

[54] DEAL DRAWER

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[51] Int. Cl.**E06b 7/32**

[58] Field of Search.....**109/19, 23, 45, 50; 232/1 R, 232/1 D, 4 D, 4 E, 43.1, 43.2, 43.3, 43.4, 44; 312/140**

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[57] **ABSTRACT**

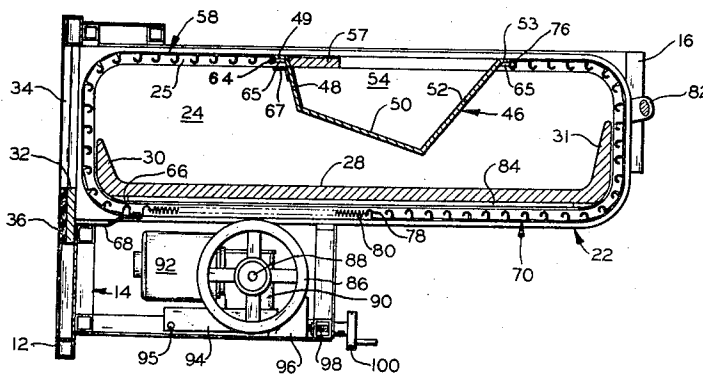
A deal drawer mounted for movement outwardly and inwardly of a stationary wall and/or housing having a removable tray or receptacle in a frame movably mounted in the drawer to move at a greater speed than the drawer with respect to the wall. Separate flexible members or tambours are connected at one of their ends to each side of the frame for the tray and at their other ends to the housing, and slide in channels around the inside sides of the drawer to move or pull the frame and tray from a horizontal rearward position in the drawer to a forward and further downwardly tilted position when the drawer is moved outwardly of the stationary housing. The tray may be provided with a movable cover, and the drawer may be either operated manually or by power means, which power means is provided with engaging and disengaging means. If desirable, a heater and fan unit may be provided adjacent the opening in the stationary housing.

[56] **References Cited**

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20 Claims, 4 Drawing Figures



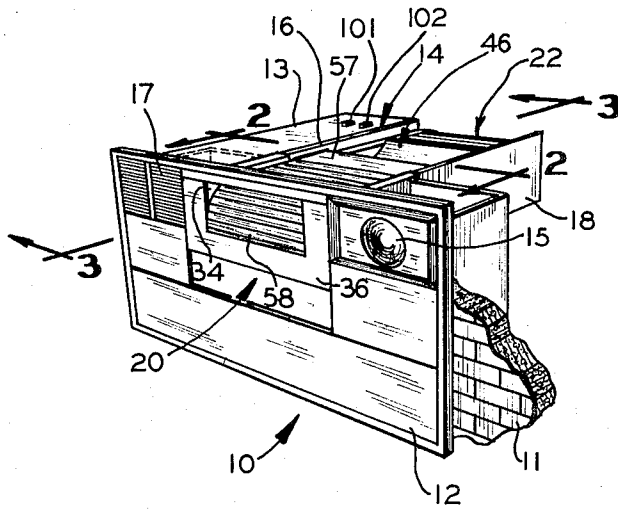


FIG. 1

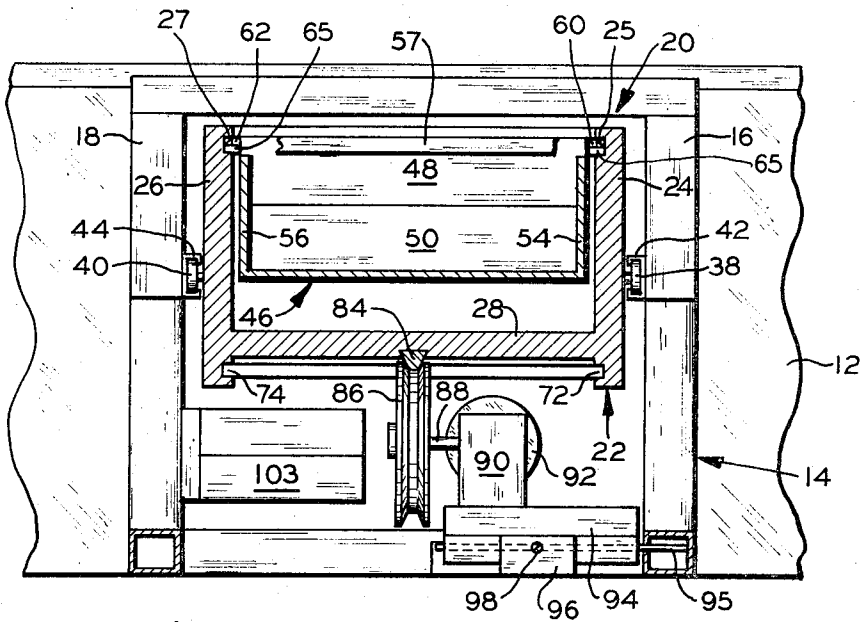


FIG. 2

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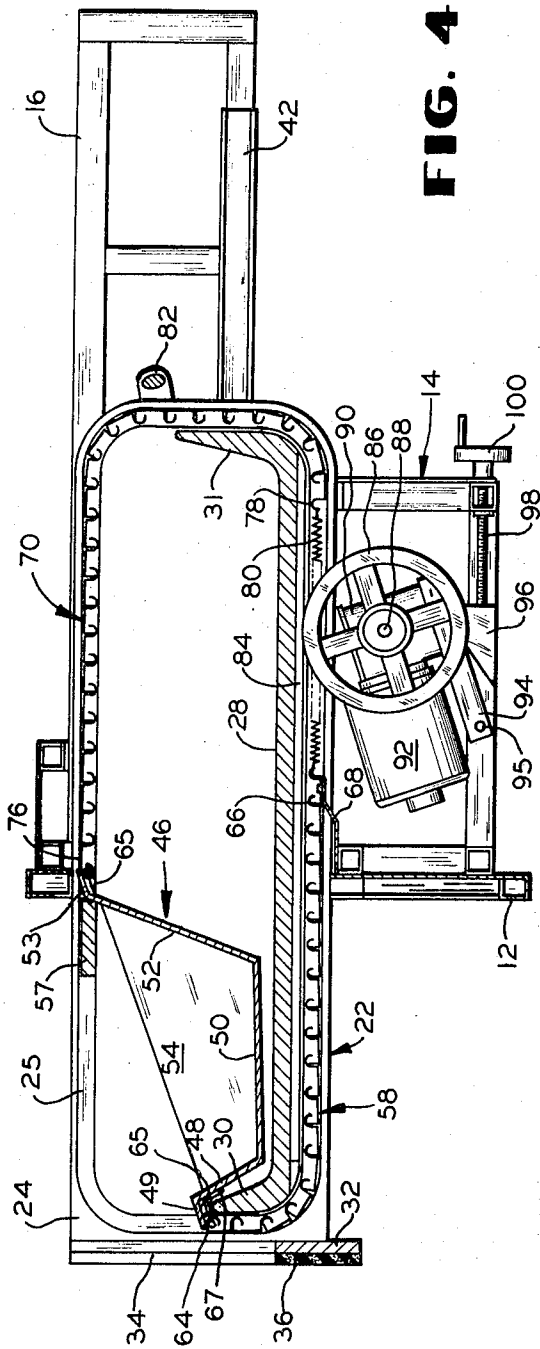


FIG. 4

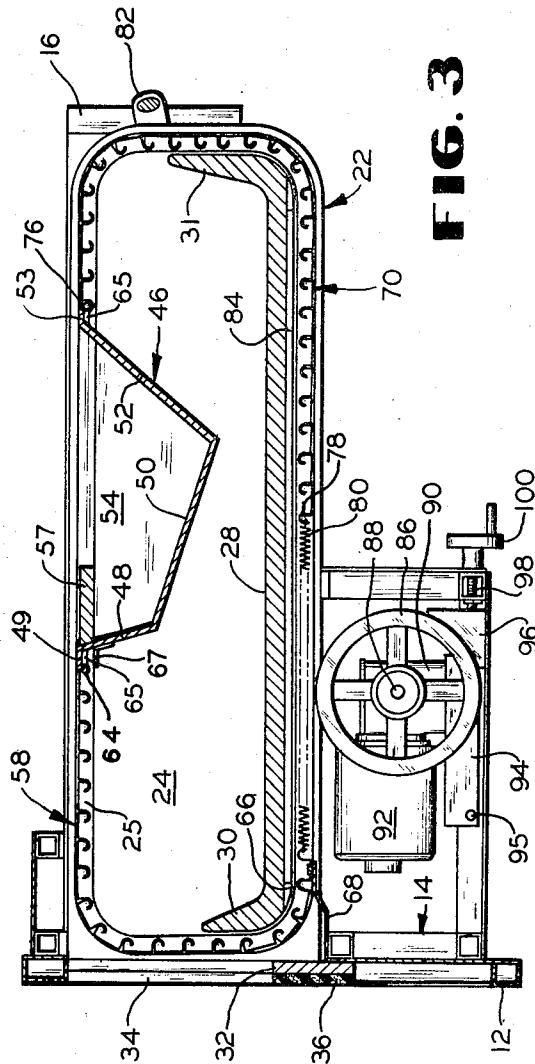


FIG. 3

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DEAL DRAWER**BACKGROUND OF THE INVENTION****1. Field of the Invention**

This invention relates to receptacles or drawers for drive-in bank windows and have structure associated therewith or the enclosures thereof for moving deposited matter within the receptacle or drawer from one side of a wall or partition to the other side of the wall or partition.

2. Description of the Prior Art

Many deal drawers of the prior art have dealt with the problem of easy accessibility into their interior from the windows of different height automobiles, and that such drawers require a front wall to retain the matter deposited therein which requires a user to reach down into such a receptacle. For example, if the user is below the drawer, he has to reach up and then down into the drawer which is not convenient or easy. Thus some deal drawers included mechanisms by which the entire drawer is moved vertically in order to accommodate it to such situations.

Another attempt to deal with this problem was to provide a tray with a low front wall just to the rear of the door which closes the outside opening in the teller's booth, hinging the door at its lower edge to a tray carrier so that upon outward movement of the tray carrier the tray and door are moved downwardly to expose the interior of the tray.

Both of these prior art types of deal drawers required elaborate and/or expensive linkages and mechanisms.

SUMMARY OF THE INVENTION

Generally speaking, the present invention provides a simple but efficient deal drawer movably mounted through a stationary wall, wherein a movable tray is horizontally positioned in the rearward portion of the drawer for the convenience of a teller when the drawer is in its retracted position, and which tray is movable to a forward downwardly tilted position with respect to the drawer as the drawer is moved to its farthest extended position with respect to the stationary wall so that the interior of the tray is better exposed to a user. This movement of the tray is accomplished by connecting each end of a frame for the tray to the stationary housing or wall by guided flexible members or tambours.

Specifically a continuous groove or cam track is provided in the inner face of each side wall of the drawer adjacent its periphery. The side edges of a first flexible member or tambour are slidably mounted in the forward portion of these grooves and one end of the tambour is connected to the forward edge of a frame for the tray while the other end of this tambour is connected to the stationary wall or a housing for the drawer. A second flexible member or tambour, mounted in the rear portion of these grooves in a like manner as the first tambour, is connected between the other end of the frame for the tray and the stationary wall or housing by a pair of tension springs. Thus movement of the drawer in either direction causes like movement of the tray in the same direction. The tray may be removed so the whole drawer may be filled with a large deposit when necessary, and the bottom of the tray may have a backwardly tilted bottom for causing the deposits therein to slide back as close to the teller

as possible when the drawer is in its retracted position. Also a slidable cover may be provided partly covering the top of the tray to prevent wind from blowing out its contents when open, and/or the tray may be perforated and/or negative pressure applied to the housing for the same purpose.

The drawer is movably mounted in the stationary wall or a housing by a pair of track and roller assemblies, and the front end of the drawer may be surrounded with a resilient buffer material such as sponge rubber to prevent damage to cars that may come too close to it.

Both manual and power operation of the drawer movement are provided. Manually, the drawer is pushed and pulled between its extended and retracted positions, respectively, by means of a handle fixed to the rear of the drawer. For powered operation a reversible motor drive may be mounted in the housing for the drawer. This drive may comprise a pivotally mounted electric motor with a V-pulley equipped with a slip clutch which may be moved by a reciprocable wedge slide mechanism into and out of engagement with a V-shaped friction strip mounted on the bottom wall of the carrier drawer. A two way switch operable by the teller may control the motor in which hold down is necessary for extension and touch contact for retractions in combination with a limit switch operated by the drawer. Other drives for the drawer may be provided such as a reversible electric motor having a sprocket wheel which engages a sprocket chain connected to the drawer, or a screw threaded through a nut attached to the drawer, or by a reciprocating piston operated by fluid pressure of electromagnetic means. Furthermore a heater and fan may be mounted in the housing to protect the teller from cold outside drafts and to prevent the drawer and tambours from freezing in icy weather. The housing also may have mounted therein a microphone and speaker for oral communication through the wall in which the drawer is mounted.

OBJECTS AND ADVANTAGES

An object of this invention is to provide a simple, efficient and economic deal drawer mechanism with an interior tray movable both horizontally and vertically therein and to utilize a flexible member or tambour as a door or cover for the opening in the stationary wall and/or housing when the tray is not exposed in the drawer's extended position.

BRIEF DESCRIPTION OF THE DRAWINGS

The above mentioned and other features, objects and advantages and a manner of attaining them are described more specifically below by reference to an embodiment of this invention shown in the accompanying drawings, wherein:

FIG. 1 is a perspective view of a portion of a drive-in bank teller booth showing a deal drawer and its housing according to this invention installed therein, certain parts being broken away for clarity;

FIG. 2 is an enlarged cross sectional view, taken substantially along lines 2 — 2 in FIG. 1 showing the mounting of the tray in the carrier drawer, the drawer in its housing, and a drive mechanism for the drawer;

FIG. 3 is an enlarged cross sectional view, taken substantially along lines 3 — 3 of FIG. 1 showing the deal

drawer in its retracted position and its drive mechanism disengaged; and

FIG. 4 is a view similar to FIG. 3 but with the deal drawer in its extended position and its drive mechanism in its engaged position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIG. 1 there is shown a deal drawer assembly 20 horizontally disposed in a wall 11 adjacent a teller's booth unit 10 through which wall 11 the outer end of the drawer 20 can extend. The drawer assembly 20 is positioned below a teller's counter 13 (mostly broken away) which may extend horizontally inwardly from an outer wall 12 of the booth unit 10. This teller's booth unit 10 may be provided with speaker 15 and microphones inside grille work 17 on each side of the deal drawer 20, and this unit may be of such a size so it can be preassembled and readily fit into the outside wall of a bank building.

The stationary drawer housing 14 (see particularly FIGS. 1 and 2) is generally rectangular in section and comprises side walls 16 and 18. Between these side walls 16 and 18 is disposed a generally rectangular carrier drawer 22 which may be cast of plastic having fabricated side walls 24 and 26, and a bottom wall 28. The forward and rearward end walls 30 and 31 may be curved in section and the forward end wall 30 may be reduced in height to permit the downward and/or vertical movement of the tray 46 for purposes to be described hereinafter. The inner faces of the carrier side walls 24 and 26 are provided with continuous grooves or cam tracks 25 and 27, respectively, adjacent the periphery thereof. A door plate 32 (see FIGS. 3 and 4) somewhat wider and deeper than the carrier 22, is affixed to the front ends of the carrier side walls 24 and 26. This door plate 32 is provided with a generally rectangular opening 34 for access to the interior of the drawer when the drawer 22 is in its extended position outwardly of the teller's booth 10. The outboard face of this door plate 32 is provided with a suitable protection bumper sheet 36 such as of sponge rubber. This door plate 32 is flush with the outboard face of the wall 12 of the teller's booth 10 when the carrier drawer 22 is in its retracted position. The carrier drawer 22 is movably mounted on the stationary housing side walls 16 and 18 by means of drawer-type rollers 38 and 40. These rollers operate in parallel tracks 42 and 44, respectively, horizontally mounted along the respective inner faces of the side walls 16 and 18. The inboard faces of the tracks 42 and 44 are parallel to and closely spaced from the outboard faces of the carrier side walls 24 and 26.

A tray, valuable or deposit receptacle 46, and its operating mechanism are movably mounted within the carrier drawer 22. This tray 46 has sloping front, bottom, and rear walls 48, 50, and 52, respectively, and flat side walls 54 and 56. The upper end of the front wall 48 is provided with a forwardly extending horizontal flange 49 and the upper end of the rear wall 52 is provided with a rearwardly extending horizontal flange 53. This tray may be perforated to prevent the wind from getting under sheet articles placed in it and blowing them out, which may further be prevented by a negative pressure inside the drawer and its housing. Furthermore or instead, this tray 46 may have a partial

slidable cover 57 slidable between the grooves 25 and 27 for preventing the articles placed in the tray in its extended position from being blown out by the wind, which cover slides forward as shown in FIG. 3 when the drawer 22 is retracted.

A first flexible member or tambour 58, whose opposite side edges 60 and 62 are disposed in the forward upper and lower portions of the grooves 25 and 27, respectively, has its rear edge 64 hinged to the forward side of a rectangular frame 65 adjacent the forwardly extending flange 49 of the tray 46 which removably rests by its flanges 49 and 53 in the frame 65. In order to prevent the tray 46 from being removed when the carrier is extended, a clip means 67 is provided on its front wall 48 to hook under the front of the frame 65 while the back edge of the tray 46 is retained by a portion of the housing 14. The front edge 66 of this tambour 58 is connected to an anchor 68 which is fixedly secured to the wall 12 of the teller's booth 10 adjacent the forward bottom end of carrier drawer 22. The length of this tambour is such that the tray 46 is horizontally positioned adjacent the rear portion of the drawer 22 when the drawer is in its retracted position.

A second flexible member or tambour 70, whose opposite side edges 72 and 74 are disposed in rear upper and lower portions of the grooves 25 and 27, respectively, has its front edge 76 hinged to the rearward side of the frame 65 adjacent the rearwardly extending flange 53 of the tray 46. The back edge 78 of this tambour 70 may be connected to the same anchor 68 by a pair of tension springs 80 which help pull the movement of the frame 65 and its tray 46 from its extended position (see FIG. 4) into its retracted position (see FIG. 3). These springs 80 permit the forward downward or vertical movement of the front end 49 of the tray 46 (see FIG. 4) when in its fully extended position. Thus, the tray 46 is supported for movement, both horizontally and vertically, within the carrier drawer 22 as the drawer is reciprocated in its frame or housing 14.

Accordingly, as the carrier 22 is moved toward its extended position, the tray 46 moves horizontally forward toward the front of the carrier 22 until the rear edge 64 of the first tambour 58 reaches the forward vertical portion of the grooves 25 and 27. At this time further horizontal forward movement of the tray 46 ceases, and its supporting frame 65 pivots about its hinged connection at the front end 76 of the second tambour 70 until the front flange 49 of the tray 46 rests on the top edge of the lower front carrier wall 30. Thus the interior of the tray 46 may be exposed to a user both from the top and the front through the opening 34 in the front drawer wall 32. Thus, during the movement of the carrier 22, the frame 65 and its tray 46 move twice as far as the drawer, i.e., from the front of the extended drawer 22 to near the back of the retracted drawer 22, and therefore, the frame 65 and its tray 46 move twice as fast as the carrier 22 with respect to the stationary housing 14 or wall 11.

The carrier 22 is provided with a handle 82 at its rear portion so that a teller may manually push and pull the drawer between its extended and retracted position, respectively.

Powered operation of the carrier 22, which may be optional, is shown here to be achieved through a V-shape friction strip 84 which is attached to and runs the

length of the carrier 22 on the outer face of the bottom wall 28. This strip 84 is frictionally engaged by a V-pulley wheel 86 having a slip clutch type hub mounted on a shaft 88 of a gear reduction unit 90 which is operatively attached to a reversible electric motor 92. This gear reduction unit 90 and reversible electric motor 92 are mounted on a plate 94 which is pivotally mounted as at 95 on the stationary housing 14. The pulley wheel 86 is moved into and out of engagement with the V-shape friction strip 84 by means of a cam means such as reciprocable wedge 96 which engages the bottom of the plate 94. This wedge 96 is axially movable in either horizontal direction by a rotatable screw shaft 98 and hand wheel 100 which may be operated by the teller. The motor 92 may be selectively operated by advance and retract switches which may be a rocker type switch or separate pushbutton switches 101 and 102, respectively, on the teller's counter 13 (see FIG. 1), the advance switch 101 being energized only as long as it is manually held operated by the teller so that different distances of extension of the drawer 22 and positions of the tray 46 may be easily made, while the retract switch 102 may be operated just by an initial push and then the drawer continues to close until it operates a limit switch (not shown) in its fully retracted position.

It may be preferable in many instances to provide the deal drawer with a heating and defrost system. Thus, an electric heater and fan unit 103 (see FIG. 2) may be provided in the stationary housing 14 and directed toward the opening 34 in the drawer front panel 32 so as to inhibit the passage of cold air into the interior of the teller's booth 10, and also prevent freezing of the forward tambour 58 in icy weather.

While there is described above the observed principles of this invention in connection with specific apparatus, it is to be clearly understood that there may be many unobserved side effects which contribute substantially to the efficiency of this device, and that this description is made only by way of example and not as a limitation to the scope of this invention.

We claim

1. A drawer assembly comprising:
 - A. a wall member having an aperture therein,
 - B. a frame means mounted adjacent said aperture,
 - C. a drawer means slidably mounted on said frame means for reciprocation through said aperture,
 - D. a tray means slidably movable relative to said drawer means, and
 - E. tambour means slidably mounted around at least one end of said drawer means and fastened at one end to said frame means and at its other end to said tray means whereby movement of said drawer relative to said frame means causes said tray means to move relative to said drawer means.
2. A drawer assembly according to claim 1 wherein said wall means includes speaker means.
3. A drawer assembly according to claim 1 including means to move said drawer means relative to said frame means.
4. A drawer assembly according to claim 3 wherein said means for moving said drawer means comprises a pair of tracks mounted on said frame means and rollers mounted on said drawer means rollable in said tracks.
5. A drawer assembly according to claim 3 wherein said moving means comprises a reversible electric motor.

6. A drawer assembly according to claim 5 wherein said moving means includes a frictional drive means between said motor and said drawer means.

7. A drawer assembly according to claim 5 including means for moving said motor into and out of engagement with said drawer means.

8. A drawer assembly according to claim 5 wherein said motor means includes separate manually operated switch means for controlling the extension and retraction of said drawer means by said motor.

9. A drawer assembly according to claim 1 wherein said tray means includes a frame connected to said tambour and a tray removably mounted in said frame.

10. A drawer assembly according to claim 1 including a pair of tambours slidably mounted around each end of said drawer means and fastened at one of their ends to said frame means and at their other ends to said tray means.

11. A drawer assembly according to claim 10 including resilient means for attaching the end of one of said tambours to said frame means.

12. A drawer assembly according to claim 1 including a slidable cover for said tray means.

13. A drawer assembly according to claim 1 wherein said drawer means comprises a padded front panel.

14. A drawer assembly according to claim 1 wherein said drawer means comprises a pair of parallel side walls, a bottom wall, a partial front wall, a back wall, and a groove around the peripheral edge of each of said side walls surrounding said back and end walls in which groove said tambour slides.

15. A drawer assembly according to claim 14 wherein said tray means includes a frame connected to said tambour which slides in said grooves.

16. A drawer assembly according to claim 14 including a partial cover for said tray means slidable in said groove.

17. A drawer assembly for bank teller windows comprising:

- A. a drawer housing,
- B. a drawer having front and rear portions spaced within and carried by said housing for sliding movement between positions in which said drawer is extended from and retracted within said housing,
- C. means for moving said drawer in said housing,
- D. a tray means spaced within and carried by said drawer for sliding movement between said positions in which said tray is either at the front portion of said drawer when said drawer is extended from said housing and at the rear portion of said drawer when said drawer is retracted within said housing, and
- E. means connecting at least one edge of said tray to said housing for moving said tray to the front portion of said drawer when said drawer is extended from said housing and to the rear portion of said drawer when said drawer is retracted within said housing.

18. A drawer assembly according to claim 17 including track means for said tray means on said drawer permitting tilting of said tray means when in its extended position.

19. A drawer assembly comprising:

- A. a frame through which said drawer reciprocates,
- B. a drawer having a pair of parallel sides and a bridging member connected between said sides,

- C. a tray means slidable between said sides,
- D. a tambour connected at one end to said tray means and slidable around the end of said drawer in guides around the inside edges of said sides, the other end of said tambour being connected to said frame below said drawer, and 5
- E. means for moving said drawer whereby said tray means is moved between said sides from one end of said frame to the other.
- 20. A drive-in bank teller's station comprising: 10
- A. a drawer having
 - 1. a pair of parallel sides,
 - 2. a bridging member connected to and spacing said sides,
 - 3. a tray means slidable between said sides and above said bridging member, 15

- 4. tambours connected to each end of said tray means and extending around the ends of said drawer and slidable in a circuitous path around the inside edges of said sides,
- B. a wall means through which said drawer reciprocates, and to which one of said tambours is connected for moving said tray when said drawer moves,
- C. a counter on one side of said wall having an opening therein for access to said drawer and tray means when in their retracted position,
- D. means for guiding said drawer below the top of said counter, and
- E. means for reciprocating said drawer under the control of a teller.

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