

**Cycle Lock
Research**

**Futuring Design
Industrial Design Project I**

May - June 2018

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176130013**

**ID 2017-19
Industrial Design Centre, IIT Bombay**

Acknowledgment

Our sincere and heartfelt gratitude to **Chandrashekhar Wyawahare** for giving us such an amazing opportunity to intern at his firm. His feedbacks were a constant source of learning and inspiration for us.

I would also like to thank all my colleagues at Futuring Designs studio –who through their constant help and guidance, enriched my learning curve and thought processes. Specially, **Raghav Sridharan** and **Pooja Kulkarnil** who always gave us encouraging nudge to do better have now at the same time providing us with enough and more freedom . We feel we have attained a good degree to independence and confidence as a designer. I would also like to take this opportunity to appreciate my friends and family for their constant love and encouragement.

Also not the least, I would also like to thank my faculty **Ms. Purba Joshi** who was there to provide guidance and helped clarify any doubts throughout the entire journey.



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Date: 20th June 2018

INTERNSHIP REPORT

Vinod Louis Joseph Swamy completed his design Internship with us at Futuring Design Pvt.Ltd, Pune, India from **02nd May 2018 till 20th June 2018**.

Vinod is an intelligent and motivated individual. As a design Intern, with the help of the core design team, he produced quality work.

He worked on
Research

Projects
Cycle locks

We found him sincere, talented and hardworking, and result oriented during his tenure. He showed team spirit and focused on developing innovative ideas. In the project he worked self-contained, creatively and credibly.

He comes across as a nice person to work with.

We take this opportunity to wish him success in his future endeavors.

With Best Regards

Chandrashekhar Wyawahare
Director
Futuring Design Pvt. Ltd



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We take this opportunity to wish her success in her future endeavors.

With Best Regards

Chandrashekhar Wyawahare
Director
Futuring Design Pvt. Ltd

Futuring Design Pvt. Ltd.

“Futuring design” is a new product development company based in Pune. founded by Chandrashekhar Wyawahare and Shantanu Panse.

*Their Focus being :
Design Research
Industrial Design
Product Development Engineering
Prototyping & Model making
Batch manufacturing*



Futuring Design Pvt. Ltd.

*Design Research
Industrial Design
Product Development Engineering
Prototyping & Model making
Batch manufacturing*



Building Hardware
Consumer Appliances
Transportation
Electronics
Medical products
Homeware
Professional products
Lighting
Workspace
Product packaging



and more..

Cycle Lock Project

Client : Godrej Locking Solutions and Systems



- Blue sky project
(Open ended
- undefined user group)
- User Study
- Market study

-

Indian Bicycle Industry

\$ 1.2 Billion Industry
200 Million Exports

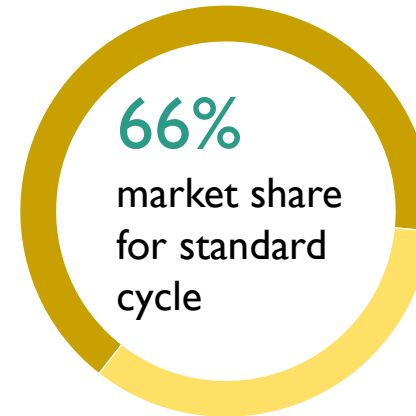


1 in 10

Cycles in the
world is produced
In India

15+ million units
produced annually

2-3 million units
exported to African and South-East
Asian countries



LUDHIANA

bicycle
manufacturing hub.

1,500 factories

25,000 cycles/day.



Kids Cycle

6.4% market share

Indian Bicycle Industry

\$ 1.2 Billion Industry
200 Million Exports

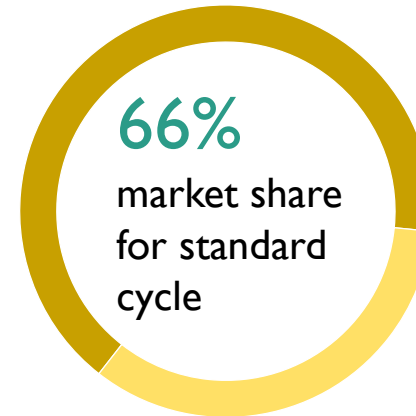


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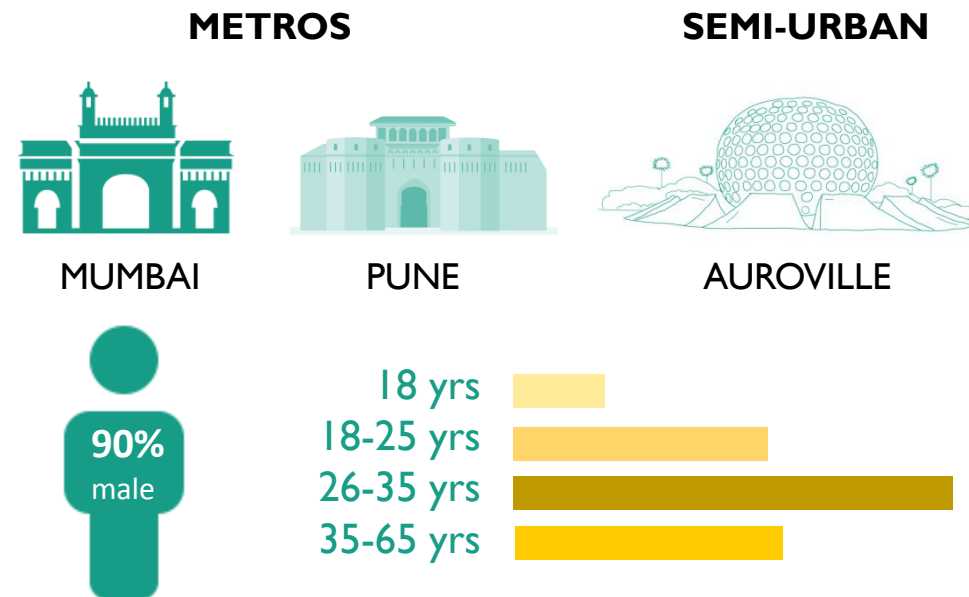
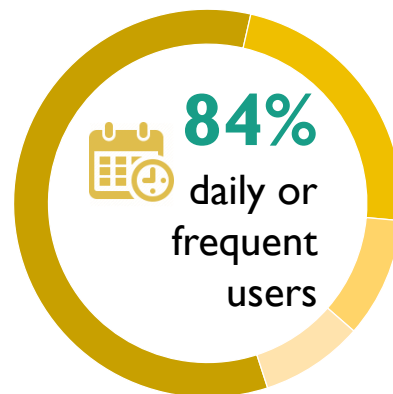


Kids Cycle

6.4% market share

Survey

103 respondents



Fitness Freak



Sports Enthusiast, Fitness Freaks

Age Group - below 18, above 35

Investment - Predominately ₹60000+



Recreational Rider



*Young Professionals, Entrepreneurs,
Adventure Lover, Travel Enthusiast*

Age Group - 18-35

Investment - Around ₹30000 - ₹60000



Utilitarian Cruiser



*Students ,Young Working Adults ,
Daily Commute, Last Mile Connectivity,
Environment Conscious*

Age Group - upto 35 yrs

Investment - Not more than ₹15000





PBS

Public Bike Share

Pune Bicycle Plan 2017

*Bicycle Zones – Shared parking of PBS and privately-owned cycles, No parking charges
Cycle Tracks - No motorized vehicles*

Target Level of Service over 3 years:

3 cycles for every 100 residents - 1 lakh cycles in aggregate

4+ trips per cycle per day - 4 lakh PBS trips per day



5,000 Smart Bikes + E-Bikes

Pricing: ₹10/hr | ₹99/month

Locations: Bangalore, Chandigarh, Delhi NCR, Jaipur, Pune



600 Cycles

Pricing: ₹5/0.5hr

Locations: IIT Kanpur, IIT Madras



2,000 Smart Bikes + Cycling Activities

Locations: Gurgaon, Hyderabad, Jaipur



3,000 Smart Bikes

Pricing: ₹1/0.5hr

Locations: Agra, Bangalore, Chennai, Gurgaon, Hyderabad, Jaipur, Kolkata, Lucknow, Mumbai, Pune, Udaipur, Varanasi



PEDL

Savitribai Phule Pune University

Mobile App, IoT Lock, GPS Tracking, QR Code



PROS

- Convenient - single hand handling
- Intuitive
- Safety Feature - prevents tampering
- Cycle Integrated
- Sturdy
- Self-locking Feature - if not in use
- GPS Tracking - incase of theft
- Solar Powered
- Cashless Service via Paytm



CONS

- Requires Internet Connectivity
- GPS Alignment Issues
- Looks Bulky
- Doesn't Allow Multiple Bookings

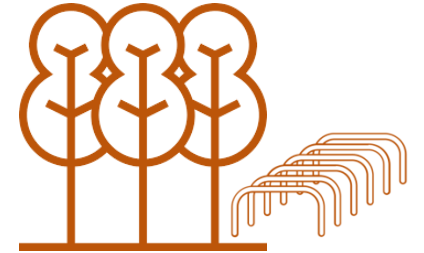
Parking

Issues faced while cycles are parked:

1. Cycle Falling
2. Cycle Identification
3. Gear Tampering
4. Lack of Infrastructure
5. Fear of Theft – Cycle & Accessories



78% of people lock it around a pole or tree.



Parking Space:





Savitribai Phule Pune University

Lack of Infrastructure

"It is always hard to find a pole to tie the cable lock to the frame."

Amarnath

"Locking places not available - not many places to safely lock bicycles."

Yuvjeeth HS

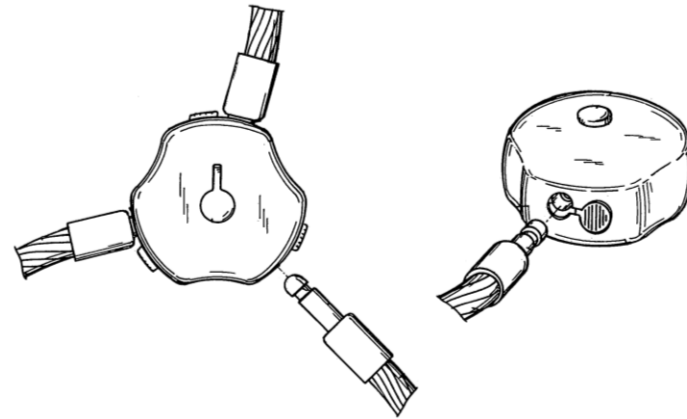


Pune City

Attach to External Element

"The cycle can be lifted and stolen if not locked with a pole or a tree - so a lock that secures itself to the ground. My brother's cycles got stolen like that."

Mihika



US7131298B1

Cable Lock – Multidirectional Inserts

Ability to Lock Various Parts

"In my cycle, I can disassemble both the wheels and seat just by pressing a lever. Would prefer a lock which locks all the parts which can be disassembled."

Ramesh Kumar Gandepalli

Cycle Theft

"As a single piece, a stolen cycle will be sold maximum for Rs 600-700. But when dismantled, the parts fetch anywhere between Rs 1,000 and Rs 1,300,"

CCB Bangalore City Police

20%

of people have had their cycle stolen at least once.

85%



have had their cycle stolen from outdoors.

All cycles are stolen by

LIFTING
CUTTING
PICKING



Places from where cycle was stolen





53% of people think that their cycle is not secure with the lock they currently use.

Theft Alarm

“Something which alerts me or make some noise for sometime if someone try to break it.This could be a feature where I can switch it on if required.”

Dinoj Joseph

Theft Tracking

“It should have a really full proof method to track and locate the bike in case of theft.”

Siddhesh Mhatre

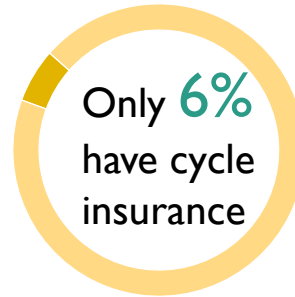
“Using an in-seat stem sensor based lock with GPS tracker for instant mobile alerts.”

Rajiv Narayan



Insurance

The international requirement of cycle insurance policy is to use an appropriately rated lock according to the value of the bicycle for the insurance to be valid.



Upto 3 years

-Bajaj Finance
-Toyoto Tsuho Insurance
(Tie up with Cycle brands)

Cycle Lock Rating bodies:



UK Sold Secure and Thatcham



The Netherlands ART



Sweden SSF



Germany VDS

***Only cycles more than ₹15000 were insured**



No cycle lock rating body in India



Sold Secure(UK) rating for cycles:

Gold Rating

sustain **5** min attack

Silver Rating

sustain **3** min attack

Bronze Rating

deter **impulsive** attack



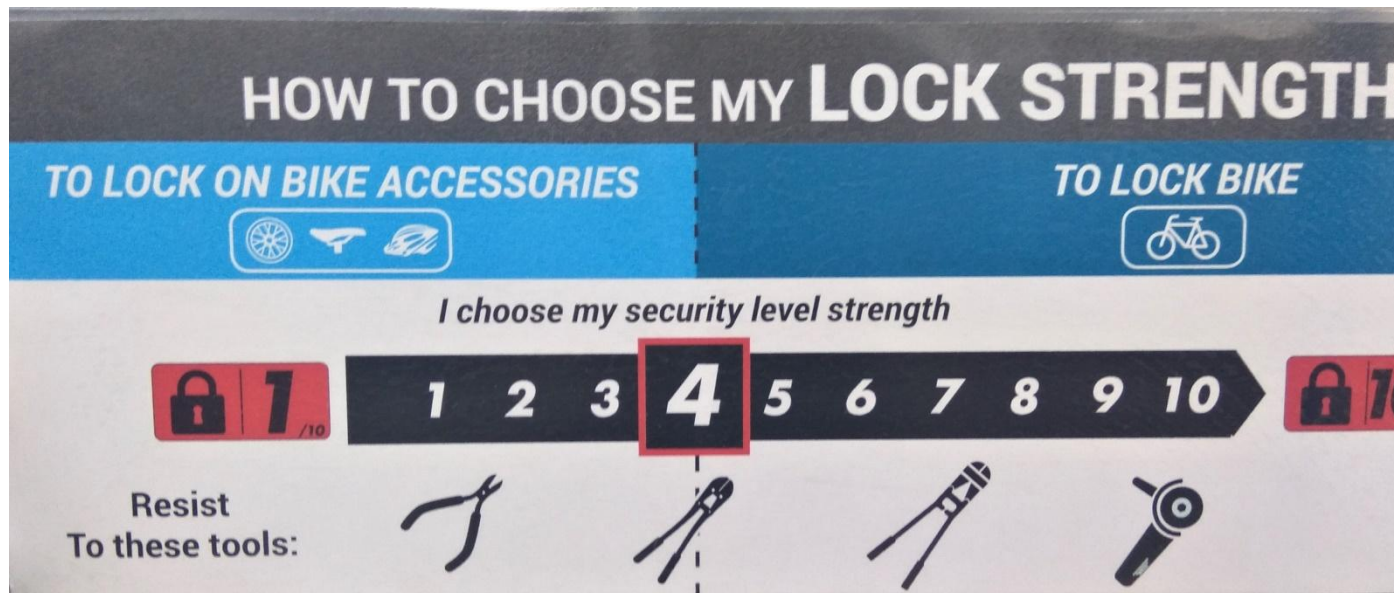
Pune Bicycle Plan 2017

Possibility of insurance coverage for all cyclists in the city

Lack of high rating locks

Decathlon has its own rating system depending on the tools required to break the lock.

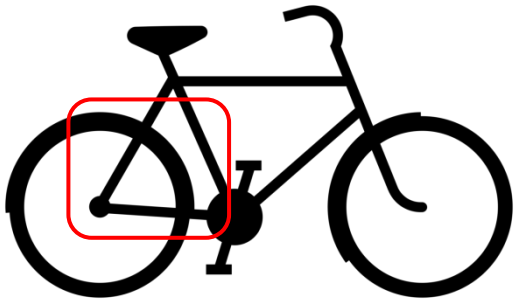
However, the locks sold have a maximum of 4 rating - despite the fact they are only to lock the accessories.



Market Study

Cycle Lock

Flexible



● Cable Lock

-Granit Steel O Flex 1000/80 by ABUS-

Overlapping Steel Shell Protection for Inner Steel Cable



● Retractable Cable Lock

-Milkman by Knog-

Compact Size of 75x75x20mm,
Fits into Back Pocket



● Chain Lock

-KryptoLok Series by Kryptonite-

Weather Resistant Nylon Sleeve,
9mm 4-Sided Chain Links



● Strap Lock

-Litelok Gold by LITELOK-

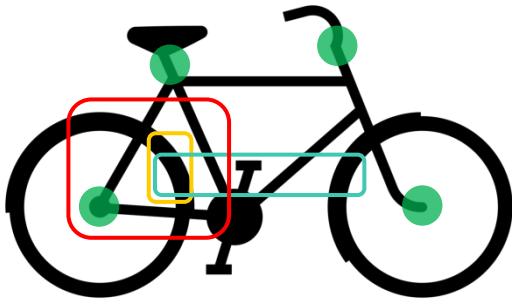
Lightweight - Weighs 1.1 Kg,
Wearable Belt Design



Market Study

Cycle Lock

Rigid



● Ring Lock

-AXA Solid Plus by AXA-

Provision to link Plug-in Chain or Cable,
Online Key Service



● Pitlock

-Hexlox Set by Hexlox-

Hex Bolt with Unique Key Coded Lock Inserts,
All Weather Cap



● U-Lock

-Brute Series by On Guard-

Anti-Rattle Bumpers,
Micro-Light Key



● Bow Lock

-TiGr Bow Lock by TiGr-

Mounting Straps with Silicon Rings,
Short, Standard & Long Sizes

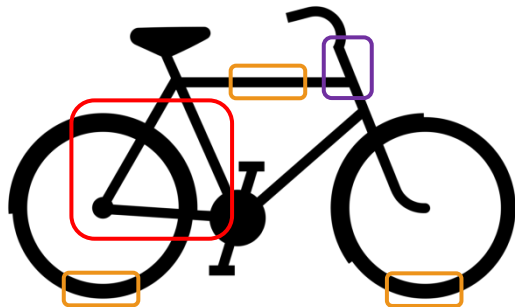


Market Study

Cycle Lock

Semi-Rigid

Miscellaneous



● **Folding Lock**
-Bordo Series by ABUS-

Velcro Straps/Silicone Cover for Mounting,
Anti-Theft Alarm



● **Wall Lock**
-AIRLOK by Hiplok-

Rubberized Mouth, Impact Resistant Casing,
Indoor/Outdoor Use



● **Cuff Shackles**
-8290 Eurdpro by Master Lock-

9 Pivot Links for Flexibility,
\$3,500 Anti-Theft Guarantee



● **Steering Lock**
-Stemlock by IXOW-

Easier Parking, Storage and Transport



Failure by:

Lifting

Cutting

Loose Links

Picking

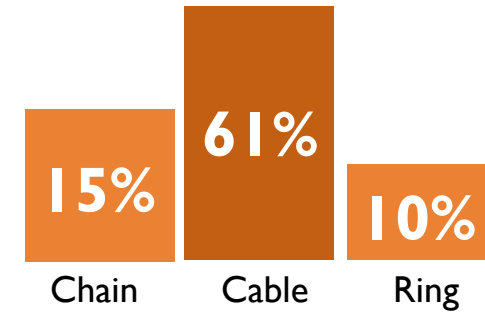
											

Indian Market

*Decathlon Amanora, Hadapsar
Modern Cycle Company, Chinchwad
Track and Trail Modern Cycles, Chinchwad
Toyzer Cycles, Chinchwad
Giant Starkenn Cycling World, Chinchwad*



Popularity of Locks:

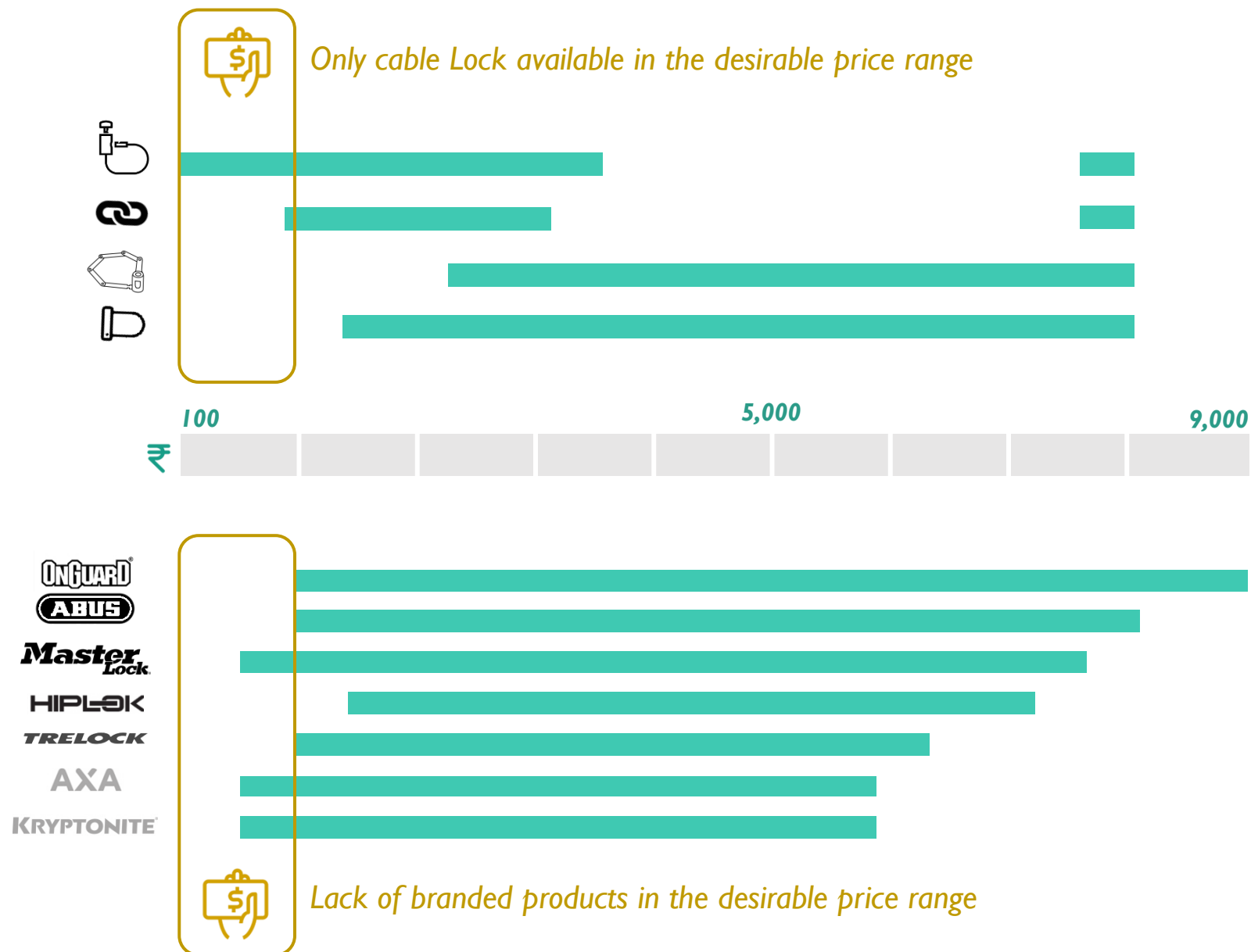


Place where they bought bicycle lock from:



₹ Indian Market

bumsonthesaddle.com
wiggles.com
trackandtrail.com
bikein.com
choosemybicycle.com
giantstarkenn.com



Cable Loop/Coil - Key



₹

100

150

200

400

600

1,900

Cable Loop/Coil - Combination



₹

300

400

500

600

600

950

Padlock with Alarm



U-Lock



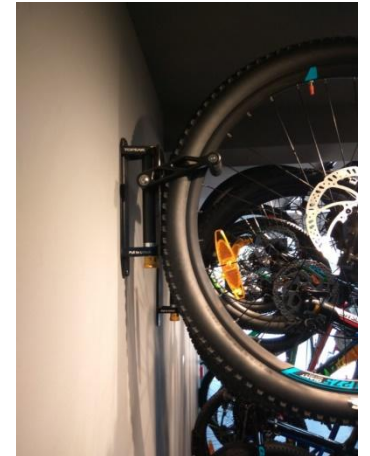
Rear light / Cycle Lock



Chain Lock



Wall Mounted Unit



₹

579

600

600

3,800

Time-Motion ⌚ Analysis

Environment set with a utility cycle and 5 lock types commonly available in the Indian market.

Each was tested under the same scenario – unlocking from rear wheel, mounting and unmounting from frame, locking rear wheel – with 6 users from the 3 user groups.





**Cable
Loop Combination**

Length: 90cm



**Cable
Coil Key**

Length: 150cm



**Cable
Coil Combination**

Length: 90cm



U-Lock

Length: 16cm
Width: 7cm

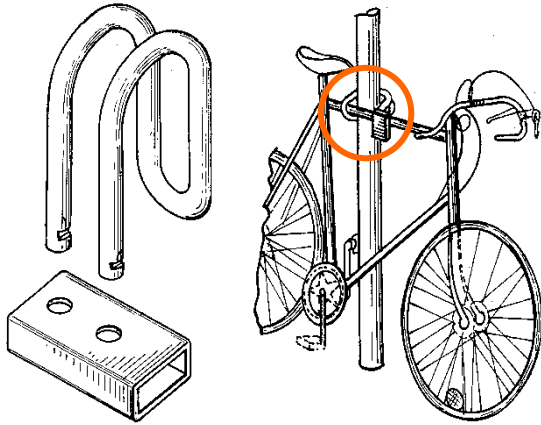


Chain & Padlock

Length: 90cm

Locking/Unlocking	8.8	4.6	22.8	8.2	7
Mounting	24	28.8	27.9	12.9	49.05
Unmounting	10.7	15.3	15.9	16.8	16.8
Total	43.5	48.7	66.6	37.9	78.6

*all values are in seconds



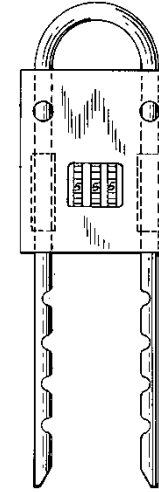
US4920772A

U-Lock Variation for Ergonomic Usage

Cumbersome Locking Procedure

“It is difficult to use a key to unlock the lock, then extend the cable and get it through the rear wheel, past a pole and then lock the cycle.”

Ruth Thomas



US4571965A

U-Lock - Adjustable Length

Cable Tangling

“Have to wrap up or untangle the lock around the seat post tube everytime!”

Vineet

Insufficient Length

“My lock is sometimes not long enough to encircle a secure structure like larger tree, post or pillar.”

Siddhesh Mhatre

Materials

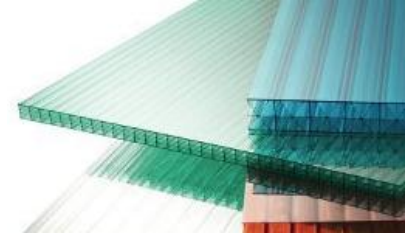
Material



*Zinc/Aluminium
Hardened/Carbon Steel*



Polyamide



Polycarbonate

Manufacturing Process

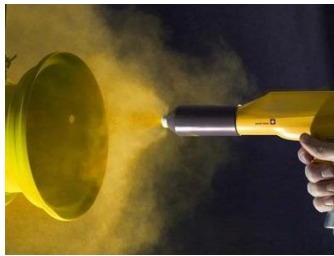


Die Casting



Injection Moulding

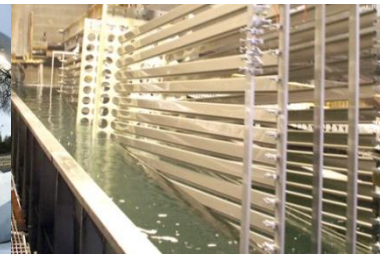
Finishing



Powder Coated



Chrome Plating



Anodization



Urethane Enamel Finish

Wear & Tear

“The locks get damaged due to rain or less lubrication or get corroded and require maintenance.”

Vishnu Shenoy

Excess Weight

“Heavy locks are just a burden to carry! Plus there is excess weight of the lock while riding as well.”

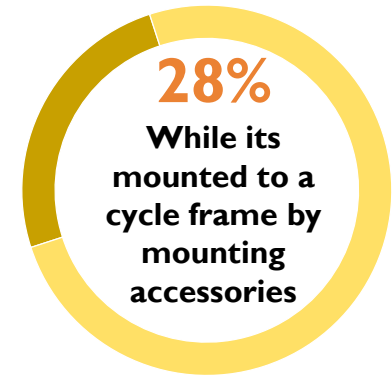
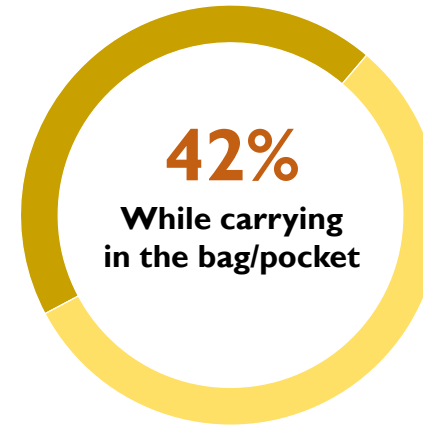
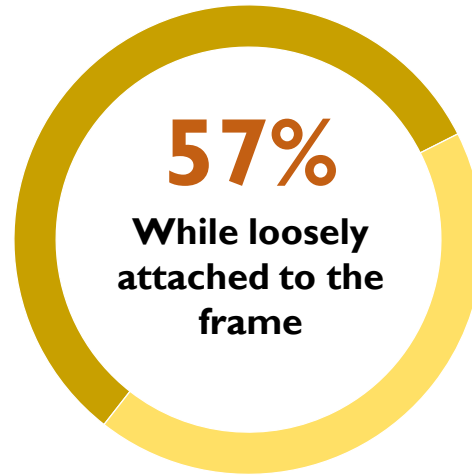
Ajinkya

Insight: There are no high security light weight locks to cater to the high-end cycle owners.

Market Study

Mounting Devices

Obstruction by Lock while Cycling



Market Study

Mounting Devices



Elastic Mount



Claw Mount



Quick Release Bicycle Clamp



Clamp Mount

Market Study

Mounting Devices



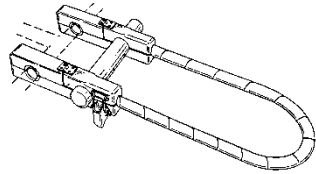
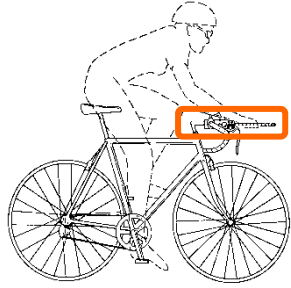
Holster Mounts



Integrated Mounts



Strap Mounts



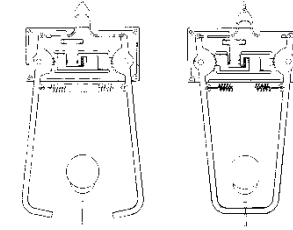
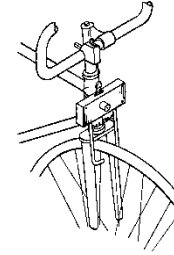
US5133568A

U-Lock – Mounted to Handlebar

Damage to the Cycle

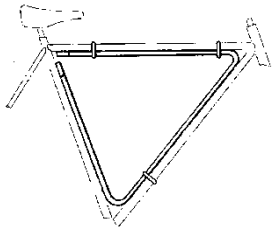
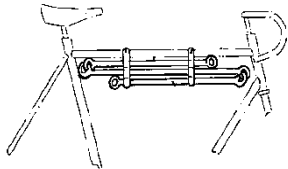
“Colour of cycle frame gets damaged due to lock cable and housing. While riding, the lock constantly hammers the frame creating noise and also damages the frame.”

Divyesh Panchal



US4708004A

Ring Lock – Mounted and Operable from Head Tube



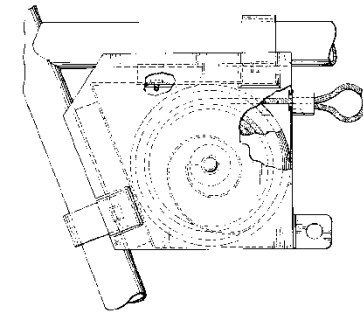
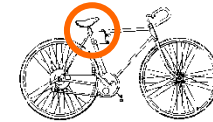
US3908414A

Foldable Lock – Mounted to Top Tube / Main Frame Triangle

Lack of Mounting Element

“Need additional lock mounting to secure the lock properly on the cycle while riding.”

Dheeraj K



US3981166A

Retractable Cable – Mounted to Top Tube-Seatpost Junction

Market Study

Cycle Accessories

Money spent on cycle accessory

69%

upto ₹1000- ₹5000

26%

₹5000- ₹15000

Most Commonly Purchased Cycle Accessories



Bottle + Cage



Helmet



Light



Bell

Market Study

Cycle Accessories

Bottle + Cage

Helmet



Metal Bottle Cage
Decathlon

₹
200



Reinforced Plastic Cage
Merida



FRP Plastic Cage
Leyzene

₹ ₹



Seat Mount Cage
Skekane

₹ ₹ ₹
4,500



300 Child Helmet
Decathlon

₹
700



500 Mountain Helmet
Decathlon



Unisex Helmet
Batfox

₹ ₹



Bluetooth Smart Helmet
SENA X

₹ ₹ ₹
18,000

Market Study

Cycle Accessories

Light

Bell



Rear and Front Light
Decathlon

₹
300



Intelligent Rear Light
Decathlon

₹ ₹



Cateye Front Light
Volt 400



Smart Solar Light
Garmin

₹ ₹ ₹
13,000



Easy Bell
Decathlon

₹
200



Black Bell
Spurcycle

₹ ₹

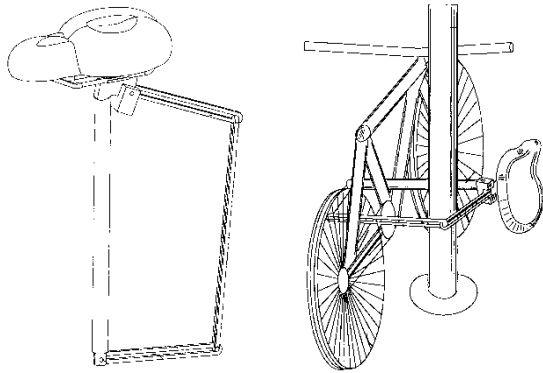


Compass Bell
MTB



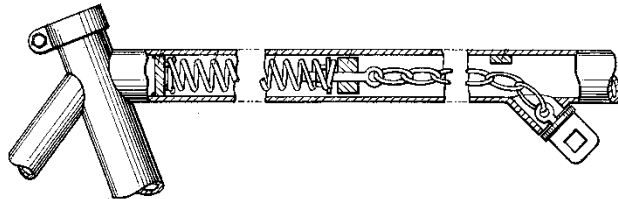
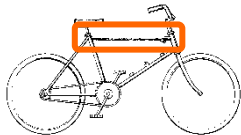
Electric Horn
Rockbros

₹ ₹ ₹
500



US5678435A

Foldable Lock integrated with the Seat



US3774421A

Chain Lock integrated into the Top Tube

Cycle Integrated - Frame

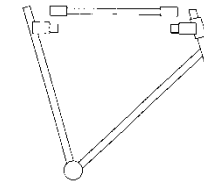
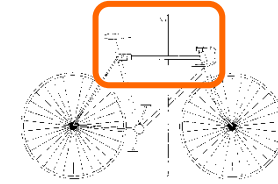
“Why is it an accessory? Has to come with cycle by default!”

Prashant

“Cycles are sold without accessories. There is a package with helmet, lock, bottle cage, stand, mudguards, etc. from ₹2,500 onwards.”

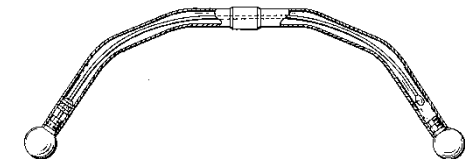
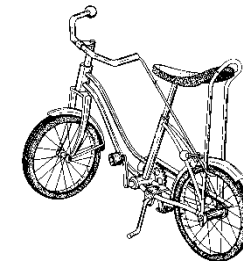
Salesman, Decathlon Amanora

Insight : Cycle Locks can be integrated with cycle and/or accessories for targeting new users of Utilitarian/Recreational user groups.



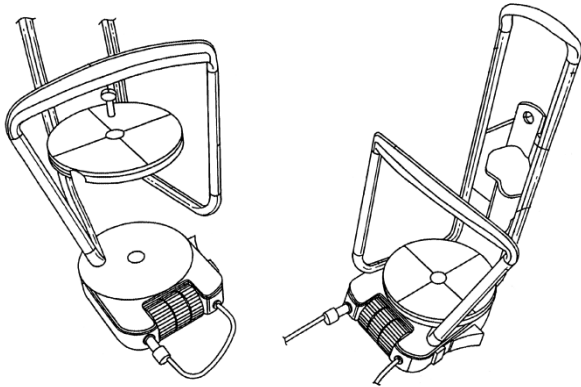
US5558349A

Foldable Lock integrated with Cycle Frame



US3774421A

Cable Lock integrated into Handlebar



US6637244B2

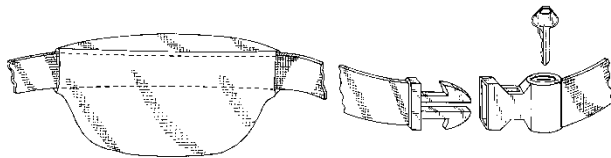
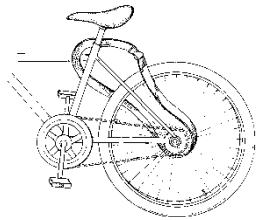
Retractable Cable Lock integrated with Bottle Cage

Cycle Integrated - Accessory

“People using cycles for sports and training remove accessories to make the bike lightweight - mudguards are installed only in monsoons and are removed otherwise.”

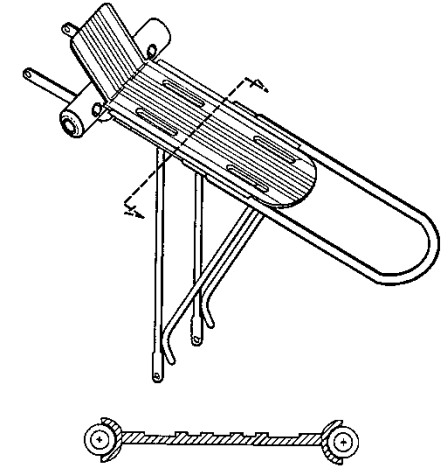
Salesman, Giant Starkenn, Chinchwad

Insight : Professionals do not prefer integrating cycle lock with frame/accessory.



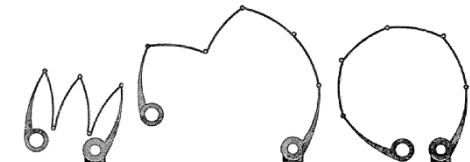
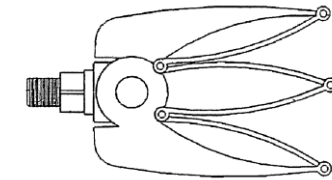
US5873505A

Strap Lock integrated with a Waist Pack



US5251796A

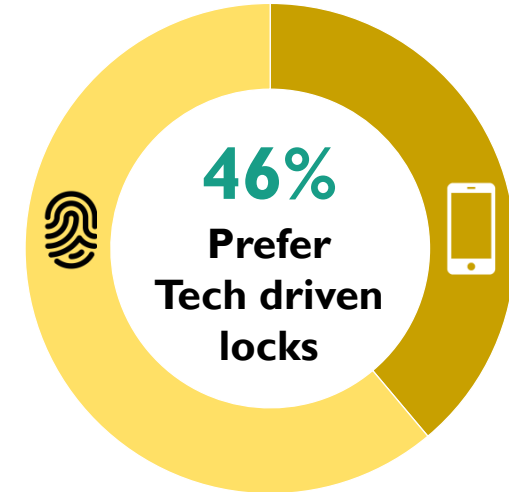
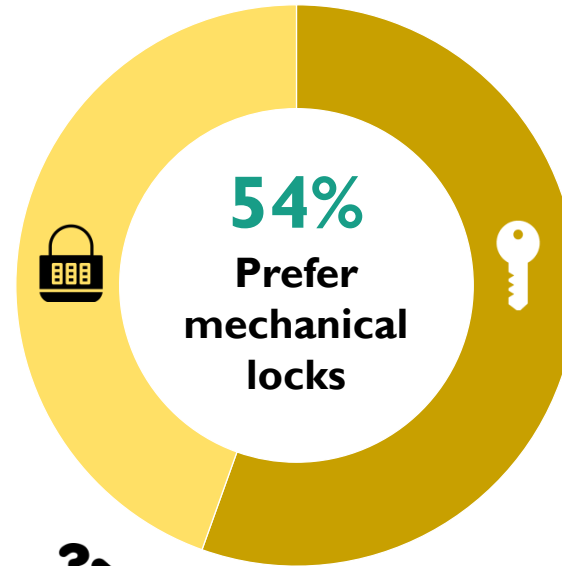
U-Lock integrated with Storage Rack



US20070277569A1

Foldable Lock integrated with Pedal

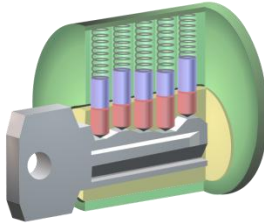
Locking Mechanism



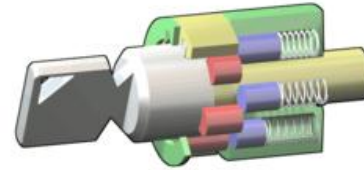
48% have forgotten their key or number code

Locking Mechanism

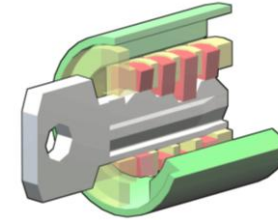
Key



Pin Tumbler



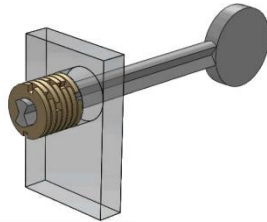
Tubular Pin Tumbler



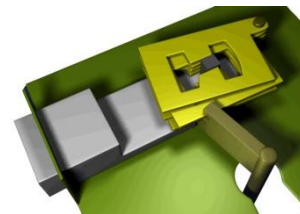
Wafer Tumbler



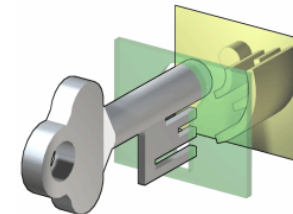
Magnetic Coded



Disc Tumbler



Lever Tumbler



Warded



Preference to Mechanical

“Keep it simple but tough. No need for smart tech because it fails often and is expensive to integrate.”

Sudeb

“People have fear of digital and smart locks. People want familiarity and devices that feel mechanical.”

Michal Simon

University College of Arts, Crafts and Design,
Stockholm

Visibility Issue

“I park my cycle under the stairs so it’s quite dark . My cycle and lock are both black , so visibility is an issue.”

Mihika

Key Placement & Insertion

“While locking and unlocking, I have to adjust the position of key. Key gets jammed and key is inserted in reverse. It also takes time to find key.”

Apurba Mondal

Locking Mechanism

Combination



Rotary Dial Combination



Sequence Combination



Directional Combination

Forgetting Code

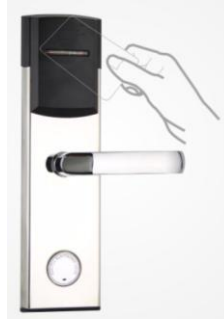
“If a cycle key is lost you can make another key. If a lock combination is forgotten, it can be retrieved for combination of 3 but those with 4 to 5 are generally disposed. I have 40-50 locks which are useless because of this.”

Salesman, Track and Trail, Chinchwad

Insight : In combination locks, there should be a secure way of retrieving the number code.

Locking Mechanism

Tech-Driven



Hotel Lock

-Deluns Hotel Lock-

Unlocks when in contact with
chip on the card



Voice Activated Lock

-Yale Smart Lock-

Siri to open the deadbolt



Unique Pin Lock

-Samsung Smart Lock-

Generates 2 digit pin which one receives on their
phone along with a personalized password



Multi-functional Lock

-Sphinx Smart Lock-

Various users can use mechanical or
digital methods to open

Locking Mechanism

Tech-Driven



Mode Locking

-Laser Lock-

Mode-locking is a technique in optics by which a laser can be made to produce pulses of light of extremely short duration



Car Door Lock

-Radio Transmitter Lock-

Keyless remotes contain a short-range radio transmitter, and must be within a certain range, usually 5–20 meters, of the **car** to **work**.

Be Digitally Activated

“The lock should be connected to a mobile app because we forget our password. will be more suitable for this generation.”

Unmesh Kalhapure

User as the Key

“Why can’t my cycle unlock once I place my hand on the handgrip?”

Amarnath

Opportunity Area

Direction A



*Developing a **parallel product** to compete with the **traditional mechanical** locks in the ₹500 - ₹1000 price segment, catering to the requirements of the growing **utilitarian** user group in India.*

Opportunity Area

Direction B



Developing a *rigid/semi-rigid* lock with a necessary *mounting device* to target the gap in the market for *stronger alternatives* in the ₹1000 - ₹2000 price segment, catering to the various user groups in India.

Opportunity Area

Direction C



*Developing a **smart lock** to be integrated with the cycle, to address the lack of the same in the Indian market, and to cater to the growing **PBS systems** and the **tech-savvy commuters** in India.*

Opportunity Area

Direction D



*Developing an **indoor cycle mounting** lock system to cater to the recreational and professional user groups in India with **high-end cycles** as well as for display in **cycle retail shops**.*

Image Board

Secure



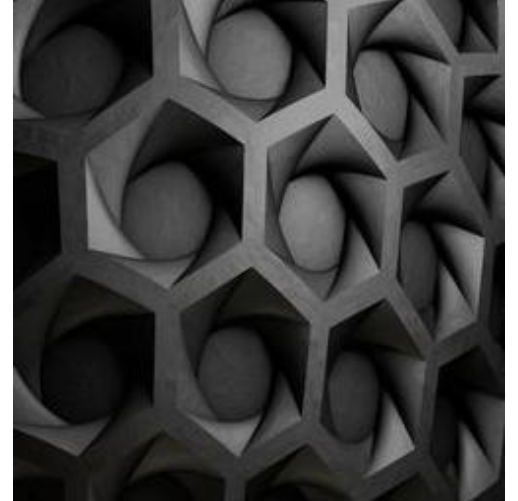
Image Board

Lightweight



Image Board

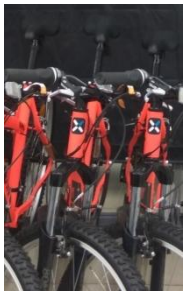
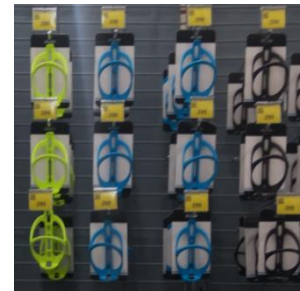
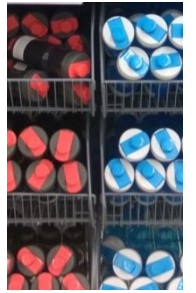
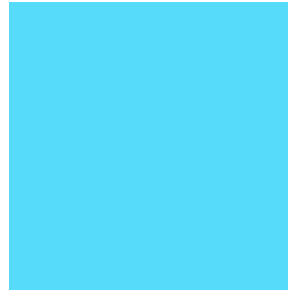
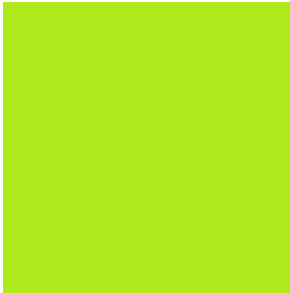
Durable



Colour Palette

B'TWIN by Decathlon

*Fluorescent/Neon Colours + Grayscale
Palette*



Visual Deterrent

“Something that is visually more prominent – not only for identification in a group but also to serve as a deterrent to thieves.”

Imad Rais

Visual Homogeneity

“Locks should be hidden or kind of invisible and not obvious.”

Parag S

The Pitch

Godrej Locking Solutions and Systems
Vikhroli, Mumbai

- Need for a comprehensive cycle lock
- Smart locks as future of locking systems
- Establishing new marketing and retail channels
 - Two wheelers to widen scope
- Outdoor Brainstorming session for business opportunities

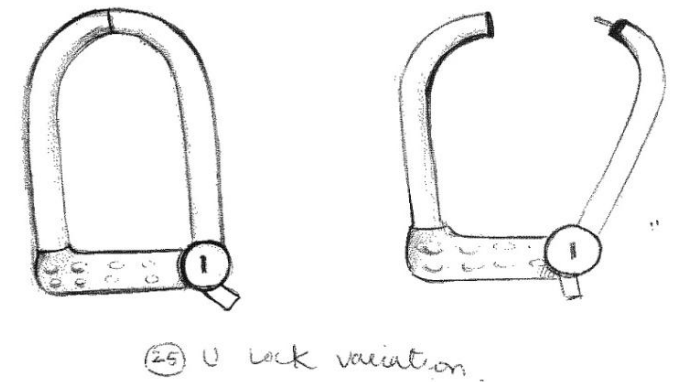
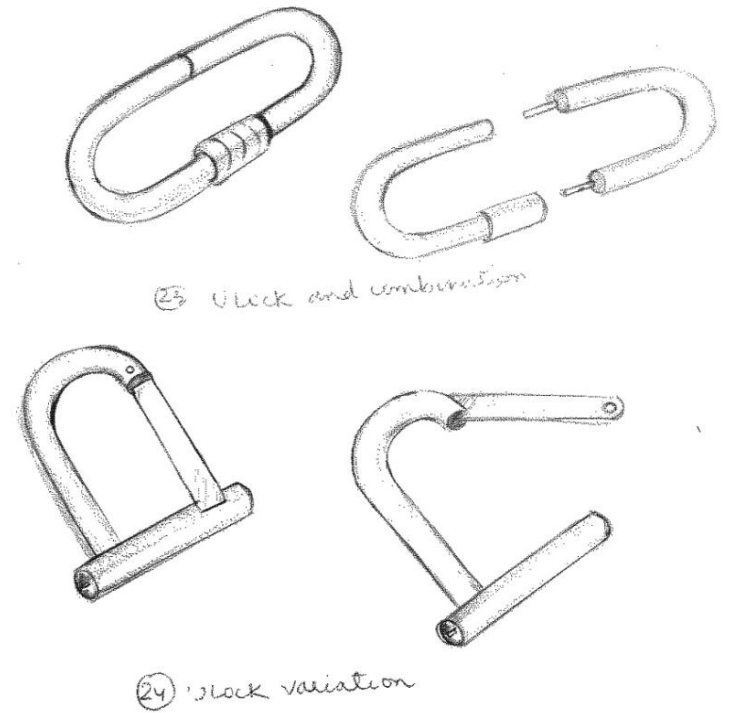
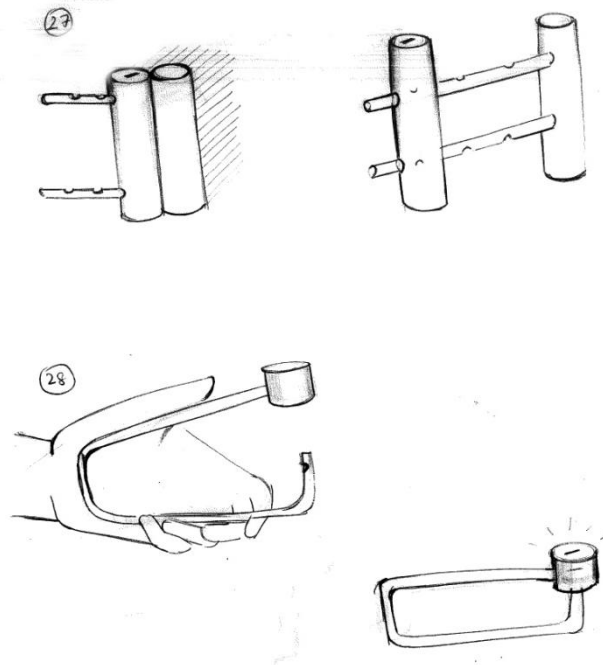


Ideation

Anushree Banerjee

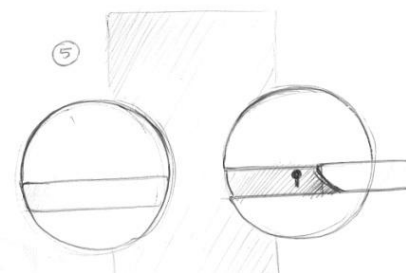
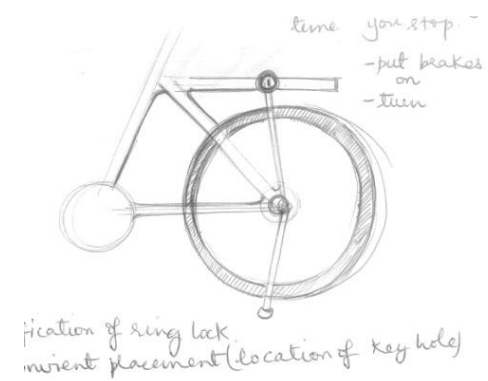
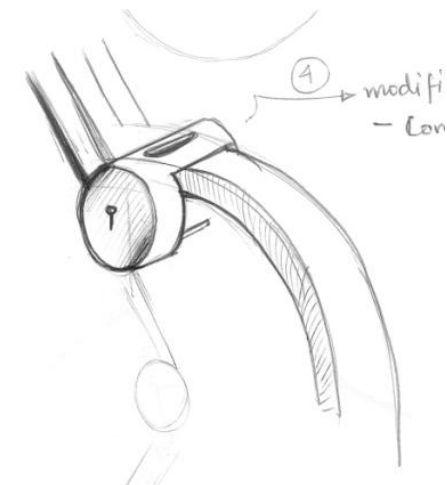
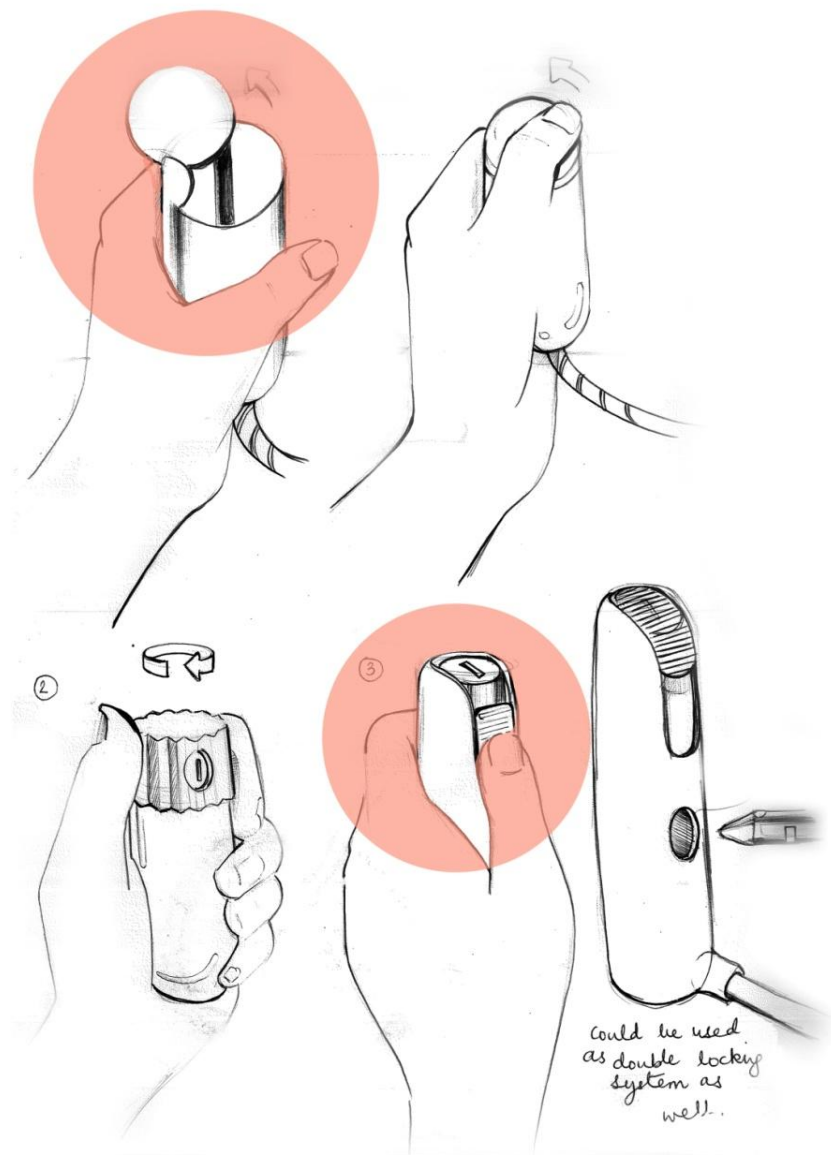
Ideation

U Lock Variation



Ideation

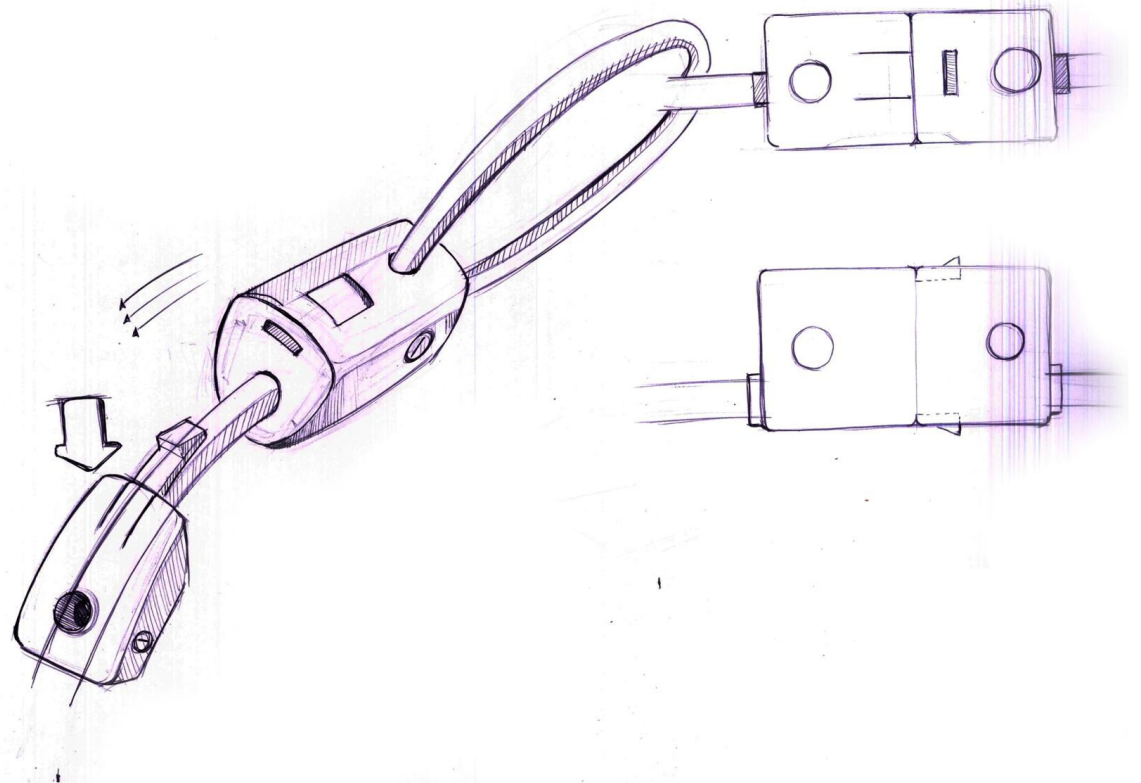
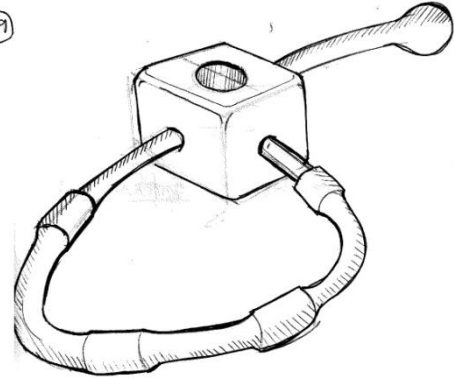
Hidden keyhole



Ideation

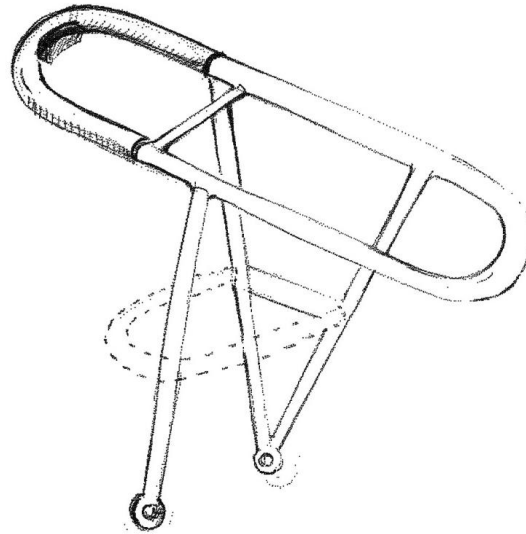
Moving Casing

29

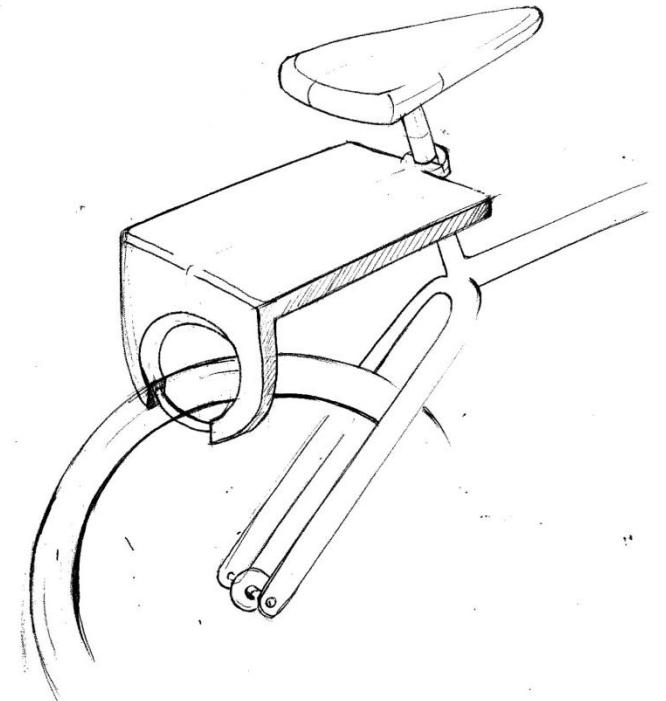
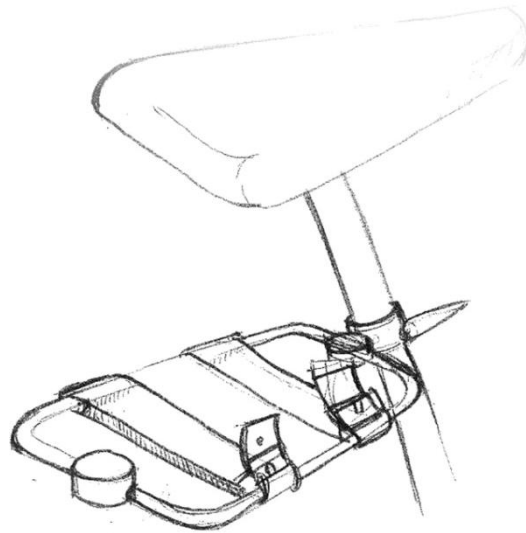
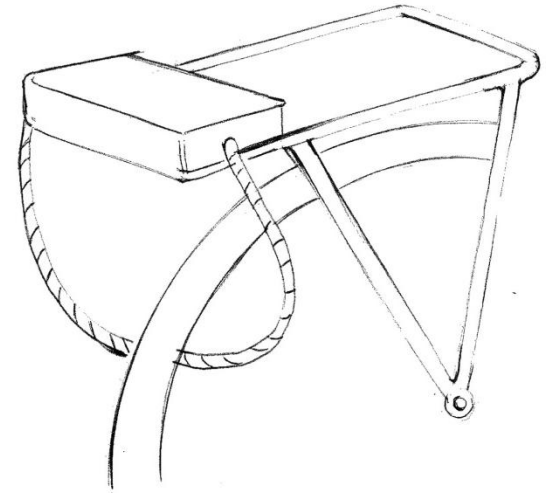


Ideation

Part of an accessory

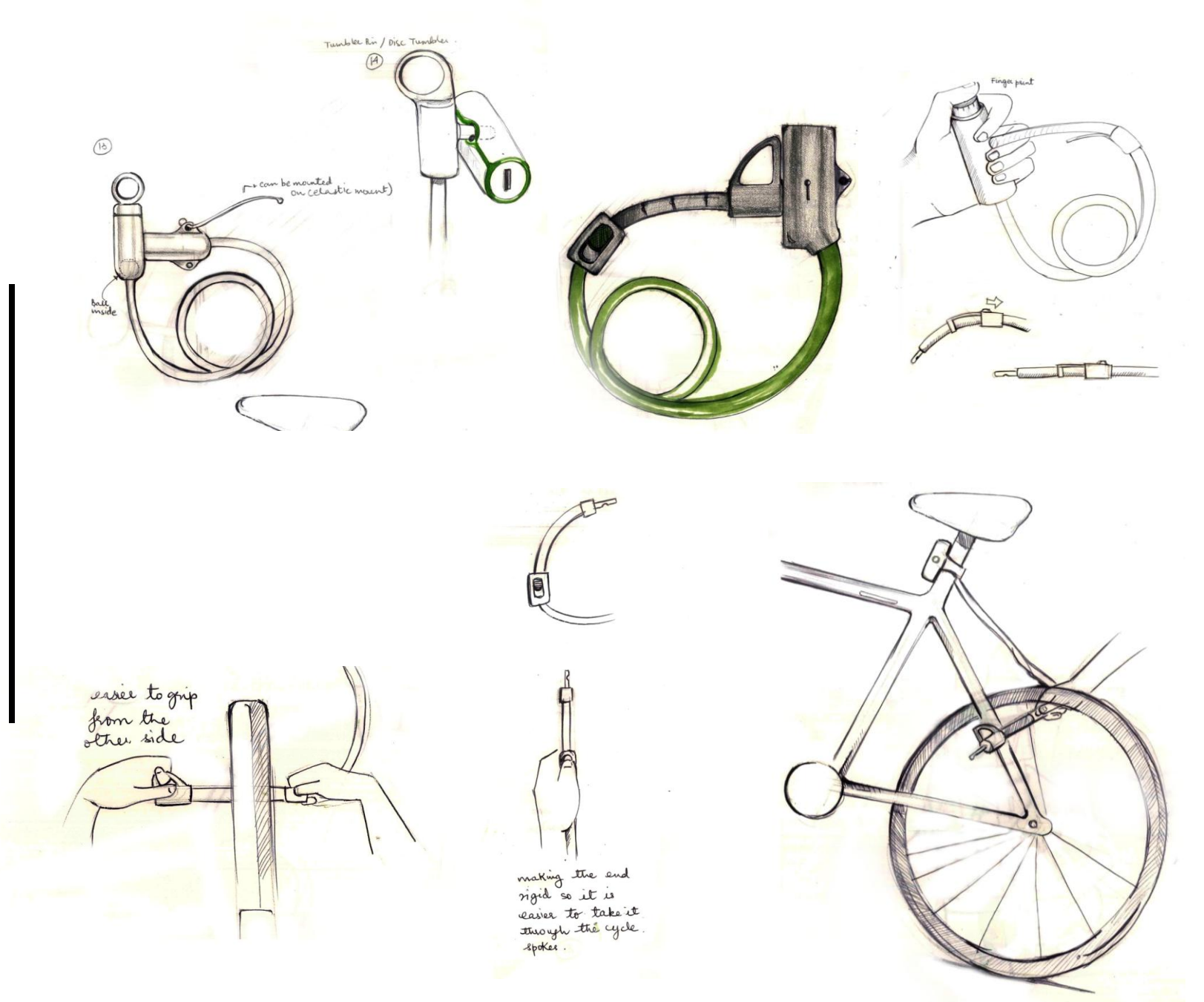


Attached to the carrier



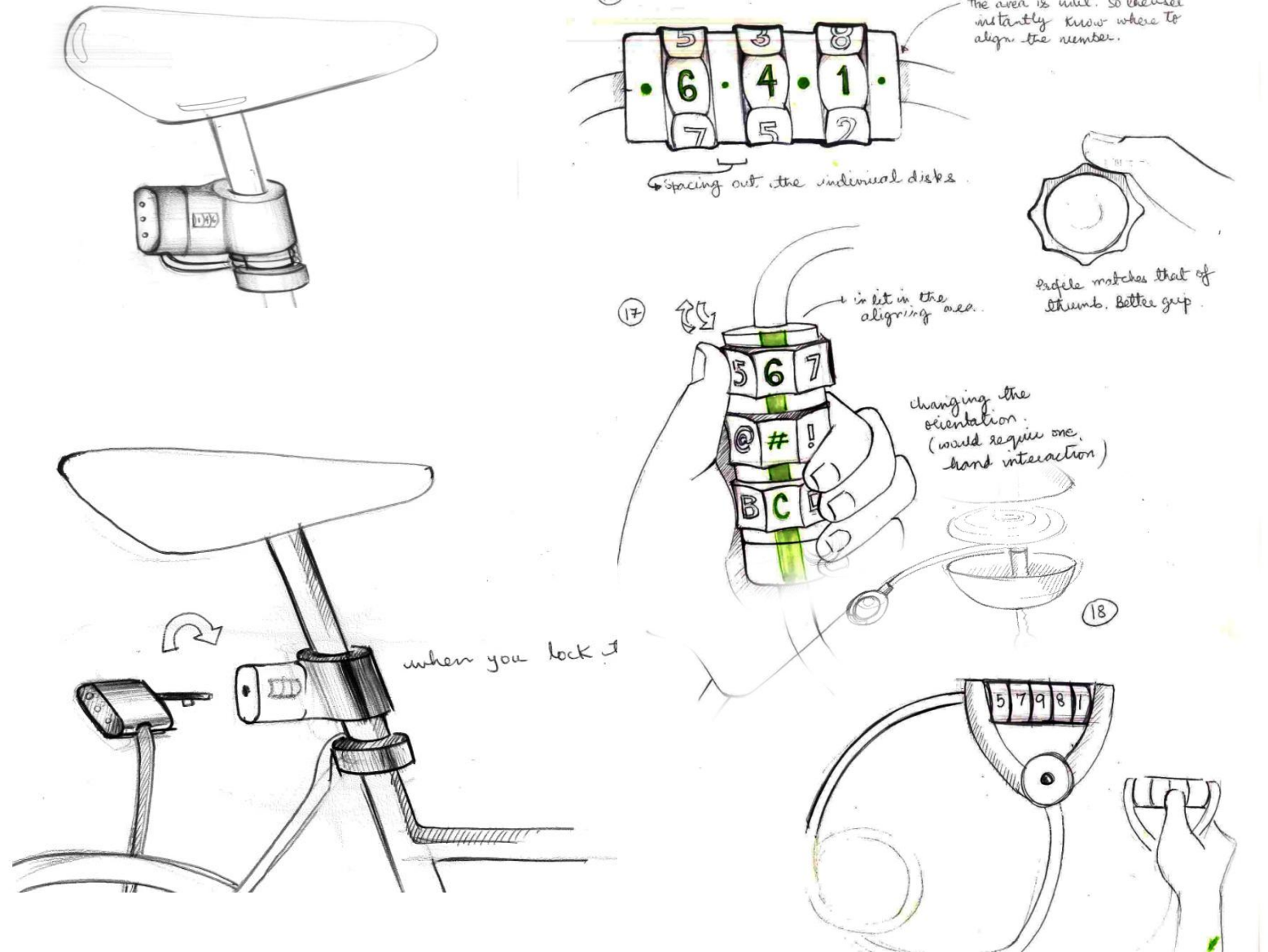
Ideation

Part of an accessory



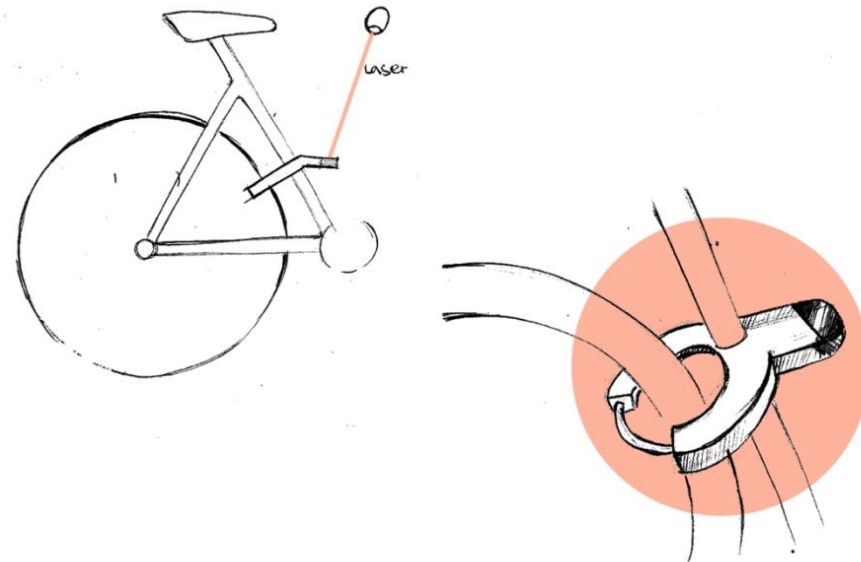
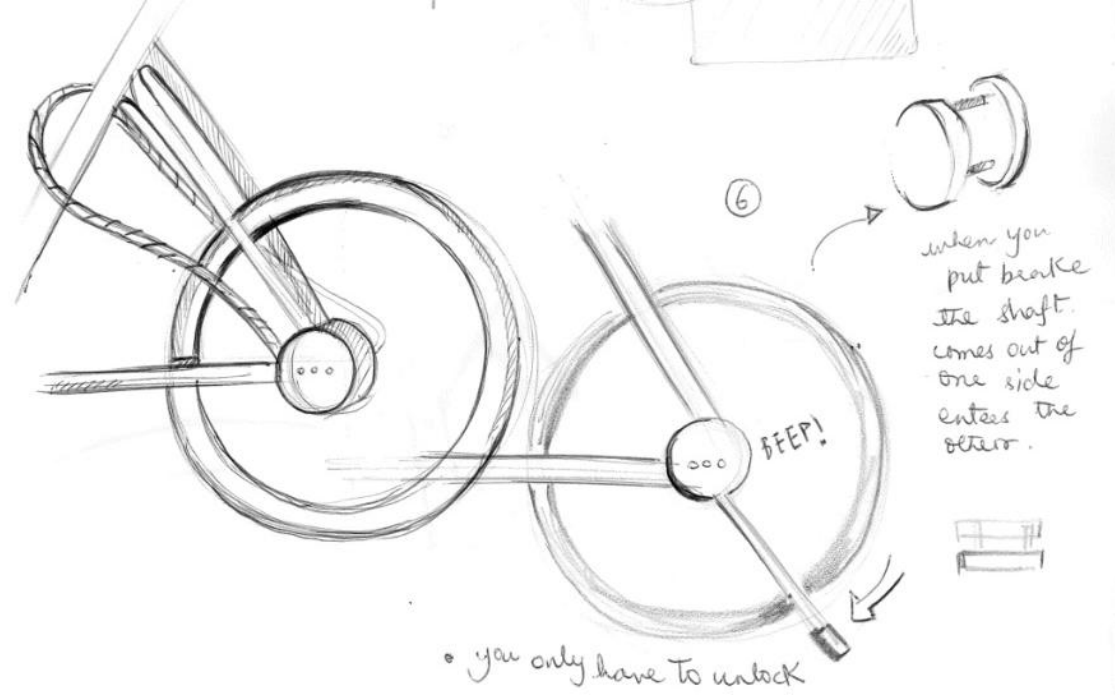
Ideation

Variation of Combination Lock



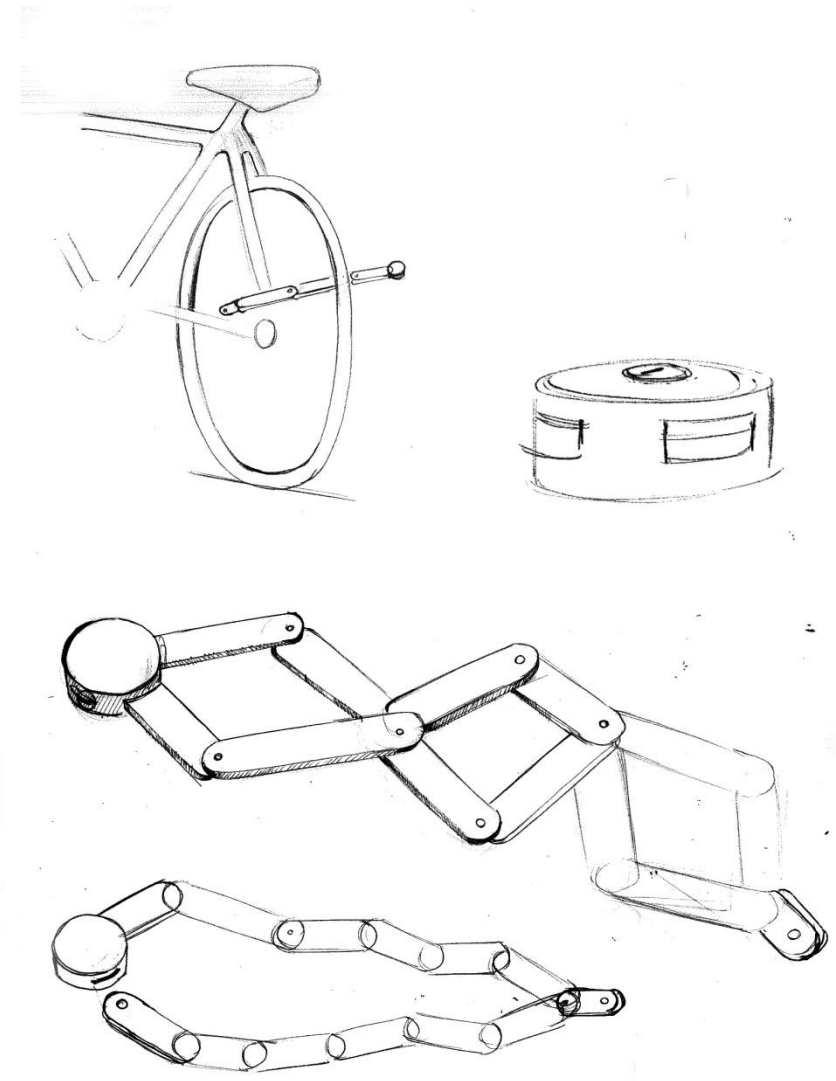
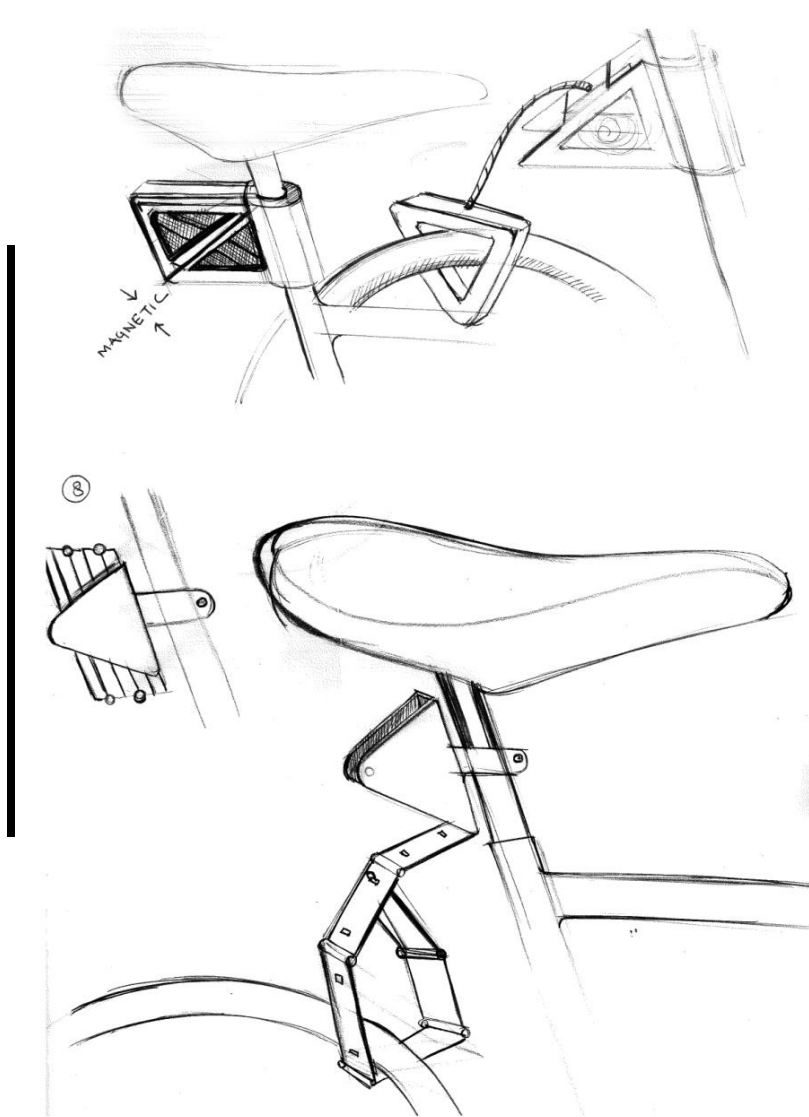
Ideation

Smart Lock



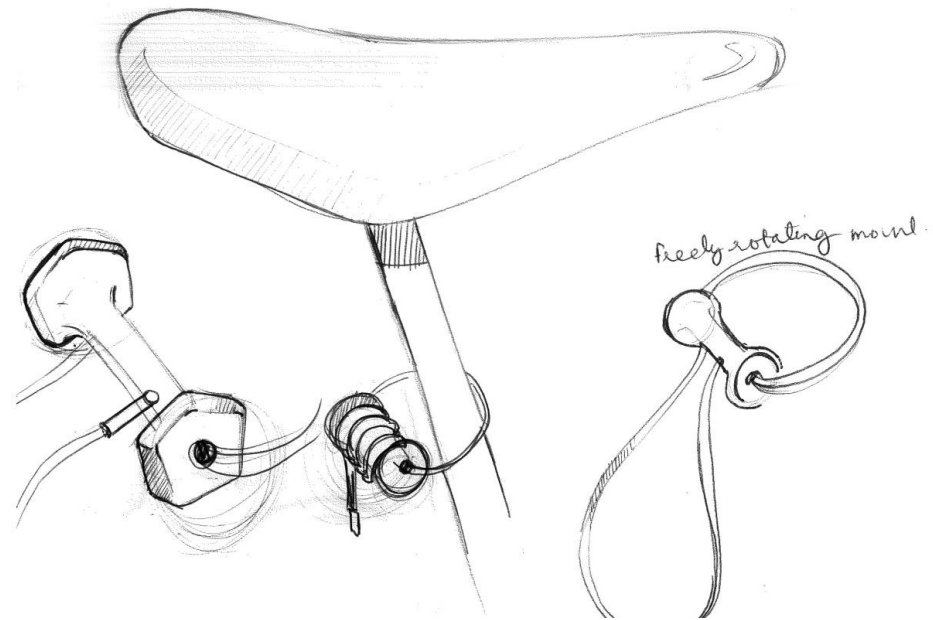
Ideation

Semi-Flexible Locks

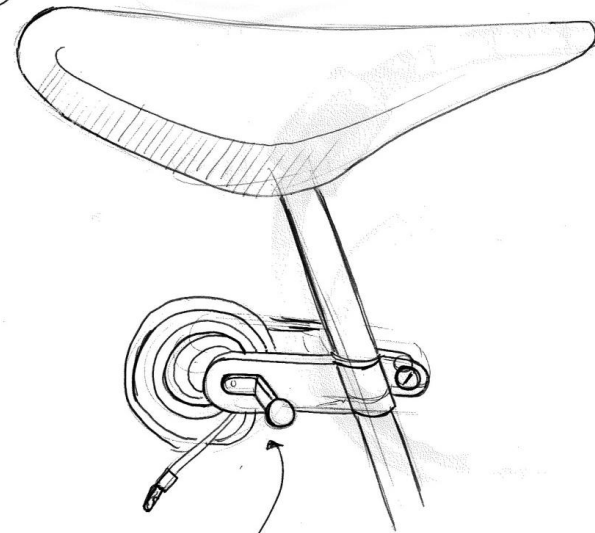


Ideation

Smart Lock



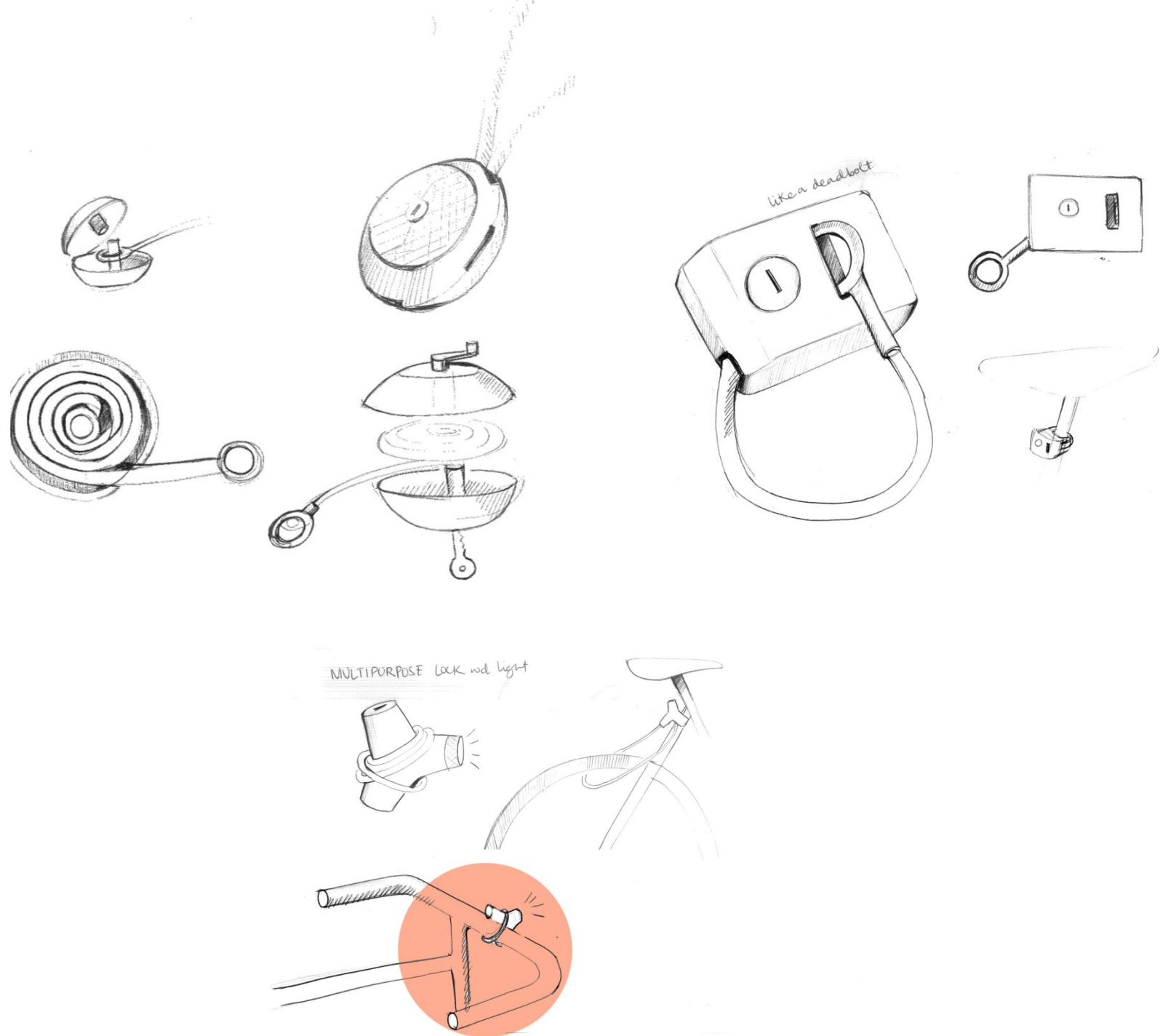
12



easy to roll back.

Ideation

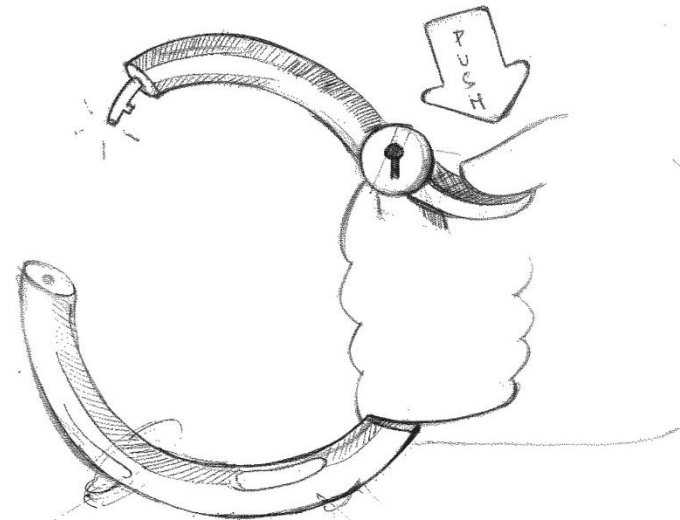
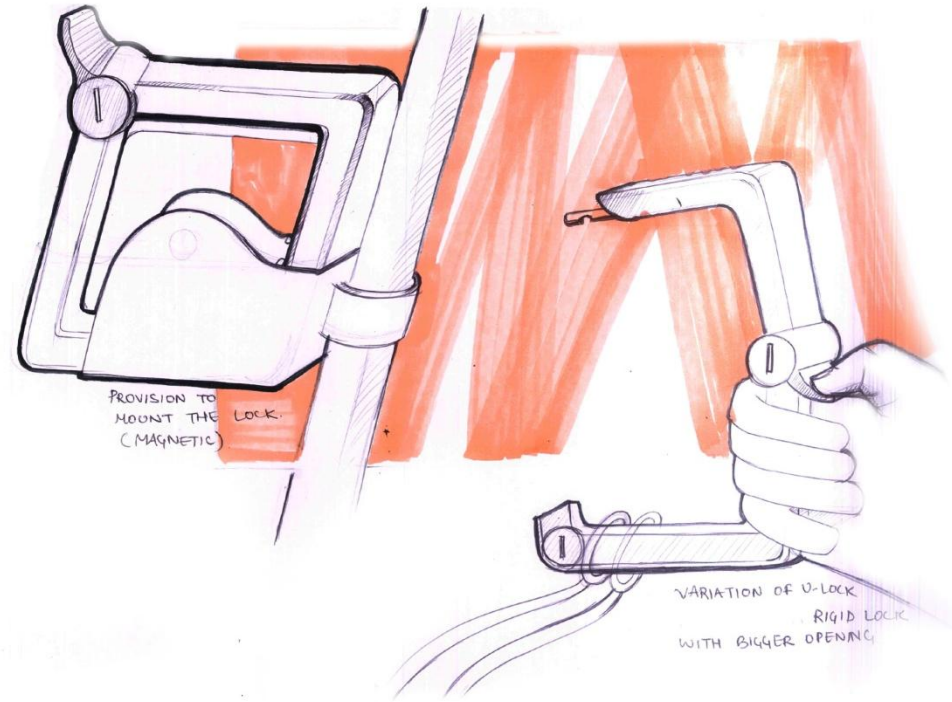
Stronger Casing



Ideation

SQUARE LOCK -VARIATION OF U LOCK

Rigid Lock
Providing One hand
operation
More area of Opening
Magnetic mounting
accessory



Ideation

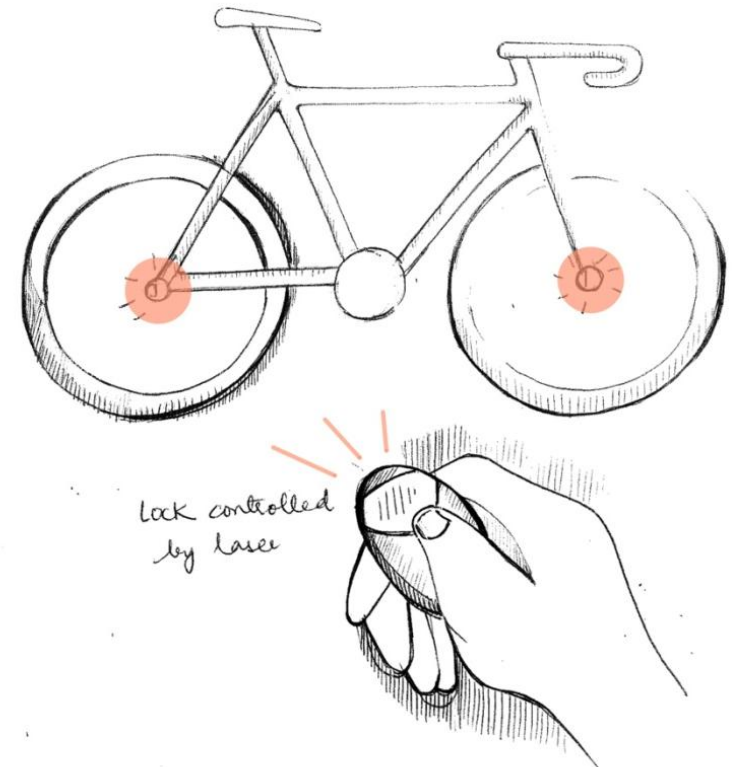
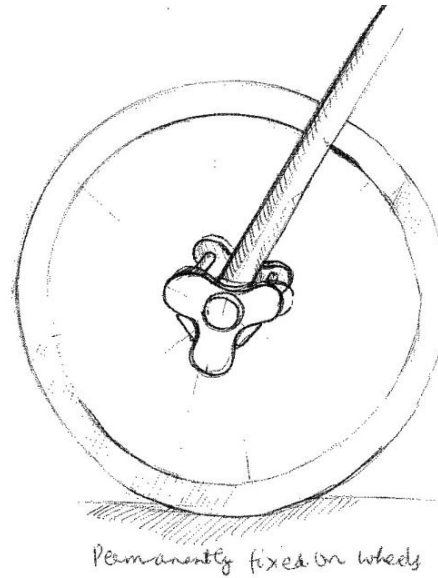
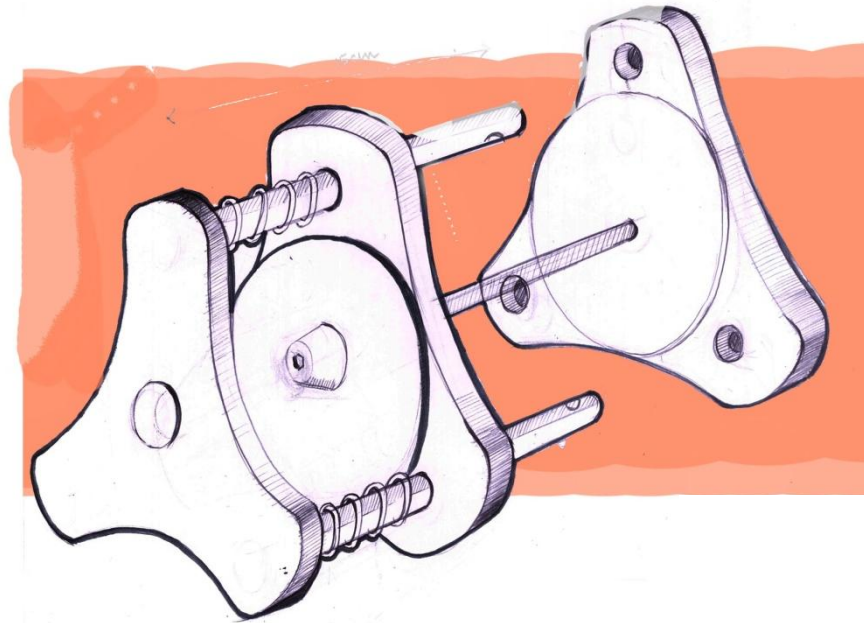
Hub Lock

Rigid Lock

Permanently placed

Laser/Radio Wave Controlled

Remote Access



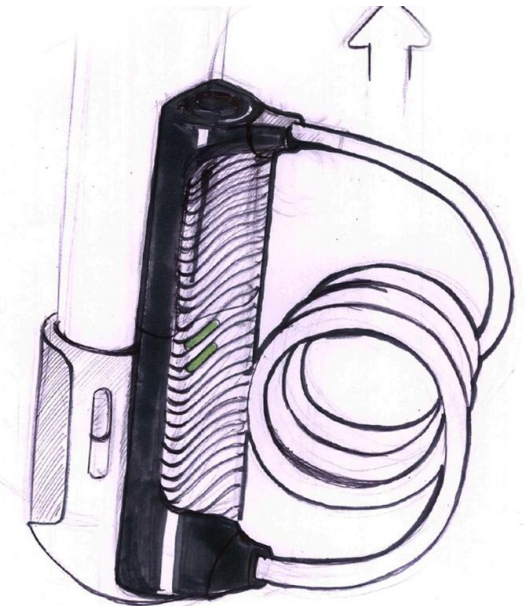
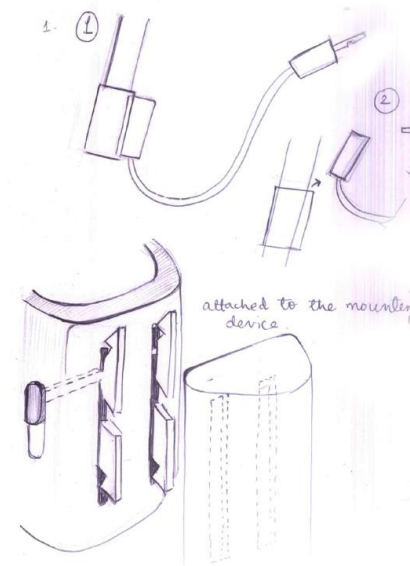
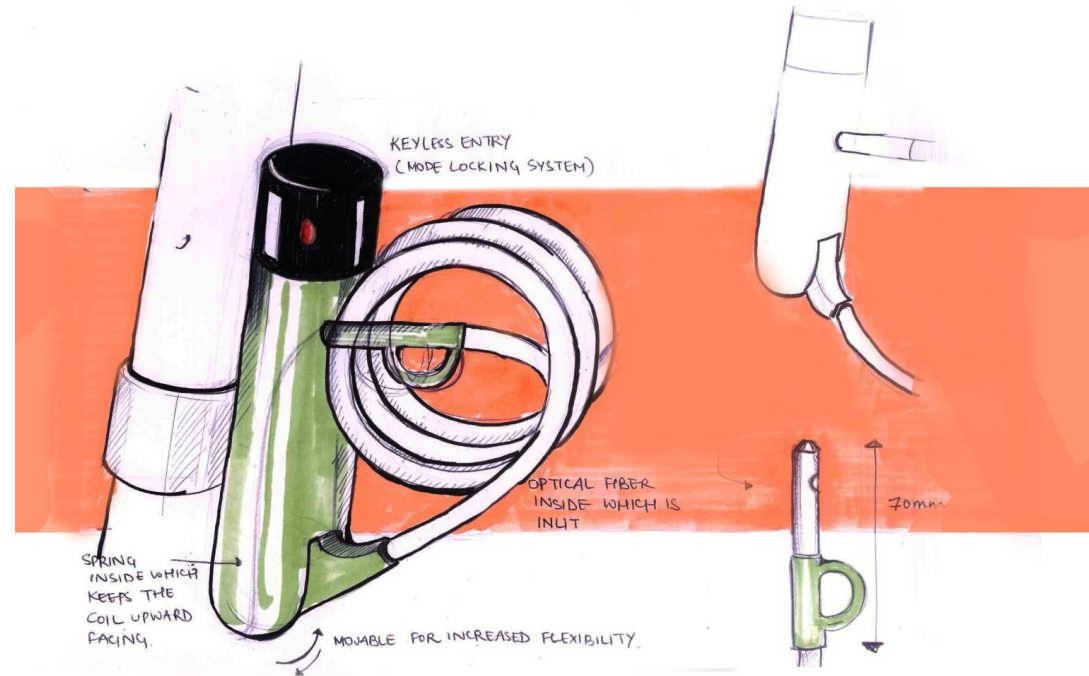
Ideation

Easy Access Smart Lock

Lock opened by by
radio/laser wave

Easy Access Mounting
device which

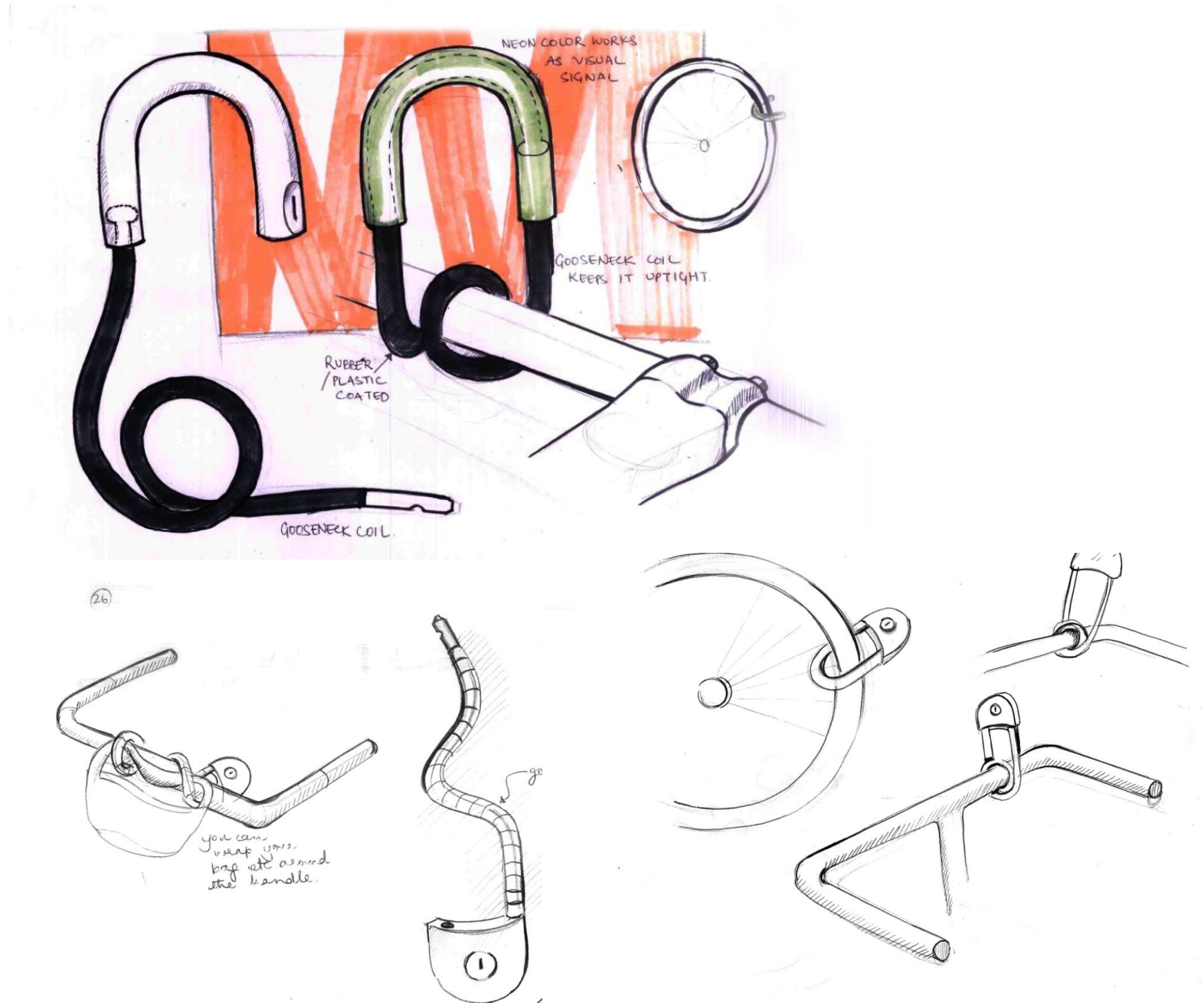
Allows the quick removal of
the lock



Ideation

Gooseneck lock

Half of the lock has a gooseneck cable which has various advantages from easy mounting on the cycle to flexible operation.

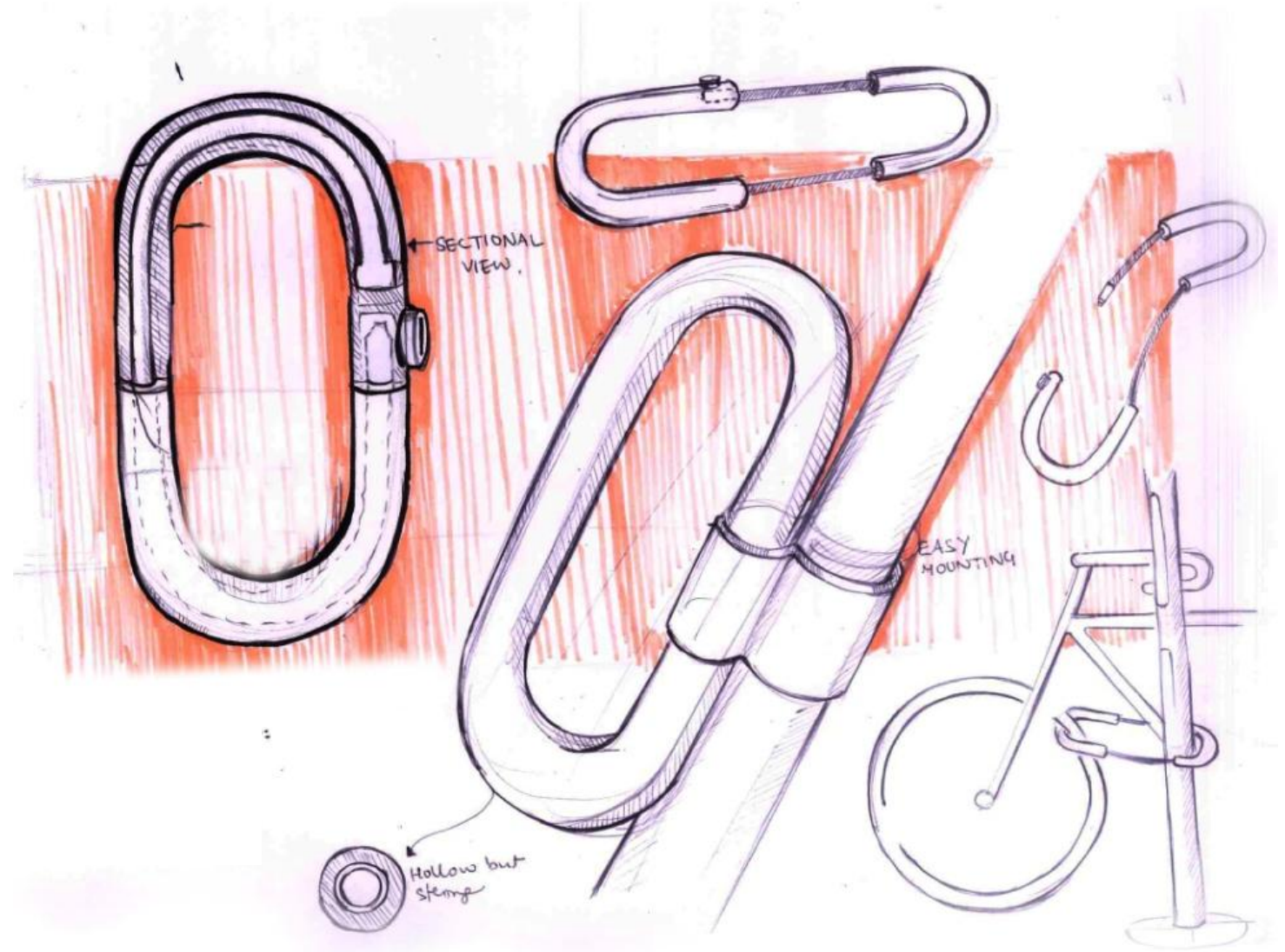


Ideation

Compact Double U

The Double U shaped lock has a rigid outer structure and a nestled flexible cable inside.

Makes it easier to store.

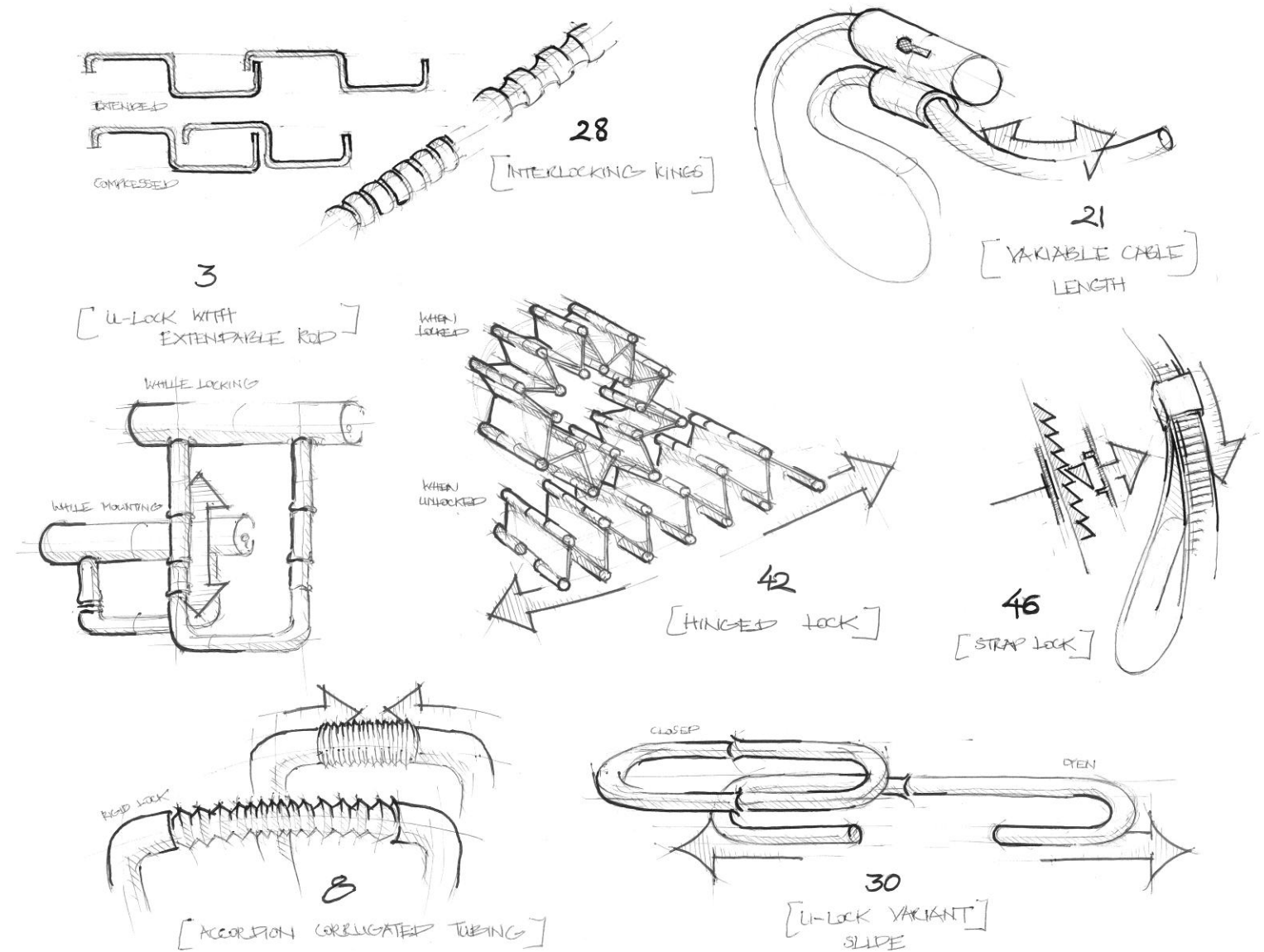


Ideation

Vinod Louis Joseph Swamy

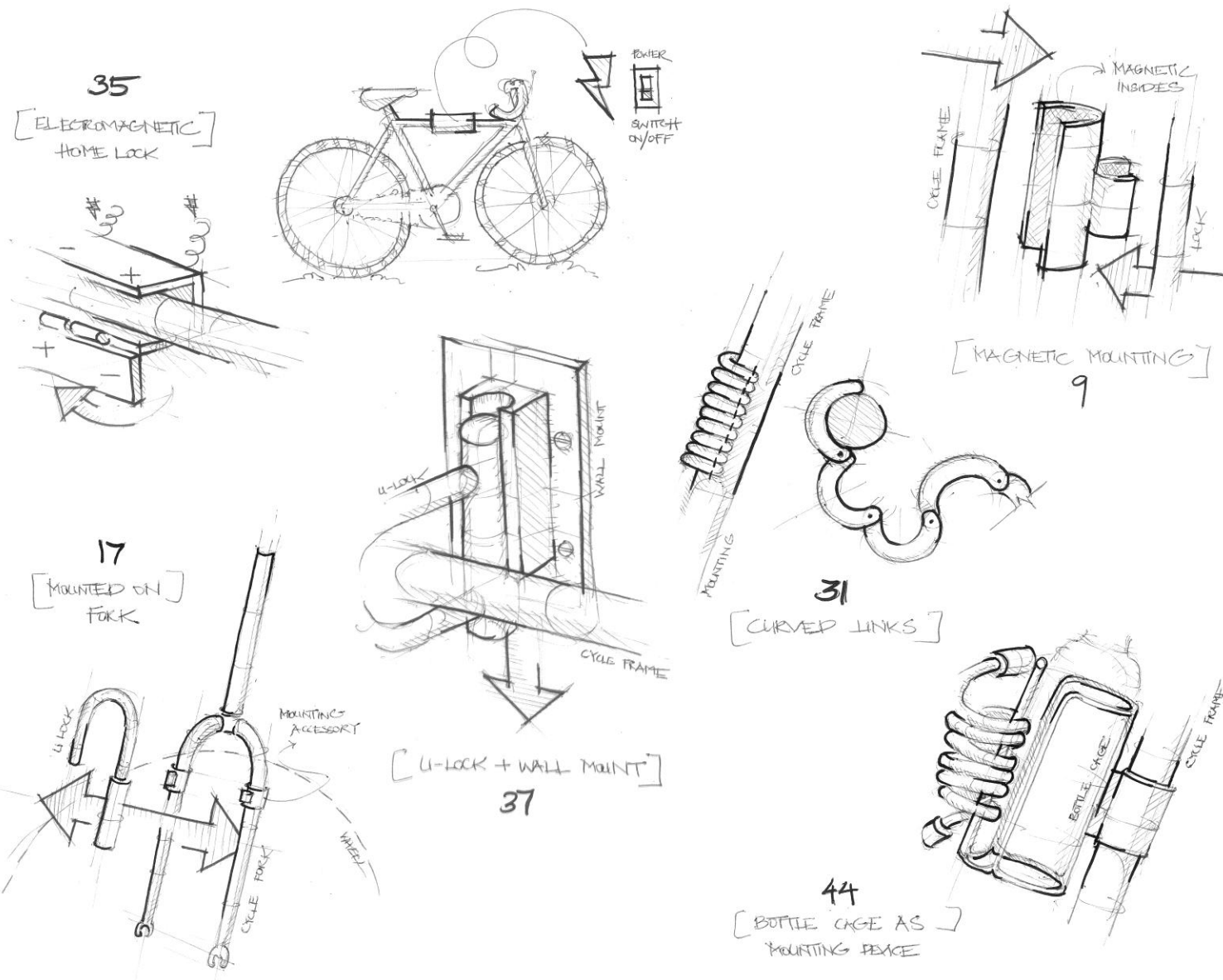
Ideation

Length Adjustment



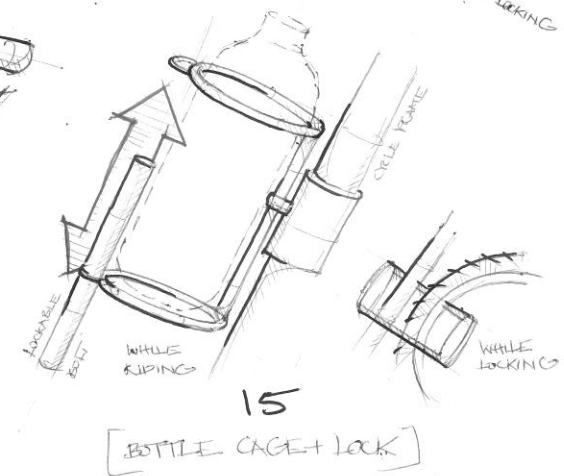
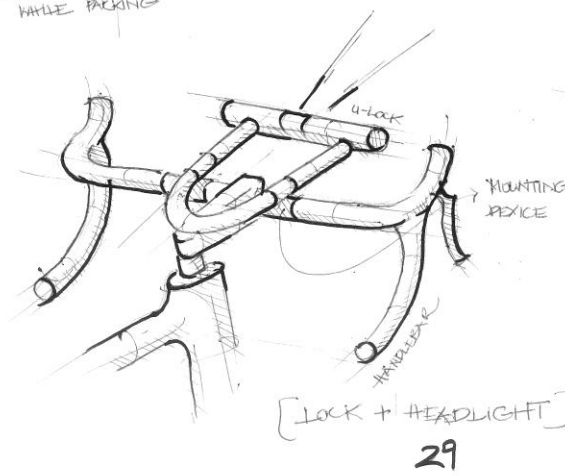
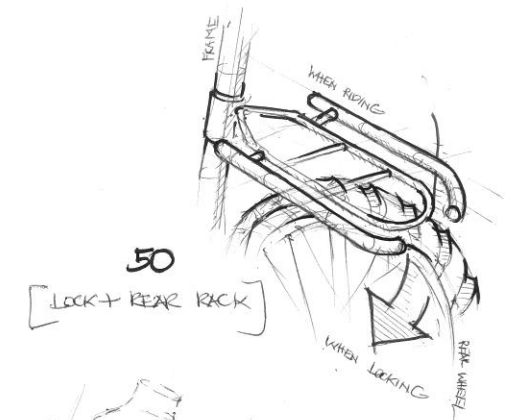
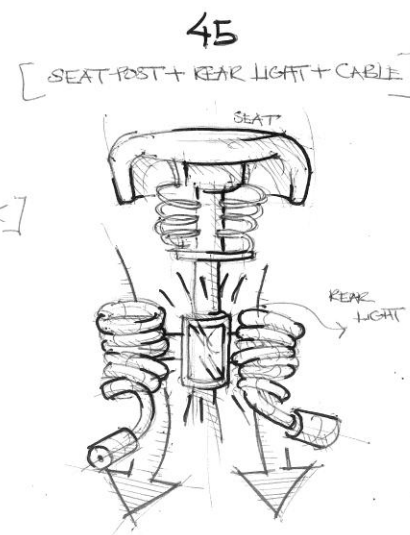
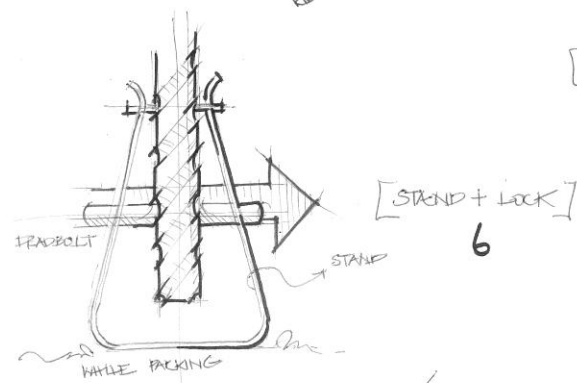
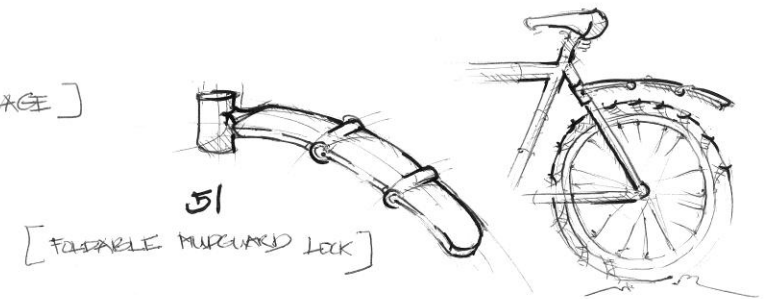
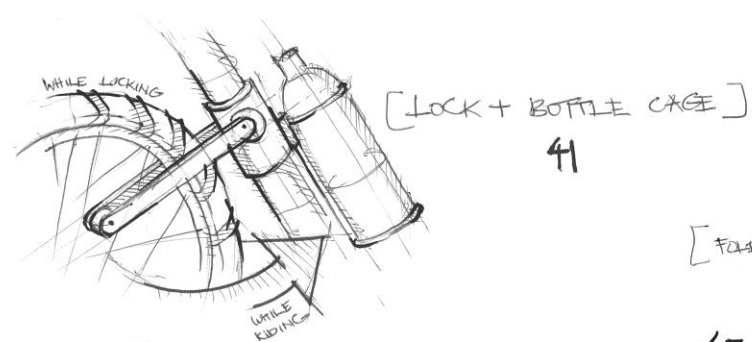
Ideation

Mounting Variation



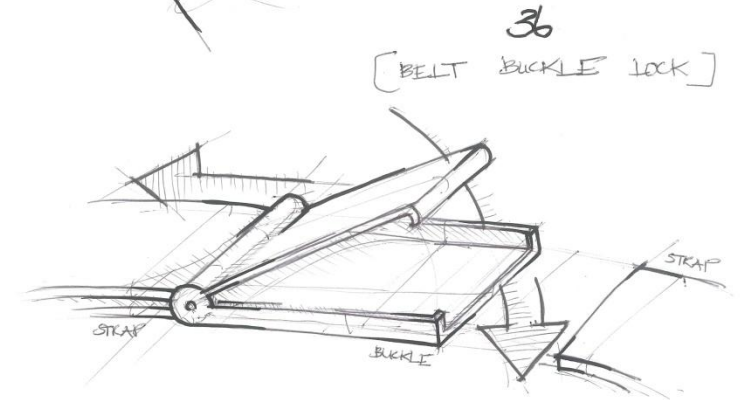
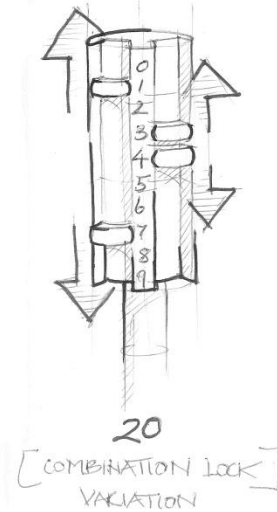
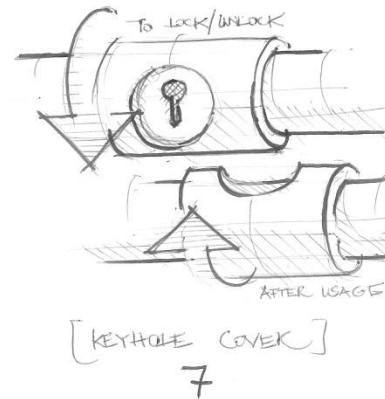
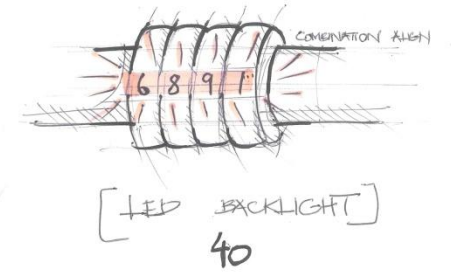
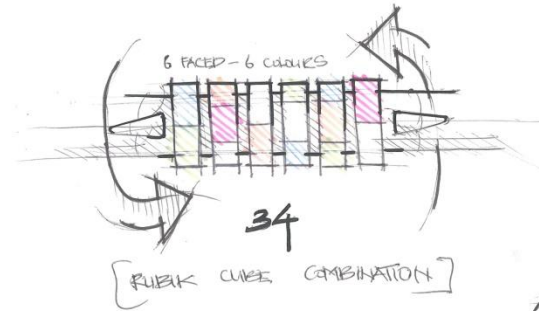
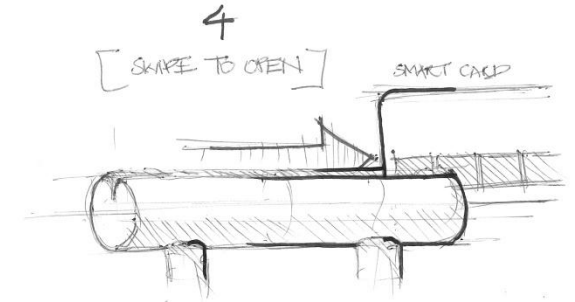
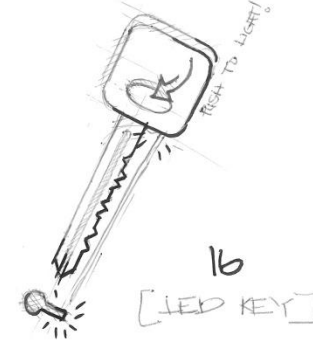
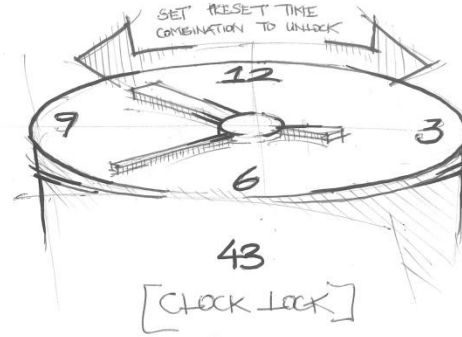
Ideation

Cycle Integration



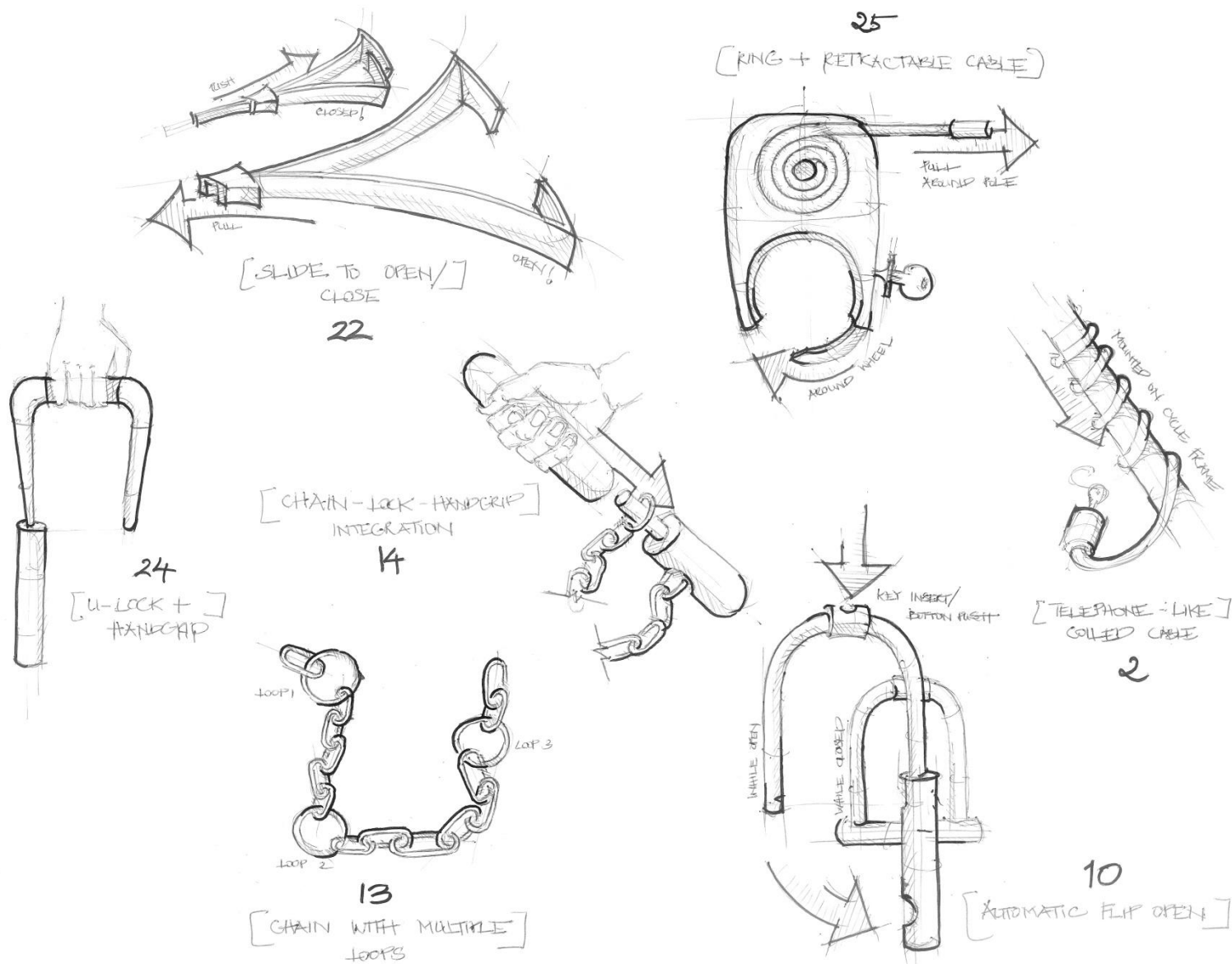
Ideation

Locking/Unlocking Variation



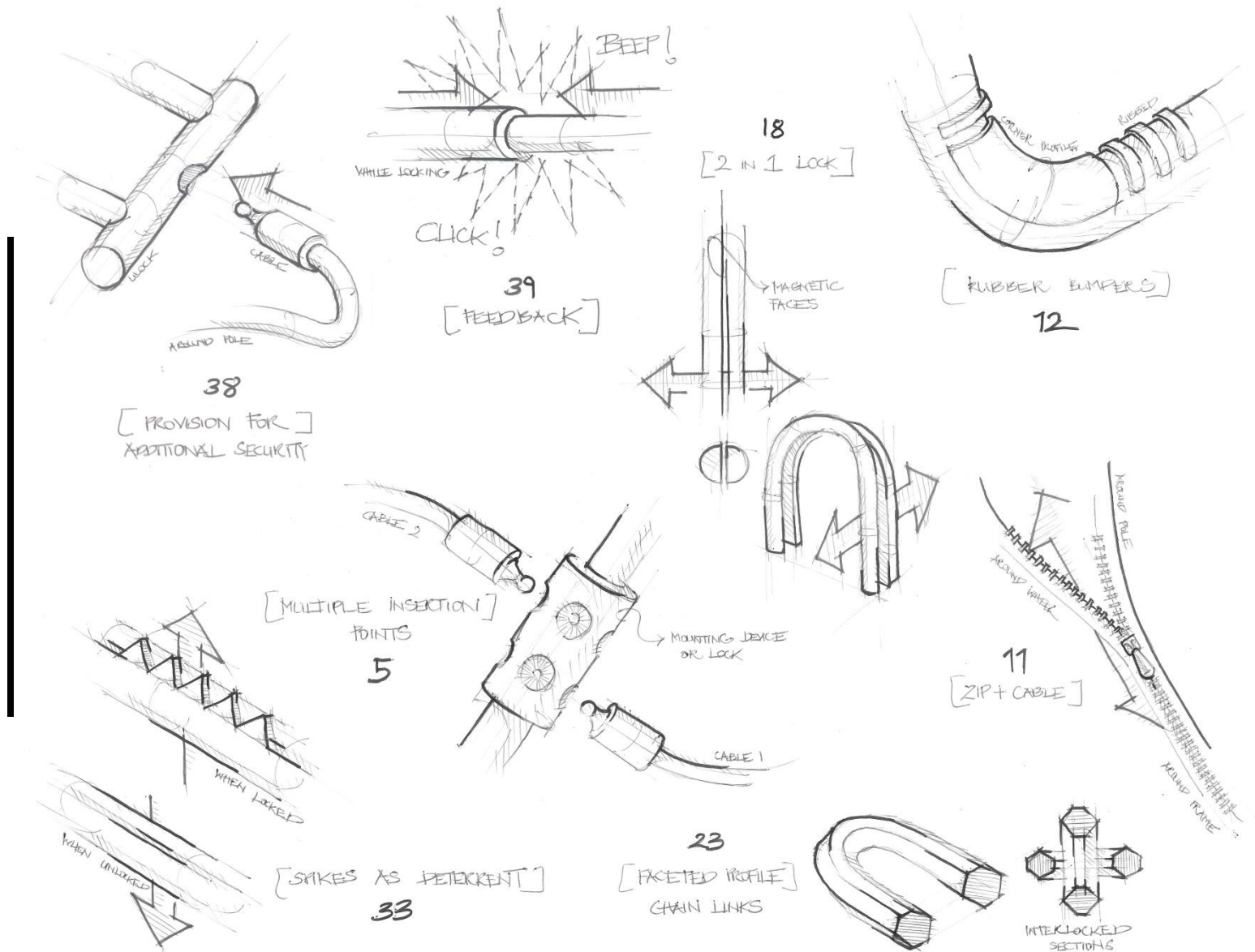
Ideation

Ease of Operation



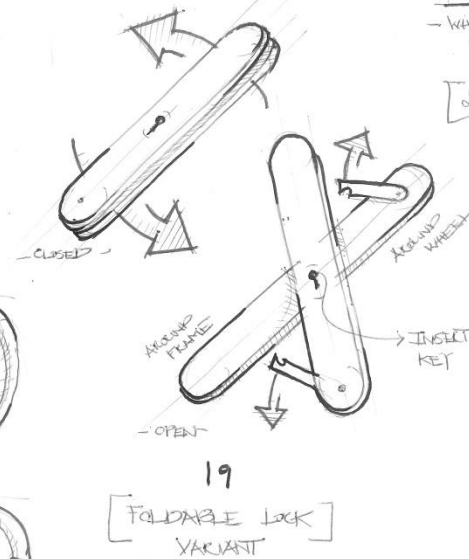
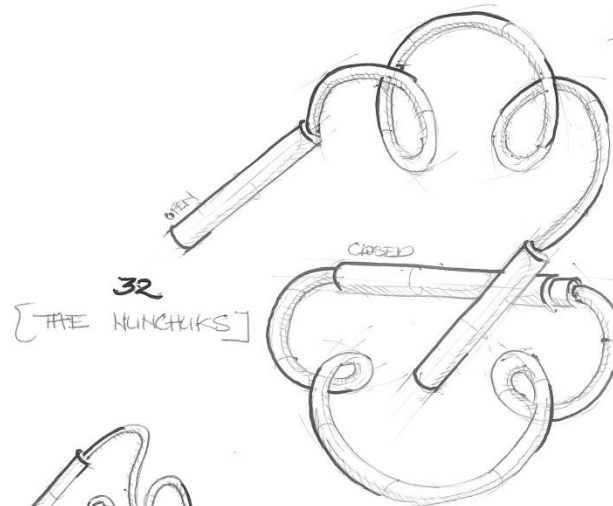
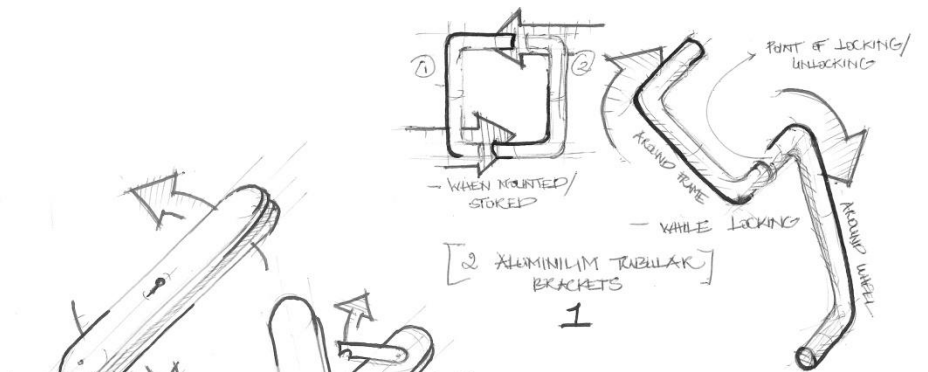
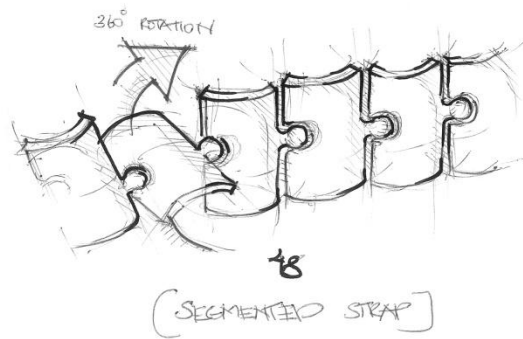
Ideation

Additional Security



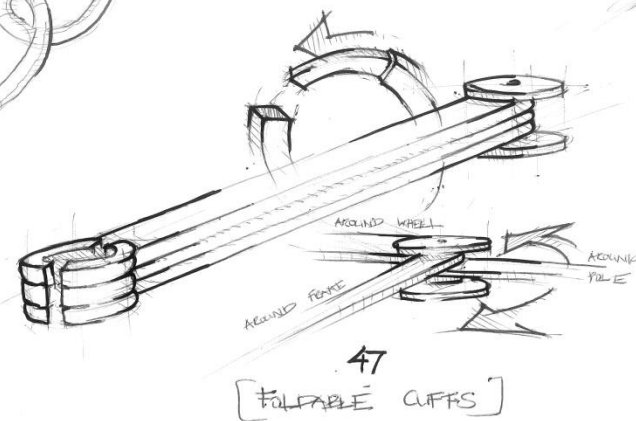
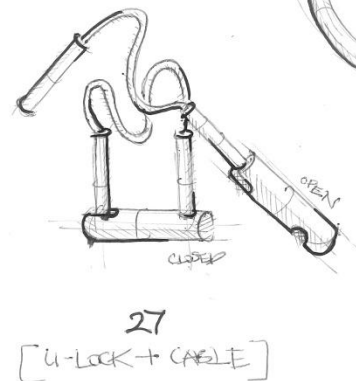
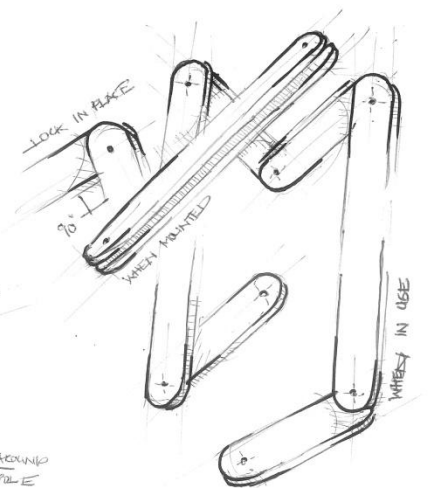
Ideation

Rigid Lock Variation

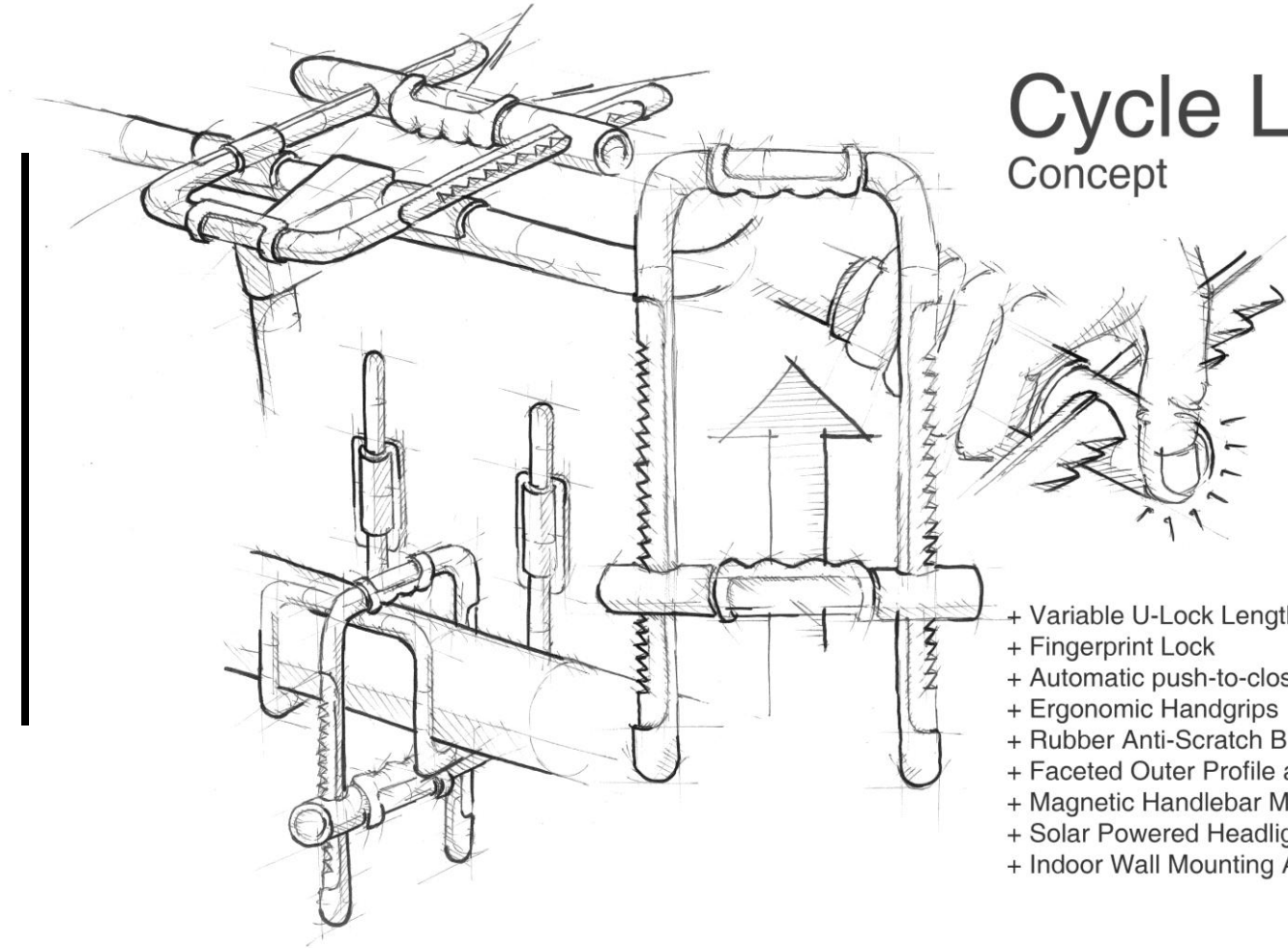


49

[FOLDABLE LOCK] VARIANT



Concept



Cycle Lock Concept

- + Variable U-Lock Length
- + Fingerprint Lock
- + Automatic push-to-close Lock
- + Ergonomic Handgrips
- + Rubber Anti-Scratch Bumpers
- + Faceted Outer Profile as Visual Deterrent
- + Magnetic Handlebar Mounting Accessory
- + Solar Powered Headlight
- + Indoor Wall Mounting Accessory

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Thank You

