Aug. 8, 1961 J. M. CUNNINGHAM ET AL 2,995,240

SORTING MACHINE

Filed Jan. 27, 1956 2 Sheets-Sheet 1

FIG. 1

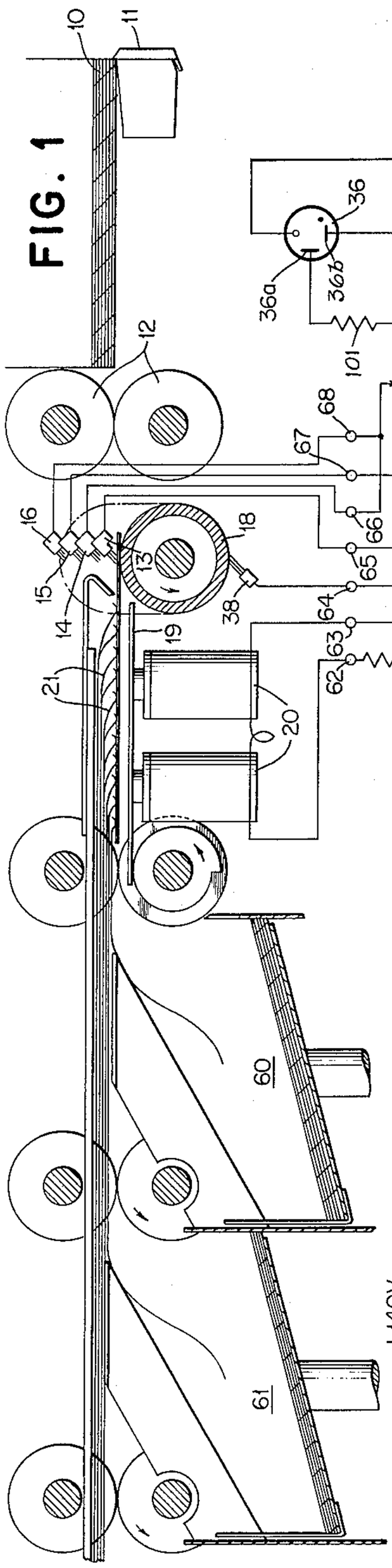
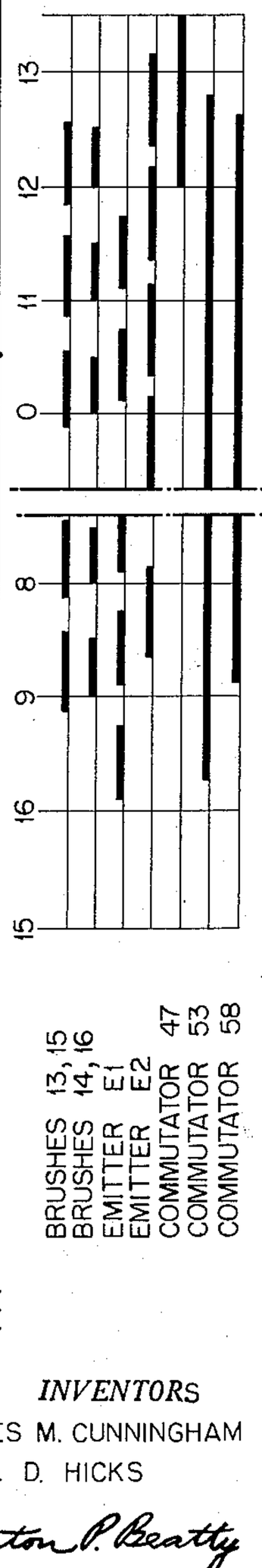


FIG. 3



BRUSHES 13, 15
BRUSHES 14, 16
EMITTER E1
EMITTER E2
COMMUTATOR 47
COMMUTATOR 53
COMMUTATOR 58

INVENTORS
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ATTORNEY

Aug. 8, 1961 J. M. CUNNINGHAM ET AL 2,995,240

SORTING MACHINE

Filed Jan. 27, 1956 2 Sheets-Sheet 2

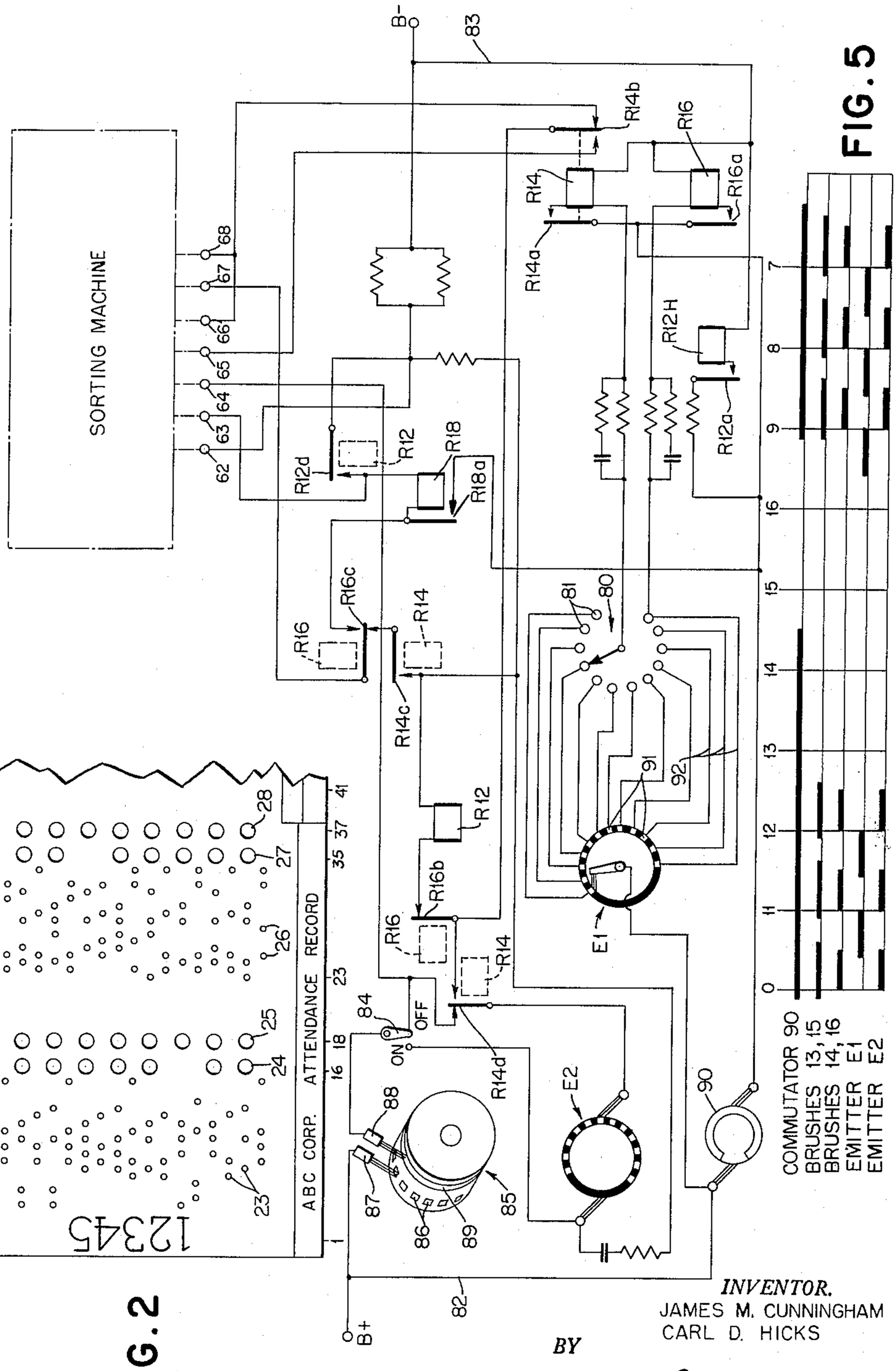

FIG. 4

FIG. 5

FIG. 2

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United States Patent Office

2,995,240
Patented Aug. 8, 1961

2,995,240

SORTING MACHINE

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Filed Jan. 27, 1956, Ser. No. 561,815
7 Claims. (Cl. 209—110)

This invention relates to record controlled distributing machines and more particularly to improved means for separating properly registered records from improperly registered records.

In an elapsed time recording machine such as that disclosed in U.S. Patent No. 2,970,878 of James M. Cunningham, attendance record cards are punched in a predetermined location on each occasion that a card is inserted in the machine for recording. The absence of a punching in such a location renders a card incorrect or improperly registered. Through means of the present invention, a stack of attendance cards is separated into two groups, one containing properly registered cards and the other improperly registered cards.

Accordingly, the principal object of this invention is to provide an improved means to sort properly registered cards and improperly registered cards into two separate groups from a stack containing such cards commingled.

Briefly, the sorting machine of the present invention sorts attendance record cards having perforations in successive perforate index positions in a plurality of columns representing registration data and line positioning holes and successive imperforate index positions in the same columns. The presence of both registration and line positioning perforations is required in each perforate index position and the absence of any perforation is required in the imperforate index positions of a correct card. The correct and incorrect cards are directed into separate pockets by the sorting means. Circuit means is provided for controlling the sorting means, the operation of which is determined by a control device. Means responsive to the sensing of a line positioning perforation in a column of an imperforate index position actuates the control device to control operation of the circuit means and means is effective to actuate the device when a plurality of registration perforations is not sensed in a perforate index position, whereby the operation of the circuit means is controlled. The circuit means in turn controls the sorting means and the incorrect card is directed into a certain pocket.

Other objects of the invention will be pointed out in the following description and claims and illustrated in the accompanying drawings, which disclose, by way of examples, the principle of the invention and the best mode, which has been contemplated, of applying that principle.

In the drawings:

FIG. 1 shows a circuit diagram of the preferred form of the present invention illustrated in connection with the associated mechanical devices of a sorting machine.

FIG. 2 is a view showing a typical attendance record card which has been properly processed through an elapsed time recorder for six working days.

FIG. 3 is a timing chart showing the timing desirable to close certain electrical contacts and circuits for embodiment as shown in FIG. 1.

FIG. 4 is a circuit diagram of another embodiment of this invention showing the circuit connections to the sorting devices illustrated in FIG. 1.

FIG. 5 is a timing chart showing the timing desirable to close certain electrical contacts and circuits for the embodiment of FIG. 4.

For illustrative purposes, the invention is shown as applied to a sorting machine of the electrically controlled type. This machine is well known in the art and its various details of construction and manner of operation are disclosed in Patent No. 2,615,569, issued October 28, 1952 to C. D. Lake et al. Since the aforesaid patent describes the machine in detail, it is unnecessary to give more than a very brief description of the general features herein, except to point out wherein the improvements of the present invention are applied.

A group of record cards which consists of the usual IBM cards designated **10** (FIG. 1) is placed in a magazine and removed one at a time from the bottom of the magazine by means of a picker knife **11**. The cards are advanced between rollers **12**, which in turn feed the cards between a series of four brushes designated **13**, **14**, **15** and **16** and a contact roll **18**, in a well known manner.

The index point positions in the well known IBM card are shown in FIG. 2 to be differentially located from the edges of the card. The cards are fed face down with the 9 edge leading and after this leading edge passes the forementioned brushes, it passes between a table **19**, forming an armature for a pair of sorting magnets **20**, and a series of guide tongues **21** pressed lightly into contact with said table by the inherent spring tension of the tongues.

When a brush encounters a perforation during the passage of a card thereby, the leading edge of the card is located between two of the tongues **21**, depending upon the differential location of the perforation. At this time, the brush makes contact with the roller **18**, closing an electrical circuit to energize the sorting magnets **20**. The energization of the sorting magnets causes the table to be lowered, the tongues **21** to the left of the card moving downwardly therewith and the remaining tongues **21** being supported by the card, thus determining the particular pocket to which the card subsequently will be guided.

In the present embodiment of the invention, only two pockets are utilized and those cards having perforations in predetermined index point positions in one or more columns are sorted into the pocket **60** and those cards without a perforation in any predetermined index point position in one or more of the columns are sorted into the "12" pocket **61**.

In this embodiment, the energization of the sorting magnets **20** is delayed until the 12 index position on the card reaches the row of sensing brushes, whereupon the cards without a perforation in any predetermined index position are directed into the "12" pocket **61**. The energization of magnets **20** is prevented when a card has perforations in the predetermined index positions and the card is passed under all of the tongues **21** into the pocket **60**.

The present invention is primarily utilized in handling either "attendance" cards or "job" cards from an elapsed time recording machine of the type disclosed in the forementioned Patent No. 2,970,878 of James M. Cunningham. The cards are sorted into two groups, one group being properly registered cards and the other group being improperly registered cards.

The preferred card form for an elapsed time attendance record card is shown in FIG. 2. The card would normally be pre-punched with employee name, number, social security code number, etc., which are interpreted at the top of the card. The punchings **23** represent the setting of the time recorder when the card is presented for "In" recording and are punched in columns **4** to **15**. The start time and date are printed in columns **47** to **59** (not shown). The punching of a registration hole **24** is made at this time in column **16** and a line positioning hole **25** is punched in column **18**. When the card is presented for "Out" recording, the punchings **26** representing the

setting of the time recorder are punched in columns **23** to **34** and the punching of the registration hole **27** and the line positioning hole **28** are made in columns **35** and **37**. It is to be understood that the card shown and described is merely an example of one form of card that may be used in connection with the present sorting device and that other card forms could also be utilized.

The improperly registered cards can be of two classes in one of which the employee fails to "ring in" or "ring out" and no line positioning hole is punched in column **18** or column **37** nor is a registration hole punched in columns **16** and **35**. In the other class of improper cards, the employee presents the card to the recorder at improper time periods and registration hole columns **16** or **35** remain unpunched but a line positioning hole is punched in columns **18** or **37**. A proper "ring in" or "ring out" causes registration columns **16** or **35** and line positioning columns **18** or **37** to be punched.

Each index position or row of a card indicates a particular portion of the work week and any possible length of work week including a fractional day can be registered with a maximum of twelve registrations possible.

Circuit diagram and operation

In the embodiment shown in FIG. 1, a dial switch **30** having twelve conductive segments **29** is set by the machine operator at the index position which indicates the dividing line for the length of the work week. The dividing index position and all subsequent positions require four holes in columns **16**, **18**, **35** and **37**, respectively, to be a properly registered or correct card. The other index positions must not contain any holes in these columns to be a properly registered card.

A suitable source of current supply provides voltages so that lines **31**, **32** and **33** are at 0, +140 and −40, respectively. These voltage values are given only by way of example, it being understood that any suitable voltage values may be employed. A switch **35** is moved to the "On" position to place the various electrical devices in circuit connection. The cards **10** are fed to the row of sensing brushes **13–16** for the columns of the card **16**, **18**, **35** and **37** with the 9 edge leading in a well known manner. A set of electrical terminals **62–68** is provided in the machine so that the wires leading to the sorting magnets and sensing brushes can be connected to other control devices as explained hereinafter.

For purposes of explanation, let it be assumed that the switch **30** is set at the 6 index position (as shown). As the 9, 8 and 7 index positions are fed past the line positioning brushes **14** and **16**, any hole in columns **18** and **37** will fire a cold cathode gas tube **36** by providing a positive pulse to the starter anode **36***a*. A commutator **37** is of a conventional type and includes twelve conductive segments **39** which cooperate with a brush **40** and metallic strips **41** and **42** which in turn cooperate with brushes **43** and **44** respectively. The strips are electrically connected to each other and to the contact segments **39**. The commutator is synchronized with the speed of the passage of cards through the machine and moves its segments **39** past the brush **40** in step with the passage of the index positions on the card past the sensing brushes **13–16**. As a result, each index position of the card corresponds to a predetermined contact segment **39**. The positive pulse to the starter anode of tube **36** is provided through this sort commutator **37** by the following connection: From line **32**, through commutator brush **44**, strip **42**, segment **39**, brush **40**, relay contacts R**10***d* (normally closed), terminal **64**, common contact brush **38**, contact roll **18**, line positioning brushes **14** and/or **16**, terminals **66** and/or **68**, relay contacts R**10***a* (normal), resistor **101** to starter anode **36**a of tube **36** and in parallel through a resistor **102** to the −40 volt line **33**. When tube **36** fires, a circuit is completed from the anode **36***b* through the brushes **43** and **44** of the sort commutator **37** to line **32** and to the +140 volt supply to hold the tube **36** conductive.

The cathode of the tube **36** is connected to the −40 volt supply line **33** through a resistor **103** which supplies the proper D.C. bias to the control grids of vacuum tubes **46**. The starter anode **36***a* is normally biased negatively by means of the −40 volt supply applied through resistors **102** and **101**. When the positive voltage pulse is applied by means of the above traced circuit, the tube **36** conducts and the cathode voltage rises and places a positive voltage on the grids of vacuum tubes **46** to render them conductive. A circuit is thus completed to the sorting magnets **20** through tubes **46** as follows: From line **32**, through terminal **62**, sorting magnets **20**, terminal **63**, tubes **46** (now conductive), resistor R**1** to line **31**. However, the current is limited by the resistance value of R**1** so that the magnets **20** are not energized at this time. A commutator **47** is located in parallel with the resistor R**1** and from FIG. 3 it is seen that the commutator is timed to close the parallel circuit as the 12 index position on the card passes the row of brushes **13–16**. The resistor R**1** is thus shunted and full current through **47** is permitted to reach the sorting magnets to energize them at 12 time. Any improperly registered cards having holes in the 9, 8 or 7 index positions are thus sent to the "12" pocket **61**.

Referring again to the diagram of FIG. 1, it is seen that an emitter E**1**, which is a pulse distributor, having twelve conductive segments **49** is connected by wires **50** to the segments **29** of the dial switch **30**. Emitter E**1** is synchronized with the passage of the card past the row of brushes **13–16** to electrically connect this emitter and the dial switch between the sensing of each index position (FIG. 3). Shortly after 7 time and prior to 6 time, the emitter will match the setting on the switch **30** and a positive pulse is sent to the control grid **52***a* of a thyratron tube **52** through switch **35**. When the grid **52***a* is thus raised to 140 v. the tube **52** is fired to complete a circuit which picks up a relay **R10** through a commutator **53** as follows: From line **32**, through commutator **53** (now closed), coil of relay R**10**, tube **52** (now conductive), to line **31**. The energization of relay R**10** closes its contacts *b*, *c*, *e*, opens its *d* contacts and transfers its *a* contacts to condition circuits for detecting the absence of a hole in either registration columns **16** and **35** in index position 6 or any index position subsequent to the 6 index position.

The card is not tested for the line positioning holes in the dividing index position and subsequent index positions because registration holes only exist with an accompanying line positioning hole in these index positions. If a hole exists in both registration columns of the 6 position, the sensing of these holes by brushes **13** and **15** does not cause the tube **36** to fire. Instead, a circuit is completed from line **32**, through relay contacts R**10***c* (now closed), resistances R**2** and R**3**, terminals **65** and **67**, brushes **13** and **15**, contact roll **18**, common brush **38**, terminal **64**, relay contacts R**10***e* to line **33**. This is in effect a short circuit on any other parallel resistance circuits and the current has no tendency to flow through the rectifiers **55** and **56**. Let it be assumed that a hole is not present in column **35** of the 5 index position. When this position is sensed by the brushes **13** and **15**, a positive pulse is placed on the starter anode **36***a* of tube **36** to fire this tube. Since there is no hole in column **35**, the current will pass through rectifier **56** to provide the positive pulse by a connection as follows: From line **32**, through relay contacts R**10***c* (now closed), resistor R**3**, rectifier **56**, commutator **58**, relay contacts R**10***b* (now closed), relay contacts R**10***a* (transferred), to the starter anode **36***a*. Commutator **58** is the registration test commutator which is closed shortly after 9 time and remains closed until after 12 time. Current will pass through the brush **13** for column **16** as before. Where a registration hole is absent from both columns **16** and **35**, a full positive pulse is impressed on the starter anode of tube **36** through both resistors R**2**, R**3** and both rectifiers **55**, **56**. The positive pulse to anode **36***a* is only effective to fire the tube **36** when emitter E**2** is open so that the −40 v. bias is taken off the anode. In

FIG. 3 it is seen that the bias is removed shortly after the sensing of each index position. When tube **36** becomes conductive, a circuit is completed through the sorting magnets **20** as previously described and the improperly registered card is directed into the "12" pocket upon the closing of commutator **47** at 12 time.

In the case where there are no holes in columns **16, 18** and **35, 37** in the 9, 8 and 7 index positions and all pairs of holes exist in these columns in index positions 6 through 12, the card is properly registered and the tube **36** is not made conductive. This prevents energization of the sorting magnets **20** at the 12 time under control of the commutator **47** and the card is directed into the pocket **60**.

Registration errors at the 12 index position cause the immediate energization of sorting magnets **20** when emitter **E2** opens since commutator **47** is already closed.

In summarizing the above description, it can be seen that there is:

(1) A card distributor which includes the guide blades **21**

(2) A card transport which includes driving wheels **12** for moving the cards **10** to a particular pocket

(3) A sensing circuit for controlling the card distributor in response to the presence or absence of perforations which includes:
- *a.* The comparing bridge R_2, R_3; **55, 56**
- *b.* Gas tube **36**
- *c.* Tubes **46**
- *d.* Brushes **13–16**
- *e.* Commutator **42**

(4) Selective switching means for controlling the sensing means which includes:
- *a.* Emitter E_1
- *b.* Switch **30**
- *c.* Relay **R10** which is a selecting relay

The breakdown of the circuit of FIG. 1 illustrates the operation of the machine quite clearly as one in which the sensing of records is achieved selectively by means of a switching arrangement which controls the sensing to divide the sensing into two distinct operations of which the first is to detect holes in an imperforate position and the second to detect no holes in a perforate position.

In the embodiment of FIG. 4, the circuit connections to terminals **62–68** inclusive are shown. These terminals are connected to any suitable sorting machine such as shown in FIG. 1. The sorting circuit of FIG. 4 operates to perform the same functions as the sorting circuit shown in FIG. 1, but directs cards which are in the correct group into the pocket **61** as shown in FIG.1 and the cards which are incorrect into pocket **60**. This represents a reversal over FIG. 1 in the sorting of cards into the various pockets.

A dial switch **80** having twelve conductive segments **81** is set by the machine operator at the index position which indicates the dividing line for the length of the work week. The dividing index position and all subsequent positions require four holes in columns **16, 18, 35** and **37** respectively, to be a properly registered card. The other index positions must not contain any holes in these columns to be a properly registered card.

Current is supplied by lines **82** and **83**. A switch **84** is moved to the On position to place the various electrical devices in circuit connection. For purposes of illustration, let it be assumed that the switch **80** is set at the 6 index position. As the 9, 8 and 7 index positions are fed past the line positioning brushes (FIG. 1), any hole in columns **18** and **37** will energize an error relay **R12** through a commutator **85** which includes twelve conductive segments **86**, brushes **87, 88** and a conductive strip **89**. The segments **86** are each electrically connected to the strip **89**. The commutator is synchronized with the speed of the passage of cards through the machine and moves its segments **86** past the brush **87** in step with the passage of index positions on the card past the row of brushes. As a result, each index position of the card corresponds to a predetermined contact segment **86**. The relay **R12** is energized by a circuit as follows: From line **82** through commutator brush **87**, segment **86** in the 9, 8 or 7 position, strip **89**, brush **88**, switch **84**, emitter **E2**, relay contacts **R14***d* (normal), to terminal **64** and through either of the line positioning brushes to terminals **66** or **68**, relay contacts **R14***b* (normal), relay contacts **R16***b* (normally closed), pick-up coil of relay **R12** to line **83**. The energization of relay **R12** closes its "*a*" contacts to complete a circuit through its holding coil **R12H** as follows: From line **82** through commutator **90**, relay contacts **R12***a* (now closed), hold coil **R12H** of relay **R12** to line **83**. When relay **R12** is energized its "*d*" contacts are closed to short the sorting magnets **20** so that these magnets cannot be energized at 12 time, thus sending the improperly registered card to the pocket **60**.

An emitter **E1** is provided with twelve conductive segments **91** and is connected by wires **92** to the segments **81** of the dial switch **80**. Between the 7 and 6 times the emitter **E1** will match the setting on the switch **80** and pick up relay **R14**. Relay **R14** is picked up by a circuit from the line **82** through the commutator **90**, through the emitter **E1** with its moving contact standing between the 7 and 6 through the associated wire **92** through the stationary contacts of dial switch **80** through a resistance network to relay **R14** and to the line **83**. The energization of relay **R14** closes its "*a*" contacts to form a holding circuit for this relay as follows: From line **82**, through commutator **90**, relay contacts **R14***a* (now closed), coil of relay **R14** to line **83**. This holding circuit endures until the commutator **90** opens at the end of a card cycle. The energization of relay **R14** also closes its "*c*" contacts and transfers its "*b*" and "*d*" contacts to condition circuits for detecting the absence of a hole in either registration columns **16** and **35** in the 6 index position and any index position subsequent to the 6 index position.

The card is not tested for the line positioning holes in the dividing index position and subsequent index positions because registration holes only exist with an accompanying line positioning hole in these index positions. If a hole exists in both registration columns of the 6 position, the sensing of these holes by the registration brushes does not cause the error relay **R12** to be energized. Instead, a circuit is completed from line **82**, through commutator **85**, switch **84**, emitter **E2**, relay contacts **R14***d* (transferred), relay contacts **R14***b* (transferred), to terminal **65**, then through the registration brush **13** for column **16**, contact roll **18** and brush **15** for column **35** to terminal **67** (FIG. 1), and relay contacts **R16***c* (normal), relay contacts **R14***c* (now closed), to line **83**. This circuit causes the pick-up coil of the error relay **R12** to be shunted by the registration brushes so that insufficient current will be drawn through **R12** to operate this relay. It is thus apparent that a pulse is supplied at each index position but does not energize the error relay **R12** on a properly registered card because both registration brushes sense a hole in the card.

Let it be assumed that a hole is not present in column **35** of the 5 index position. When this position is sensed by the registration brushes, the error relay **R12** is energized through the following circuit: From line **82**, through commutator **85**, switch **84**, emitter **E2**, relay contacts **R14***d* (transferred), relay contacts **R16***b*, (normally closed), coil of error relay **R12** to line **83**. Since a hole is not sensed in column **35** by brush **15**, the error relay coil is not shorted and becomes energized. The energization of relay **R12** causes the improperly registered card to be sent to the reject pocket as previously described.

In the instance of a properly registered card, that is a card containing no perforations in the imperforate area and containing all necessary perforations in the regis-

trations columns in the perforate area, emitter E1 closes just prior to 12 time and a relay R16 is energized through the 12 segment 81 of the dial switch 80. This relay then closes its "*a*" contacts, opens its "*b*" contacts and transfers its "*c*" contacts. The opening of these "*b*" contacts prevents the error relay R12 from being energized at 12 time, whereupon a circuit is completed through the sorting magnets (FIG. 1) as follows: From line 82, through commutator 85, switch 84, emitter E2, relay contacts R14*d* (transferred), relay contacts R14*b* (transferred) to terminal 65, through the two registration brushes 13, 15 and the contact roll to terminal 67, relay contacts R16*c* (transferred), brush relay R18, to terminal 63 and through the sorting magnets to terminal 62 and line 83. The energization of the sorting magnets at 12 time causes the sensed card to be directed into the 12 pocket. A holding circuit for the sorting magnets is established through the coil of relay R18 and the relay contacts R18*a*, which are closed upon energization of the relay R18. Therefore, if there are no holes in columns 16, 18 and 35, 37 in the 9, 8 and 7 index positions and all pairs of holes exist in these columns in index positions 6 through 12, the card is properly registered and will be sorted into the 12 pocket.

If the dial switch 80 is set at the 12 segment, the relays R14 and R16 are energized simultaneously just prior to 12 time to detect the absence of holes in columns 16 or 35 in the manner described above. In the instance where a card is correct in all index positions except the 12 position, relay R16 is energized at 12 time and a test is made for both holes in columns 16 and 35. If either or both holes are missing then no circuit is completed to pick up relay R18 and the card is directed to the reject pocket.

The sensing circuit of FIG. 4 includes:

a. The sensing relay R12
b. Brushes
c. Commutator 85

while the selective switching means would include:

a. The emitter E1
b. The switch 80
c. The relay R14

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a preferred embodiment, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art, without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims.

What is claimed is:

1. In a machine having a plurality of card receiving pockets, a card distributor including guide blades for selectively guiding cards to selected pockets, a sensing circuit selectively operable to detect the presence or absence of perforations in a selected plurality of columns for controlling said card distributor to sort cards containing perforations in a plurality of columns and at predetermined exclusive index positions into a common pocket and sorting all others into a reject pocket, a perforation sensing means included in said sensing circuit for each said column, a card transport for moving cards past said sensing means in a columnar direction and through said distributing means to a selected pocket, and selective switching means for operating said sensing circuit to detect perforations at index positions other than said predetermined index positions in a selected plurality of columns, whereby said card distributor is controlled to direct cards containing perforations in a plurality of columns at predetermined exclusive index positions into a common pocket.

2. The apparatus of claim 1 wherein said selective switching circuit includes a pulse distributor operable in synchronism with movement of the index positions of said card past said sensing means to sequentially transmit pulses to a plurality of output lines, a contact selectively movable to one of said output lines, and a selecting relay connected to said movable contact and operated when said movable contact and the pulse to that output line coincide and having a plurality of contact points in said sensing circuit wherein said sensing circuit is made responsive to two conditions as determined by the operated or unoperated condition of said relay.

3. The apparatus of claim 2 wherein said sensing circuit includes sorting magnets for moving said guide blades and a sensing relay connected in a closed series circuit with a closed contact point of said selective switching circuit and with a plurality of parallel connected sensing means when said selecting relay is unoperated to operate said sensing relay when a perforation is sensed and shunt said sorting magnets.

4. The apparatus of claim 3 wherein said sensing circuit includes a shunt circuit for said sensing relay for preventing the operation thereof including a series connection through sensing means in a selected plurality of columns and various contact points of said selection relay when said selection relay is operated whereby the absence of a perforation in a selected column opens said circuit and said sensing relay is operated to shunt said sorting magnets.

5. In a machine having a plurality of card receiving pockets for sorting record cards containing perforations in a plurality of columns and at predetermined exclusive index positions into a common pocket and sorting all others into a reject pocket, a card distributor including guide blades for selectively guiding cards to selected pockets, a sensing circuit selectively operable to detect the presence or absence of perforations in a selected plurality of columns including a perforation sensing means for each said column operable to transmit a voltage upon detection of a perforation, a voltage responsive space discharge tube for controlling said card distributor, a bridge circuit responsive to a plurality of voltages applied thereto to generate a voltage output when said applied voltages are not of the same magnitude, a card transport for moving cards past said sensing means in a columnar direction and through said distributing means to a selected pocket and selective switching means for connecting said selected sensing means to said voltage responsive space discharge tube at index positions other than said predetermined index positions and for connecting said bridge circuit between selected sensing means and said voltage responsive tube at said predetermined index positions to operate said voltage responsive tube upon detection of perforations at index points other than those predetermined points and upon omission of perforations at said predetermined points to control said card distributor to direct cards into said reject pocket.

6. The apparatus of claim 5 wherein said selective switching circuit includes a pulse distributor operable in synchronism with movement of the index positions of said card past said sensing means to sequentially transmit pulses to a plurality of output lines, a contact selectively movable to one of said output lines, a selecting relay responsive to said movable contact and operated when said movable contact and the pulse to that output line coincide and having a plurality of contact points in said sensing circuit wherein said sensing circuit is made responsive to two conditions as determined by the operated or unoperated condition of said relay.

7. The apparatus of claim 6 wherein said sensing circuit includes sorting magnets for moving said guide blades and energization means for said sorting magnets operable upon operation of voltage responsive tube to energize said magnets.

References Cited in the file of this patent

UNITED STATES PATENTS

2,615,568 Constance ---------- Oct. 28, 1952

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,995,240 August 8, 1961

James M. Cunningham et al.

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 7, line 69, after "columns" insert -- and for operating said sensing circuit to detect the absence of perforations in said predetermined index positions in a selected plurality of columns --.

Signed and sealed this 9th day of January 1962.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

DAVID L. LADD
Commissioner of Patents