

Sept. 20, 1960

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2,953,313

TAPE CORE

Filed March 17, 1958

Fig. 1

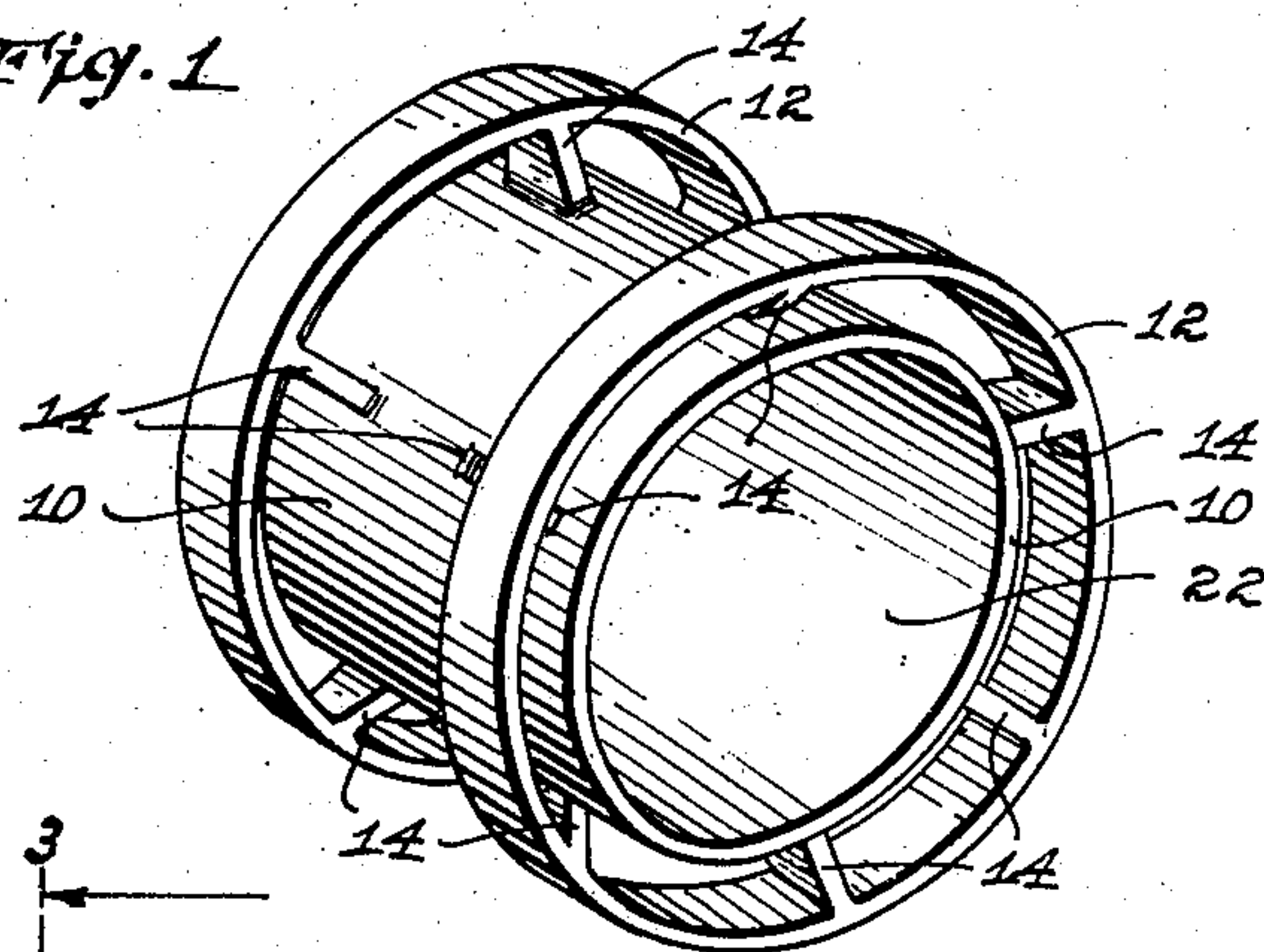


Fig. 2

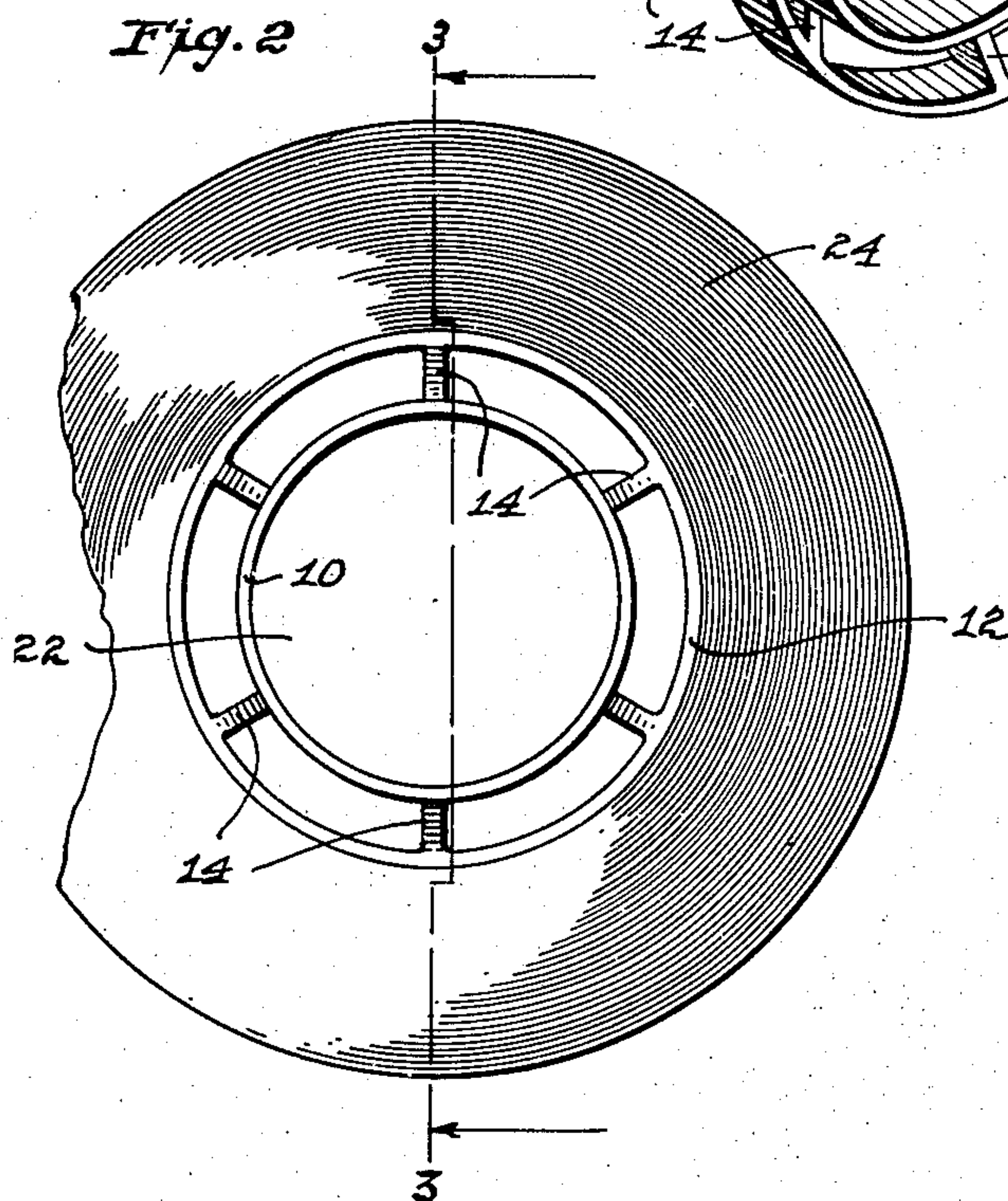


Fig. 3

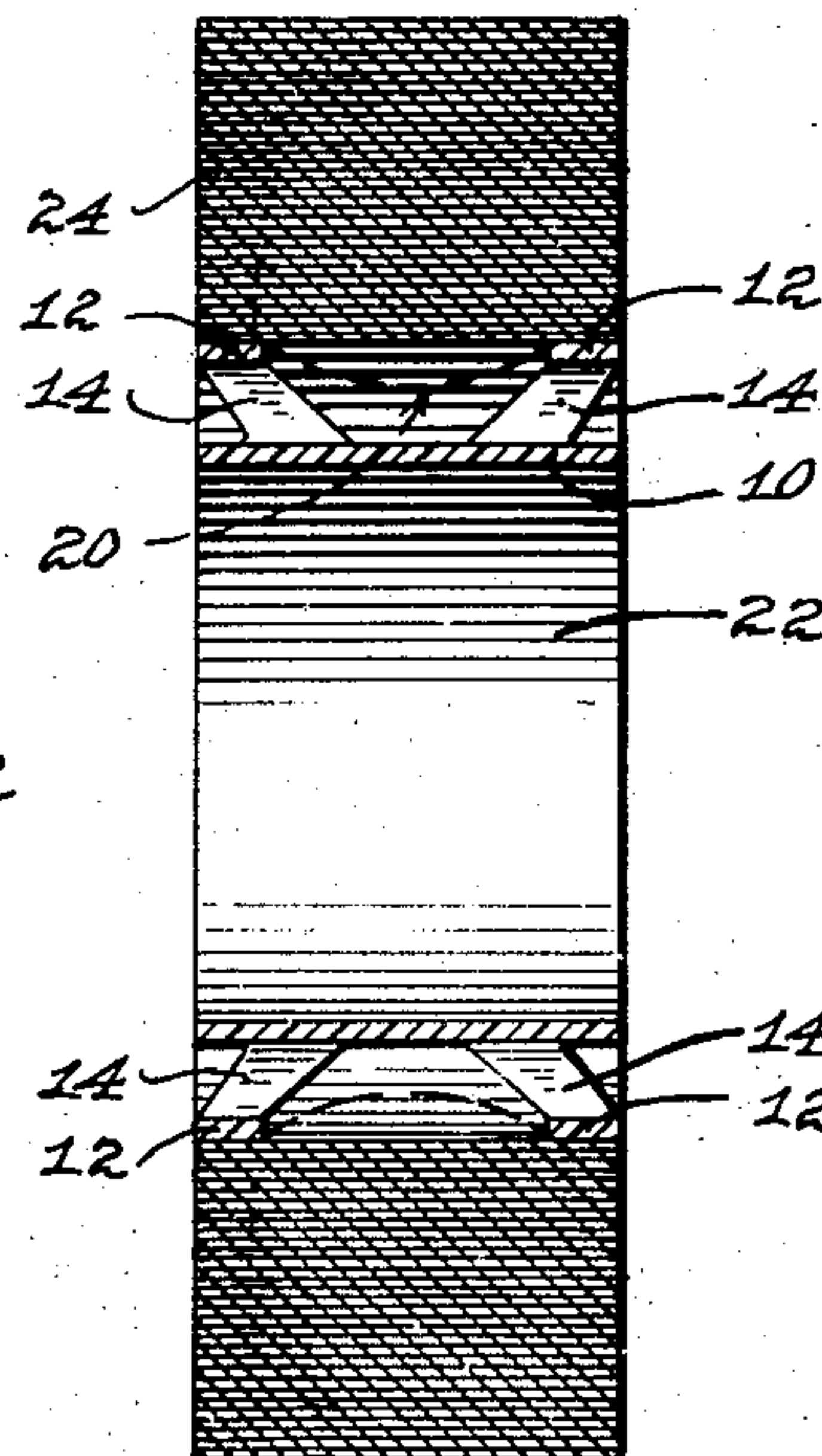


Fig. 4

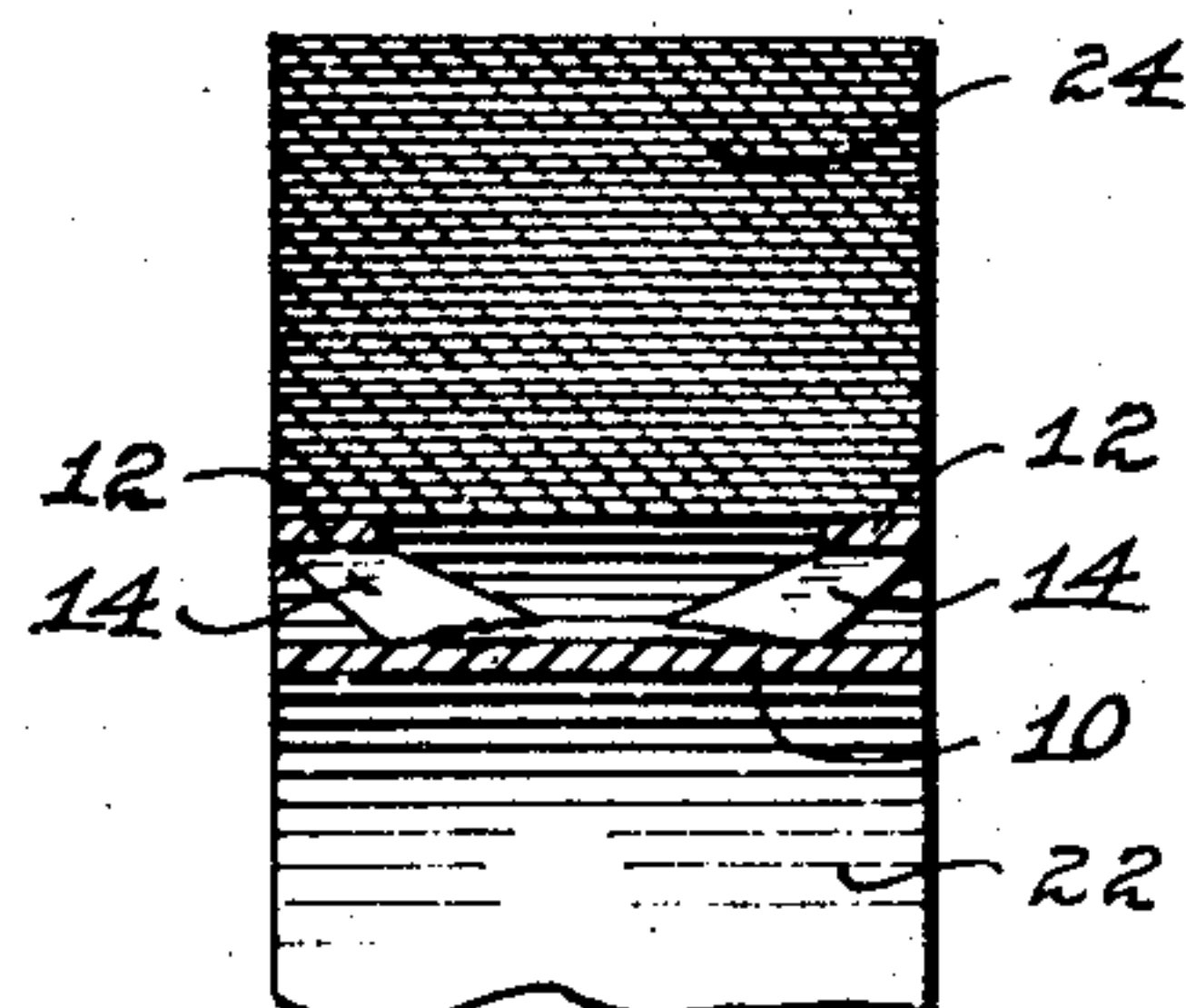
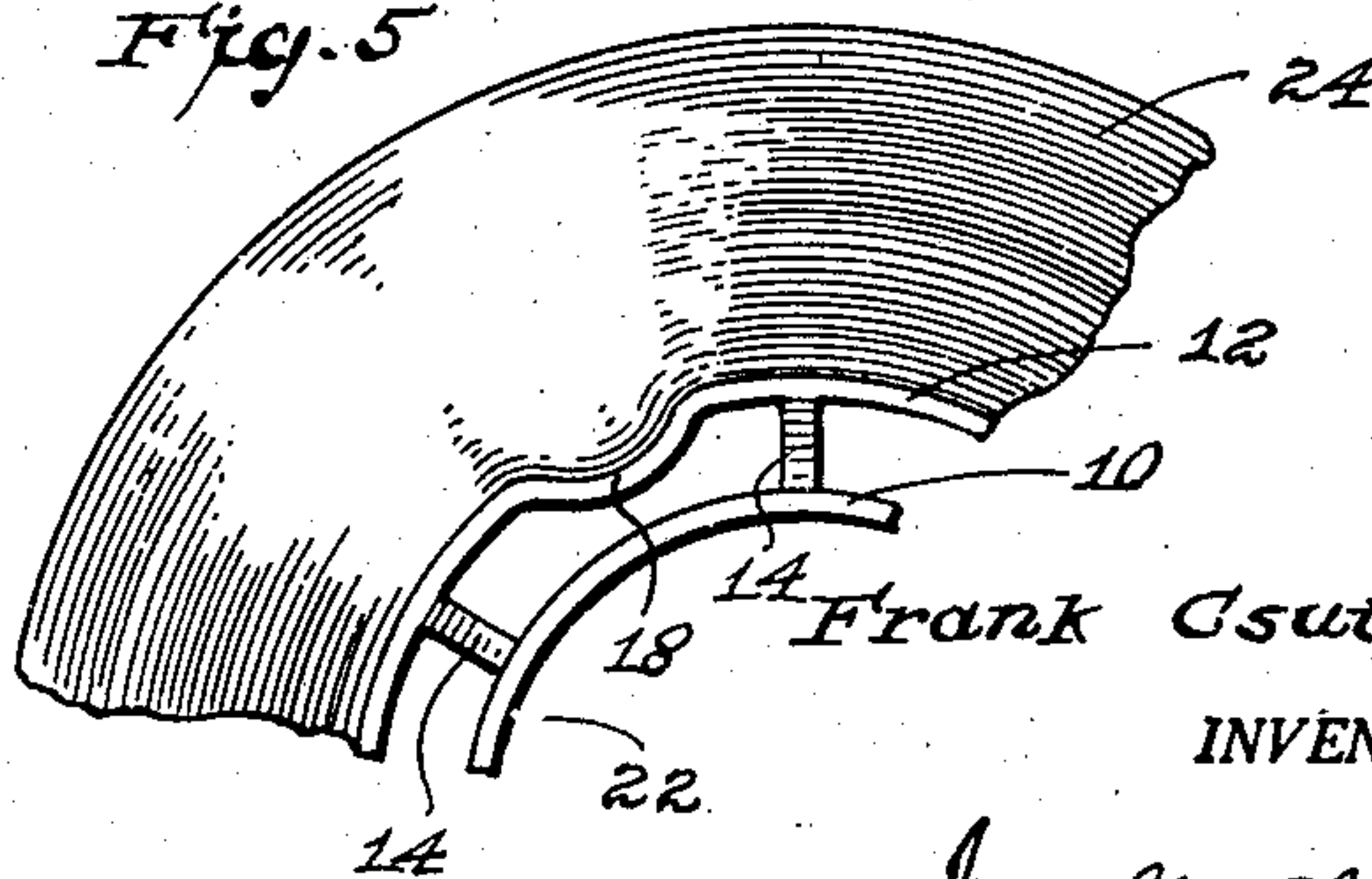


Fig. 5



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2,953,313

TAPE CORE

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1 Claim. (Cl. 242—68.5)

This invention relates to tape cores on which Scotch or other tape is wound.

A serious difficulty with tape cores of previous construction has been the tendency of rolls of Scotch or other tape to become wound to tightly, or, due to humidity after rolls of tape have been sold and placed in stock, to inward radial expansion thereby forcing the roll of tape to bulge outwardly, endwise.

Such bulging is not only disadvantageous in the even unwinding of the tape but, since the rolls are commonly placed in dispensing appliances, the bulge at the ends precludes the proper placement of the roll of tape in a dispensing appliance.

Therefore, one of the principal objects of the present invention is to provide a tape cores with simple and effective means for preventing end bulging of the tape wound thereon.

Plastic tape cores are commonly made with a central cylindrical shell and a solid cylindrical outer shell of the same length, the two shells being spaced from each other and supported in concentric relation by radial webs at one end of the core. Such cores are subject to the objectionable conditions hereinbefore mentioned.

In one form of my improved tape core a pair of relatively narrow rings surrounding the end portions of the central shell for engagement only with the edge portions of the tape have been provided in lieu of the solid outer shell. This leaves an ample space between the rings to receive any portions of the roll of tape which may be forced into it by inward expansion of the tape roll, either from excessively tight winding or from humidity and other causes, thus relieving the pressure points in the roll and positively preventing endwise bulging of the roll.

In another form of my improved tape core the tape supporting rings are made of such thinness as to be yieldable between their supports under pressure from inward radial expansion of the roll of tape to provide additional relief for the pressure points in the roll to prevent endwise bulging.

In another form of my improved tape core the supports between the rings and the inner shell and also the rings are made yieldable under pressure from inward radial expansion of the roll of tape to provide still further relief for the pressure points in the roll, as, for example, when a greater number of coils are wound on a roll.

Endwise bulging of rolls of tape resulting from the use of conventional cores frequently necessitates the unwinding and rewinding of large numbers of rolls of tape, even after they have been sold to a dealer and placed in stock. My improved features effectively eliminate such bulging, thus ensuring a roll of tape having straight parallel sides at substantially no additional cost in the manufacture of the cores.

Other objects and advantages of my improved tape cores will be apparent or pointed out in the following

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specification in which reference is directed to the accompanying drawings in which:

Fig. 1 is a perspective view of one form of my improved tape core;

Fig. 2 is an end view of the tape core shown in Fig. 1, but with a roll of tape wound thereon;

Fig. 3 is an axial section taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary section similar to Fig. 3, but showing the rupture of a pair of supports between the tape supporting rings under pressure from inward radial expansion of a roll of tape; and

Fig. 5 is a fragmentary end view similar to Fig. 2 and showing the manner of yielding of the tape supporting rings between two pairs of supports under pressure from inward radial expansion of a roll of tape.

Referring to the drawings in which like reference numerals designate like parts or elements in the several views, my improved tape core comprises a central cylindrical shell 10 and a pair of relatively narrow tape supporting rings 12 surrounding the end portions of the central shell with their outer edges in alignment with the adjacent ends of the shell. These rings are diametrically spaced from and supported on the shell in concentric relation therewith by means of a plurality of pairs of supports in the form of spokes 14 arranged in substantially V-shaped formations with the inner ends attached to the central shell at a substantial distance from the ends of the shell, so that the spokes are declined inwardly toward each other in the form of levers having fulcrums on the shell to permit them, as well as the tape supporting rings, to collapse or yield when subjected to sufficient pressure from inward radial expansion of a roll of tape, which pressure may occur at one or more circumferential points in the roll. The entire tape core, including the central cylindrical shell 10, the tape supporting rings 12 and the spokes 14 may be molded from plastic or other suitable material, and under excessive pressure from the roll the spokes may be ruptured from the central shell, as indicated in Fig. 4. If the pressure is slight, sufficient relief to prevent endwise bulging of the roll of tape, may be effected through the yielding of the rings 12 between two pairs of spokes or supports 14, as indicated at 18 in Fig. 5. In some instances sufficient relief may be obtained through slight protrusion of the tape between the rings as indicated by the curved broken line at 20 in Fig. 3. As many supports or spokes may be provided as desired.

As shown in Fig. 3, the ring supporting spokes 14 are formed with a greater area at the junctures with the shell than that of the junctures with the rings. Also, as shown in Fig. 3, the axially opposed pairs of supports are spaced apart from each other. However, the supports may be of any desired form, and, also, in very narrow cores the opposed pairs of supports may be joined together in the middle of the core.

Since it is essential that the true cylindrical shape of the opening 22 in the central shell 10 be maintained, the rings 12 and their supports are so constructed that their deformation or rupture will not affect the cylindrical form of the shell.

It should also be understood that after a roll of tape 24 has been wound on a core, the unwinding of the tape therefrom for use will not be affected by the deformation or rupture of the rings or supports therefor, the primary essential in the rolls of tape being to maintain the opposite faces of the rolls in straight parallel condition. That purpose is accomplished by the features of my improved core referred to in the foregoing description. Scotch and other types of tape has a certain degree of stiffness or resiliency, so that it will span the two rings in flat condition.

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Obviously, various changes or modifications in my improved tape core may be made without departing from the spirit and scope of my invention. Therefore, it should be understood that the embodiment of my invention shown and described is intended to be illustrative, only, and restricted only by the appended claim.

I claim:

A plastic tape core comprising a central cylindrical shell surrounded at its ends by a pair of relatively narrow tape supporting rings diametrically spaced from said shell by means of a plurality of circumferentially spaced supports between said rings and said shell, said rings being for engagement with only the marginal edge portions of tape wound thereon, said supports consisting of pairs of axially opposed spokes joined at their outer ends

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to said rings and converging to junctions with said shell substantially inwardly from the planes of the outer edges of said rings, the opposed pairs of said supporting spokes being disposed in substantially U-shaped formation and joined to the central shell adjacent its middle portion; said rings being yieldable and said supports being rupturable from their junctions with said shell under contraction of a roll of tape wound on said rings.

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