

Dec. 27, 1949

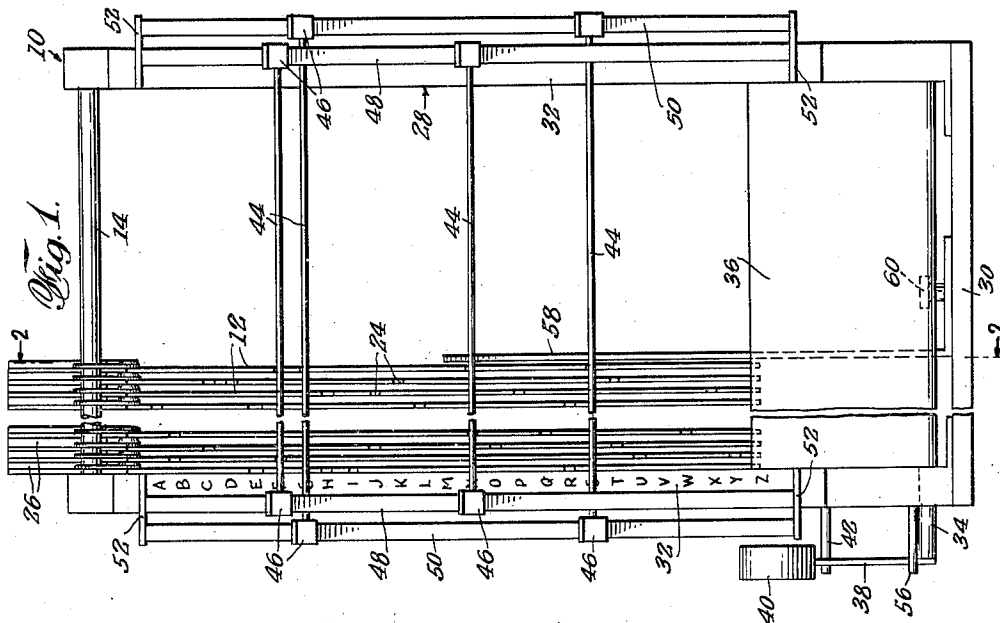
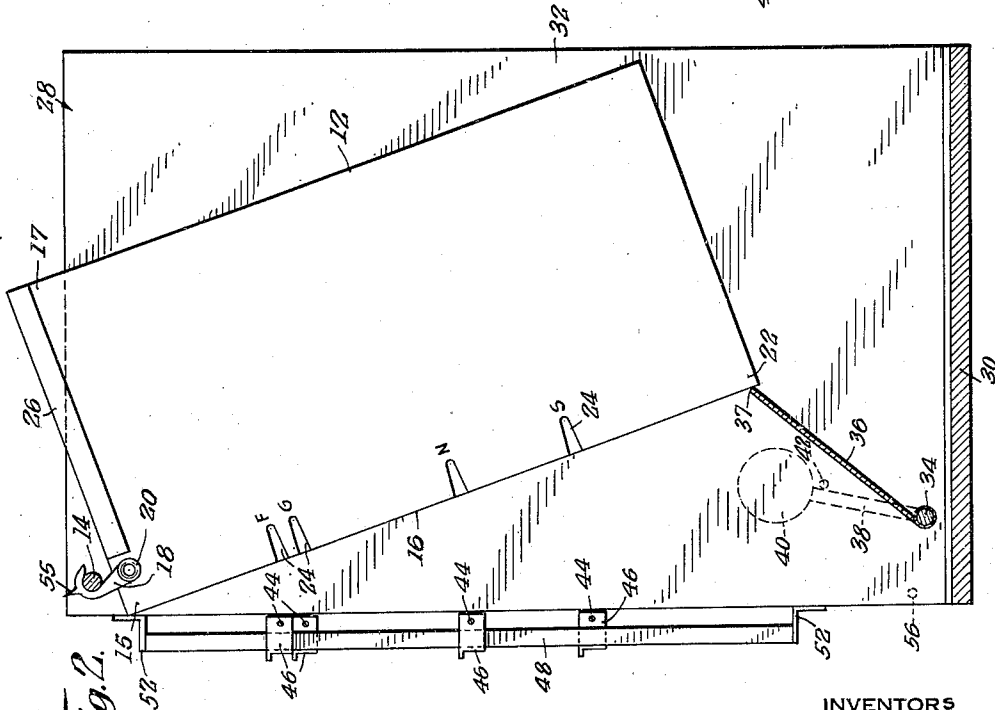
S. GORAD ET AL

2,492,796

FILING AND FILE SELECTING MECHANISM

Original Filed Dec. 13, 1940

2 Sheets-Sheet 1



INVENTORS
SAMUEL GORAD
PHILIP F. JACOBS
BY
Irving F. Goodfriend
ATTORNEY

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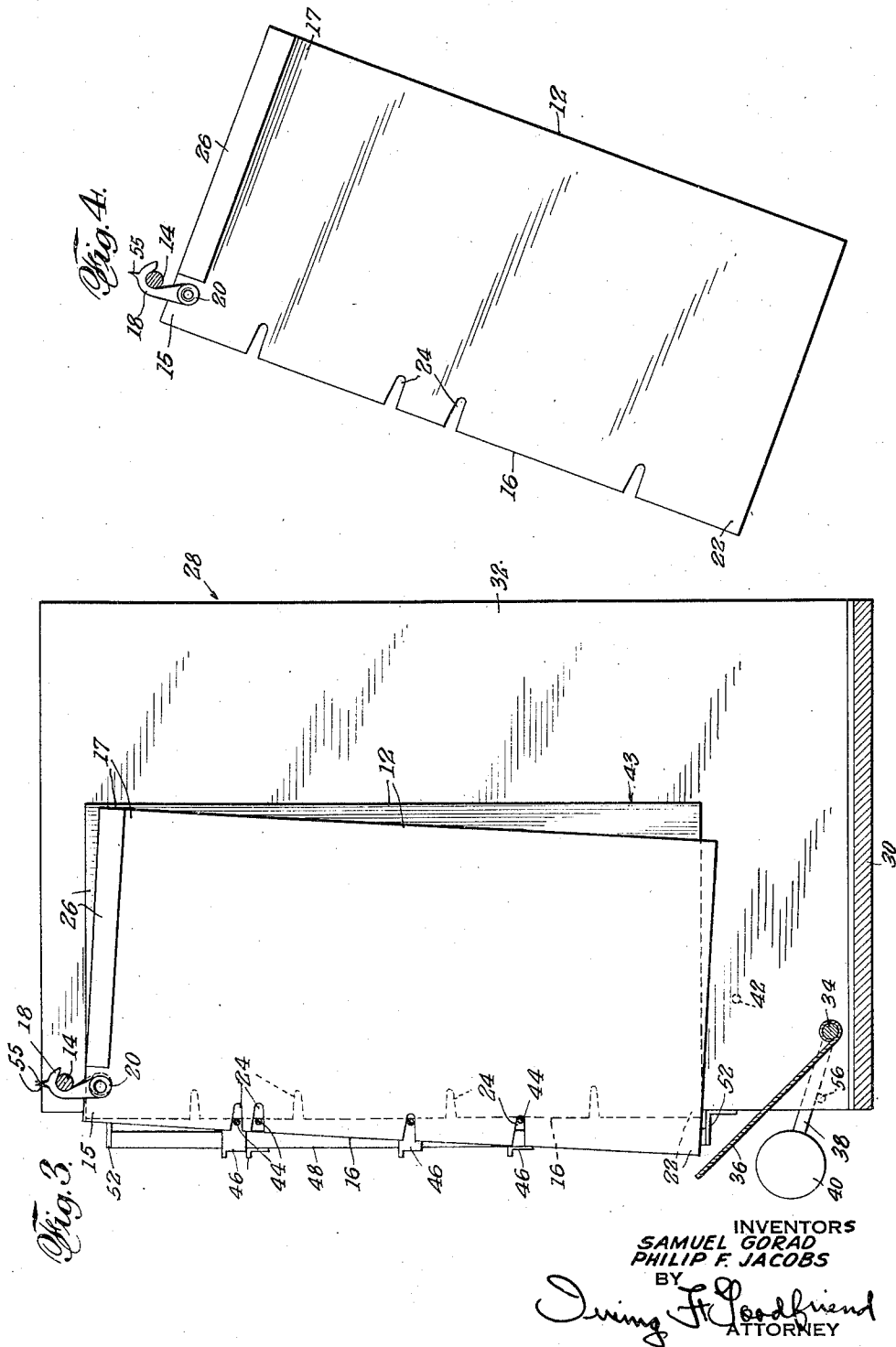
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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,492,796

FILING AND FILE SELECTING
MECHANISMSamuel Gorad and Philip F. Jacobs,
New York, N. Y.Continuation of application Serial No. 369,994,
December 13, 1940. This application Septem-
ber 27, 1944, Serial No. 555,932

13 Claims. (Cl. 129—16.1)

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The present invention relates to a filing and file selecting mechanism and to the files adapted to be associated therewith, and is a continuation of application Ser. No. 369,994, filed December 13, 1940. More particularly, the present invention relates to a mechanism of the character described in which the files may be arranged in any haphazard relation to one another and in which a particular required file may be selected by the mechanism irrespective of the position that it has been placed in the mechanism with respect to the other files.

The present invention contemplates the provision of a filing and selecting mechanism in which the files or other articles, for example cards, are filed haphazardly and which mechanism may be operated to permit a selected file or article to move into disclosed position relative to the remaining files or articles.

The present invention further contemplates the provision of a mechanism of the character described in which the means provided for disclosing the position of any selected file or article normally restrain all the remaining files or articles in undisclosed position.

The present invention still further contemplates the provision of files or articles having identifying means thereon with which the file or article restraining means may be made to selectively correspond to thereby free a required file or article and permit such selected file or article to gravitate into disclosed position.

The present invention still further contemplates the provision of a plurality of file or article restraining members or means which may be selectively positioned relative to each other in accordance with a code characteristic of the required file or article and to thereby become aligned with means on the files or articles arranged thereon in accordance with a corresponding code position, whereby the required, selected card will be released and gravitate from its normal filed position into disclosed position.

The present invention, in addition, contemplates the provision of a mechanism of the character described which is comparatively errorless in operation, that is one in which any or all required selected files or articles will invariably spontaneously move into disclosed position and all the remaining files or articles will be restrained in normal filed or undisclosed position.

The present invention furthermore contemplates the provision of a mechanism of the character described which is economical in construction and is adapted to utilize files, articles or

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article-identifying means which are simple and comparatively inexpensive to manufacture.

It is well understood that when an object is displaced so as to be restrained in an unstable position, that is with its center of gravity displaced from its normal or stable relative position of rest, the object when unrestrained will invariably move or gravitate toward its normal stable position.

Our invention utilizes this principle in a novel manner by suspending the files so that they can freely move about the point of suspension and arranging them in normal filed restrained unstable position so that a required file may be selected from the remaining files by removing such restraint from it to permit it to spontaneously gravitate about the point of suspension toward or into stable suspended position.

It will be understood that we have here described only so much of a filing and selecting mechanism as is necessary to explain the basic operation and interrelationship of the mechanism and the filed articles.

Other and further objects and advantages of the present invention will become apparent in the following description and the drawings relating thereto, in which

Fig. 1 is a front elevation of a preferred embodiment of the filing and relating mechanism of the present invention.

Fig. 2 is a sectional view taken along the line 2—2 of Fig. 1, showing all the files arranged in filed unstable restrained position.

Fig. 3 is a view similar to that of Fig. 2 showing the position of the mechanism when a required selected file has moved or gravitated into disclosed position, the remaining files being in undisclosed position.

Fig. 4 is an elevation of a file according to our invention and suspended in stable position of equilibrium from a crossbar.

In the preferred embodiment of the card filing and selecting mechanism 10, files or articles, for purposes of illustration here shown as filing cards 12 (seen in detail in Fig. 4), are adapted to be suspended from a crossbar 14 arranged as will be described hereinafter in the card filing and selecting mechanism 10.

The filing cards 12 are adapted to have data or information recorded thereon which relates to or is characteristic of a particular individual, business or system. The cards are preferably rectangular in shape and sufficiently stiff in construction so that they will not too readily bend. These cards, however, may be made in any form

or shape. Furthermore, articles other than cards may be employed, such as for instance envelopes, perhaps containing data or articles therein, and innumerable other articles that may be desired to be haphazardly filed and selected.

It will be further understood that by files we mean to broadly include any articles-identifying means which may be associated with or secured to any articles to practice our invention and haphazardly file the articles so that any required one may be selected irrespective of its filed position among the other articles.

The cards 12 are preferably arranged to be suspended at some point other than the center of gravity thereof, in the illustration at the upper left corner 15 adjacent the edge 16 by any suitable means, such as a hook 18 which is adapted to be supported on the crossbar 14 arranged on the filing and selecting mechanism 10. The hook 18 may be secured to the card by any suitable means such as the eyelet 20 passing through the card 12 and bent over to retain both the eyelet and the hook 18 in place. Since the card 12 is suspended on the crossbar at an upper corner 15, it will be apparent that its stable position will be that illustrated in Fig. 4, that is when freely suspended the card will gravitate about its point of suspension to assume a stable position of equilibrium, vertically tilted at an angle. In such stable position, the upper corner 17 of the card will be lower than the other upper corner 15 and the lower corner 22 and the edge 16 will project away from a vertical line passing through the point of suspension on the crossbar 14. Operation of our filing and selecting mechanism is, therefore, predicated upon maintaining all the filed cards, except those selected, in an unstable restrained position (that is a position of non-equilibrium), while the selected cards are freed from such restraint and gravitate toward their stable position of suspension with the corner 22 of the selected cards projecting outwardly beyond the remaining cards and thereby disclosed.

In order to reenforce the cards against bending, a strip of reenforcing material 26 may be arranged at the top thereof. The strip 26 and the eyelet 20 serve to space the cards apart so that they will not interfere with each other or jam together when relatively crowded.

The card filing and selecting mechanism 10 may be arranged in and made a part of a frame 28. The frame 28 may be arranged in a cabinet or filing compartment or may form a part of such cabinet or compartment. The frame also may be arranged outside of a cabinet and have its interior exposed.

The frame 28 preferably consists of a bottom 30 and two side walls 32. The crossbar or crossrod 14 from which the cards 12 are suspended is preferably near the top of the frame 28 and may have its ends secured in the side walls 32 thereof. The cards 12 may be filed by hooking them onto the crossbar 14 in any haphazard relative arrangement. If all the filed cards were freely suspended, they would all assume the tilted position shown in Fig. 4 with the corners 22 and the edge 16 projecting toward the left. However, for reasons which will become apparent from the following description, in practice when the cards are filed in the frame, it is preferred that they are displaced from their stable position of suspension and restrained in that position as illustrated in Fig. 2.

To maintain the cards 12 in the restrained unstable position shown in Fig. 2, we prefer to

provide a shaft 34 located adjacent the lower end of the walls 32 and journaled in said walls. A restraining plate 36, extending across the interior of the frame, is arranged on shaft 34 and is adapted to turn therewith when the shaft is turned, the edge of the restraining plate 37 engaging the edges 16 of the cards and maintaining them in restrained unstable position.

To turn the shaft 34 and release the cards, we prefer to provide an arm 38 having one end secured to the portion of the shaft 34 extending outside of one of the walls 32 of the frame. A counterweight 40 may be arranged at one end of the arm 38. The arm 38 and the restraining plate 36 preferably form an acute angle with each other. To limit the position of plate 36 so that it will displace the cards 12 at the desired unstable normal filing position, we provide a stop 42 which is arranged on the frame in the path of the arm 38, against which it may rest under the influence of the counterweight, the plate edge 37 engaging the edges 16 of the cards and displacing the corners 22, and maintaining the cards in restrained position in the interior of the frame 28.

Normally, as heretofore stated, the filed cards are maintained in the restrained position shown in Fig. 2. When, however, it is desired to select a certain card or a group of cards, the counterweight 40 and the arm 38 are moved toward the left (of view in Fig. 2), the restraining plate 36 turning therewith to release the cards from restrained unstable position. All the cards in the file then gravitate about their points of suspension toward the left as viewed in Fig. 2.

If no means were provided to restrain them, the cards, after being released from restrained position, would all assume a position of equilibrium as shown in Fig. 4. However, in the practice of our invention, all the cards, except that or those required and selected, are prevented from further gravitating into stable position by means which we will describe and which means may be positioned so that it will not inhibit movement of the selected card or cards into stable position to disclose its relative position among the other cards.

Such means are adapted to be positioned according to a code so as to correspond to and cooperate with means on the selected cards which permit their release.

Such card releasing means in the cards, files or articles which are used in the practice of our invention is a combination of slots 24 provided along the edge 16, the number of slots and their relative position on the card being characteristic of each particular card.

For example, we will assume that the card shown in Fig. 4 is that of a company, the initials of the words comprising its name being F G N S. The cards relating to that company are cut with slots, the relative positions of which on that card are characteristic of those letters.

To hold all the other non-selected cards in vertical position, we prefer to provide a plurality of horizontal cross wires 44 vertically aligned with each other and corresponding in number to the maximum number of slots 24 formed in any card 12. In the present embodiment, therefore, since four slots have been provided in the card 12, four cross wires 44 are provided for the card-selecting means. These card-selecting cross wires engage the edge 16 of the non-selected cards 43 and hold them in the preferable substantially vertical posi-

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tion illustrated in Fig. 3. As will be hereinafter described, the cross wires are positioned to correspond to and enter the slots 24 of the selected cards so that the released cards are free to continue their forward motion until they assume the disclosed position illustrated in Fig. 3.

The selecting wires 44 are adapted to be moved vertically up and down relative to each other and relative to their cooperating cards in accordance with a prearranged code. To provide for the vertical adjustment of the selecting wires 44, we prefer to have the ends of the wires secured to and arranged on slider members 46, which are arranged on and adapted to slide up and down on vertical slide bars. We prefer to provide two pairs of slide bars, an inner pair 48 and an outer pair 50.

Both the inner slide bars 48 and the outer slide bars 50 may be secured to the walls 32 of the frame 28 by any suitable means, such as the angle bars 52. It is preferred that the slide members 46 of alternate wires be arranged on the inner vertical slide bars and the slider members of the other wires arranged on the outer slide bars 50. The purpose of this arrangement is to allow adjacent wires to be moved close to each other without interference of adjacent slider members 46 with each other.

In the embodiment illustrated, the slider members are retained in position by friction but it will be readily apparent to anyone versed in the art that set screws and other devices for maintaining the slider members in position, such as springs and the like, may be employed.

As may be seen from the drawings, the cross wires are vertically aligned. These wires may be moved up and down vertically so that they may be positioned on the frame relative to each other, in accordance with a prearranged code. For example, in Fig. 1, there are illustrated nine positions, each corresponding to a letter of the alphabet, commencing at the top with A and ending at Z at the bottom. In Fig. 1, wires are shown as being arranged at the positions corresponding to letters F, G, N and S.

The cards (that is the files) are cut with slots which, when suspended on the frame in stable position, correspond to the position of a particular letter of the alphabet on the frame, the card 12 in the illustration being cut with slots corresponding to letters F, G, N and S, which are the initials of the company to which that card relates.

When the wires are, therefore, moved to the position shown in Fig. 1, cards having the selected code arrangement of slots corresponding to the same letters will be free to move past the wires.

In operation, when it is desired to select the card characteristic of the company whose code is its initials F G N S, the cross wires are moved to positions corresponding thereto. For purposes of illustration, we have shown cross wires positioned in the mechanism by hand though it will be understood that our invention may be suitably connected to a keyboard and automatic slide operating mechanism, which, since it forms no part of our invention, need not be illustrated.

After the cross wires are properly positioned, all the cards which are in the displaced restrained position shown in Fig. 2 are released by operation of the restraining plate 36 by manual movement of the arm 38. It will be understood that operation of the plate and arm can likewise be accomplished by suitable automatically controlled

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mechanism. Upon release, all the cards gravitate toward stable suspended position toward the left of the frame as viewed in Fig. 2. All those cards 43, however, which do not have slots corresponding to the positions of the cross wires, in the present illustration at F, G, N and S, are stopped when their edges engage the cross wires and their motion is interrupted (see Fig. 3).

The selected card 12, however, which has its slots arranged to correspond with the code, letters F, G, N and S, is not interrupted and halted at the vertical position, but continues its movement toward stable position of equilibrium, the cross wires entering the slots 24 of that card. The selected card then assumes the disclosed position illustrated in Fig. 3 extending from the other cards and can thereafter be readily removed by moving the hook of the card off the crossbar 14.

In order to facilitate removal of the selected card, we prefer to provide the lug 55 integral with and extending from the hook 18, which lug may be readily grasped by the hand.

It will be understood that the restraining plate may be dispensed with, although its use is preferred, the cross wires themselves serving to restrain the files in undisclosed, unstable restrained filed position.

In order to limit the movement of the restraining plate 36, upon releasing the cards, a lower stop 56 is arranged in the path of the arm 38 so as to stop further movement of the arm and the connected restraining plate 36 after the plate has been moved out of the way of the cards into the position illustrated in Fig. 3.

It will be understood that file displacing and restraining means other than the plate 36 may be provided to operate within the spirit and scope of our invention, such as electromagnetic means to influence suitably magnetically constructed files and to displace and restrain them in unstable position. Such files can be displaced and released upon suitably energizing and de-energizing the electromagnetic means in a manner that will occur to anyone skilled in the art.

The number of cards that may be used will be limited merely by the capacity of the frame. Since the capacity of the frame may not at all times be utilized, in order to adjust the size of its interior to accommodate a smaller quantity of files, we provide a file back or follower plate 58 of conventional construction, L-shaped in cross section, and adjustably secured to the bottom 30 of the frame by a knob 60 having a threaded shank arranged within a slot in the bottom of the file back plate 58. By loosening the knob 60, the file back or follower plate can be moved forward or backward to adjust the space in which the cards are arranged. Thus, the cards may be thereby kept compactly filed and prevented from swinging out of their normal plane.

From the foregoing description, it will be apparent that we have provided a card filing and selecting mechanism and cards for association therewith whereby the cards, haphazardly filed, may be selected according to a prearranged code and the selected cards moved into disclosed position, while the unselected cards remain in undisclosed position.

While we have described in detail a specific embodiment of our present invention, it is to be understood that the invention is not limited to the specific details, but that it is intended that the invention be defined by the state of the prior art and the appended claims.

We claim:

1. A file to be suspended at a single point in a filing space with other similar files similarly suspended in the filing space, an adjustable file selecting mechanism arranged adjacent the filing space for operative association with the file suspended therein said file selecting mechanism including a member for selective positioning along an edge of the suspended file, and a horizontal bar from which the file is suspended provided with the said filing space; said file having means at some point thereof for detachably hooking the file onto said horizontal bar for suspending the file therefrom for gravitation relative to the member in the file selecting mechanism thereabout on said point of suspension toward a normal stable position of rest and said file having second mentioned means thereon by which the file may be selected by the said filing mechanism from other files similarly filed in the filing space, said second mentioned means on the file, constructed and arranged to receive the member of the selecting mechanism to permit the file to gravitate on the bar about the point of suspension toward said position of rest whereby the file may be selected from other files in the filing space.

2. A filing card, having data associated therewith, to be filed in a filing space with other similar cards similarly filed, an adjustable mechanism arranged adjacent the filing space for operative association with the cards in the filing space, said adjustable mechanism for selecting a card from the other filed cards, said adjustable mechanism including a member to be selectively positioned along the edge of the filing card filed in the filing space, and a horizontal bar from which the filing card may be suspended in the filing space provided with said filing space; said filing card having hook means at one corner thereof adjacent a side thereof for suspending the card on said bar to freely hang therefrom to gravitate on said bar relatively to the member about the suspending means toward a normal stable suspended position of rest and said filing card having a slot arranged underneath the said corner thereof and extending inwardly from said edge and positioned on said edge in accordance with a predetermined code relating to the data on the card, said slot adapted to receive the said member of the selecting mechanism therein to permit the card to gravitate on the said means of suspension about the bar toward said position of rest and said edge of the card adapted to engage said selected mechanism, when adjusted, to restrain gravitation of the card on the means of suspension about the bar.

3. A filing and selecting mechanism for articles adapted to be filed and freely suspended therein, said articles each having slots therein extending inwardly from an edge thereof, said slots on each article being relatively arranged along said edge in accordance with a predetermined code, said mechanism comprising a single horizontal bar from which the said articles are suspended for gravitation thereabout toward a freely suspended position of rest and article selecting elements adapted to engage the said edge of the articles to restrain said articles from gravitating toward said freely suspended position of rest, said elements being movably arranged so that they may be adjusted to correspond to the relative arrangement of the slots on a selected article, said elements thereby being arranged to be received by only the slots on the selected article whereby only the

selected article may gravitate toward said freely suspended position of rest.

4. A filing and selecting mechanism for articles adapted to be filed and freely suspended therein, said articles each having means by which an article may be selected from the other filed articles and which article selecting means is arranged on the article in accordance with a predetermined code, said mechanism including a single horizontal bar from which said articles may be suspended for gravitation thereabout toward a suspended position of rest and an adjustable article selecting means arranged in the mechanism and constructed to engage the articles at some part thereof other than the means thereon by which the article may be selected to thereby restrain said articles from gravitating toward said suspended position of rest, said article selecting means in the mechanism being adjustable therein to correspond to the predetermined code arrangement of the means on the article for selecting the article, said article selecting means in the device thereby being arranged to engage only the said means on the article to be selected whereby only the selected article may gravitate toward said freely suspended position of rest, the other filed articles being restrained by said means in the device from gravitating toward said freely suspended position of rest.

5. In combination, a card selecting mechanism, a plurality of cards arranged adjacent each other and associated therewith, said cards each having slots extending inwardly from an edge thereof and positioned on the card along said edge relatively to each other in accordance with a predetermined code, said cards being freely suspended at a single point adjacent the selecting mechanism for gravitation about the point of suspension toward a position of rest, said selecting mechanism including a plurality of elements arranged to engage said edge of the cards and to thereby restrain said cards from gravitating toward said position of rest and means for positioning said elements in the mechanism so constructed and arranged that the position of said elements may be adjusted relative to said edges of the cards to correspond with the slots on a card to be selected, said elements being thereby arranged to be received by only the slots of the selected card whereby all but the selected card are restrained by the said elements from gravitating toward said position of rest.

6. In combination, a filing and selecting mechanism, files arranged therein, each of said files having a slot extending inwardly from an edge thereof, the slot on each file positioned on the edge thereof in accordance with a predetermined code, said files suspended on the mechanism for gravitation about a single point toward a suspended position of rest, a member on the mechanism adjacent the files constructed and arranged to engage said edge of the files to arrest gravitation thereof toward said position of rest, and means for positioning the said member relative to the said edges of the articles to correspond with the slot on an article to be selected, whereby said member is arranged to be received by only the slot on the card to be selected to thereby permit only the said card to be selected to gravitate toward said position of rest.

7. In combination, a plurality of files, filing means for said files, file selecting mechanism arranged on the filing means, said filing means positioning the files arranged therein adjacent the selecting mechanism, said filing means and said

files constructed and arranged to suspend the files at a single point in the filing means so that said files are adapted to gravitate from any other assumed position about the point of suspension in the filing means toward a position of rest and means included in said selecting mechanism for selecting any file from the plurality of files arranged in the filing means, said selecting means arranged to arrest gravitation of the said files about the point of suspension in the filing means from said other assumed position toward said position of rest, said selecting means being adjustable relative to the files to receive thereon a file to be selected whereby only said file to be selected is permitted to gravitate about the point of suspension from said other assumed position toward said position of rest.

8. In combination, filing means, a plurality of articles filed therein, a single horizontal bar in the filing means for freely suspending the articles therein for gravitation about the suspending bar toward a suspended position of rest, an article selecting member adjacent the filed articles and adapted to engage the articles and restrain them from gravitating toward said suspended position of rest, each of said filed articles having a slot arranged therein in accordance with a predetermined code, said member movably arranged adjacent the articles to be position to correspond with the slot of a selected article so as to be received by the slot on the selected article upon gravitation of the articles about the suspending means whereby only the selected article may gravitate toward said suspended position of rest.

9. A file selecting mechanism associated with a plurality of files arranged relatively to each other in a filing space, each of said files having a slot extending inwardly from an edge thereof and positioned on the said edge in accordance with a predetermined code, said files arranged to be freely hung at a single point in the filing space to gravitate toward a normal position of rest adjacent the selecting mechanism, said mechanism including a restraining member arranged to displace about said point and restrain said files hung in said space from their normal position of rest, said member adapted to release said files from said displaced position, and said mechanism including an element positioned in the path of the released files to engage said edge of the files upon their release by the member and restrain gravitation toward normal position and means for adjustably positioning said element relative to the said edges of the files to correspond with the slot on a selected file, said element, upon release by said member of the files from said displaced position, thereby positioned to be received only in the slot of the selected file to permit movement of the selected file toward said normal position of rest.

10. A file-selecting mechanism associated with a plurality of files arranged relatively to each other in a filing space, said files having slots extending inwardly from an edge thereof and positioned in the files in accordance with a predetermined code relative arrangement, said files arranged to be freely hung in the filing space to assume a normal stable position of rest adjacent the selecting mechanism, said mechanism including a restraining member arranged to displace and restrain said files hung in said space from their normal freely suspended position of rest, said member adapted to release said files from displaced position and a plurality of ele-

ments positioned in the path of the released files to engage said edge of the files upon their release by the member and constructed and arranged so that said elements may be adjustably positioned relative to said edges of the files, to correspond with and enter the slots on a selected file and to interrupt and restrain movement of all but the selected file toward normal stable suspended position, upon release of the files from said unstable displaced position by the member.

11. A file-selecting mechanism associated with a plurality of files arranged relative to each other in a filing space, said files being freely suspended in the filing space at a single point for gravitation about said point of suspension toward a normal stable freely suspended position of rest, means for displacing said suspended files from their normal stable freely suspended position of rest into an unstable position and restraining them in said unstable position, said means arranged to release said files from said unstable displaced position for gravitation about said point of suspension toward said normal stable freely suspended position of rest upon release thereof, said files each having means thereon by which a file may be selected from the other files and which file selecting means is arranged on the file in accordance with a predetermined code and means positioned in the path of the released files to interrupt the movement of the released files toward their normal suspended stable position of rest, said interrupting means being adjustable relative to the files to engage all of the released files but the selected file at some part thereof other than the means thereon by which the file may be selected to thereby interrupt movement of all of the released files but the selected file toward said normal freely suspended position of rest.

12. A file-selecting mechanism associated with a plurality of files arranged relatively to each other in a filing space, each of said files having a slot extending inwardly from an edge thereof and positioned in the file in accordance with a predetermined code relative arrangement, said files arranged to be freely hung in the filing space to assume a normal stable position of rest adjacent the selecting mechanism, said selecting mechanism including a file restraining member arranged to displace and restrain said files, hung in said space, from their normal freely suspended position of rest, said member adapted to release said files from displaced position and an element positioned in the path of the released files to engage said edge of the files upon their release by the member and constructed and arranged so that said element may be adjustably positioned relative to said edges of the files to correspond with and enter the slot on a selected file and to interrupt and restrain movement of all but the selected file toward normal stable suspended position upon release of the files from said unstable displaced position by the member.

13. A filing card having data associated therewith and to be filed in a filing space with other similar cards similarly filed, an adjustable mechanism arranged adjacent the filing space in which said cards are filed whereby the said mechanism is positioned for operative association with said cards to therewith permit selection of a card from the other cards in the filing space, receiving means on the card along an edge thereof, a means on the said mechanism and movable relative to the said edge of the card for cooperating with said receiving means, a suspending means pro-

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vided with the filing space in which the cards are filed, and means on the card for mounting in an unstable position the card on the said suspending means, said adjusting mechanism maintaining the cards filed in the filing space in said unstable position, said means on the said mechanism, upon movement relative to the said edge of a selected card, permitting the selected card to gravitate relative to the suspending means toward a stable position whereby the said card may be selected from other cards in the filing space.

SAMUEL GORAD.
PHILIP F. JACOBS.

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