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Funke et al.

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[54] **CARTON TAPING TOOL**

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[52] **U.S. Cl.** **156/577**, 156/527, 156/545, 156/579

[51] **Int. Cl.** **B32b 31/18**, B32b 31/20

[58] **Field of Search** 156/577, 579, 527, 156/545

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[57] **ABSTRACT**

A light weight manual type carton-taping tool with a pressure-sensitive tape supply roll-receiving drum at one end; a middle region piston grip; and, at the other end, a tape application guide and pressing roller and a small rotatable tape control roller between which the tape is led, the control roller mounted swingably to and from the pressing roller and provided with an over-running type clutch allowing forward tape feed and preventing tape retraction. A tape cutter blade is clamped roughly diametrically opposite the control roller by a leaf spring type resilient tape-end-wiping finger.

34 Claims, 11 Drawing Figures

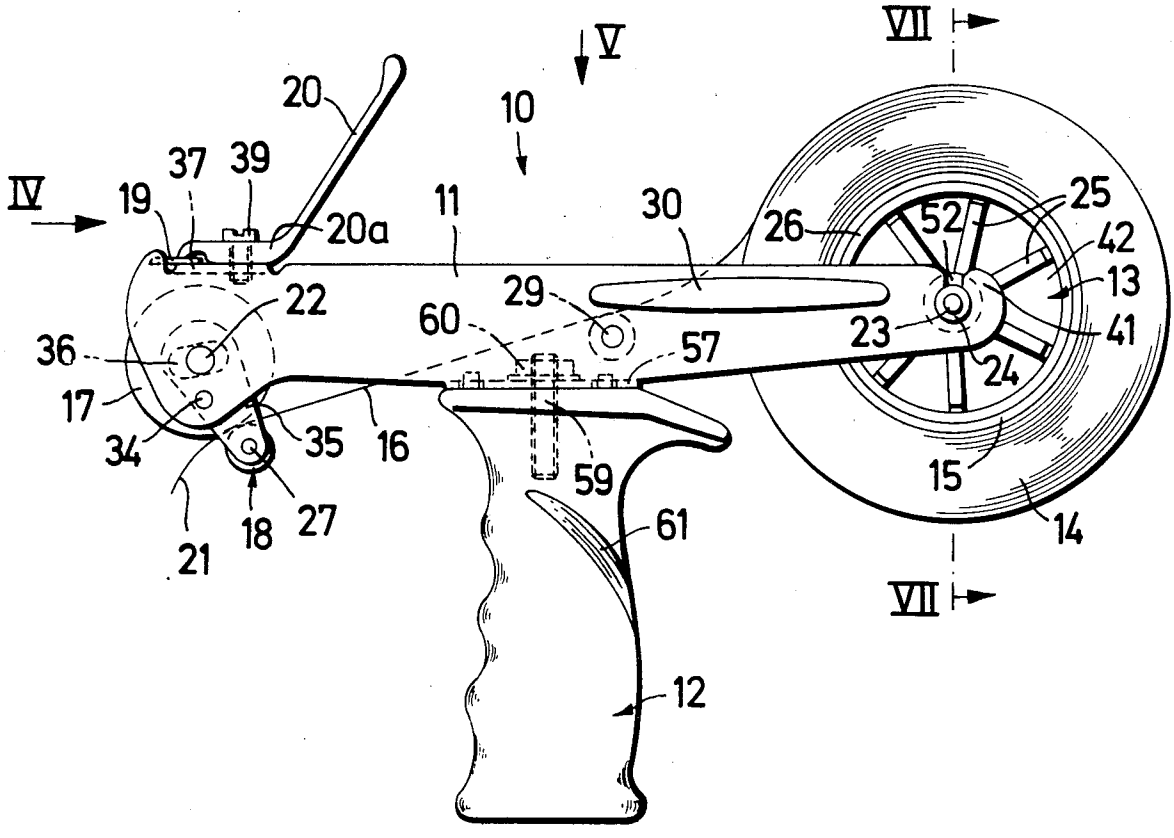


FIG. 1

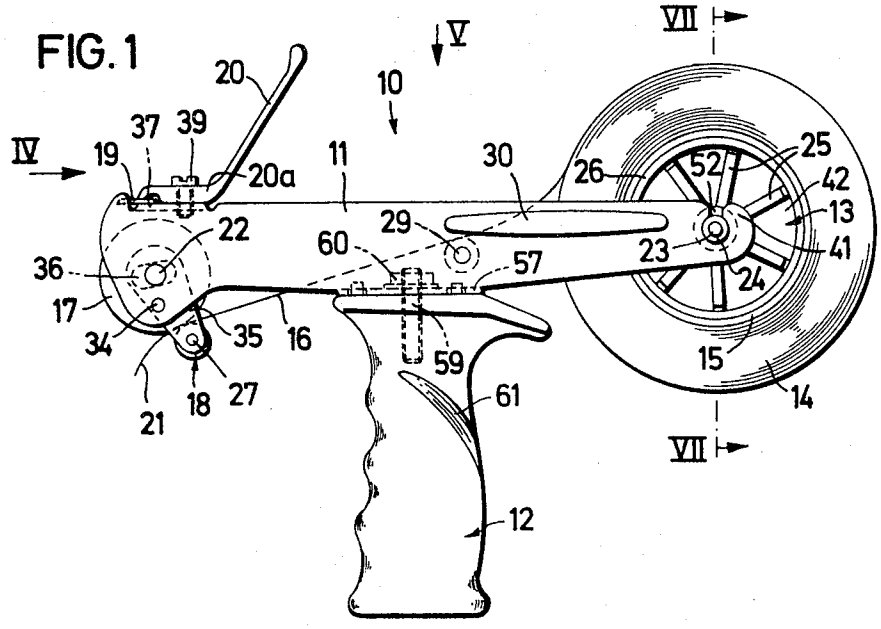


FIG. 2

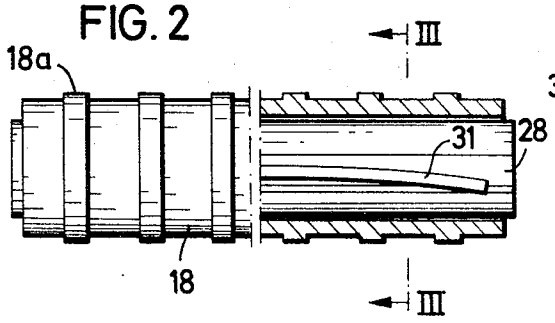
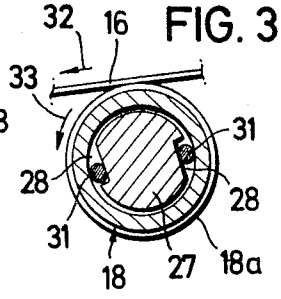


FIG. 3



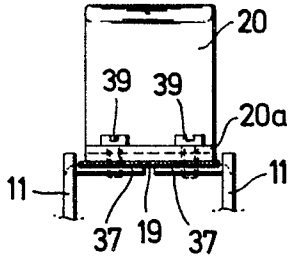


FIG. 4

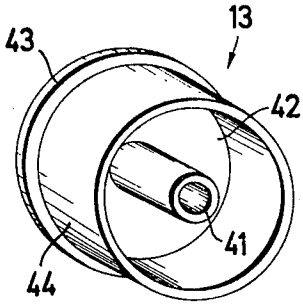


FIG. 8

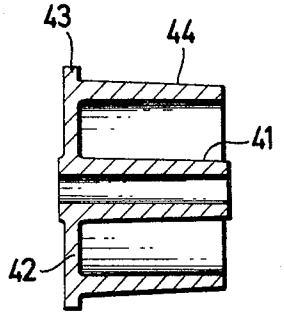


FIG. 9

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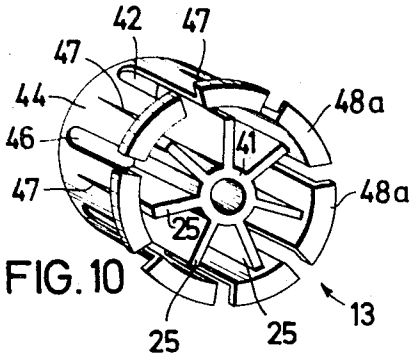


FIG. 10

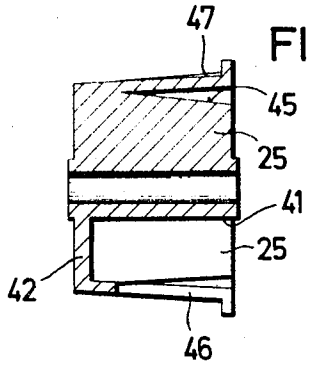


FIG. 11

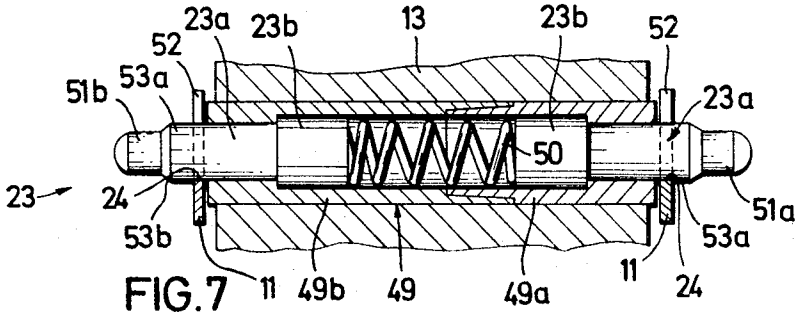


FIG. 7

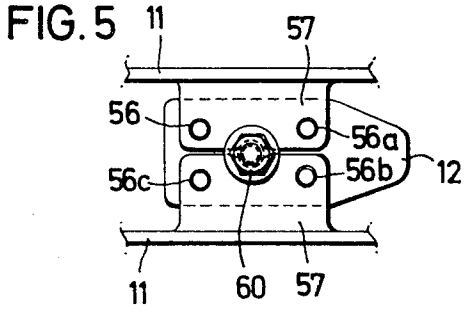


FIG. 5

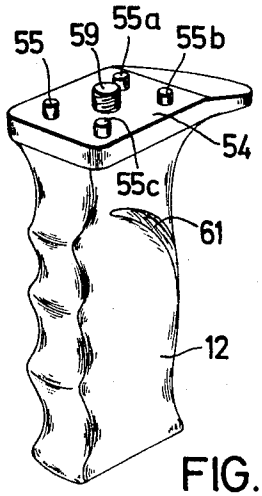


FIG. 6

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CARTON TAPING TOOL

The present invention relates generally to a hand tool for applying, from a tool-carried supply roll, pressure sensitive tape for closing or sealing or wrapping cartons or similar packaging.

Carton taping hand tools or implements are known carrying a rotatably supported supply roll of pressure sensitive tape unwound and led over a tape guiding and applying roller; a tape cutter blade secured by a special clamp plate, and, for subsequently pressing the applied tape into adherence on a packaging surface, a special pressing roller; usually having associated with the applying roller a tape control element or roller to provide an anti-retraction device preventing the tape from pulling back toward the supply and thereby keeping it in position at the applying roller ready for use.

Such prior tools have labored under various disadvantages, such as complexity of construction, therefore attendant costs, where acceptable function is achieved, or have had undesirable characteristics of operation and/or durability. For example, in prior constructions, with the tape control anti-back up element non-rotatable and with the pressure sensitive side of the tape contacting that element, the element has to be mounted on a pivotal arm structure, which is tension-spring-biased toward, but (for threading the tape,) liftable from, the applying roller; and considerable effort is usually required for drawing the tape out of the tool, not only at the start of but also throughout the tape-applying tool stroke.

Further, in prior tools of this type where the frame or body is comprised of metal stampings, castings or the like elements, with thin walls for lightness, and a tape roll supporting drum is supported in such a frame by a rotatable metal shaft, wear due to high bearing pressure between the rotating shaft and the small bearing surfaces in the thin frame walls develops a looseness in the shaft-supporting aperture or journal area. This shortens the effective tool life as well as causes undesirable performance, unless there are incorporated structural expedients relatively costly for the nature of the tool.

Also in prior constructions, often the tape roll supporting drum would not locate and maintain the roll in the frame in proper position relative to other operative parts, especially relative to the guiding and applying roller, thus frequently causing a tendency of the tape, as it is drawn from the supply roll, to distort by partial folding or transverse curling, leading to incorrect feed, so that the tape is not applied smooth and flat to the article. Such improper performance results not only in a poor appearance of the finished packaging, but also in difficulty in the tape cutting by a severing blade of the tool. As a practical matter, considering the type of work being done and the speed to be expected, it is not without some difficulty that such folding or distortion of the tape can be overcome by drawing further tape from the supply roll, for once it has begun, it tends to propagate itself continuously as the tape is unwound.

By the present invention there is provided a package taping hand tool incorporating several improved features which in their cooperative relationship in the tool as a whole permit, for example, in a pistol grip type tool, a construction which is relatively simple both in the number of structural elements and in their mode of fabrication, consequently resulting in a low manufacturing cost while giving an improved tool service life and performance, and overcoming or minimizing one

or more of the aforedescrisbed disadvantages of prior tools of this type.

Thus, for example, by an improved and simple tape supply roll receiving drum assembly ensuring both an initial proper location of the tape roll and maintaining it so during use, also adapted readily to receive properly a supply roll of which the paste board spool may be somewhat out of round, an initial and continuing correct feed and elignment of the tape toward the pressing applying roller is facilitated.

Further by use of a drum shaft made of an appropriate plastic material such as a polyacetal resin or a polyamide resin, e.g., Nylon, the shaft journalling or bearing arrangement in the frame may be reduced to a simple punched out opening with only initial slight operating clearance; since, upon initial tool use, a slight initial wear of such plastic from the shaft onto the surrounding bearing walls of the shaft receiving openings in the frame thereafter provides a smooth self-lubricated bearing contact, avoiding the fast wear which would otherwise arise between metal shafting and frame plates in such situation, unless a more expensive bearing structure is provided. End pilot means and axial contractability are further provided in the shaft to enable removal of a used tape spool and correct insertion of a new tape roll.

Furthermore by use of a rotatable tape end retaining anti-back up or control roller adjacent the tape pressing guiding and application roller, and with one or the other or both of these rollers including an overrunning clutch type device providing free forward rotation upon tape feed but locking against backward rotation, thus to keep the tape from backward withdrawal from the tape discharge end (with a simple eccentrically pivoting mounting permitting the control roller upon incipient tape retraction to press toward the pressing roller where the latter does not include such clutch), there is avoided the necessity of providing, in the frame, means for accommodating and mounting control roller actuating or biasing tension springs. A simple overrunning clutch device is provided, easily incorporated even in a small tape control roller assembly.

With these features, the basic frame or body of the tool may be provided by a pair of simple mirror image, that is right and left hand related, metal stampings mounted therebetween the supply roll drum shaft and the pressing roller shaft; the plates being held together as a rigid frame through the mountings of a hand-grip, of a tape cutter blade and pressure finger, and of the tape pressing application roller. To this end, a pistol grip has integral interengaging end pins through opposed central bottom flanges of the plates, and the latter are further secured against the grip end by a lock washer and nut threaded on a stud insert molded in the grip end.

The frame plates thus are held as well at the central region in appropriate spaced parallel relation by integral pins of the plastic grip through flange apertures.

To the same purpose, at the forward or working end of the tool, in the tape guiding and pressing application roller mounting region, on the top side of the frame, away from the grip, the plates have a pair of respective opposed inward coplanar front flanges forming a knife support surface, to which also is mounted the base of an outwardly projecting, resilient tape presser plastic finger aptly located firmly to press the terminal or cut-off end of an applied tape, thus eliminating the prior art

special roller for this purpose. The finger base is held by screws therethrough threaded into the respective front flanges; and serves not only to clamp the cutting blade in adjusted position but also as spacing reinforcement for the front end frame portion, while eliminating a separate knife blade clamping element.

The abovementioned aspects of the improved tool are hereinafter described in detail.

It is the general object of the present invention then to provide an improved hand tool for applying tape, particularly pressure sensitive tape, to cartons and other packaging. It is a further object of the invention to provide a tool of the character described having a durable but simplified low cost construction while reliably meeting practical needs. It is a still further object of the invention to provide a tool of the character described in which a tape control roller is rotatably mounted, and in which one or the other, or both of the control and the pressing rollers incorporate an anti-tape back up or withdrawal preventing means, permitting, however, free tape forward feed.

A still further object is to provide a tool of the character described having an improved supply roll supporting rotatable drum adapted to ensure initial and maintained correct positioning of the supply roll during use of the tool. Still a further object is to provide a supply roll supporting drum having an axle or shaft construction which is easily removed from and inserted in the frame, and which further is adapted to be used in simple punched-out shaft supporting or bearing openings in the frame. A further object is to provide a tool with a simplified construction including two mirror image stamped plates, the securement of which into a rigid frame is aided by cooperating mounting engagement thereof with a pistol grip and with a cut off blade securing base of a tape pressing resilient finger element.

Other objects and advantages will appear from the following description and the drawings wherein:

FIG. 1 is a side elevational view of one form of a tape applying hand tool embodying the characteristics of the invention;

FIG. 2 is a detail view, partially in elevation and partially broken away, of a tape control roller element;

FIG. 3 is a radial cross section taken as indicated by the line III—III in FIG. 2;

FIG. 4 is a fragmentary end elevational view, taken as indicated by the arrow VI—IV in FIG. 1, of the front or working end of the tool, and showing the tape cutter mounting;

FIG. 5 is a fragmentary plan view of the region indicated by arrow V in FIG. 1, and showing details of the mounting of the pistol grip to the frame elements;

FIG. 6 is a detail perspective view of a pistol hand grip element;

FIG. 7 is an enlarged fragmentary axial section of the tape roll supporting drum shaft structure, taken along the line VII—VII in FIG. 1;

FIG. 8 is a detail perspective view of a tape supply roll receiving drum modified from that appearing in FIG. 1;

FIG. 9 is an axial longitudinal section of FIG. 8;

FIG. 10 is a perspective view of a still further modification of a tape roll supporting drum; and

FIG. 11 is an axial longitudinal section of the drum of FIG. 10.

One embodiment of the taping hand tool of the invention, as shown in FIG. 1 of the drawings, is comprised of a frame **10** provided by two mirror-image right and left hand side plates **11**, for example, aluminum stampings, extending in longitudinally parallel spaced relation to each other; the pistol hand grip **12**; a removable rotatably mounted drum-like core or support **13** upon which is seated the pasteboard spool **15** of the adhesive tape supply role **14**; a control roller **18**; and rotatably mounted in the frame forward or working end, a tape pressing and guiding application roller **17** by which the tape strip **16**, unwound adhesive side down from roll **14**, is guided and pressed onto a carton to be sealed or other like packaging. The tape roll receiving drum structure **13** includes a shaft assembly **23** rotatable in apertures **24** providing shaft bearing in a bifurcated rear end structure of the frame.

One or both of the rollers **17** and **18**, between which tape **16** is led, embody what may be called an overrunning clutch type device, as shown in FIGS. **2–3** for roller **18** hereinafter described; that is, the roller is freely rotatable in a forward direction allowing the tape **16** to feed outwardly thereover, but clutches or engages against reverse rotation thereby preventing rearward escape of the tape end **21** from between the rollers and thus maintaining it in position ready for the beginning of the next operation.

On inward opposed coplanar flanges **37** bent at right angles on the top front of the respective plates **11** above the pressing roller **17** (see detail FIG. **4**), a tape cutting blade **19** is securely clamped by the base structure **20*a*** of a tape-smoothing resilient pressing finger **20**, (preferably made of a durable plastic), secured by the screws **39** passed therethrough and threaded into respective flanges **37**.

The shaft **22** of roller **17** is supported in aligned apertures of the forward bifurcation-forming front ends of the side plates **11**. With the ends of shaft **22** reduced in diameter to afford plate spacing shoulders and externally headed down on the side plates, and a spacer element or sleeve **29** having a rivetted side plate engagement as shown in FIG. **1** above the handle, there results a firm fastening of the frame elements to each other in the heavily stressed front and middle portions.

As shown in FIGS. **5–6**, the pistol grip **12** is securely held and oriented on the opposed central bottom coplanar broad flange portions **57, 57** inwardly bent on and at right angles to the respective frame walls **11**. The grip flat top surface **54** has integrally molded upwardly projecting lugs or pins **55, 55*a*, 55*b*, 55*c*** cooperatively engaged in respective corresponding rounded punched out flange apertures **56, 56*a*, 56*b*, 56*c***, and also an upwardly projecting molded-in threaded stud insert **59** extending between accommodating flange edge notches for grip clamping by a washer and clamping nut **60**. This structure not only provides a rigid attachment for the molded plastic handle, but also, in cooperation with the previously described elements conduces to overall frame strength, as the frame plates are held centrally in rigidly spaced parallel relation.

Thus a simple rigid frame is provided, even with thin wall aluminum stampings for plates **11**, the use of which is feasible by other features later described, including a particular shaft structure **23** for drum **13**.

These plates **11** are readily fabricated, as stamped elements at low cost, to include the longitudinally extending stiffening ribs or grooves **30**; the apertured

flanges 37 and 57; and apertures for the tape application roller shaft 22, for the pivot pins 34 of the control roller mounting plates 35, and at the rear ends, the "key-hole" apertures providing the lead-in slots 52 downward into the circular enlargements 24, for the components hereafter described; the apertures in 37 later tapped if self-tapping screws are not used.

Details of a suitable form for the aforementioned "over running clutch" type roller are shown in FIGS. 2 and 3 for the control roller 18. On the tape contacting and guiding portion of the roller 18, a series of broad flat shallow circumferential grooves at spaced axial locations define therebetween flat circumferential lands 18*a* affording minimum contact area with the adhesive coated tape side. This sleeve 18 is coaxially disposed and rotatable about a fixed shaft 27, in which a pair opposed longitudinally extending sloped bottom grooves 28, providing sloping camming surfaces, receive respective round-sectioned elongated clutching elements 31 disposed therein to cooperate with the sleeve inner cylindrical wall as a clutched surface.

Each element 31 appears as a somewhat symmetrically bowed resilient wire or the like, extending substantially over the groove length with, convexity of the bow lying up the groove slope. The groove slope directions are such as to increase in depth in the counterclockwise direction as shown in FIG. 3, so that with the tape 16 moving forwardly to feed in the direction indicated by the arrow 32, and thus rotating the sleeve 18 forwardly, i.e. counterclockwise, as indicated by the arrow 33, the elements 31 declutch and permit free sleeve rotation; but upon incipient backward movement of the tape, thus starting a reverse or clockwise sleeve rotation, each element 31, particularly at its bowed top center, tends to wedge or clutch between the fixed groove slope and the inner cylindrical surface of the sleeve 8, locking the roller up, in the known operation of this type of device, thereby preventing backward tape movement or retraction.

When such a clutch is incorporated in the roller 17, the shaft 22 assumes the above described structure and function of the fixed shaft 27, but its groove slopes are, of course, reversed in orientation from that shown in FIG. 3, because of the clockwise rotation of 17 on forward feed. Then, especially advantageously in combination with the same clutch structure present in 18, the axial spacing between the two rollers may be substantially fixed.

As shown in FIG. 1, the shaft of the roller 18 is secured, e.g., in the shouldered riveted manner previously described for shaft 22, between the lower ends of the link or pivot plates 35 pivotally mounted on the inside faces of the respective side plates 11 by pivot pins 34; the link plates having respective cut-out slots 36 through which the shaft 22 extends, to allow swinging of the link plates and thereby of the roller 18 eccentrically relative to roller 17.

Since the common axis of pivots 34 lies forward of the plane of the axes of rollers 17 and 18, a forward swinging tendency swings roller 18 away from 17, thus releasing the pressure of roller 18 holding the tape against the surface of roller 17; so that forward feed can take place with minimum effort; and therefore also the tape initially can be easily threaded between rollers 17–18. But tape retraction or reversal, in pulling roller 18 rearwardly and causing pivoting about 34 toward 17, thereby causes the pressure of the roller 18 increasingly to engage the tape therebetween to prevent tape retraction, due to the braking clutch action communicated through adherance of the adhesive tape side on roller 18.

An assembly providing the shaft 23, (see FIG. 7) comprises two coaxial aligned like pieces 23*a*, 23*a* axially shiftable inwardly into and biased outwardly from the casing tube 49 by virtue of a spiral compression spring 50 interposed between their inner ends 23*b*, 23*b* enlarged to provide radial shoulders engaging with corresponding counterbore stop shoulders of the respective tube halves 49*a* and 49*b*. The latter having interfitting male and female tapered portions secured together by any suitable means, for example, adhesive or the like, or press fitting into hub 13. The entire shaft assembly is press fitted into the hub of the drum structure 13.

Further each shaft portion 23*a* (of plastic such as a polyacetal resin or polyamide resin, e.g., Nylon) has a rounded and reduced end or pilot portion 51*a* smaller in diameter than the main shaft end portion 53*a* joined thereto by a taper 53*b*; while the rear end of each side plate 11 has punched therethrough a keyhole shaped aperture providing a downward lead-in slot 52, in width substantially equal (with a slight sliding clearance) to the diameter of portions 51*a* leading into a central round aperture 24 providing the previously named shaft journalling aperture or bearing corresponding (with slight running clearance) to the diameter of the respective main shaft end portion 53*a*.

This arrangement permits the shaft end portions 51*a* to be pressed inwardly, by the thumb and fore-finger of one hand, against bias spring 50 until they align with slots 52 and the main shaft end portions 53*a* also clear holes 24, whereupon the entire drum assembly may be slid upwardly out of slots 52 for removal of the paste board spool of a used roll and replacement by a new roll. By reverse operations the reloaded drum is reinserted, and upon release of finger pressure, the outwardly biased shaft end movement is piloted to bring the full shaft end portions 53*a* into the apertures 24. Further with this arrangement, not only is there a quick and easy change or replacement of the supply roll, but moreover the interengaging structure of the shaft assembly with the frame prevents accidental upward displacement of the supply roll from the frame.

Since the two half shaft elements 23*a* are comprised of a plastic of appropriate hardness, preferably a polyacetal resin or a polyamide resin, e.g. Nylon, even with rough stamped-out keyhole openings, wall surfaces of the rough bores 24 and slots 52 are smoothed out by being coated during first use with plastic material rubbed off onto the wall surfaces thereby providing an ideal bearing running surface. Thereafter further wear or detrimental enlargement of the bearing bore 24 is no longer significantly possible during a reasonable service life of the tool.

The core or drum 13 in the form shown in FIG. 1, or in FIGS. 8–9 or, in the further modification of FIGS. 10–11, is well adapted for production as a low cost, durably functional synthetic plastic injected molded piece or the like having an elongated hub 41 in which is press fitted the assembly for shaft 23 above described.

In FIG. 1, a plurality, seven, of integral radial reinforcing gussets or ribs 25 extend from the hub 41 back to the radial rear wall 42 and partially to the approximately internal cylindrical surface of the integral roll

supporting sleeve portion **26**, somewhat after the fashion indicated in FIGS. **10** and **11** for a modification.

In FIGS. **8–9**, the core or drum **13**, is modified from FIG. **1** insofar as the back wall **42** is radially enlarged to form a flange-like, circumferentially continuous, tape spool stop rim **43** at the broader end of the slightly conical or tapered external surface of the drum wall **44**, thereby to prevent the supply roll spool **15** from being pushed axially too far upon the drum.

FIGS. **10-11** show a still further drum modification wherein the drum sleeve portion **44**, contrary to FIGS. **8–9**, is tapered to enlarge towards the forward or free end, and also is divided by equally spaced inward slots **46**, into a plurality of seven like segments or tongue sections each provided at its free end with an outward arcuate stop flange formation **48***a*, so that the drum may be considered as comprised of a circumferentially outward rim-flanged, externally tapering, sleeve portion divided into the aforenamed sections by the slots **46**.

Radially symmetrically and centrally disposed relative to the described sections, the seven ribs **25** integrally connect the hub tube **41**, the back wall **42** and a back-wall-adjacent portion of each respective section; the remaining radial free edge of each ribe providing a stop surface **45** having a spacing from the respective section increasing towards the drum mouth. This arrangement provides not only strengthening of the core **41**, stiffening of the back wall **42** or over-all strength of the structure, but also prevents excessive inward deflection of the core sleeve sections to minimize the possibility of accidental breakage; and thus minimizes the plastic section thickness and material required to be used.

On the external surface of the thus divided drum sleeve portion **44** midway between each pair of the slots **46**, i.e., centrally on the sections, there is formed a respective externally projecting, integral wedge-shaped rib or ridge **47**, of a triangular cross section, which proceeding in a direction away from the wall **42** toward the free edge both widens in cross section and increases in height, so that as the supply roll **14** is pushed onto the rotatable drum **13**, the ridges **47** bite into the paste board spool **15** to secure the roll with a firm resilient grip. With such ridges present in appropriate form, the external taper of the drum sleeve portion **44** can be more nearly cylindrical; but especially is it to be noted that they facilitate proper reception and positioning of a tape roll with an initially out-of-round spool.

The handiness of the grip **12** is increased by a projecting curved thumb support surface **61** on its rear surface (as seen in use) which tapers off and ends before the front side of the grip; so that upon grasping of the handle, the thumb comes to lie above the surface **61** and so cannot interfere with the forefinger.

For use, apart from the loading and unloading operations previously described, with the tool grip in hand, the free end **21** of the tape is applied to, and by a light pressure brought into firm adherence on, the surface to be sealed, particularly a carton; and through the handle **12** the tool is drawn along the surface away from the place of tape initial adherence; so that the tape unwinds and, through the pressure of the directing roller **17**, is pressed into adherent relation with the carton surface. For severing the applied tape length, the tool is then swung upward somewhat about the axis of shaft **22** of roller **17**, bringing the cutter **19** into severing engagement with the tape.

The tape pressing finger **20** may then be used, after the application and severance of the tape, finally to press or wipe into place the terminal end of the applied tape length insofar as this is necessary.

We claim:

1. A taping tool for applying pressure sensitive tape to cartons and the like comprising:
- a frame,
- a hand grip on the frame,
- a tape supply roll receiving and mounting drum rotatably mounted on the frame,
- a tape application means comprising an application roller mounted on the frame at a working end of the tool for guiding the tape on forward feeding and pressing it onto the area of desired application,
- tape control means mounted on the frame adjacent and cooperating with the application roller for the tape to pass between the first and second said means on forward feed,
- at least one of the first and second said means supported on the frame
- by means permitting forward feeding of the tape between the first and second said means as it is unwound from the supply roll and preventing reverse movement of said one means with the tape, thereby braking the tape between the first and second said means, on incipient backward tape retraction toward the supply roll.

2. A taping tool as described in claim **1**, wherein
- said frame includes metal side plates providing a bifurcation in which said drum is received;
- said drum having mounting shaft means with opposite shaft end portions each rotatably journalled in an aperture of a respective side plate;
- said mounting shaft means comprising:
- two aligned tubular elements fitted endwise one into the other to form a shaft casing press fitted into a coaxial bore of said drum;
- two axially shiftable shaft elements providing said shaft end portions normally projecting outwardly from respective ends of said casing for bearing support by respective plate apertures; and
- a compression spring in said casing interposed between the inner ends of said shaft elements to bias the latter normally outwardly from the casing;
- said shaft elements and casing having cooperatively engaging portions forming stop means retaining said shaft elements in the casing.

3. A taping tool as described in claim **1**, wherein
- said frame includes metal side plates providing a bifurcation in which said drum is received;
- said drum having mounting shaft means with opposite shaft end portions each rotatably journalled in an aperture of a respective side plate;
- the shaft journalling apertures of the side plates have a slight running clearance with the respective said shaft end portions;
- said shaft end portions terminating in pilot portions of reduced diameter;
- said side plates having parallel slots respectively leading from a side plate edge into said shaft journalling aperture,
  - the slot widths corresponding to the diameters of said pilot portions,

whereby with said shaft elements displaced axially into said casing by manual axial pressure on said pilot portions, the tape roll supporting drum may be removed from or placed in said frame by said pilot portions traversing said slots.

4. A taping tool as described in claim 1, wherein,
said frame is comprised of two right and left handedly similar side plates including coplanarly opposed respective grip-attaching flanges;
said hand grip having a generally flat secured end, a securing stud projecting from said end between the said flanges, and a nut threaded onto the projecting stud end to clamp the flanges against said flat end,
said flanges and end having cooperating lug and notch means whereby the grip is interengaged with said side plates.

5. A taping tool as described in claim 4 with said lug and notch means provided by:
on said end of said grip, a plurality of endwise projecting lugs disposed symmetrically about said stud; and
in said flanges a correspondingly arranged plurality of apertures to receive said lugs.

6. A taping tool as described in claim 4, wherein, said hand grip is molded with a pistol grip type shape, and has a thumb locating and supporting elevated formation curving forwardly and upwardly to terminate short of the front side of the grip.

7. A taping tool as described in claim 1, including:
a tape severence blade on the tool working end adjacent the application roller and spaced from the supply roll drum; and
a resilient tape wiping finger,
said finger including a portion fixed to the frame and clamping said severance blade on the frame.

8. A taping tool as described in claim 1, wherein,
said drum comprises as an integral structure, a hub tube, a hub-supported disk, a roll-receiving sleeve projecting axially from said disk, and axially extending webs projecting from said tube toward said sleeve;
said sleeve equally divided into sections, corresponding to and centered over respective webs, by slots extending from one end over the major sleeve length toward said disk,
said webs having an increasing radial gap with respect to said sleeve interior.

9. A taping tool as described in claim 8, wherein the webs are joined to said disk, and said gap increases away from said disk.

10. A taping tool as described in claim 8, wherein,
the sleeve of said drum is provided at its end distal from said disk with external circumferential flange means
affording a tape spool stop.

11. A taping tool as described in claim 10, wherein,
the said sleeve has a tapered exterior surface enlarging from the disk toward the free end.

12. A taping tool as described in claim 8, wherein,
the said sleeve is divided into a plurality of at least three said sections and the external surface of said sleeve is provided with a plurality of at least three axially extending ribs,
each said section having at least a respective said rib;
each said rib longitudinally wedge shaped to increase in height from the tape spool insertion end.

13. A taping tool as described in claim 12, wherein, said ribs have a triangular cross section with apex disposed radially outwardly.

14. A taping tool as described in claim 12, wherein, said ribs in advancing from the disk end of the sleeve toward the free end, increase in cross section.

15. A taping tool as described in claim 12, wherein, said ribs are each disposed in the plane of a respective web.

16. A taping tool as described in claim 1, wherein,
said drum comprises as an integral structure, a hub tube, a hub-supported disk and a roll-receiving sleeve projecting axially from said disk,
said sleeve being provided with an external circumferential flange
affording a tape spool stop and
representing in effect a radial extension of said disk.

17. A taping tool as described in claim 16, wherein,
the external surface of said sleeve is cylindrical and is provided with a plurality of at least three axially extending ribs,
each said rib longitudinally wedge shaped to increase in height
from the tape spool insertion end toward said flange.

18. A taping tool as described in claim 17, wherein,
said ribs have a triangular cross section with apex disposed radially outwardly,
and in advancing from the free end of the sleeve toward the disk end, increase in cross section.

19. A taping tool as described in claim 1, wherein,
said frame includes metal side plates
providing a bifurcation in which said drum is received;
said drum having mounting shaft means
with opposite shaft end portions each rotatably journalled in an aperture of a respective side plate;
said end portions comprising a synthetic plastic adapted upon initial wear to coat the shaft journalling surface of said apertures,
thereby to provide a thereafter substantially non-wearing shaft support in said metal side plates.

20. A taping tool as described in claim 19, wherein,
said synthetic plastic is selected from polyamide and polyacetal resins.

21. A taping tool as described in claim 1, wherein
said tape control means comprises a tape control roller rotatably mounted adjacent the application roller for the tape to pass between said rollers on forward feed;
the third said means being means supporting one roller of said rollers on the frame and
permitting forward feeding of the tape between said rollers as it is unwound from the supply roll and
preventing reverse rotation of said one roller, thereby braking the tape, on incipient backward tape retraction toward the supply roll.

22. A tool as described in claim 21 wherein the said one roller of said rollers comprises,
a roller sleeve rotatably relative to a non-rotatably fixed shaft supported by the frame;

said shaft being provided with at least one longitudinally extending groove providing a sloping cam surface,
the slope of said camming surface oriented so that the groove depth increases in the direction in which said sleeve rotates upon forward feed of the tape;
and
an elongated clutching element of circular cross section,
cooperatively disposed in said groove as a clutching element between said sloping camming surface and the internal cylindrical surface of the roller sleeve.

23. A tool as described in claim **22,** wherein
said fixed shaft is provided with a second said groove diametrically opposed parallel to the first said groove;
each groove having a respective said clutching element;
each said clutching element comprising an elongated wire-like element
extending over substantially the length of the respective groove, and
longitudinally bowed with convexity symmetrically directed upwardly on the slope of the respective groove.

24. A tool as described in claim **21** with
the third said means provided only for the tape control roller;
said tape control roller being supported on the frame by link means pivoting about an axis located intermediate the axes of the said rollers but lying forward of the plane thereof.

25. A tool as described in claim **24,** wherein
said control roller is mounted between outboard ends of pivot links
with inner ends disposed between the respective ends of the application roller and adjacent frame side walls and mounted to the side walls by respective pivot pins,
the inner link ends having elongated closed end slots for an application roller supporting shaft extending therethrough into supporting engagement with the side walls.

26. A taping tool as described in claim **21,** wherein
the third said means includes an over-running clutch type back-brake supporting said tape application roller.

27. A taping tool as described in claim **26,** wherein
the third said means includes an over-running clutch type tape back-brake supporting said tape control roller, and said application and control rollers have a fixed spacing.

28. A tool for closing cartons or the like by applying an adhesive tape, comprising
a frame having a hand grip,
a drum rotatably supported by the frame for reception of a replaceable adhesive tape supply roll,
an application roller supported rotatably in the frame for guiding and pressing adhesive tape, feeding from said roll, onto a carton to be closed;
a tape clamping element supported on the frame swingably parallel to the application roller and engageable on the application roller,
the axis of swing of said element located eccentric of the rotational axis of the application roller;
the adhesive tape during feeding withdrawal from the adhesive tape roll being guided freely between the application roller and the said clamping element,
said clamping element cooperating with the application roller upon backward movement of the adhesive tape automatically to clamp the tape immovably against the application roller.

29. A tool as described in claim **28,** wherein
on the inner side of each of the two opposed frame side walls, a respective link segment is supported at the swing axis of said clamping element by a respective pivot pin,
each said link segment
upon one end supporting a respective end of said clamping element, and
in its other end having an elongated slot through which a respective end of a shaft of the application roller passes into an engagement with the frame.

30. A tool as described in claim **28,** wherein
said application roller is provided with an over-running clutch whereby the application roller is rotatable upon withdrawal of the adhesive band and is blocked from rotation upon retraction movement of the tape.

31. A tool as described in claim **28** wherein
said clamping element is a rotationally supported stop roller rotatably upon feed-out withdrawal of the adhesive tape from the supply roll and blocked from rotation upon retraction of the tape.

32. A tool in accordance with claim **31,** wherein
said stop roller is hollow and includes an internal over-running stop clutch structure and is supported on a non-rotable shaft,
said clutch structure comprising
on the external circumference of said non-rotatable shaft at least one axially extending groove with a sloping gripping surface,
a clutch inner stop element disposed in said groove,
said stop element upon rotation of the stop roller in the direction of feed out advance of the adhesive tape being received deeper into the groove to enable rotation of the stop roller,
said stop element upon an incipient rotation of the stop roller in the opposite direction being securely engageable between the stationary shaft and the inner surface of the hollow stop roller to prevent stop roller rotation and prevent retraction of the tape.

33. A tool as described in claim **32,** wherein
said clutch structure comprises, in opposed relation on the shaft, two said grooves each with a respective said inner stop element therein.

34. A tool as described in claim **32,** wherein
said inner stop element is comprised of a wire piece extending over substantially the length of the groove.

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