Oct. 14, 1958 H. DOESKEN 2,856,255

SWINGING DRAWER ACTUATING MECHANISM

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Fig. 1

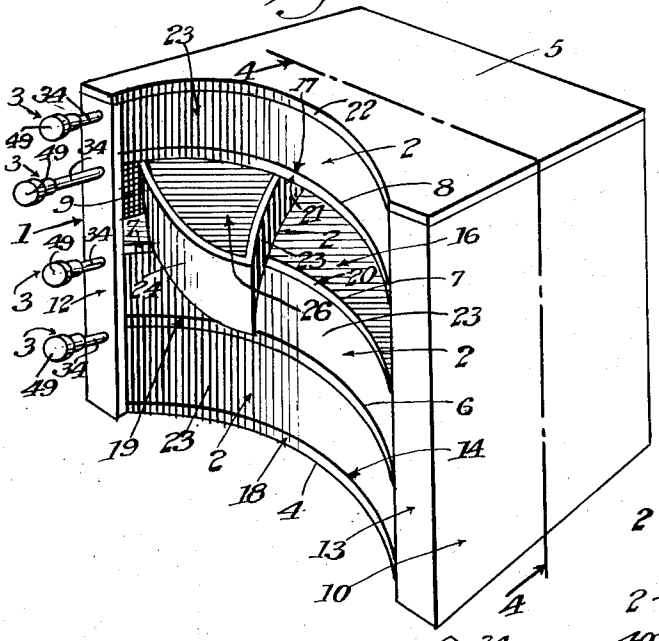


Fig. 3

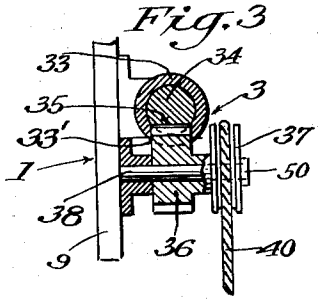


Fig. 4

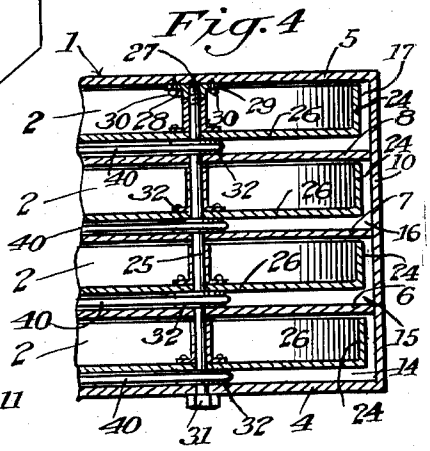
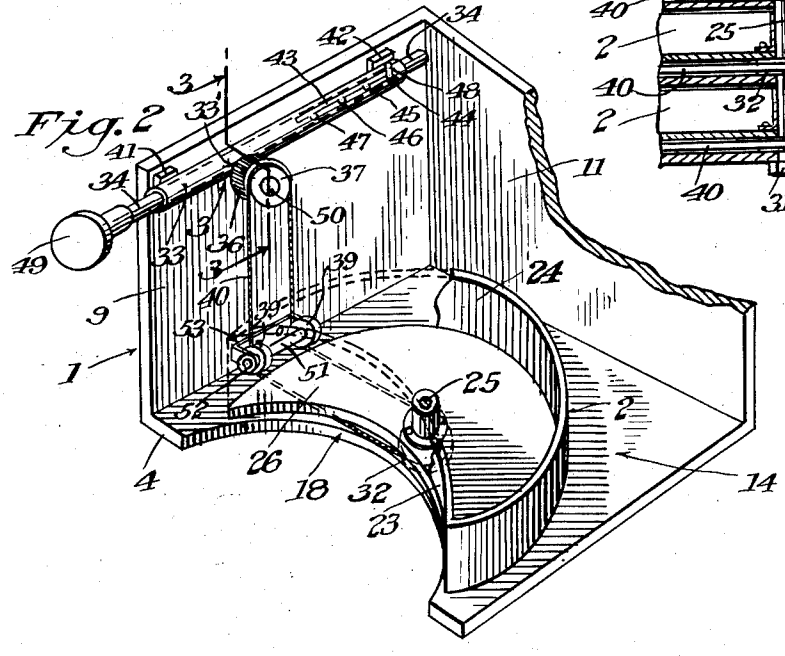


Fig. 2



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SWINGING DRAWER ACTUATING MECHANISM

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1 Claim. (Cl. 312—319)

This invention relates to cabinets, and more particularly to that type of cabinet with superimposed swingable drawers, and the general object of the invention is to provide an improved actuating mechanism for opening and closing said swingable cabinet drawers.

A more particular object of the invention is to provide an actuating mechanism of the character stated, which may be easily and positively operated for opening or closing the swingable drawers of the cabinet.

Another object is to provide an actuating mechanism of the character stated, by means of which the cabinet drawers may be detachably held securely in closed position, or in open position, or in one or more partly open or partly closed positions.

A further object is to provide a cabinet with swingable drawers in which the cabinet frame is concaved at the front thereof, so that the drawers of the cabinet, when swung open, will project only a minimum distance forwardly of the front of the cabinet frame, whereby the overall depth of the cabinet is reduced to occupy less room than it would otherwise occupy.

Other objects and advantages will appear hereinafter as this specification progresses.

The invention is illustrated in the annexed drawing, forming a part of this specification, in which:

Fig. 1 is a perspective of a cabinet embodying my invention.

Fig. 2 is a perspective of the drawer actuating mechanism of my novel cabinet.

Fig. 3 is a vertical section of a detail of construction of the drawer-actuating device taken on line 3—3 of Fig. 2.

Fig. 4 is a transverse vertical section of my invention taken on line 4—4 of Fig. 1.

Referring more particularly to the drawing, in which the same parts are designated by the same reference numerals in all of the views, my invention includes generally a cabinet 1, a plurality of superimposed swingable drawers 2 operatively mounted in said cabinet, and an actuating mechanism 3 for said drawers also mounted in said cabinet.

The cabinet 1 is formed with a lower horizontal wall 4, an upper horizontal wall 5, a plurality of vertically spaced horizontal partitions 6, 7 and 8 in said cabinet between said lower wall 4 and said upper wall 5, side walls 9 and 10 at the side edges, respectively, of said lower and upper walls and said partitions, a rear wall 11, and front vertical rails 12 and 13 extending inwardly toward each other from the front edges of said side walls 9 and 10, respectively, and adjacent the front edges of said lower wall and upper wall and said partitions.

The lowermost partition 6 is spaced above the lower wall 4 of the cabinet 1, and the uppermost partition 8 is spaced below the upper wall 5 of said cabinet as well as the partitions 7 and 8 are spaced above the partitions 6 and 7, respectively, whereby drawer compartments 14, 15, 16 and 17 are provided between the lower wall 4 and partition 6, between partition 6 and partition 7, between partition 7 and partition 8, and between partition 8 and upper wall 5, respectively, for the four drawers 2, respectively. The forward edges 18, 19, 20, 21 and 22 of the lower wall 4, lower partition 6, intermediate partition 7, upper partition 8 and upper wall 5, respectively, are concaved to provide greater space for access to the drawers 2 when swung into open position than otherwise if the forward edges of said walls and partitions were straight, and such construction and arrangement makes it unnecessary to swing the drawers 2 open as far as they would have to be swung if the forward edges of said walls and partitions were straight, thus making it possible to reduce the depth of the cabinet so as to take up as little room as possible.

The forward vertical wall 23 of each drawer 2 is concave, while the remaining vertical wall 24 between the ends, respectively, of said vertical concave forward wall 23 is arcuate, with the ends of said concaved wall intersecting the ends of said arcuate wall, so that when each drawer is swung into its closed position, its forward vertical concave wall 23 coincides with the forward concave edges of the lower and upper walls and the partitions, respectively, of the cabinet 1.

A vertical pivot bolt 25 extends upwardly, centrally through the cabinet 1 through the lower horizontal wall 4 and the partitions 6, 7 and 8, and through the bottom walls 26 of the drawers 2, and the upper end of said bolt is threaded at 27 into a threaded socket 28 formed with an upper external flange 29 which is secured to the under side of the upper wall 5 of said cabinet by screws 30, there being a bolt head 31 on the lower end of the bolt 25 which engages the lower side of the lower wall 4 of the cabinet 1. To the under side of the bottom wall 26 of each drawer 2 is secured a pulley 32 at the center of the drawer, through which pulley extends said bolt 25 which is stationary, and on which bolt each pulley 32 and the drawer 2 to which said pulley is secured, is adapted to turn in the manner hereinafter more fully described.

An actuating mechanism 3 is provided for each of the drawers 2, and is mounted in each drawer compartment 14, 15, 16 and 17, respectively, and each of said actuating mechanisms comprises a tubular guide 33, a slide bolt 34 slidably and turnably mounted in said tubular guide, a rack 35 on the lower side of said slide bolt 34, a gear 36 in mesh with said rack 35, a pulley 37 secured on the shaft 38 on which said gear 36 is also secured, a pair of guide pulleys 39, and an endless cord 40 which extends over said pulley 37, said guide pulleys 39, and over the pulley 32 secured to the under side of the bottom wall 26 of a drawer 2.

The tubular guide 33 of each actuating mechanism 3 is supported by supports 41 and 42 secured to the inner side of the side wall 9 of each drawer compartment 14, 15, 16 and 17, respectively, of the cabinet 1, and each tubular guide 33 is provided with an opening 33' in its lower side to receive the teeth of the gear 36 in mesh with the teeth of the rack 35 on the lower side of the slide bolt 34. Each tubular guide 33 is provided with a longitudinal slot 43 extending from the rear end of said guide in the upper side of the wall thereof, and in one side edge of said slot is provided four notches 44, 45, 46 and 47 to receive a pin 48 extending upwardly from the rear end of said slide bolt 34 through said slot 43 in said guide for the purpose hereinafter more fully described.

The forward end of each slide bolt 34 extends forwardly through the vertical side edge rail 12 adjacent the forward edges of the side wall 9 of the cabinet 1, and a control knob 49 is secured on the forward end of said slide bolt 34 forwardly of said side edge rail 12, which knob may be grasped for pulling or pushing or turning

said slide bolt, for opening or closing or locking a drawer **2**, in the manner hereinafter more fully described.

A rack **35** is on the lower side of each slide bolt **34** and meshes with a gear **36** turnably mounted on a bolt **38**, which is secured at its forward end in the side wall **9** and which bolt also extends through the pulley **37** with the head **50** of said bolt engaging the outer side of said pulley **37**, which pulley and the adjacent gear **32** are secured to each other to turn together. The pulleys **39** are secured on a shaft **51**, journaled in bearings **52** of a U-shaped bracket **53** secured to the inner side of the side wall **9** of the cabinet **1** in each drawer compartment of said cabinet.

The operation of my invention is as follows:

Normally, the drawers **2** are closed by their actuating mechanism **3** upon pushing the slide bolts **34** of each of said actuating mechanisms inwardly, whereby said drawers are swung into their closed position by means of the intermeshing bolt racks **35** and gears **36** and the rotation of said drawers on their pivot bolt **25**, through the medium of the rotation of the pulleys **37**, by said gears **36**, and the rotation of the pulleys **39** and **32** by said pulleys **37**, through the medium of the cords **40** extending over said pulleys **37**, **39** and **32** of said actuating mechanisms **3**, respectively, in which closed positions of the drawers the rear arcuate walls **24** of said drawers are swung back into the rear of the drawer compartments **14** to **17**, inclusive, while the forward curved front walls **23** of said drawers **2** are swung into their forward positions in registry with the curved forward edges **18** to **21**, inclusive, of the lower drawer compartment walls **4**, **6**, **7** and **8** inclusive, and in which closed position of the drawers the forward curved front walls thereof are offset inwardly of the front of the cabinet **1**.

The drawers **2** may be detachably locked in their closed position by turning the slide bolts **34** to the right in their tubular guides **33** until the pins **48** projecting from the rear ends of said slide bolts **34** engage the notches **44** in the rear ends of the tubular bolt guides **33**, whereby the slide bolts **34** are prevented from being pulled outwardly and the drawers are thereby prevented from being swung open.

To open the drawers **2** it is only necessary, when the bolts are turned so that the bolt pins **48** extend through the slots **43** in the tubular bolt guides **33**, to pull the slide bolts **34** outwardly by means of the knobs **49**, whereby the drawers are swung outwardly into their open positions

on their pivot bolt **25**, through the medium of the intermeshing bolt racks **35** and gears **36**, the rotation of the pulleys **37** by said gears **36**, and the rotation of the drawer pulleys **32** by pulleys **37**, through the medium of the cord **40** and guide pulleys **39**.

The drawers **2** may be detachably locked in their open positions by turning the slide bolts **34** to the right in their tubular guides **33** until the bolt pins **48** engage the forward notches **47** in said guides **33**, whereby the slide bolts are prevented from being pushed inwardly and the drawers **2** are thereby prevented from being swung closed.

The drawers **2** may be partly opened or closed more or less by turning the bolts **34** until their pins **48** engage the notches **45** or **46** and prevent either inward or outward movement of the slide bolts **34** and swinging movement of the drawers **2** in either direction as hereinbefore described.

I claim:

In a swingable drawer cabinet, a cabinet, a swingable drawer pivotally mounted in said cabinet, an actuating mechanism for said swingable drawer comprising a slide bolt mounted in said cabinet, a rack formed on said slide bolt, a gear in mesh with said rack, a pulley secured coaxially to said gear, drawer pulley secured to said drawer coaxially therewith, an intermediate pulley, and a cord extending over said gear pulley, said intermediate pulley and said drawer pulley, whereby said drawer is swung into closed position or open position upon pushing said slide bolt inwardly or pulling said bolt outwardly, through the medium of said rack, gear in mesh with said rack, gear pulley, intermediate guide pulley, drawer pulley, and cord extending over said pulleys.

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