# 2012

# 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)

**When considering answers to the questions in this year's examinations, no account is to be taken of any provisions of the Patents Bill, or any other Bill that may be before the New Zealand Parliament.**

**Question One** **50 Marks**

**This is question one of two and it is worth 50 marks out of a total mark for the paper of 100. A full set of drawings is repeated at the end of this exam paper so that you may use the drawings in your answer.**

Susie is a client who comes to see you about the possibility of protecting a new idea that she has.

Susie is employed as a marketing manager. She has accumulated a wardrobe of corporate clothing to fit the role. These clothes are expensive, so she tries to look after them well.

Susie typically dries her clothing on her clothes line to make sure that it is well aired. Over the years, Susie has used several varieties of commercially available clothes pegs, including push-on clothes pegs and 'alligator type' or 'pinch type' pegs (the alligator pegs having pivotable clamping jaws). Susie has found many problems with the clothes pegs currently on the market. She says that the clothes pegs currently available often damage her delicate and expensive work attire.

The first type of push-on peg that she used is shown in Figure 1. On windy days this peg can 'slide off' the line, leaving her clothes in a crumpled and muddy heap on the ground.

Susie then tried using push-on pegs of a second type, shown in Figure 2. The legs of the peg are positioned closer together and have contact points on the inner surfaces of the legs to provide a firmer grip on the clothing and clothes line. However, she found that these pegs pulled at the clothes and caused stretch marks on her clothes at the areas when the pegs where pushed over the clothing on the washing line.

Susie has also tried using 'alligator/pinch type' pegs, which include a pair of arms and a spring. One form, which is illustrated in Figures 3 and 4, has an unusually shaped spring used to bias the jaws of the peg in a closed position. The spring has a pair of spiral shaped portions, one spiral shaped portion being located on either side of the peg. The spring is made from wire. The ends of the spring are positioned on external facing surfaces of the peg. Another form, illustrated in Figure 5, is more common, and has a spiral torsion part of the spring located at the pivot between the arms.

These pegs stay on well in the wind and do not leave stretch marks on Susie's clothing, but the spring sometimes becomes dislodged from its operational position, causing the jaws of the pegs to twist, rendering the peg useless. Another drawback of these pegs is that the ends of the spring sometimes have sharp edges. Because the ends of the spring are located on the external surfaces of the peg, the clothes can brush against the sharp ends on a windy day, creating holes in Susie's clothes.

Susie is tired of rewashing, repairing or throwing away clothing that has been damaged as a result of ineffective clothes pegs, so she has created a new clothes peg of her own. She has tested it at home only and has kept the peg confidential at all times.

She shows you a couple of drawings of her new peg design, which you can see in Figures 6 and 7.

Figure 6 is a side view of the peg, showing the jaws of the peg in a slightly open position (as if someone where squeezing the arms of the peg together to partially open the jaws).

Figure 7 is another side view of the peg, showing a ribbed finger gripping zone on the peg arm, the other arm being identical.

Susie points out some features of her peg design:

- The body of the peg is formed of plastic and has been injection moulded as a single part.
- A rubber substrate having a ribbed surface 6 has been bonded to the sides of the peg to allow the peg to be easily gripped during use (see Figure 7). These could be included as inserts during injection moulding of the peg body.
- The jaws 4a, 4b of the peg are biased toward a closed position by a spring 2 located between inner surfaces of the arms 1a, 1b of the peg. Because the jaws are biased toward a closed position, the peg provides a firm hold on clothes and is unlikely to slip off the washing line in strong winds. Furthermore, because the spring is located between inner surfaces of the arms of the peg, there is less risk that any sharp edges on the ends of the spring could catch on clothing and rip a hole in the clothing.
- A projecting cylinder- shaped protrusion or spigot 3a, 3b is located on each inner surface of the peg arms. Each end of the spring is positioned to surround a respective spigot to hold the spring in place between the peg arms.
- Rubber pads 5 are located on inner surfaces of the jaws of the peg to reduce damage when in contact with clothing. The pads can be included as inserts during injection moulding of the peg.

Susie envisages that a cheaper version of the peg might exclude the rubber pads on the jaws and handles. She also thinks that the connection between the jaws might be able to be made springy enough that she can do away with the metal spring.

Susie believes that her peg overcomes the drawbacks that she has identified in relation to known pegs. She also believes that her peg design may be cheaper and easier to manufacture than other alligator/pinch type pegs and less prone to failure. In addition, she believes that her peg design is more stylish, especially with its attractive rounded edges – an important feature, she says.

Susie now wants to market her clothes pegs.

**Draft a provisional patent specification for Susie. (50 Marks**)

Your answer should assume that the only prior art clothes pegs are those described and shown in this question.

**DRAWINGS FOR QUESTION 1 –Page 1 of 2**

PRIOR ART

FIG 1

FIG 2

FIG. 5

FIG. 3

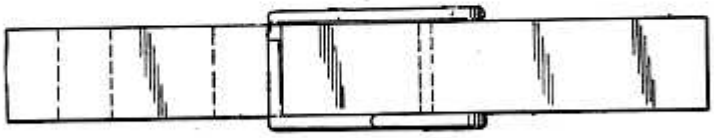

FIG. 4

**DRAWINGS FOR QUESTION 1 –Page 2 of 2**

FIG 6

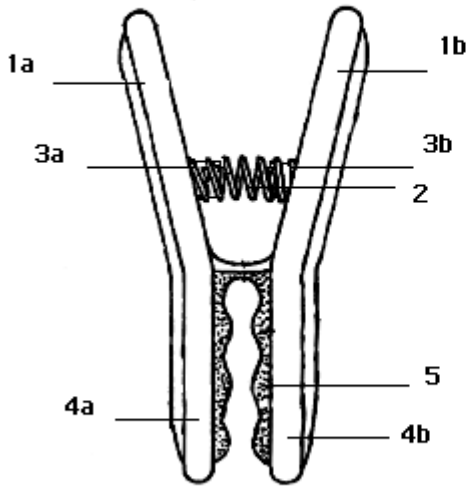



FIG 7

**Question Two** **50 Marks**

Your client, Mr Scrooge, believes that too much toothpaste is wasted by people using current squeezable toothpaste tubes. Children often grip the tube tightly, causing excessive amounts of toothpaste to be inadvertently dispensed and wasted. Also, it is very difficult to get the last of the toothpaste out of the tube. Often, toothpaste remains in the shoulders of the tube, which cannot be squeezed, making it difficult to dispense the remaining toothpaste. Furthermore, many people leave the cap off the toothpaste tube even when not in use. If something should press on, or fall on, the toothpaste tube when the cap is not in place, toothpaste will be forced from the tube and wasted.

Mr Scrooge shows you some rough drawings (Figures 1 to 4) of his invention, which he believes overcomes all of these disadvantages. He calls his invention "a toothpaste dispenser".

An overall view of the dispenser is shown in Figure 1.

The dispenser includes a housing 1 which holds the toothpaste. The housing is made of hard plastic. The interior of the housing is threaded.

One end of the housing has an opening 2. The opening 2 is usually covered by a screw cap (not shown) in the same way as the opening of a toothpaste tube is covered by a screw cap.

The other end of the housing 1 has a plastic cap 3. The cap 3 has an internal lip (not shown). When the dispenser is being assembled, the cap is pushed down hard over the end of the housing so that the lip clips over a ridge located on the housing (not shown). Once the lip has been pushed over the ridge, the cap cannot easily be removed from the housing, but can rotate.

The dispenser includes a plunger 5 connected to the cap 3 by a drive shaft 4.

One end of the drive shaft 4 is attached to the centre of the cap 3. When the cap 3 rotates, the drive shaft 4 also rotates.

The drive shaft 4 has a cross section in the form of a cross, shown most clearly in Figure 4.

The plunger 5 has a cross-shaped hole 7. The drive shaft 4 passes through the hole. The plunger can slide along the drive shaft.

The plunger 5 fits the inside of the housing. One end 8 of the plunger faces the outlet 2 of the housing. The end 8 of the plunger 5 can fit snugly against the end of the dispenser housing 1.

The body of the plunger 5 has a thread 6 on the outside, shown most clearly in Figure 3.

The drive shaft 4 and plunger 5 are made of plastic.

Before the dispenser is used for the first time, the flat end of the plunger 5 is close to the cap 3. Toothpaste fills the area between the end 8 of the plunger and the outlet 2 of the housing.

To dispense the toothpaste, a user removes the screw cap from the outlet 2. They then turn the cap 3 in a clockwise direction. This rotates the drive shaft. The cross-shaped drive shaft pushes against the sides of the cross-shaped hole in the plunger, causing the plunger to rotate with the drive shaft.

As the plunger rotates, the threads of the plunger slide along the threaded wall of the housing. This causes the plunger to move toward the dispenser outlet 2 (in the same way as a threaded screw moves down a threaded hole as the screw is rotated).

As the plunger 5 moves toward the outlet 2, toothpaste is pushed out of the dispenser through the opening.

A user only needs to turn the rotatable cap a small amount at a time to obtain the desired amount of toothpaste.

Mr Scrooge says that the plunger mechanism could be varied. For example it could be modified so that a thread acts between the shaft and the plunger. In this example, ribs on the wall of the housing could engage in grooves in the outside of the plunger to stop the plunger rotating.

Figure 1 shows the dispenser with the plunger approximately halfway toward the outlet 2. In this drawing, the housing of the dispenser is shown as if it is made from clear plastic and empty of toothpaste. To provide sufficient clarity to the drawing, the thread on the interior surface of the housing is not shown. A cross section of part of the wall and plunger (the region circled in Figure 1) is shown in Figure 2.

When the plunger moves close to the dispenser opening 2, the frustoconical end of the plunger contacts the frustoconical end of the dispenser housing, and no more toothpaste can be dispensed from the device. Mr Scrooge points out that very little toothpaste will remain in the dispenser because the end of the plunger fits snugly against the end of the housing, forcing any toothpaste in between to be pushed out.

The closest prior art that you are aware of is a syringe, such as shown in Figure 5. The syringe includes a substantially cylindrical housing with a dispensing aperture for dispensing fluid at one end of the housing. The housing has a hollow interior that is open at the other end of the housing.

The syringe includes a plunger with a piston at one end and a handle at the other end. The piston passes through the open end of the housing. The plunger is adapted to be pushed into the dispenser housing toward the dispensing hole by pushing on the plunger handle. As the piston is pushed further into the syringe housing, the piston pushes the fluid located in the housing out of the outlet.

You also know that syringes (without the needle) are used for dispensing edible pastes, such as icing and wasabi.

**Prepare a set of claims for Mr Scrooge's invention. (50 Marks)**

You must disregard any other prior art that you might be aware of for the purposes of this exercise.

If you think it is required, you may provide comments to the examiner to:

- provide any definitions of terms used in the claims that you would include in the patent specification
- explain any rationale or strategic choice that is not obvious from the claims themselves.

These comments may be used by the examiner in understanding your set of claims, but no marks are allocated for comments.

**DRAWINGS FOR QUESTION 2 – Page 1 of 1**

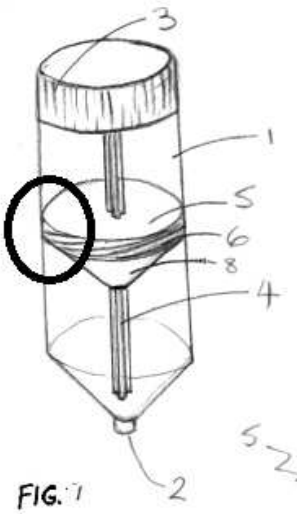


FIG. 1

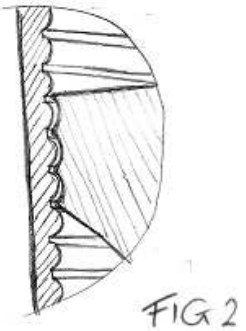

FIG 2

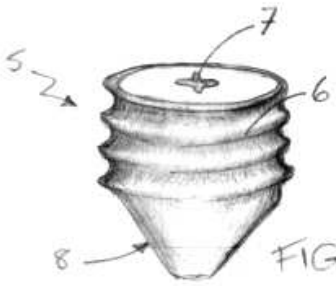


FIG 3


FIG 4

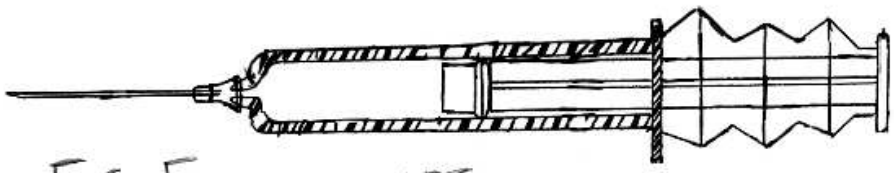

FIG 5 PRIOR ART

EXTRA DRAWINGS FOR QUESTION 1

PRIOR ART

FIG 1

FIG 2

FIG. 5

FIG. 3

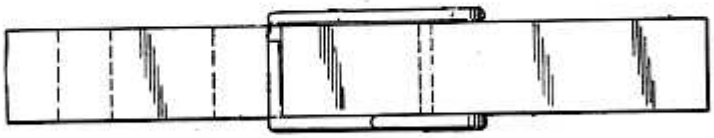

FIG. 4

FIG 6

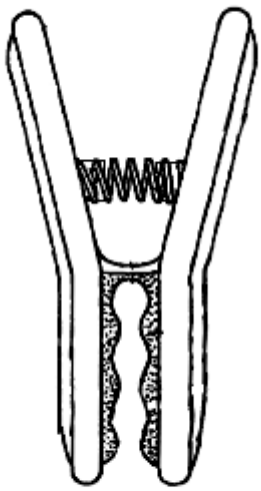

FIG 7