609245

COMMONWEALTH of AUSTRALIA
Patents Act 1952

**APPLICATION FOR A STANDARD PATENT**

I/We

Draftex Industries Limited

of

3 Glenfinlas Street, Edinburgh, Scotland, EH3 6YY, United Kingdom

hereby apply for the grant of a Standard Patent for an invention entitled:

**Apparatus for fitting sealing and trimming strips**

which is described in the accompanying complete specification.

Details of basic application(s):-

| Number | Convention Country | Date |
|---|---|---|
| 8802992 | United Kingdom | 10 February 1988 |
| 8820544 | United Kingdom | 31 August 1988 |
| 8820752 | United Kingdom | 2 September 1988 |

The address for service is care of DAVIES & COLLISON, Patent Attorneys, of 1 Little Collins Street, Melbourne, in the State of Victoria, Commonwealth of Australia.

DATED this SEVENTH day of FEBRUARY 1989

To: THE COMMISSIONER OF PATENTS

Keith Wade
.....
a member of the firm of
DAVIES & COLLISON for
and on behalf of the
applicant(s)

1006414 07/02/89

Davies & Collison, Melbourne

APPLICATION ACCEPTED AND AMENDMENTS ALLOWED 24-1-91

# COMMONWEALTH OF AUSTRALIA

## PATENTS ACT 1952

## DECLARATION IN SUPPORT OF CONVENTION OR NON-CONVENTION APPLICATION FOR A PATENT

In support of the Application made for a patent for an invention

Insert title of invention

entitled: "Apparatus for fitting sealing and trimming strips"

Insert full name(s) and address(es) of declarant(s) being the applicant(s) or person(s) authorized to sign on behalf of an applicant company.

I ~~We~~ ANDREW ROSS MITCHELL Company Secretary of DRAFTEX INDUSTRIES LIMITED, 3 Glenfinlas Street, Edinburgh, Scotland EH3 6YY, United Kingdom

do solemnly and sincerely declare as follows:-

Cross out whichever of paragraphs 1(a) or 1(b) does not apply

1(a) relates to application made by individual(s)

1(b) relates to application made by company; insert name of applicant company

1. (a) ~~I am / We are the applicant for the patent~~

or (b) I am authorized by DRAFTEX INDUSTRIES LIMITED

the applicant for the patent to make this declaration on ~~their~~ its behalf.

Cross out whichever of paragraphs 2(a) or 2(b) does not apply

2(a) relates to application made by inventor(s)

2(b) relates to application made by company(s) or person(s) who are not inventor(s), insert full name(s) and address(es) of inventors.

2. (a) ~~I am / We are the actual inventor of the invention~~

or (b) ROBERT GRANVILLE BRIGHT, of Neuwerkerstrasse 229, 4060 Viersen 1, Federal Republic of Germany; and HEINZ JACOB HENNEN, of Kleistrasse 15, 4060 Viersen 1, Federal Republic of Germany

~~is~~ are the actual inventor.....S..... of the invention and the facts upon which the applicant..... ~~is~~ are entitled to make the application are as follows:

State manner in which applicant(s) derive title from inventor(s)

The applicant would, if a patent were granted upon an application made by the said inventors, be entitled to have the patent assigned to it.

Cross out paragraphs 3 and 4 for non-convention applications. For convention applications, insert basic country(s) followed by date(s) and basic applicant(s).

3 The basic application.....S..... as defined by Section 141 of the Act ~~was~~ were made

in United Kingdom on the 10 February, 1988.
by Draftex Industries Limited
in United Kingdom on the 31 August, 1988
by Draftex Industries Limited
in United Kingdom on the 2 September, 1988
by Draftex Industries Limited

4 The basic application.....S..... referred to in paragraph 3 of this Declaration ~~was~~ were the first application.....S..... made in a Convention country in respect of the invention the subject of the application

Insert place and date of signature

Declared at LONDON this 9th day of MARCH 1989

Signature of declarant(s) (no attestation required)

Note Initial all alterations

DAVIES & COLLISON, MELBOURNE and CANBERRA

(12) PATENT ABRIDGMENT (11) Document No. AU-B-29727/89
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APPARATUS FOR FITTING SEALING AND TRIMMING STRIPS

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(56) Prior Art Documents
GB 1588213

(57) Claim

1. A portable tool for installing a channel-shaped sealing or finishing strip on a mounting flange or the like running around an opening closable by a closure member, the strip being generally channel-shaped in cross-section but with the side walls of the channel initially splayed apart to facilitate mounting, the tool comprising: a support movable relative to the strip when the strip is mounted on the flange; a pair of rollers mounted for rotation on the support about parallel axes; motor means connected to drive rollers of the said pair of rollers mechanically in opposite directions; the rollers of the said pair of rollers being mounted with their peripheries spaced apart to define a gap of such

.../2

predetermined distance as to enable them to apply pressure to the splayed-apart side walls of the channel of the strip so as to close those side walls towards each other as the support is driven along the length of the strip on the flange by frictional contact between the strip and the rotating rollers, whereby the side walls of the strip move into a subsequently retained configuration in which they embracingly grip the flange; and a third roller mounted on the support to be rotatable about an axis which is perpendicular to the parallel axes of the said pair of rollers, the third roller being mounted so as to extend across the gap between the said pair of rollers and to be so positioned in relation to the pair of rollers that it applies pressure to the outside of the base of the channel when the strip is mounted on the flange, the third roller being undriven and free-running and positioned forward of the said pair of rollers in the direction of movement of the support.

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PATENTS ACT 1952

COMPLETE SPECIFICATION

NAME & ADDRESS OF APPLICANT:

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This document contains the amendments made under Section 49 and is correct for printing.

NAME(S) OF INVENTOR(S):

Robert Granville BRIGHT
Heinz Jacob HENNEN

ADDRESS FOR SERVICE:

**DAVIES & COLLISON**
Patent Attorneys
1 Little Collins Street, Melbourne, 3000.

COMPLETE SPECIFICATION FOR THE INVENTION ENTITLED:

Apparatus for fitting sealing and trimming strips

The following statement is a full description of this invention, including the best method of performing it known to me/us:-

# APPARATUS FOR FITTING SEALING AND TRIMMING STRIPS

The invention relates to methods and apparatus for fitting sealing or trimming strips. Examples of such sealing or trimming strips are channel-shaped sealing or trimming strips for sealing around openings in motor vehicle bodies. Such openings may be provided with flanges, formed by joined edges of the adjacent bodywork, and the channel-shaped strips are embracingly fitted onto, and grip, the flanges. The flanges are thus covered and protected, and shielded from the occupants of the vehicle. Where such a strip is to act as a sealing strip, an outside wall of the channel may carry a sealing part, such as made of softer material, which is supported by the strip to run around the opening so as to be compressed by and to seal around the periphery of the door of the opening.

Co-pending United Kingdom Patent Application No. 8727690 (Serial No. 2212844) discloses such a sealing or trimming strip. The strip disclosed in this co-pending specification is channel-shaped but initially the side walls of the channel are splayed apart so as to enlarge the mouth of the channel. This eases the initial application of the channel onto the flange because the splayed apart side walls hardly make contact with the

flange surfaces during this process. Thereafter, the splayed apart channel walls are pressed towards each other and thus towards the surfaces of the flange, and the strip subsequently retains itself in this new configuration in which it grips firmly against the flange surfaces. Examples of methods and apparatus according to the present invention may be used to press the splayed apart channel walls together.

According to the invention, there is provided a portable tool for installing a channel-shaped sealing or finishing strip on a mounting flange or the like running around an opening closable by a closure member, the strip being generally channel-shaped in cross-section but with the side walls of the channel initially splayed apart to facilitate mounting, the tool comprising: a support movable relative to the strip when the strip is mounted on the flange; a pair of rollers mounted for rotation on the support about parallel axes; motor means connected to drive the rollers of the said pair of rollers mechanically in opposite directions; the rollers of the said pair of rollers being mounted with their peripheries spaced apart to define a gap of such predetermined distance as to enable them to apply pressure to the splayed-apart side walls of the channel of the strip so as to close those side walls towards each other as the support is driven

along the length of the strip on the flange by frictional contact between the strip and the rotating rollers, whereby the side walls of the strip move into a subsequently retained configuration in which they embracingly grip the flange; and a third roller mounted on the support to be rotatable about an axis which is perpendicular to the parallel axes of the said pair of rollers, the third roller being mounted so as to extend across the gap between the said pair of rollers and to be so positioned in relation to the pair of rollers that it applies pressure to the outside of the base of the channel when the strip is mounted on the flange, the third roller being undriven and free-running and positioned forward of the said pair of rollers in the direction of movement of the support.

Tools embodying the invention, for use in fitting a channel-shaped sealing or trimming strip onto a mounting flange, will now be described, by way of example only, with reference to the accompanying diagrammatic drawings in which:

Figures 1A and 1B illustrate a channel-shaped sealing and trimming strip of the type disclosed in the above-mentioned co-pending United Kingdom Patent Application No. 8727690, Figure 1A showing the strip being

offered up to the flange and Figure 1B showing the strip as finally installed on the flange;

Figure 2 is a perspective view showing part of the flange around a luggage compartment of a vehicle with a sealing strip mounted thereon;

Figure 3A is an end elevation of a tool embodying the present invention, this tool being for installing the seal shown in Figure 2;

Figure 3B corresponds to Figure 3A but shows a modified form of the tool;

Figure 4 is a diagrammatic perspective view illustrating a further tool embodying the invention;

Figure 5 is a diagrammatic partial cross-section on the line V - V of Figure 4; and

Figure 6 is a diagrammatic perspective view of yet another tool embodying the invention.

As shown in Figures 1A and 1B, the sealing strip comprises a generally channel-shaped gripping part 5 and a tubular sealing part 6. The part 5 comprises extruded plastics or

rubber material 8 in which is completely embedded a metal carrier 10. The gripping part 5 may conveniently be manufactured using a cross-head extruder. The extrusion process is arranged to form lips 12,14,16,18 and 20. As shown in Figure 1A, in the strip as manufactured the side walls of the channel are splayed outwards so as to enlarge the width of the mouth of the channel.

The tubular sealing part 6 is made of soft flexible material such as rubber. It may be manufactured separately and then secured to one outside wall of the gripping part by means of adhesive or the like. Instead, however, it can be extruded integrally with the material 8.

In use, the sealing strip is to be mounted on a flange 22 which runs around a door or similar opening on a motor vehicle body, this flange being the flange formed by the welded joint between the edges of the body panels which meet there. As shown in Figure 1A, the enlarged mouth of the channel is such that the gripping part 5 can very easily be placed onto the flange and is clearly a loose fit, being hardly in contact with the side surfaces of the flange at all.

In order for the gripping part 5 to grip onto the flange 22, therefore, the splayed apart side walls of the channel

have to be forced towards each other so as to become substantially parallel and to assume the configuration shown in Figure 1B where the lips 12 - 20 are firmly in good frictional and sealing contact with the side surfaces of the flange. Although the metal carrier 10 has good resilience and helps to ensure that the gripping part 5, when installed on the flange as shown in Figure 1B, maintains its grip on the flange, it is found that, after the process (to be described in more detail below) by which the side walls of the channel are pressed towards each other, the carrier thereafter maintains a corresponding configuration and does not have a tendency to re-assume the splayed apart configuration.

For a fuller description of the sealing strip shown in Figures 1A and 1B, reference is made to the above-mentioned co-pending application.

The flange 22 illustrated in Figures 1A and 1B is a flange running around a door opening in a vehicle, the plane of the flange being coincident with or parallel to the general plane of the opening. However, the corresponding flange around the luggage compartment opening on a motor vehicle body is often differently arranged, and this is illustrated in Figure 2. As shown here, the flange 22A is arranged substantially at right angles to the plane of the

opening, running alongside the usual water drainage gulley 60. Figure 2 shows the sealing strip 62 in position on part of this flange 22A. Because the flange runs at right angles to the plane of the opening, the lid for closing the opening travels towards the inverted base of the gripping part of the strip 62 - in contrast to a door for closing a door opening which (as is clear from Figures 1A and 1B) closes towards the side of the gripping part. Therefore, the seal 62 has its sealing part 6 carried on the inverted base of the channel of the gripping part.

It will be appreciated that the seal 62 can be manufactured in accordance with the above-mentioned co-pending United Kingdom patent application, that is, with the side walls of its gripping part 5 initially splayed apart so as to be an easy fit onto the flange 22A. Thereafter, the side walls of the gripping part are closed towards each other as will be described.

The methods and tools now to be described are for use in converting the gripping parts 5 from the initially splayed-apart configuration to the closed configuration.

Figure 3 illustrates in diagrammatic form a tool for use in installing the sealing strips of Figure 2 onto the flange 22. The tool comprises two L-shaped frames 30,30A

which rotatably support shafts 32,34 and 34A which are respectively rigid with rollers 36,38 and 38A; shaft 32 has an extension 32A. Roller 38A is positioned to bear against the side wall of the gripping part 5 which is opposite to the side wall against which the roller 38 bears. Roller 36 bears against the inverted base of the channel of the gripping part, via the seal 6.

The shafts 32 and 34 are rigid with respective mutually engaging bevel gears 42 and 44, and shaft extension 32A and shaft 34 are rigid with respective mutually engaging bevel gears 42A and 44A. In a manner to be explained, shaft 46 is connected to be rotated via a suitable motor and thus rotates roller 36, rollers 38 and 38A rotating likewise through the intermediary of the engaging bevel gears.

In use, a length of the sealing strip is placed over the flange 22A, the channel of the gripping part 5 being at this time splayed apart so as to be a very easy fit onto the flange. The tool is then brought into position on the flange and the free end of the sealing strip, loosely embracing the flange, is manually forced into the space between the peripheries of the rollers. The drive motor for the tool is then energised and rotates the rollers 36 and 38 in the directions illustrated in Figure 3A, roller

38A rotating in the opposite direction to roller 38. The rotating rollers, in engagement with the sealing strip, thus drive the tool along the flange. During this process, the rollers exert sufficient pressure on the sides and inverted base of the channel of the gripping part 5 as to close the splayed apart channel side walls towards each other into the configuration shown in Figure 2. As the tool advances, more strip is drawn from the supply.

Because of the use of the two rollers 38 and 38A, the tool shown in Figure 3 can readily move along the sealing strip 62 where it follows bends in the flange 22A (Fig. 2).

The drive motor may be carried in a pack worn by the operator or it may be incorporated into the handle for the tool. The motor may be an electric motor or powered by compressed air or by any other suitable means.

In practice, the thickness of the flange may not be constant around the whole of the door opening. The flange illustrated in Figure 2 as being made up of two thicknesses of metal. However, at certain positions around a door opening there may be more or fewer metal thicknesses, and in any case the thickness of the individual metal sheets may vary. Furthermore, spot welds

for joining the separate metal sheets together along the length of the flange will cause local changes in thickness. In order to enable the tool to accommodate such variations in thickness, the rollers are advantageously mounted on the frame in such a manner that, for all likely variations in flange thickness, they exert substantially constant pressures on the gripping part 5. This can be achieved by suitable resilient mountings for the rollers.

However, it may be advantageous to modify the tool shown in Figure 3A so as to drive the rollers 38 and 38A via a differential mechanism in order to take account of the fact that they will need to rotate at different speeds when travelling around a bend in the flange.

Instead, however, the tool shown in Figure 3B can be used. In this tool, rollers 38 and 38A are driven separately by independent shafts 46 and 46A. These are connected via corresponding flexible shafts, through the handle (not shown) of the tool to a differential mechanism driven by and mounted on or adjacent to the drive motor (not shown). In this way, the rollers 38 and 38A can be driven at different speeds as necessary where the tool runs around a curve in the flange. The flexible shafts could be arranged, for example, so as to concentric with

one another where they pass through the handle of the tool.

As shown in Figure 3B, roller 36 is free running. However, if necessary it could be linked through bevel gears (in a manner illustrated in Figure 3A) so as to be driven via one, only, of the shafts 46, 46A.

In another modification, a tool for installing the sealing strip 62 onto the flange 22A of Figure 2 could be generally of the same configuration as shown in Figure 3A - in the sense that there would be a single drive shaft 46. However, one of the two rollers 38, 38A would be driven through the intermediary of an over-run unit which would permit that roller to run at an increased speed as necessary to cope with bends in the flange.

In a further modification, a tool could be used which would be of the same general configuration as in Figure 3A, except that the bevel gears 42A and 44A would be omitted so that the roller 38A would be entirely free-running. In this way, it would be able to cope with any speed differential between itself and roller 38 around bends in the flange.

It will be appreciated that the tools described should be

as light in weight as possible because they will have to be carried by the fitter. If a differential mechanism is to be used with tools of the form shown in Figures 3A and 3B, it may therefore be advantageous for the differential mechanism to be associated with the motor, rather than mounted in the tool itself. The motor, and differential, can be accommodated in a pack worn by the fitter.

If the weight of the tool is significant, however, it can be supported from an overhead rail or the like by means of a spring-loaded flexible support enabling the fitter to grasp it and move it around the opening in the vehicle without having to support any significant part of its weight.

As shown in Figure 4, a further tool 125 has a body 126 and a handle 128. The body 126 houses an electric drive motor powered by means of an electric cable 130. A switch for switching the motor on and off is incorporated in the handle 128 though not illustrated. The output shaft of the motor is connected through suitable bevel gearing to a gear box 132 where it rotates a shaft 134 (see Figure 5). Shaft 134 is supported in bearings 136 and 138 in the gearbox side walls 136 and 138 and carries bevel gears 142 and 142A which respectively drive bevel gears 144 and 144A. The latter gears are rigid with vertically arranged

shafts 146 and 146A supported in bearings in the lower wall 147 of the gear box 132.

The electric motor rotates shaft 134 in the direction shown by arrow 148. This rotates shaft 146 in the direction shown by arrow 149 and shaft 146A rotates in the opposite direction.

As shown in Figure 4, shafts 146 and 146A extend downwardly from the gearbox 132 and each incorporates a respective flexible coupling or universal joint 150, 150A (the latter being only partially visible). The shafts continue downwardly to and through bearings in shoulders 151, 151A respectively, which are carried by downwardly depending extensions of the side walls 136, 138 of the gearbox 132. Shaft 146 carries a roller 152, and shaft 146A carries a roller 152A.

Shoulder 151 is in fact in three parts: two outer parts 154 and 156 which are rigid with the downwardly depending side wall 136 which carries them and a central part 158 which is fixed vertically with respect to the outer parts 154 and 156 but is slidable relative to them in the direction of the arrow C. Advantageously, the facing side edges of the parts 154 and 156 carry keyways receiving matching keys in the sides of the central part 158 so as

to constrain the latter for the sliding movement. The outside of the downwardly depending wall 136 carries a handgrip 160 through which extends a shaft (not shown) which is rotated by means of knurled knob 162. This shaft threadedly engages a matching thread formed in a bore extending part way through the central part 158 which thus acts as a nut on the shaft and moves in the direction of the arrows C as the knurled knob 162 is rotated. In this way, roller 152 can be moved towards and away from roller 152A but still maintaining its configuration in which it is vertical and parallel to the axis of roller 152A. The extent of the possible movement is such that it can be readily accommodated by the flexible coupling 148.

The outer part 154 of the shoulder 151 on the one hand and the shoulder 151A on the other carry downwardly depending supports 164 and 166 which rotatably support a horizontal roller 168.

Figure 4 illustrates the sealing strip on the flange 22. In use, the sealing strip is placed onto the flange 22 with its side walls in the splayed apart configuration shown in Figure 1A and as indicated at region D in Figure 4. The tuol is then placed over the sealing strip on the flange so that the rollers 152 and 152A are adjacent the outsides of the splayed apart side walls of the gripping

part 5. The top roller 168 is now in contact with the sealing part 6. By means of the knurled knob 162, the operator adjusts the spacing between the rollers 152 and 152A so that the splayed apart side walls are forced into the configuration shown in Figure 1B. With the motor energised by the operator, the tool then moves in the direction of the arrow E, being driven in this direction by the rotation of the rollers 152 and 152A. The operator guides the tool as it moves along the flange in the direction of the arrow E and, as it so moves, the side rollers force the splayed apart side walls of the gripping part 5 together into the configuration shown in Figure 1B and into firm gripping engagement with the flange. As the tool moves along the flange, the top roller 168 temporarily flattens the sealing part 6. At region F in Figure 4, a part of the sealing strip as finally fitted onto the flange 22 is shown.

Again, the motor can be electrically powered or powered by compressed air or by any other suitable means.

Figure 6 illustrates in perspective form a further possible form of the tool. In Figure 6, the drive motor is housed in a body 200, the motor being a pneumatic motor driven by compressed air. A handle 202, by which the operator grips the tool, is integrally connected to the

body 200 and the supply line 204 for the compressed air passes through the handle. Integrally attached to the motor 200 is a base 206 incorporating suitable gearing by which the rotation of the motor is transmitted to a roller support assembly 208. A housing 208 rotatably supports rollers 152 and 152A corresponding to the rollers with these reference numerals in Figure 4. Rollers 152 and 152A are thus contra-rotated by the pneumatic motor in the housing 200. The housing 208 also carries supports 164 and 166 rotatably carrying a horizontal roller 168, these three components corresponding to the same-numbered components in Figure 4.

In this tool, the base 206 and the housing 208 are attached together so as to be able to rotate, relative to each other, about the axis X, such rotation not affecting the contra-rotation of the rollers 152 and 152A.

The ability of the base 206 and the housing 208 to rotate relative to each other is advantageous in that it enables an operator to hold the tool at the most comfortable angle as he moves it along the mounting flange 22 (for example, see Fig. 4) around the vehicle opening to which the sealing strip is being fitted. Thus, for example, as the tool is driven along the sealing strip on the flange by the contra-rotating rollers 152 and 152A, the housing 208

can rotate relative to the base 206 as the tool travels around a corner or bend in the flange and there is no need for the operator to alter the angle at which he is holding the handle 202.

Such an arrangement is also advantageous if the tool is held by a robot, instead of a human operator, and moved around the flange by the robot.

In the tool of Figure 6, the spacing between the rollers 152 and 152A is not adjustable - unlike the tool shown in Figure 4. However, it is a simple matter to remove the housing 208, together with all the rollers, and then replace it with a similar unit but with differently spaced rollers 152 and 152A.

In certain circumstances, a flange around a vehicle opening may run immediately adjacent other protruding body parts or fixtures, such as parts of lock assemblies on vehicle doors. In order to eliminate the possibility of such fixtures interfering with the free movement of the tool (in any of the forms described) around the flange, the tool may be suitable shaped to avoid this. For example, its handle or the motor housing or some other part may be suitably inclined or offset from the attitude shown in the Figures. It may be necessary to match a tool in this way to suit a particular vehicle body design.

The claims for defining the invention are as follows:-

1. A portable tool for installing a channel-shaped sealing or finishing strip on a mounting flange or the like running around an opening closable by a closure member, the strip being generally channel-shaped in cross-section but with the side walls of the channel initially splayed apart to facilitate mounting, the tool comprising: a support movable relative to the strip when the strip is mounted on the flange; a pair of rollers mounted for rotation on the support about parallel axes; motor means connected to drive the rollers of the said pair of rollers mechanically in opposite directions; the rollers of the said pair of rollers being mounted with their peripheries spaced apart to define a gap of such predetermined distance as to enable them to apply pressure to the splayed-apart side walls of the channel of the strip so as to close those side walls towards each other as the support is driven along the length of the strip on the flange by frictional contact between the strip and the rotating rollers, whereby the side walls of the strip move into a subsequently retained configuration in which they embracingly grip the flange; and a third roller mounted on the support to be rotatable about an axis which is perpendicular to the parallel axes of the said pair of rollers, the third roller being mounted so as to extend

across the gap between the said pair of rollers and to be so positioned in relation to the pair of rollers that it applies pressure to the outside of the base of the channel when the strip is mounted on the flange, the third roller being undriven and free-running and positioned forward of the said pair of rollers in the direction of movement of the support.

2. A tool according to claim 1, in which the rollers of the said pair of rollers are linked together for rotation together.

3. A tool according to claim 1 or 2, in which the rollers of the said pair of rollers are linked together through a differential mechanism.

4. A tool according to any preceding claim, including a handle for the tool.

5. A tool according to claim 4, in which the handle is angularly movable relative to the support.

6. A tool according to claim 4 or 5, in which the motor means drives the rollers of the said pair of rollers through the intermediary of a shaft passing through the handle.

7. A tool according to any preceding claim, including a support carried by the tool for receiving a length of the said strip, with its said side walls in the initially splayed-apart configuration, from a supply thereof, the support supporting and guiding the said length onto the flange.

8. A tool according to any preceding claim, including means for maintaining the said pressure substantially constant in spite of variations in thickness of the flange.

9. A tool according to any preceding claim, including adjusting means for adjusting the width of the said gap between the rollers of the said pair of rollers.

10. A portable tool for installing a channel-shaped sealing or finishing strip on a mounting flange or the like running around an opening closable by a closure member, the tool being substantially as described with reference to Figures 2 and 3A of the accompanying drawings.

11. A portable tool for installing a channel-shaped sealing or finishing strip on a mounting flange or the like running around an opening closable by a closure member, the tool being substantially as described with reference to Figures 2 and 3B of the accompanying drawings.

12. A portable tool for installing a channel-shaped sealing or finishing strip on a mounting flange or the like running around an opening closable by a closure member, the tool being substantially as described with reference to Figure 4 of the accompanying drawings.

13. A portable tool for installing a channel-shaped sealing or finishing strip on a mounting flange or the like running around an opening closable by a closure member, the tool being substantially as described with reference to Figure 6 of the accompanying drawings.

Dated this 15th day of November, 1990.

DAVIES & COLLISON
Patent Attorneys for
DRAFTEX INDUSTRIES LIMITED

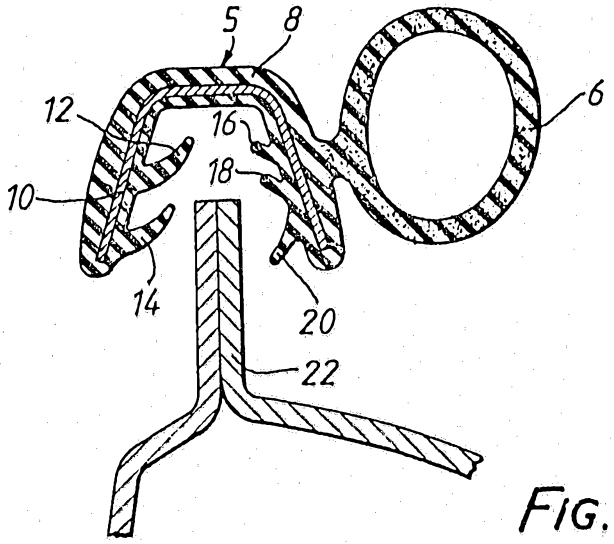


FIG. 1A.

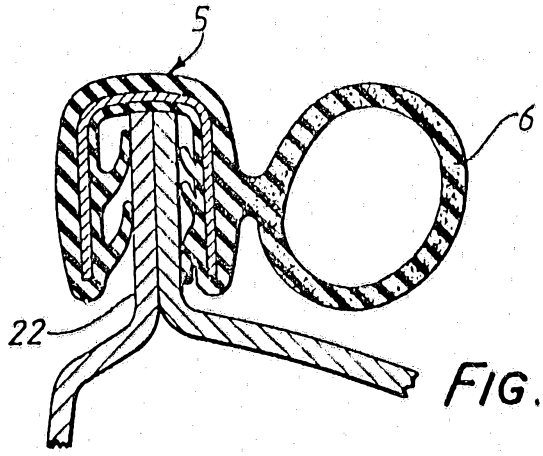


FIG. 1B.

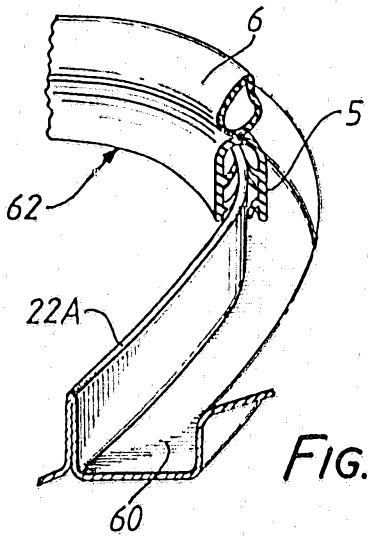


FIG. 2

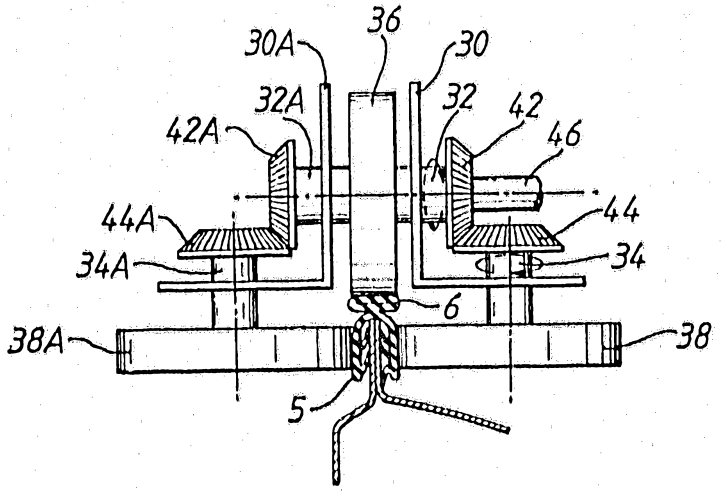


FIG. 3A.

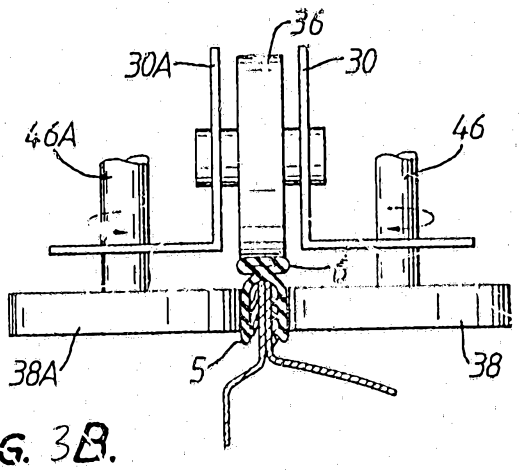


FIG. 3B.

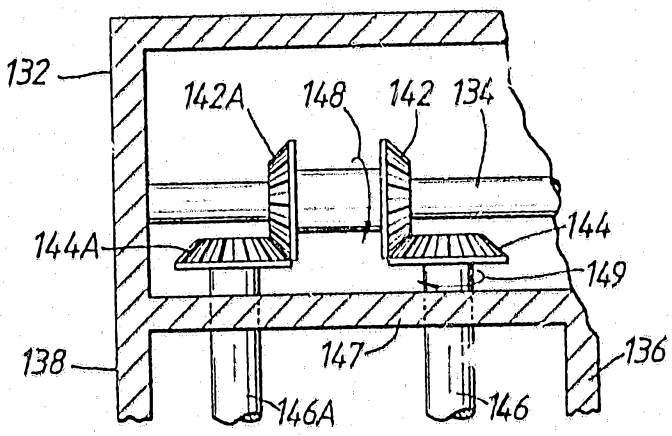


FIG. 5.

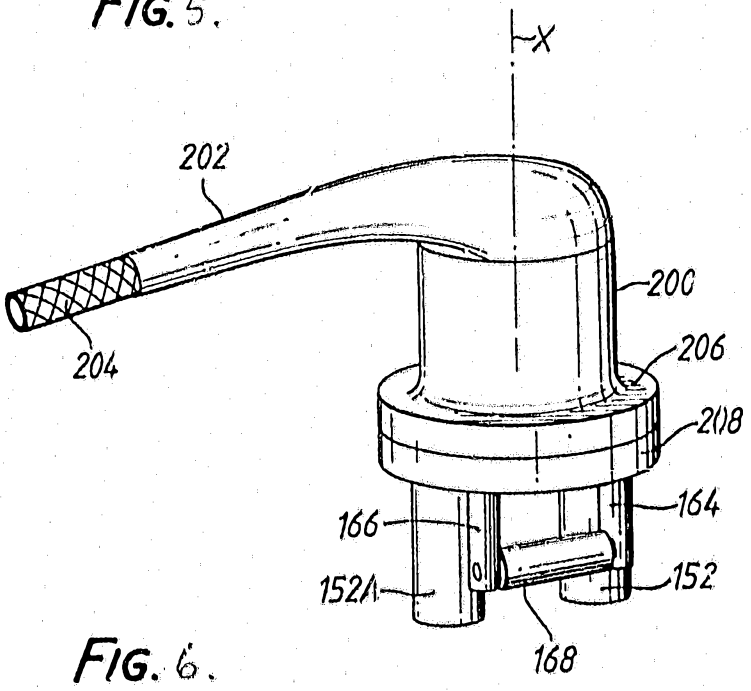


FIG. 6.

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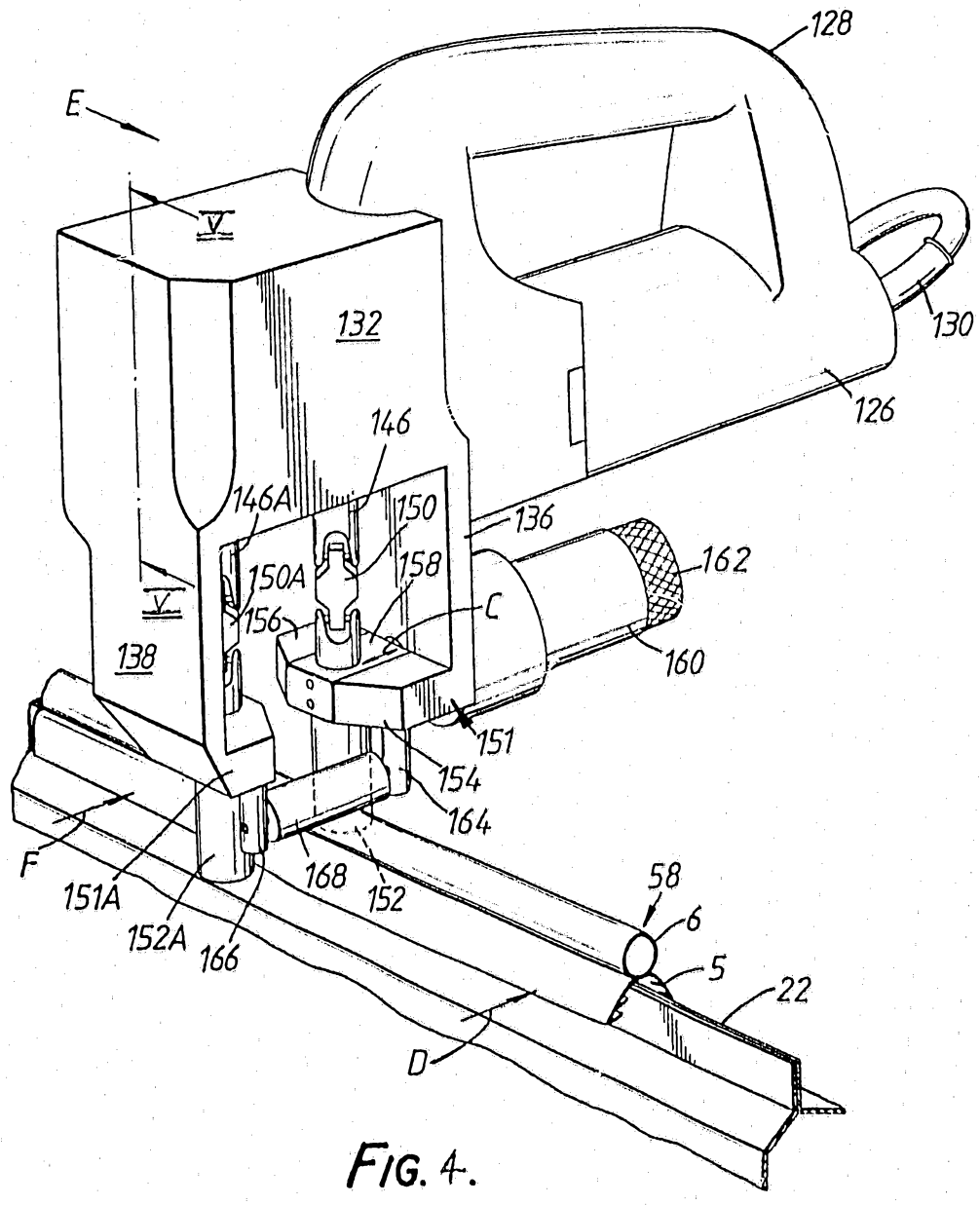


FIG. 4.