Retractable Spring-loaded Syringe

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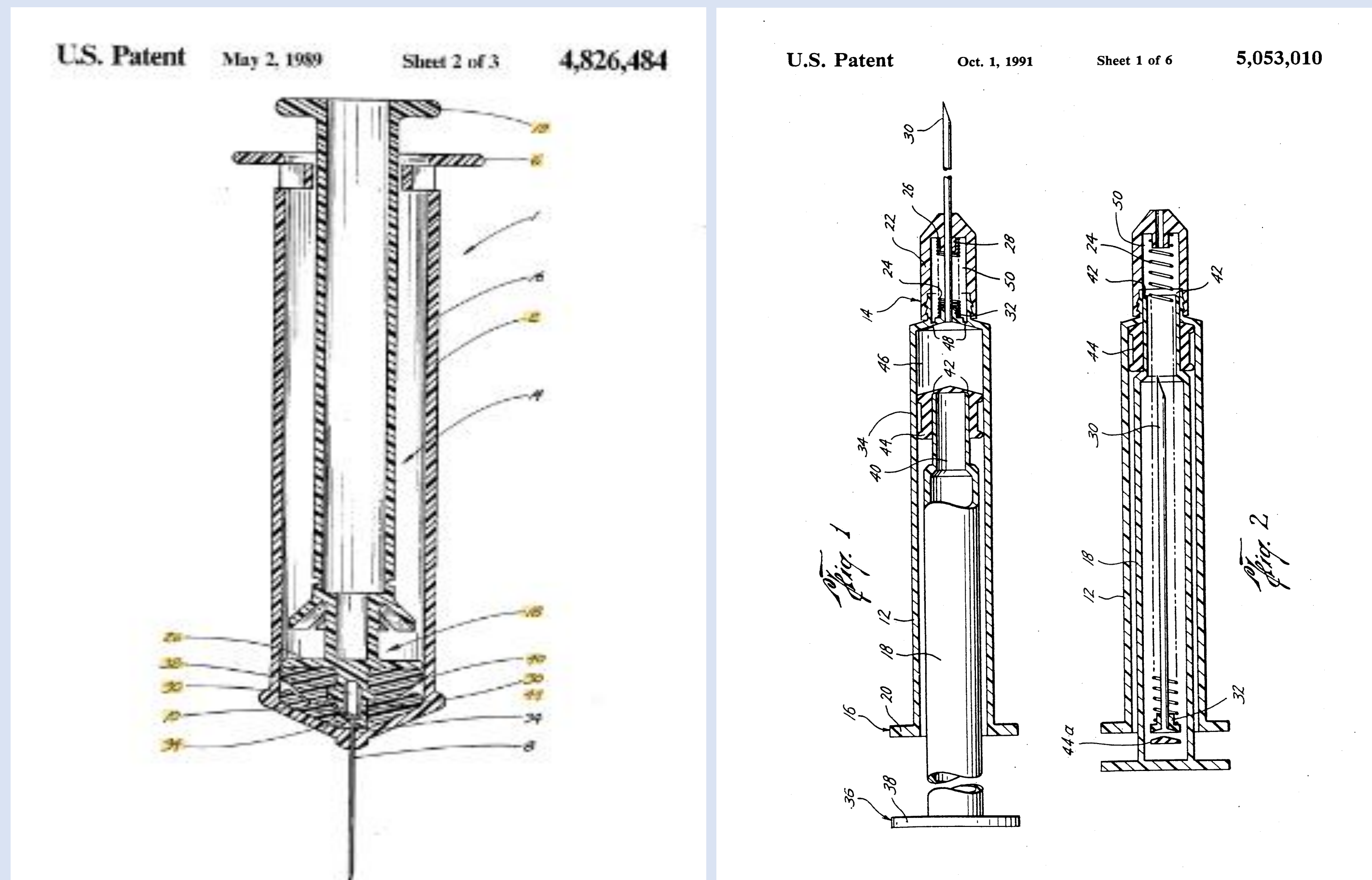
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INTRODUCTION

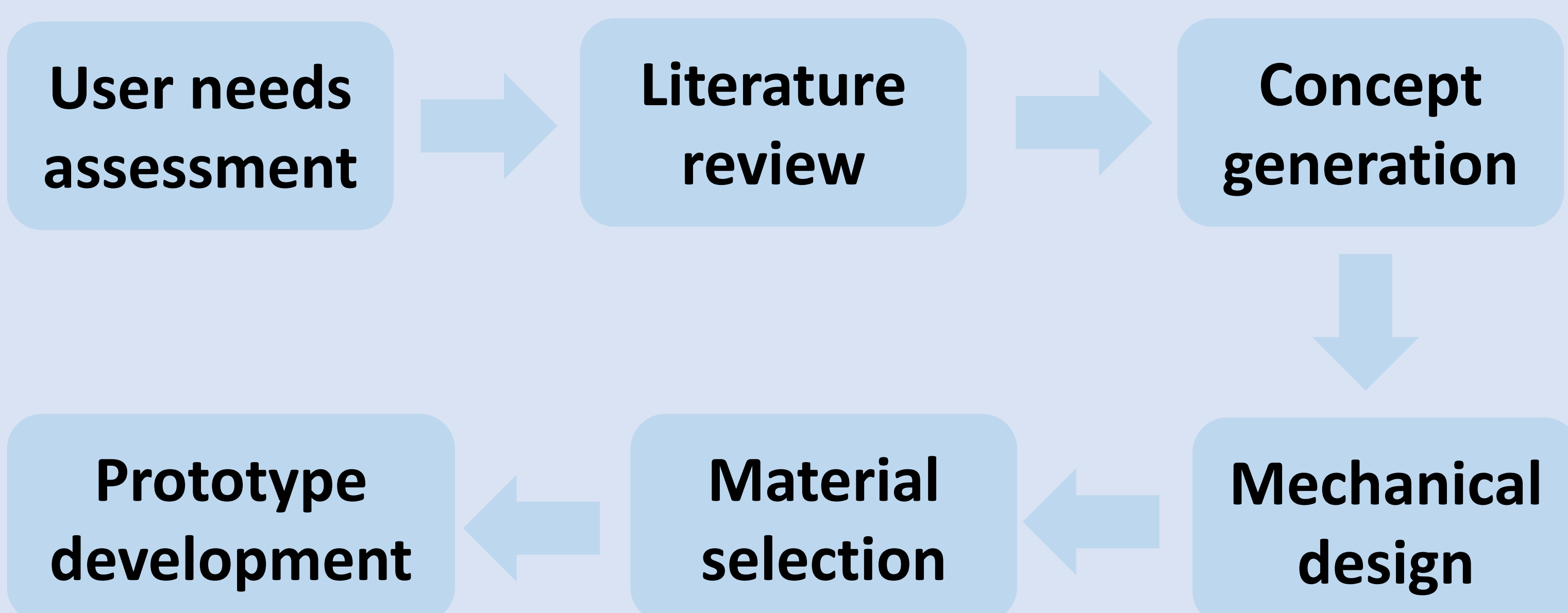Elevation view partially in section of a syringe[1]

Sectional View of Working stages of syringe[2]
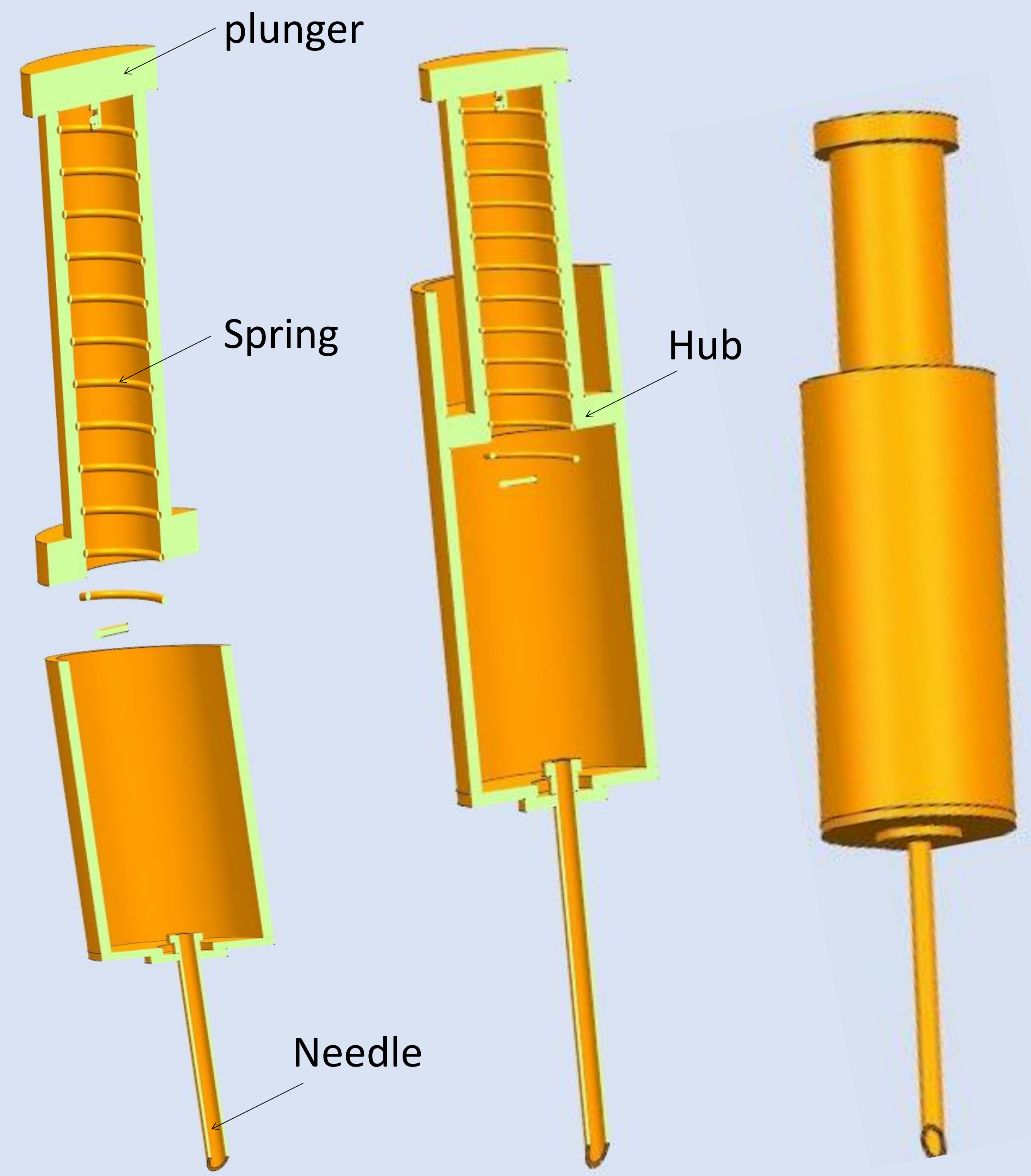
TECHNICAL GAP AND OBJECTIVE

- Traditional syringe – Needlestick – Bloodborne diseases
- Safety solution – Mechanism to have shield & retract the needle after use
- Retractable spring-loaded syringe – Effective and eco-friendly
- Integration of spring-loaded mechanism – Retract needle into barrel after use

DESIGN APPROACH/METHODOLOGY

Designing a retractable spring-loaded syringe requires a systematic approach to address various technical challenges while meeting user needs and regulatory requirements. Here's a methodology that can be followed:

User needs assessment → Literature review → Concept generation → Mechanical design → Material selection → Prototype development

RESULTS

plunger

Spring

Hub

Needle

Cross-sectional View

CONCLUSION

- The Spring-loaded retracting system will decrease the health hazards and potential risks while using conventional syringes.
- The Disposal will be easy and safe.
- The reuse of needle will be prevented which will prevent further spread of infection.

References

1. US5053010A, Safety syringe with retractable needle, R. Kern McGary, S. William Jentzen, 1991-10-01
2. US4826484A, Disease control syringe having a retractable needle, Terry M. Haber, William H. Smedley, Clark B. Foster, 1989-05-02
3. Srinivas, Cherupally & Somani, Anirudh & Nair, CK & Mylswamy, Thirumurthy. (2017). Spring-loaded Syringe for Multiple Rapid Injections. Journal of Cutaneous and Aesthetic Surgery. 10. 49. 10.4103/0974-2077.204584.