

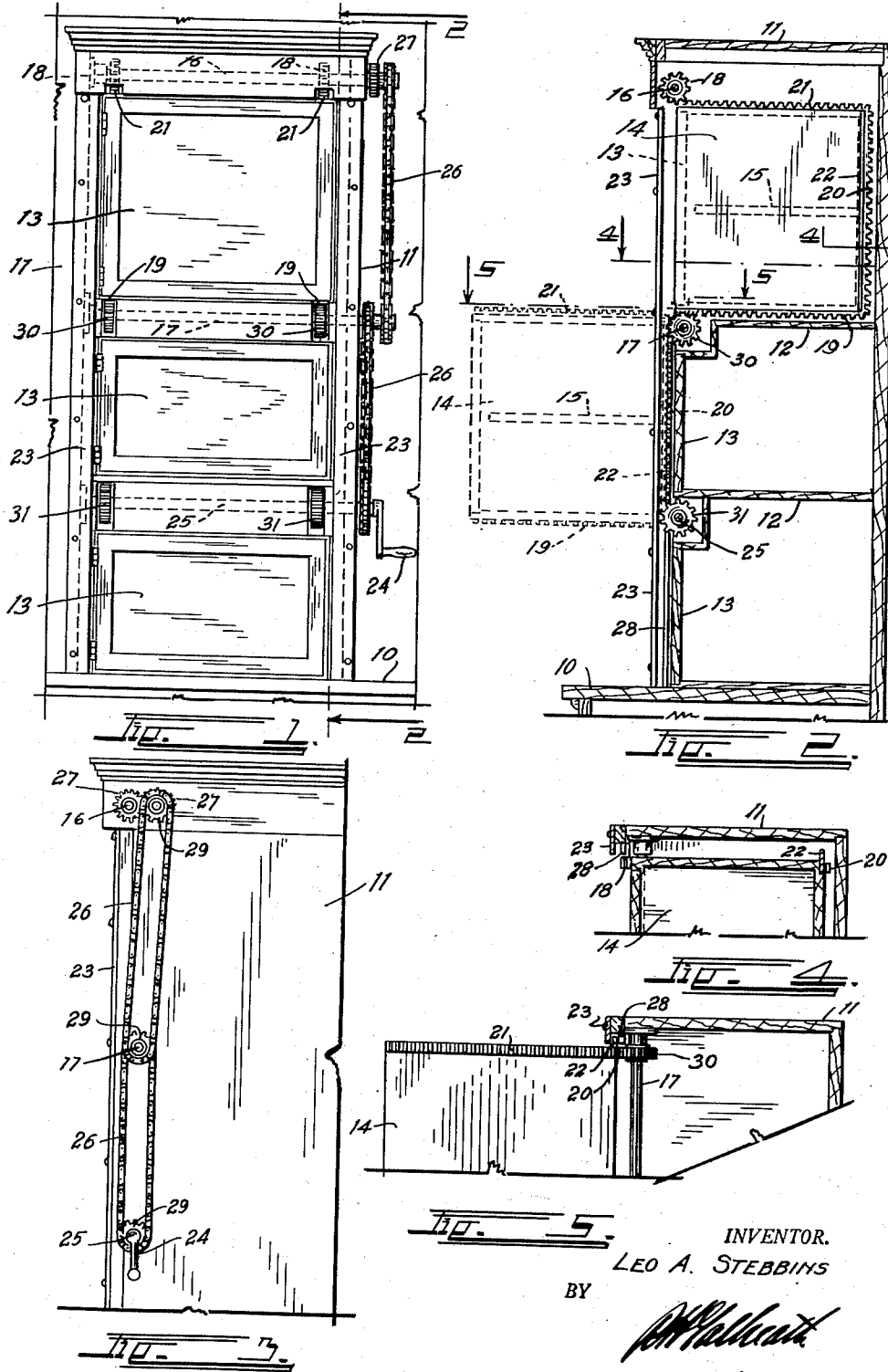
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PULL DOWN CABINET

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PULLDOWN CABINET

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This invention relates to a cabinet lowering device, and while more particularly applicable to what are known as kitchen cabinets, will be found useful in any type of cabinet in which the upper cases of the cabinet are difficult of access.

The principal object of the invention is to provide a cabinet in which the upper cases or portions thereof can be quickly and easily lowered to an accessible position, regardless of the height of the cabinet.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a front view of a cabinet in which the invention is embodied;

Fig. 2 is a vertical section therethrough, taken on the line 2—2, Fig. 1;

Fig. 3 is a side view thereof;

Fig. 4 is a detail horizontal section, taken on the line 4—4, Fig. 2; and

Fig. 5 is a similar horizontal section, taken on the line 5—5, Fig. 2, showing the upper case of the cabinet in the extended position.

In some installations the improved cabinet will be placed upon a lower counter 10 and may be of any desired height or width. As illustrated, the counter 10 supports a cabinet 11 provided with suitable shelves 12 dividing it into vertical sections. Each of the sections may be closed by means of suitable doors 13.

A shelf case 14 is mounted on the upper section. The case 14 may contain shelves, such as indicated at 15, and may, if desired, be provided with a suitable door 13.

An upper gear shaft 16 extends across the top of the front of the upper section, and a similar lower gear shaft 17 extends across the bottom thereof. The shaft 16 carries a pair of spur gears 18, there being one gear at each side of the cabinet 11. The shaft 17 carries a pair of similar, similarly placed gears 30. A crank shaft 25 also extends across the cabinet 11 below the gear shaft 17 and carries a pair of similar, similarly spaced spur gears 31.

The crank shaft 25 may be rotated in any desired manner such as by means of a hand crank

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24. The rotation is transmitted to the shafts 17 and 16 by means of suitable drive chains 26 and sprockets 29 or in any other desired manner. The upper gear shaft 16 is caused to rotate in a direction opposite to the shafts 17 and 25 by means of a pair of reversing gears 27 interposed between the uppermost sprocket 29 and the shaft 16.

A toothed rack 19 is secured at each side of the bottom of the case 14 in alignment with the lower gears 30.

A pair of toothed racks 20 join the bottom racks 19 and extend vertically up the back of the case 14 and two similar toothed racks 21 join the racks 20 and extend forward therefrom in alignment with the upper gears 18. It can be seen that, if the shafts 16 and 17 are rotated in opposite directions, the gears 18 and 30 will act upon the racks 21 and 19 respectively to move the case 14 forwardly or outwardly.

The outward movement is limited by a pair of guide flanges 22, there being one flange positioned vertically along the rear edge of each end of the case 14. These flanges contact front molding bars 23 extending vertically at each side of the cabinet 11 for its entire height. Rear molding bars 28 extend downwardly from the gears 30 at each side of the cabinet. The bars 28 are spaced inwardly from the bars 23 to form a vertical guide groove therebetween to receive the guide flanges 22, as shown in Fig. 5.

Should it be desired to lower the case 14 within convenient reach, the operator rotates the crank 24 in a counter-clockwise direction. This causes the gears 18 and 30 to engage the racks 21 and 19, respectively, so as to move the case 14 horizontally forward. This movement continues until the guide flanges 22 strike the front molding bars 23.

The entire weight of the case 14 is now supported by the gears 30 on the shaft 17 which are in mesh with the vertical racks 20. Continued rotation causes the racks 20 to travel downwardly over the gears 30 carrying the case 14 to the broken line position of Fig. 2. The racks 20 will now engage the gears 31 of the shaft 25 so that these latter gears may continue to lower the case entirely to the counter 10 within easy reach.

Reverse or clock-wise rotation of the crank 24 causes the gears 31 to act against the racks 20 to lift the case 14 vertically, the guide flanges 22 traveling in the slots between the front molding bars 23 and the rear molding bars 28. The racks 20 enmesh with the gears 30 before they leave

the gears 31 and are carried upwardly by the gears 30 until they contact the upper gears 18. Continued rearward rotation causes the gears 18 to engage the top racks 21 and the gears 30 to engage the bottom racks 19 to carry the case 14 inwardly to its normal position.

As illustrated, the cabinet is provided with three gear shafts. Exceedingly high cabinets could be provided with the necessary additional shaft to carry the case to a convenient position from any given height.

For clarity of illustration the operating mechanism, that is, the chains 26, sprockets 29 and gears 27 are shown exposed. In an actual cabinet, these would preferably be covered. Such a covering is within the skill of any cabinet maker.

While only one vertical tier of cabinet sections has been illustrated, it is of course understood that similar, additional tiers can be placed side by side to make a cabinet of any desired width. In the latter event, the shafts 13, 17 and 25 could continue for the full width of the cabinet.

The shafts have been shown rotated from a hand crank for the purpose of simplicity. It is of course within the skill of the routine designer to connect an electric motor to replace the hand crank if it appears advisable.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

1. A cabinet comprising: a cabinet having an open front and being divided into vertically arranged sections; a box-like case removably positioned in the uppermost section; an upper gear shaft extending horizontally across the top of the front of said uppermost section; a lower gear shaft similarly extending across the bottom of the front of said uppermost section; a pair of spaced-apart gears secured on each gear shaft; a pair of similarly spaced toothed racks extending in parallel relation rearwardly across the top and bottom of said case in mesh with said gears; means for rotating the two gear shafts in opposite directions to cause said gears to act upon said racks to move said case horizontally; a vertically positioned guide flange at the rear edge of each side of said case; a vertically positioned molding strip at each side of said uppermost section in the paths of said guide flanges to stop the forward motion of said case; a vertical guide channel extending downwardly from each side

of said uppermost section along the front of said cabinet to guide said guide flanges therealong; and a pair of rear toothed racks on the back of said case positioned vertically to enmesh with the gears on the lower gear shaft as said guide flanges travel in said guide channels.

2. A cabinet comprising: a cabinet having an open front and being divided into vertically arranged sections; a box-like case removably positioned in the uppermost section; an upper gear shaft extending horizontally across the top of the front of said uppermost section; a lower gear shaft similarly extending across the bottom of the front of said uppermost section; a pair of spaced-apart gears secured on each gear shaft; a pair of similarly spaced toothed racks extending in parallel relation rearwardly across the top and bottom of said case in mesh with said gears; means for rotating the two gear shafts in opposite directions to cause said gears to act upon said racks to move said case horizontally; a vertically positioned guide flange at the rear edge of each side of said case; a vertically positioned molding strip at each side of said uppermost section in the paths of said guide flanges to stop the forward motion of said case; a vertical guide channel extending downwardly from each side of said uppermost section along the front of said cabinet to guide said guide flanges therealong; a pair of rear toothed racks on the back of said case positioned vertically to enmesh with the gears on the lower gear shaft as said guide flanges travel in said guide channels; a power shaft extending between said guide channels below said lower gear shaft; gears on said power shaft for meshing with said rear toothed racks when the latter move below said lower gear shaft; and means for rotating all of said shafts in unison.

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