Lego Combination Safe

by merijnvw on June 25, 2009

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http://www.instructables.com/id/Lego-Combination-Safe/
Lego Combination Safe

Do you need a place to store your money, but you don't want to spend a lot on a strongbox? Then try this lego version, it's a little less theft-proof than a real one, but it comes close.

I've seen a few combination safes on youtube, but they all used an at least 5 times bigger mechanism than this one. So if you build this safe you have less chance to run out of lego bricks before you're finished.

IMPORTANT: Before you decide to build this, look at the second picture below! Those are the fancy pieces needed. The first, the nine curved bricks, are absolutely required, but not necessarily in red. The two springs, are not extremely important; without it, the door doesn't 'jump' open as you can see in the video below. All other pieces I used, are common lego pieces which belong in an average lego collection, or are well replaceable by a surrogate.

So if you decide to build it, proceed to the next step!

step 1: The Rotors

1: A round brick. Take three of these, as you can see in the bottom of the image. Each will be a rotor, number them 1,2, and 3, because later on, we'll treat each one different.
2: Place three curved bricks around it, leaving a gap which will be the rotor's notch.
3: A 4x4 plate on top of it.
4: Another round brick, on top of the plate.
5: Cover the rest with tiles.
6: Another plate, on top of the round brick, only for rotor 1 and 2.
7: Now place a 1x1 round brick on the top plate, the place of it will influence the number sequence of your safe. See the next image, an animated gif, to learn where you can put it.
8: Rotor 2 should be exactly like this. Rotor 3 aswell, but without the plate plus 1x1 round brick at the end. For rotor 1 you only need to add the two round plates at the beginning, without the stuff sticked in them.
**step 2: The Frame**

1. Lay down these plates. The 4x2 one with holes in it, is needed.
2. Add bricks like this.
3. And another layer.
4. Make another four of that, and stack them together.
5. Place 6x1 bars on these places.
6. Just a temporary plate to hold the brick where it should be.
7. Also a temporary plate, because those long holed plate break off fast without something behind it.
8. Maybe you already noticed you can insert the rotors in the frame. Also notice that their connection caps should point in the opposite direction compared to the frame's bricks!
9. These are the pins that will fall into the rotors. The one on the left is different because it will also open the door.
10. You need these staves plus connection element, to hold the pins you just made.
11. Take out the rotors again, for just a moment. First, from the right side, take the longer stave and slide it into the holes, and through the two small pins. Put the connection element at the end.
12. Now, form the left, slide in the smaller stave inside, through the longer pin. All pins should be above a 6x1 bar.
13. A little plate on the end to cover the stave.
14. Add holed bars like this. See the next two steps.
15. 3x2 plates to enclose the rotor's axes.
16. Add more holed bars and 1x4 plates. Not necessarily all bars need to have holes, see step 3.11 and 5.5 to see where there need to be holes, to hold the springs. I'm saying this because if you don't have a lot of holed bars, you don't have a problem. I filled this all with holed bars, because I will need a lot of grey bars without holes on the outside of the safe, and when I use those now, I could run out of un-holed bars when I need them.
17. Make two layers of plates on the back, leaving open the place of the last rotor's axis. I made the last face in black because I didn't have enough grey plates. You can cover the axis aswell, I didn't, because it's not necessary. Maybe you think that it would reveal the place of the 1x1 tab of the rotor, that's true, but it doesn't reveal the code. Because if you only know where the tab is, you don't know yet where the notch (the absent curved brick) of the rotor is.
1. this

1. pointed in the other direction!
1. This photo is overexposed because there's so much black.
step 3: The Door
1: compose a 12x7 plate.
2: Put a 12x6 plate on top of it.
3: Add eight 1x1 holed bricks/or four 2x1 bricks with two holes, even better.
4: Put connection staves in the holes. connect 4 holed-bars to it. It's no problem if you don't have exactly these ones! I composed them from two different bricks, but that's also not necessary. The important thing is, that there's are holes just over the ridge of the door, with a round edge. They need to be round, because they're going to be the hinges. There are a lot of bricks like this, they dont need to be with four holes, you can also use them with six holes. And the hole on the end doesn't even need to be + shaped. It may also be O-shaped.
5: Take a twelve-long stave, and build the thing on the left, with 1x1 holed bricks on it.
6: Join them together.
7: Fill the back of the door with bricks like this.
8: add plates, like this.
9: Take the spring and these other things.
10: Join them together.
11: Put it on the holed bars from the frame like this. It will push the door open. Also add those black connection sticks to hold the springs in place.

Image Notes
1. These exist as one brick aswell
step 4: The Dial

1: Take two discs with six connection sticks, and a five-length stave.
2: Take some pieces which will be the part of the dial to hold in your fingers when turning it. I took the inner part of a wheel and a round 2x2 plate, but I can understand if you don't have the weel rim. Use similar lego pieces, there exist a lot of them like this, or other discs to use for the dial, so this shouldn't be a problem.
3: Join it all together.

**dial design:** print this with the size of 4,5x4,5 cm(or 1,77x1,77 inch) on hard paper.
4: Make a hole in the middle, so, that a black stave fits in.
5: Put some hobby glue on it, You can use just a very little bit if you're going to execute step 7 and 8 aswell. If you don't want to get a little glue on your lego, you can enclose this paper between the two holed discs, but then there's a chance that later on the paper will move, and the combination you've remembered doesn't work anymore.
6: Hold it for a moment as the glue dries.
7: For the best result, take six *really* small nails.(even these are a bit too big)
8: Press them through the paper, on the places of the disc's connection sticks' holes.
9: Insert the dial into the first rotor, and carefully(because the first rotor isn't fully enclosed yet) test what your combination is. You should check this, because now you can see what happens with the rotors. In the next step we will build it in, so you can't see it anymore. If you disagree with the number, you can get the dial out, turn it it a quarter-revolution, and put it in again. Then repeat the test.
step 5: The Last Steps

1: Build the walls of the safe, and add the door. Do it with bricks with one in width. Be careful when building the walls, because you need to loosen the openings between the 4x2 bricks everytime, to get the bars between them. If you loosen them, don't pull them out of eachother too far, because then you'll break a rotor! And repairing is hard as you can hardly reach the rotors after a while. So constantly keep checking if the rotor pieces are still together, because later on, you won't be able to reach the rotors at all and you can't repair them; so you don't want them to break due to weakening during this step.

2: Place two layers of plates on it. Plus a holed place for the stave to come through. And leave a 2x2 gap around the axis between rotor 1 and the dial.

3: take a 4x2 plate and place two flat round plates under it.

4: Slide it on the stave.

5: Change the composition of the springs like this! In my first design, there was so much pressure, that the door would fly open fast, but it would fly off aswell. So if you like that, you can keep it the way it is, but i recommend to change it like this. The connection sticks on the bottom are both moved one hole to the outside, as well as the black connection sticks above it. The spring are upside down, so that the grey solid part touches the black sticks - if the spring part touches the black stick when compressing, the movement may stagnate.

6: In the door, place a flat 2x1 tile, to let the opening of the door run more smoothly.

7: It's finished!

8: Optional: If you have lego crocodiles, you can place them on top of the save, to scare lockpickers off.
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Comments

50 comments Add Comment

50 comments

gamer-x says:
love the aligators i have some so i will do this and put it into a moat i have ill take some pictures of it
Jun 29, 2009. 8:02 AM

gamer-x says:
if u really wanted to put your real money in the safe u could just put it into it and put that safe into another REAL safe???
Jun 29, 2009. 7:57 AM

atokad33 says:
sweet ill have to make this with my metal legos I have a friend that works for a company with a CNC milling machine and he made me a bunch of metal legos at my insistence
that's awesome btw
Jun 28, 2009. 6:27 PM

merijnvw says:
Metal legos??? Never heard of that!
Jun 29, 2009. 7:20 AM

Allowance10 says:
$0000000000000000000000000000000 Sick!!!!!!!!!!!!
You rule!
Jun 28, 2009. 9:01 PM

shaneomacmcgee says:
great, but the people after MY money have HAMMERS lol
great 'ible man, very cool!
Jun 28, 2009. 7:12 PM

dollardude says:
Great instructable but i dont think i could build that
Jun 28, 2009. 4:24 PM

Broom says:
merijnvw, you are officially now my god. Dank u wel.
Jun 27, 2009. 7:54 AM

merijnvw says:
i'm flattered
Jun 28, 2009. 4:04 PM

icewolf says:
Actually, meRijnvw :)
Nice instructable, BTW. I wouldn't have thought of that.
Jun 27, 2009. 11:59 AM

http://www.instructables.com/id/Lego-Combination-Safe/
merijnvw says:
you're right, he doesn't even know his own god's name!  
Jun 28, 2009, 4:05 PM REPLY

Broom says:
A TRUE god wouldn't mind... take j"h"v", for instance. Ack! You're a mere mortal! Begone!  
Jun 28, 2009, 10:05 PM REPLY

RMConstruction says:
actually, it begins with and i. i"h"v"  
Jun 29, 2009, 9:53 AM REPLY

RMConstruction says:
but the i is pronounced like a j  
Jun 29, 2009, 9:53 AM REPLY

earnst2w8 says:
nederlander!!! ( of belg ) maakt niet uit :P  
Jun 27, 2009, 9:12 AM REPLY

merijnvw says:
ja klopt haha  
Jun 28, 2009, 6:51 AM REPLY

robot797 says:
ik ook  
Jun 29, 2009, 3:16 AM REPLY

Wareagle says:
wow this thing is really cool! i will attempt to make it, but i don't have the spring parts. is there a way to make it without them?  
Jun 28, 2009, 3:07 PM REPLY

merijnvw says:
Yes sure, then you just have to pull the door open by yourself! Or you can take springs from a big pen, with a spring that fits around a black technic stave, and make the spring mechanism yourself.  
Jun 28, 2009, 3:12 PM REPLY

poparoo4 says:
its amazing but couldn't you just take the bottom off. maybe glue the pieces together?  
Jun 28, 2009, 9:24 AM REPLY

merijnvw says:
Yes that's true but i don't feel like gueing my legos  
Jun 28, 2009, 3:09 PM REPLY

shiakazee says:
man, this would be really useful for me. when i remember the combo i do the combo, when i forget i can always dismantle the safe and get my own monopoly money =)  
Jun 27, 2009, 8:25 PM REPLY

raimen says:
imao xD  
Jun 28, 2009, 10:43 AM REPLY

klee27x says:
This is very neat. I can think of worse ways to spend 2 hours. Can you source all the parts and make a kit with some instructions? Better yet, take your plans to Lego and see if they'll make it. I'd buy one!  
Jun 28, 2009, 12:24 AM REPLY

da888 says:
But would a burgalar think that you keep real money in a lego safe?  
Jun 26, 2009, 12:30 PM REPLY

http://www.instructables.com/id/Lego-Combination-Safe/
tanmanknex says:
no, and that's the beauty of it.

Jun 27, 2009, 9:34 PM

dannydutton says:
He does now.

Jun 27, 2009, 12:43 PM

GuardianFox says:
Gluing the model would be the logical next step.

Jun 26, 2009, 4:44 PM

Iridium7 says:
and gorilla glue

Jun 27, 2009, 4:35 PM

Iridium7 says:
there should be a glue that was like: duct tape, krazy glue, super glue, elmers glue, elmers wood glue all in a blender. we shall call it Norris glue!

Jun 27, 2009, 4:33 PM

Broom says:
Incorrect. Mastering the ancient art of Lego(tm)-safecracking would be the logical next step... followed by apprehension, a swift but fair trial by 12 Lego(tm) peers, and then 20 years to learn to break out of Lego(tm) jail.

Jun 27, 2009, 7:52 AM

Captain Molo says:
...Wow... But if you really wanted to get in you could just smash it

Jun 26, 2009, 4:33 PM

Holden_vy_s says:
So i cant use this too keep my millions of dollars in?
Damn.

Jun 27, 2009, 5:13 AM

Iridium7 says:
does your name happen to be Monty P. Moneypants?

Jun 27, 2009, 4:30 PM

daikan says:
Yes you can put your’re million dollar in it, no one who is going to steal you’re money thinks you put it in a lego save ;)

Jun 27, 2009, 6:27 AM

Broom says:
Brilliant!

Jun 27, 2009, 7:49 AM

dark sponge says:
But then some kid might walk away with it because they just wanted legos...

Jun 27, 2009, 12:45 PM

lemonie says:
I wouldn't have thought it possible, fantastic!

Jun 27, 2009, 12:55 PM

ChrysN says:
The crocodiles are a nice touch!

Jun 26, 2009, 4:33 PM

Broom says:
Agreed! And, without this comment, I wouldn't have noticed them.

Jun 27, 2009, 7:50 AM

http://www.instructables.com/id/Lego-Combination-Safe/
Human Being says:
no offence, but if a robber wanted ur monet THAT badley, he would just smash his fist on it and it would shatter. other than that, cool 'ible :@)

Jun 26, 2009, 5:27 PM

Broom says:
No offense, but duh.

Jun 27, 2009, 7:50 AM

mikeasaurus says:
ahhh....lego, is there anything you can't build?
This is a very clever project, ironically not-so-safe considering the material. The true genius is teh use of Monopoly money.
I like it! Great job!

Jun 26, 2009, 8:45 AM

1up says:
If you superglued the bricks together, it'd be a lot stronger. ;)

Jun 26, 2009, 4:53 PM

MegaMaker says:
Really?

Jun 27, 2009, 7:07 AM

Broom says:
No.

Jun 27, 2009, 7:48 AM

I mean, yes!

But I'd use duct tape, cuz I love it so much.

Scoboy says:
LOL lacoste

Jun 27, 2009, 4:39 AM

vandalex says:
i think its cool, a little super glue, model cement or something might actually make it sort of practical

Jun 26, 2009, 8:33 PM

Shadow Ops says:
A lego safe! Not practical, but a neat concept!
<smashes on ground and runs away>

Jun 26, 2009, 12:07 PM

Bartboy says:
Haha... the knex version can't be smashed!

Jun 26, 2009, 1:25 PM

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