to prevent relative rotation therebetween.

14. The cleaning system of claim 13 further comprising take-up shaft means for receiving said cleaning material means after the cleaning material means has been used to clean said printing press, said take-up shaft means having a polygonal external cross-sectional shape.

15. A method of cleaning a cylinder of a printing press, comprising:

mounting a cleaning material on a supply core having an internal cross-section with a polygonal shape;
engaging said supply core with a supply shaft having an external cross-section with a polygonal shape to prevent relative rotation between said supply core and said supply shaft;
rotating said supply shaft to unravel said cleaning material; and
passing said cleaning material through a cylinder cleaning apparatus in communication with said printing press.

16. The method of claim 15 further comprising:
placing plugs within two ends of said supply shaft to prevent said supply core from sliding off of said

supply shaft during rotation of said supply shaft.

17. The method of claim 16 further comprising:
receiving said unraveled cleaning material on a rotating take-up roll having an external cross-section with a polygonal shapes.

18. A cleaning material supply system for a printing press, comprising:

a supply core comprising an inner surface with an oval cross-section coupled to an outer surface of a supply shaft to prevent relative rotation therebetween; and
a supply of printing press cleaning material disposed on said supply core.

19. A cleaning system for a cylinder of a printing press, comprising:

a supply core having a key receiver, said key receiver dimensioned to receive a key to couple said supply core to a supply shaft to prevent relative rotation between said supply core and said supply shaft; and
printing press cleaning material disposed on said supply core.

20. The cleaning system of claim 19 wherein said key receiver is a slot cut into said supply core.

21. The cleaning system of claim 19 further comprising a supply shaft, said supply shaft at least partially disposed within said supply core.

22. The cleaning system of claim 21 wherein said key is integral with a sidewall portion of said supply shaft.

23. The cleaning system of claim 22 wherein said supply shaft has an internal lumen formed by at least one sidewall of said supply shaft, said supply shaft having a key slot passing from said internal lumen through said sidewall.

24. The cleaning system of claim 23 further comprising a key, at least a portion of said key disposed in said key slot, said key having an unlocked position in which said key is maintained within an outer surface of said supply shaft, and said key having a locked position in which said key protrudes beyond said supply shaft and into said key slot of said supply core to couple said supply core to said supply shaft.

25. The cleaning system of claim 24, further comprising a plug, at least a portion of said plug disposed within said lumen of said supply shaft, at least a position of said plug extending beyond said supply shaft to maintain said supply shaft to maintain said supply core on said supply shaft.

26. The cleaning system of claim 25 further comprising a slidable cam disposed within said lumen of said supply shaft, said slidable cam operatively associated with said key and said plug, said slidable cam having an unengaged position corresponding to said unlocked position of said key, said slidable cam having an engaged position corresponding to said locked position of said key.

27. The cleaning system of claim 26 wherein said slidable cam has a tapered portion in engagement with said key

28. A cleaning system for a cylinder of a printing press, comprising:

press cylinder cleaning material disposed on a supply core; and
means for engaging said supply core to a supply shaft to prevent relative rotation between said supply core and said supply shaft.

29. The cleaning system of claim 28 wherein said means for engaging comprises a key system.

30. The cleaning system of claim 29 wherein at least a portion of said key system passes through a side wall of said supply shaft.

31. A method of preventing rotation between a cleaning material supply core and a cleaning material supply shaft for cleaning a press cylinder, comprising:

placing said cleaning material supply core around said cleaning material supply shaft; and
engaging a key to couple said cleaning material supply core to said cleaning material supply shaft.

32. A cleaning material take-up shaft for a cleaning system for a press cylinder, comprising:
take-up shaft means for a receiving cleaning material for said press cylinder, said take-up shaft having a cross-section with a center point and a perimeter, said perimeter having at least two points disposed at different distances from said center.

33. The cleaning material take-up shaft of claim 32 wherein said cross-sectional shape is selected from the group of oval, triangular, rectangular, pentagonal or hexagonal.

34. In a press cylinder cleaning system having a rotatable supply shaft and an amount of cleaning material disposed around said rotatable supply shaft, the

improvement comprising:

a supply core having an internal cross-section with a center point and a perimeter, said perimeter having at least two points disposed at different distances from said center, at least a portion of said supply core disposed between said rotatable supply shaft and said cleaning material, said supply core coupled to said rotatable supply shaft through engagement of an internal surface of said supply core with said rotatable supply shaft.

35. The improvement of claim 34 wherein said internal cross-section has a polygonal shape.

36. The improvement of claim 35 wherein said internal cross-section has an oval shape.

37. A cleaning material supply system for a press cylinder comprising:

a supply core (30) disposed around a supply shaft (20), said supply core being coupled to said supply shaft through engagement of an internal structure of said supply core with a correspondingly shaped outer structure of said supply shaft, configured to prevent relative rotation therebetween; and

a supply of press cylinder cleaning material (170) disposed on said supply core.

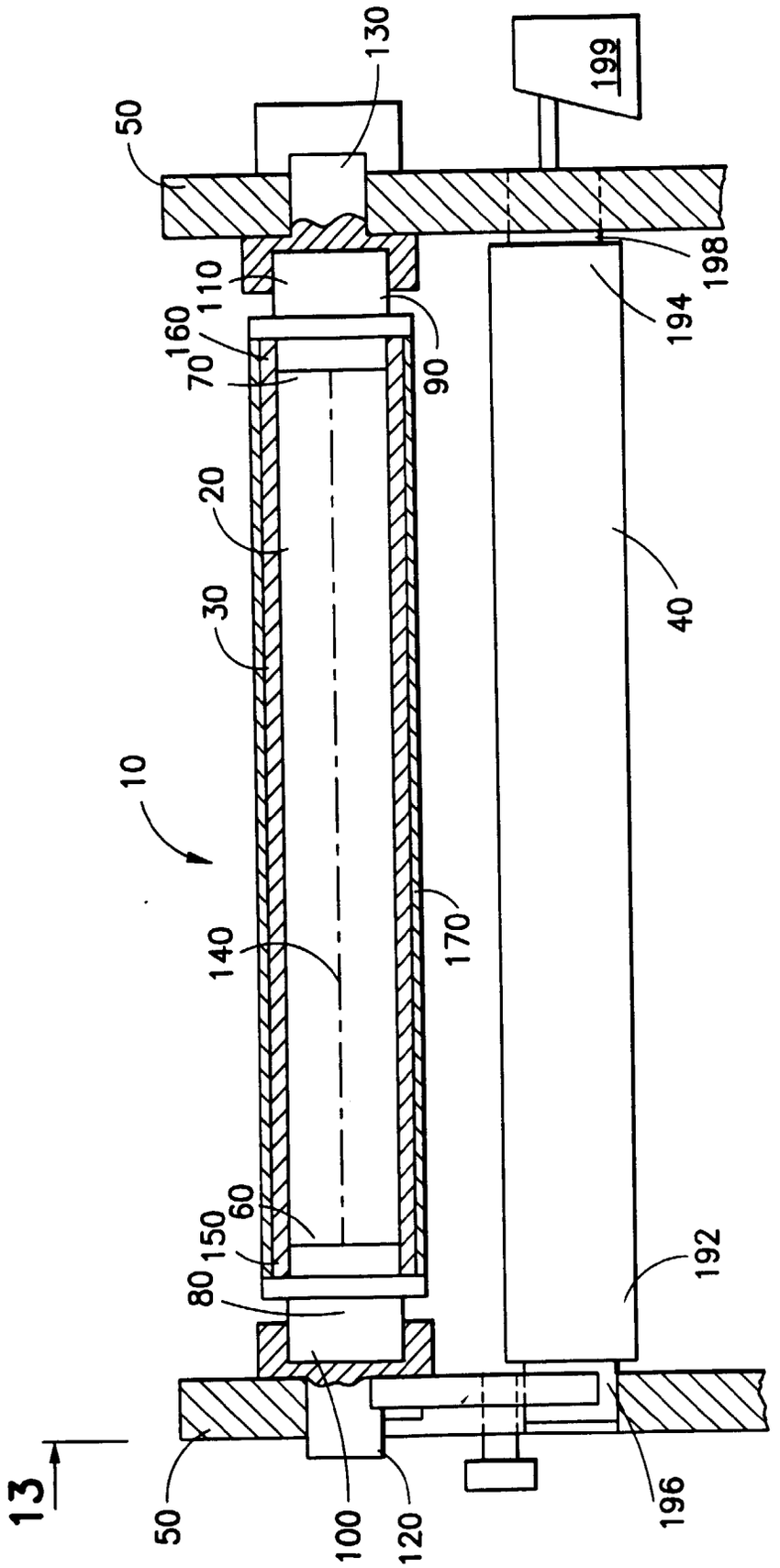
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FIG. 1

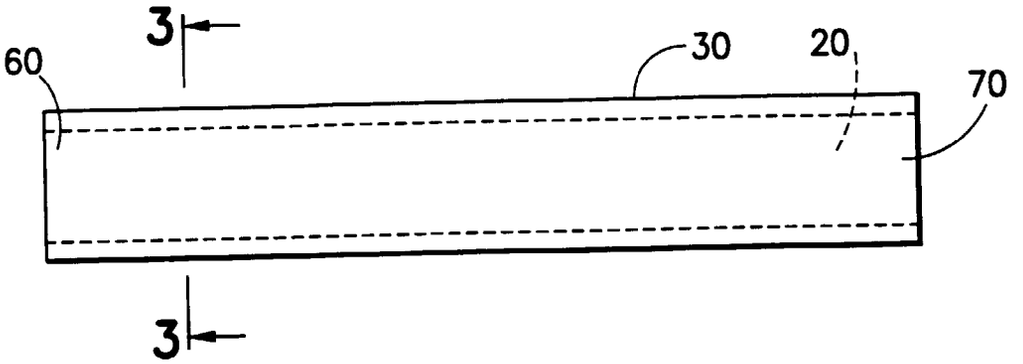

FIG. 2

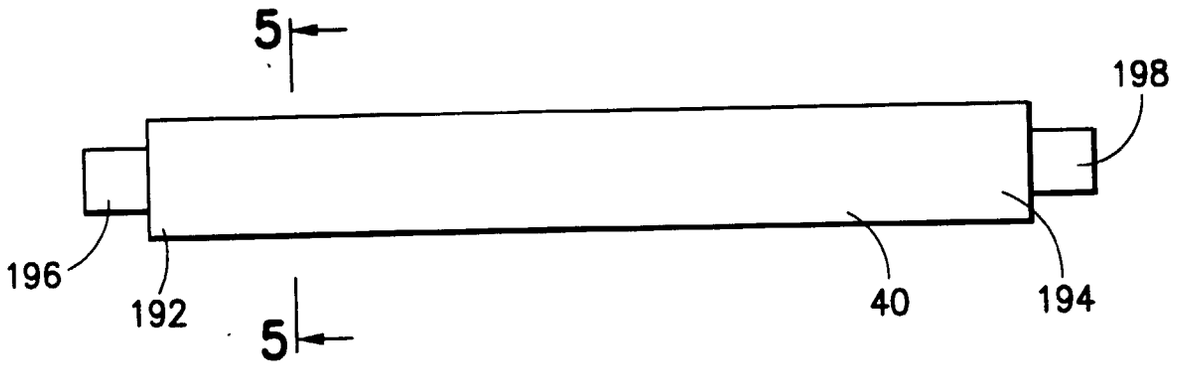

FIG. 4

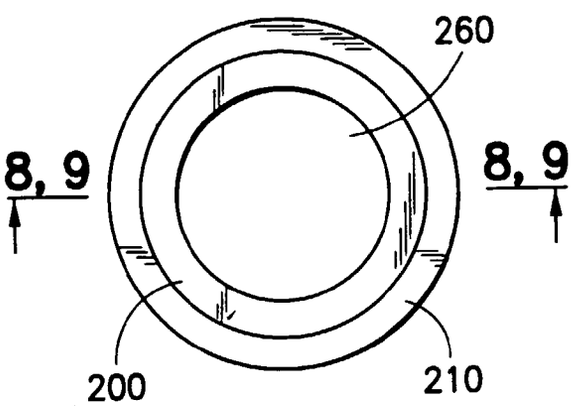

FIG. 6

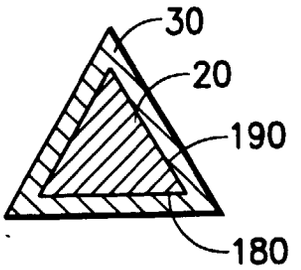

FIG. 3A

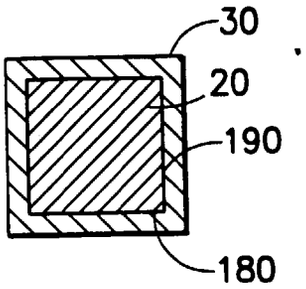

FIG. 3B

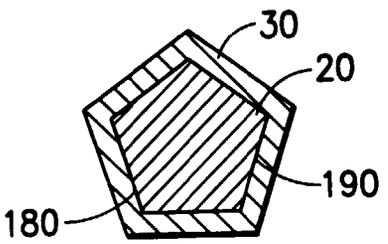

FIG. 3C

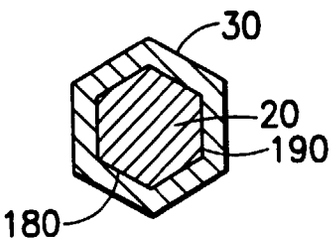

FIG. 3D

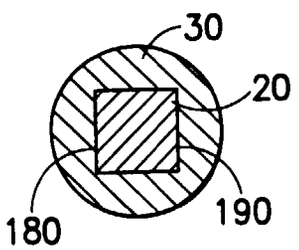

FIG. 3E

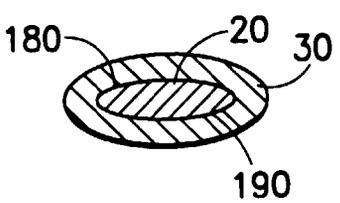

FIG. 3F

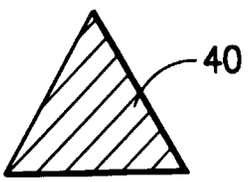

FIG. 5A

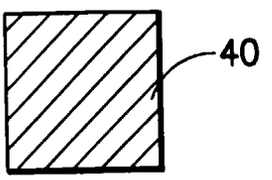

FIG. 5B

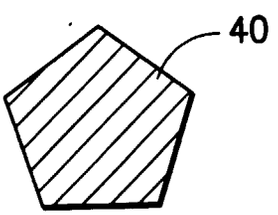

FIG. 5C

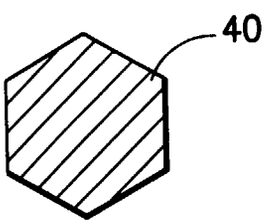

FIG. 5D

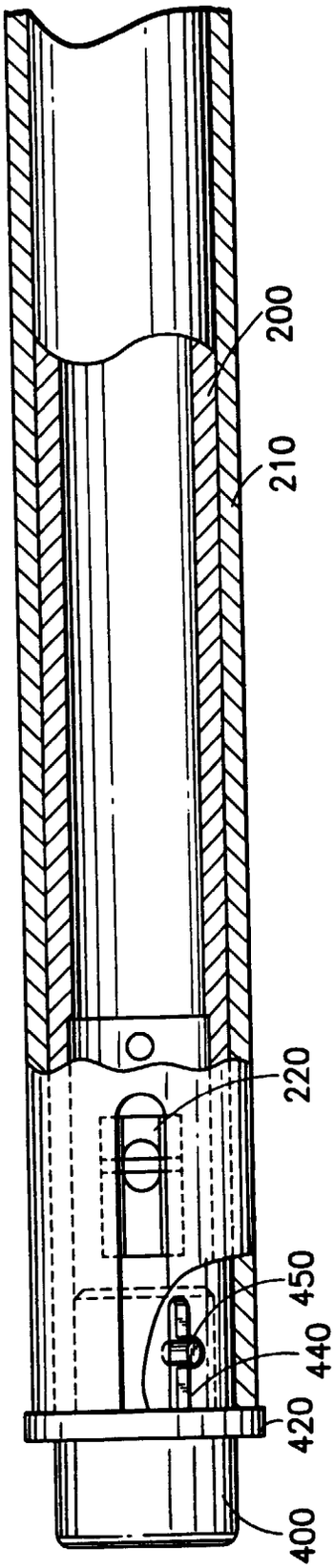
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FIG. 7

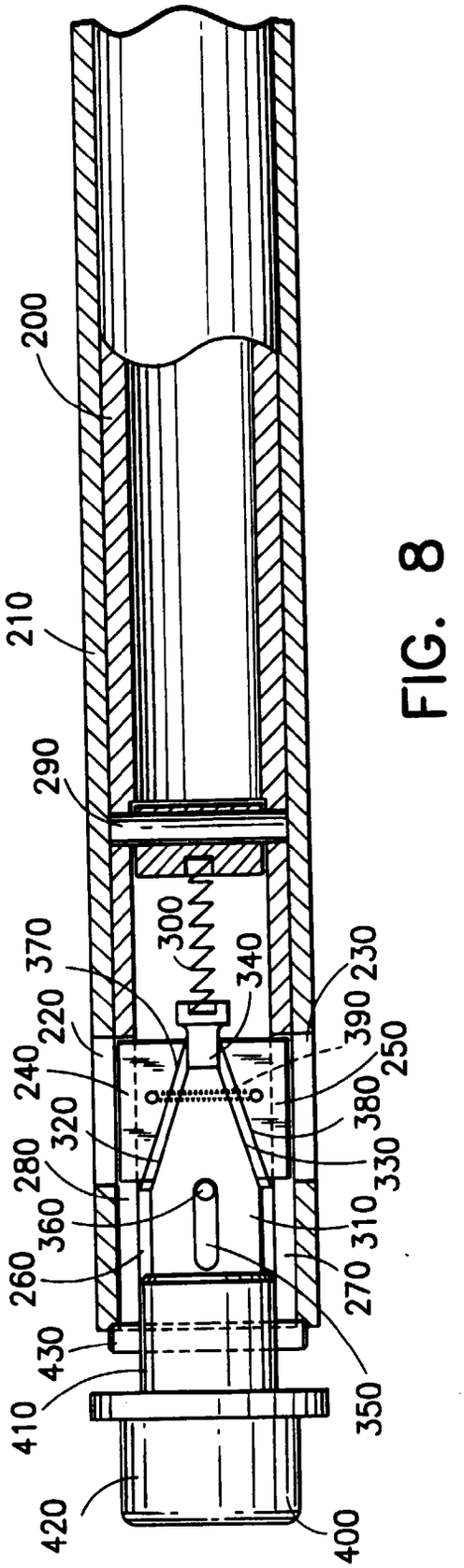
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FIG. 8

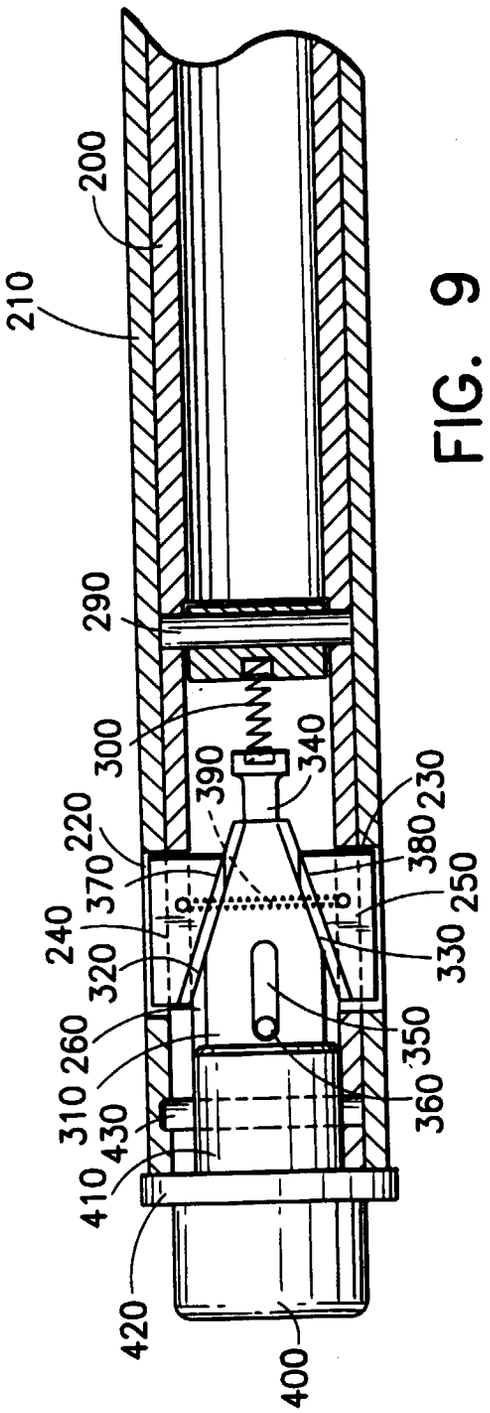
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FIG. 9

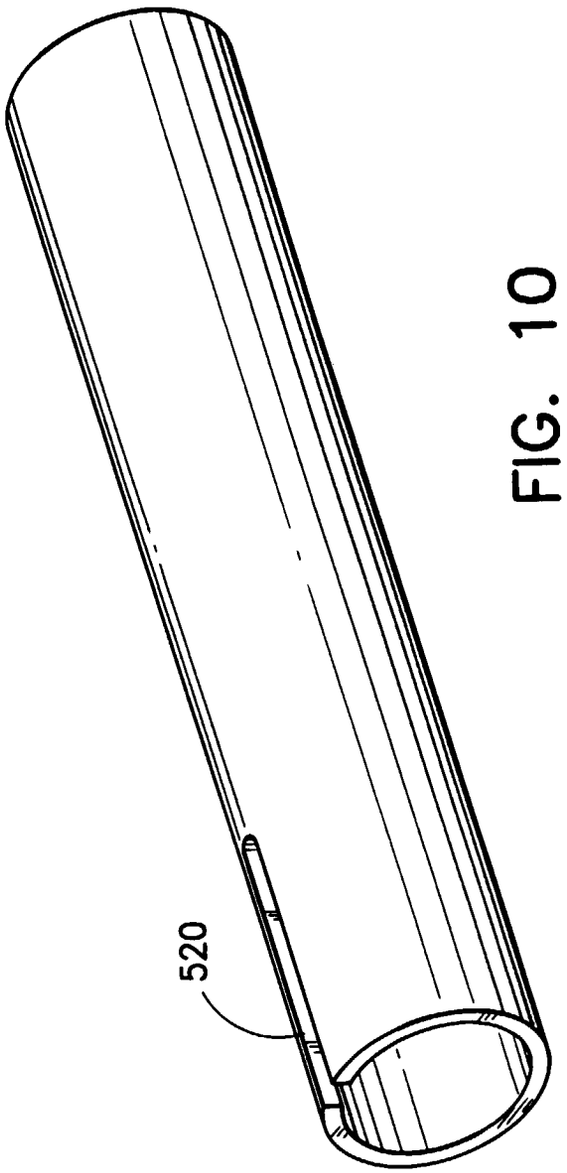
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FIG. 10

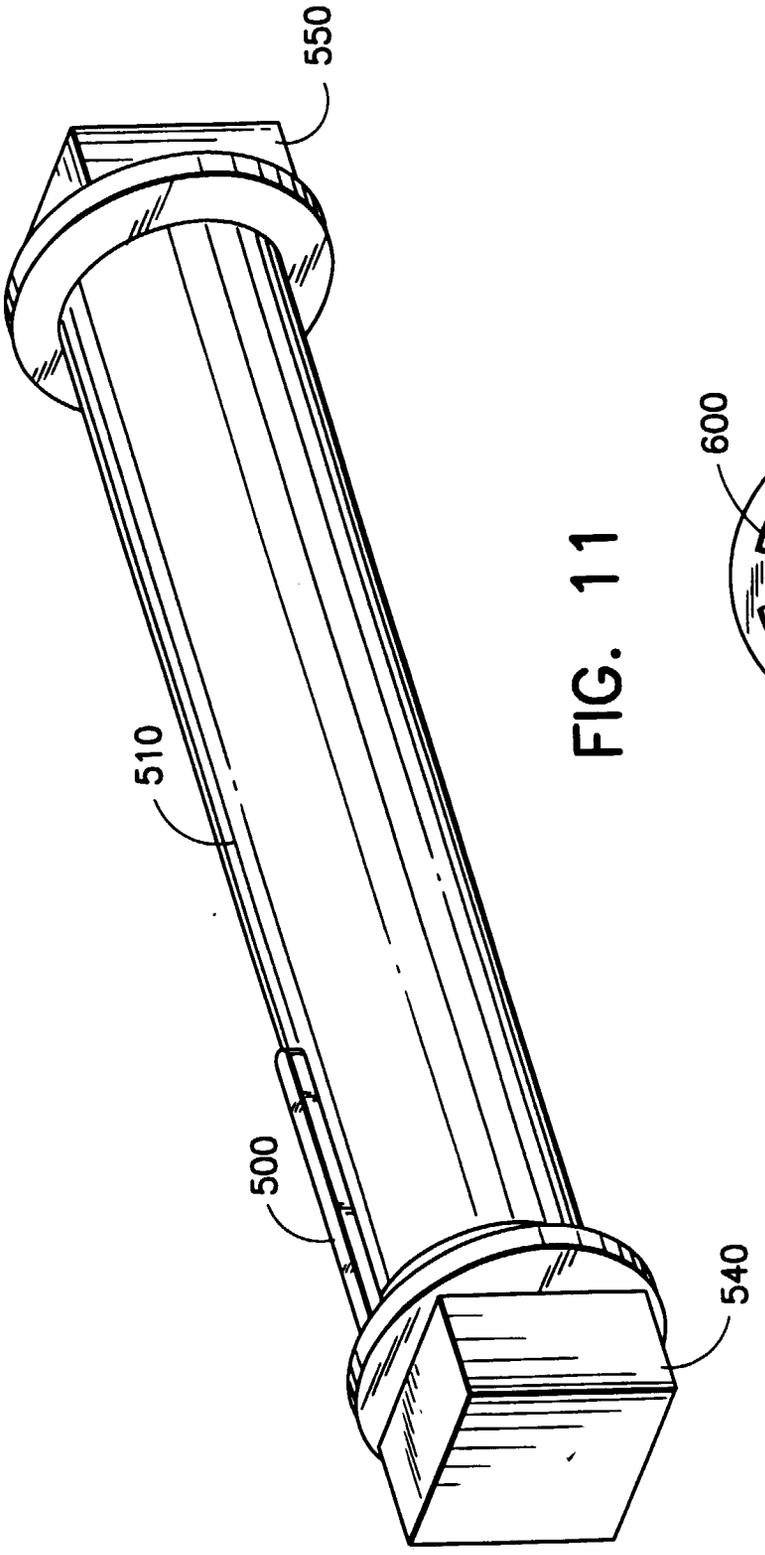

FIG. 11

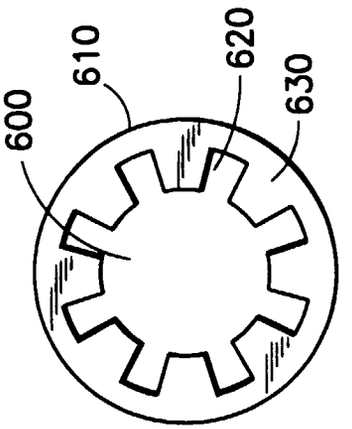

FIG. 12

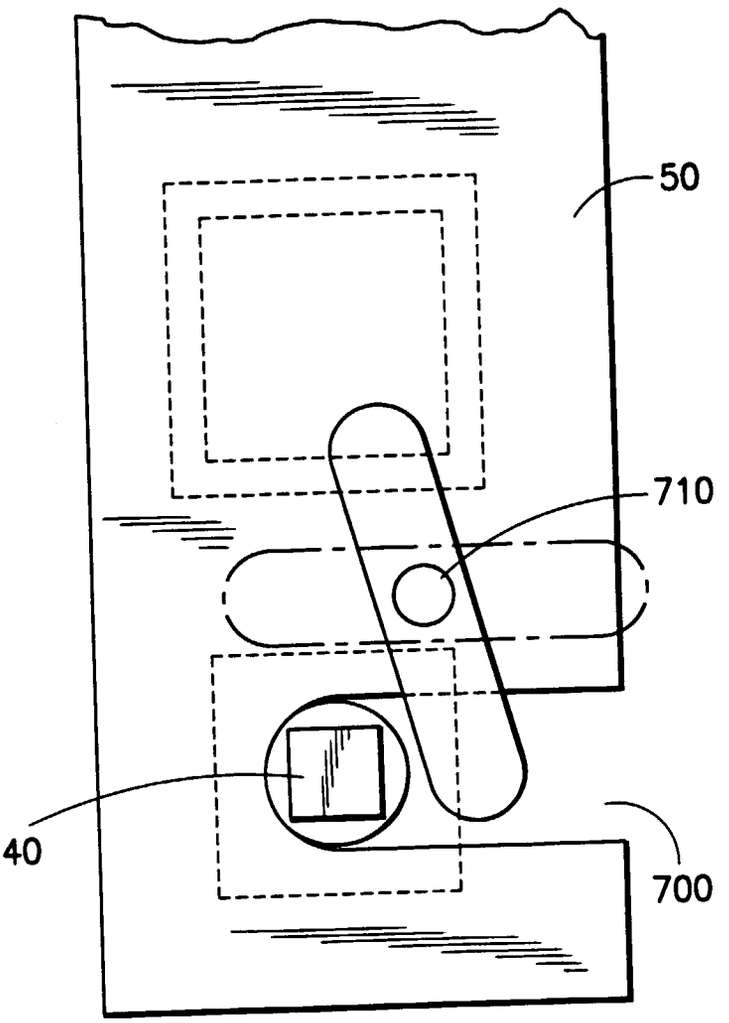

FIG. 13