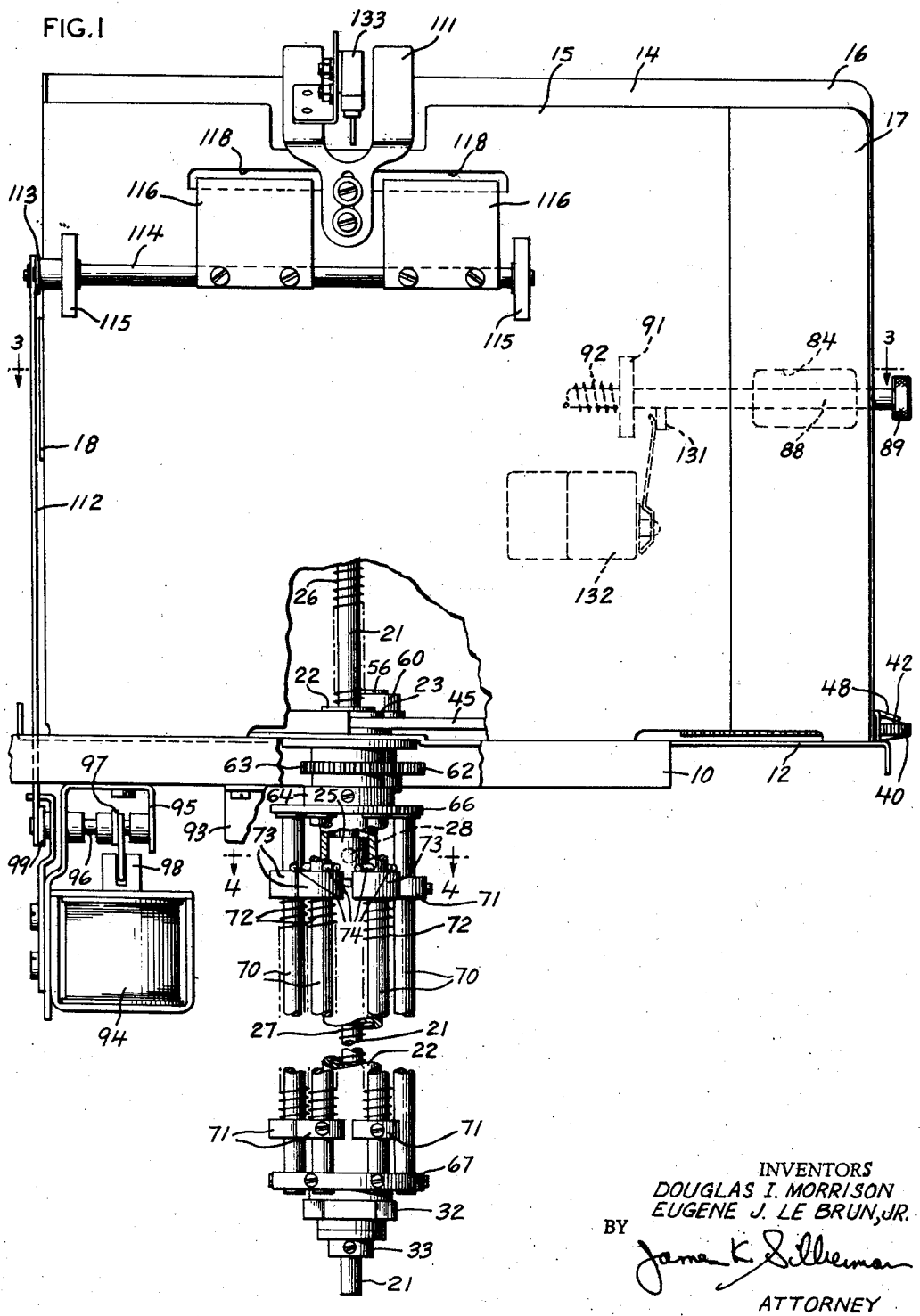
March 26, 1963 D. I. MORRISON ETAL 3,083,013

CARD RECEIVERS

Filed July 18, 1960 5 Sheets-Sheet 1

FIG. 1



INVENTORS
DOUGLAS I. MORRISON
EUGENE J. LE BRUN, JR.

BY James K. Gilbreath

ATTORNEY

March 26, 1963 D. I. MORRISON ETAL 3,083,013

CARD RECEIVERS

Filed July 18, 1960 5 Sheets-Sheet 2

FIG. 2

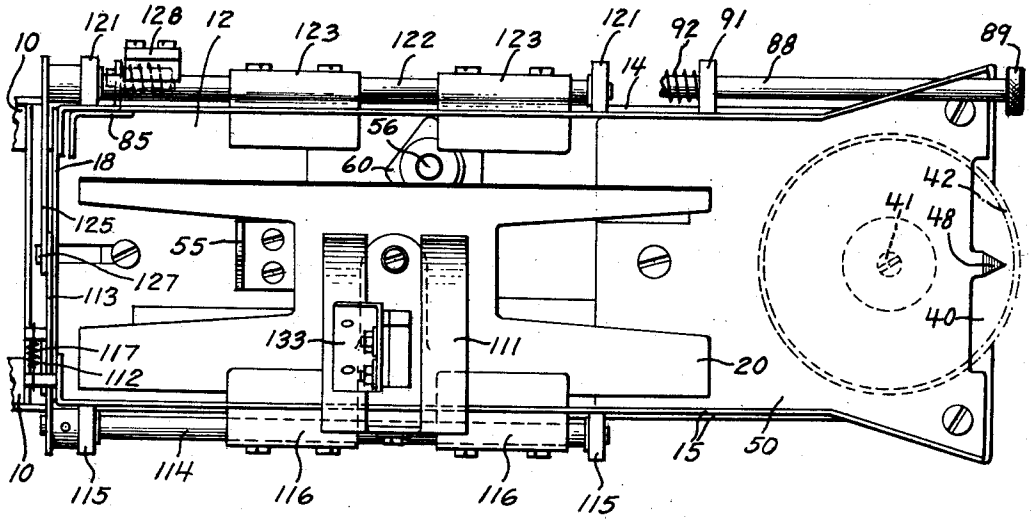


FIG. 3

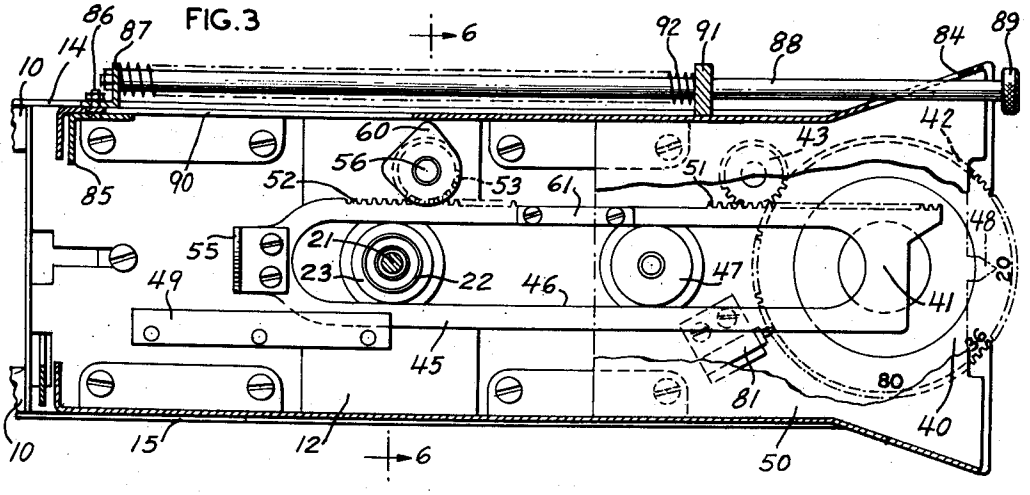
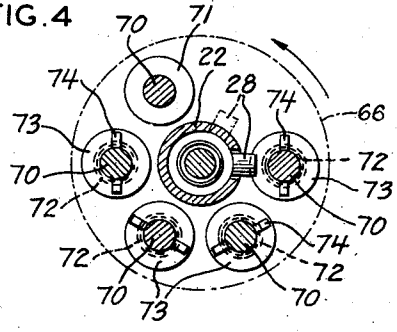


FIG. 4



INVENTORS
DOUGLAS I. MORRISON
EUGENE J. LE BRUN, JR.

BY James K. Silberman

ATTORNEY

March 26, 1963 D. I. MORRISON ETAL 3,083,013

CARD RECEIVERS

Filed July 18, 1960 5 Sheets-Sheet 3

FIG. 5

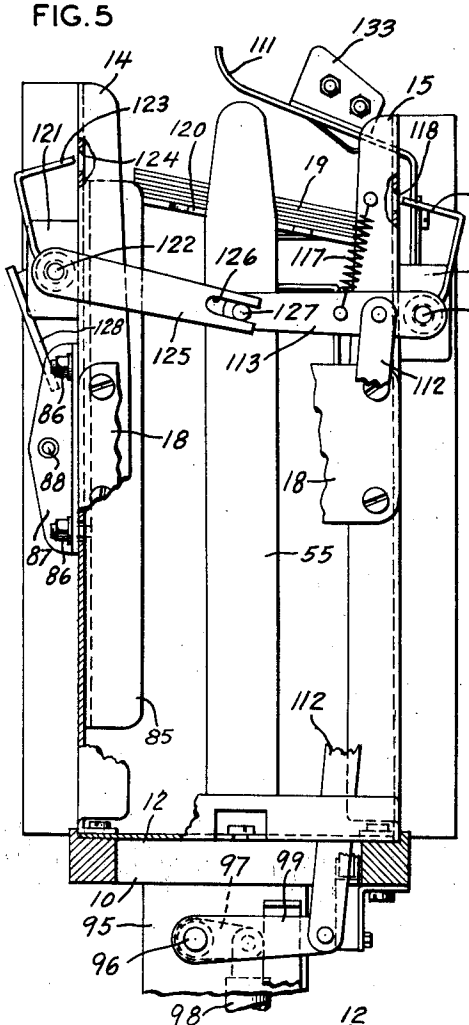


FIG. 6

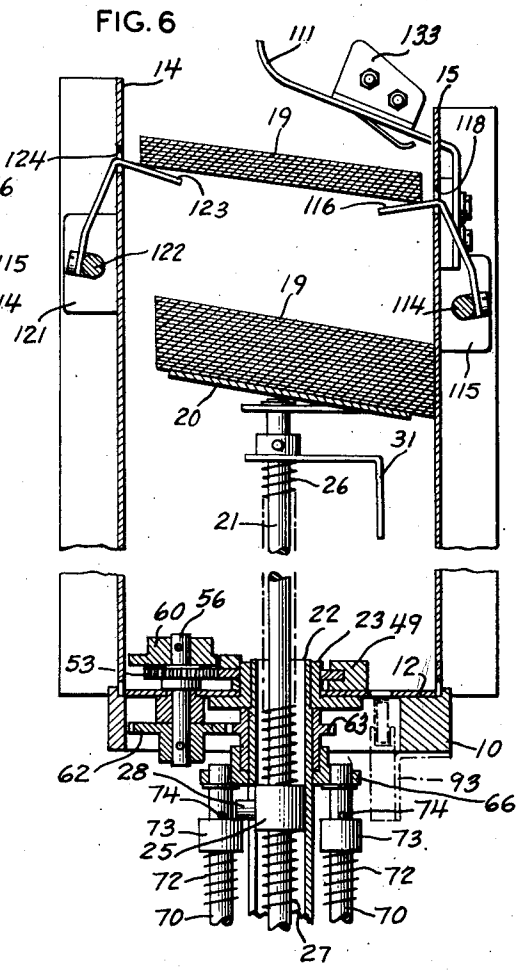
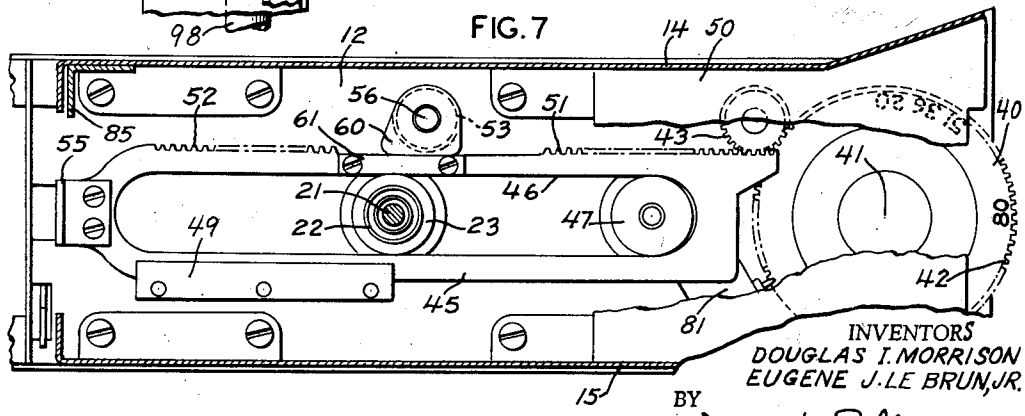


FIG. 7



INVENTORS
DOUGLAS I. MORRISON
EUGENE J. LE BRUN, JR.

BY James K. Dillerman

ATTORNEY

March 26, 1963 D. I. MORRISON ETAL 3,083,013

CARD RECEIVERS

Filed July 18, 1960 5 Sheets-Sheet 4

FIG.9

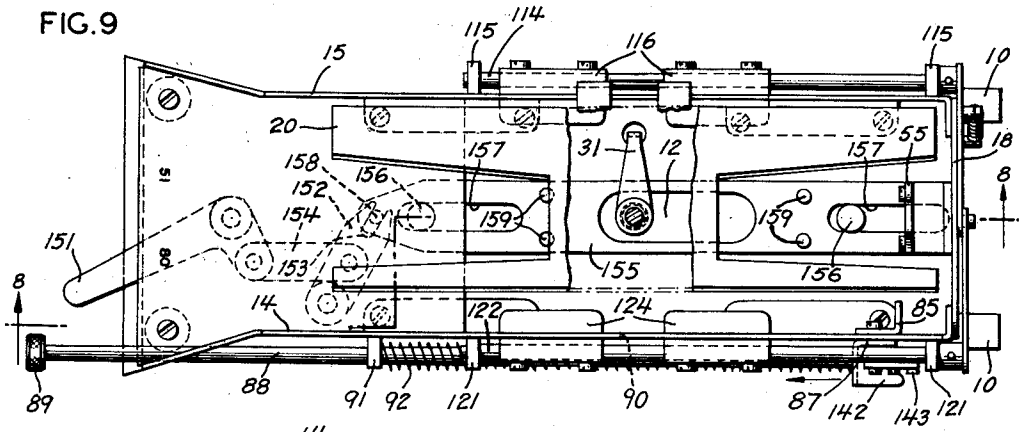
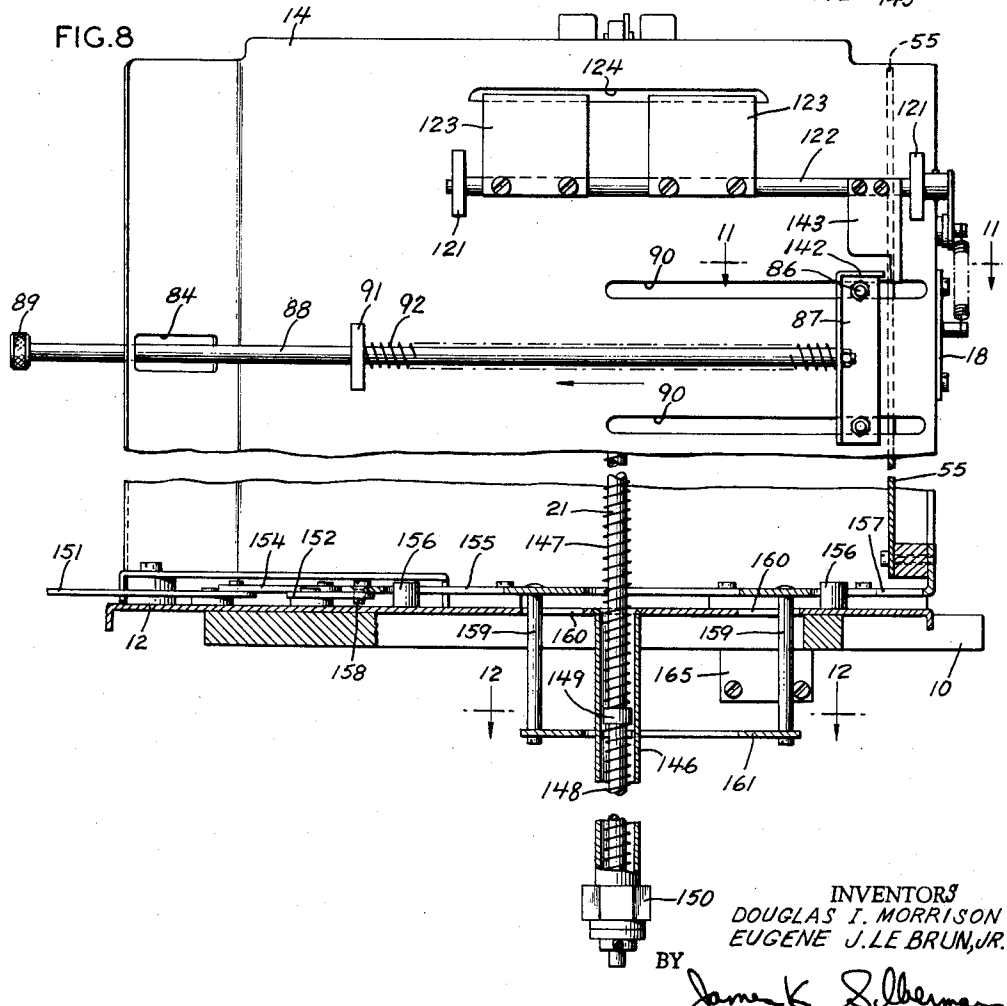


FIG.8



INVENTORS
DOUGLAS I. MORRISON
EUGENE J. LE BRUN, JR.

BY James K. Silberman

ATTORNEY

March 26, 1963 D. I. MORRISON ETAL 3,083,013

CARD RECEIVERS

Filed July 18, 1960 5 Sheets-Sheet 5

FIG.10

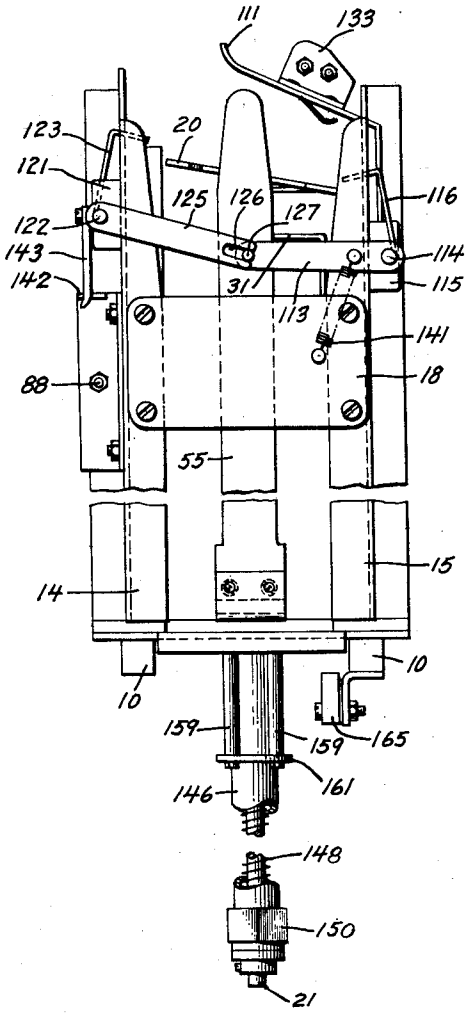


FIG.11

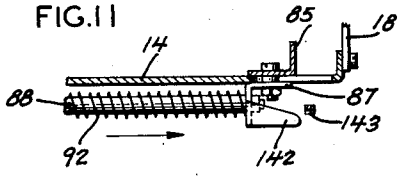
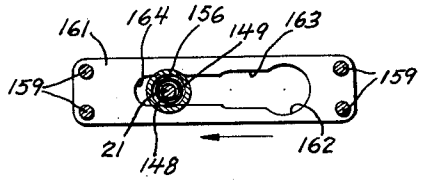


FIG.12



INVENTORS
DOUGLAS I. MORRISON
EUGENE J. LE BRUN, JR.

BY James K. Silberman

ATTORNEY

United States Patent Office

3,083,013
Patented Mar. 26, 1963

3,083,013

CARD RECEIVERS

Douglas I. Morrison, Rowayton, and Eugene J. Le Brun, Jr., Norwalk, Conn., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed July 18, 1960, Ser. No. 43,442
17 Claims. (Cl. 271—86)

This invention relates generally to card receivers, and more particularly to adjustable card receivers, used in conjunction with card handling machines, which stack the cards as they are ejected from the machines and which may be manually emptied without interferring with or stopping the operation of the machine.

Card processing machines are in wide spread daily use and, for different operations, it may be desirable to use cards of different sizes which will be capable of containing more or less information depending upon the card size. Heretofore, in order to stack cards of different sizes, it was necessary to fit the card handling machine with a different size receiver for each particular card size. If this was not done, and small cards were stacked in a large card receiver, the cards would not stack neatly with the possibility that intermixing could occur. Furthermore, as the receivers filled up it was necessary to have the machine stop the feeding of cards so that the receiver could be manually emptied.

Accordingly, it is an object of this invention to provide a card receiver, adapted to be utilized with card handling machines, which is capable of being quickly and easily adjusted to accept cards of different sizes.

It is another object of this invention to provide a card receiver, adapted to be utilized with a card handling machine, which may be manually emptied as the receiver fills without necessitating stopping or otherwise interferring with the operation of the machine.

Still other objects and advantages of the invention will be apparent from the specification.

Generally stated, this invention provides an improved card receiver which can be manually adjusted to receive cards of different sizes and which can be manually emptied while cards continue to be ejected into the receiver.

Cards are stacked in the receiver on a resiliently supported, inclined platform. As the stack of cards increases in the receiver, the weight of the stack becomes increasingly greater and the platform becomes depressed in the receiver as the resilient support compresses under the increased load of cards. The spring rate of the resilient support is chosen so that the top of the stack of the cards, referred to herein as the "effective receiving plane," is always maintained in proper relationship to the top of the receiver. It is necessary for cards entering the receiver to fall freely onto the effective receiving plane without undue travel which is apt to cause the cards to twist or become intermixed. Insufficient free fall to the effective receiving plane might also allow the cards to intermix. It is evident that cards of different sizes made from the same density card material will have weights proportional to their size. Thus, if the receiver is to accept a larger card, in order to maintain the proper effective receiving plane, the spring rate of the resilient supports for the platform must be greater than that required when the receiver is to receive smaller cards. The invention provides a receiver capable of stacking two or more different sized cards by having multiple resilient members, each member having a different spring rate, which can be manually positioned to support the platform.

The invention provides for two embodiments. In the first, the platform can be properly supported to stack

many different card sizes by having a multiplicity of resilient members, each having a different spring rate, mounted circumferentially around the platform support. Through a manually operated grear train, the resilient supports can be rotated into position to support the platform as desired. The gear train at the same time positions a vertical arm within the receiver which moves closer and further away from the open end of the receiver, thus decreasing or increasing the effective size of the receiver as lower or higher spring rate resilient support members are brought to the operable position.

In the second embodiment, the receiver is adjustable to accept only two different sizes of cards. Through a series of manually operated levers and bell crank arms, the proper resilient support member may be caused to support the platform to receive the particular card size desired. In conjunction with the second embodiment there is also a vertical arm within the receiver which is operated through the levers and bell crank arms to change the effective size of the card receiver as the operable support members are changed.

The first embodiment also provides flippers which can be moved through a solenoid and a set of levers to a position inside the receiver such that the cards then entering will stack on an auxiliary stacking plane formed by the flippers. This allows the receiver to be manually emptied through the use of a card hoe which ejects all the cards on the platform to a position where they may be easily removed by the operator. The solenoid operating the flippers is activated either automatically when the card receiver becomes full or when the card hoe is operated. A safety mechanism prevent sthe card hoe from being operated before the flippers have taken up a position inside the receiver.

In the second embodiment the flippers are operated mechanically, through a cam arrangement, by the card hoe. As the card hoe is manually operated the flippers are released and enter the receiver under spring tension. When the card hoe is returned to its normal position it forces the flippers to withdraw from the receiver.

While each embodiment of the adjustable card receiver has been equipped with a different flipper device to allow the receivers to be emptied while cards are continually ejected into the receivers, either embodiment of the flipper mechanism may be utilized with either embodiment of the adjustable platform resilient support mechanism. The relative advantages of each will be clear from the specification and drawing.

For a better understanding of the invention, reference is had to the following description taken in connection with the accompanying drawing, and its scope will be pointed out in the appended claims.

In the accompanying drawing:

FIG. 1 is a side elevational view of one embodiment of the card receiver with a portion of the left side wall broken away to show the internal mechanism,

FIG. 2 is a top plan view of the card receiver of FIG. 1,

FIG. 3 is a sectional view taken along line 3—3 of FIG. 1 with the selector cover partially broken away to show the adjustment mechanism,

FIG. 4 is a section view of the platform supporting mechanism taken along line 4—4 of FIG. 1,

FIG. 5 is a rear elevational view of the card receiver of FIG. 1, with certain portions partially broken away for clarity, showing the stacking mechanism, with cards stacked thereon, in position to allow cards to be removed from the receiver and showing the platform in a depressed position under the weight of a stack of cards,

FIG. 6 is a sectional view taken along line 6—6 of FIG. 3 showing cards stacked on the platform,

FIG. 7 is a sectional view similar to FIG. 3 showing

the mechanism adjusted to receive cards of a size different from those that would be received when the device is adjusted to the position shown in FIG. 3,

FIG. 8 is a side elevational view of the right side of a second embodiment of the card receiver, the lower half being shown as a sectional view taken along line 8—8 of FIG. 9,

FIG. 9 is a top plan view of the card receiver of FIG. 8 with the platform partially broken away to show the internal mechanism,

FIG. 10 is a rear elevational view of the card receiver of FIG. 8,

FIG. 11 is a sectional view of the flipper operating mechanism taken along the line 11—11 of FIG. 8,

FIG. 12 is a sectional view of the adjustable platform supporting mechanism taken along the line 12—12 of FIG. 8.

Referring now to the first embodiment of the card receiver shown in FIGS. 1 through 7, and more particularly to FIG. 2, a card receiver having a supporting member **10** is mounted to the frame, not shown, of a statistical machine, card conveyor or other card handling machine. Secured to the top of supporting member **10** is a base plate **12** defining the bottom of the receiver, a right side wall **14** and a left side wall **15** defining the sides of the receiver. A spaced plate **18** suitably attached between right and left side walls **14** and **15** defines the rear of the card receiver. Side walls **14** and **15** rise perpendicularly from base plate **12** and are so spaced as to accommodate punched cards of maximum size.

Referring now to FIG. 6, punched cards **19** from a statistical machine, for example, will fall freely into the receiver over right side wall **14** which is situated adjacent said machine. As a card enters the receiver, it will be deflected downwardly by a bracket **111** and will drop onto an inclined platform **20**, supported by a suitably mounted rod **21**. Rod **21** is disposed in a tube **22** which is suitably attached to base plate **12** by means of a collar **23**. Tube **22** has a sufficiently large inside diameter to permit a depressor collar **25** which is slidably mounted on rod **21** to slide freely inside tube **22**. An upper coil spring **26** encircles rod **21** and extends from depressor collar **25** to a switch arm **31** which is attached to rod **21**. A depressor pin **28** protrudes from depressor collar **25**. Referring now to FIG. 1, a lower coil spring **27** encircles rod **21** and extends from depressor collar **25** to a tube terminus **32** mounted to the end of tube **22**. It is readily seen that platform **20** is resiliently supported by the combined spring tension of coil springs **26** and **27**, the rise of platform **20** being limited by engagement of a collar **33** mounted to rod **21** below tube terminus **32**.

In FIG. 3, a selector wheel **40** is pivotally mounted to base plate **12** as at **41**, said wheel being provided, at its periphery, with gear teeth **42**. A detent **81** is mounted to base plate **12** and engages teeth **42** on selector wheel **40** so as to yieldably maintain selector wheel **40** at any chosen position. Selector wheel teeth **42** engage an intermediate spur gear **43** which is rotatably mounted to base plate **12**. A rack slide **45** having an elongated slot **46** is mounted so as to slide longitudinally along base plate **12**. Rack slide **45** is guided by collar **23** and a guide member **47** attached to base plate **12**. An angular bar **49** attached to base plate **12** further guides and limits rack slide **45** in its planar travel. Rack slide **45** is provided with a front tooth portion **51** which is driven by selector wheel **40** through spur gear **43**; hence manual adjustment of selector wheel **40** determines the longitudinal position of rack slide **45**. Rack slide **45** has attached to its rear end a card positioning arm **55** which extends vertically to the full height of the card receiver. As cards enter the receiver their rear edge will be registered by card positioning arm **55**. Thus, the position of arm **55** determines the size of the cards to be received. This is termed the effective size of the card receiver.

Rack slide **45** has further provided a rear tooth portion **52** which will engage a gear **53**. Referring again to FIG. 6, gear **53** is attached to a rod **56** which passes through base plate **12** and has attached to its lower end a gear **62**. Also attached to rod **56** at its upper end is a cam **60** the use of which will hereinafter be explained.

Referring again to FIG. 1, rotatably mounted on tube **22** is a sleeve **64** having a gear portion **63**, said gear portion being so positioned as to engage gear **62**. Fixed to lower face of sleeve **64** and rotating therewith is an upper disc **66**. Also rotatably mounted on tube **22** at its lower end is a lower disc **67**. Upper disc **66** and lower disc **67** have mounted therebetween a plurality of rods **70** equidistant from the center of said discs and spaced from each other around the circumference of said discs. One of the plurality of rods **70** has mounted thereon an adjustable collar **71** which is positioned near to upper disc **66**. Each of the remaining rods **70** has mounted thereon an adjustable collar **71** which is positioned near to lower disc **67**, a spring **72** and an upper sliding collar **73**. Where a spring **72** is present, adjustable collar **71** determines the position of the lower end of said spring and the expansion of spring **72** is limited by engagement of sliding collar **73** with a stop pin **74** which is secured through rod **70**. Each spring **72** has a different preselected spring rate chosen for purposes as will hereinafter be explained.

Referring again to FIG. 3, in order to adjust the card receiver to accept a smaller size card, a 20-column card for example, selector wheel **40** is manually rotated until the desired size, which may be marked on the selector wheel, is indicated by a pointer **48** which forms part of a cover plate **50**. While selector wheel **40** is being rotated to adjust the receiver to accept the smaller card, rack slide **45** is moved to the right through cooperation with intermediate spur gear **43**. Card positioning arm **55** which has moved with rack slide **45** has been brought to a position to register the left edge of cards as they fall into the receiver over side wall **14**. The motion of rack slide **45** rotates gear **53** through its cooperation with rear tooth portion **52**, and motion is thereby transmitted to rod **56**. Referring now to FIG. 1, gear **62** rotates with rod **56** and thereby rotates gear **63** and sleeve **64** attached thereto.

The relative positions of the component parts hereinabove described and the selector wheel markings have been determined so that when the receiver is adjusted to receive the smallest size card, collar **64** will be brought to such a position that adjustable collars **71** and sliding collars **73** may not be engaged by depressor pin **28**. Such a position of depressor pin **28** is shown in phantom in FIG. 4. In this position, platform **20** is supported only by upper and lower coil springs **26** and **27**, these springs having a combined preselected spring rate to support platform **20** under the weight of the lightest card.

If selector wheel **40** manually rotated to the position indicated for the next card size, for example a 28-column card, card positioning arm **55** will be relocated so that the card receiving space forming the effective card receiver size may accommodate a larger card. At the same time disc **66** will be rotated in a counterclockwise direction, as indicated by the arrow in FIG. 4, a predetermined amount so that a sliding collar **73** will be brought to a position to be contacted by depressor pin **28**. In this position, when platform **28** is depressed under the weight of cards stacked thereon, depressor pin **28** engages a sliding collar **73** thus causing platform **20** to be supported by the combined spring rate of upper coil spring **26** and the spring **72** which encircles the particular rod **70** then rotated into position. The combined spring rate of these springs has been so chosen as to maintain the effective receiving plane at the correct height as these larger 28-column cards fall onto the receiving plane. The effective receiving plane is the plane formed by the top of platform **20** or the cards stacked thereon, if any. It is neces-

sary that this plane be sufficiently close to the top of the receiver to allow cards ejected into the receiver to fall directly thereon. If the lever of a plane is too low, it is possible that cards falling into the receiver will twist or turn thus causing improper stacking. If the level of the plane is too high, intermixing may occur.

The receiver may be adjusted through selector wheel **40** to accommodate even larger cards, for example 36, 44 or 51-column cards. In each case, the rotation of disc **66** will bring a sliding collar **73** into position so that it may be contacted by depressor pin **28**, the spring **72** encircling the rod **70** on which that particular sliding collar **73** rides having a combined spring rate with upper coil spring **26** to correctly support platform **20** and maintain the proper effective receiving plane when the receiver is adjusted to accept the particular size card desired.

Referring now to FIGS. 6 and 7, in order to increase greatly the effective size of the card receiver to accept an 80-column card, it is necessary to move card positioning arm **55** to its rear-most position. Upper disc **66** must be rotated so that depressor pin **28** will engage the adjustable collar **71** mounted by itself on a rod **70**. As selector wheel **40** is rotated to the position indicated for the 80-column card, through the gear train described herein, upper disc **66** is rotated to the proper position so that depressor pin **28** may engage the proper adjustable collar **71**. Rear tooth portion **52** of rack slide **45** is of a predetermined length such that when upper disc **66** has been brought to the proper position to provide for resilient support of 80-column cards, gear **53** ceases to engage rear tooth portion **52** and cam **60** which is mounted above gear **53** and rotates therewith, engages rack slide **45** and prevents further rotation of gear **63**. It is easily seen that, at this point, upper disc **66** is prevented from rotating, thus locking sliding collar **71** into the proper position with relation to depressor pin **28**. However, at this point selector wheel **40** has not been fully rotated to the 80-column card position and further rotation of the selector wheel will bring card positioning arm **55** to its rear-most position in the receiver as required for the stack of 80-column cards.

When the receiver is adjusted to receive the 80-column cards, depressor pin **28** engages a sliding collar **71** which is securely fastened to a rod **70**. As 80-column cards enter the receiver and are received on platform **20**, the platform becomes depressed in the receiver from the weight of the cards thereon. Due to the unyielding position of depressor collar **25**, platform **20** is resiliently supported by upper coil spring **26** only, which spring has been preselected to have the proper spring rate to support the platform and maintain the effect of receiving plane while 80-column cards are being stacked in the receiver.

In order to adjust the receiver to accept different card sizes, it is necessary that the receiver be emptied so that platform **20** may be at its maximum height before selector wheel **40** is rotated. It is also necessary to empty the receiver when it becomes full since, as will be seen later, the operation of the machine ejecting cards into the receiver will be automatically stopped when the receiver becomes full.

Referring now to FIG. 3, a card hoe **85** formed from an angle member is positioned in a corner of the receiver adjacent right side wall **14** so as not to interfere with the cards as they are being stacked in the receiver. Card hoe **85** is attached, by means of two pins **86**, to a yoke **87** which is adjacent the outside of right wall **14**. Pins **86** pass through two slots **90** in right side wall **14** which run parallel to base plate **12** and which allow card hoe **85** to slide along right side wall **14**, thereby pushing any cards in the receiver out into the open for manual removal. Attached to yoke **87** is one end of a rod **88** which has at its other end a knurled knob **89**. Rod **88** is slidably supported by a guide bar **91** attached to right side wall **14**. Right side wall **14** has a suitably sized cut out **84** which allows rod **88** to pass therethrough. A coil spring **92** encircles rod **88** and extends from yoke **87** to guide bar **91**, the coil spring serving to hold card hoe **85** in the position shown in FIG. 3 when the card hoe is not in use.

Referring now to FIGS. 1 and 5, a solenoid **94** is suitably mounted to supporting member **10** by means of a bracket **95**. Bracket **95** also rotatably supports a shaft **96** which has mounted thereto one end of an arm **97**, the arm having pivoted to its other end a solenoid plunger **98**. Mounted to an end of shaft **96** is a second arm **99** which has pivotally mounted to its free end a link **112**. Link **112** is pivotally connected to an arm **113** which is mounted on the end of shaft **114**. Shaft **114** is rotatably supported by a pair of blocks **115** attached to left side wall **15**. Also attached to shaft **114** are a pair of flippers **116** whose ends are positioned to pass through two slots **118** in left side wall **15**.

A spring **117**, attached between left side wall **15** and arm **113**, yieldably maintains flippers **116** in a position so that they do not pass through slots **118**. Attached to right side wall **14** are a pair of blocks **121** through which pass a rotatable shaft **122** which has attached thereto a second pair of flippers **123** positioned so they may pass through slots **124** in right side wall **14**. Attached to an end of shaft **122** is an arm **125** having an elongated slot **126** at its outer end. Arm **113** has attached at its outer end a pin **127** which rides in slot **126**. Also attached to shaft **122** is a safety arm **128** whose use will hereinafter be explained.

Referring specifically to FIG. 1, if it is desired to withdraw the cards from the receiver before the receiver has become completely filled, knurled knob **89** is manually pulled to the right drawing with it rod **88**. A pin **131** attached to rod **88** normally rests against a switch **132** mounted to right side wall **14**. When pin **131** moves out of contact with switch **132** a circuit (not shown) is thereby closed activating solenoid **94**. Solenoid plunger **98** is drawn into the solenoid, rotating shaft **96** through arm **97**.

Referring now to FIG. 5, arm **113** is pulled down through arm **112** which in turn rotates shaft **114** causing flippers **116** to enter the card receiver through slots **118**. As arm **113** rotates, pin **127** riding in slot **126** causes arm **125** to also be pulled down thus rotating shaft **122** and causing flippers **123** to enter the card receiver through slots **124**. Flippers **116** and **123** are now in a position which causes cards thereafter entering the receiver to stack thereon as shown n FIG. 6.

When flippers **116** and **123** are in the position shown in FIG. 5, the position of safety arm **128** blocks yoke **87** and allows rod **88** to move a distance only sufficient to release switch **132**. When flippers **116** and **123** are moved to a position inside the receiver, the rotation of shaft **122** removes safety arm **128** from its blocking position and allows rod **88** and card hoe **85** to freely withdraw the cards from the receiver so that they may be manually removed.

When the cards have been removed from the receiver and rod **88** is returned to its normal position by spring **92**, pin **131** engages switch **132** thereby deactivating solenoid **94**. Spring **117** then returns flippers **116** and **123** to a position outside the receiver as shown in FIG. 5 and any cards which had stacked on the flippers will fall onto platform **20**.

If the cards stacking on flippers **116** and **123**, when they are positioned inside the receiver, reach the top of the receiver before the receiver is emptied, the cards will engage a switch **133** mounted to bracket **111** and shut off the machine which is feeding the cards into the receiver. When the receiver is emptied and flippers **116** and **123** return to their normal position allowing the cards thereon to fall onto platform **20**, switch **133** will be released allowing the machine to continue its operation.

In the event that the operator does not empty the receiver before it has become full, platform **20** will become completely depressed in the receiver by the weight of the cards stacked thereon, causing switch arm **31** (FIG. 6) to pass through a suitable hole in base plate **12** and contact a switch **93** mounted to supporting member **10**. Solenoid **94** will thereby be activated causing flippers **116** and **123** to enter the receiver as heretofore described. Cards will then stack on said flippers allowing the card receiver to be manually emptied by use of card hoe **85**. Again, if the cards stacking on the flippers contact switch **133**, the card feeding machine will be shut off until the receiver s emptied. A signal such as a light or audible alarm, may be connected to switch **93** to indicate to the operator that the receiver must be emptied.

Referring now to the second embodiment of the card receiver shown in FIGS. 8 through 12, and more particularly to FIGS. 8 and 9, the basic card receiver is the same as that shown in FIG. 1, being defined by a supporting member **10** a base plate **12**, right and left side walls **14** and **15** and a rear spacer plate **18**. However, the second embodiment provides a less complex card receiver which permits of adjusting the effective card receiver size to receive and stack cards of two different sizes, and the flippers **116** and **123** are mechanically operated when the receiver is manually emptied through use of card hoe **85**.

In FIG. 10, flippers **116** and **123** are attached to shafts **114** and **122** which are rotatably mounted in blocks **115** and **121** attached to left and right side walls **15** and **14** as heretofore described. As before, shafts **114** and **122** coact by means of arms **113** and **125** through slot **126** and pin **127**. A spring **141** is attached between arm **113** and spacer plate **18** and tends to hold flippers **116** and **123** in a position inside the receiver.

Referring now to FIGS. 8 and 9, rod **88**, which is slidably supported by guide bar **91**, has at one end a knurled knob **89** and at the other end a yoke **87**. As before, card hoe **85** is attached to yoke **87** by means of pins **86** passing through slots **90** in right side wall **14**, and coil spring **92** encircling rod **88** exerts pressure on yoke **87** to keep card hoe **85** in the rear corner of the card receiver.

The flipper actuating mechanism is readily seen in detail in FIG. 11. A cam **142** forms part of yoke **87** and bears against arm **143** which depends from rod **122**. When yoke **87** is in position adjacent the rear of the card receiver, cam **142** bears against arm **143**, the pressure causing arm **143** to rotate in a counterclockwise direction (FIG. 10), causing flippers **123** and **116** to be positioned outside of the card receiver.

When rod **88** is manually withdrawn causing card hoe **85** to engage the cards then stacked in the receiver, cam **142** will disengage arm **143** and flippers **123** and **116** will be caused to rotate to a position inside of the card receiver under force of spring **141**. While the flippers are in this position cards ejected into the receiver will stack thereon, allowing the cards stacked on platform **20** to be manually removed through use of card hoe **85**. When rod **88** is released, cam **142** will again engage arm **143**, rotating flippers **123** and **116** to a position outside of the receiver and the cards that had stacked thereon will drop onto platform **20**.

In order to adjust the effective size of the second embodiment of the card receiver, platform support rod **21** (FIG. 8) passes through base plate **12** and a tube **146** depending therefrom. Two coil springs **147** and **148** separated by a spacer **149** slidably encircle rod **21**. A tube terminus **150** attached to the end of tube **146** supports coil spring **148** and provides for the resilient support of platform **20**.

In FIG. 9, bell crank arm **151** which is rotatably mounted to base plate **12** serves as the adjusting lever. Also rotatably mounted to base plate **12** is an arm **152** having an elongated slot **153** at one end. Bell crank

arm **151** and arm **152** are pivotally connected by an arm **154**. A plate **155** is free to slide longitudinally in the card receiver, its alignment being assured by cooperation between a pair of posts **156** which are attached to base plate **12** and longitudinal slots **157** in plate **155**. Attached at one end of plate **155** is a pin **158** which engages elonagted slot **153**. Attached at the other end of plate **155** is card positioning arm **55** which determines the effective size of the card receiver. Depending from plate **155** and passing through slots **160** in base plate **12** are four legs **159** which have attached to their lower end an adjusting plate **161**. Plate **161** is provided with an elongated longitudinal slot (FIG. 12) having sections of three different widths **162**, **163** and **164**. Slot **162** is sufficiently wide to pass over tube **146** to allow for assembly of the mechanism. Slot **163** is sufficiently wide to allow spacer **149** to pass therethrough, and slot **164** is sufficiently wide to allow rod **21** and coil springs **147** and **148** to pass freely therethrough but small enough to prevent passage of spacer **149**. Tube **146** has appropriate grooves (not shown) cut in its walls to allow slots **163** and **164** to project inside the tube.

FIG. 9 shows the card receiver adjusted to accommodate the largest of two card sizes by having bell crank arm **151** near right side wall **14**. To change the effective size of the card receiver to accommodate a smaller card, bell crank arm **151** is moved towards left side wall **15**. Through arms **154** and **152** and pin **158**, plate **155** is moved to the left carrying with it card positioning arm **55** and thus reducing the effective size of the card receiver. As plate **155** travels to the left it also carries with it adjusting plate **161**, the motion being transmitted through legs **159**. When plate **155** has traveled the correct distance to the left so that the effective size of the card receiver is such as to properly accommodate cards for which the receiver is now adjusted, slot **163** and adjusting plate **161** is positioned around tube **146**. Slot **163** is sufficiently wide to allow spacer **149** to pass therethrough and platform **20** is thereby supported by the combined spring rate of coil springs **147** and **148**, the combined spring rate having been preselected to maintain the effective receiving plane in the proper position to allow the particular size cards to stack on platform **20**.

When bell crank arm **151** is moved towards right side wall **14**, the receiver having first been emptied, plate **155** and card positioning arm **55** are moved so as to increase the effective size of the card receiver to accommodate a larger card. In this position slot **164** in adjusting plate **161** projects into tube **146**, the width of slot **164** preventing spacer **149** from passing therethrough. In this position platform **20** is supported only by the spring rate of coil spring **147** since spacer **149** is not free to ride in tube **146**. The greater spring rate of coil spring **147** has been preselected to maintain the effective receiving plane as the larger cards are received in the receiver.

A switch **165** is suitably attached to supporting member **10** and is contacted by switch arm **31** when platform **20** is fully depressed under the weight of the maximum load of cards. This switch automatically shuts off the machine which is ejecting cards into the receiver and may also signal the operator to empty the receiver.

Furthermore, if, while cards are being stacked on flippers **116** and **123**, the height of the stack becomes too great, the top of the cards will contact switch **133** and will also shut off the machine which is ejecting cards into the receiver.

In this application we have particularly pointed out and distinctly claimed the part, improvement, or combination which we claim as our invention or discovery, and we have explained the principles thereof and the best modes in which we have contemplated applying those principles so as to distinguish our invention from other inventions.

While we have shown and described certain preferred embodiments of our invention, it will be understood that

modifications may be made without departing from the spirit and scope thereof, as will be clear to those skilled in the art.

What we claim is:

1. In a chamber for receiving cards having a platform for receiving cards thereon and a resilient support for said platform, means for adjusting the resilient support of the platform comprising a vertical tube depending from said card receiver, a vertical rod attached to said platform and passing through said tube, a pair of coil springs encircling said rod, a depressor collar, having a depressor pin protruding therefrom, encircling said rod and separating said coil springs, means attached to the lower end of said tube for supporting said coil springs, rotatable adjusting rod support means encircling said tube, a plurality of adjusting rods attached to said adjusting rod support means, a plurality of coil springs encircling said adjusting rods, a plurality of adjustable collars encircling said adjusting rods at the lower end of said coil springs, a plurality of sliding collars encircling said adjusting rods at the upper end of said coil springs, a plurality of stop pins passing through said adjusting rods and limiting said sliding collars, and means cooperating with said card receiver for rotating said adjusting rod support means to selectively allow said depressor pin to engage one or none of the plurality of sliding collars.

2. In a chamber for receiving cards having a platform for receiving cards thereon and a resilient support for said platform, means for adjusting the resilient support of said platform comprising, a vertical tube depending from said card receiver, a vertical rod attached to said platform and passing through said tube, a pair of coil springs encircling said rod, a spacer encircling said rod and separating said coil springs, means attached to the lower end of the said tube for supporting said coil springs, an adjusting plate, having a plurality of different sized slots therein, mounted below said chambers so as to encircle said vertical rod and said coil springs, a second plate slidably mounted within said chamber, a plurality of legs connected between said adjusting plate and said second plate for adjusting said adjusting plate, and lever means cooperating with said second plate for transmitting the manual movement of said lever means to said adjusting plate.

3. In a chamber for receiving cards having a platform for receiving cards thereon and a resilient support for said platform, auxiliary stacking means mounted to said card receiver comprising support blocks mounted to said card receiver, a pair of rods rotatably positioned within said support blocks, a plurality of flippers attached to said rotatable rods, arms attached to the end of said rods and cooperating with each other for concurrent movement of said flippers, a vertical link attached at one end to said arms, a solenoid mounted to said card receiver, lever means attached between said link and said solenoid for transmitting motion therebetween, and switch means mounted to said card receiver for energizing said solenoid.

4. The structure defined in claim 3 wherein said switch means comprises a switch mounted to the bottom of said card receiver, and a switch arm mounted to the bottom of said platform and positioned so as to contact said switch when said platform is completely depressed.

5. The structure defined in claim 3 wherein said switch means comprises a rod slidably mounted on one side of said card receiver, a knurled knob attached to the end of said rod, a pin protruding from said rod, and a switch contacted by said pin and mounted to the side of said card receiver.

6. The structure defined in claim 4 and further including a yoke attached to the other end of said rod, a return spring encircling said rod, a pair of slots in the side of said card receiver, a pair of pins attached to said yoke and passing through said slots, and a card hoe positioned inside said card receiver and attached to said pins.

7. In a chamber for receiving cards, having a platform for receiving cards thereon and a resilient support for said platform, auxiliary stacking means comprising support blocks mounted to the sides of said card receiver, rods rotatably mounted within said support blocks, a plurality of flippers attached to said rotatable rods, arm means attached to the end of said rods and cooperating with each other for rotating said rods concurrently, a rod slidably mounted to the side of said card receiver, a knurled knob attached to the end of said rod, a yoke attached to the other end of said rod, a coil spring encircling said rod, a pair of slots in the side wall of said card receiver, a pair of pins attached to said yoke and passing through said slots, a card hoe positioned inside said card receiver and attached to said pins, an arm depending from one of said flipper rods and contacting said yoke and a spring attached between said arm means and said card receiver.

8. A card receiver comprising, in combination, a chamber for receiving cards, cards supporting means within said chamber forming an effective receiving plane for stacking cards thereon, resilient means supporting said card supporting means for maintaining said effective receiving plane in the proper relation to said chamber, chamber adjusting means cooperating with said chamber for changing the effective size of said chamber, means cooperating with said chamber adjusting means for adjusting said resilient means to maintain said effective receiving plane in aforementioned relation to said chamber as said chamber adjusting means adjusts the effective size of said chamber to stack cards of different sizes which have weights proportional to their size, auxiliary stacking means mounted to said chamber and positionable for selectively allowing cards to stack thereon instead of on said card supporting means, operating means connected to said auxiliary stacking means for positioning said auxiliary stacking means, card remover means mounted to said chamber for removing cards from said chamber, a first switch attached to said chamber and actuated by said card supporting means for actuating said operating means when said card supporting means obtains a predetermined position under the weight of cards stacked thereon, and a second switch mounted to said second chamber and actuated by said card remover means for actuating said operating means as cards are removed from said chamber without interrupting the flow of cards thereto.

9. A card receiver comprising, in combination, a chamber for receiving cards, a platform within said chamber forming an effective receiving plane for stacking cards thereon, a plurality of springs supporting said platform said springs being selectively connectable to said platform for maintaining said effective receiving plane in the proper relation to accept cards of varying weight to be stacked thereon, auxiliary stacking means mounted to said chamber and positionable for selectively allowing cards to stack thereon instead of on said platform, operating means connected to said auxiliary stacking means for selectively changing the position of said auxiliary stacking means, and a switch attached to said chamber for controlling said operating means, said switch being actuated by said platform when said card platform attains a certain position within said chamber.

10. A card receiver comprising, in combination, a chamber for receiving cards, a platform within said chamber forming an effective receiving plane for stacking cards thereon, a plurality of springs supporting said platform said springs being selectively connectable to said platform for maintaining said effective receiving plane in proper relation to said chamber to accept cards of varying weight to be stacked thereon, auxiliary stacking means mounted to said chamber and positionable for selectively allowing cards to stack thereon instead of on said platform, operating means connected to said stacking means for positioning said auxiliary stacking means, card re-

mover means mounted to said chamber for removing cards from said chamber, and a switch mounted to said chamber and actuated by said card remover means so that said stacking means operate to stack cards thereon during the removal of cards from said card receiver.

11. A card receiver comprising, in combination, a chamber for receiving cards, a platform within said chamber forming an effective receiving plane for stacking cards thereon, a plurality of springs supporting said platform said springs being selectively connectable to said platform for maintaining said effective receiving plane in the proper relation to said chamber to accept cards of varying weight to be stacked thereon, auxiliary stacking means mounted to said chamber and positionable for selectively allownig cards to stack thereon instead of on said platform, operating means connected to said auxiliary stacking means for positioning said stacking means, card remover means mounted to said chamber for removing cards from said chamber, a first switch attached to said chamber and actuated by said platform for actuating said operating means when said platform attains a certain position in said chamber, and a second switch mounted to said chamber and actuated by said card remover means as cards are removed from said chamber.

12. In a chamber for receiving cards having a resiliently supported platform for receiving cards thereon and auxiliary stacking means for stacking cards while the cards are being removed from said chamber, said auxiliary stacking means comprising operating means mounted to said chamber for positioning said auxiliary stacking means to cause cards to stack thereon instead of on said resiliently supported platform a plurality of flippers mounted to said operating means and positioned on two parallel sides of said chamber, said operating means positionable to cause said flippers to enter said chamber to allow cards to stack thereon, a solenoid mounted to said chamber for actuating said operating means and a switch mounted to said chamber for activating said solenoid.

13. A card receiver comprising, in combination, a chamber for receiving cards, card supporting means within said chamber forming an effective receiving plane for stacknig cards thereon, resilient means supporting said card supporting means for maintaining said effective receiving plane in the proper relation to said chamber to accept said cards stacked thereon, chamber size adjusting means for adjusting the effective size of said chamber, and means cooperating with said chamber size adjusting means for adjusting said resilient means to maintain the effective receiving plane in the aforementioned relation to said chamber as said chamber adjusting means are adjusted to receive cards of different sizes having weights proportional to their size.

14. A card receiver comprising, in combination, a chamber for receiving cards, card supporting means within said chamber forming an effective receiving plane for stacking cards thereon, resilient means supporting said card supporting means for maintaining the effective receiving plane in the proper relation to said chamber to accept cards stacked thereon, chamber adjusting means cooperating with said chamber for adjusting the effective size of said chamber, means cooperating with said chamber adjusting means for adjusting said resilient means to maintain the effective receiving plane in the aforementioned relation to said chamber as said chamber adjusting means are adjusted to receive cards of different sizes having weights proportional to their size, auxiliary stacking means for stacking cards thereon instead of on said card supporting means, and card removed means for removing cards from said receiver, said card remover means when operated, actuating said auxiliary stacking means.

15. A card receiver comprising, in combination, a chamber for receiving cards, card supporting means within said chamber forming an effective receiving plane for stacking cards thereon, adjustable resilient means supporting said card supporting means for maintaining said effective receiving plane in the proper relation to said chamber to accept cards stacked thereon, adjusting means for changing the effective size of said chamber, means controlled by said chamber adjusting means for adjusting said resilient means, auxiliary stacking means mounted to said chamber and positionable for allowing cards to stack thereon instead of on said card supporting means, operating means connected to said auxiliary stacking means for positioning said auxiliary stacking means and card removed means mounted to said chamber for removing cards from said chamber, said card remover means actuating said operating means.

16. In a chamber for receiving cards having a resiliently supported platform for receiving cards thereon and auxiliary means for stacking cards while the cards are being removed from said chamber, stacking means comprising operating means mounted to said chamber, at least one flipper mounted to said operating means and positioned on at least one side of said chamber, said operating means being positionable to cause said flipper to enter said chamber to allow cards to stack thereon, actuating means for actuating said operating means, a card remover hoe slidably mounted to said chamber and manually operable for removing cards from said resiliently supported platform while cards are being stacked on said auxiliary stacking means, and means responsive to the operation of said hoe for rendering said actuating means effective.

17. In combination, a chamber, a platform within said chamber for receiving cards thereon, a plurality of springs positionable to support said platform, selecting means for positioning at least one of said springs, and means under the control of said selecting means for adjusting the effective size of said chamber concurrently with the functioning of said selecting means.

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