Aug. 4, 1925. 1,548,187

F. A. COLEMAN

DRAWER ENGAGING MECHANISM

Filed April 28, 1923 3 Sheets-Sheet 1

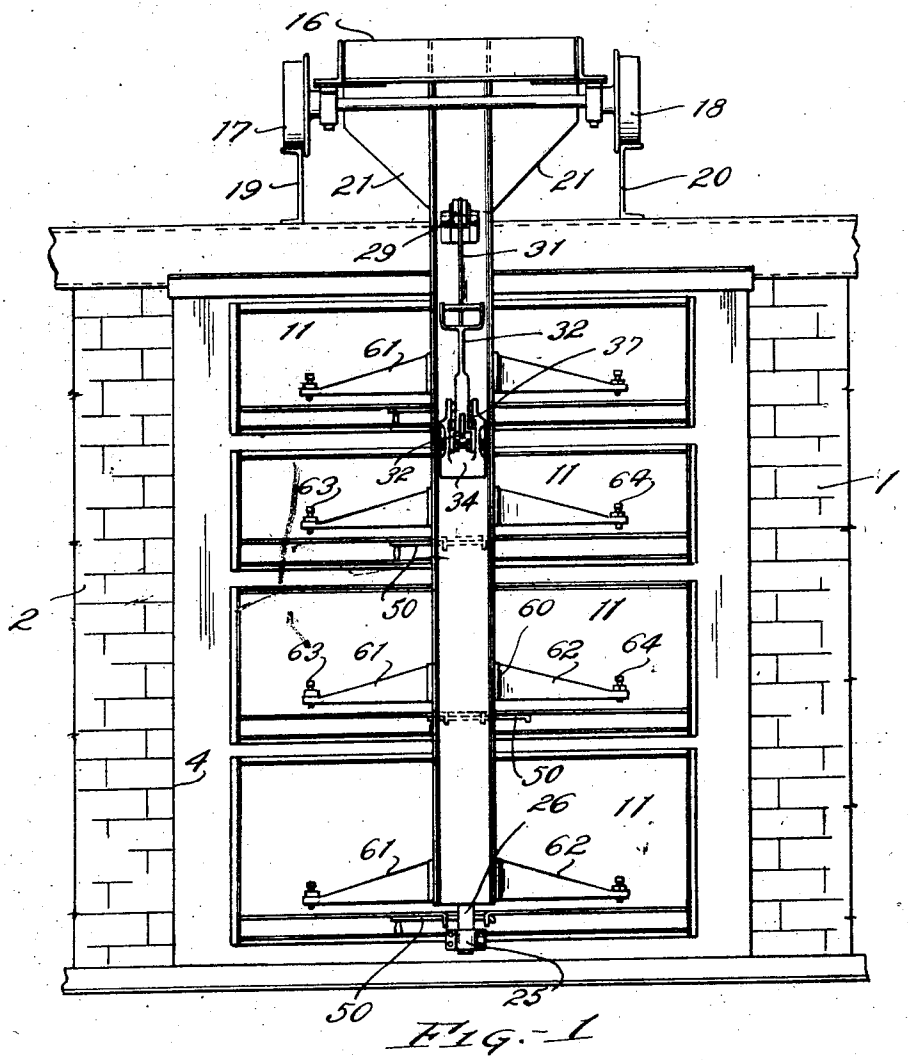


FIG. 1

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Filed April 28, 1923 3 Sheets-Sheet 2

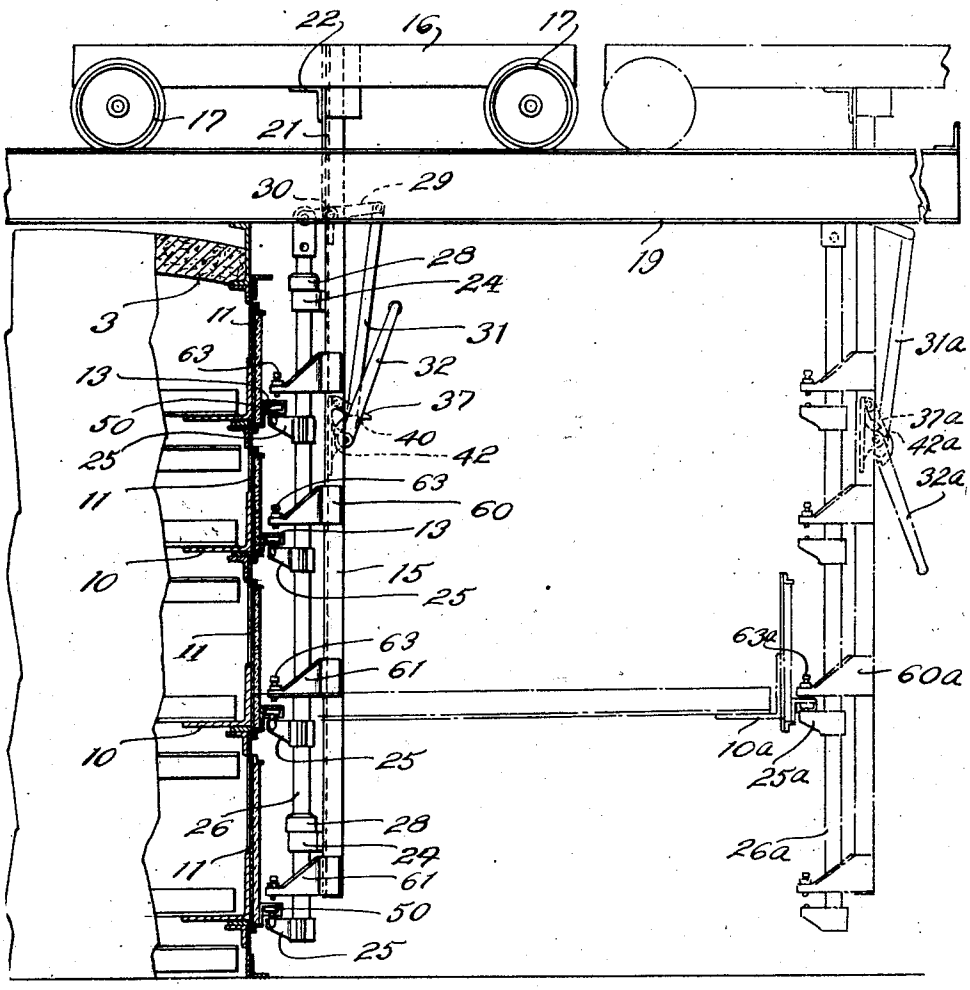


FIG.-2

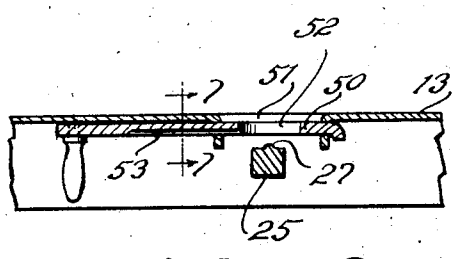


FIG.-6

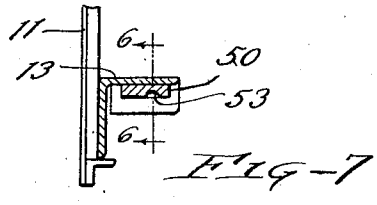


FIG-7

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Aug. 4, 1925. 1,548,187

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DRAWER ENGAGING MECHANISM

Filed April 28, 1923 3 Sheets-Sheet 3

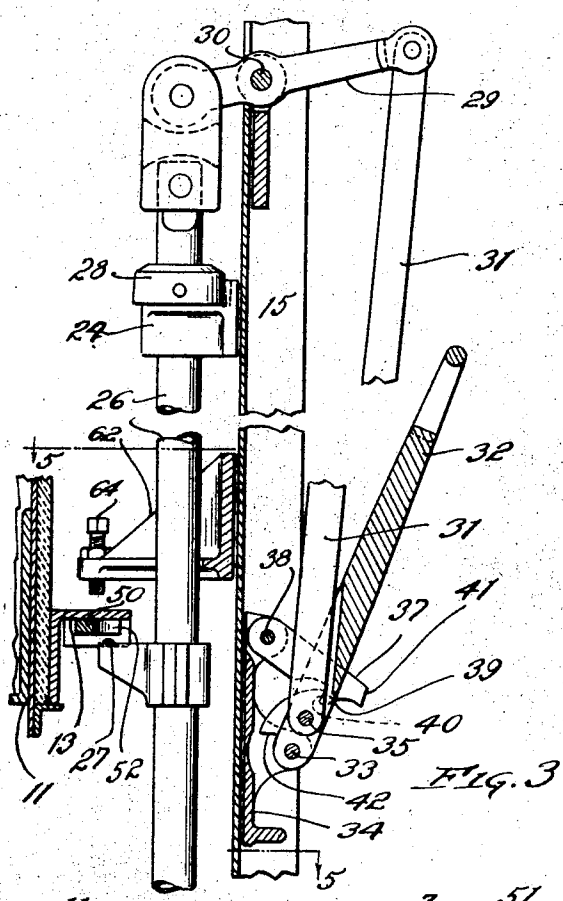


FIG. 3

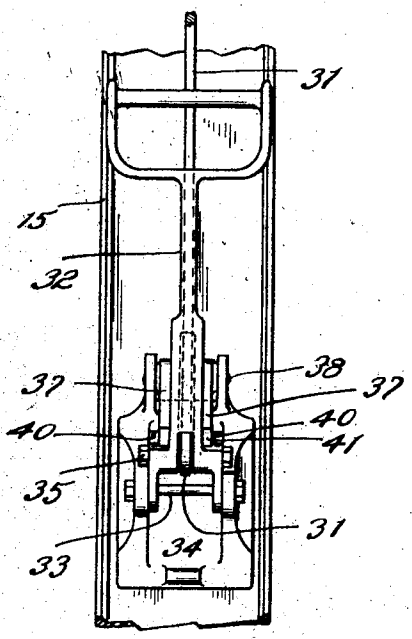


FIG. - 4

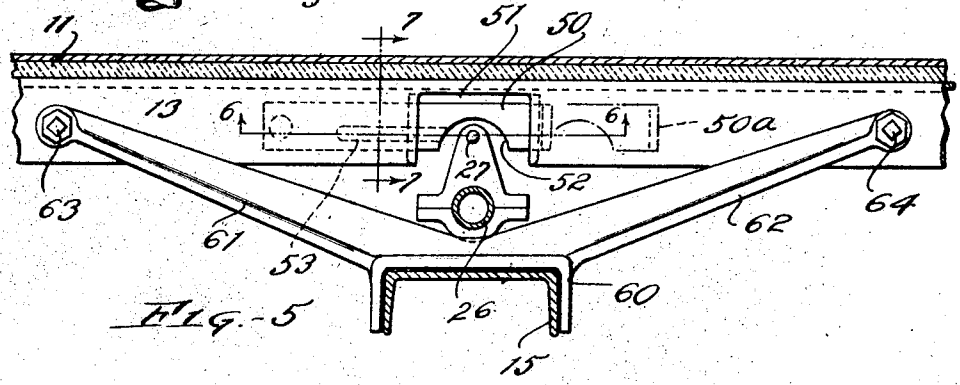


FIG. - 5

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Patented Aug. 4, 1925. 1,548,187

UNITED STATES PATENT OFFICE.

FREDERICK A. COLEMAN, OF CLEVELAND, OHIO, ASSIGNOR TO THE F. A. COLEMAN COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

DRAWER-ENGAGING MECHANISM.

Application filed April 28, 1923. Serial No. 635,379.

To all whom it may concern:

Be it known that I, FREDERICK A. COLEMAN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in a Drawer-Engaging Mechanism, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates particularly to means for selectively withdrawing any or all of a series of vertical tiers of core oven drawers.

Numerous devices for selectively withdrawing and supporting a core oven drawer have heretofore been used, but the principal difficulty encountered has been the provision of mechanism which will prevent the tipping of wide oven drawers during the loading or unloading of the drawer when withdrawn.

The general object of this invention is the accomplishment of a simple and rigid construction which provides means for securely gripping and locking a core oven drawer against tilting movement when the drawer is in the outward position.

Other objects include a construction which may be effectively and conveniently operated and which may be cheaply manufactured.

I carry out the above objects by providing a central rigid depending support which is carried by the trolley and which is equipped with drawer-engaging and locking mechanism which is adapted to be actuated by a central readily accessible hand lever. For enabling the drawers to be selectively locked to the carrying means and be withdrawn, I prefer to employ a movable device on each drawer which may be so set that movement of the manually operable lever causes the drawer so selected to be engaged to the exclusion of the other drawers. In addition, I provide a locking mechanism which cooperates with the lifting device to prevent tipping of the drawers when in outward position.

In the preferred form, the locking device embodies laterally projecting arms which extend each way from the rigid central support and which are adapted to engage upwardly facing shoulders rigidly carried by the drawer. The locking is therefore accomplished when the lifting device is brought into engagement with the under side of a projection on the drawer and the drawer is raised slightly to bring it into engagement with said laterally extending arms.

The means for carrying out the above objects will become apparent in the following description which pertains to the accompanying drawings. The essential features will be set forth in the claims.

In the drawings, Fig. 1 is a front view of a portion of a core oven illustrating my invention in position in front of the oven; Fig. 2 is a transverse vertical section through the series of drawers showing the operating device in side elevation and also showing one of the drawers locked thereto while in open position; Fig. 3 is a vertical section on an enlarged scale through a portion of the drawer and depending support for the lifting mechanism; Fig. 4 is a front elevation of a portion of the support and lifting mechanism showing particularly the operating lever therefor; Fig. 5 is a horizontal section taken on the line 5—5 in Fig. 3; Figs. 6 and 7 are detail sections taken on the correspondingly numbered lines in Fig. 5.

Referring to the drawings by reference numerals, 1 and 2 indicate the side walls of a core oven, 3 a suitable top, and 4 a front plate provided with a vertically arranged series of openings through which the drawers may operate. Each drawer is shown as having a bed plate 10 and a front plate 11 which carries means for permitting the drawer to be engaged and withdrawn. This means as illustrated is an angle bar 13 mounted on the forward plate.

The operating mechanism for enabling the drawers to be withdrawn is illustrated as being carried on a depending support 15 which is preferably mounted on an overhead carriage, indicated generally at 16, which carriage is equipped with wheels 17 and 18. A suitable overhead trackway is shown as comprising a pair of channel-beams 19 and 20 respectively, which may be supported in any convenient manner above the oven. The support 15 as shown, comprises a channel-beam the flanges of which face outwardly from the oven. The upper end of the support is firmly braced and connected to the carriage by suitable gusset plates 21 and beam 22 which extends trans-

versely of the carriage and preferably on the under side thereof. The operating mechanism consists principally of drawer-engaging apparatus and locking devices which cooperate to prevent tipping of the drawer when in open position. The drawer engaging apparatus will now be described:—

The engaging apparatus comprises a movable member carried by the support 15, and a member carried by the drawer and movable relatively thereto. The member carried by the drawer cooperates with that carried by the support and permits selective operation of any one or all of the drawers. The member which is carried by the support is illustrated as a hook member, or arm 25 which is rigidly mounted on a lifting bar 26 so that normally the arm is below the projection 13. The arm is provided with an upwardly extending finger or shoulder 27 which cooperates with a shoulder carried by the projection 13 for enabling the drawer to be withdrawn. The bar 26 may be supported at 24 and may be limited in downward movement by collars 28 which are rigidly mounted thereon.

The means for holding the bar so as to permit engagement between the drawer and member 25 is illustrated by a rock lever 29 which is pivotally connected at 30 to the member 15. The rock lever may be actuated through a link 31 by a manually operable lever 32. The lever 32 is shown as being pivotally mounted at 33 on a base 34 which may be rigidly connected to the member 15. The link 31 may be pivotally connected at 35 to the lever 32 wherefore downward movement of the lever from the position shown in full lines in Fig. 2 to the position 32^a, shown in broken lines in the same figure, will cause an upward movement of the bar 26 as at 26^a. For holding the hand lever in upright position, I employ a pawl 37 which is pivotally mounted at 38 on the bracket 34 and which may be provided with a shoulder 39 for engaging a cooperating shoulder 40 on the lever 32. When the lever is in lowered position, then the shoulder 41 on the pawl may engage a shoulder 42 on the lever to prevent the lever from being swung upwardly and inadvertently by the weight of the drawers.

The arms 25 mounted on the bar 26 are so arranged that one arm is in front of each drawer and normally is below the projection carried by the drawer. Accordingly as the bar is raised each arm would be brought into engagement with the associated projection to permit the withdrawal of all of the drawers.

My invention however provides for a selective withdrawal of any drawer and to this end I have shown a bar or slide 50 as being carried by the projecting flange 13 and on the under surface thereof. The slide is so mounted that it may be moved across an opening 51 in the flange as shown particularly in Fig. 5. Each flange has an opening 51 and such openings are in vertical alignment and at the mid-portion of the drawer. Each bar 50 may then be provided with a recess 52 which extends therethrough and a slot 53 which extends along the under side thereof and communicates at one end with the recess 52. The recess is sufficient to permit the arm 25 to pass idly through the opening in the drawer flange when the bar 50 is in position shown by the full lines in Fig. 5. Accordingly if all of the slides on the drawers are positioned as shown in Fig. 5, then if the hand lever 32 is moved downwardly so as to raise the bar 26, then the arms 25 would pass through the recesses 52 and openings 51 without engaging the drawers. The selective engagement is effected by moving the slide to the position shown in 50^a in Fig. 5 in which position the recess 52 is moved out of registration with the opening 51 wherefore the finger 27 is caused to enter the slot 53 when the arm is raised. The wall of the slot then provides a shoulder which is engaged by the finger when the carriage 16 is moved away from the oven.

The mechanism heretofore described has been directed toward the engagement and removal of the drawer. In core oven practice, particularly where large cores are handled, it is necessary to provide some means for preventing tipping of the drawer when in the outward position. I accomplish this by providing a mechanism on the support which cooperates with the projection on the drawer for locking it against tilting or tipping when the hand lever 32 is moved to bring an arm 25 into engagement with the projection on the drawer. The preferred arrangement embodies a bracket 60 which is rigidly mounted on the support 15 and is provided with laterally extending portions 61 and 62 which project over the member 13. A bracket 60 is disposed above each arm 25 and preferably sufficiently removed therefrom to permit the drawer to be slightly raised before the projection thereon is brought into contact with the extension pieces 61 and 62. To permit adjustment for slight variations in height, I may provide adjusting screws 63 and 64 as illustrated.

The operation of a drawer with drawing and locking mechanism constructed according to my invention is as follows:—Assuming that the carriage 16 is positioned as shown in the full lines in Fig. 2 wherein the support 15 is disposed in front of the oven drawers, and wherein the arms 25 are disposed directly beneath the projections 13, and that the hand lever 32 is in upright position. If the operator desires to withdraw

the second drawer from the bottom, then he moves the slide 50 corresponding to that drawer, to the one side as indicated by the broken line 50ª in Fig. 5. The slides on the remaining drawers are so placed that the recesses 52 in the bars are in alignment with the openings 51. Then the pawl 37 is raised, whereupon the lever 32, being released, is drawn downwardly until the finger 27 adjacent the drawer to be withdrawn is brought into engagement with the shoulder 53. Continued downward movement of the lever 32 raises the drawer until the upper surface of the projection is brought into engagement with the adjusting screws 63 and 64. These screws may be so adjusted that engagement is effected when the lever 32 is in downward position. Thereupon the shoulder 41 on the pawl is urged by gravity into engagement with the shoulder 42 and the lever is thereby automatically locked in the new position. After the drawer to be withdrawn is locked, then the carriage 16 is moved away from the oven thus bringing the drawer in the open position as shown by the broken lines in Fig. 2. The loading and unloading can then be satisfactorily accomplished without tilting the drawer.

From the foregoing description, it will be seen that my invention provides a simple rugged construction which permits any one or all of the drawers in a core oven to be selectively withdrawn, and at the same time provides a firm engagement with the drawer to prevent tipping when heavy cores are being loaded or unloaded. An advantage of an arrangement constructed in accordance with my invention is that the supporting means is centrally positioned and the locking members are disposed on opposite sides of the central position, wherefore I effect a three point support between the drawer and the operating mechanism therefor. Moreover, the locking of the drawer to the operating means is accomplished before the drawer is withdrawn, wherefore inadvertent tipping is prevented during the withdrawing operation.

Having thus described my invention, I claim:—

1. The combination with a drawer, of means disposed in front of the drawer for engaging and withdrawing it, and a selectively operable member carried by the drawer for controlling the operation of said means.

2. In combination, a plurality of superimposed drawers, a trolley, mechanism carried thereby for engaging the drawers, and selectively operable members carried by the drawers and cooperating with said mechanism for permitting any one or all of the drawers to be engaged by said mechanism.

3. In combination, a plurality of superimposed drawers, a trolley movable toward and away from the drawers, drawer withdrawing mechanism carried by the trolley and disposed centrally of the drawers, said mechanism including a member movable vertically, a projection carried by each drawer and disposed in the path of travel of said mechanism and means associated with each projection for permitting selective engagement by said member.

4. In combination, a drawer having a projection thereon, a member movable toward and away from the drawer and disposed in front thereof and a drawer engaging device cooperating with said member to engage opposite faces of said projection so as to provide a three point locking support for said door.

5. In combination, a drawer having a projection on the front face thereof, drawer withdrawing mechanism, said mechanism including means for engaging the projection adjacent the mid portion of the drawer and on one side of the projection, and also including means for engaging the opposite side of the projection and opposite sides of the mid portion of the drawer.

6. In combination, a drawer having engageable means projecting from the front face thereof, and withdrawing mechanism adapted to engage said means in at least three separate regions, two of said regions being on one face of the projecting means and the remainder of the regions being on the opposite face.

7. In combination, a drawer, a trolley disposed above the drawer, a rigid support depending from the trolley, means extending laterally from the support and on opposite sides thereof, upwardly facing shoulders of the drawer, said shoulders being arranged to engage the laterally extending means for limiting upward movement of the drawer, and a member carried by the support and movable relatively thereto for urging said shoulders into engagement with said means whereby the drawer may be locked to the support.

8. In combination, a plurality of superimposed drawers, a trolley trackway extending above the drawers and parallel with the direction of the movement thereof, a trolley on said trackway, a rigid depending support carried by the trolley, means carried by the support for engaging and raising one of the drawers, and other means carried by the support for locking the drawer after it is raised a predetermined amount, said locking means including a member which extends away from each side of the support and which is so mounted thereon as to limit upward movement of the drawer.

9. In combination, a plurality of superimposed drawers, an overhead trackway, a carriage adapted to travel on the trackway,

a support depending from the carriage, and means carried by the support and movable relatively thereto for engaging and locking a drawer to said support, and a selective device on said drawers for controlling the engagement of said means with the drawer.

10. In combination, a plurality of superimposed drawers, a trolley, mechanism carried by the trolley for engaging the drawers adjacent the front end thereof, means for causing the engaging mechanism to lift the drawers, said mechanism including rigid means adapted to arrest upward movement of the drawer, and to engage the same on each side of the lifting means, and a manually operable lever associated with said mechanism for actuating the lifting means.

11. In combination, a plurality of superimposed drawers, a trolley trackway extending above the drawers and in the general direction of movement of said drawers, a trolley mounted on the trackway, a rigid support depending from the carriage and adapted to be positioned adjacent the mid portion of said drawers, each of said drawers having a projection extending laterally on opposite sides of the support, a member carried by the support and movable relatively thereto, a plurality of arms carried by the member and disposed opposite the respective drawers, and a member carried by each drawer and movable relatively to the projection, said member being adapted to engage one of said arms while in one position to permit lifting of the drawer, and to clear the arms while in another position, wherefore operation of said member may selectively control the drawer to be engaged when said means is operated.

12. In combination, a drawer provided on its front face with engageable means, and withdrawing mechanism having relatively movable members adapted to engage respectively upper and under faces of the projecting means.

13. In combination, a drawer having engageable means on its end, and withdrawing mechanism having two members movable relatively to each other vertically, one of said members being adapted to engage the underside of the engageable means and the other the upper side, and one of the members engaging at two spaced points and the other acting between said spaced points.

14. In combination, a drawer having on the front face thereof a horizontal projection, withdrawing device having an abutment adapted to overhang the top face of the projection, said withdrawing mechanism having also a vertically movable member adapted to engage the underside of the projection and raise it into engagement with the abutment member.

15. In combination, a drawer having engageable means, a withdrawing device having an abutment adapted to overhang the top of said means, said withdrawing mechanism having also a vertically movable member adapted to engage the underside of said means and raise the drawer to cause engagement with the abutment, said abutment having two adjustible abutment screws spaced apart and the lifting member being adapted to engage the engageable means in a mid region located between the abutment screws.

In testimony whereof, I hereunto affix my signature.

FREDERICK A. COLEMAN.