

Background

- Faire Child manufactures waterproof outerwear for children, created from recycled materials
- To maintain a 100 % recyclable product, the brass snaps must be removed from the clothing before the fabric can be sent off for processing
- Currently, at Faire Child, there is no standard snap removal procedure¹



Requirements

- ✓ Must be smaller than 30" x 30" x 30" to allow for easy storage and enhance portability
- ✓ Must not generate noise louder than 85 dBA to comply with CCOHS exposure limits
- ✓ Removed snaps shall not contain more than 5 % fabric to abide with regulations at local recycling facilities²
- ✓ Should remove snaps at a rate of 10 snaps per minute

Design Process

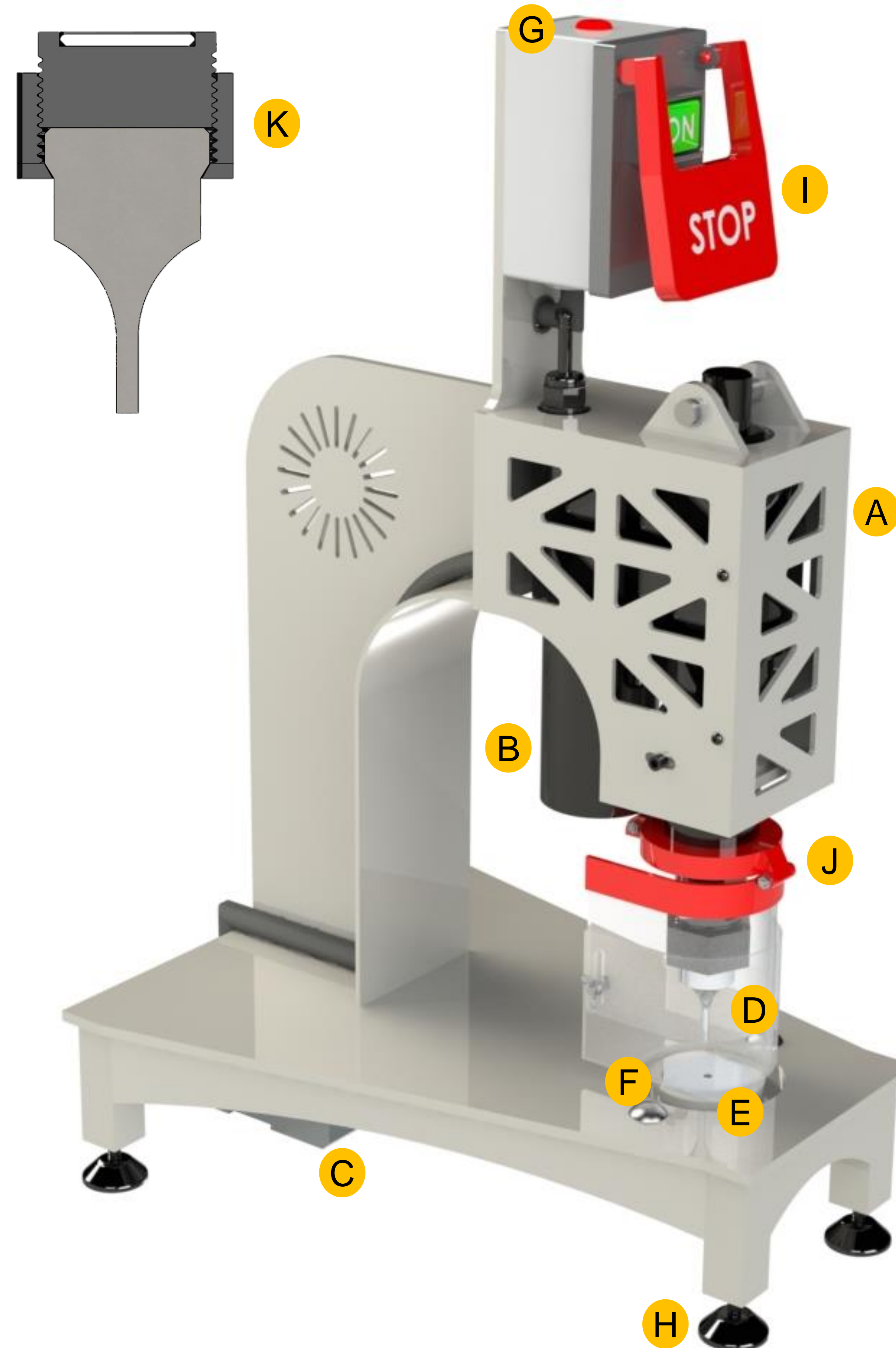
- Tested removal methods: Drill Press, Punch Press
- Punch press provided clean and fast snap removal
- Three punch press concepts designed and evaluated
- Selected frame design based on arbor press
- FEA completed to verify strength and reliability of device

Snap Removal Process

1. Snap is placed in centre of die
2. Actuator is operated by 3-position foot switch
3. Snap is cleanly removed from clothing
4. Separate materials for recycling

Design Features

- Uses one electric actuator, controlled by a foot switch
- Anticipated life to recycle over 4000 articles of clothing³
- Accepts standard Ironworker punch and die sets to allow for a range of snap sizes to be processed
- Large emergency stop button and swivel safety guard for user friendliness
- Red indicator light to signify system power
- Adjustable levelling feet to accommodate various surfaces



Tool Components

- A. Removed material to improve air flow and decrease weight
- B. 850 lb_f electric actuator
- C. Power supply discretely located under table
- D. Standard Ironworker punch
- E. Standard Ironworker die
- F. Built in adjustment for punch alignment
- G. Indicator light to signify system power
- H. Leveling feet to accommodate uneven surfaces
- I. Large emergency stop button
- J. Adjustable guard
- K. Punch adaptor to accept standard punch sizes

References and Recognition

References:

1. Tabitha Osler, Faire Child, Interview. Sept. 28, 2018
2. American Metal and Iron Company, Inquiry. Oct. 22, 2018
3. Adam Mitchell, Progressive Automation, Inquiry. Dec. 3, 2018

Special Thanks:

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