

P3 – Preparation of Specifications for United Kingdom Patents

**Thursday 2 October 2014
10.00 a.m. – 2.00 p.m.**

Time allowed – FOUR hours

INSTRUCTIONS TO CANDIDATES

1. The whole question is to be attempted.
2. The marks to be awarded are given at the end of the question.
3. Start each part of the question on a fresh sheet of paper.
4. Enter the question paper reference number (P3) and your candidate number in the appropriate boxes at the top of each sheet of paper.
5. The scripts are photocopied for marking purposes.
 - a. Use **black ink**.
 - b. Write on one side of the paper only.
 - c. Write within the printed margins.
 - d. Do not use highlighter pens on your answer script.
6. Do not state your name anywhere in the answer.
7. Write clearly: examiners cannot award marks to scripts that cannot be read.

INFORMATION FOR CANDIDATES

1. The total number of marks for this paper is 100.
2. At the end of the examination the invigilator will instruct you to:
 - a. count the number of pages you have used;
 - b. use the boxes on each page of the answer script to number pages in the format "1 of 25, 2 of 25 etc";
 - c. place your answer sheets in order in the white envelope, seal the envelope and leave the envelope on the desk.
3.
 - a. Do not staple the pages, or use sellotape or treasury tags.
 - b. You may take the examination paper with you.
4. This question paper consists of 13 pages in total, including this page, and comprises 2 pages of the question, 5 pages of client's drawings and a further set of the drawings for use in your answer.

In this question you are asked to draft a specification for filing at the UK Intellectual Property Office with a view to obtaining a UK patent. You should assume that the client's description of the prior art in the field is complete. You should not take into account any other prior art in the field which might be known to you. You should also assume that the client's description of the device and its operation is accurate, i.e. that the device works as described. The allocation of marks is given at the end of the question.

Dear Pat,

With the onset of autumn, I have been busy picking up leaves around the garden, as well as doing a bit of painting and decorating. I have found myself continuously fighting with bin bags, which has set my mind working.

The problem with plastic bin bags or waste sacks is that, while they are good for holding and transporting rubbish, because they are made from thin plastic, they are very light and flexible. As a result, a bin bag is messy to fill as the sack blows in a breeze or folds under its own weight and size. This got me thinking about bin bag holders.

My idea is a temporary support for a waste sack. The joy of my frame is that it is simply a single hoop with a handle. Bin bag holders that are currently available typically have two rings in which the open end of the bin bag is clamped between outer and inner rings. The bag is folded over an inner ring while an outer ring, having a slightly larger circumference, holds the open end in place by exerting an inwardly directed force against the inner ring. The bag holders also include a vertical support and either feet or a base on which the closed end of the rubbish sack sits. Wall mounted frames having just the pair of rings over which the open end of the bag is folded and clamped are also available but these need to be permanently screwed to a wall. These existing supports are all well and good but they are limited in their use due to their size and weight, their portability and/or stability.

My frame is a flexible hoop over which the open end of the sack is folded. The hoop has a circumference that is bigger than that of the open end of the sack. This stretches the open end of the sack and holds it on the frame. The circumference of the hoop is reduced by squeezing two arms together which allows the open end of the bag to be passed from inside the hoop circumference and folded over the hoop so the open end of the bag hangs outside the hoop. Release of the arms allows them to spring back to their original conformation and for the circumference to expand to its original size. As a result, the hoop bears against the fold of the bag hanging outside the loop.

The whole frame is made from a single piece of round wire and, in the versions I have made, the frame includes two parallel arms that are resilient. To take the bag off the frame, the arms are squeezed together which reduces the circumference of the hoop so the hoop no longer bears against the fold of the bag. The weight of the sack contents and the reduced hoop diameter unfolds the open end of the sack from the ring.

The hoop needs to fit a standard refuse sack, which I believe to be about 150cm in circumference when open, but it would be good to cover other sizes of bags such as pedal bin liners which I think have an open circumference of about 85cm. I have found that a flat part on the ring circumference is particularly helpful so the straight part can be rested on the ground or a flat surface. This helps direct sweeping of waste, leaves, rubbish etc. into the sack. The dips in the hoop on either side of the arms provide the hoop with greater deformability and resilience to enable the circumference to be reduced sufficiently to allow a waste sack to be easily passed

through the centre of the hoop and the open end folded over the hoop without deforming or tearing the open end of the sack.

The length of the arms is not critical but needs to be sufficient to fit comfortably within an adult palm, without being overlong and intrusive when in use. I have in mind a length of between 100mm and 500mm, with an ideal length being 150mm.

The other great thing about my frame, apart from its simplicity, is that it comes with a stand which is simply two legs made from one piece of wire. The stand can also be used as a handle extension. The struts hold the arms of the loop, which may be inserted either in the same plane as the legs or perpendicular to the legs. The legs can then either be planted in the ground or used as an extension to the arms. I would think a leg length of about 70cm should be sufficient.

The first strut on the legs is used to grip the handle when it is inserted at right angles to the legs. The stand and the hoop lock together so that the stand sits at the join between the arms and the hoop. The second strut is used to hold the arms when inserted in the legs for use as a handle extension. The arms are a tight fit in between the legs and the struts so the arms do not pivot away from the legs.

The closed end of the legs is curved to give a space between the struts and the legs. This provides additional support to the hoop arms and assists in holding the hoop perpendicular to the stand.

Of course, the frame may be made from any suitable metal or plastics material provided that the material has a) sufficient rigidity to support the weight of at least a partially filled waste sack, b) sufficient flexibility and resilience to enable the ring to function as envisaged, and c) a weight that promotes the portability of the frame. The ring and stand may be made from the same or different materials.

I am so excited by my idea and want to use my prototypes at a barbeque that I am having for friends tomorrow, so please would you file a UK patent application today. I hope the attached drawings help.

Thanks,
Charlie.

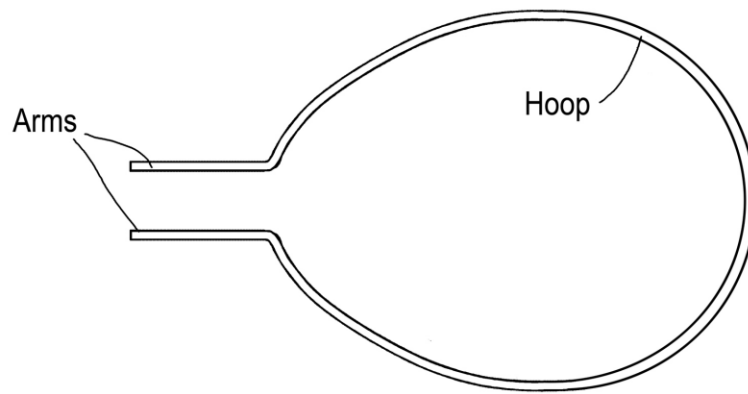
Introduction and Description: 35 marks

Claims: 60 marks

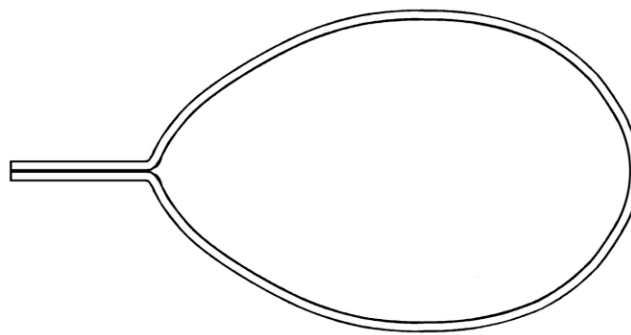
Abstract: 5 marks

Total marks: 100 marks

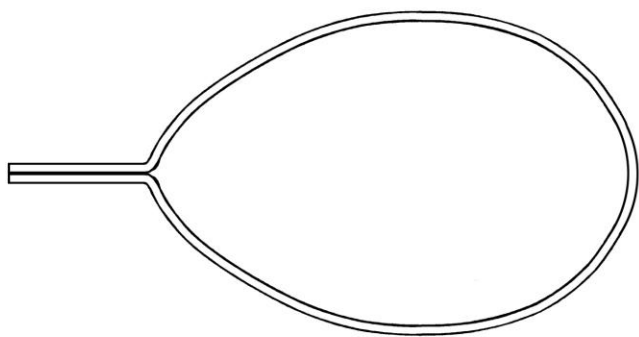
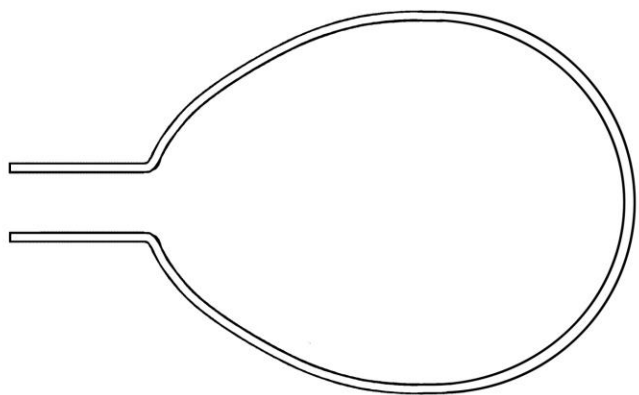
Hoop in open position
Material :- Round Wire

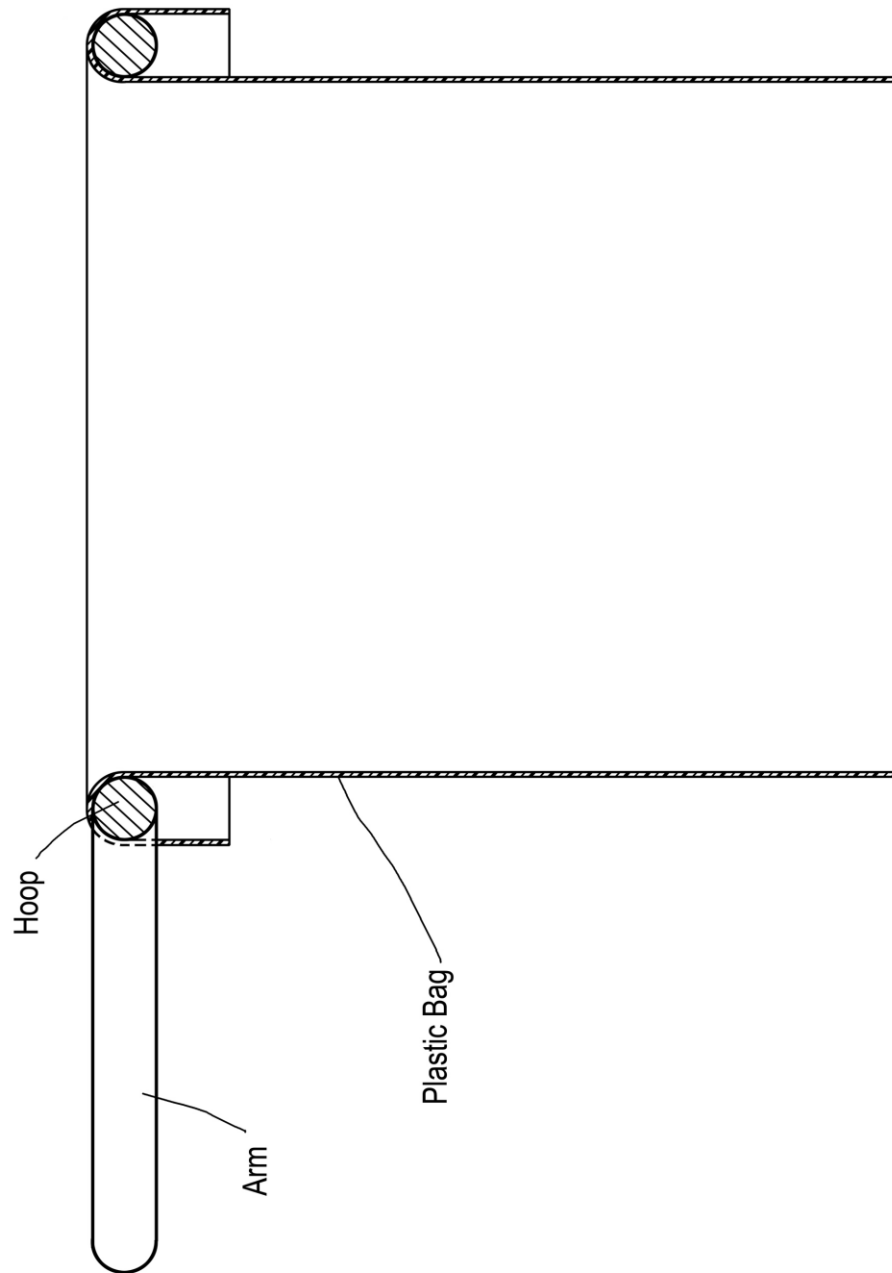


Hoop in the compressed position

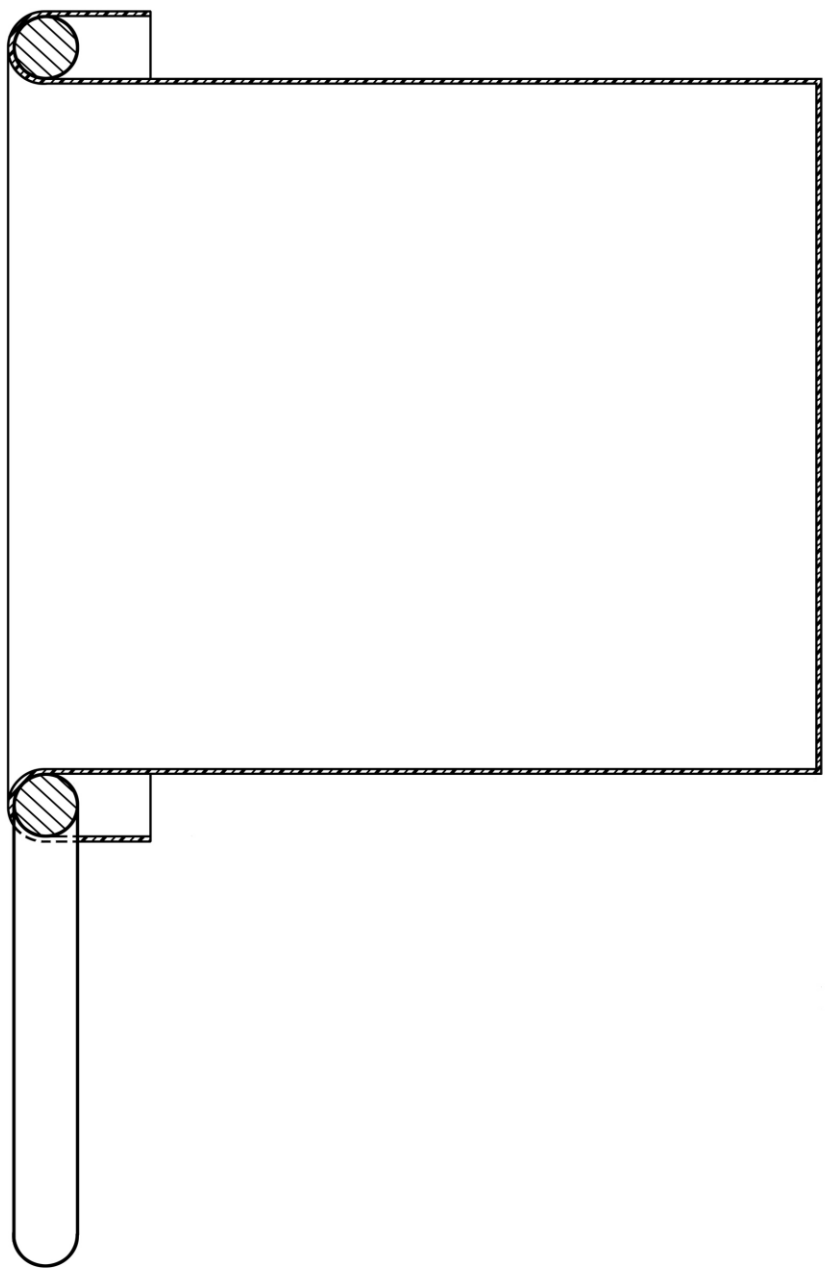


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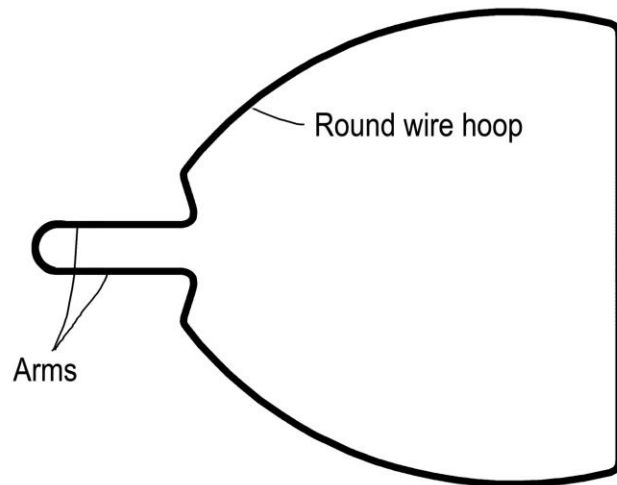




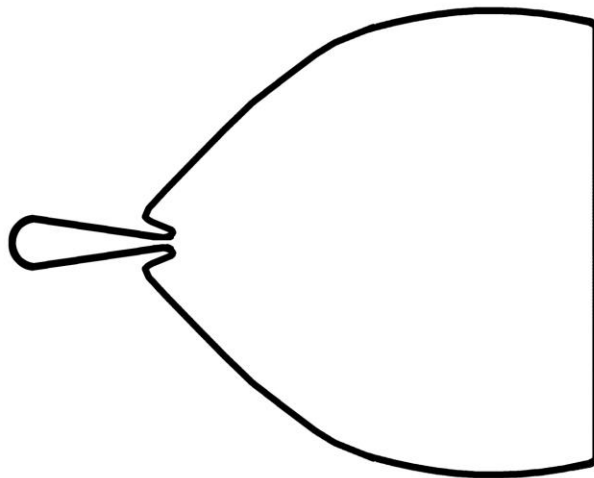
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Hoop in the normal position



Hoop in the compressed position



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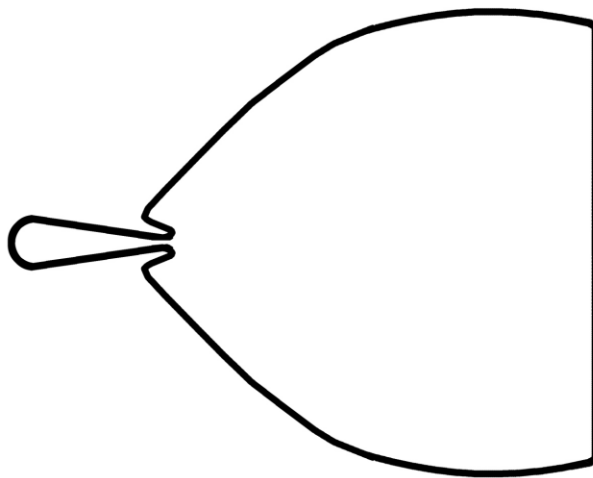
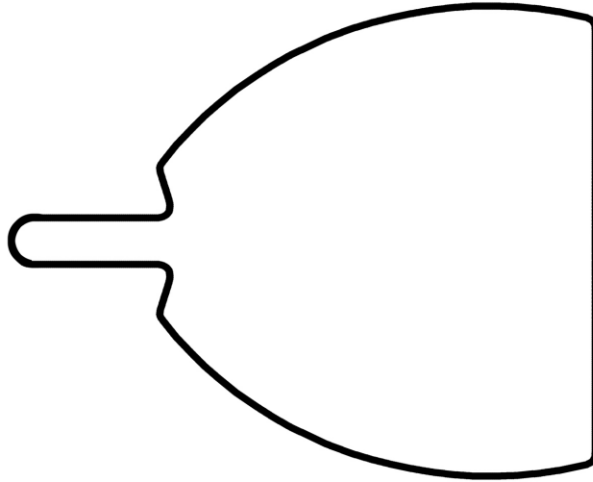
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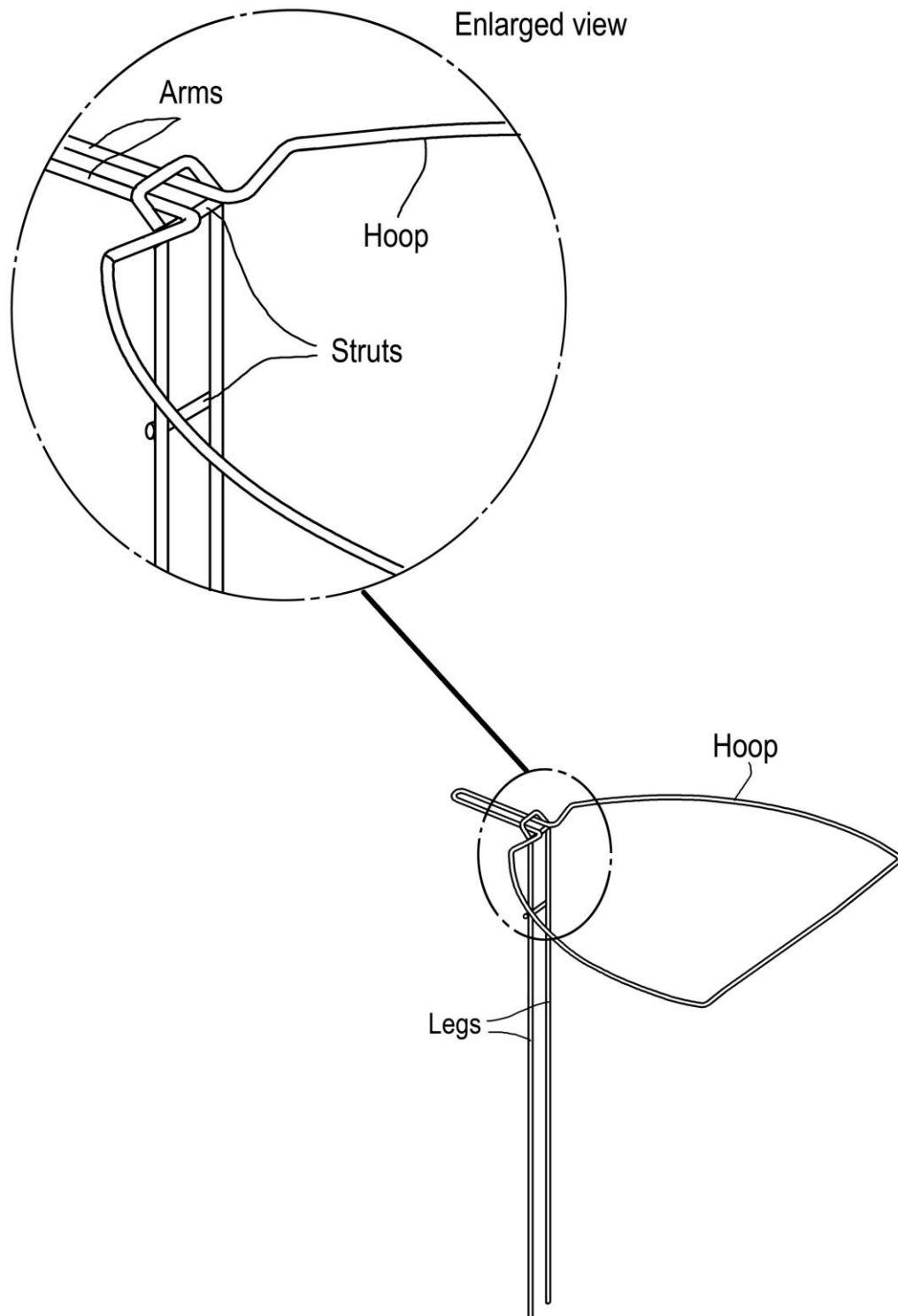
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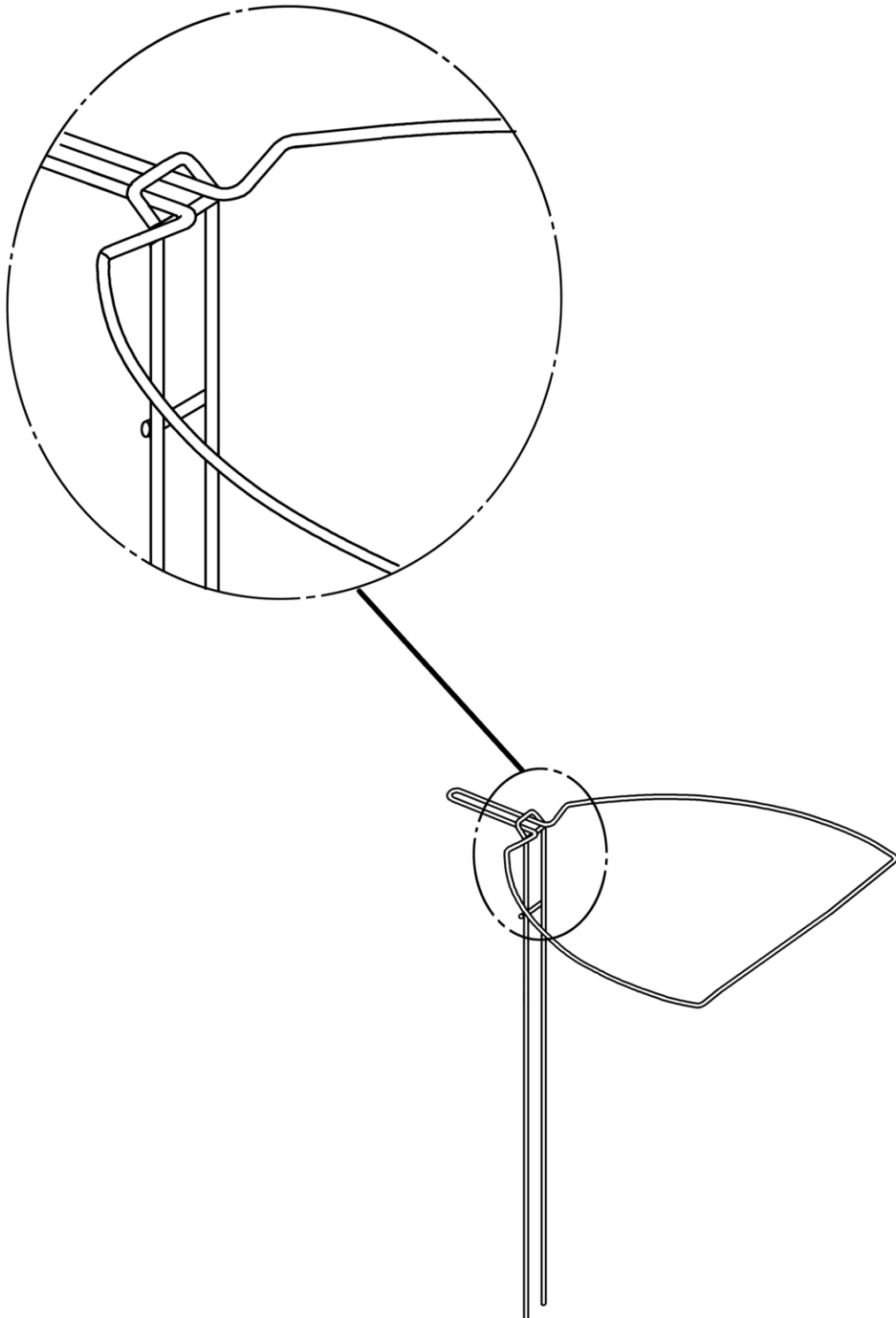
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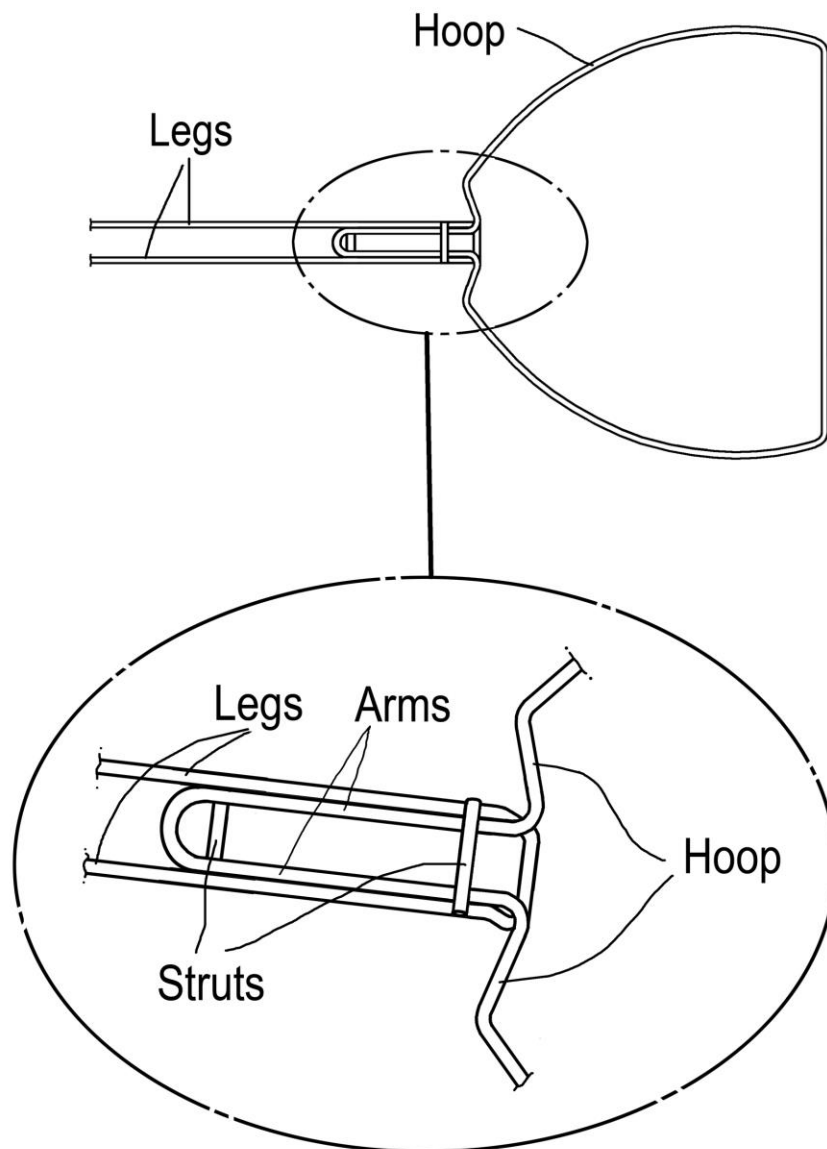
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