2008

PATENT ATTORNEYS

EXAMINATION

PAPER D

The New Zealand Law and Practice
relating to Preparation of Specifications for New Zealand
Patents

Regulation 158 (1) (d)

Duration: 4 hours (plus 10 minutes for reading)

Notes to Candidates

1. When preparing the provisional specification for question 1, and the claims for question 2, please do not prepare what is commonly known as the title page for the specification.
2. You are to assume that there is no prior art apart from that set out in the questions.

Question 1

Your client has developed an invention for application to spring clips such as those used for holding sheets of paper.

Your client informs you that known clips take the form shown in the attached drawing labeled "Prior Art". These known spring clips have a pair of levers, typically made from wire, which are used to open the clip. The levers can project out from the articles held by the clip, making them inconvenient. The levers can sometimes be folded down, but in this orientation they project onto pages being held which can obscure text or make it difficult for a user to turn pages. Furthermore, the levers usually require considerable force to be applied to open the clip.

Two embodiments of your client's clip invention are shown in the attached drawings labeled Figure 1 and Figure 2.

Your client explains that the new clip does not need levers to operate. Instead, an applicator is used which has also been developed by your client for this purpose. The applicator is shown in Figure 3, and has a pusher that pushes ear-like projections at the sides of each jaw of the clip over spreaders (shown more clearly in Figure 4) to open the jaws of the clip. Before or after this, the applicator is engaged over sheets of paper to be clipped together. The pusher is then pushed further to push the clip off the spreaders. The pusher can then be pulled back so that the applicator can be used again.

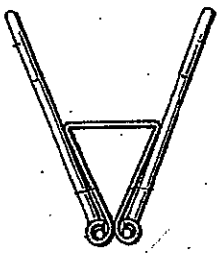
Your client states that the new clip eliminates the requirement for levers on the clip. Also, the applicator is easy to use as very little force is required to be applied to the pusher to open the clip. The clip is removed by sliding it off the articles being held.

Draft a provisional specification for your client. You may use the second copy of the drawing Figures provided with this question paper as part of your

provisional specification, should you wish to do so, and hand this in as part of your answer paper.

45 Marks

PRIOR ART



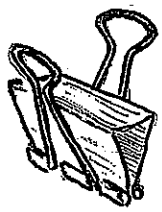


FIG. 1

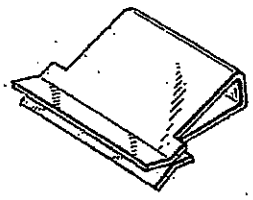


FIG. 2

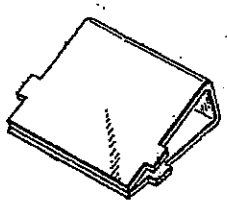


FIG. 3

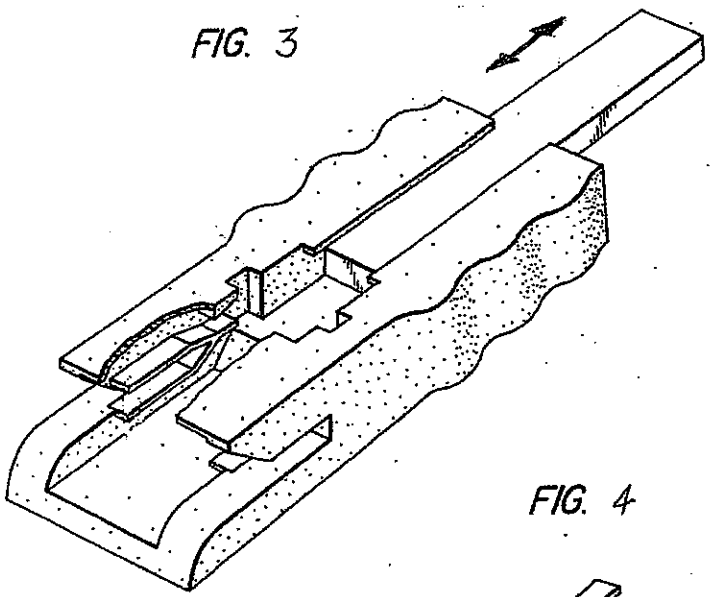
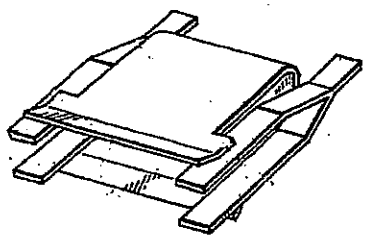


FIG. 4



PRIOR ART

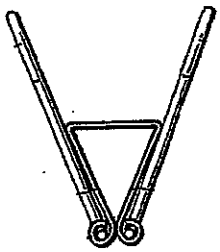


FIG. 1

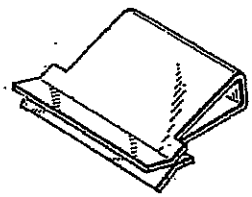


FIG. 2

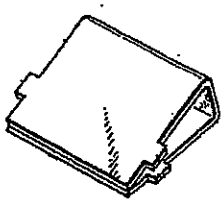


FIG. 3

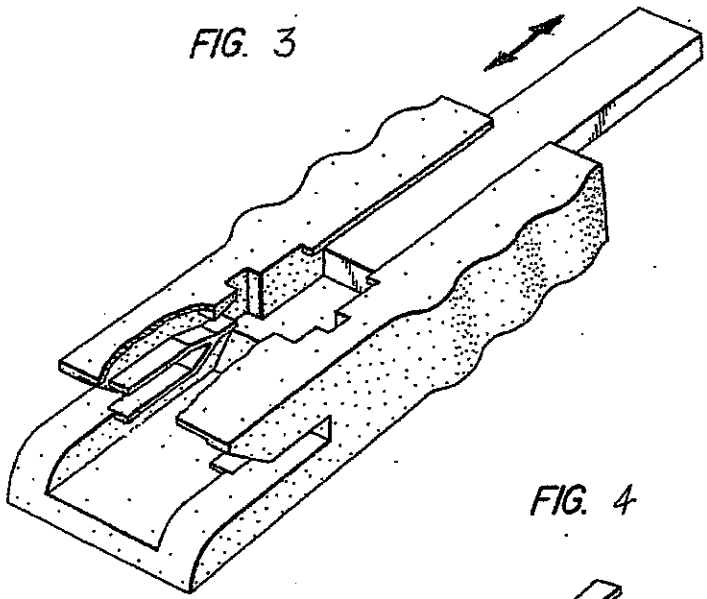
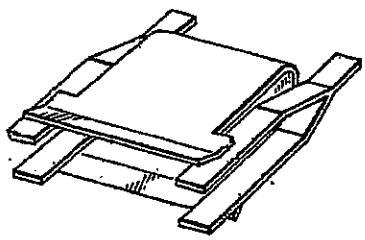


FIG. 4



Question 2

Your client has made an invention relating to a device for removing staples from documents. A patent application accompanied by a provisional specification has already been prepared and filed, and your client now instructs you to prepare a set of claims as an initial step to preparing a complete specification. A copy of the provisional specification is attached entitled "STAPLE REMOVER".

The only prior art is that discussed in the "Background of the Invention" section, and a copy of the abstract relating to published patent specification NZ555666 is also attached, marked "ABSTRACT NZ555666".

Prepare a set of claims for your client's invention, that also distinguish the invention from the prior art.

It is not necessary to prepare a description.

55 marks

STAPLE REMOVER

This invention relates to staple removers, by which clinched staples may be removed from stapled documents.

One known staple remover is of the pincers or tweezers type in which two pairs of sheet metal jaws acting as wedges are inserted between the crown of the clinched staple and the stapled document from opposite directions. As the jaws are pushed towards each other, they exert a lifting force on the crown in the direction substantially normal to the document surface. The force applied by the remover is sufficient to pull the bent limbs of the staple through the document, partially straightening them in the process, and with a high risk of damaging the document.

Surgical staples, which are usually clinched into a C-shape, of which the limb ends face each other and hold the edges of two portions of skin in contact with each other until they become knitted together by the body's healing mechanism, may be removed by means of a device such as is disclosed in NZ 555666. This staple remover consists of a pliers-type device of which one 'jaw' consists of a pair of so-called 'anvils' of sheet metal which extend first in parallel with each other and then converge into contact with each other so that they do not stab into the healed wound when being positioned below the crown of the surgical staple. The other 'jaw' consists of a blunt 'blade' of single thickness metal which, when the pliers are moved towards their closed position, contacts the centre of the crown and distorts it into a U-shape to cause the ends of the limbs to be pulled out of the skin.

The principle of operation of this surgical staple remover is similar to that of the document staple remover of the present invention, and the prior art device could be possibly be used to remove document staples. However, removal would not be very satisfactory because clinched office staples are of different configuration to surgical staples.

The present invention aims at providing a staple remover which has the advantages of the surgical staple remover, in that it does not damage the material from which the staple is removed, but which efficiently extracts staples of the kind used for stapling paper sheets together. It is an object of the invention to at least provide the public with a useful choice.

Various embodiments of the present invention will now be described by way of example with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of one form of staple remover of the present invention;
Figure 2 is a view similar to Figure 1 of a second embodiment of the invention;
Figure 3 shows three different diagrammatic end elevations on an enlarged scale, illustrating the mode of operation of the staple remover of the present invention;
Figure 4 shows partial plan views of the working ends of the staple removers of Figures 1 and 2, to show the different shapes of their jaws;
Figure 5 is a partial side view of either embodiment of staple remover, showing the jaws in their fully-opened and fully-closed positions;
Figure 6 is a perspective view of a further embodiment of the invention;
Figure 7 is a cross-sectional side view of the Figure 6 device, and;
Figure 8 is a perspective view of a further embodiment of the invention.

The staple remover of Figure 1 is intended to be used to remove clinched staples of the kind used for stapling sheets of paper together. Such staples have crowns which

are typically 12 mm long. The remover consists of levers 2 and 4 pivotally connected together by a pivot pin 6.

As can be seen from Figures 1 and 4(a), the shorter ends of the inner lever 4 are cranked inwardly so that the planes in which the outer surfaces of these ends move are spaced by a distance x (see Figure 4a) from the planes containing the inner surfaces of the shorter ends of the outer lever 2. The respective ends of the inner lever 4 cooperate with each other to form a 'nose' 8, the purpose of which will be described in more detail below.

The shorter ends of the outer lever 2 are formed into two parallel prongs 10. As shown more clearly in Figures 5(a) and 5(b), the bottom surfaces 12 of the prongs lie in a plane, and these surfaces are intended to be pressed into contact with the upper surface of a document, or a clinched stack of documents, which are held together by a clinched staple, as shown diagrammatically in Figure 3(a). The outer surfaces of the tip 16 of the prongs 10 are spaced apart by a distance 'y' which is slightly less than 12 mm, in the case of the Figure 1 embodiment.

In that embodiment of the invention shown in Figure 2, the prongs 11 are of substantially the same shape in elevation as prongs 10 of Figure 1, but in plan view, as shown diagrammatically in Figure 4(b) the prongs 11 curve towards each other so that they finish up with their tips spaced apart by a distance z which is significantly less than the length of the crown of the smallest staple the remover is intended to remove. At their widest point, the prongs 11 of the Figure 2 embodiment are spaced apart by the same dimension y as the Figure 1 embodiment.

The mode of operation of the staple remover of the present invention will now be described in more detail with particular reference to Figure 3, in which Figure 3(a) shows diagrammatically a clinched staple 18 holding together a document 20 formed from three sheets of paper or other medium. As is well known, the staple 18 has reached the position shown in Figure 3(a) by starting in a position in which the limbs 22 of the staple extend in parallel with each other and at right angles to its crown 24.

When the document is to be de-stapled, the remover of the present invention has its prongs 10 pushed between the crown 24 and document 20. In so doing, the clinched limbs 22 are forced to adopt the position shown diagrammatically in Figure 3(b), by reason of the lifting force applied to the staple by the prongs 10. When the remover has been fully inserted, so that the nose 8 is able to come into contact with crown 24, the levers 2 and 4 are gripped and squeezed together, to move the nose relatively to the prongs to the position shown in Figures 3(c) and 5(b). In moving to this position, it will be appreciated that the staple has to follow a somewhat serpentine path so that a portion of the length of the staple comes to rest in the space between each prong 10 and the adjacent surface of nose 8. It is this space which has the dimension x shown in Figure 4(a). The effect of the application of these forces to the staple is to cause the outer 'corners' of the nose to act as fulcra. As the nose moves relative to the prongs in the plane parallel to the nose it causes the respective parts of the staple to bend about the fulcra which, because of the generally arcuate shape adopted by the clinched limbs thereof, causes the curved limb ends to travel substantially along the arc. This ensures that the limb ends virtually are removed from the document by passing along the length of the entry holes which the staple made when it was being stapled to the document and the central part of the crown is substantially undeformed. In this way, extraction of the curved ends of the limbs 22 involves very little, if any, further tearing of the edges of the holes 24 formed in the document.

The modus operandi of the Figure 2 embodiment is basically the same as that of

Figure 1. What is different about them is that the Figure 2 embodiment is designed to be able to remove a range of staples of different sizes. Thus, for instance, the curved prongs 10 of the Figure 2 embodiment at the narrower end are able to be inserted below the crown of a clinched 7 mm staple, the remover being able to be pushed into a position in which the crown lies under the end of nose 8, permitting such a small staple to be removed as described above.

Referring to Figures 6 and 7, there is shown a further embodiment of the invention, in which a body member 40 carrying the prongs 41 is of generally L-shaped configuration with a forward, support, portion 42 and a rearward, handle portion 43. The body member 40 is of U shaped cross section, being hollow and open downwardly. Within the body member 40 are accommodated a second, nose member 44 and a third, trigger member 45. The nose member 44 is pivotally mounted in the support portion 42 of the body member 40 by means of a pivot pin 46. The nose member 44 comprises a nose portion 47 and a lever portion 48, disposed respectively in front of, and behind, the pivot pin 46. The lever portion 48 of nose member 44 is linked by a link arm 49 to the forward end 50 of trigger member 45. The rear end 51 of trigger member 45 is pivotally mounted in the handle portion 43 of body member 40 by means of a pivot pin 52. The link arm 49 has bent-over portions at its two ends which provide pivotal connections to the nose member 44 and trigger member 45. A leaf spring 53 is mounted between the upper surface of trigger member 45 and the inside surface of body member 40 4 and urges the trigger member 45 downwards. A shoulder 54 is provided on one or both of the inside lower edges of the forward portion 42 to limit the downward movement of trigger member 45. Alternatively, or in addition, a shoulder 55 may be provided just above the front of the nose member 44.

A further, simplified, embodiment of the invention is shown in Figure 8 which consists of only two parts; a body 60 and a prongs member 61. The prongs member 61 may be in the form of a generally U-shaped member, preferably of metal such as hardened steel, with its two ends bent to an appropriate angle to form prongs 62. The prongs are tapered towards their extremities to enable them to be inserted under the crown of a staple. The prongs member 61 may be secured to the body 60 by any suitable means, but for simplicity may be a snap fit over a suitably shaped retaining member (not shown) formed on the body 60. The body may conveniently be formed as a single injection moulding of polypropylene or other plastics material, and consists of a handle portion 63, a support portion 64, a nose 65, a connecting link 66, and a trigger portion 67. Integral hinges ("living hinges") are formed between various parts of the body, as follows. A first hinge 68 is formed between the front end of trigger portion 67 and the upper end of the link 66, a second hinge 69 is formed between the lower end of the link 66 and the rear end of nose 65, and a third hinge 70 is formed between the top of nose 65 and the lower end of support portion 64. The rear end of the trigger portion is connected by a substantially rigid ring 71 to the rear end of the handle portion 63.

In operation of the Figure 8 embodiment, pressure is applied by squeezing the trigger portion 67 towards the handle portion 63, taking advantage of the resilience of the trigger portion to allow it to move upwards. This pulls up the rear end of the nose 65 via link 66, causing the front of the nose to move down between the prongs 62, by virtue of its pivoting about the hinge 70.

Those skilled in the art will appreciate that the invention can take a variety of different forms. In all cases, it is important that forces are applied at two spaced apart locations towards either end of the crown near the legs. In this way forces are applied sufficiently near the legs of the staple to cause extraction of the staple legs

from the stapled sheets while leaving the central portion of the crown of the staple substantially undeformed. This configuration ensures that the legs are extracted substantially through the holes made by the staple legs on insertion of the staple.

Accordingly it can be seen that the present invention provides a staple remover of simple mechanical construction which is easy to operate and which removes clinched staples with very little, if any, additional damage to the stapled document. Such a staple remover has the advantages that it is able to be operated one-handed; that it removes the clinched limbs by moving them substantially along their length, so as to leave the document through virtually the same holes which they made when being inserted into the document; and that it holds the staple crown firmly, so that the staple is removed in one step.

Fig.1.

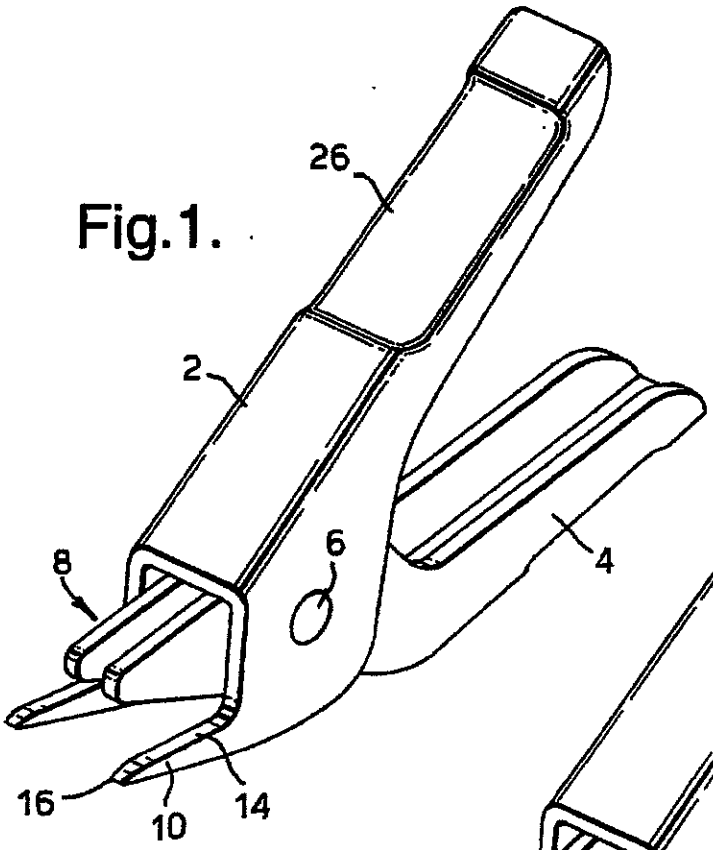


Fig.2.

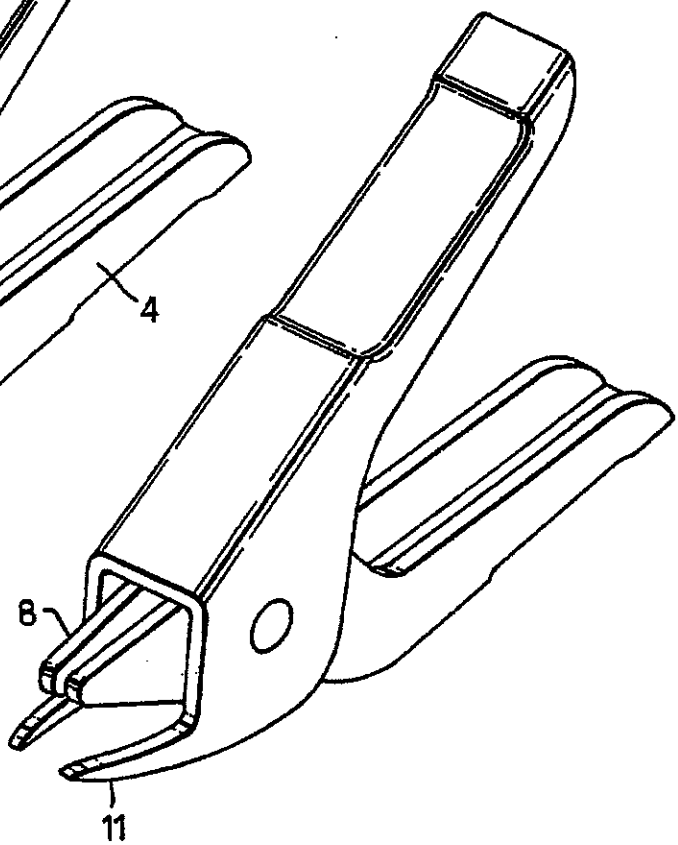


Fig.3(a).

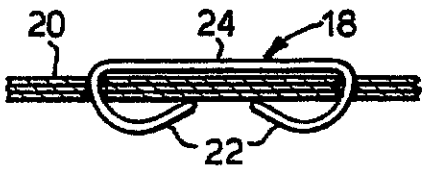


Fig.3(b).

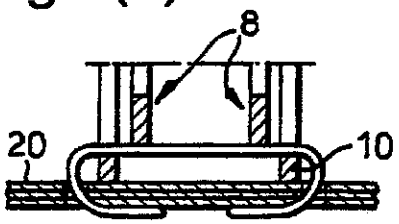


Fig.3(c).

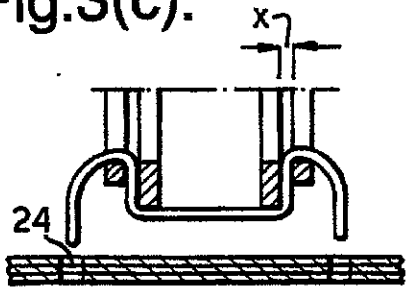


Fig.4(a).

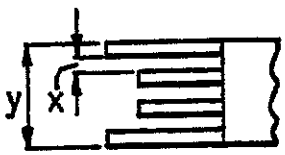


Fig.4(b).

Fig.5(a).

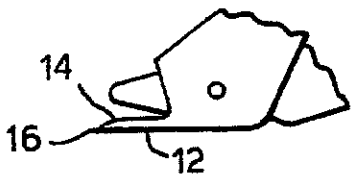


Fig.5(b).

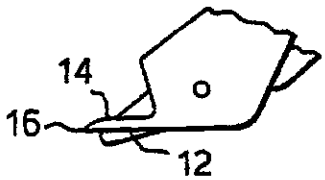


Fig.6.

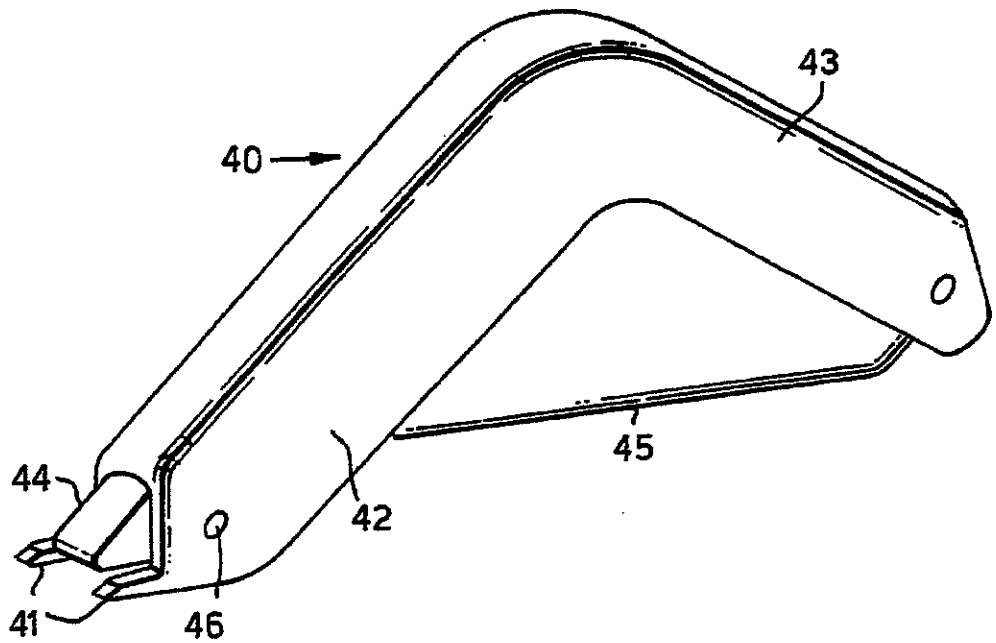
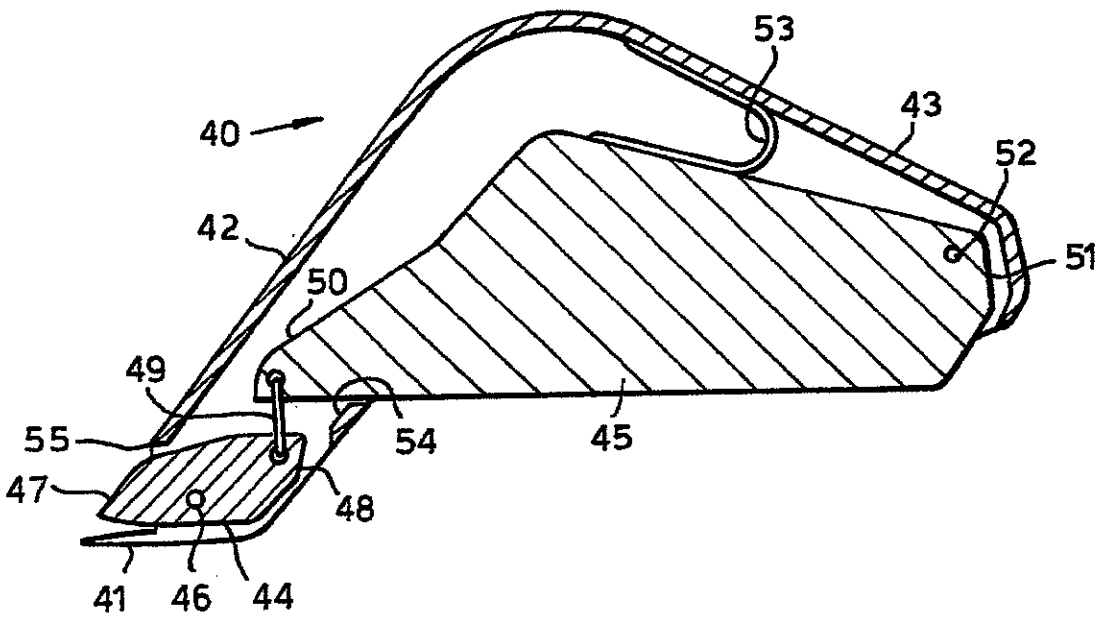


Fig.7.



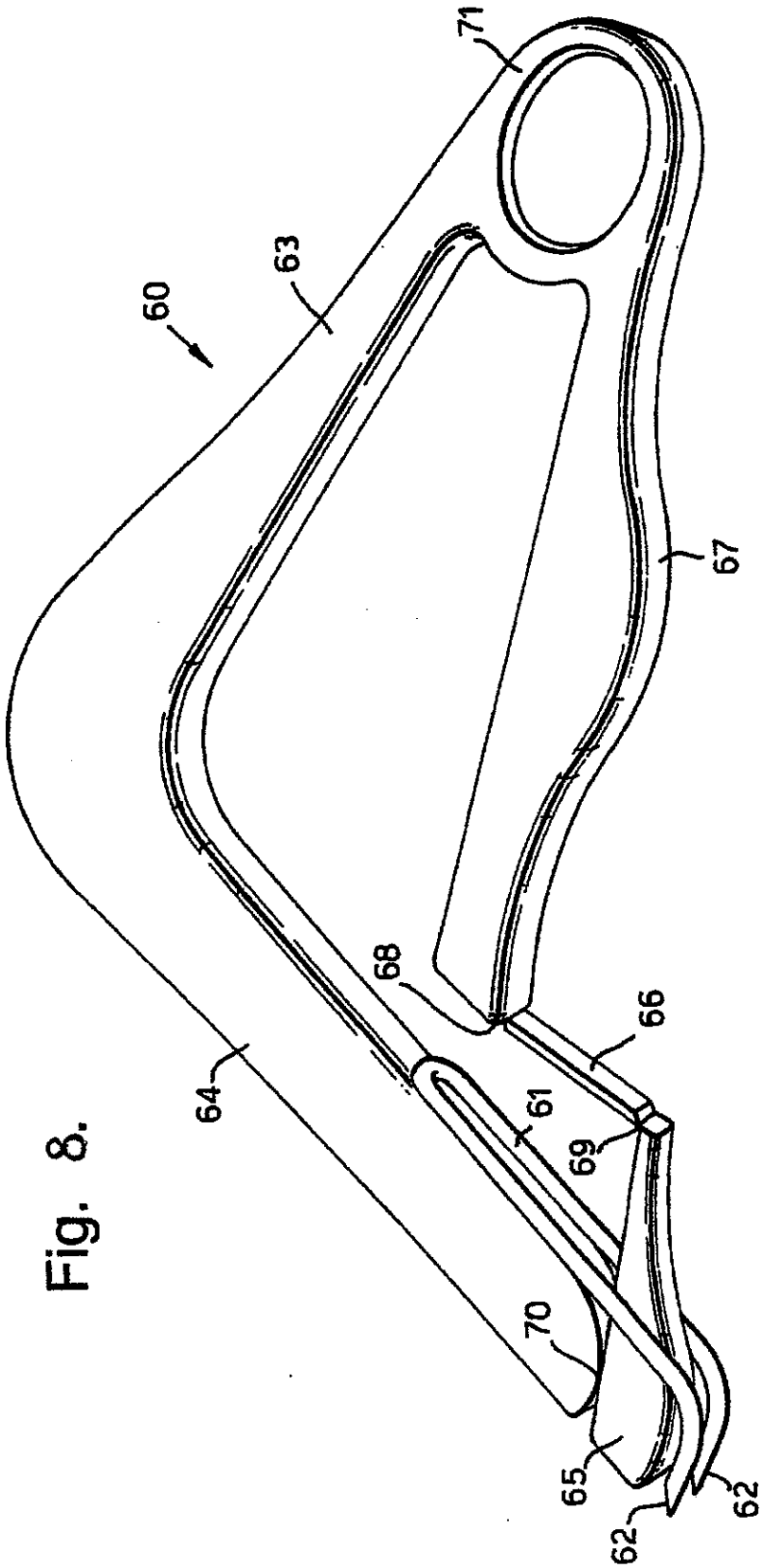


Fig. 8.

ABSTRACT NZ 555666

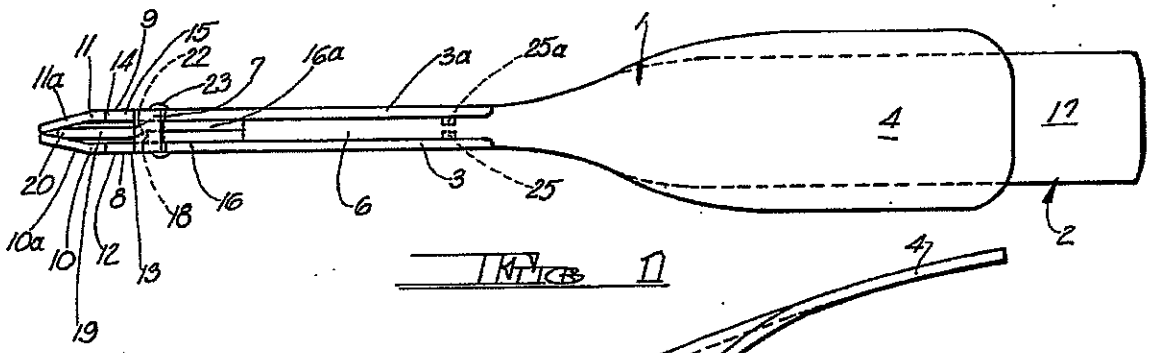


FIG 1

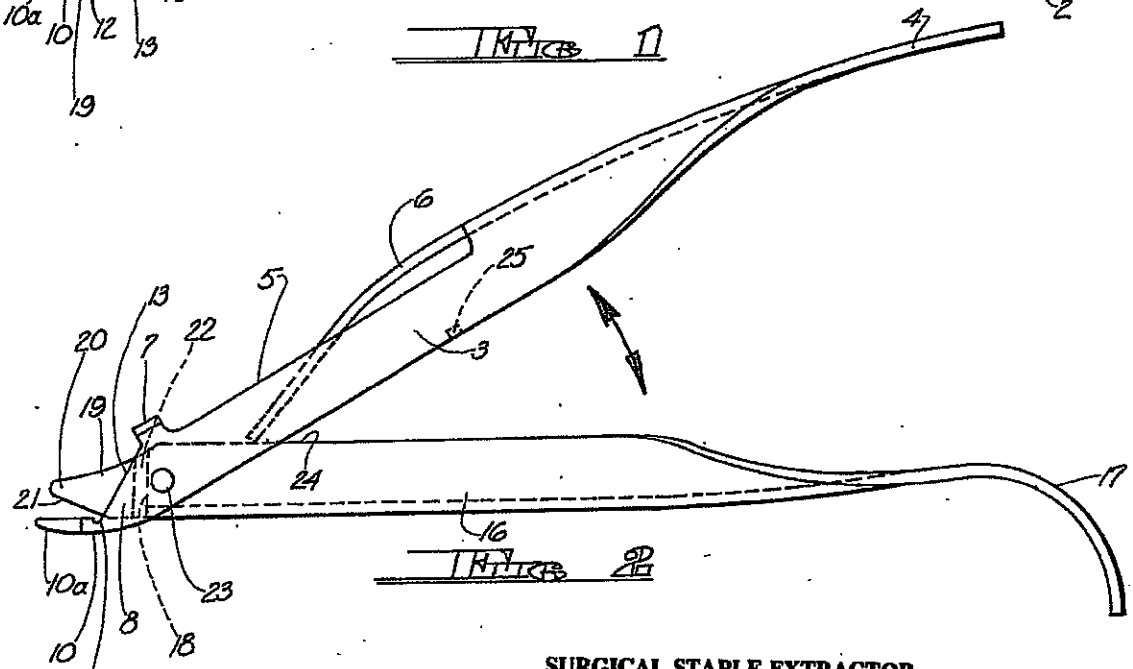


FIG 2

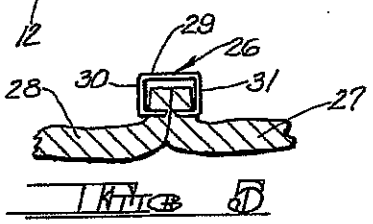


FIG 5

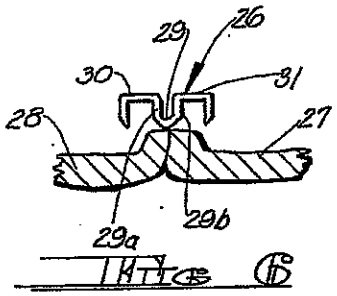


FIG 6

SURGICAL STAPLE EXTRACTOR

A manually operated surgical staple extractor comprising a pliers-like tool having first and second handle elements pivotally joined together and swingable between open and closed positions. The first handle element terminates at its forward end in a pair of elongated anvils in parallel spaced relationship. The forward ends of the anvils are angled toward each with their front-most tips substantially contiguous. The rearward ends of said anvils are provided with aligned notches, the first handle element providing a steep upwardly and rearwardly sloping surface adjacent each of the notches. The second handle element is operatively connected to a thin blade means shorter than the anvils. When the first and second handle elements are in their open position, the lower edge of the blade means lies above the anvils. When the handle elements are shifted to their closed position, the blade is pivoted downwardly such that its lower edge passes between the anvils to a position therebelow. The blade means is sufficiently thin that, as it passes between the anvils, there is clearance between the blade means and each anvil substantially equal to the diameter of the crown portion of a staple.