

SPECIFICATION

Pack for elements such as sewing-machine needles

The invention relates to a pack for elongate elements such as sewing-machine needles and comprising a panel of resilient material equipped with element reception pockets lying side by side in a row.

The practice is known of combining a certain number of needles into one unit by sticking them into a panel-like holding strip of material having low penetration resistance. The tips are thus protected. The preponderant remaining sections of the bodies of the needles, however, stand free.

During handling there exists continually the danger of bending or damage of some other kind (West German Utility Model No. 1 765 379).

Furthermore the practice is known from U.S. Patent Specification No 2 817 434 of

accommodating machine needles in a panel equipped with needle reception pockets lying side by side in a row. This panel is covered by a shorter cover part which is slipped on and has a flap for needle removal. After raising the flap the required needle can be pulled out of the container. This construction is relatively costly and is designed only for household packs. In the event of the flap not being closed properly the needles can slide out of the reception pockets.

The object of the invention is to provide a pack for elements such as sewing-machine needles, which, while simple in construction and handling, enables accommodation of the elements to be stored in a way giving optimum protection and making it difficult to lose them.

In accordance with the invention, a pack for elongate elements such as sewing-machine needles, comprises a panel of resilient material provided at its front with element-reception pockets which lie side by side in a row and are closed off at both ends, which are intended to have a length corresponding approximately with that of the elements to be received, which are provided with catch projections projecting into the pockets to retain the elements in use in the pockets and which each has at least one opening at its rear for use in pushing an element forwardly out of the pocket past the catch projection(s); the opening being formed by a groove provided in the rear of the panel and extending transversely to the pocket so as to intersect the side walls of the pocket.

With this arrangement a pack is created of increased intrinsic value in that each individual needle or other element is protected and stored unlosably in its reception pocket in the panel. The pocket is closed at both ends. Removal is possible only by the performance of a deliberate manipulation. This is however very simple in as much as the panel exhibits at its rear at least one opening which enables the required needle to be pushed out. The opening extends in the form of a groove transversely across the whole back of the panel and reaching into the side walls of the

pockets. The catch-projections providing the individual fixing of the needles may lie at similar positions along the pockets as the opening, that is, on sections of the side walls of the pockets which are not directly connected to the bottom of the pocket. Such sections are thereby highly flexible. By longitudinally offsetting the catch-projections of adjacent pockets the machine needles may be retained pointing alternately in opposite directions so that bending of the relatively flat panel is avoided. Such bendings might arise because of cumulative gripping pressure.

For secure fixing of the needle-body in the region of its butt the catch-projections may be designed in the form of lines of approximately triangular cross section moulded integrally onto the side walls of the pocket. To facilitate the riding of the machine needles over the lugs into the pockets the lugs may have inclined front lead-in surfaces which continue into convexly domed and relatively steep rear supporting surfaces. In this way a highly effective fixing is achieved. There exists a complete mechanical protection of the needle up to the place of work, i.e. the sewing-machine. The panel can be handed out in the sewing room and be carried around without protective measures.

The area on the back of the panel can be used for applying a means of identification, so that confusion about the types of needle is excluded. The appropriate specification of the contents may be provided by the employment of an appropriately printed self-adhesive label or else by hot pressing.

In addition there exists the possibility of designing this very small pack unit as a household pack by slipping on a sleeve.

Multiple packs can be combined by means of an assembly of at least one at the new packs with an outer case having a number of slide-in compartments which are arranged to receive a plurality of the packs face to face with one another. Preferably at least one side edge of the panel has catch-means for engagement with counter-catch means which are provided in each of the slide-in compartments in the outer case. The pack panels are fixed in this way against sliding out of such an outer case. Removal is effected by overcoming the cooperation of the catch and counter-catch means.

Preferably, the outer case presents a pair of opposed wall surfaces provided with parallel grooves, each slide-in compartment being defined by an opposed pair of grooves which are arranged to receive an opposed pair of side edges of a pack panel. Insertion of the pack panel in the slide-in compartment is facilitated by the fact that in their end regions the opposed pair of side edges of the pack panel are chamfered. This facilitates a precentreing lead-into the grooves and riding past the counter-catch means. Preferably the grooves are provided between parallel ribs projecting from the opposed pair of walls of the outer case, the ribs being substantially triangular in cross section and the opposed pair of side edges of the panel

being chamfered at each face of the panel for cooperation with the ribs. This has the advantage of a spacesaving, even touching arrangement of the panels in the outer case.

- 5 Advantageously a bottom part of the outer case has a substantially U-profile, and the opposed pair of walls of the outer case are provided by the opposed limbs of the U. The counter-catch means are then preferably provided in the inner faces of the limbs of the U. The springiness of the freestanding limbs of the U facilitates engagement and disengagement of the catch and counter-catch means. This springiness may however be neutralised when a cap of the outer case is pushed on. The cap fulfills by this an additional function.

- 10 A number of outer case bottom parts may be united in the form of a continuous substantially U-shaped strip with lines of weakness between adjacent base parts to enable their ready separation. An outer packing thereby becomes superfluous. Separation is carried out simply by breaking off one outer case from the continuous unit remaining. The preset breaking points as well as the preservation of a certain clearance between adjacent bottom parts can easily be taken into consideration in an injection moulding process. The clearances may be chosen that the caps of the outer cases have the necessary room to be pushed on.

- 30 An example of an assembly including a number of packs constructed in accordance with the invention is illustrated in the accompanying drawings, in which:—

- 35 Figure 1 is a front elevation of one pack to an enlarged scale;

Figure 2 is a side elevation of the pack;

Figure 3 is a section on the line III—III in Figure 2;

- 40 Figure 4 is a section on the line IV—IV in Figure 2;

- Figure 5 is a section through one needle pocket illustrating the catch-projections securing the machine needles, that is, on a scale further enlarged with respect to Figure 2;

- 45 Figure 6 is a vertical section through an outer case for receiving a number of such packs, illustrating the catch and counter-catch means for securing the pack panels;

- 50 Figure 7 is a section on the line VII—VII in Figure 6, illustrating the slide-in compartments for the panels;

- Figure 8 is an enlarged detail of a section of the outer case exhibiting slide-in compartments;

- 55 Figure 9 is an enlarged detail illustrating the catch and counter-catch means with the panel not yet snapped in;

- Figure 10 is a perspective view of a multiple outer case assembly formed of continuous outer cases;

- 60 Figure 11 is a side elevation of the outer case assembly illustrating the preset breaking points.

- The pack receiving the smallest unit of sewing machine needles 1 is formed of a panel 2. This exhibits needle reception pockets 3 lying side by

side in a row. The latter are all open to the front 4.

- 70 The sidewalls 5 bounding the needle reception pockets 3 along their length form at both ends end walls 6 running at the same height as the pocket side walls 5 and closing off the pockets 3 at that point. The reception pockets are of such depth that the needles is completely submerged even in the region of its greatest cross-section, that is, of the butt 1'.

- 75 The length of the reception pockets is chosen to be a little greater than the length of the needles 1.

- The needles 1 are fixed individually into the panel 2. For doing that the reception pockets 3 are provided with catch-projections R projecting into the free space F in the pocket. The catch-projections are seated at the same height on the side walls 5 of the pockets, but so that the catch projections R of adjacent reception pockets 3 are longitudinally offset with respect to one another.

- 80 When laying in the needles 1 in order this enforces an alternating alignment of the needles. The catch-projections are moulded with the side walls 5 of the pockets as approximately triangularly profiled lugs N. They start directly from the front 4, that is, with the formation of a leading bevel 7 on each which facilitates entry. These converge inwards at an angle of 45° in order to continue from there each into a supporting face 8 convexly domed to the rear. The latter forms the contact for the surface M of the needle butt 1'. The contact with the triangular lugs N is effected on the side of the axis x of the needle next to the pocket opening so that in the case of a cylindrical butt there is together with the supporting face 9 at the bottom of the pocket a three-point support.

- Individual removal of the needles stored in a protective way is effected by pushing out from the back of the panel 10. For this there is formed in each of the regions of the needle butts a groove running transversely across the whole back 10 of the panel, leading to openings 11. It is of such a depth that it exposes about half the cross-section of the butt 1', that is, it reaches into the side walls 5 of the pocket (compare Figure 5). Its cross-section is trapezoidal with the wider base lying at the back 10 of the panel.

- The catch-projections R lie at the height of these openings 11. Since the latter and the reception pocket 3 intersect there remain in this region only bridgellike partial sections of the pocket side walls 5, which are reduced in cross-section. These partial sections are extremely flexible, so that the catch-projections R retaining the needles may project quite deeply into the free space F in the pocket. Since the adjacent pockets, because of the alternate insertion of the needles, form no impediment blocking the springing out, the needle can nevertheless be pushed out by the application of a force in the direction of the arrow y.

- 125 The panel, manufactured from resilient material such as polystyrene, receives ten needles.

- A fairly large number of such panels can be accommodated in an outer case D which consists of a bottom part 12 and a cap 13 covering the

bottom part.

The bottom part has a substantially U-profile. Its substantially U-limbs 14 which are of equal size form on their inner faces grooves defining slide-in compartments 15 for the panels 2 which can be associated in a standing arrangement. In order to secure the inserted panels 2 against dropping out, at least one of the narrow longer sides 16 of the panel 2 is provided with catch-means, here in the form of a catch recess 17, which catch-means cooperate with counter-catch means in the form of a projection 18 on the slide-in compartment groove 15 in the bottom part 12 of the outer case D. In order to facilitate insertion of the panel 2, a leading bevel 19 is provided in the end regions of the narrow longer sides 16 of the panel 2. This spreads the limbs provided with the counter-catch means slightly apart. If the catch and counter-catch means come into congruent alignment the restoring force of the material brings about springing of the catch projection 18 into the corresponding catch recess 17 in the panel 2 so that the latter is secure against slipping out of the slide-in compartment. Tilting of the panels standing on a bottom 21 inside the outer container is prevented by the slide-in compartments. After pushing the cap 13 onto the bottom part 12 of the outer case the limbs are supported from the outside. The cap itself bears by its front edge against lateral projections 20 on the bottom 21 of the bottom part 12. An additional support is achieved by a top edge 22' of an outwards projecting panel-like thickening of the wall 22 of the limb 14. Side walls 23 of the cap 13 at that point exhibit a portal-like cutout of corresponding shape. The area which is consequently exposed may be used for applying data about the contents and/or their origin. The cap 13 is manufactured from transparent material so that the contents of the case can be inspected. For securing the cap 13 the U-limbs form at their vertical end faces a clamping profile 24.

The catch-means are provided at both end regions of the panel 2 so that it may be inserted either end first.

The outer case U as shown in Figure 10 consists of five individual cases. These are combined in the form of a continuous substantial U-strip UL, leaving a clearance Z from one to the next and in each case able to be separated through preset breaking points S. The bottom of the U-strip extends continuously but exhibits at the preset breaking points, both on the top and also at the narrow sides, notches 25. In order to reduce the material bridges further, relatively deep slits 26 extend in from the sides. The clearance z is so dimensioned that the caps 13 of the outer case may be associated or respectively withdrawn free of impediment. The further design of the bottom parts corresponds with the bottom part already described in accordance with Figures 6 to 8.

Isolation of the cases can easily be achieved by bending. By doing this groups of four, three or two cases may be formed for re-sale.

Because the edges of the narrow long side 16 of the panel are bevelled to form ribs exhibiting an approximately trapezoidal cross-section and the ribs 26 separating the grooves which define the slide-in compartments 15 are made triangular in cross-section, that is, from the point of view of the material they fill out the space which is cut away, such panels 2 may be inserted closely face face in the case.

75 CLAIMS

1. A pack for elongate elements such as sewing-machine needles, the pack comprising a panel of resilient material provided at its front with element-reception pockets which lie side by side in a row and are closed off at both ends, which are intended to have a length corresponding approximately with that of the elements to be received, which are provided with catch projections projecting into the pockets to retain the elements in use in the pockets, and which each has at least one opening at its rear for use in pushing an element forwardly out of the pocket past the catch projection(s); the opening being formed by a groove provided in the rear of the panel and extending transversely to the pocket so as to intersect the side walls of the pockets.

2. A pack according to claim 1, in which the catch projections of adjacent pockets are offset along the pockets with respect to one another.

3. A pack according to claim 1 or claim 2, in which the groove extends across all the row of pockets.

4. A pack according to any one of the preceding claims, in which the catch projections are in the form of lugs of substantially triangular cross section moulded integrally with side walls of the pockets and providing inclined lead-in front surfaces and convexly domed rear supporting surfaces for contact in use with surfaces of the elements.

5. A pack according to any one of the preceding claims, in which the catch projections are provided at similar positions along the pockets as are the openings.

6. A pack according to claim 1, substantially as described with reference to Figures 1 to 5 of the accompanying drawings.

7. An assembly of at least one pack according to any one of the preceding claims together with an outer case having a number of slide-in compartments which are arranged to receive a plurality of the packs face to face with one another.

8. An assembly according to claim 7, wherein at least one side edge of the pack panel has catch means for engagement with counter-catch means provided in each of the slide-in compartments in the outer case to retain a pack in that compartment of the outer case.

9. An assembly according to claim 7 or claim 8, in which the outer case presents a pair of opposed wall surfaces provided with parallel grooves, each slide-in compartment being defined by an opposed pair of grooves which are arranged to



bottom part.

The bottom part has a substantially U-profile. Its substantially U-limbs 14 which are of equal size form on their inner faces grooves defining

- 5 slide-in compartments 15 for the panels 2 which can be associated in a standing arrangement. In order to secure the inserted panels 2 against dropping out, at least one of the narrow longer sides 16 of the panel 2 is provided with catch-
- 10 means, here in the form of a catch recess 17, which catch-means cooperate with counter-catch means in the form of a projection 18 on the slide-in compartment groove 15 in the bottom part 12 of the outer case D. In order to facilitate insertion
- 15 of the panel 2, a leading bevel 19 is provided in the end regions of the narrow longer sides 16 of the panel 2. This spreads the limbs provided with the counter-catch means slightly apart. If the catch and counter-catch means come into
- 20 congruent alignment the restoring force of the material brings about springing of the catch projection 18 into the corresponding catch recess 17 in the panel 2 so that the latter is secure against slipping out of the slide-in compartment.
- 25 Tilting of the panels standing on a bottom 21 inside the outer container is prevented by the slide-in compartments. After pushing the cap 13 onto the bottom part 12 of the outer case the limbs are supported from the outside. The cap
- 30 itself bears by its front edge against lateral projections 20 on the bottom 21 of the bottom part 12. An additional support is achieved by a top edge 22' of an outwards projecting panel-like thickening of the wall 22 of the limb 14. Side
- 35 walls 23 of the cap 13 at that point exhibit a portal-like cutout of corresponding shape. The area which is consequently exposed may be used for applying data about the contents and/or their origin. The cap 13 is manufactured from
- 40 transparent material so that the contents of the case can be inspected. For securing the cap 13 the U-limbs form at their vertical end faces a clamping profile 24.

- 45 The catch-means are provided at both end regions of the panel 2 so that it may be inserted either end first.

- The outer case U as shown in Figure 10 consists of five individual cases. These are combined in the form of a continuous substantial
- 50 U-strip UL, leaving a clearance Z from one to the next and in each case able to be separated through preset breaking points S. The bottom of the U-strip extends continuously but exhibits at the preset breaking points, both on the top and
- 55 also at the narrow sides, notches 25. In order to reduce the material bridges further, relatively deep slits 26 extend in from the sides. The clearance z is so dimensioned that the caps 13 of the outer case may be associated or respectively withdrawn free
- 60 of impediment. The further design of the bottom parts corresponds with the bottom part already described in accordance with Figures 6 to 8.

- Isolation of the cases can easily be achieved by bending. By doing this groups of four, three or two
- 65 cases may be formed for re-sale.

Because the edges of the narrow long side 16 of the pannel are bevelled to form ribs exhibiting an approximately trapezoidal cross-section and the ribs 26 separating the grooves which define

70 the slide-in compartments 15 are made triangular in cross-section, that is, from the point of view of the material they fill out the space which is cut away, such panels 2 may be inserted closely face face in the case.

75 CLAIMS

1. A pack for elongate elements such as sewing-machine needles, the pack comprising a panel of resilient material provided at its front with element-reception pockets which lie side by side
- 80 in a row and are closed off at both ends, which are intended to have a length corresponding approximately with that of the elements to be received, which are provided with catch projections projecting into the pockets to retain
- 85 the elements in use in the pockets, and which each has at least one opening at its rear for use in pushing an element forwardly out of the pocket past the catch projection(s); the opening being formed by a groove provided in the rear of the
- 90 panel and extending transversely to the pocket so as to intersect the side walls of the pockets.

2. A pack according to claim 1, in which the catch projections of adjacent pockets are offset along the pockets with respect to one another.

- 95 3. A pack according to claim 1 or claim 2, in which the groove extends across all the row of pockets.

4. A pack according to any one of the preceding claims, in which the catch projections are in the form of lugs of substantially triangular cross
- 100 section moulded integrally with side walls of the pockets and providing inclined lead-in front surfaces and convexly domed rear supporting surfaces for contact in use with surfaces of the
- 105 elements.

5. A pack according to any one of the preceding claims, in which the catch projections are provided at similar positions along the pockets as are the openings.

- 110 6. A pack according to claim 1, substantially as described with reference to Figures 1 to 5 of the accompanying drawings.

7. An assembly of at least one pack according to any one of the preceding claims together with
- 115 an outer case having a number of slide-in compartments which are arranged to receive a plurality of the packs face to face with one another.

8. An assembly according to claim 7, wherein at least one side edge of the pack panel has catch means for engagement with counter-catch means provided in each of the slide-in compartments in the outer case to retain a pack in that
- 120 compartment of the outer case.

9. An assembly according to claim 7 or claim 8, in which the outer case presents a pair of opposed wall surfaces provided with parallel grooves, each slide-in compartment being defined by an
- 125 opposed pair of grooves which are arranged to



receive an opposed pair of side edges of a pack panel.

10. An assembly according to claim 9, in which the opposed side edges of the pack panel are the longer pair of side edges of the panel.

11. An assembly according to claim 9 or claim 10, in which the opposed pair of side edges of the pack panel are chamfered at their ends to facilitate their being led into and along the grooves.

12. An assembly according to any one of claims 9 to 11, in which the grooves are provided between parallel ribs projecting from the opposed pair of walls of the outer case, the ribs being substantially triangular in cross section and the

opposed pair of side edges of the panel being chamfered at each face of the panel for cooperation with the ribs.

13. An assembly according to any one of claims 9 to 12, in which the opposed pair of walls of the outer case are provided by the opposed limbs of a substantially U-shaped base part of the outer case.

14. An assembly according to claim 13 when dependent at least on claim 8, in which the counter catch means are provided on the opposed limbs of the substantially U-shaped base part.

15. An assembly according to claim 13 or claim 14, in which a number of outer case bottom parts are united in the form of a continuous substantially U-shaped strip with lines of weakness between adjacent base parts to enable their ready separation.

16. An assembly according to claim 7, substantially as described with reference to Figures 6 to 11 of the accompanying drawings.