

March 29, 1949.

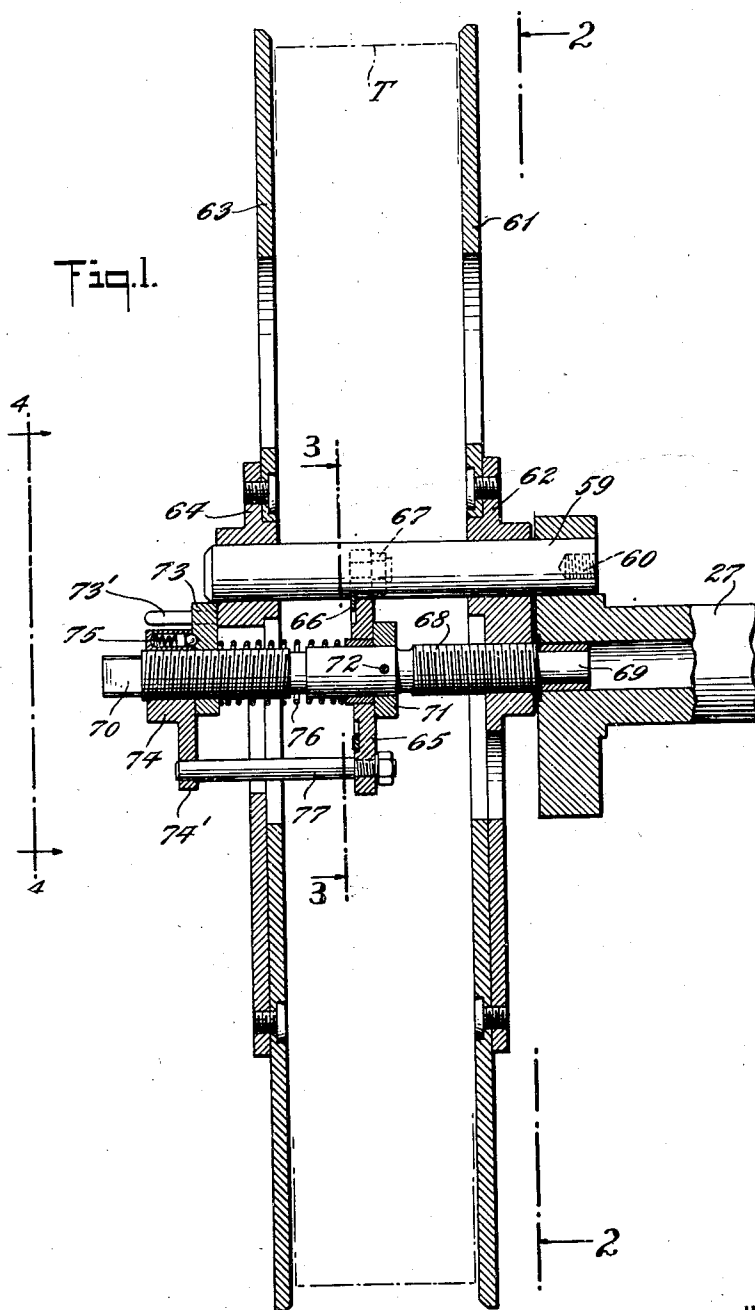
C. O. BRUESTLE

2,465,631

TAPE REEL

Original Filed Oct. 20, 1945

3 Sheets-Sheet 1



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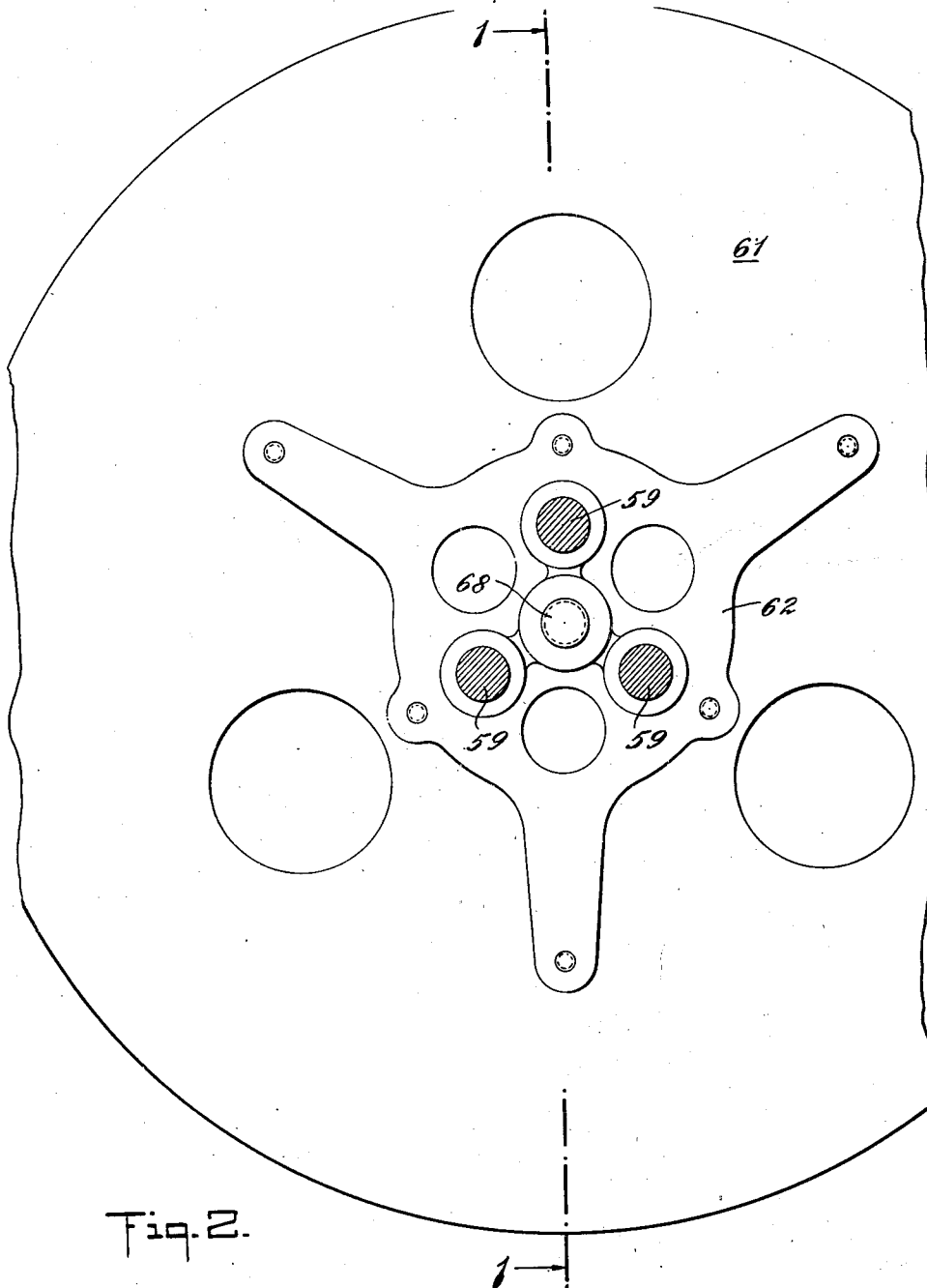
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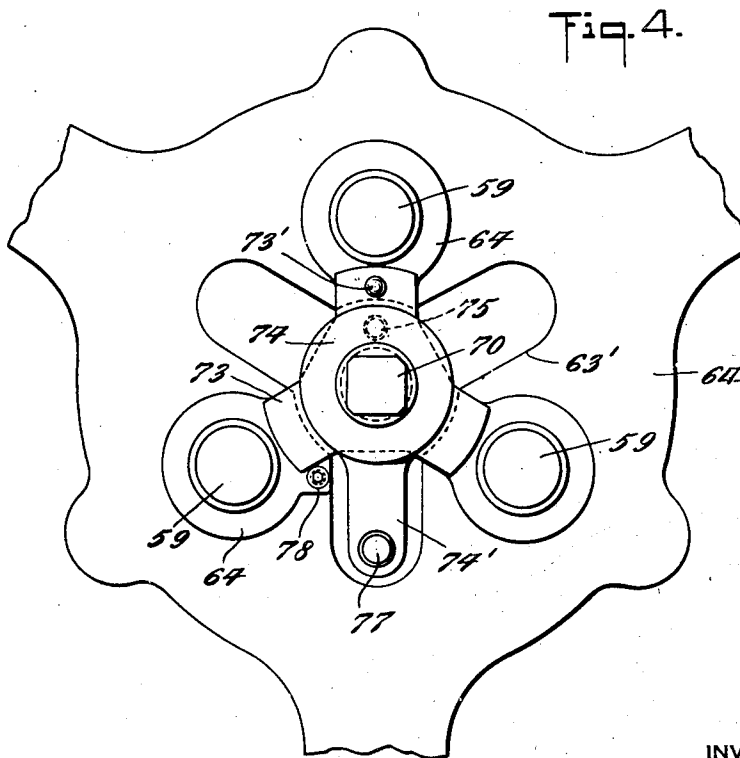
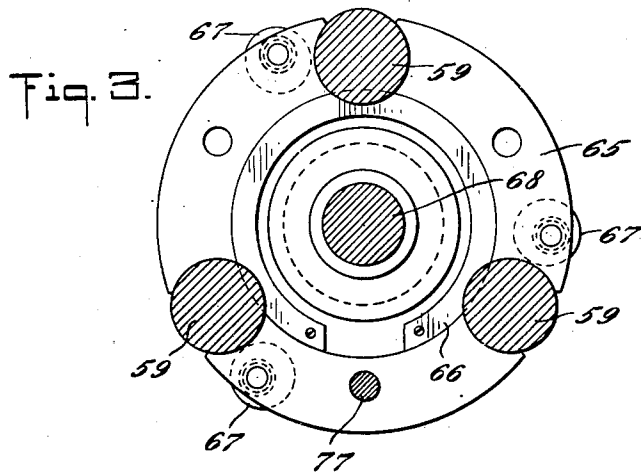
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UNITED STATES PATENT OFFICE

2,465,631

TAPE REEL

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Original application October 20, 1945, Serial No.
623,542. Divided and this application August
14, 1947, Serial No. 768,636

6 Claims. (Cl. 242—124)

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An object of the invention is to provide an improved form of tape roll supporting reel by means of which tapes of different width can be applied to cables with only simple adjusting changes.

A further object of the invention is to provide a taping reel structure by means of which the center line of the tape can properly be adjusted with respect to the tape guiding and feeding means through which the tape passes to the cable being wrapped.

Another and important object of this invention is to provide a taping reel upon which the tape rolls can be easily mounted even if defective in that the supporting tubular core therefor is deformed.

Another and important object of the invention is to provide a taping reel which can be very quickly taken apart for the purpose of applying a new tape roll and very quickly re-assembling it.

Other and more detailed objects of the invention will be apparent from the following description of the embodiment of the invention illustrated in the attached drawings.

This invention resides substantially in the combination, construction, arrangement and relative location of parts as will be described in detail below.

This application is a division of my copending application Serial No. 623,542, filed October 20, 1945, now abandoned, for "Taping head for cable insulating machine."

In the accompanying drawings—

Figure 1 is a vertical, central, cross-sectional view taken on the line 1—1 of Figure 2 showing the taping reel construction;

Figure 2 is a cross-sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a cross-sectional view taken on the line 3—3 of Figure 1;

Figure 4 is an enlarged front elevational view of the reel structure with most of the reel broken away on the line 4—4 of Fig. 1.

Mounted on the flanged end of the shaft 27 are three large pins 59 which are locked thereon by means of set screws 60. Mounted on these pins is an adjustable and positionable reel assembly. The reel comprises a pair of side plates 61 and 63 secured to central suitably shaped reinforcing members 62 and 64, respectively, having properly positioned apertures to receive the pins 59. A disc 65 (see Figure 3) is provided with circular cutouts intersecting the periphery of the disc and positioned and sized to form a smooth sliding fit on the pins 59. This disc is locked upon the pins by means of a snap ring 66 engaging in slots in the pins 59 to which further reference will later be made. Mounted on the disc are three eccentric rollers 67 positioned so

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as to extend radially beyond the periphery of the disc 65. Their function will be described later. A rod 68 having spaced threaded portions, as shown in Figure 1, is journaled on the reduced end 69 in the passage in shaft 27 and is provided with a wrench or other tool receiving end 70. One end of shaft 68 threadedly engages a central aperture in the member 62. Pinned on the shaft 68 between the threaded portions is a collar 71 attached thereto by means of the pin 72. The snap ring 66 locks the disc 65 against this collar and rides on a central bushing, as shown in Figure 1.

At 73 is a three pronged plate having a finger actuating pin 73' mounted thereon (see Figure 4). The prongs of the plate 73 are sized and positioned so that they can be aligned with three slots 63' in the plate 64. The plate 73 is freely rotatable upon the outer threaded portion of the rod 68. A threaded nut or collar 74 having the integral arm 74' engages the threaded rod at the outer end so as to bear upon the plate 73. A spring biased ball detent 75 is mounted in the collar 74 so that the ball thereof can engage a depression in plate 73 to normally hold that plate in the position shown in Figure 4. A compression spring 76 lies between the plate 73 and the bushing on which the disc 65 is mounted. A pin 77 is fixedly mounted on the disc 65 and projects through an aperture in the arm 74'. Referring to Figure 4, a stop pin 78 is shown mounted on the plate 64 to limit movement of the three pronged plate 73 in a counterclockwise direction to its normal operating position.

Having described the structural features of the mechanism illustrated in the drawings, a description of the operation and of the features thereof will now be given.

It is common practice at the present time to employ a reel construction which requires a rather lengthy procedure to remove the front plate of the reel so that a new roll of tape can be applied. Likewise presently used mechanism commonly provides a central drum as a part of the reel on which the tape roll is intended to be slipped after the front plate is removed. At this point, one of the advantages of applicant's reel structure can be emphasized. The tape rolls are made with a paper core or sleeve which is constructed by adhesively winding a sufficient number of turns of paper to form a hard central tubular core upon which the tape is wound. Many of the materials used for the tape, such as specially prepared papers and the like, are naturally very much subject to varying temperature and moisture conditions. It is common practice, therefore, to store these rolls in properly humidified and temperature controlled rooms. Notwithstanding this precaution, and particularly in the absence of it, the tape of the roll frequently con-

tracts under varying temperature and humidity conditions so as to cause the hard central core to bulge inwardly or to change its shape so that it will not fit on the reel core. It is common practice at the present time for the workmen to cut these inwardly extending core projections off with a knife and to work with the roll until they can force it on to the reel core. This takes a considerable amount of time which when taken with the rather slow process of removing and re-applying the front plate of the reel and positioning it causes the whole machine to be out of use for an undue length of time.

Referring to the structure in Figures 1 to 4, inclusive, the advantages thereof can now be brought out. To remove the front plate 63 of the reel threaded rod 68 is rotated by applying a wrench at 70 to release the clamping pressure and the operator then rotates the three pronged plate 73 in a clockwise direction (Figure 4) by means of the finger pin 73' until its prongs are aligned with the cutouts 63' in the front plate. In doing this the resistance of the detent 75 must be overcome. As soon as the plate 73 is in this position the front plate can be slid off the pins 59 as the threaded collar 74 will also pass through the cutout portions of the front plate. The old tape core can then be easily slid off the pins 59 and a new tape roll slid in place. If there is an inward bulge on its core as previously described it can be positioned between a pair of the pins 59 so that even in this defective condition it can be immediately applied to the reel. It is then given a slight rotational twist to cause the cam rollers 67 to be frictionally moved in a direction to bind it in position. The roll is thus tightened in a direction so that as the tape is pulled off the roll the binding action will be accentuated preventing the roll from turning independently of the reel structure which would be very undesirable as will appear later. The front plate 63 is then slipped back on the pins 59 and the plate 73 rotated in a counter-clockwise direction back to the position shown in Figure 4 which is determined by the pin 78 and maintenance of which is insured by the ball detent 75, followed by turning 70 to return the parts to clamping relation. Thus it will be seen that an exhausted tape roll can be very quickly displaced with this mechanism. A careful study of the structure of Figure 1 will show that in thus removing plate 63 the remaining parts are all held together and in the proper relationship.

Another feature of the reel construction involves the mechanism by means of which the spacing between the plates 61 and 63 can be varied for different tape widths. To effect this variation, a suitable tool is supplied to the end 70 of the threaded rod 68 and it is rotated in the proper direction so as to simultaneously move the front and back plates 63 and 61 towards and away from each other while always maintaining the central line of the space therebetween and, therefore, the longitudinal central line of the tape when applied thereto at the same transverse position with respect to the guide roller 101.

From the above description, it will be apparent to those skilled in the art that the subject matter of this invention is capable of modification as to its physical forms without departure from the essence thereof and I do not, therefore, desire to be limited to the disclosure but rather by the appended claims.

What is claimed is:

1. A tape reel comprising a rotatable support having at least three projecting pins secured thereto and arranged equidistant from the axis of rotation, a pair of reel plates mounted to slide on said pins, and means for simultaneously adjusting both of said plates towards and away from each other longitudinally of said pins equally with respect to a fixed central plane lying between said plates, said last means including a single locking member which upon limited rotation frees the outermost of said plates for removal from said pins.

2. In the combination of claim 1, the outermost of said reel plates having a central aperture and said last means including a rotatable member which can pass through said aperture in one position and lock said plate on said pins in another position.

3. In the combination of claim 1, said last means including a threaded rod supported by said first mentioned rods and said rotatable support and threadedly engaging the innermost of said plates, and means threadedly mounted on said rod for locking the other plate thereon.

4. In the combination of claim 1, said last means including a rod having threaded portions, one end of the rod being journaled in said rotatable support, a bearing member for said rod locked between said pins and an irregular shaped locking member rotatably mounted on said rod and positionable to engage and disengage the outermost of said plates, whereby it may be applied and removed.

5. In the combination of claim 1, said last means including a rod having threaded portions, one end of the rod being journaled in said rotatable support, a bearing member for said rod locked between said pins and an irregular shaped locking member rotatably mounted on said rod and positionable to engage and disengage the outermost of said plates, whereby it may be applied and removed, and means mounted on said bearing member for locking a tape roll on said reel against rotation thereon in the direction of pull.

6. In the combination of claim 1, said last means including a rod having threaded portions, one end of the rod being journaled in said rotatable support, a bearing member for said rod locked between said pins and an irregular shaped locking member rotatably mounted on said rod and positionable to engage and disengage the outermost of said plates, whereby it may be applied and removed, and spring means for loading said locking member.

CARL O. BRUESTLE.

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