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TAPE TAKE-UP/SUPPLY REEL CORES

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Fig. 1

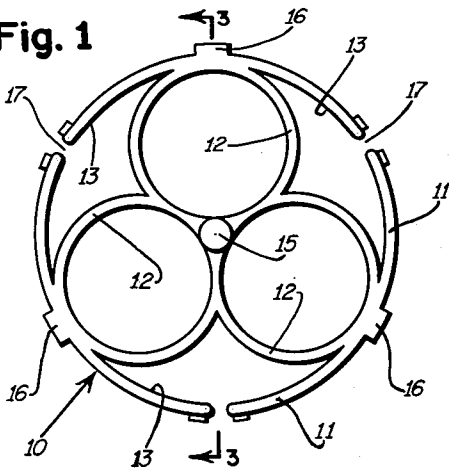
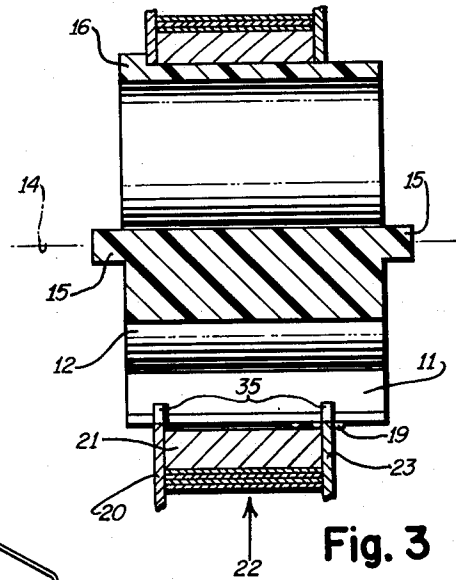


Fig. 5

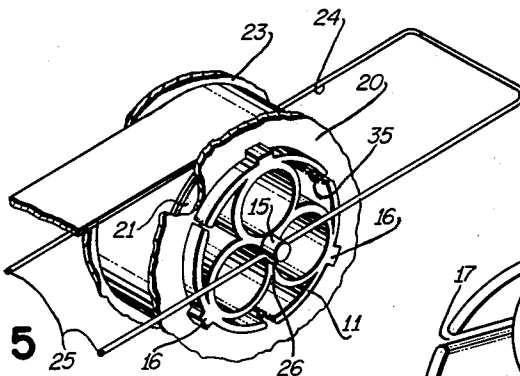


Fig. 2

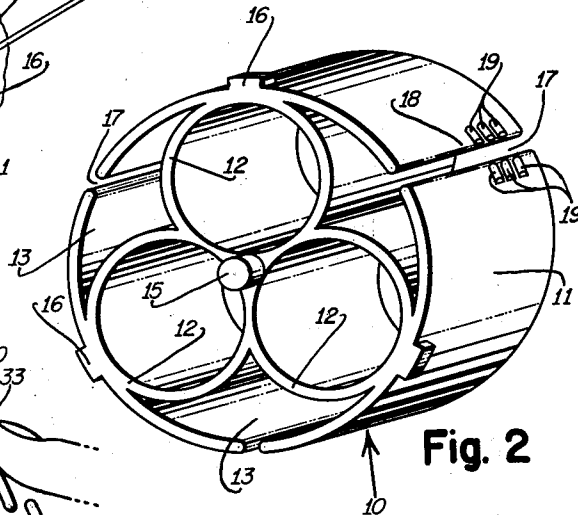
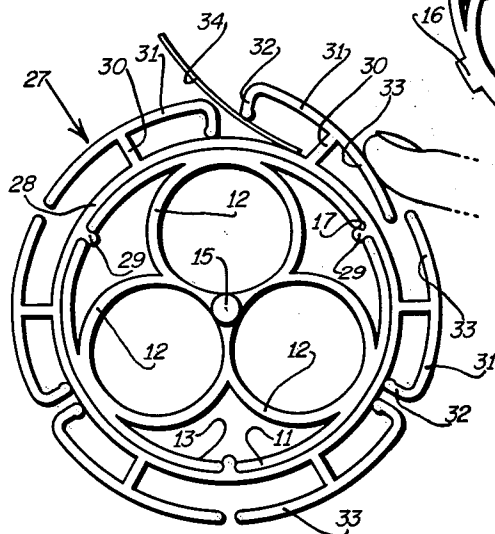


Fig. 4



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1

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TAPE TAKE-UP/SUPPLY REEL CORES

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3 Claims. (Cl. 242—68.5)

This invention relates to reel constructions having utility as supply or take up reels for data processing tape; more particularly it relates to reel constructions comprised of modular core and flange units; and specifically it relates to reel constructions employing a universal core adapted to be removably mounted within and to fulcrum the cores of rolls of data processing tapes.

Data processing tape is usually supplied in roll form on a hollow cardboard core. These supply rolls are either rewound on a supply reel or mounted on rather complicated and relatively expensive split reels of metal provided with trunnions to rotatively support the full reel whereby tape may be supplied therefrom to a work station. After passing the work station the tape is wound on a take up reel which is either a unitary or a split reel.

In accordance with the invention there is provided a simple inexpensive trunnioned core which is adapted to support a tape supply roll and which is so designed as to afford the proper degree of flexibility and rigidity to enable it to be easily hand press fitted into the cardboard core of a tape supply roll, restoring to a condition of reasonable concentricity any out of roundness experienced by the roll during shipping and handling. Accordingly it is an object of the invention to provide a most economical and effective supply reel core which will accommodate wide tolerances in the dimension and condition of supply tape rolls and permit the most economical type of supply roll support structure.

The same trunnioned core is also adapted to removably mount flanges and a storage core and thereby serve as the support core of a tape take up reel. After a tape has been wound on the take up reel the support core and flanges may be removed and used again and the roll of tape on the storage core may be stored for later use in combination with the same support core as a supply roll. Accordingly another object is in the provision of a support core for a take up reel which permits economy in manufacture and in inventory in that plain unformed stampings may be employed as flanges and in that only a storage core rather than a complete reel need accompany the full roll into storage.

Another object of the invention is in the provision of a take up reel support core adapted to mount variable diameter and width storage cores thereby serving as a take up reel for several widths of tape.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings in which like reference numerals designate like parts throughout the figures thereof and wherein:

FIGURE 1 is an end elevational view of a universal support core;

FIGURE 2 is a perspective view of the support core;

FIGURE 3 is a cross sectional view of the support core taken through lines 3—3 of FIGURE 1 with flanges and a supply roll mounted thereon;

FIGURE 4 is an end elevational view of a universal support core mounted within a tape storage core; and

FIGURE 5 is a perspective view of a reel construction employing the universal support core mounted in a hanger.

Referring now to the drawings wherein like reference

2

characters designate like or corresponding elements throughout the several views there is shown in FIGURES 1 and 2 a universal support core generally designated by reference numeral 10 comprising a substantially hollow cylindrical body or shell 11 formed or molded from a suitable plastic e.g. nylon or Delrin. The interior of body 11 is formed with equally spaced cylindrical webs 12 extending from end to end of the body with a predetermined peripheral arc of each web joined to the interior surface 13 of the cylindrical body and with a predetermined peripheral arc of each web joined to the other webs along the axis 14 of the cylindrical body. The cylindrical webs 12 provide resilient though structurally rigid support for the cylinder 11 at the points of jointure. As shown in FIGURE 3 trunnions 15 are formed integrally with the axial portion of the body, though it is to be understood that a pin press fitted into an axial bore is an equivalent construction.

As shown in FIGURES 2 and 3, the periphery of the cylindrical body 11 is formed with spaced lugs 16 adjacent one end of the body and located opposite the jointure of the webs with the interior wall 13 of the body 11. Further, spaced openings 17 are provided which extend axially from end to end of the cylindrical body and are located intermediate lugs 16 whereby the core body may be deformed to accommodate out of round storage cores. On the edges 18 of each of the openings and located adjacent the end of the body opposite the lugs is a series of detents 19 adapted to secure flanges on the core as illustrated in FIGURE 3.

When used as the support core for a supply tape the cylindrical body 11 is adapted to be received as by a press fit within the circular opening provided in a flat disc 20 which serves as a flange and within the cardboard core 21 of a tape supply roll 22. While press fitting the cylindrical body into the flange and core 21 the edges of the openings adjacent which the detents 19 are located flex radially toward the axis of the body 11. After mounting the tape supply roll 22 another flange disc 23 is pressed onto the core and secured thereon by one set of detents depending on the width of the supply tape which may have widths of $1\frac{1}{16}$, $\frac{7}{8}$ or 1".

As shown in FIGURE 5 the supply reel assembly is placed on a U-shaped hanger 24 adapted to be horizontally mounted by inserting the terminal ends 25 in a suitable support and whose legs are provided with fulcrum bends 26 adapted to accommodate the trunnions 15 on the support core axis whereby the reel assembly is rotatably mounted to permit tape to be drawn from the roll.

In a tape take up application the support core unit 10 is press fitted into a storage core generally designated by reference numeral 27 of a similar plastic which comprises as shown in FIGURE 4 a cylindrical ring 28 having spaced inwardly radially extending ribs 29 adapted to be received within the openings 17 in the support core. The width of the storage core 27 will depend, as with the cardboard core 21, on the width of the tape to be wound thereon. The cylindrical ring 28 is also formed with outwardly radiating rib sections 30 joined to and intermediate the ends of arcuate sections 31 defining an outer discontinuous cylindrical ring. One end of each arcuate section 31 is formed with an inwardly radiating extension 32 whereby when finger pressure is exerted on the other end 33 as illustrated in the figure, the ribs 30 will flex thereby raising the terminal end of the extensions 32 away from the periphery of the cylindrical ring 28 whereby the lead end 34 of a tape to be wound may be secured to the storage core 27. As before the mounting of flanges 20 and 23 respectively preceding and following the mounting of the storage core 27 on the support core 10 will be effected and the assembled core placed on a fulcrum hanger 24. Normally a tape take up reel is frictionally driven by rollers

3

engaging the edges of the flanges. To insure that the flanges will not slip relative to the support core they may be provided with keys 35 as illustrated in FIGURE 3 extending into openings 17 of the core.

While the invention has been described with reference to a preferred embodiment other embodiments e.g. a support core having a different arrangement of support webs not necessarily cylindrical could be employed. Further while detents have been included to insure that the flanges will not move axially, the frictional engagement of the support core and press fitted flanges can be sufficient for some applications.

It should be understood that the foregoing disclosure relates to only a preferred embodiment of the invention and that it is intended to cover all changes and modifications of the example of the invention herein chosen for the purposes of the disclosure, which do not constitute departures from the spirit and scope of the invention.

The invention claimed is:

1. A support core adapted to removably support in order a first flange,
a storage core for a length of tape,
and a second flange, said support core comprising a cylindrical substantially hollow shell,
axially extending support webs secured to one another along the axis of said shell and to circumferentially spaced points about the internal periphery of said shell,
axial slots in the periphery of and extending from end to end of said cylindrical shell located intermediate said points of jointure of said webs and shell,
radial lugs circumferentially spaced about the periph-

4

ery of one end of said shell to limit the axial movement of said first mounted flange,

and a plurality of axially spaced detents adjacent the edges of said slots at the end of said shell opposite said lugs to retain said second flange on said support core at selected axially spaced distances from said first flange.

2. A support core as recited in claim 1 wherein said support webs are cylinders.

3. A tape storage core adapted to be mounted between flanges on a support core, said support core having spaced axial extending slots, said storage core comprising a first hollow cylinder having radially inwardly extending keys adapted to be received within said support core slots,

a plurality of radially outwardly extending webs secured to said first cylinder,
arcuate sections secured to said webs and forming a discontinuous cylinder concentric with said first cylinder,

and a radially inwardly extending tab secured to one end of each of said arcuate sections and contacting said first hollow cylinder, the other ends of said arcuate sections being adapted to be depressed thereby to raise said tabs thereby to permit insertion of a tape between one of said tabs and said first cylinder.

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