July 20, 1926.

M. C. WHITMORE

1,593,151

MOVABLE INDEX FILING CABINET

Filed Nov. 22, 1923

6 Sheets-Sheet 1

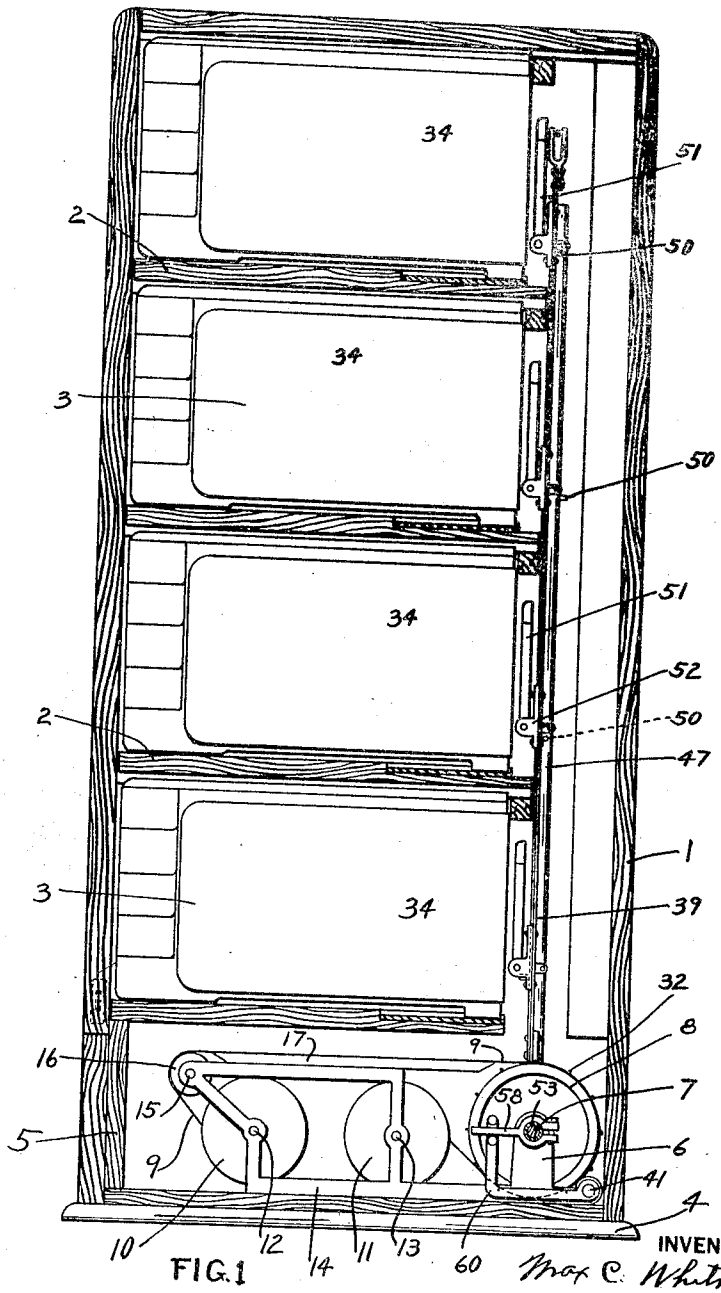


FIG. 1

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MOVABLE INDEX FILING CABINET

Filed Nov. 22, 1923

6 Sheets-Sheet 2

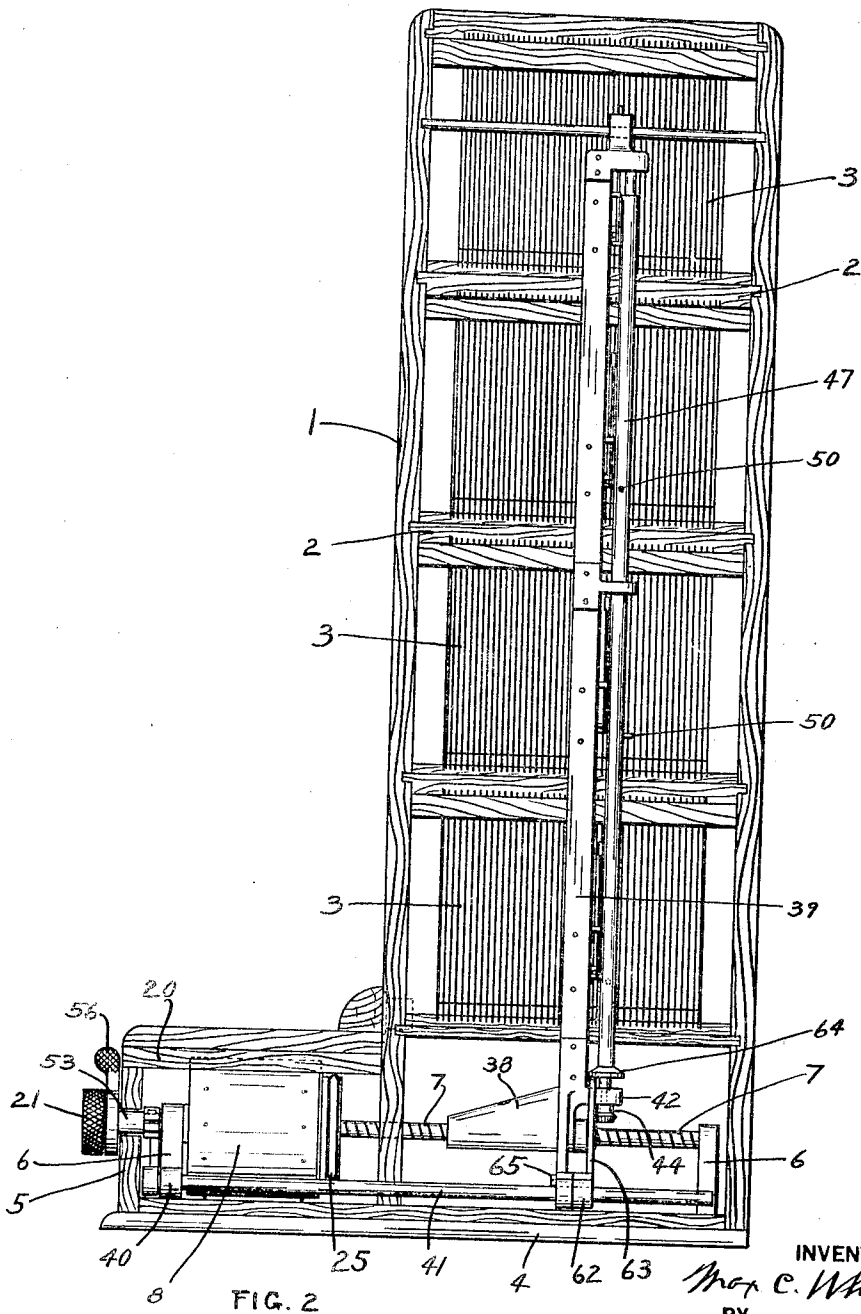


FIG. 2

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MOVABLE INDEX FILING CABINET

Filed Nov. 22, 1923 6 Sheets-Sheet 3

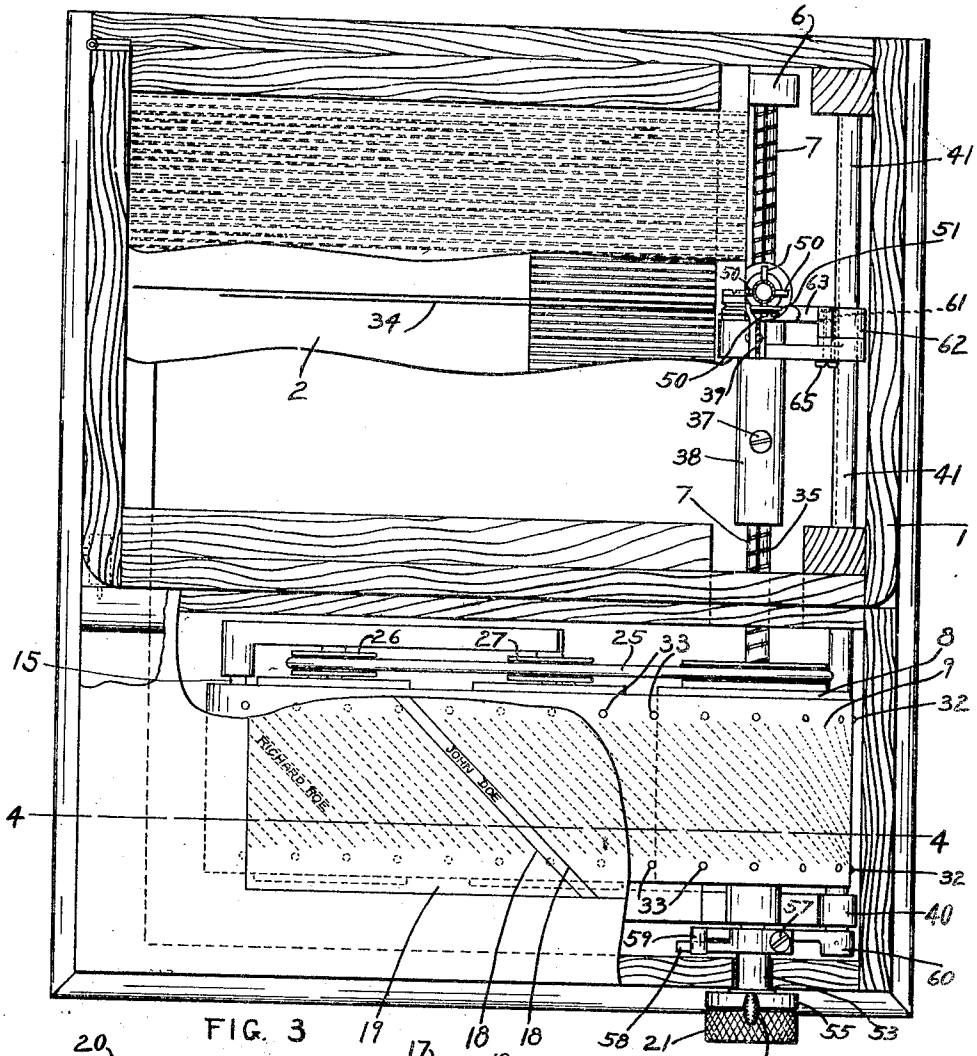


FIG. 3

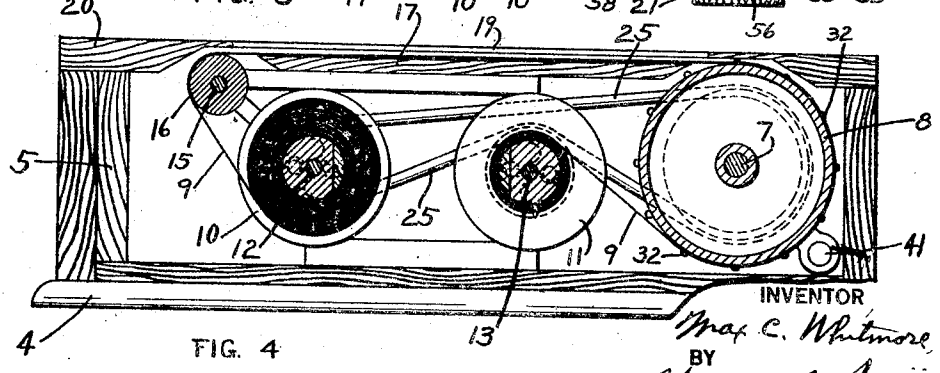


FIG. 4

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MOVABLE INDEX FILING CABINET

Filed Nov. 22, 1923 6 Sheets-Sheet 4

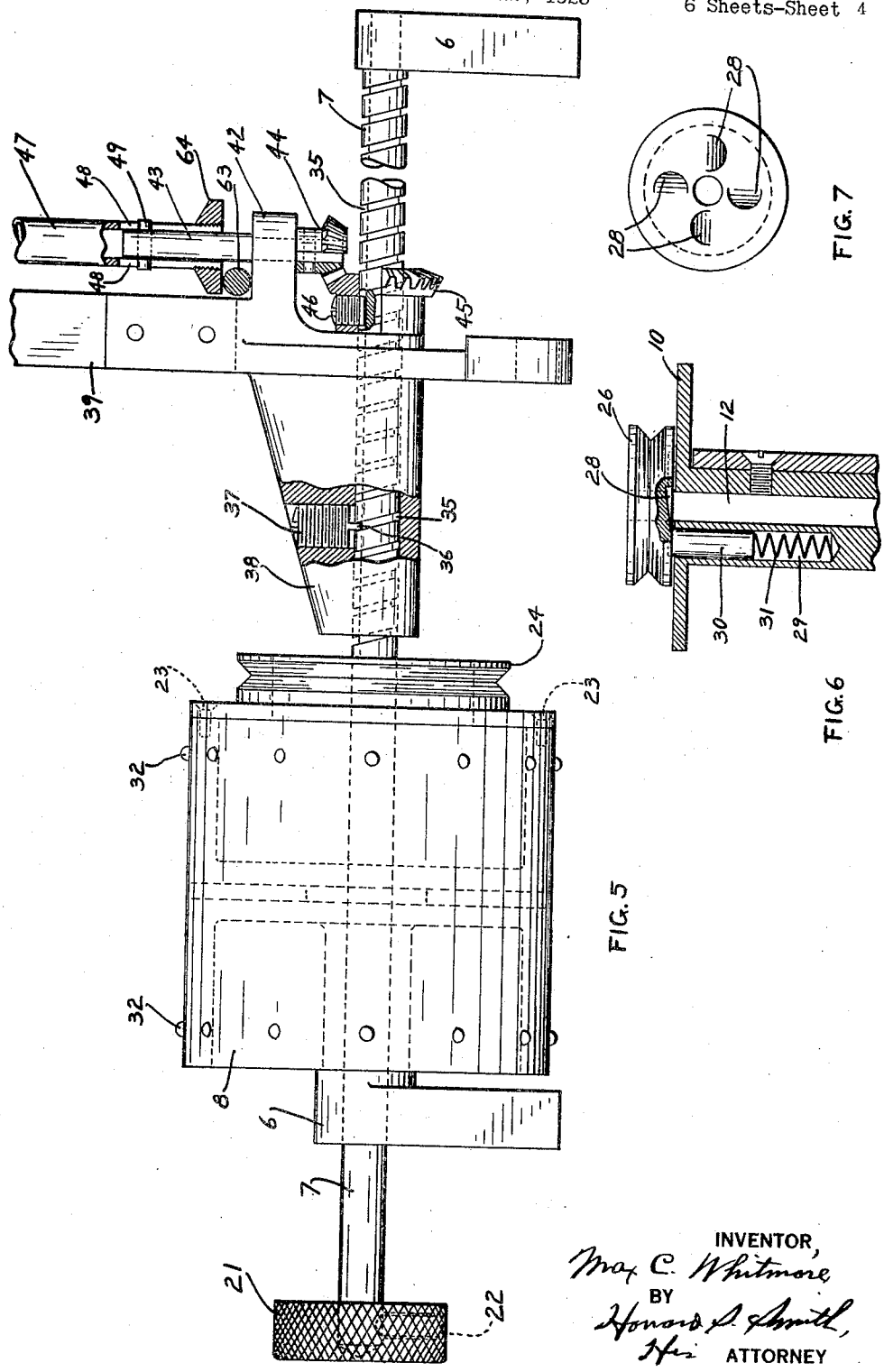


FIG. 5

FIG. 7

FIG. 6

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MOVABLE INDEX FILING CABINET

Filed Nov. 22, 1923

6 Sheets-Sheet 5

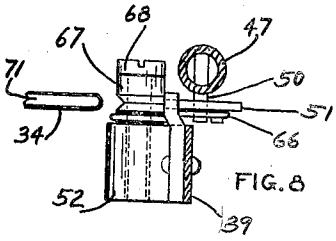


FIG. 8

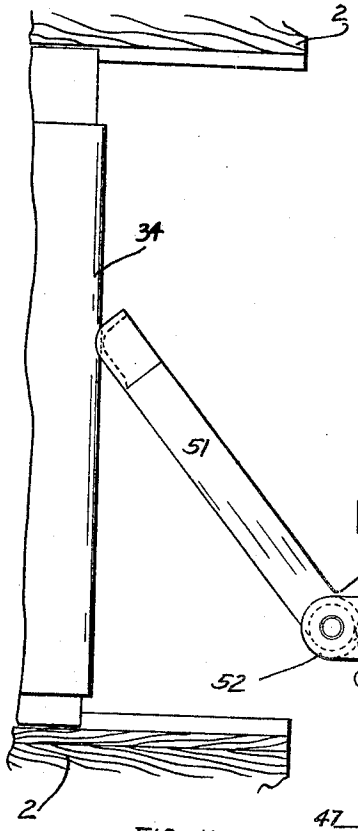


FIG. 11

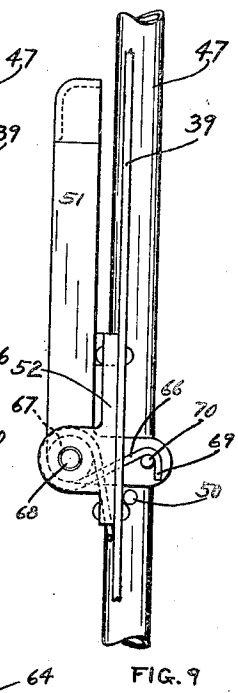


FIG. 9

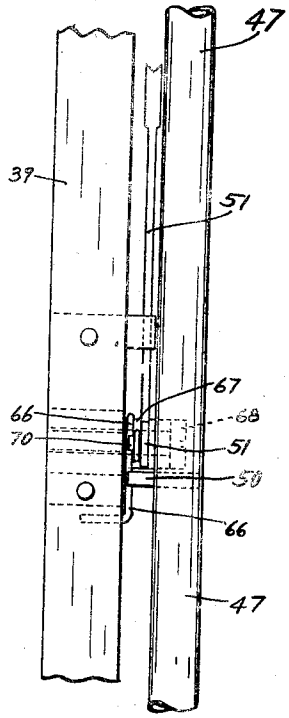
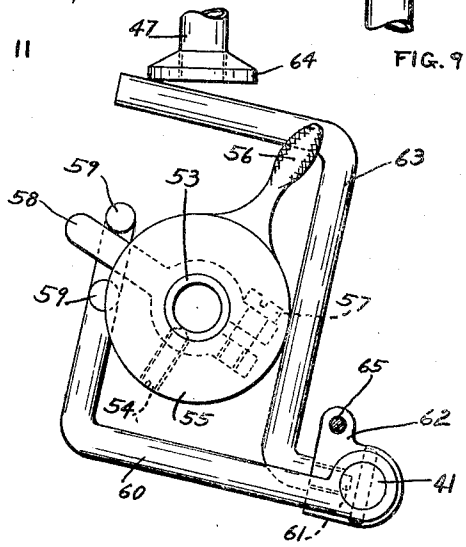


FIG. 10



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1,593,151

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MOVABLE INDEX FILING CABINET

Filed Nov. 22, 1923

6 Sheets-Sheet 6

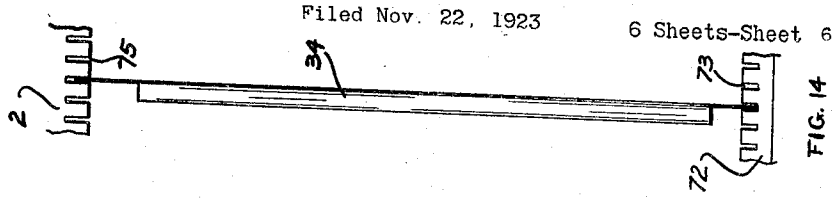


FIG. 14



FIG. 12

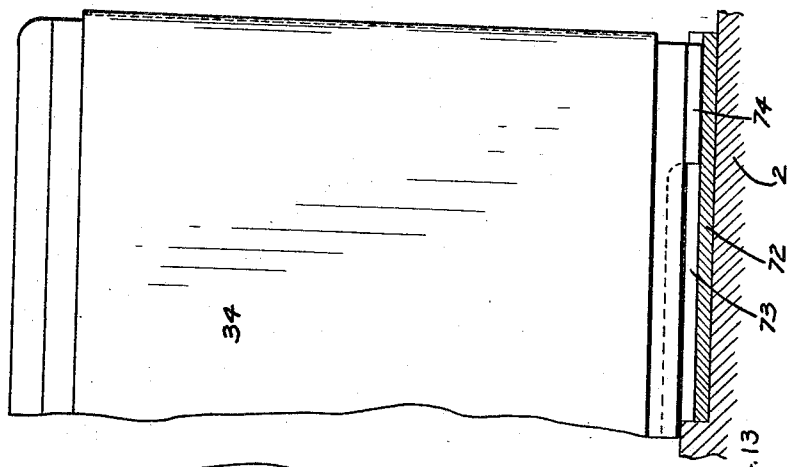
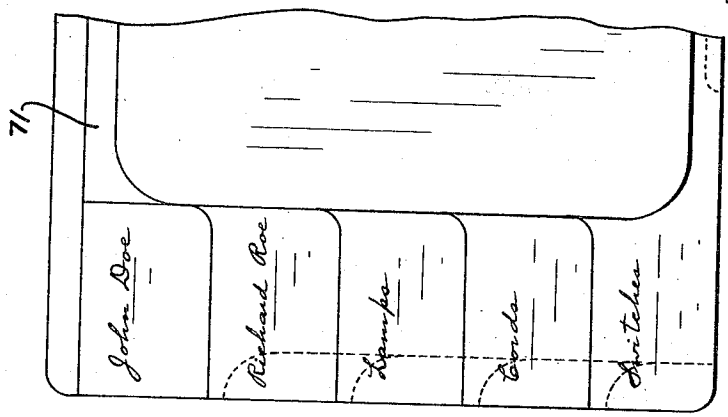


FIG. 13



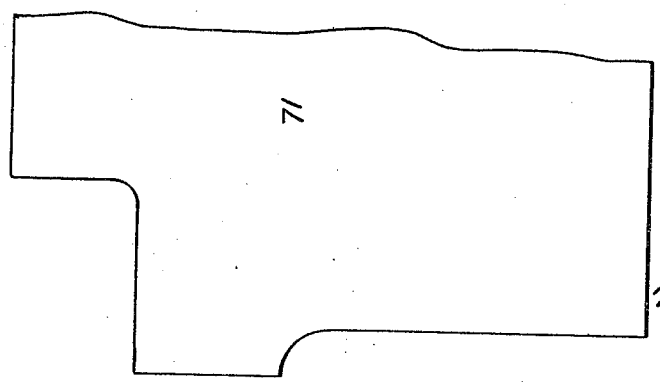


FIG. 15

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Patented July 20, 1926. 1,593,151

UNITED STATES PATENT OFFICE.

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MOVABLE INDEX-FILING CABINET.

Application filed November 22, 1923. Serial No. 676,228.

This invention relates to new and useful improvements in movable index filing cabinets.

It is the principal object of my invention to provide a filing cabinet in which there are a series of pockets or folders that are adapted to be selected for partial ejection, by moving a name strip to different positions. In other words, when it is desired to select a pocket or folder containing matter relating to a certain name, the name strip, when moved to bring that name under a marked position, will thereby position the ejecting mechanism opposite the pocket or folder containing the matter pertaining to that name.

It is still another object of my invention to provide operating mechanism which, after a pocket or folder has been selected, will kick it out to a position that is convenient for the removal of a part or all of its contents.

It is another purpose of my invention to provide a filing cabinet in which a great number of pockets or folders may be compactly arranged in tiers to economize space without interfering with their selection and partial ejection by a single operating mechanism.

The filing cabinet is simple and economical in construction, and efficient and easy in operation. It will meet the need of merchants and others who have a large number of accounts to which quick and easy access is desired, and who need to economize space.

Other important and incidental objects will be brought out in the following specification and particularly set forth in the subjoined claims.

In the accompanying drawings illustrating my invention, Figure 1 is a front view of the cabinet in section, showing the pocket selecting and ejecting mechanism. Figure 2 is a side view of said cabinet in section, showing said mechanism. Figure 3 is a plan view of said cabinet, partly broken away and in section, showing the pocket selecting and ejecting mechanism. Figure 4 is a sectional view taken on the line 4—4 of Figure 3, showing the means for driving the spools which wind and unwind the name strip. Figure 5 is a side view assembly of the pocket selecting mechanism, partly broken away and partly in section. Figure 6 is a sectional view of one of the name strip spools, showing the positive drive for winding, and friction drive for unwinding, the name strip. Figure 7 is a side view of the belt pulley on the spool, showing the tapering notches for the driving plunger. Figure 8 is a top view of the kick-out mechanism, partly in section. Figure 9 is a side view of the kick-out mechanism for one tier of pockets. Figure 10 is a rear view of the same. Figure 11 is a side view of the complete kick-out mechanism, showing a folder partly ejected thereby. Figure 12 is a top view of one of the folders. Figure 13 is a side view of the folder with five cards in place therein. Figure 14 is a rear view of this folder, showing the guide slots in the top and bottom portions of the tier for the same. And Figure 15 is a side view of one of the account cards, showing the shape thereof.

Throughout the specification and drawings, similar reference characters denote corresponding parts.

Referring to the accompanying drawings for a detailed description of my invention, the numeral 1 designates an elongated, vertical cabinet which is divided by horizontal partitions 2 into a superimposed series of pocket or folder receiving tier-sections 3. (See Figures 1 and 2.)

The base 4 of the cabinet projects laterally a sufficient distance to form the bottom of a table section 5 which houses the name-strip winding and unwinding means now to be described. Suitably journaled in bearing blocks 6, 6, one of which is mounted in the rear portion of the cabinet 1 and the other one of which is mounted in the table section 5, is a driving shaft 7. (See Figures 1, 3 and 5.) Fixedly secured to that portion of the shaft 7 which is within the table section 5, is a drum 8 around which passes a strip 9 from a spool 10 to a spool 11. These spools 10 and 11 are secured on shafts 12 and 13 respectively, that are journaled in a supporting frame 14 mounted upon the base 4 within the table section 5 of the cabinet. This frame is preferably of the form shown in Figure 1, terminating at its outer, upper end in an angular portion in which there is journaled a transverse shaft 15 on which a guide roller 16 for the strip 9 is mounted. (See Figures 1, 3 and 4.)

The strip 9 is movable over a platen 17 in the table section 5, and is divided by parallel diagonal lines into name, subject or other designation receiving spaces. Each one of the latter is adapted to be brought by the strip when moved by the drum 8, to a position below a diagonal space between two parallel lines 18, 18 that are etched or otherwise formed on a transparent plate 19, preferably of glass, which is set in a hole in the middle portion of the top 20 of the table section 5. (See Figures 3 and 4.)

The driving shaft 7 projects beyond the table section 5 to receive a knob 21 that is fixedly secured thereto by a screw 22. (See Figure 5.) By means of this knob the shaft 7 may be turned to rotate the drum 8, which in turn will move the strip 9 to bring a selected name such as that of "John Doe" shown thereon in Figure 3, directly under the space between the diagonal lines 18, 18 on the glass plate 19. When this has been done, a pocket or folder containing matter relating to that name, will be moved outwardly from the cabinet 1 by means to be hereinafter described.

The spool 10 and the spool 11 are rotated in reverse directions by the drum 8 through the following means to unwind the strip 9 from the first spool onto the second. Secured to the inner end face of the drum 8 by screws 23, is a pulley 24 around which passes a belt 25. Freely rotatable on the spool shaft 12 is a pulley 26, and also freely rotatable on the spool shaft 13 is a pulley 27. In order that these pulleys may be rotated in opposite directions, the belt 25 passes around the pulley 26, but only its lower run engages the pulley 27.

The pulleys 26 and 27 drive their respective spools 10 and 11 through the following means. Referring to Figures 6 and 7, there is formed in the inner face of each one of those pulleys, ratchet notches 28 circumferentially arranged and preferably spaced an equal distance apart. Formed in each spool on one side of its shaft, is a recess 29 parallel to the spool axis which receives a plunger 30 that is pressed by a coil spring 31 behind it in the recess, into one of the ratchet notches 28 of the pulley in front of it. The pulley clutches and related means just described will effect a movement of the index strip 9 in either direction.

When the belt 25 passes over the pulley 27 and rotates it in a counterclockwise direction, one of the radial notches in the pulley is brought in front of the plunger 30. Into this radial notch 28 in the pulley 27 the plunger 30 is pressed by the spring 31 to cause the spool 11 to be rotated by the pulley, thereby winding the name strip 9 upon said spool as fast as it comes off of the drum 8. Due to the varying diameter of the paper roll on the spool, the belt 25 will slip in the groove of the pulley 27. (See Figures 3, 4, 6 and 7.)

At the same time the belt passes over the pulley 27, it passes around the pulley 26 and rotates it in a clockwise direction. As the tapering ratchet notches 28 in the inner face of said pulley 26 pass in front of the plunger 28 in the spool 10 from which the name strip 9 is being unwound, the plunger will drop to the bottom of each notch and slide out again because of the different speeds caused by the variable diameter of the name strip roll on said spool 10, which is unwinding only as fast as it feeds over the drum 8. The plunger and radial notch connection between the pulley and spool, thus insures the desired independence of movement between them to accommodate the variable diameter of the name strip roll on the spool.

To prevent any slippage between the drum 8 and the name strip 9, the drum drives the latter through two rows of short pins 32 on its periphery which enter two rows of perforated holes 33 in the name strip. (See Figures 3 and 4.)

Each tier section 3 of the cabinet 1 contains a series of vertically disposed pockets or folders 34 that are adapted to be moved outwardly through its front portion a sufficient distance to permit the matter therein to be easily withdrawn and replaced. For the purpose of moving to an exposed position the folder 34 that corresponds to the name under the space bounded by the diagonal lines 18, 18 on the glass plate 19, I have provided a kick-out mechanism soon to be described.

Formed on that portion of the drive shaft 7 which extends beneath the tier sections 3 in the cabinet 1, is a spiral groove 35. Adapted to travel in this groove is a pin projection 36 on the lower end of a screw 37 in a sliding base 38 for the kick-out mechanism column 39. The base 38 is slidable along the drive shaft 7, so that when the latter is turned by the knob 21, the kick-out mechanism may be carried by it to a position directly behind the folder which is to be kicked out to an exposed position. (See Figures 3 and 5.)

Mounted in bearings 40, 40, one of which is shown at one end of the machine in Figure 3, and the other one of which is concealed at its other end. The wood blocks are not bearings in Figure 3. At the rear of the drive shaft 7, and parallel thereto, is a shaft 41 over which the base 38 of the column 39 is also slidable. This column base 38 has, just above the drive shaft 7, an outwardly projecting arm 42 through a hole in which there passes the reduced lower end of a vertical shaft 43. Fixedly secured to the extreme lower end of the latter is a horizontal bevel gear 44 which

meshes with a vertical bevel gear 45 slidably secured by a screw 46 to a keyway in the drive shaft 7. (See Figure 5.)

Slidingly mounted on the shaft 43 above the arm 42 of the base 38, is a hollow vertical shaft 47 containing in its lower end vertical slots 48, 48 through which there freely project the ends of a pin 49 that extends transversely through the shaft 43 and by means of which the latter rotates the shaft 47 without interfering with its vertical movement. (See Figure 5.)

The shaft 47 has four radial kick-out lever engaging pins 50 upon it, one for each tier of folders 34, and for each additional tier that is added to the cabinet, an additional pin 50 is added to the shaft. It will now be seen that when the driving shaft 7 is turned by the knob 21, it will rotate, through the bevel gears 44 and 45, the shaft 43, which in turn will rotate the vertical shaft 47 to rotate the kick-out lever engaging pins 50. The ratio of the gears 44 and 45 is preferably two to one, so that a one-half turn of the driving shaft 7 will cause the pin shaft 47 to make one complete revolution. The pins 50 are so located on the shaft 47 that a one-eighth turn of the driving shaft 7 will cause one of these pins to come under the rear end of a bell-crank kick-out lever 51. For each tier of folders one of these levers is pivotally secured to a bracket casting 52 riveted to the slidable column 39, so that a lever may be moved by the column to a position directly behind a selected folder when the drive shaft is turned by the knob 21. (See Figures 1, 3, 9, 10 and 11.)

When one of the pins 50 has been brought beneath the rear end of the kick-out lever which is in a position to engage the selected folder 34, the pin is raised by the following means to cause the said kick-out lever to move that folder to an exposed position. Referring to Figures 3 and 11, there is mounted upon the drive shaft 7 just behind the knob 21, for a free turning movement upon said shaft, a bushing 53. Fixedly secured to the latter, by means of a screw 54, is a hub 55 on which there is an upright handle extension 56.

Firmly secured by a binding screw 57 upon the bushing 53 behind the hub 55, is the split hub portion of an arm 58 whose outer end is freely straddled by fork projections 59, 59 on the vertical portion of a right-angled arm 60 that is pinned at its rear end to the shaft 41. The latter is provided with a key-way to receive a key 61 in a hub casting 62 which is slidable on said shaft opposite the kick-out mechanism column 39. Secured to this hub casting 62 is one end of a finger 63 which projects outwardly, then upwardly and then outwardly to engage a flange 64 on the bottom of the shaft 47. (See Figures 5 and 11.) In order that the hub casting 62 may move with the column base 38 along the shaft 41 to maintain the finger 63 under the flange 64 on the pin shaft 47, said casting is connected to the said column base by a screw 65. (See Figure 3.)

It will now be seen that when the handle 56 is pulled to the right, the arm 58 will elevate the arm 60, which in turn will rotate the shaft 41 to raise the finger 63. The latter will then elevate the shaft 47 to cause the pin 50 thereon which is below the heel of a bell-crank lever 51, to engage the latter for the purpose of causing it to force the selected folder outwardly to a position from which the matter therein may be conveniently extracted.

Each bell-crank lever 51 is returned to its original position after a folder has been ejected by it, through the medium of a wire spring 66. At its middle portion this spring 66 is coiled around a bushing 67 on the pivot pin 68 that hingedly secures the bell-crank lever to its respective bracket casting 52. The lower end of the spring terminates in an angle portion that is anchored below the casting 52, while its upper end terminates in a hook portion 69 that fits over a pin 70 on the heel portion of the bell-crank lever. (See Figures 9, 10 and 11.) Therefore, when the outer end of the bell-crank lever forces the selected folder outwardly, it will do so in opposition to the spring 66, which will return said lever to its normal position when the handle 56 is moved counterclockwise to cause the arm 58 to engage the lower projection 29 on the arm 60 and thereby to draw the upper end of the finger 63 downwardly to permit the pin shaft 47 to descend.

The folders or pockets 34 each comprise a sheet of metal or other firm material which is bent upon itself to include between its sides a number of index cards 71. These pockets are mounted side by side upon the partitions 2 in the cabinet 1. Formed in the rear part of each partition 2 is a surface depression in which there is fitted a flat strip 72 provided with a series of longitudinal grooves 73. The folders 34 have rear heel portions 74 which are movable through the grooves 73 until they reach their front ends, whereupon their movement will be stopped to limit the outward movement of the folders. (See Figures 13 and 14.) In the bottom part of each partition 2 except the lowermost one, there is formed a series of grooves 75 in alinement with the grooves 73 in the strip 72, to receive the tops of the folders 34. These grooves 73 and 75 guide the folders outwardly when engaged by the kick-out levers 51.

In each folder 34 there are preferably

five cards 71, although a greater or a less number may be employed if desired. The front ends of the cards in each pocket or folder project a sufficient distance beyond it to display the name or subject placed on the front end of the card. When the pocket has been moved a sufficient distance outwardly to display the front ends of its cards, its further outward movement will be resisted by the engagement of the heel 74 on the folder with the front end of the groove 73 in the strip 72. The front ends of the cards are notched in a stepped manner so that one card will not obstruct the view of the matter contained on the front ends of the other cards within the pocket. (See Figures 13, 14 and 15.)

To move to its extreme outward position, a folder 34 which contains a card corresponding to a name or subject on the strip 9 that has been selected, the knob 21 is turned until that name, in the present instance "John Doe", is brought beneath the space on the glass plate 19 between the diagonal lines 18, 18. The name strip 9 is so moved by the drum 8 on the drive shaft 7 to which the knob 21 is secured. While the drive shaft 7 is being rotated to move the name strip 9, its rear spirally grooved end will move the kick-out mechanism column to a position directly behind the folder 34 which contains the card corresponding to the selected name. The rotation of the drive shaft 47 will also, through the gears 44 and 45, and the shaft 43, turn the shaft 47 a sufficient amount to bring one of the radial pins 50 thereon directly beneath the heel of the kick-out lever 51 that is behind the selected pocket. If this pocket is in the top tier section of the cabinet as shown in Figure 1, the top pin 50 will be brought beneath the heel of the top kick-out lever 51 which has been moved to a position directly behind that pocket by the kick-out mechanism column 39. Now, to kick-out this pocket, the handle 56 is pulled to the right, or the position shown for it in Figure 11. This movement of the handle, through the means hereinbefore described, will cause the finger 63 to raise the pin shaft 47 a sufficient distance to engage, through the top pin 50, the heel of the top kick-out lever 51 so that the front end of the latter will move the selected pocket outwardly until its heel portion 74 engages the outer end of the groove 73 in which it travels. The pocket is now in a position to present the desired card 71 therein for convenient removal.

By pushing the handle 56 to the left, the projection 59 on the arm 60 will be engaged by the arm 58 to move the outer end of the finger 63 downwardly, so that the shaft 47 may descend. The upper pin 50 will then descend below the heel of the top kick-out lever 51, whereupon the spring 66 will return said lever to its normal position so that the selected pocket may be pushed within the cabinet after the reinsertion of the removed card therein.

It will thus be seen that I have provided a simple and economical filing cabinet in which there are a number of tiers of folders or pockets that are adapted to be selected for partial ejection, by moving a name strip to different positions; that the shaft which moves this name strip to bring a name thereon to the desired position, will also move a kick-out mechanism behind the folder containing matter relating to that name; and that, thereafter, a handle may be moved to cause he kick-out mechanism to force that folder outwardly to a position wherein the desired card may be easily withdrawn from it.

I do not wish to be limited to the details of construction and arrangement herein shown and described, and any changes or modifications may be made therein within the scope of the subjoined claims.

Having described my invention, I claim:

1. In a filing cabinet, the combination with a kick-out mechanism, of a series of record means adapted to be separately forced outwardly by said mechanism, and a movable index for setting said kick-out mechanism behind a desired record means.

2. In a filing cabinet, the combination with a shiftable kick-out mechanism, of a series of folders adapted to be separately forced outwardly by said mechanism each folder containing cards bearing designations, a movable index containing designations corresponding to the cards in said folders, a stationary indication, and means for moving said index to bring a selected designation thereon into registry with said indication and for simultaneously shifting the kick-out mechanism to a position directly behind the folder containing the card corresponding to said designation.

3. In a filing cabinet, the combination with a shiftable kick-out mechanism, of a series of folders adapted to be separately forced outwardly by said mechanism each folder containing cards bearing designations, a movable strip containing designations corresponding to the cards in said folders, a stationary indication into registry with which said designations are adapted to be brought, and means for simultaneously moving the strip and the kick-out mechanism, the latter to a position behind the folder containing the card corresponding to a selected designation at the time the strip is moved by said means to bring that designation into registry with the stationary indication.

4. In a filing cabinet, the combination with a shiftable kick-out mechanism, of a series of folders adapted to be separately moved outwardly by said mechanism each folder

containing cards bearing designations, a movable strip containing designations corresponding to the cards in said folders, a stationary indication into registry with which said designations are adapted to be brought, a horizontal shaft having a spirally grooved portion, a drum on said shaft for moving the strip to bring a selected designation into registry with the stationary indication, and means on the spirally grooved portion of the shaft for shifting the kick-out mechanism to a position directly behind the folder containing the card corresponding to said designation while the latter is being brought to the stationary indication by the strip.

5. In a filing cabinet, the combination with a kick-out mechanism, of a series of folders adapted to be separately moved outwardly by said mechanism each folder containing cards bearing designations, a horizontal shaft having a spirally grooved portion along which said kick-out mechanism is movable, a movable strip containing designations corresponding to the cards in said folders, a stationary indication into registry with which said designations are adapted to be brought by the strip, means for turning said shaft, a drum on the latter for moving the strip to bring a selected designation into registry with the stationary indication, and means on the kick-out mechanism engageable in the grooved portion of the shaft for shifting the kick-out mechanism along the latter to a position directly behind the folder containing the card corresponding to said designation while the latter is being brought to the stationary indication by the strip.

6. In a filing cabinet, the combination with a kick-out mechanism, of a series of folders adapted to be separately forced outwardly by said mechanism each folder containing cards bearing designations, a movable index containing designations corresponding to the cards in said folders, and means accessible for convenient operation for simultaneously moving the index and the kick-out mechanism to position the latter behind a selected folder at the time the designation on the desired card therein has been moved into a predetermind position by the index.

7. In a filing cabinet, the combination with a kick-out mechanism, of a series of folders adapted to be separately forced outwardly by said mechanism each folder containing cards bearing designations, a movable index containing designations corresponding to the cards in said folders, and a horizontal member rotatable from one side of the cabinet for simultaneously moving the index and the kick-out mechanism to position the latter behind a selected folder at the time the designation on the desired card therein has been moved into a predetermined position by said index.

8. In a filing cabinet, the combination with a movable kick-out mechanism, of a series of folders adapted to be separately forced outwardly by said mechanism each folder containing cards bearing designations, a movable index containing designations corresponding to the cards in said folders, means for simultaneously moving the index and the kick-out mechanism for setting the kick-out mechanism behind a folder containing the card corresponding to a selected designation, and means for operating the kick-out mechanism to force said folder outwardly after the kick-out mechanism has been brought to a position behind it.

9. In a filing cabinet, the combination with a kick-out mechanism, of a series of folders adapted to be separately forced outwardly by said mechanism each folder containing cards bearing designations, a movable index containing designations corresponding to the cards in said folders, means for simultaneously moving the index and the kick-out mechanism to position the latter behind a selected folder at the time the designation on the desired card therein has been moved into a predetermined position by the index, and means associated with the index and kick-out mechanism moving means for operating the kick-out mechanism to force the selected folder outwardly after said kick-out mechanism has been positioned behind it.

10. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism, of a series of folders in each tier section each folder containing cards bearing designations, behind which the kick-out mechanism is horizontally movable, a movable index containing designations corresponding to all of said cards, and means for simultaneously moving the index and kick-out mechanism to position the latter behind a selected folder in one of the tier sections at the time the designation on the desired card therein has been moved into a predetermined position by the index.

11. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism including an ejecting device, of a series of folders in each tier section, behind which the kick-out mechanism is horizontally movable each folder containing cards having designations, a movable index containing designations corresponding to all of said cards, means for simultaneously moving the index and the kick-out mechanism to position the latter behind a selected folder in one of the tier sections at the time the designation on the desired card therein has been moved to a predetermined position by the index, the eject-

ing device in said kick-out mechanism adapted to be set by the aforesaid means, to kick out the selected folder.

12. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism including an ejecting device, of a series of folders in each tier section, behind which the kick-out mechanism is horizontally movable each folder containing cards having designations, a movable index containing designations corresponding to all of said cards, means for simultaneously moving the index and the kick-out mechanism to position the latter behind a selected folder in one of the tier sections at the time the designation on the desired card therein has been moved to a predetermined position by the index, the ejecting device in said kick-out mechanism adapted to be set by the aforesaid means, to kick out the selected folder, and means for operating the ejecting device.

13. In a filing cabinet having a number of superimposed tier sections, the combination with an ejecting device including a rotatable element and a kick-out lever, of a series of folders in each tier section, behind which the kick-out mechanism is horizontally movable each folder containing cards having designations, a movable index containing designations corresponding to all of said cards, means for simultaneously moving the index and the ejecting device to position the latter behind a selected folder in one of the tier sections at the time the designation on the desired card therein has been moved to a predetermined position by the index, the rotatable element adapted to be rotatably set by the index-moving means in a kick-out position with reference to the selected folder, and means for longitudinally moving said rotatable element to engage said lever to kick out that folder.

14. The combination with a filing cabinet and a series of folders in said cabinet, of an ejecting device including a rotatable element, a kick-out lever and means on the rotatable element for operating the kick-out lever, each folder containing cards bearing designations, a movable index containing designations corresponding to said cards, a rotatable member, means on said rotatable member for moving the movable index to bring a selected designation thereon to a predetermined position, means also on said rotatable member for placing the ejecting device with its kick-out lever behind the folder containing the card corresponding to that designation at the time the latter is brought to a predetermined position by the movable index, said rotatable element of the ejecting device adapted to be rotatably set by the rotatable index-moving member into operative position with reference to the kick-out lever, and means for longitudinally moving said rotatable element to kick out that folder.

15. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a kick-out mechanism including a longitudinally movable pin shaft movable behind said folders, a movable index containing designations corresponding to said cards, a rotatable member, means on said member for moving the index to bring a selected designation thereon to a predetermined position, means also on said rotatable member for placing the kick-out mechanism behind the folder containing the card corresponding to that designation at the time the latter is brought to a predetermined position by the index, the pin shaft adapted to be turned by the rotatable member to an ejecting position with reference to a selected folder.

16. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a kick-out mechanism including a longitudinally movable pin shaft movable behind said folders, a movable index containing designations corresponding to said cards, a horizontal shaft, means for rotating said shaft, means on the latter for moving the index to bring a selected designation thereon to a predetermined position, means longitudinally movable along said horizontal shaft when it is turned, for moving the kick-out mechanism to a position behind the folder containing the card corresponding to that designation at the time the latter is brought to said predetermined position by the index, a driving connection between the horizontal shaft and the pin shaft whereby the latter may be rotated to an ejecting position with reference to the selected folder during the movement of the index and the kick-out mechanism, a kick-out lever, and means for imparting a longitudinal movement to the pin shaft to engage the kick-out lever to kick out said folder after the kick-out mechanism has been positioned behind it.

17. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a kick-out mechanism including a longitudinally movable pin shaft movable behind said folders, a movable index containing designations corresponding to said cards, a horizontal shaft, means for rotating the latter, means on said shaft for moving the index to bring a selected designation thereon to a predetermined position, means longitudinally movable along the horizontal shaft when it is turned, for moving the kick-out mechanism to a position behind the folder containing the card corresponding to that designation at the time the

latter is brought to said predetermined position by the index, a driving connection between the horizontal shaft and the pin shaft whereby the latter may be rotated to an ejecting position with reference to the selected folder during the movement of the index and the kick-out mechanism, a kick-out lever, a finger device for imparting a longitudinal movement to the pin shaft to engage the kick-out lever to kick out the selected folder, and oscillatory means mounted on the horizontal shaft for actuating the finger device.

18. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a kick-out mechanism including an ejecting device movable behind said folders, a movable index containing designations corresponding to the cards in said folders, and means for simultaneously moving the index, the kick-out mechanism and its ejecting device to bring said kick-out mechanism behind, and for setting its ejecting device to kick out, the folder containing the card corresponding to a selected designation at the time the latter is brought by the index to a predetermined position.

19. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a kick-out mechanism including an ejecting device movable behind said folders, a movable index containing designations corresponding to the cards in said folders, and a horizontal driving member rotatable from one side of the cabinet to simultaneously move the index, the kick-out mechanism and its ejecting device to bring said kick-out mechanism behind, and for setting its ejecting device to kick out, the folder containing the card corresponding to a selected designation at the time the latter is brought by the index to a predetermined position.

20. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism column, of a series of folders in each tier section, behind which said column is horizontally movable, a kick-out lever on said column for the folders of each tier section, a rotatable and longitudinally movable member on said column, a series of radial projections on said member, one for each kick-out lever, and so positioned on said member as to be brought progressively into position to engage said kick-out levers, and means for moving said column to a position behind a selected folder and for simultaneously rotating said member to bring one of its projections to a position to engage the kick-out lever for the tier section containing said folder for the purpose specified.

21. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism column, of a series of folders in each tier section, behind which said column is horizontally movable, a kick-out lever on said column for the folders of each tier section, a rotatable and vertically movable shaft on said column, a series of radial pins on said shaft, one for each kick-out lever, and so positioned on the shaft as to be brought progressively into positions to engage the kick-out levers when the shaft is turned, means for moving said column to a position behind a selected folder and for simultaneously rotating said shaft to bring one of its pins to a position to engage the kick-out lever for the tier section containing said folder, and means for elevating said shaft to cause said kick-out lever to force outwardly the selected folder.

22. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism column, of a series of folders in each tier section, behind which said column is horizontally movable, a kick-out lever on said column for the folders of each tier section, a rotatable and vertically movable shaft on said column, a series of radial pins on said shaft, one for each kick-out lever, and so positioned on the shaft as to be brought progressively into positions to engage the kick-out levers when the shaft is turned, a horizontal shaft for moving said column along it to a position behind a selected folder, and a driving connection between said horizontal shaft and the vertical shaft to rotate the latter to bring one of its pins to a position to engage the kick-out lever for the tier section containing said folder, when said horizontal shaft is rotated to bring the kick-out mechanism column behind that folder.

23. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism column, of a series of folders in each tier section, behind which said column is horizontally movable, a kick-out lever on said column for the folders of each tier section, a rotatable and vertically movable shaft on said column, a series of radial pins on said shaft, one for each kick-out lever, and so positioned on the shaft as to be brought progressively into positions to engage the kick-out levers when the shaft is turned, a horizontal shaft which is rotatable to move said column along it to a position behind a selected folder, a driving connection between said horizontal shaft and the vertical shaft to rotate the latter to bring one of its pins to a position to engage the kick-out lever for the tier section containing said folder, when said horizontal shaft is rotated to bring the kick-out mechanism column behind it, a second horizontal shaft along which said column is also movable, a finger keyed to said shaft and connected to the

column for movement by the latter along said shaft, and means for rotating the second horizontal shaft to cause said finger to raise the vertical shaft after the latter has been turned to bring one of its pins to a position to engage the selected kick-out lever, for the purpose specified.

24. The combination with a filing cabinet, and a series of folders therein, each folder containing cards bearing designations, of a movable index strip bearing designations corresponding to the cards of said folders, a table with respect to which said strip is movable, an indication on said table into registry with which the index strip is adapted to bring a selected designation, means for moving said strip, and a kick-out mechanism adapted to be moved by said means to a position behind the folder containing the card corresponding to the selected designation at the time the latter is brought by said strip into registration with the indication on the table.

25. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a movable index strip bearing designations corresponding to the cards of said folders, a table with respect to which said strip is movable, an indication on said table into registry with which the index strip is adapted to bring a selected designation, a rotatable shaft, a drum on said shaft for moving the strip, and a kick-out mechanism adapted to be moved along and by the shaft when it is turned, to a position behind the folder containing the card corresponding to the selected designation at the time the latter is brought by said strip into registration with the indication on the table.

26. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a movable index strip bearing designations corresponding to the cards of said folders, a table having an opening in its middle portion, a transparent member set in the opening in said table and bearing an indicating mark, a platen mounted in the table below the transparent member, means for moving said strip over the platen below the mark on said transparent member, and a kick-out mechanism adapted to be moved by said means to a position behind the folder containing the card corresponding to the selected designation at the time the latter is brought by said strip below the mark on the transparent member.

27. The combination with a filing cabinet, and a series of folders in said cabinet, of a movable strip for selecting a folder to be ejected, a spool from which said strip unwinds and a spool upon which it winds, shafts on which the spools are loosely mounted, a pulley also loosely mounted on each shaft, a belt for rotating said pulleys in reverse directions, each pulley having formed in its inner face a series of tapering ratchet notches, a plunger in each spool, and resilient means for forcing said plunger into the radial notches of its respective pulley for the purpose specified.

28. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a movable index containing designations corresponding to the cards of said folders, a kick-out mechanism including a folder-ejecting device adapted to be moved, when said shaft is rotated, to a position behind the folder containing the card corresponding to the selected designation on the index, means for turning the horizontal shaft to move the index to bring the selected designation thereon to a predetermined position and to simultaneously move the kick-out mechanism to a position behind the folder containing the card corresponding to that designation, a hand-actuated member freely mounted on the horizontal shaft, and means connected between the hand-actuated member and the folder-ejecting device, to operate the latter to kick out the selected folder after the kick-out mechanism has been moved to a position behind it.

29. The combination with a filing cabinet, and a series of folders in said cabinet, each folder containing cards bearing designations, of a movable index containing designations corresponding to the cards of said folders, a kick-out mechanism including a vertically movable folder-ejecting device adapted to be moved, when said shaft is rotated, to a position behind the folder containing the card corresponding to the selected designation on the index, means for turning the horizontal shaft to move the index to bring the selected designation thereon to a predetermined position and to simultaneously move the kick-out mechanism to a position behind the folder containing the card corresponding to that designation, a hand-actuated member freely mounted on the horizontal shaft, a second horizontal shaft along which the kick-out mechanism is also movable, arm and fork means through which the second horizontal shaft is adapted to be rotated by the hand-actuated member, and a finger connected to the second horizontal shaft for elevating the ejecting device to kick-out the selected folder after the kick-out mechanism has been moved to a position behind it.

30. In a filing cabinet having a number of superimposed tier sections, the combination with a kick-out mechanism column, of a series of folders in each tier section, behind which said column is horizontally movable, a kick-out lever on said column for the folders of each tier section, a rotatable and ver-

tically movable shaft on said column, a series of radial pins on said shaft, one for each kick-out lever, and so positioned on the shaft as to be brought into positions to progressively engage the kick-out levers when the shaft is turned, a horizontal shaft which is adapted when rotated to move said column along it to a position behind a selected folder, a driving connection between said horizontal shaft and the vertical shaft to rotate the latter to bring one of its pins to a position to engage the kick-out lever for the tier section containing said folder, when the horizontal shaft is rotated to bring the kick-out mechanism behind it, a second horizontal shaft along which said column is also movable, a hand-actuated device freely mounted on the first horizontal shaft, arm and fork means through which the second horizontal shaft is adapted to be rotated by the hand-actuated device, and a finger connected to the second horizontal shaft for elevating the vertical shaft to cause the pin thereon under said kick-out lever to force the latter to kick out the selected folder.

In testimony whereof I have hereunto set my hand this 15th day of November, 1923.

MAX C. WHITMORE.