



Bespoke Oedema Footrest

Collaborative Project 2020-2021

Adjustable footrest for the treatment of Oedema.

Clinical Leads

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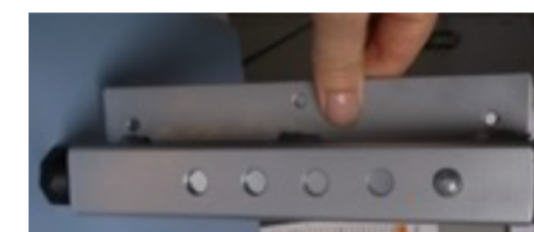
The Challenge

Royal Brompton and Harefield hospitals have a number of patients with lower leg Oedema, with an estimated 240,000 patients with Chronic Oedema (CO) in the UK in 2016. Oedema is a build-up of fluids which results in swelling. Patients with Lower Leg Oedema are advised to raise their legs to relieve swelling, whilst seated.

Footrests currently available in hospitals cannot be adjusted in terms of their height or the angle of the footrest surface. The footrest surface, although cushioned, does not provide adequate pressure relief. This is an issue as Oedema affects a broad range of patients who vary in height weight and body type. This means that the footrests cannot be used by many patients despite its role in care and recovery. Patients with Oedema are at risk of developing pressure ulcers on sensitive skin. Beneficiaries include patients, carers and clinical staff.

The human impact of Oedema is severe and drastically decreases the quality of life for patients. The symptoms of Oedema contribute to increased social isolation which is exacerbated when patients are unable to fit into clothing and shoes. Social isolation is compounded through loss of work and an uncontrolled condition resulting in many patients experiencing high levels of anxiety, depression and the sense of a loss of control.

Existing Solution



Together with the clinical champion, 7 key requirements were defined.



Affordable



Collapsible



Adjustable Height
& Surface Angle



Durable



Lightweight



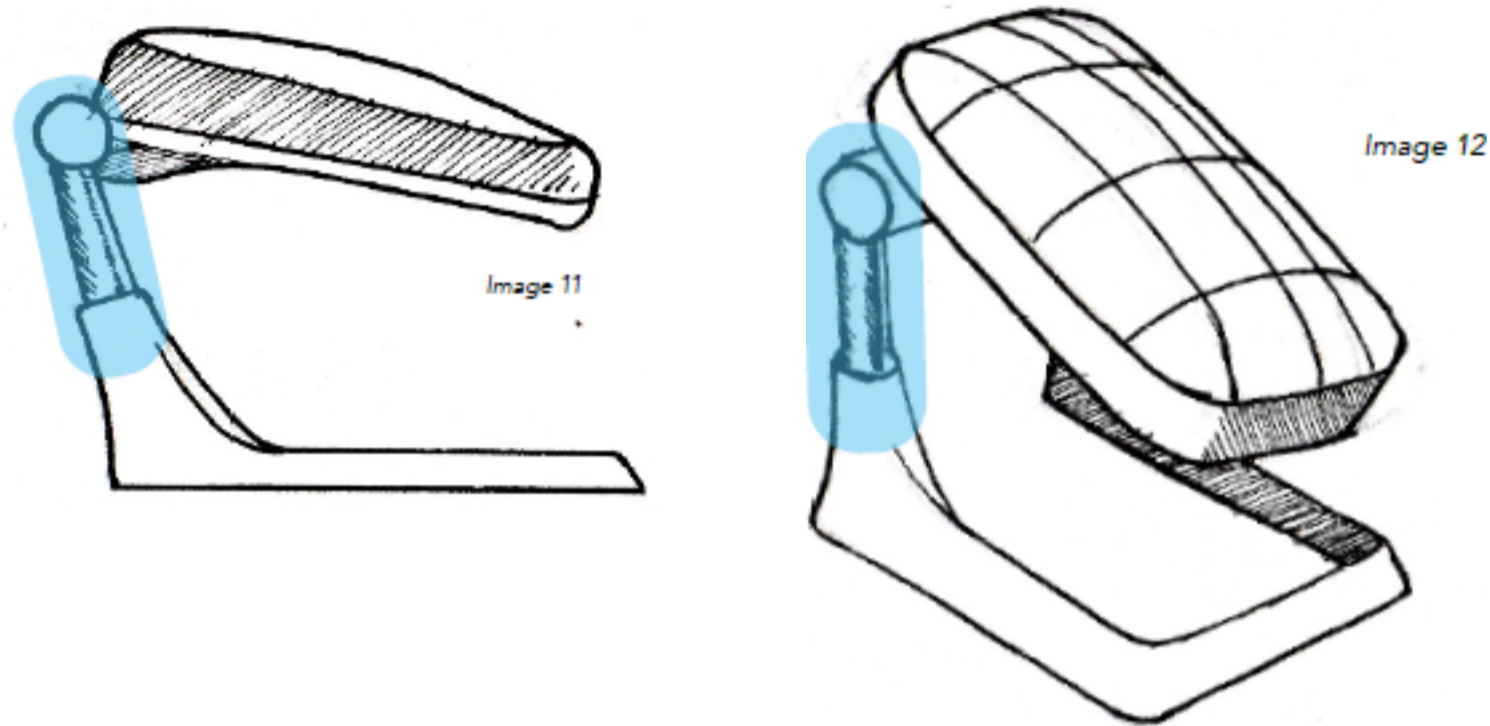
Bilateral Support



Pressure Relief

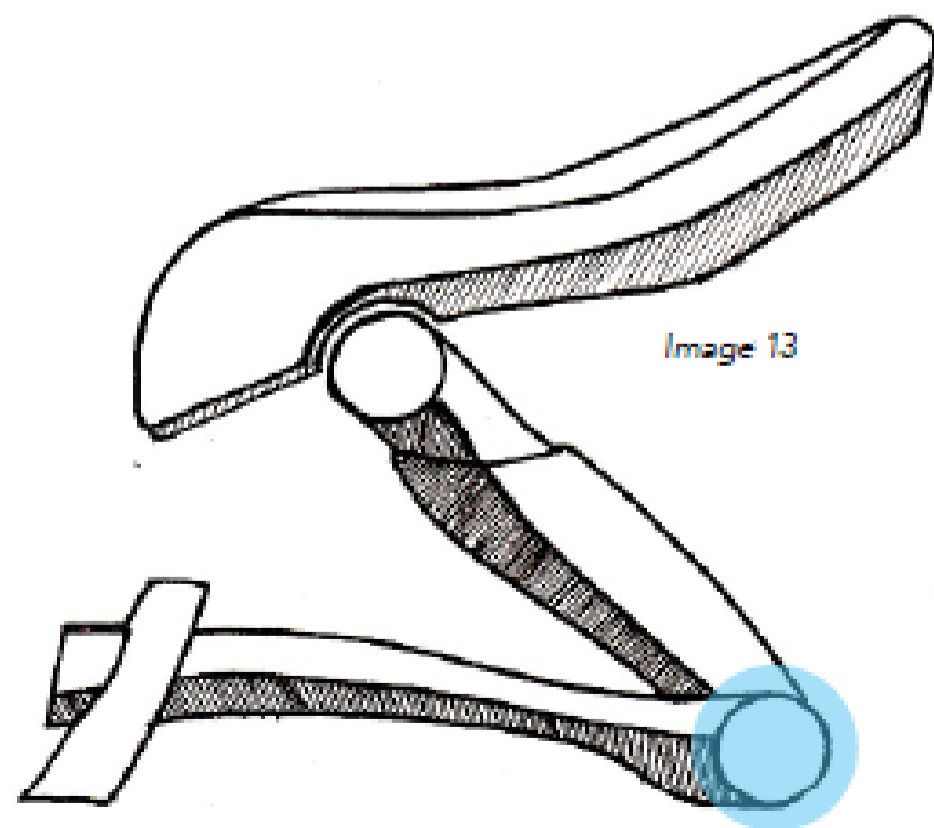
Ideation and Development

Gas Piston Springs

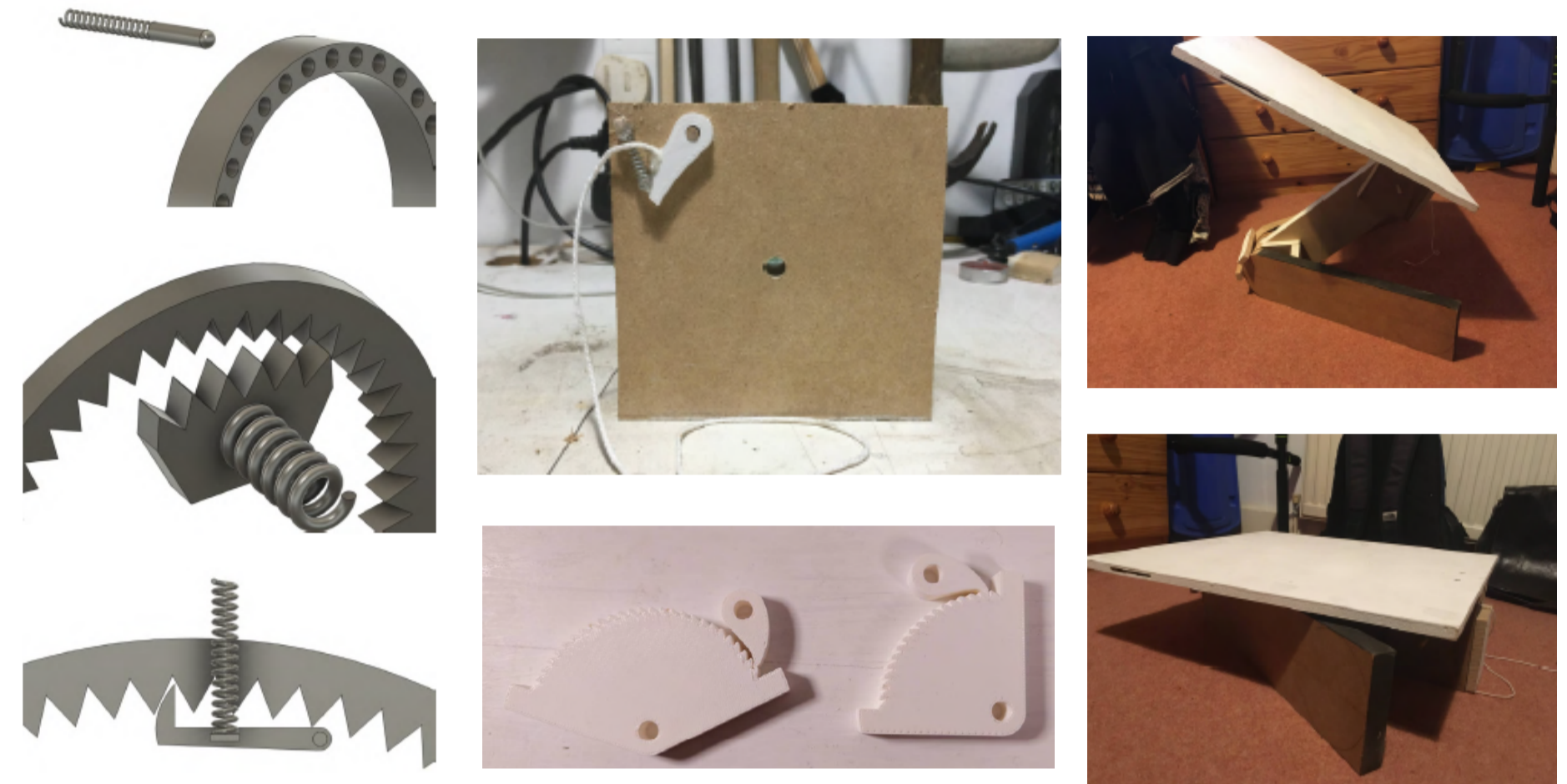


Easy adjustability. But a downward force is required to move (like an office chair).

Pivots



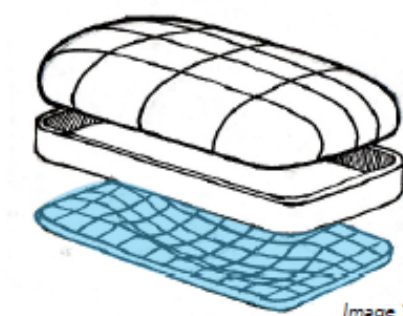
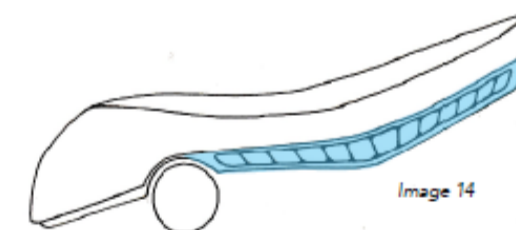
Mechanism Development



A ratchet mechanism was developed which allowed users to move the foot rest up with only one hand. A string is pulled to collapse the foot rest back down.

Cushion Development

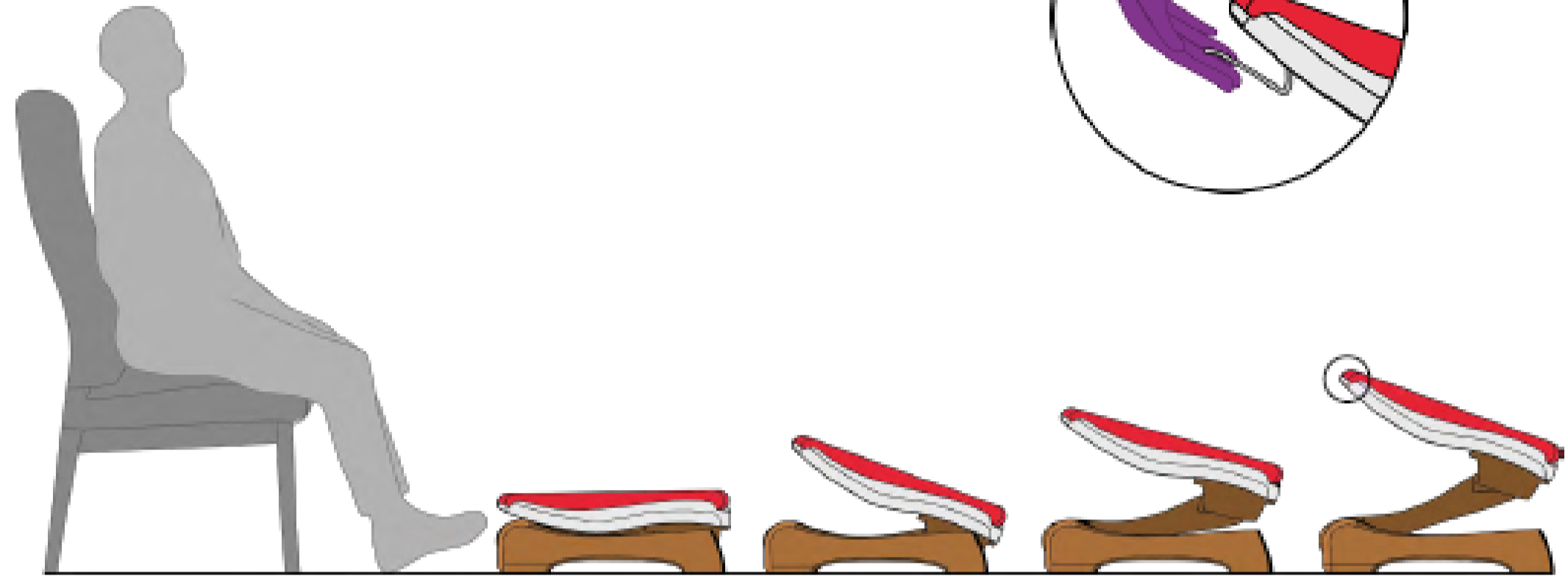
Removable cushions to increase longevit of product. TPU mesh underneath supports the cushion and is flexible to relieve pressure on leg/ foot.



Final Idea



Adjustable Mechanism



User Evaluation

