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(54) CORE FOR A ROLLED LABEL STRIP

(71) We, KABUSHIKI KAISHA SATO KENKYUSHO, a Japanese Company of 21-23, 3-chome, Kamikitazawa, Setagaya-ku, Tokyo, Japan, do hereby declare the invention, for which we pray that a patent may be granted to us and the method by which it is to be performed, to be particularly described in and by the following statement:-

The present invention relates to a core for a label strip which is detachably held on a core holder attached to a hand labeler.

A core holder, which has been most widely used for a rolled label strip, is composed of a pair of flexible supporting plates which are arranged to define a U-shape, as viewed from above the hand labeler. Each plate is provided with a round projection on the inside opposite walls of the U-shape. In order to attach the rolled label strip to the hand labeler, the center bore of the core is fitted on the projections of the opposite walls. For each attachment and detachment, the supporting plates of the core holder must be bent outwardly. As a result, the supporting plates are liable to be deformed or damaged after repeated use. Thus, it has been impossible to ensure the support of the rolled label strip on the core holder through the core.

It is therefore an object of the present invention to provide a core construction for a rolled label strip which is free from any such drawback and which can be reliably held on and easily attached to and detached from such a core holder as has a core retaining latch biased to rotate its retaining portion radially outwardly.

According to the present invention, there is provided a core for a rolled label strip adapted to be removably held on a core holder of the type which includes a holder body attached to a portion of the frame of a hand labeler, at least one core retaining latch pivoted to said holder body and

biased to rotate its retaining portion radially outwardly, and a pushing member mounted in said holder body and biased in the direction apart from said holder body. A core holder of this type is described and claimed in our co-pending application No. 13663/77. (Serial No. 1577182) The core comprises a generally cylindrical core body including: an outer cylindrical surface, on which the label strip is to be rolled, said cylindrical surface being coaxial with said cylindrical core body; a first end face formed at one end of said cylindrical core body and oriented perpendicular to the common axis, the first-named end face having a relatively wider radial width and being adapted to push the pushing member of said core holder against the biasing force; at least one raised portion extending radially outwardly from the outer periphery of the first end face to the cylindrical surface, a second end face formed at the opposite end of said cylindrical core body and oriented perpendicular to said common axis, the second-named end face having a relatively narrower radial width; a fitting surface formed inside said cylindrical core body and facing in the opposite direction to the first-named end face, said fitting surface being adapted to be retained by the core retaining latch of said core holder when said core is pushed onto the pushing member of said core holder so that said core retaining latch rotates radially outwardly; an inner bore formed in said cylindrical core body and extending between the first-named end face and said fitting surface, and an inside surface formed in said cylindrical core body and extending between the second-named end face and said fitting surface, said inside surface having a diameter that is larger than that of said inner bore.

Preferred embodiments of the present invention will now be described with reference to the accompanying drawings, in

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which:

Figure 1 is a side elevation showing the overall construction of a hand labeler which is provided with a core holder, and is a section taken along the line I - I of *Figure 2*;

Figure 2 is a top plan view of the hand labeler;

Figure 3 is a perspective view showing the condition, in which the core holder for holding a core according to the present invention is mounted to the side arm plate of the hand labeler;

Figure 4 is also a perspective view showing the similar condition to that of *Figure 3* but is viewed in the opposite direction to *Figure 3*;

Figure 5 is an exploded perspective view showing in a disassembled condition the parts and elements constituting the core and its holder;

Figure 6(a) and *6(b)* are sectional views taken along the line VI - VI of *Figure 1*, the former showing the condition before attachment of the core while the latter showing the condition after attachment of the core; and

Figures 7(a) and *7(b)* are also sectional views taken along the line VII - VII of *Figure 1*, the former likewise showing the condition before attachment of the core while the latter showing the condition after attachment of the core.

Referring first to *Figure 5*, a core holder 10, on which a core exemplifying the present invention is held, is generally constructed of a pushing member 1, a holder body 2, a pair of core retaining latches 3 and 3', two pushing springs 4, a rear cover 5, a latch spring 41 and a pair of front covers 8 and 8'.

The detailed constructions of the above major elements will be described in the following. The pushing member 1 is located at the innermost side (to which a core 6 is attached) of the core holder 10. The pushing member 1 thus positioned is formed integrally with a pair of opposite half disc portions 40 which are separated by a rectangular opening 12 located at the center. The pushing member 1 is further formed with both a pair of pushing lug portions 13, which are made to radially extend from the two shorter side walls 11 of the opening 12, and a pair of pushing lug portions 13' which are positioned at the sides of the two longer side walls 19 in a manner to radially extend from the half disc portions 40. The pushing lug portions 13' thus formed are made narrower than the former lug portions 13.

The outer surfaces of the pushing lug portions 13 and 13' are formed into such an arcuate shape as lies on the same circumference are bent at right angles toward the core 6 such that their bent extrimities are formed with core pushing surfaces 14 and 14'. The pushing lug portions 13 and 13 are also formed with a rear surface 17 at the opposite

side of the core pushing surfaces 14 and 14'. This rear surface 17 is formed, as shown in *Figures 6(a)* and *6(b)*, with a pair of spring supporting projections 15 at the opposite positions across the opening 12.

The holder body 2 is integrally formed in the order of the rearward direction apart from the core 6 with an annular cover 21, which has the same diameter as the outer diameter of the pushing lug portions 13 and 13' of the pushing member 1, an annular stepped portion 22, which has a slightly smaller diameter, a circular groove 23, which has a smaller diameter than that of the stepped portion 22, and an annular rim 24 which has a slightly larger diameter than that of the circular groove 23. This annular rim 24 is formed with four V-shaped notches 25 which are arranged at equally spaced positioned on the circumference of the annular rim 24. The holder body 2 is further formed at its center with a rectangular hole 27 which is made to extend in the axial direction.

There are formed at four positions of the peripheral edge of the annular collar 21 four fan or sector shaped guide portions 28 which have their normal section shaped into an angle and which are made to extend forward or toward the core 6. The both side walls of the V-shaped guide portions 28 are used as guide surfaces 50 for guiding the both side surfaces 49 of the pushing lug portions 13 and 13'.

That surface of the holder body 2, which faces the rear surface 17 of the pushing member 1, is formed with a pair of blind holes 29 at the positions aligned with the spring supporting projections 15. Under the condition in which the pushing member 1 and the holder body 2 are assembled, therefore, the pushing springs 4 are fitted in the blind holes 29 and are held together with the spring supporting projections 15.

Incidentally, reference numeral 26 indicates four fulcrum pin holes which are made to extend through the holder body 2 between the walls of the rectangular hole 27 and the walls of the notches 25 of the annular rim 24. These fulcrum pin holes 26 are arranged, as shown in *Figure 5*, to extend horizontally from the upper and lower ends of the inner walls of the rectangular hole 27.

The core retaining latches 3 and 3' are paired and symmetrically arranged members, each of which is shaped generally into an angle. This angle has its one end formed into a retaining portion 31 or 31' and its other end formed into a pinch portion 33 or 33' which is separated from the former through an arm 32 or 32'. The retaining portion 31 or 31' is made to have a multi-stepped shape and is formed in the order in the rearward direction apart from

the core 6 with a latch portion 34 or 34', a bore resting step portion 35 or 35', a pushing member resting step portion 36 or 36', and a pushing member retaining groove 37 or 37', which are radially lowered in the recited order, as shown. Each of the retaining portions 31 and 31' of the core retaining latches 3 and 3' has its radially inner portion formed with a blind hole 38 or 38' in a facing position. Moreover, each of the center bent portions of the latches 3 and 3' is formed at its side end portion with a fulcrum pin hole 39 or 39' which has substantially the same diameter as that of the fulcrum pin holes 26 of the holder body 2.

The arms 32 and 32' are dislocated radially outwardly from the center lines connecting the retaining portions 31 and 31' and the corresponding pinch portions 33 and 33' such that they are positioned to intersect each other when the paired retaining latches 3 and 3' are assembled with their retaining portions 31 and 31' having their inner walls facing each other. When the retaining portions 31 and 32' are positioned to face each other, the latch spring 41 is fitted in the blind holes 38 and 38'.

The rear cover 5 is constituted of a cylindrical front portion 51, a frustoconical rear portion 52 and a top or rearmost surface 53. The cylindrical front portion 51 and the frustoconical rear portion 52 are considerably cut away at their diametrically opposite portions to form upper and lower openings 54. On the other hand, the foremost end of the cylindrical front portion 51 is bent radially inwardly at a steep angle to form two arcuate rims 55.

The front covers 8 and 8' are shaped and sized to cover the half disc portions 40 of the pushing member 1. These front covers 8 and 8' are made of a pair of plate members, each of which is integrally formed with a front plate of half disc shape 81 or 81', a circumferential side plate 82 or 82' extending rearwardly from the front plate 81 or 81', a rear plate 83 or 83', and an upright plate extending forwardly from the inner linear edge of the front plate 81 or 82'. The side plates 82 and 82' and the rear plates 83 and 83' of the front covers 8 and 8' are cut at their center portions and end portions to form a pair of center cutaway portions 85 and 85' and another pair of end cutaway portions 86 and 86', both of which extend from midway of the side plates 82 and 82' to the extremities of the rear plates 83 and 83'. Incidentally, the width of the side plates 82 and 82' is made so greater than the thickness of the half disc portions 40 of the pushing member 1 that the member 1 can move between the front plates 81 and 81' and the rear plates 83 and 83', as will be discussed later.

The major elements of the core holder 10

thus described are assembled in the manner, as shown in Figures 3, 4, 6 and 7, and the resultant assembly 10 is mounted to a side arm plate 7 which is located at an upper portion of a hand labeler. More specifically, the front covers 8 and 8' are placed on the narrower pair of pushing lug portions 13' of the pushing member 1 such that the lug portions 13' are fitted in the center cutaway portions 85 and 85' and that the curved side walls of the respective half disc portions 40 are brought into abutment engagement with the inner surface of the side plates 82 and 82'.

Then, the pushing member 1 carrying the front covers 8 and 8' is fitted in the four recesses of the holder body 2 while its pushing lug portions 13 and 13' being guided at their side surfaces 49 by the guide surfaces 50 of the respective guide portions 28 of the holder body 2. The rear plates 83 and 83' of the front covers 8 and 8' are brought into contact with the holder body 2, and then this body 2 is fitted into a rotation hole 71, which is formed in the side arm plate 7, together with the pushing member 1 and the front covers 8 and 8'. This fitting operation is carried out from the front side (this side of Figure 5) of the side arm plate 7. The inner peripheral surface of the rotation hole 71 is of such a stepped construction as to form a larger diameter hole portion 72 and a smaller diameter hole portion 73. As a result, the annular stepped portion 22 can be loosely fitted in the smaller diameter hole portion 73 while the annular collar 21 and the guide portions 28 of the holder body 2 as well as the pushing lug portions 13 and 13' of the pushing member 1 are also loosely fitted in the larger diameter hole portion 72. The looseness in the above fitting conditions is such that a suitable rotational friction is imparted to a continuous strip of labels 70, as will be discussed later, when it is pulled, while exerting no detrimental influences to the rotations of the core holder 10. Incidentally, the pushing springs 4 have been fitted in advance between the spring supporting projections 15 and the blind holes 29, as has been touched in the above.

Then, the latch spring 41 is fitted in the blind holes 38 and 38' of the core retaining latches 3 and 3', which are then pushed so that the inner surfaces of their retaining portions 31 and 31' may approach each other. The core retaining latches 3 and 3' thus pushed are then inserted into the rectangular hole 27 of the holder body 2 from the side of the annular rim 24 until the leading end portions of the retaining portions 31 and 31' are brought to the positions in the rectangular opening 12 of the pushing member 1. In this instance, as shown in Figure 7(a), the respective shorter side walls

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11 of the rectangular opening 12 of the pushing member 1 are retained by having their inner surfaces 16 abutting against the pushing member resting step portions 36 and 36' of the retaining portions 31 and 31'.

5 The paired fulcrum pin holes 26, which are formed in one of the four portions of the annular rim 24 of the holder body 2, are aligned with the fulcrum pin holes 39 of the core retaining latch 3, while the other paired fulcrum pin holes 26, which are formed in the opposite portion of the annular rim 24, are aligned with the other fulcrum pin holes 39' of the other core retaining latch 3'.
10 Thus, two fulcrum pins 42 and 42' are fitted in the aligned holes 26 and 39 and in the aligned holes 29 and 39', respectively, for the positioning purpose.

20 Then, the rear cover 5 is assembled from the rear side of the pinch portions 33 and 33' of the core retaining latches 3 and 3', as shown in Figure 4, such that the pinch portions 33 and 33' protrude from the respective openings 54. This assembly is finished by retaining the rims 55 of the rear cover 5 in the circular groove 23 of the holder body 2.

25 The rims 55 are retained, as shown in Figure 6(b), such that their retaining surfaces 57 at the rear side are thrust to contact with the rear retaining surface 20 of the circular groove 23. Here, a slight clearance is maintained between the front surfaces 58 of the rims 55 and the rear surface 74 of the side arm plate 7 so that the core holder 10 may rotate smoothly in the rotation hole 71.

30 The core 6 of the present invention, on the circumference of which the continuous strip of labels 70 are wound to have a roll shape, is mounted to the core holder 10 which is attached to the side arm plate 7 in the manner as described in the above. The construction of the core 6 according to the present invention will now be described in detail with reference to the accompanying drawings, especially, to Figures 3 to 5.

35 The core 6 has a core body 6a of generally cylindrical shape, one end face 63 of which is radially relatively narrower and is formed with four equi-distantly spaced recesses 68. The other end face 64 of the core body 6a is made radially relatively wider and is formed with an inner bore 62. As a result, the diameter of the inner bore 62 is made smaller than that of an inside surface 61 so that the boundary between the inner bore 62 and the inside surface 61 is formed into a fitting surface 65. The wider end face 64 is formed at its outer periphery with four generally fan-shaped arcuate recesses 66. The remaining outer periphery of the wider end face 64 is formed with four alternate raised surfaces 67 which are sized and shaped to engage with the recesses 68 in the
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narrower end face 63 of another core 6. The radially inward portion of the wider end face 64 is formed into an annular end face portion 64a which is merged into the raised surface 67. Thus, the fitting surface 65, the arcuate recesses 66, the raised surfaces 68 and the annular end face portion 64a are all used to constitute a fastening section 60, at which the core 6 is attached to the core holder 10. Moreover, the inside surface 61 of the core body 6a is integrally formed with a plurality of ribs 69 which project radially inwardly such that their tops have the same height above the inside surface 61 as the inner bore 62 has.

70 The recesses 68 and the ribs 69 are useful constructions for the label winding or take-up operations in a label strip manufacturing factory. In this factory, a number of cores 6 are assembled together in series and in alignment on a (not-shown) common mandrel so that they can be rotated together to have their outer peripheries wound with the continuous label strip 70. More specifically, the recesses 68 are used to rotate the cores 6 together by engaging with the raised surfaces 67 of the adjacent cores 6. And, the ribs 69 are used so that the cores 6 may be rotated stably on the mandrel.

75 Turning now to Figures 6(a) and 7(a), when it is intended to attach the core 6 to the core holder 10, the four raised surfaces 67 of the fastening section 60 are brought into abutment engagement with the core pushing surfaces 14 and 14', each pair of which is formed on the pushing lug portion 13 or 13' of the pushing member 1 of the holder 10. When the core 6 is pushed toward the side arm plate 7, the pushing member 1 is shifted to the holder body 2 while compressing the pushing springs 4 until the gap 43, which has been formed between itself and the holder body 2 by the actions of the springs 4, progressively disappears.

80 In this meanwhile, as shown in Figure 7(a), the pushing member 1 is retained on the core retaining latches 3 and 3' by having the rear edges of the inner surfaces 16 of the rectangular opening 12 forced into contact with the rear edges of the pushing member resting step portions 36 and 36' while forcing the front corners 18 of the inner surfaces 16 into contact with the retaining surfaces 44 and 44' of the step portions 36 and 36'. However, when the core is released, as shown in Figures 6(b) and 7(b), the retaining portions 31 and 31' of the core retaining latches 3 and 3' are rotated apart from each other about the fulcrum pins 42 and 42' by the biasing force of the latch spring 41, and the inner surfaces 16 of the shorter side walls 11 of the rectangular opening 12 are snugly fitted into the pushing member retaining grooves 37 and 37' of the core retaining latches 3 and 3' until they are
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brought into abutment engagement with the retaining surfaces 45 and 45' of the grooves 37 and 37'. At the same time, the distance between the bore resting step portions 35 and 35' of the latches 3 and 3' is so increased that the fitting surface 65 of the core 6 is retained by the retaining surfaces 30 and 30' of the latch portions 34 and 34'. In this meanwhile, the core pushing surfaces 14 and 14' come into abutment engagement with the raised surfaces 67 so that the core can be retained fixedly.

Incidentally, the front covers 8 and 8' covering the half disc portions 40 of the pushing member 1 can act as a protector for preventing the erroneous pushing operation, which is imagined to take place when the half disc portions 40 are erroneously pushed in case there is no front cover. In this erroneous operation, the foregoing core attaching procedures are followed increase the distance between the retaining portions 31 and 31' of the core retaining latches 3 and 3' with the result that the core 6 cannot be attached at once when desired so.

When, under that held condition, a grip 47 and a hand lever 48 are squeezed so that the latter 48 may turn counterclockwise as viewed from Figure 1, then the printing device 87 fixed to a bifurcated yoke 75 is lowered, while pushing forward the inking roller 59 to have its type face 76 supplied with ink from an inking roller 59, so that the printing device 87 may be brought into contact with the upper surface of a label 77 so as to accomplish the printing operation.

When the hand lever 48 is released, the printing device 87 is elevated together with the yoke 75, and the label 77 is moved forward (or in the leftward direction as viewed in Figure 1) by the action of an advancing mechanism 79. As the label 77 is advanced the continuous label strip 70 is pulled. Then, a rolled label strip 80 is rotated together with the core 6 and the core holder 10 so that the continuous label strip 70 can be unrolled or delivered out. Incidentally, the continuous label strip 70 is separated at a peeling section 88 into a series of the labels 77 and a carrier strip 78.

Indicated at reference numeral 9 in double-dotted lines in Figures 1 and 2 is a guide plate which is provided at the opposite side of the side arm plate 7 so as to prevent the rolled label strip 80 on the core 6 attached to the holder 10 from coming loose.

In case it is intended to detach the core 6 from the holder 10 after the rolled label strip 80 is used to the last as the result of the use of the hand labeler, the pinch portions 33 and 33' of the core retaining latches 3 and 3' are pinched by the fingers of an operator. Then, the retaining portions 31 and 31' are rotated to come close to each other about the fulcrum pins 42 and 42' against the

biasing action of the latch spring 41. As a result, the retentions between the inner surfaces 16 of the shorter side walls 11 of the rectangular opening 12 and the pushing member retaining grooves 37 and 37' of the retaining portions 31 and 31' are released, as shown in Figures 6(a) and 7(a). Then, the pushing member 1 as a whole is instantly pushed to shift toward the core 6 by the biasing actions of the pushing springs 4, until it stops such that the front (or lefthand as viewed in Figure 7(a)) corners 18 of the inner surfaces of the shorter side walls 11 of the rectangular opening 12 come into abutment engagement with the retaining surfaces 44 and 44' of the pushing member resting step portions 36 and 36' of the retaining portions 31 and 31', as has been described in the foregoing.

In those series of operations, the retention between the fitting surface 65 of the core 6 and the retaining surfaces 30 and 30' of the latch portions 34 and 34' of the core retaining latches 3 and 3' is released. And, the pushing member 1 is abruptly popped out by the actions of the pushing springs 4. As a result, the raised surfaces 67 of the core 6 are sprung out by the core pushing surfaces 14 and 14' of the pushing lug portions 13 and 13', respectively, so that the core 6 can be popped out of the core holder 10 to fall down naturally without any touch of the fingers.

Under that condition, incidentally, the rear ends 46 of the pinch portions 33 and 33' are in abutment engagement with the stop surfaces 56, which are formed on the both inner surfaces of the rearmost surface 53 of the rear cover 5, so that the core retaining latches 3 and 3' can be prevented from moving furthermore.

In the embodiment thus far described, the most preferable shape for the core body 6a is a cylinder. However, the present invention should not be limited to that shape but may be exemplified by a polygonal shape. In the present invention, on the other hand, it is sufficient that the raised surfaces of the core body can exert such an action on the pushing member as to ensure the retention between the fitting surface of the core body and the retaining portions of the core retaining latches. Therefore, the number and shape of those raised surfaces can be selected in a desired manner in accordance with the number or shape of the pushing lug portions 13 and 13' or their core pushing surfaces 14 and 14' of the pushing member. For instance, if the shape of the pushing member allows, the annular end face portion 64a itself can be used as the raised surfaces of the present invention in addition to (or in place of) the raised surfaces 67 of the embodiment.

Moreover, it is sufficient that the fitting

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surface 65 can be shaped to engage with the core retaining latches 3 and 3' so as to retain the core 6 in the core holder 10. Therefore, the precise shape of the fitting surface can be varied within the scope of the following claims.

As has been described hereinbefore, the core according to the present invention is featured by the provision of its body formed with the fitting surface in its inside and with the raised surfaces at one end face thereof.

Thus, the present invention can enjoy the following practical advantages:

(1) The attachment of the core can be remarkably facilitated because it is only necessary to push the raised surfaces of the core to the present position or positions of the pushing member of the core holder without any special effort:

(2) The detachment of the core can also be carried out with ease merely by the actuation of the core retaining latches of the core holder so that the raised surfaces of the core may be pushed off by the pushing member:

(3) The core retaining latches can be prevented from being subjected to an excess force and accordingly from being damaged because the detaching operation requires neither twisting nor pulling of the core, as is quite different from the operation required in the conventional core construction: and

(4) The core can be prevented from falling down during the operation of the hand labeler while reliably holding the rolled label strip on the core holder at all times because the attachment and detachment of the core does not rely upon the flexibility of the supporting tabs of the conventional construction.

WHAT WE CLAIM IS:

1. A core for a rolled label strip adapted to be removably supported at one end thereof by a core holder of the type comprising a holder body attached to a portion of the frame of a hand labeler, at least one core retaining latch pivoted to said holder body and biased to rotate its retaining portion radially outwardly, and a pushing member mounted in said holder body and biased in the direction apart from said holder body, said core comprising a generally cylindrical core body including: an outer cylindrical surface, on which the label strip is to be rolled, said cylindrical surface being coaxial with said cylindrical core body; a first end face formed at one end of said cylindrical core body and oriented perpendicular to the common axis, the first-named end face having a relatively wider radial width and being adapted to push the pushing member of said core holder against the biasing force; at least one raised portion extending radially outwardly from the outer periphery of the

first end face to the cylindrical surface, a second end face formed at the opposite end of said cylindrical core body and oriented perpendicular to said common axis, the second-named end face having a relatively narrower radial width; a fitting surface formed inside said cylindrical core body and facing in the opposite direction to the first-named end face, said fitting surface being adapted to be retained by the core retaining latch of said core holder when said core is pushed onto the pushing member of said core holder so that said core retaining latch rotates radially outwardly; an inner bore formed in said cylindrical core body and extending between the first-named end face and said fitting surface, and an inside surface formed in said cylindrical core body and extending between the second-named end face and said fitting surface, said inside surface having a diameter that is larger than that of said inner bore.

2. A core as claimed in claim 1, wherein the first-named end face is annular.

3. A core according to claim 1 or claim 2 wherein the second-named end face is annular ring or an interrupted annular ring extending radially between said inside surface and said cylindrical surface.

4. A core as claimed in any preceding claim wherein a plurality of recesses and of said raised surfaces are arranged alternately around the periphery of the first end face.

5. A core as claimed in claim 4, wherein each of the recesses on the first-named end face extends radially from said cylindrical surface to the outer periphery of the first end face and is generally fan-shaped.

6. A core as claimed in any preceding claim, further including a plurality of ribs projecting radially inwardly from said inside surface and extending in parallel with said common axis, said ribs being arranged annularly around said cylindrical core body and projecting to a height above said inside surface such that their tops are flush with said inner bore.

7. A core as claimed in any preceding claim, wherein recesses are provided in the second-named end face which are of the same number as the raised surfaces of the first-named end face and are sized and positioned to receive the raised surfaces in the first end face of a similar core.

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surface 65 can be shaped to engage with the core retaining latches 3 and 3' so as to retain the core 6 in the core holder 10. Therefore, the precise shape of the fitting surface can be varied within the scope of the following claims.

As has been described hereinbefore, the core according to the present invention is featured by the provision of its body formed with the fitting surface in its inside and with the raised surfaces at one end face thereof.

Thus, the present invention can enjoy the following practical advantages:

(1) The attachment of the core can be remarkably facilitated because it is only necessary to push the raised surfaces of the core to the present position or positions of the pushing member of the core holder without any special effort:

(2) The detachment of the core can also be carried out with ease merely by the actuation of the core retaining latches of the core holder so that the raised surfaces of the core may be pushed off by the pushing member:

(3) The core retaining latches can be prevented from being subjected to an excess force and accordingly from being damaged because the detaching operation requires neither twisting nor pulling of the core, as is quite different from the operation required in the conventional core construction: and

(4) The core can be prevented from falling down during the operation of the hand labeler while reliably holding the rolled label strip on the core holder at all times because the attachment and detachment of the core does not rely upon the flexibility of the supporting tabs of the conventional construction.

WHAT WE CLAIM IS:

1. A core for a rolled label strip adapted to be removably supported at one end thereof by a core holder of the type comprising a holder body attached to a portion of the frame of a hand labeler, at least one core retaining latch pivotted to said holder body and biased to rotate its retaining portion radially outwardly, and a pushing member mounted in said holder body and biased in the direction apart from said holder body, said core comprising a generally cylindrical core body including: an outer cylindrical surface, on which the label strip is to be rolled, said cylindrical surface being coaxial with said cylindrical core body; a first end face formed at one end of said cylindrical core body and oriented perpendicular to the common axis, the first-named end face having a relatively wider radial width and being adapted to push the pushing member of said core holder against the biasing force; at least one raised portion extending radially outwardly from the outer periphery of the

first end face to the cylindrical surface, a second end face formed at the opposite end of said cylindrical core body and oriented perpendicular to said common axis, the second-named end face having a relatively narrower radial width; a fitting surface formed inside said cylindrical core body and facing in the opposite direction to the first-named end face, said fitting surface being adapted to be retained by the core retaining latch of said core holder when said core is pushed onto the pushing member of said core holder so that said core retaining latch rotates radially outwardly; an inner bore formed in said cylindrical core body and extending between the first-named end face and said fitting surface, and an inside surface formed in said cylindrical core body and extending between the second-named end face and said fitting surface, said inside surface having a diameter that is larger than that of said inner bore.

2. A core as claimed in claim 1, wherein the first-named end face is annular.

3. A core according to claim 1 or claim 2 wherein the second-named end face is annular ring or an interrupted annular ring extending radially between said inside surface and said cylindrical surface.

4. A core as claimed in any preceding claim wherein a plurality of recesses and of said raised surfaces are arranged alternately around the periphery of the first end face.

5. A core as claimed in claim 4, wherein each of the recesses on the first-named end face extends radially from said cylindrical surface to the outer periphery of the first end face and is generally fan-shaped.

6. A core as claimed in any preceding claim, further including a plurality of ribs projecting radially inwardly from said inside surface and extending in parallel with said common axis, said ribs being arranged annularly around said cylindrical core body and projecting to a height above said inside surface such that their tops are flush with said inner bore.

7. A core as claimed in any preceding claim, wherein recesses are provided in the second-named end face which are of the same number as the raised surfaces of the first-named end face and are sized and positioned to receive the raised surfaces in the first end face of a similar core.

8. A core for a label strip, substantially as herein described with reference to, or as illustrated in, the accompanying drawings.

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