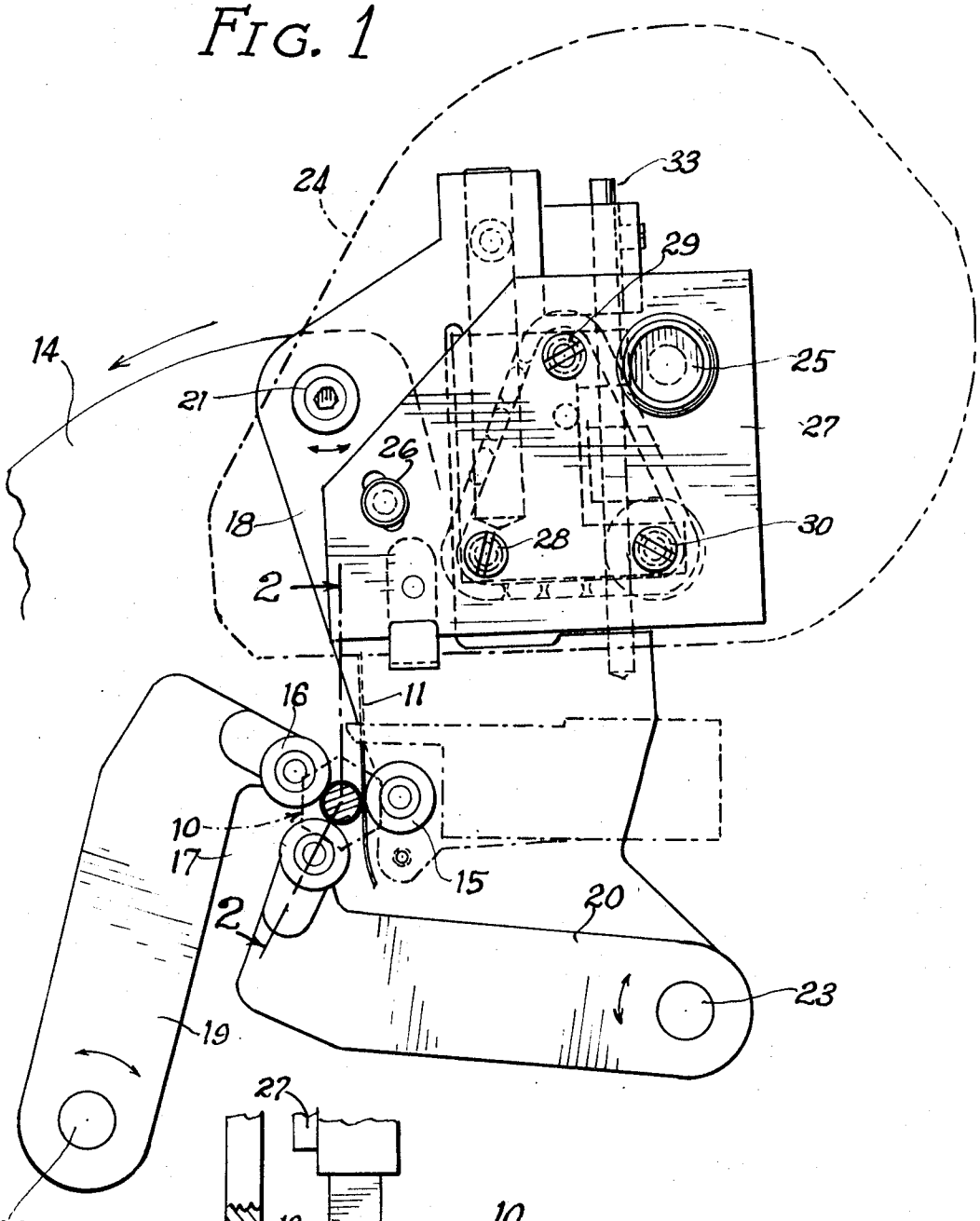
June 22, 1971 E. INKA 3,586,582

TAPE POSITION CONTROL

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FIG. 1



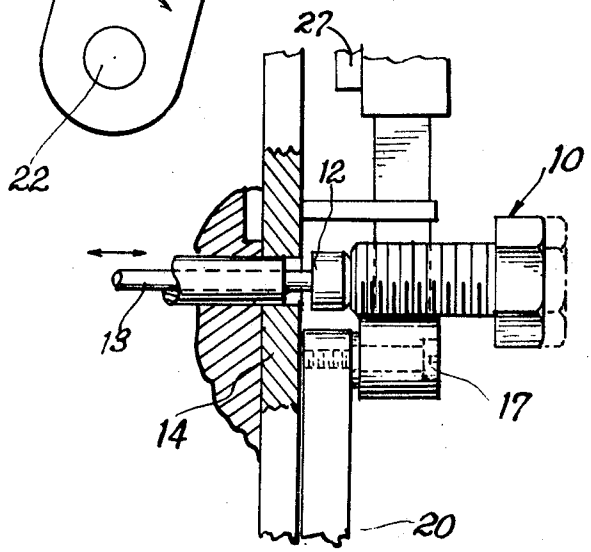


FIG. 2

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FIG. 3

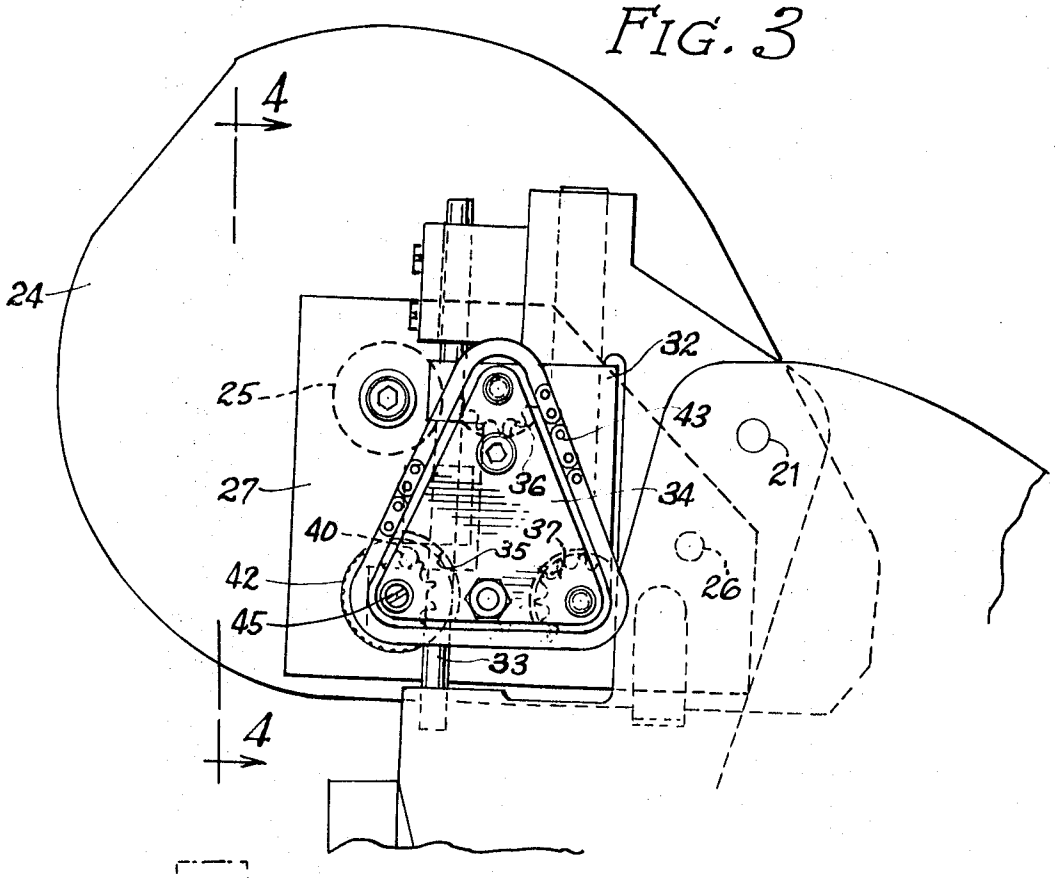


FIG. 4

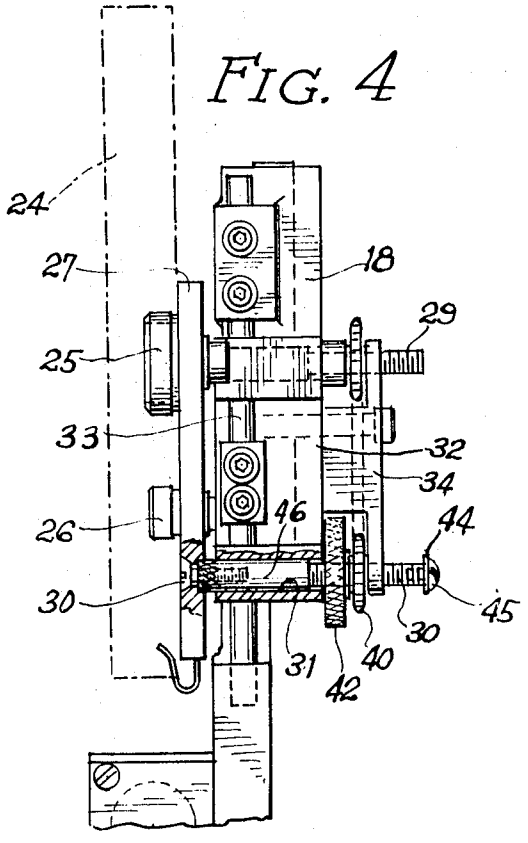
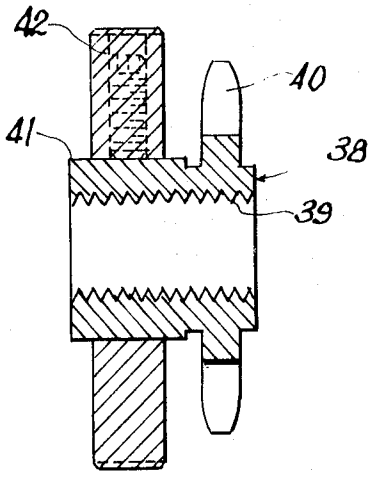


FIG. 5



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3,586,582

TAPE POSITION CONTROL

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Int. Cl. B65h 81/02
U.S. Cl. 156—468 1 Claim

ABSTRACT OF THE DISCLOSURE

An improvement upon a machine for wrapping polytetrafluoroethylene tape upon the threads of a fitting, comprising providing chain-connected nuts held captive in a tape support for simultaneously adjusting said nuts to change the location of the tape relative to the end of the fitting to be wrapped and to the knife by which the wrapped tape is severed.

This invention relates to machines for wrapping and adhering by pressure an unsintered polytetrafluoroethylene tape around the threads of a pipe, fitting or fastener for the purpose of providing a sealant therefor.

There is presently available a machine which, upon the insertion thereinto of the threaded end of a pipe, fitting or bolt, rotates a platen containing a supply of tape around the threads, rolls the tape into the threads to adhere the tape thereto, cuts off the rolled tape from the tape supply, and continues the rolling until the cut-off end of the tape is pressed into the threads. The tape is held in rolled form in a container which is secured to a separate plate mounted on the platen. Spacers inserted between the container and platen determine the location of the tape container relative to the platen and hence determine the location of the tape on the threads and relative to the cut-off knife.

In said presently available machine, the adjustment of the pins is accomplished by individually adjusting each of the pins. This may cause an uneven adjustment of the separate plate so that it is not square with the threads and additionally requires an undesirable length of time to complete the adjustment.

It is therefore an object of this invention to provide a mounting for a tape cartridge or the like on a tape wrapping machine in which the location of the mounting relative to the axis of the object to be wrapped may be readily and quickly shifted.

As a more specific object, this invention seeks to provide a mounting for a tape cartridge in a tape wrapping machine wherein a plurality of adjustable supports are provided for the mounting and with a single means for simultaneously and evenly adjusting each of the supports.

These and other objects of this invention will become apparent from the following detailed description of a preferred embodiment thereof when taken together with the accompanying drawings in which

FIG. 1 is an elevational view of the portion of the tape wrapping machine to which the adjustable tape cartridge support is supplied;

FIG. 2 is a section through the machine and mounting taken along line 2—2 of FIG. 1;

FIG. 3 is a rear elevational view of the adjustable mounting;

FIG. 4 is a section through the machine and mounting taken along line 4—4 of FIG. 3; and

FIG. 5 is an enlarged section taken through the adjusting nut for the mounting.

Referring now to the drawings for a detailed description of the preferred embodiment shown therein, it may be assumed, for purposes of illustration, that the object to be wrapped with the polytetrafluoroethylene tape is a

bolt 10 as shown in FIG. 2. Said bolt may be used to hold two castings together, in one of which castings is a fluid which must be held against leakage past the bolt. The function of the tape is to provide a sealant which fills the interstices between the bolt threads and the threaded opening in which the bolt is received. The thread can be applied manually on the site of the assembly of the apparatus, but this is a time-consuming procedure, and it has been found more expedient to pre-wrap the bolts so that they arrive on the assembly line with from one and one-quarter to two and one-half wraps of the tape applied thereto. It has been found further that the tape will adhere to the threads of the bolt if it is rolled or otherwise pressed firmly into the threads at the time it is wrapped. It is, therefore, the function of the tape wrapping machine to press the tape firmly into the threads of the bolt or other articles to be wrapped so that said wrapped article may then be shipped to the assembly line in readiness for immediate use.

The tape is shown at 11, and its thickness and width are selected in accordance with the requirements of the object to be wrapped. For a bolt the tape may be from ⅛" to ½" wide and may have a thickness of from two to six thousandths of an inch. The same machine may be used for wrapping a wide variety of articles and each of the articles may require a different location of the tape relative to the threaded end of the article, so that an adjustment is required, either of the location of the tape, or of the location of the threaded object relative to the tape, to accommodate these differences.

In the machine to which this invention is to be applied, the initiation of the wrapping operation is effected by the object itself pressing upon a button 12 to which is attached a rod 13. Said rod extends through the machine to a control switch (not shown) or to a trip of some kind which is used to effect the initiation of the operation of the machine. Said button 12 is designed to protrude beyond a plate 14 which is rotated by the machine during the wrapping operation and which serves as a deck upon which all of the rotating equipment necessary to effect the tape wrapping operation is mounted. The control switch or trip acts as a stop for the button 12, and hence also acts as a stop for the bolt 10, so that the relative positioning of the bolt and tape cannot be controlled by the location of the bolt 10 relative to tape deck 14. The alternative, therefore, is to control the location of the tape 11 relative to the deck 14.

Referring now to FIG. 1, the bolt is shown in dotted lines disposed between three substantially equiangularly spaced rollers 15, 16, and 17. Said rollers are mounted on arms 18, 19 and 20, respectively, pivoted to deck 14 at 21, 22 and 23, respectively. Similar means (not shown) is employed to rotate the arms toward the bolt and to hold them there with a given pressure so that the rollers 15, 16 and 17 may press the tape into the threads of the bolt.

The tape itself is shown as passing between roller 15 and the bolt 10. Said tape is supplied in an enclosed cartridge 24 which is expendable so that when a roll of tape has been used completely the cartridge is simply removed from the machine, discarded, and replaced by one with a full roll of tape.

Cartridge 24 is supported on a central pin 25 and is correctly oriented with respect to the roller 15 by a second pin 26, both of which pins are secured to a mounting plate 27 (FIG. 4). Plate 27 is, in turn, supported between three flat headed screws 28, 29 and 30 (FIG. 1), which are threaded into the knurled ends of pins 46 slidably received in appropriate openings 31 formed in a carriage 32 (FIG. 4) which is radially slidable on a pin 33 fixed to arm 18.

It may be apparent that since arm 18 is axially fixed relative to deck 14, the required axial movement of the tape relative to the object to be wrapped must be accom-

plished by moving plate **27** relative to arm **18**. This plate-moving means will now be described.

Secured to the back of carriage **32** is a triangular machined element **34**, the apices of which are cut out at **35**, **36** and **37**, to form recesses, recess **35** being larger than recesses **36** and **37**. The pins **46**, which are securely held in plate **27** against rotation by flatheaded machine screws **28**, **29** and **30** and the knurling on the ends of said pins, pass through appropriate openings in the apices of said triangular machined element.

Disposed in each recess **35**, **36** and **37**, is a nut shown in greater detail and enlarged in FIG. 5, and designated generally by reference characters **38**. Said nut has a threaded opening **39** adapted to receive a specially machined threaded end **28**, **29**, or **30** of the pins **46**, and is also formed at one end with a sprocket **40**. The remainder of the nut **38** is formed with a cylindrical hub **41** over one of which is secured a knurled wheel **42**. Said knurled wheel is disposed in the recess **35**, which is the largest of the three, as hereinabove described. An endless roller chain **43** engages all three sprockets on the nuts **38**.

To adjust the position of plate **27** relative to the carriage **32**, it is only necessary to turn wheel **42** which, because of its roller chain connection to the other two sprockets, turns all three sprockets simultaneously in their recesses **35**, **36** and **37**. Since the sprockets are held captive in these recesses the net result is to cause their respective screws **28**, **29** and **30**, to move axially relative to the recesses which, in turn, causes pins **31** and plate **27** to move toward or away from the carriage **32**. Since the threads on the screws are identical, and the degree of rotation of the sprockets is also identical, plate **27** moves evenly and parallel to itself whenever the knurled wheel **42** is turned.

Carriage **32** limits movement of the plate **27** in one direction, and movement of the plate in the opposite direction is limited by a washer **44** held on the end of screw **30** by a small round-headed machine screw **45**.

It is understood that the foregoing description is merely illustrative of a preferred embodiment of the invention and that the scope of the invention is not to be limited thereto but is to be determined by the appended claim.

I claim:

1. In combination, a roll of tape, a support for the tape roll, a platen for transporting the tape roll around an object to be wrapped with said tape, means for mounting the tape support on the platen for sliding movement thereon toward and away from the platen, said mounting means comprising three parallel threaded rods disposed to form a triangle, three bushings on the platen for supporting said rods, a nut engaging each rod, a triangular plate spaced from said platen and having openings therein through which the rods extend, said nuts being disposed between the platen and plate and held against axial movement relative to said platen, a sprocket on each nut, and a chain passing around and engaging each sprocket such that rotation of one nut causes simultaneous rotation of all nuts to move said tape support toward and away from said platen as aforesaid.

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U.S. Cl. X.R.

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