

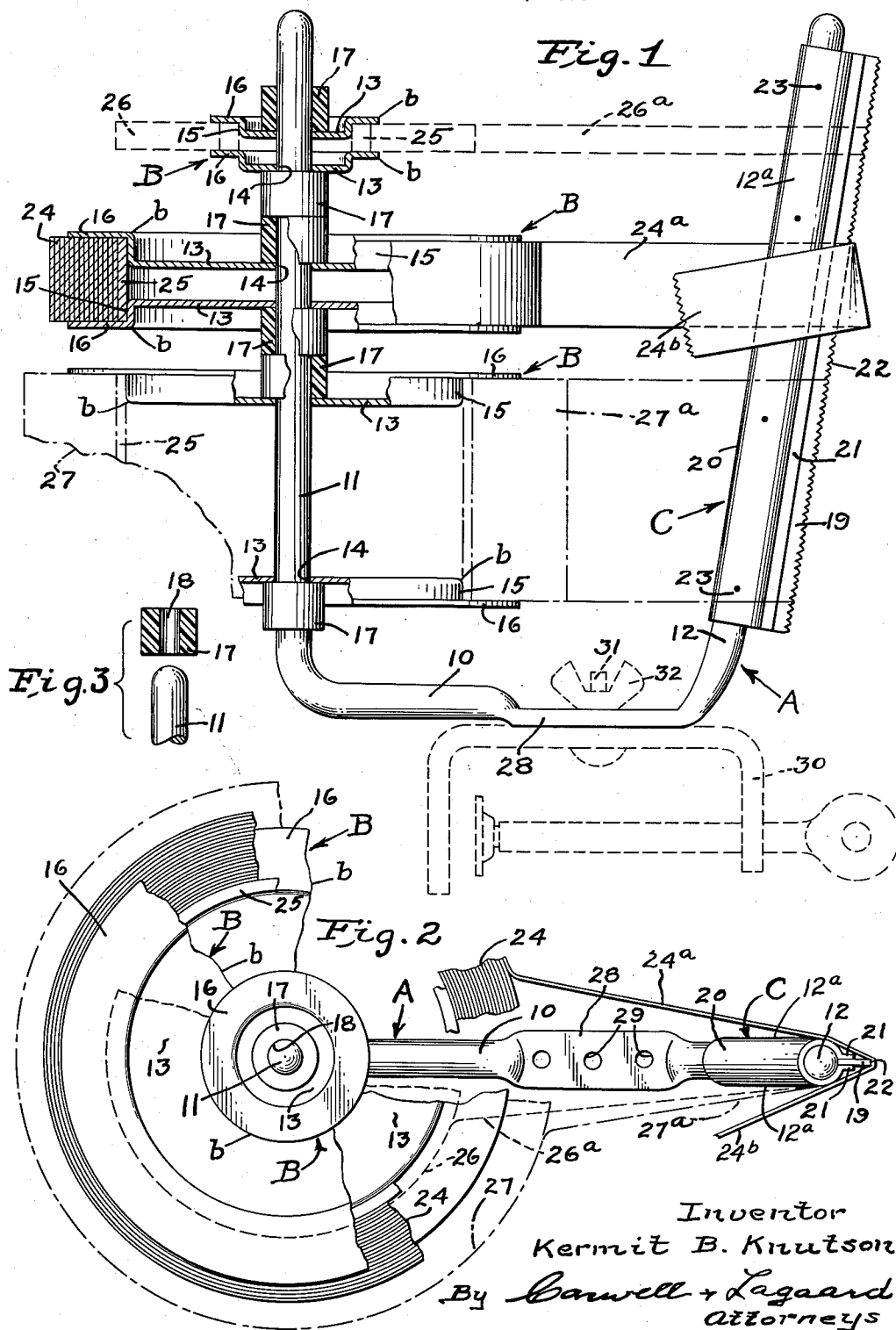
April 4, 1961

K. B. KNUTSON

2,978,155

TAPE DISPENSER

Filed Feb. 19, 1958



1

2,978,155

TAPE DISPENSER

Kermit B. Knutson, 1316 E. 24th St., Minneapolis, Minn.

Filed Feb. 19, 1958, Ser. No. 716,086

7 Claims. (Cl. 225—25)

My invention relates to improvements in dispensers for dispensing pressure-sensitive adhesive tape.

Pressure-sensitive adhesive tapes are presently available in rolls wrapped on annular cores, and they include many kinds of tape ranging from one-quarter of an inch to four inches in width, most of which are wrapped on annular cores having inside diameters of one inch and three inches.

Numerous uses for these tapes have developed, and various dispensers therefor have been devised which, though relatively costly, serve reasonably well in particular cases, but insofar as I am aware, no one has heretofore devised a reliable, versatile dispenser for pressure-sensitive adhesive tapes which will handle one or a number of rolls of tape of various widths, on cores of various diameters, for right or left-hand access, in upright disposition, inverted or not, and in various horizontal dispositions.

An object of my invention is to provide a construction in tape dispensers which is highly versatile and reliable in operation, as aforesaid, and which is also compact, durable and relatively low in cost.

Other objects of the invention reside in the novel combination and arrangement of parts and in the details of construction hereinafter illustrated and/or described.

In the drawing:

Fig. 1 is a full scale side elevational view of a tape dispenser constructed in accordance with my invention, the same holding three rolls of tape, portions of the structure being broken away to reveal construction which otherwise would be obscure.

Fig. 2 is a plan view of the dispenser and tapes shown in Fig. 1, portions of the dispenser structure being broken away, as in Fig. 1.

Fig. 3 is a detail view showing a portion of the spindle in elevation, and one of the collars applicable thereto, said collar being illustrated in central longitudinal cross-section.

Reference being had to the drawing, it will be understood that the illustrated form of my invention includes a frame A of U-shaped formation constructed of a length of round rod having a base rail 10, a spindle 11 and a post 12. The spindle 11 is at right angles to the base rail 10. The axis of the post 12 occupies a plane common thereto and to the axis of the spindle 11, said post being inclined outwardly away from said spindle in biased fashion. Said spindle 11 may be somewhat longer than four inches, the usual maximum width of rolled pressure-sensitive adhesive tape. The post 12 is substantially the same length as that of the spindle 11.

One or more drums B are mounted on the spindle 11, as the user may desire, the spindle 11 preferably having ample capacity for four or more rolls of tape according to the widths thereof selected.

Each drum B includes a pair of heads b, each head having a center web 13 formed with a central bearing-forming aperture 14 therein for reception of the spindle 11. On this web 13, concentrically disposed relative to

2

the center aperture 14, is an annular shoulder 15, and extending radially outward beyond said annular shoulder 15 is a peripheral flange 16. Said heads b are preferably stamped from sheet material, the peripheral flange 16 thereof joining the annular shoulder 15 in a plane offset from a plane in which said shoulder 15 is joined by the center web 13.

Applicable to said spindle 11, along with the drum heads b, are resilient collars 17 which provide end stops on the spindle 11 for the drum heads b. These collars 17, as indicated in the drawing, are of rubber and of cylindrical formation and each collar has an axial bore 18 therein of a lesser diameter than the diameter of the spindle 11.

The post 12 carries a blade holder C and a cutting blade 19, said holder C consisting of a split sleeve 20 fitted about said post, said sleeve 20 having outwardly turned lips 21 thereon spaced apart for the edgewise reception of the blade 19, the cutting edge 22 of which is exposed for the application thereto of payed-out portions of tape withdrawn from rolls thereof on the spindle 11. The blade-holding sleeve 20 is spot welded, as at 23, remotely from the lips 21 of the sleeve 20 so that said lips 21 will yieldingly grip the blade 19 between them. The angular disposition of said sleeve 20 on the post 12 is such that the cutting edge 22 of said blade 19 extends along the side of the post 12 opposite the spindle 11. The distance between the spindle 11 and post 12 is greater than the radius of a tape roll of usual maximum diameter applied to the spindle 11 so that a sufficient length of tape withdrawn from a roll may be conveniently grasped by the fingers of the user's hand between the roll and the post 12.

In applying a tape roll to the dispenser, a first collar 17 is strung onto the spindle 11 and stretched about the same in so doing, said collar being thereafter pushed along the spindle into selected position wherein it is to serve as an end stop for a drum head 13. Two drum heads b, usually in reversed relationship relative to each other, are then strung on the spindle 11, along with a roll of tape, as at 24, interposed therebetween, the assembly of drum heads b and roll being pushed along the spindle until the center web 13 of the leading head b engages said first collar 17. In such assembly of drum heads b and roll 24, the annular shoulders 15 of said drum heads fit within their respective end portions of the core 25 of the roll, and the peripheral flanges 16 of said drum heads b bear against their respective ends of said core 25 and against their respective ends of the tape roll 24. Finally, a second collar 17 is strung onto the spindle 11 and pushed therealong until its leading end arrives in position abutting the web 13 of the second drum head b. Both collars 17 tightly grip the spindle and remain in place, holding the assembly of drum heads b and roll 24 together, and stationing said assembly in selected position on the spindle 11. In some cases it is desirable that more or less resistance be exerted against rotation of the tape roll 24 on the spindle, whereby the end portion of the tape, when withdrawn from the roll, will be tensioned in its application to the cutting blade 19 on the post 12. That desideratum is attained by forcing the second collar 17 against the web 13 of the second drum head b, the ends of both collars 17, in such case, being brought into frictional engagement with their respective drum heads b thereby to resist the turning thereof. This resistance to the rotation of the drum heads b is more or less powerfully applied according to the amount of force used in bringing the ends of the collars 17 against their respective drum heads b, the gripping of the spindle 11 by the walls of the bores 18 of said collars 17 being always of greater moment than the friction set up between the ends of the collars 17 and the webs 13 of the drum heads b.

In addition to the three-fourths inch roll of tape 24, shown in solid lines, the illustrated dispenser is shown with a one-fourth inch tape 26, in dotted lines, and a two inch tape 27 in dot-dash lines. The tape rolls 24 and 27 are held in drums B whose heads *b* are relatively reversed. However, in the drum B holding the quarter inch roll 26, the drum heads *b* are not so reversed, this relationship of drum heads being desirable in connection with very narrow tapes for two reasons, one reason being that ample space will be left between the webs 13 of companion drum heads *b*, the other reason being that the shoulder 15 of one drum head *b* alone is sufficient as a bearing for the core 25 of such a narrow tape roll.

The base rail 10 of the frame A is flattened intermediately thereof, as at 28, to provide a bed member for said frame, said bed member being provided with openings 29 therein for bolts or screws. This bed member 28 may be fastened to the body of a clamp, as at 30, by means of a bolt 31 and wing nut 32, and the clamp 30, in turn, may be fastened to any convenient support stationing the frame A upright or inverted, or in horizontal or other disposition desired. Alternatively, said bed member 28 may be fastened by screws or bolts directly to any suitable support whether vertical, horizontal or otherwise, for permanent mounting of the dispenser. For portability, the base member 28 of the dispenser may be bolted to a base block (not shown) adapted to rest on a desk or table, or it may be held in the hand of the user with or without a clamp or other fitting attached thereto.

Having mounted a roll of tape on the spindle 11, the tape will be drawn from the roll to provide a feed run of the tape, as at 24^a, the same extending from its point of departure from the roll 24 at one side of the plane common to the axes of the spindle 11 and post 12 to the corresponding side of said post, such side of the post providing a holding surface 12^a to which tape adheres on being contacted therewith. The tape thus prepared to be dispensed is grasped at the end thereof and parted from the holding surface 12^a on the post, said tape being thereupon further withdrawn from the roll to attain, in desired length, a terminal portion of the tape, as at 24^b, extending beyond the post 12. Said terminal portion 24^b of the tape is then swung around the post 12 to the side of said common plane opposite the point of the tape's departure from the roll. This positioning of the terminal portion 24^b of the tape causes the tape to be re-adhered to said tape holding surface 12^a at the side of the post 12 and to be drawn across the cutting edge 22 of the blade 19. There being no obstruction laterally about the post 12, the terminal portion 24^b of the tape can be and desirably is swung about the blade 19 into position at an angle considerably less than ninety degrees relative to the feed run 24^a of the tape. Subjected to this acute angularity between the terminal portion 24^b and the feed run 24^a of the tape, terminal portion 24^b is pulled back and readily cleanly severed by the cutting edge 22 of the blade 19.

Convenient access to the feed run 24^a of the tape may be had by either the right or the left hand of the user. To this end, as seen in Fig. 2, the tape roll 24 is located end-for-end in its drum B so that its feed run 24^a parts from the roll 24 at one side of the plane common to the axes of the spindle 11 and post 12. Conversely, the tape rolls 26, 27 have an endwise disposition in their respective drums whereby the feed runs 26^a, 27^a part from said rolls 26, 27 at the other side of the said common plane. Alternate tape rolls therefore may be held in the dispenser so that the feed runs of tape from said rolls will part from their respective rolls at opposite sides of the dispenser, thereby providing extra room for the fingers in grasping the end portions of said feed runs of the tape. It is to be noted that the biasing of the post 12, and of the blade 19 thereon, provides for cutting across a tape bit by bit. This feature and the feature admitting of the bending of a payed-out terminal portion of tape about the blade 19 into position at an acute angle rela-

tive to the feed run of the tape make for certain and easy cutting of a tape regardless of its toughness.

Changes in the specific form of the invention, as herein described, may be made within the scope of what is claimed without departing from the spirit of the invention.

Having described the invention, what is claimed as new and desired to be protected by Letters Patent is:

1. In a dispenser for dispensing pressure-sensitive tape from a plurality of rolls thereof, a spindle and a post laterally spaced apart from each other and axially disposed in a common plane, the spindle being adapted to receive a number of rolls of tape and support them for rotation in axial coincidence therewith, a tape-severing blade carried by the post coextensively therewith in said common plane, said blade extending laterally outward from the side of the post opposite said spindle, the outer edge of the blade being the cutting edge thereof, said spindle being adapted to receive each roll of tape disposed with either end thereof foremost so that its tape may be drawn from the roll to the post and therebeyond at either side of said common plane, said post having opposed holding surfaces at opposite sides of said common plane to the one or the other of which surfaces tape unwound from a roll disposed in correspondence with such surface will adhere while the terminal portion of the unwound tape in advance of the run thereof between roll and holding surface is severed by drawing such terminal portion around the cutting edge of the blade from the one side of said plane to the other and pulling it back against said cutting edge, said post being devoid of obstruction laterally about the same to that extent at least enabling said terminal portion of each tape to be swung around the cutting edge of the blade into position at an angle of less than ninety degrees relative to said run of the tape.

2. In a dispenser for dispensing pressure-sensitive tape from a roll thereof, a spindle and a post laterally spaced apart from each other and axially disposed in a common plane, the spindle being adapted to receive a roll of tape and support it for rotation in axial coincidence therewith, a tape-severing blade carried by the post coextensively therewith in said common plane, said blade extending laterally outward from the side of the post opposite said spindle, the outer edge of the blade being the cutting edge thereof, said spindle being adapted to receive a roll of tape disposed with either end thereof foremost so that its tape may be drawn from the roll to the post and therebeyond at either side of said common plane, said post having opposed holding surfaces at opposite sides of said common plane to the one or the other of which surfaces tape unwound from a roll disposed in correspondence with such surface will adhere while the terminal portion of the unwound tape in advance of the run thereof between roll and holding surface is severed by drawing such terminal portion around the cutting edge of the blade from the one side of said plane to the other and pulling it back against said cutting edge, said post being devoid of obstruction laterally about the same to that extent at least enabling said terminal portion of the tape to be drawn around the cutting edge of the blade into position at an angle of less than ninety degrees relative to said run of the tape.

3. A dispenser, as defined in claim 2, wherein the spindle and post are terminal members of a U-shaped frame formed from a single length of rod, the intermediate member of said frame being a base member adapted to be secured to a support for mounting the dispenser.

4. A dispenser, as defined in claim 2, wherein the post is axially biased relative to the spindle to facilitate the severing of the tape by the blade thereon.

5. A dispenser, as defined in claim 2, having means for mounting the tape-severing blade on the post, said means consisting of a split sleeve fitted about the post, said sleeve having outwardly turned lips relatively spaced apart for the edgewise reception of the tape-severing

5

blade, said sleeve being secured to said post at points remote from said lips, said lips being adapted to grip said blade at the opposite sides thereof and secure it in place relative to the post, the sides of the sleeve at the opposite sides of said common plane providing the opposed holding surfaces for the tape.

6. In a dispenser for dispensing pressure-sensitive tape from a roll wound on an annular core, said dispenser including a spindle, a drum revolubly mounted on the spindle, said drum consisting of a pair of heads each thereof having a center web formed with a central aperture therein for the reception of the spindle and having an outwardly extending peripheral flange, said heads being adapted to be strung on the spindle along with a roll of tape interposed therebetween, one at least of said heads having an annular shoulder thereon between its center web and peripheral flange adapted to fit into its respective end portion of the core of said tape roll, the peripheral flange of each head being adapted to bear against its respective end of the roll, collars on the spindle longitudinally adjustable therealong, there being one collar for each drum head, each collar being adapted to be positioned on the spindle with the end thereof adjacent its respective drum head in abutting relationship relative to the center web thereof, said collars being of resilient material and of a lesser internal diameter than the diameter of said spindle, said collars being stretchable about the spindle yieldingly to grip the same and being adapted to be pushed along the spindle into their head-abutting positions, said collars in said positions thereof being adapted to frictionally engage the webs of their respective drum heads more or less powerfully depending upon the force applied to the collar in pushing it along the spindle and against the web.

7. In a device for revolubly supporting a roll of pres-

6

sure-sensitive tape wound on an annular core, said device including a spindle, a drum revolubly mounted on the spindle, said drum consisting of a pair of heads each thereof having a center web formed with a central aperture therein for the reception of the spindle and having an outwardly extending peripheral flange, said heads being adapted to be strung on the spindle along with a roll of tape interposed therebetween, one at least of said heads having an annular shoulder thereon between its center web and peripheral flange adapted to fit into its respective end portion of the core of said tape roll, the peripheral flange of each head being adapted to bear against its respective end of the roll, an abutment on the spindle in abutting relationship with respect to the center web of one of said drum heads, a collar on the spindle longitudinally adjustable therealong, said collar being adapted to be positioned on the spindle with one end thereof in abutting relationship relative to the center web of the second of said drum heads, said collar being of resilient material and of a lesser internal diameter than the diameter of said spindle, said collar being stretchable about the spindle yieldingly to grip the same and being adapted to be pushed along the spindle into its head-abutting position, said collar in said position thereof being adapted to frictionally engage the web of its respective drum head more or less powerfully depending upon the force applied to the collar in pushing it along the spindle and against the web.

References Cited in the file of this patent

UNITED STATES PATENTS

387,362	Locke	Aug. 7, 1888
864,777	Fox	Sept. 3, 1907
958,062	Adkins	May 17, 1910
2,414,915	Ziegler	Jan. 28, 1947