

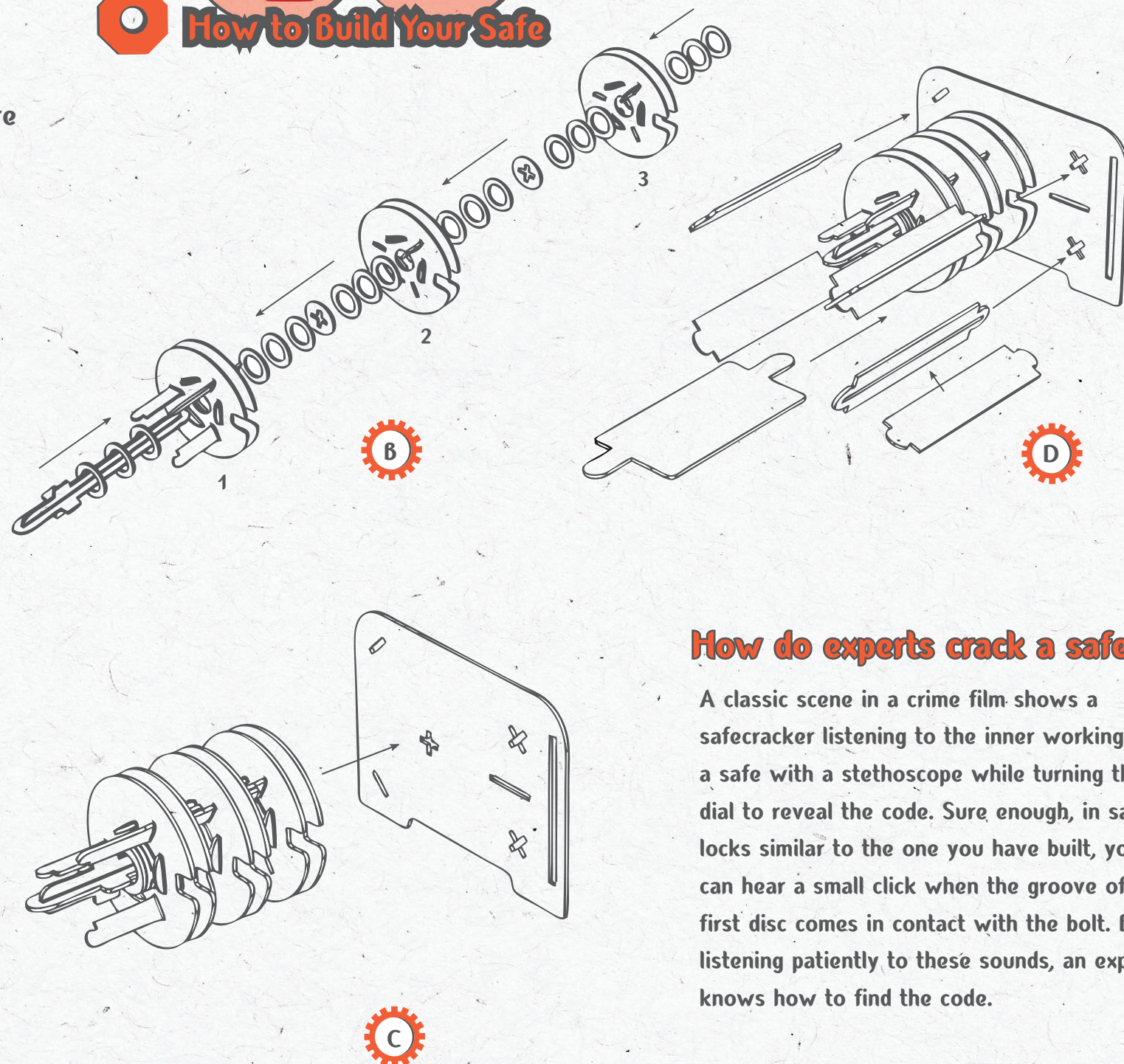
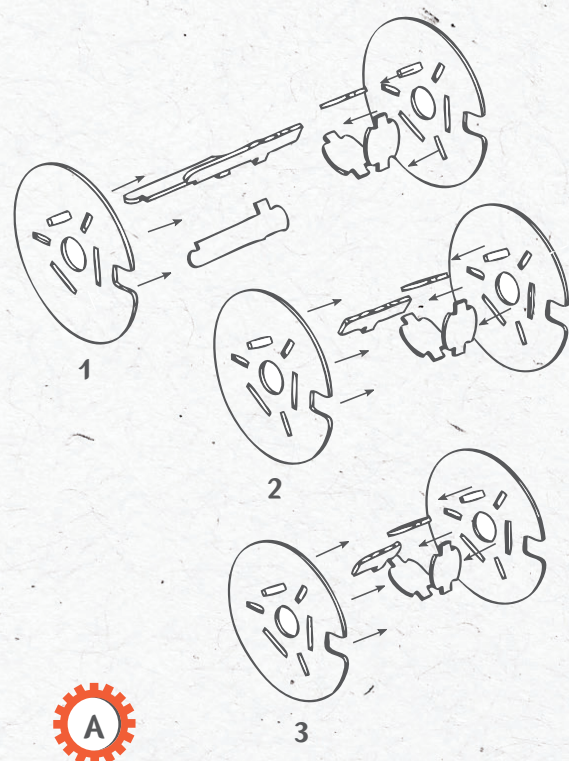
The Safe

People with valuables such as jewelry and cash have a serious problem on their hands. How do they keep these items safe from thieves? What would you do? You would probably use a safe. Most safes are strong metal boxes that are sealed using a dial combination lock, like the one you are about to build. They are only supposed to open if the correct combination is entered. But there is something you should know before you put your jewelry in the safe. Some expert safecrackers can open secure bank safes in a few minutes using only their sense of hearing and touch. Can you crack the safe?



Did you know?

There are many ways to crack a safe lock: manipulating the lock to obtain the correct combination, guessing the combination, and autodialing machines.



How do experts crack a safe?

A classic scene in a crime film shows a safecracker listening to the inner workings of a safe with a stethoscope while turning the dial to reveal the code. Sure enough, in safe locks similar to the one you have built, you can hear a small click when the groove of the first disc comes in contact with the bolt. By listening patiently to these sounds, an expert knows how to find the code.



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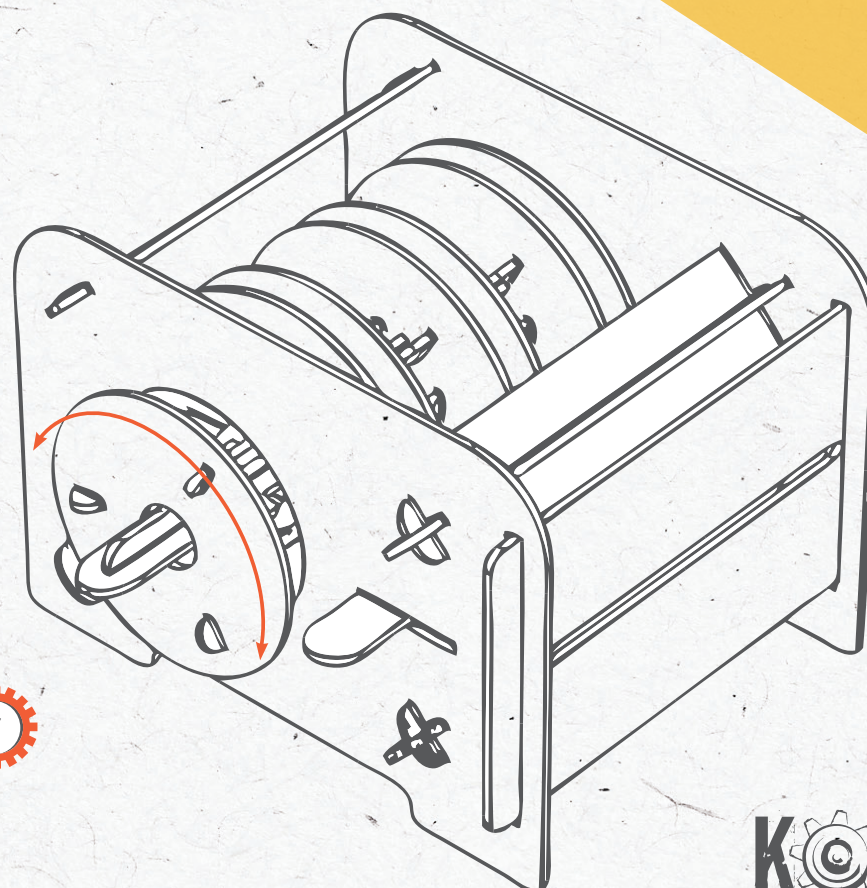
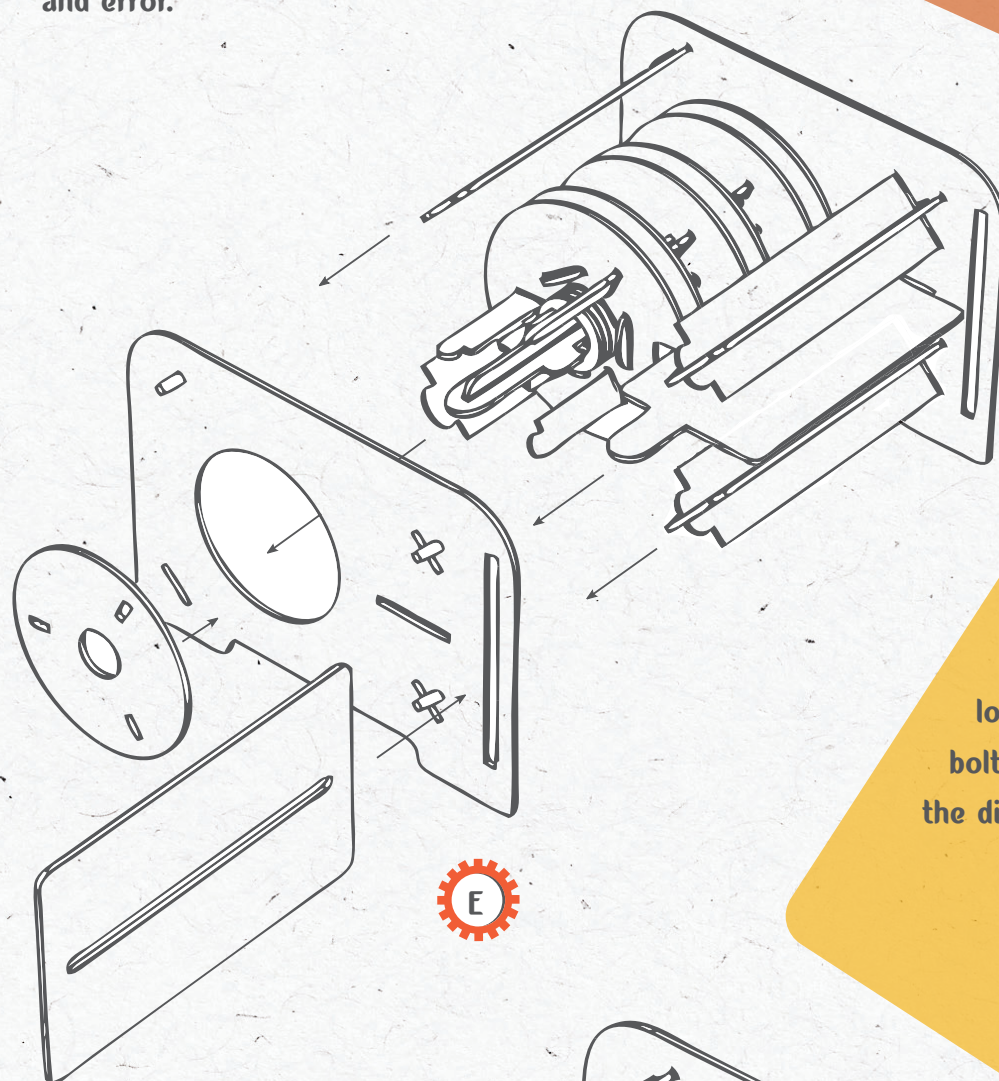


Made in China

How to Operate Your Safe

- Can you open your safe by turning the dial? How many times did you turn the dial before you managed to open it? How long did it take?
- When the safe is locked, the bolt cannot move inward, which prevents the door from opening. Only when all the grooves on the discs are lined up to face the bolt can it move inward. How did you get all the grooves lined up?
- Peek inside the safe lock. The set of parts that work together to create the lock is called the wheel pack. The number of wheels in a wheel pack determines how many numbers there are in the safe lock combination - one number for each wheel.
- The dial turns the first disc, the one closest to the dial. During the turn, the disc makes contact with a small tab on the adjacent wheel and turns the second disc. The second disc turns the third disc in the same manner.
- What do you do when the groove in the third disc is facing the bolt? You turn the dial in the opposite direction so as not to move the third disc any further.
- At the next stage, the dial is turned again, which turns the first disc, which turns the second disc, this time until the groove in the second disc is facing the bolt. Now all you have to do is turn the first disc in the opposite direction until the groove on it is facing the bolt.

- If you accidentally passed the correct spot on one of the discs, the previous disc that was already in place moves, and then the entire process has to be started all over again. This prevents the safe from being opened using trial and error.



It's Playtime!

Give your friends and relatives a chance to open the safe lock. How long did it take them to free the bolt? How many times did they turn the dial before they succeeded?

Did you know?

Expert safecrackers, which use only their sense of touch and hearing to manipulate safe locks, can open a well-protected bank safe in a few minutes. These experts even have their own world championships!