PATENT EXAMINATION BOARD

DRAFTING OF PATENT SPECIFICATIONS – GROUP 2(e)

Paper 2

July 2023

Examiner: L Cilliers
Moderator: J Whittaker

Time: 6 hours

Total marks: 100

This paper consists of 7 pages (including this cover page)

Instructions:

- Attached is an instruction from your client detailing an invention. You are required to draft a full patent specification for your client's invention. The full patent specification must include: (1) a background to the invention, (2) a brief description of the drawings, (3) a detailed description of the invention, (4) a set of patent claims, and (5) an abstract. **No summary of the invention (consistories) is required.**

- Marks will be allocated as follows:
  - 60% of the marks will be allocated to the claims.
  - 40% of the marks will be allocated to the rest of the specification.

  In order to obtain a pass for this paper, candidates must obtain not less than 40% for each of these two sections.

- Please write legibly.

Your client writes:

I am sure you are familiar with the humble staple, but as you know, a paper staple is a small metal fastener used to hold multiple sheets of paper together. It is made of an elongate wire filament formed into a U-shaped element. Staples are also used in other applications, for example in the construction and medical industries, but my invention is limited to staples, and in this case the removal thereof, in the context of stationary.

A staple typically consists of a bridge section with two legs extending therefrom. The two legs are bent towards one another once forced through the paper, thus trapping the paper between the bridge section and the bent legs. Staples are inserted into paper using a stapler, and once in place they securely bind the sheets of paper, making it easier to handle and organize them. By their very nature, staples are designed not to release stapled documents without putting up a fight. I have witnessed many office battles between humans and staples, often resulting in damage to the stapled papers and/or the remover's nails.

Fortunately, some devices have been developed over time to assist with the arduous task of staple removal. A common type of staple remover comprises an elongate handle with an angularly offset end section that can be used to pry a staple loose. A photo of this device is provided below:

It will be readily apparent how this works. The short, offset end is forced under the bridge section of the staple, and the elongate handle section is then pushed down in order to remove the staple, with the bend between the handle and the offset section acting as a fulcrum. Although this device is indeed capable of removing staples, it comes with some disadvantages. The biggest disadvantage is probably that the device does not support the paper (e.g. by pushing down on the paper) while the staple is being removed, which often results in damage to the paper, and in the paper being torn from the staple rather than the staple being bent open under controlled conditions.

The other day I was removing a thorn from my foot using a tweezer, like the one shown below.

They say inspiration comes from unexpected places, and while trying to grip the end of the thorn, I thought this kind of action may be useful to grip and remove a staple as well. I immediately rushed to my desk to try, only to find that I could not get sufficient grip on the bridge section of the staple, even though I did manage to get the curved ends of the jaws of the tweezer at least partially to slip under the bridge section.

I then thought that I could perhaps use pliers, which will certainly provide a stronger gripping action.

I was right about the gripping action. Once you manage to grip the bridge section of the staple (which is not that easy because you don't really get "under" the staple) you certainly get enough grip to assist in pulling out the staple, but unfortunately the paper is often damaged in

the process. The reason for this is similar to what I have experienced with the staple remover described above - there is nothing that pushes back against the paper, and you accordingly have to try to hold the paper down with one hand while pulling the staple using the pliers with the other hand. I also found that the smaller the gauge of the staple, the more difficult it is to get a good grip, so I don't think the plier idea will work that well in practice, even though the increased leverage is useful.

The next morning, I woke up with a brainwave - the brand-new staple remover as shown below:

My new staple remover includes two opposing jaws, each having a "pointy end" (I am sure you can come up with a better description) that one can force under the bridge section of an installed staple. The jaws can be displaced towards one another, and as the opposing jaws engage the staple, the pointy ends gradually pull out the staple. It feels as if one is actually driving a wedge in between the paper and the staple. What works very well is that the outer surfaces of the pointy ends remain in contact with the paper, which then pushes down on the paper while the inner surfaces of the pointy ends pull the staple away from the paper.

Drawings of my staple remover in different conditions, is use, are attached.

I believe it is critical for the opposing jaws to be connected to one another in some way, such as for example a hinge (like the pliers), but I suppose this can be achieved in other ways as well without the need for that kind of hinge. I also found that it is very useful, although not critical, for the two jaws to be biased away from one another towards an open position. With the jaws biased away from one another, the staple removing exercise really becomes a one-

handed exercise as there is no need manually to open the jaws once the staple has been removed. I think it may be possible to use many different kinds of springs, but the material used or the connection between the two jaws could also provide the required bias, for example as used in the tweezers. Although it makes sense for both jaws to terminate in pointy ends, I think it will still work reasonably well if at least one of the jaws has a pointy end. If I look at the pliers, I suppose one can say that it also has pointy ends, but it does not seem as if the reason is the same.

I have found that adding sideways extending 'wings' makes it easier to grip the device because it gives you a larger surface to engage. I am thinking of making the jaws from steel, and securing 'cover sections', including the wings, to the jaws. These cover sections can be made from a plastic material, which one can then shape in a suitably ergonomic way.

I am very excited about this new idea and have also been playing with a number of alternative designs. In one example I thought I could also introduce arms that extend beyond the fulcrum, similar to what is used in pliers. This will be particularly useful for high-gauge staples. I also think that, for use with smaller staples, one could possibly get away with using one pointy end and one straight end.

Please proceed to prepare a patent application.

FIGURES:

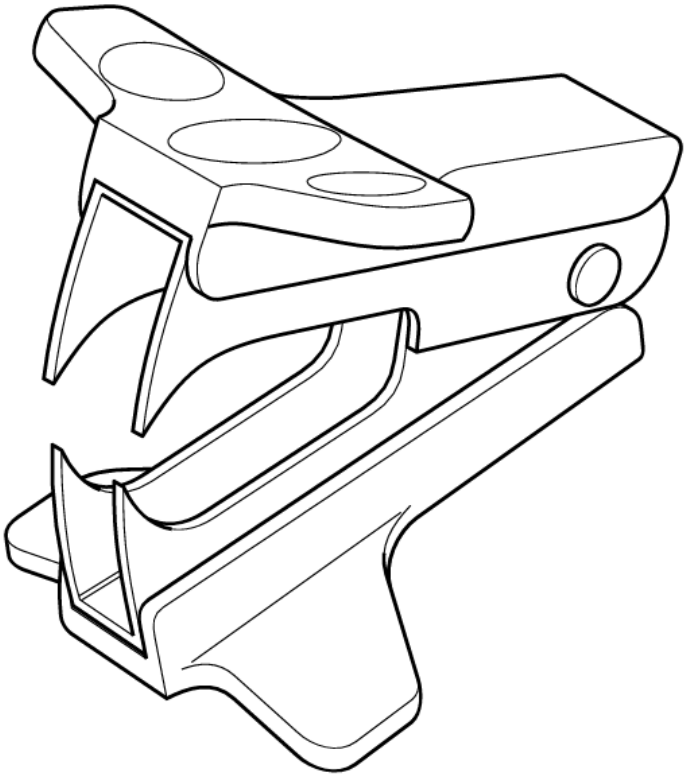

FIGURE 1

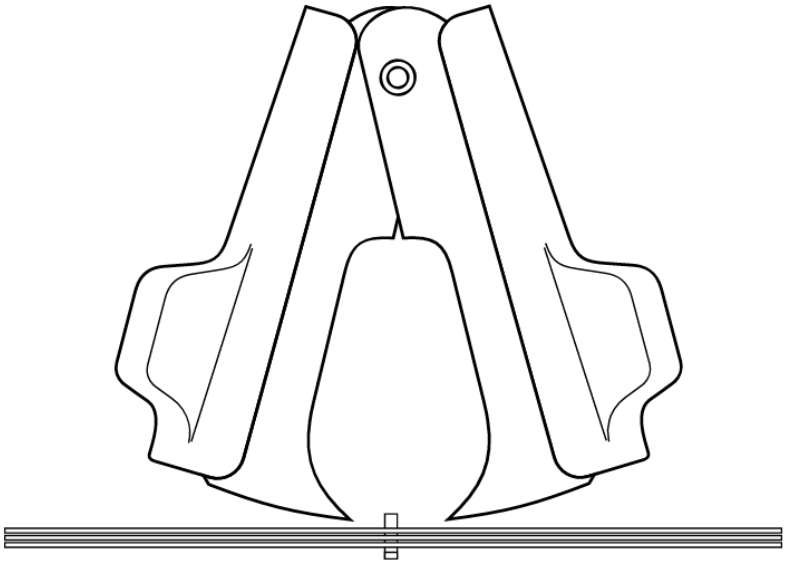

FIGURE 2

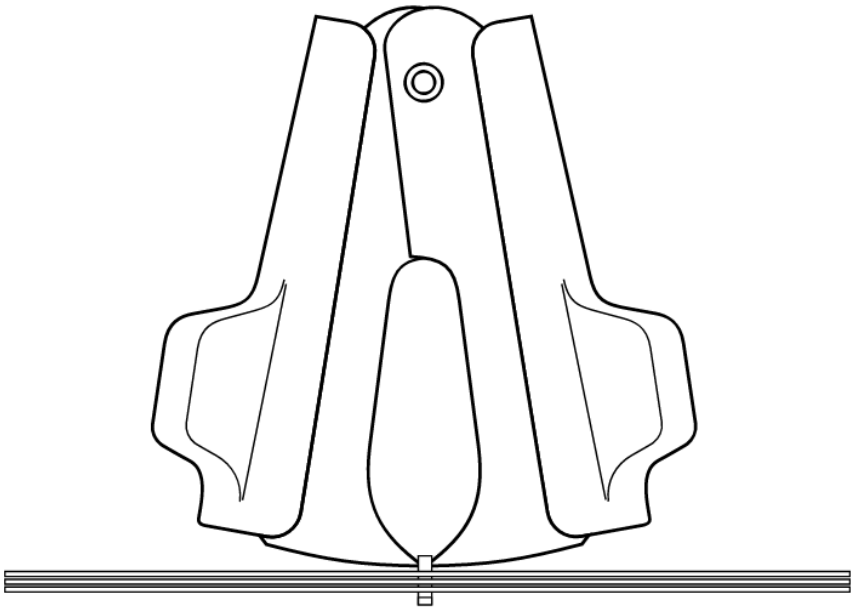

FIGURE 3

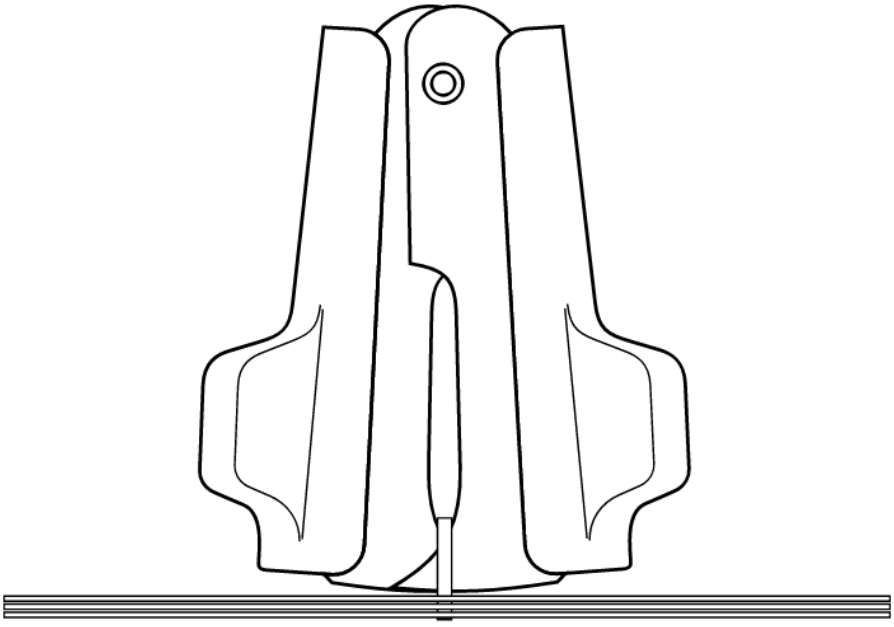

FIGURE 4