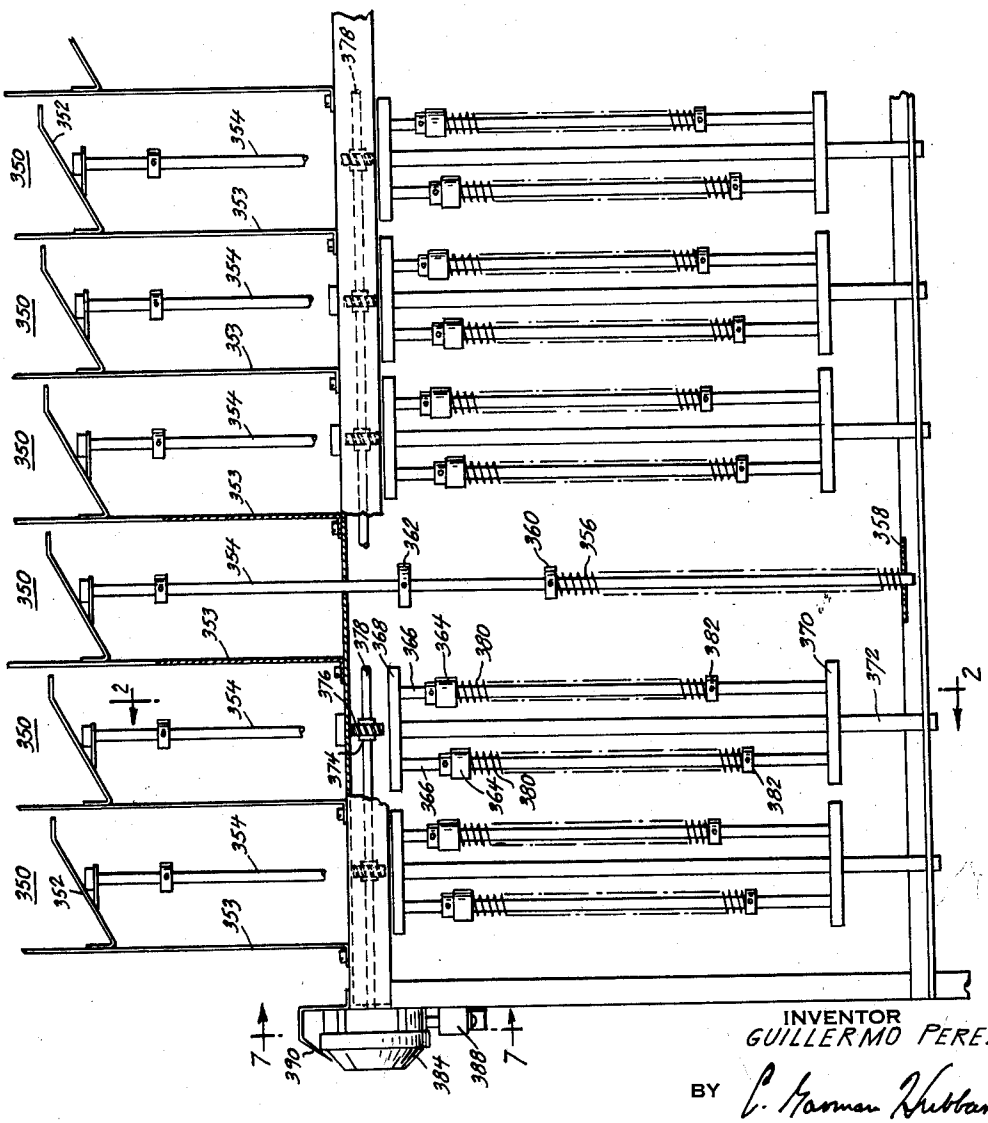
June 18, 1963 G. PEREZ 3,094,218

SELECTIVE PLATFORM TENSIONING MECHANISM

Original Filed July 23, 1956 2 Sheets-Sheet 1

FIG. 1



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FIG. 3

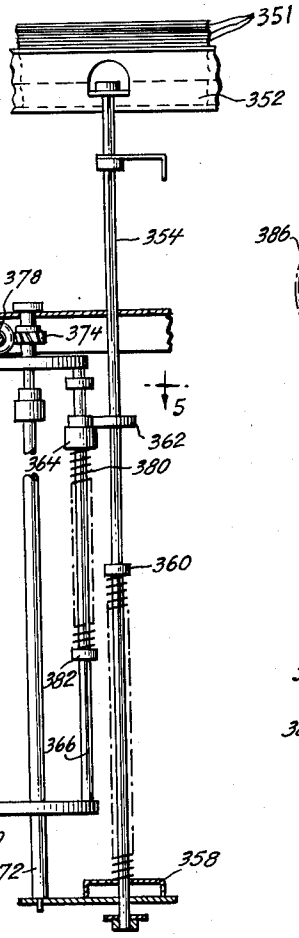


FIG. 2

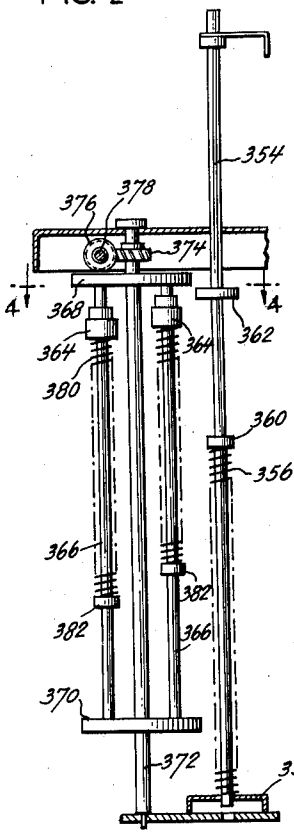


FIG. 6

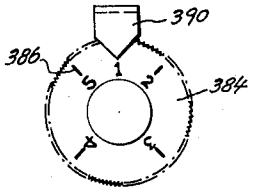


FIG. 7

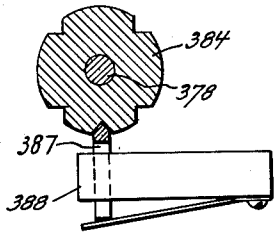


FIG. 4

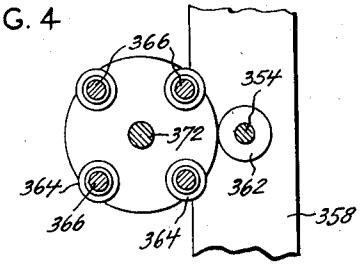
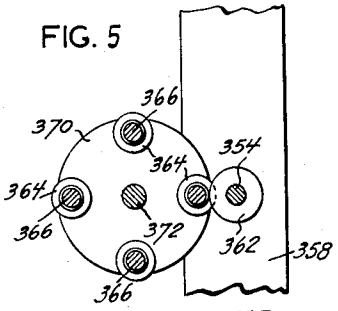


FIG. 5



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3,094,218
SELECTIVE PLATFORM TENSIONING MECHANISM

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Original application July 23, 1956, Ser. No. 599,385, now Patent No. 3,003,633, dated Oct. 10, 1961. Divided and this application Aug. 28, 1961, Ser. No. 134,341
8 Claims. (Cl. 211—51)

This application relates generally to sheet or card handling mechanism and, more particularly, to platform means associated with a sheet or card feeding mechanism for receiving and holding in stacked arrangement sheets or cards delivered thereto by the feeding mechanism.

The invention is disclosed herein in an embodiment adapted for a record card sorting machine of a type such as disclosed in co-pending application S.N. 599,385, filed July 23, 1956, in the names of Guillermo Perez, Philip S. Rand, and Jacob A. Randmer, and of which the present application is a division, now Patent No. 3,003,633.

As more fully described and disclosed in the aforesaid co-pending application, machines of this class operate to feed record cards along a conveying path to one of a plurality of pockets disposed along the conveying path, each card being deflected into an appropriate one of the pockets, whereby the stack of cards fed into the machine are sorted according to predetermined categories. Associated with each pocket is a platform means upon which the cards drop as they are deflected into a pocket, the platform means serving to support the cards of each pocket in cooperation with the pocket walls in a stacked arrangement. In order to minimize the free fall of each card within each pocket, the platform means are normally disposed, in the absence of any cards thereon, in close proximity to the deflecting mechanism for the pocket, and yieldable means are provided for supporting the platform so that as cards accumulate on the platform the additional weight of the cards will progressively displace the platform against the tension of said yieldable means to the point of accommodating the increasing height of the card stack resting on the platform thereby maintaining the top of the stack in close proximity to the deflecting mechanism at all times. Heretofore the yieldable means for supporting the card platform has comprised a compression spring possessing a tension matched to the weight of the cards upon which the machine operates. It has been found, however, that cards of the same size and stock are not necessarily of the same weight and, moreover, that the same cards are not always of constant weight under all conditions, i.e. various degrees of atmospheric humidity etc. Moreover, it has now become desirable to adapt a machine of this class for use with cards of varying sizes, with corresponding variety in their respective weights. For any of the aforegoing reasons, it is readily apparent that a single spring member is incapable of adequately supporting a card receiving platform to achieve the purposes heretofore mentioned, under such a variety of operating conditions.

In order to adequately meet all these various conditions, the present invention provides a plurality of spring means for each card receiving platform, each of said spring means providing a different degree of tension, the invention also including means whereby a selected one of the springs may be associated with the receiving platform so as to provide the proper spring tension matching precisely the weight of the cards which are being sorted in any one sorting operation.

It is, therefore, an object of the invention to enable the tension applied to the receiving platform or tray in machines of the class described to be selectively adjusted to correspond to the weight of the articles delivered to and supported on said platform.

It is a further object of the invention to enable, in a machine of the character described having a plurality of card receiving platforms or trays, the selective adjustment of the spring tension on all said platforms on trays simultaneously.

A further object of the invention is to provide a selective tensioning mechanism for machines of the character described which is of simplified design, reliable in operation and economical in manufacture.

Further objects of the invention together with the features contributing thereto and advantages accruing therefrom will be apparent from the following description when read in conjunction with the drawing wherein:

FIG. 1 is a fragmentary side elevation of a record card sorter showing six card receiving magazines or pockets and the adjustable platform tensioning mechanism associated therewith.

FIG. 2 is a view partly in section taken along the lines 2—2 of FIG. 1.

FIG. 3 is a view similar to FIG. 2 but illustrating the spring tensioning means set for increased tension and with the platform being shown slightly depressed by the weight of cards resting thereon.

FIG. 4 is a view in section taken along the lines 4—4 of FIG. 2.

FIG. 5 is a view in section taken along the lines 5—5 of FIG. 3.

FIG. 6 is an end elevation of the spring tension control dial.

FIG. 7 is a sectional view taken along the lines 7—7 of FIG. 1 and showing the detent means for the control dial.

As more fully described and disclosed in the aforesaid co-pending application, a series of card receiving pockets are arranged below a record card feeding and distributing mechanism, not shown herein, by which cards fed through the machine are deflected selectively into the open upper end of an appropriate one of the pockets by a deflector means associated with each pocket and operable in timed relation to the passage of the cards so as to select a card from the feeding mechanism and deflect it into the associated pocket. As seen in FIG. 1, showing six of the pockets **350** associated with the record card feeding mechanism, the pockets are defined by separator plates **353**, and each includes a card receiving platform **352** inclined to the right, it being understood that the direction of card feed into the pockets is from right to left as shown in FIG. 1.

Each card receiving platform **352** is mounted upon the upper end of a vertically disposed shaft or rod **354**, which rod is normally held in an elevated position by a spring **356** disposed so as to encircle its associated rod. The lower end of each spring **356** seats upon a channel member **358** secured to the frame of the machine below the pockets **350**, and the upper end of each spring **356** seats against a collar **360** mounted fast on the rod **354**. A second collar **362** also mounted fast on the rod **354** is spaced above the collar **360** and mounted so as to be cooperable with one of a plurality of shouldered collars **364** slidably mounted on rods **366** in a manner and for reasons which will be presently described.

In the present embodiment of the invention, there are four rods **366** associated with each pocket platform, the rods being supported in spaced relation relative to one another in a turret-like mounting by means of a pair of discs **368**, **370**. The discs with rods **366** are mounted upon and concentrically to a shaft **372** so as to carry one of the shouldered collars **364** into engagement with the collar **362** on the platform supporting rod **354**. The ends of shafts **372** suitably journalled in the frame of

the machine, the upper end of each shaft being provided with a worm wheel **374** which meshes with a worm gear **376** fast on a manually operable dial selecting shaft **378** which is suitably journalled in the frame of the machine and carries a worm gear **376** for the tension adjusting means of each pocket of the machine. As can be seen also in FIG. 6 the end of shaft **378** carries a dial **384** formed with a knurled edge to facilitate manual rotation and carrying indicia **386** which, in cooperation with an indicator finger **390**, designates the various rotated settings of the shaft **378**. The dial is also formed with indented areas, best seen in FIG. 7, which in cooperation with a spring biased detent pin **387** mounted in a detent support **388** serves to hold the shaft in a selected setting.

With particular reference to FIGS. 2–5, the four springs **380** carried in each turret mounting associated with each pocket are each of different strengths, each of said springs being compression springs and being confined between a slideable shouldered collar **364** and a collar **382** fast on each of the rods **366**.

In FIGS. 2 and 4 the parts are shown in the No. "1" setting of the selector dial **384**, which is the setting wherein the minimum of amount of tension is applied to the platform support rod **354** so as to match the weight of the lightest cards which may be used with the machine. In FIG. 2 the position of the rod **354** is the normal position which it would assume when there are no cards or a minimum or insufficient number of cards on the associated card receiving platform to substantially depress the rod **354** against the tension of spring **356**. In the No. "1" setting, the rotated position of the turret mounted springs **380** is such that no one of said springs is operatively coupled with the supporting platform rod **354** so that the entire tension on he rod **354** is provided by the single spring **356**.

In FIGS. 3 and 5 the parts are shown in a different setting wherein the turret support for the springs **380** has been rotated so as to operatively couple one of the springs **380** with the card platform support rod **354** through the abutting collars **364**, **362** thereby providing an increased tension on the support rod **354**. Preferably, the four springs **380**, in the order in which they are brought into operative relationship with the collar **362**, are of progressively increasing tension, thereby correlating the tension on the platform support rod **354** with the successive settings of the settable control dial **384**. In FIG. 3 the parts are shown in a position they would assume when there is a partial stack of cards **351** on the receiving platform **352** causing the platform with its supporting rod **354** to be slightly depressed against the combined tension of the spring **356** and selected one of the springs **380**, thereby causing the top of the stack to lie in substantially the same plane which the platform would assume if there were no cards on the receiving platform.

From the foregoing it will be apparent that the invention provides an efficient and reliable device whereby the spring tension on the receiving platform may be selectively changed at will by merely rotating a setting knob or dial to the desired setting as indicated with respect to the indicator finger **390**. When the dial **384** is set at the No. "1" position, the only tension upon the card receiving platform **352** is that of spring **356** disposed around the rod **354**, which set position is utilized for the shortest or lightest card which may be used with the machine. When the dial **384** is set at the No. "2" position, one of the shouldered collars **364** will be brought into an operative position beneath the collar **362** so that the spring tension upon the card receiving platform will be the combined tension of spring **356** and the selected spring **380**. Thus, as dial or knob **384** is rotated from the No. "1" position through positions "2," "3," "4" and "5," the spring tension upon the card receiving platform **352** is progressively increased since the four springs preferably are of progressively greater strength.

While there has been shown and described what is regarded as a preferred embodiment of the invention, it is obvious that changes in form or details could readily be effected without departing from the spirit of the invention, and it is therefore intended that the invention be not limited to the exact form or embodiment herein shown and described nor to anything less than the whole of the invention as hereinbefore set forth and as hereinafter claimed.

What is claimed and desired to be secured by Letters Patent is:

1. In apparatus of the character described having a platform member for receiving and supporting articles delivered thereto and adapted to yield under the weight of articles supported thereon, means for selectively changing the tension on said platform member comprising, a first tensioning means for providing a predetermined amount of resistance to the yield of said platform member, a plurality of second rotatably mounted tensioning means each of said plurality being connectable individually to resist the yield of said platform member and manually adjustable means for selectively coupling one of said plurality of second tensioning means to said platform member for resisting the yield of the platform member in combination with said first tensioning means.

2. The invention according to claim 1 wherein said first and second tensioning means comprise compression spring members, said second tensioning means comprising spring members of differing tensile strength.

3. The invention according to claim 1 wherein said second tensioning means are mounted on a rotatable member and said adjustable means includes a manually rotatable element actuable for rotating said rotatable member to couple one of said second tensioning means with said platform member.

4. A machine of the class described having a plurality of platform members adapted to yield under the weight of articles delivered to and supported on said platform members, means for selectively changing the tension on said members comprising a first tensioning means for each platform member and providing resistance to the yield of the associated platform member, a plurality of second tensioning means associated with each platform member, each of said plurality being connectable with the associated platform member individually to resist the yield of the associated platform member, and a selecting member common to all said second tensioning means for selectively coupling one of each plurality of said second tensioning means with its associated platform member.

5. The invention according to claim 4 wherein said first and second mentioned tensioning means comprise compression springs, each of said plurality of second tensioning means being springs of different tensile strength.

6. The invention according to claim 4 wherein each plurality of second tensioning means are mounted in a turret member rotatable for coupling an individual one of each plurality with its associated platform member, and said selecting member comprises a manually rotatable element operatively connected with each said turret member for rotating the latter.

7. In apparatus of the character described having a platform member for supporting articles deposited thereon and a platform support member mounted for yieldable movement under the weight of articles deposited on said platform member, a selective tensioning device for said platform member comprising a rotatable turret member including a plurality of spring support elements disposed concentrically to the rotatable axis of said turret member and extending in parallel relation to said platform support member, compression spring means carried one each of different tensile strength, said turret member being of different tensile strength, said turret members being rotatable for carrying one of said spring support elements into proximity to said platform support member, and means for coupling a selected spring means with said platform support member said coupling means including a

coupling member fixed to said platform support member and a coupling member slidably mounted on each of said spring support elements against the resistance of its associated spring means, whereby the tension of a selected one of said spring means carried by said turret member is applied to provide a selected degree of yield for said platform support member.

8. In apparatus of the character described having a plurality of platform members for supporting articles deposited thereon and platform support members mounted for yieldable movement under the weight of articles deposited on said platform members, a selective tensioning device for said platform members comprising a rotatable turret member for each platform member, each turret member including a plurality of spring support elements disposed concentrically to the rotatable axis of the turret member and extending in parallel relation to an associated platform support member, compression spring means carried on each of said spring support elements, said spring means being of different tensile strength, each of said turret members being rotatable for carrying one of its spring support elements into proximity to its associated platform

support member, means for coupling a selected spring means with its associated platform support member, said coupling means including a coupling member fixed to each platform support member and a coupling member slidably mounted on each of said spring support elements against the resistance of its associated spring means to apply spring tension to the associated platform support member, and a selecting member common to all said turret members and manually rotatable for selectively coupling one of each plurality of spring means mounted in each turret member with its associated platform support member.

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