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Schinke et al.

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[45] **June 19, 1973**

[54] **AUTOMATICALLY PRESETTABLE COPY COUNTER FOR AUTOMATIC PRINTING MACHINES, COPIERS, AND THE LIKE**

[75] Inventors: **Heniz Joachim Schinke,** Unterkirnach; **Werner Lehmann,** Gutach, both of Germany

[73] Assignee: **Mathias Bauerle Gmbh,** Georgen/Schw., Germany

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[52] **U.S. Cl.** ..... **235/61.7 R,** 101/426, 101/1, 197/20

[51] **Int. Cl.** **B41j 5/02,** G06r 17/00

[58] **Field of Search** ..... 101/140, 144, 145, 101/182, 185, 192, 218, 242, 247, 285, 401.1, 132.5; 271/37, 38, 47, 56, 57; 226/6, 45; 235/61, 11 R, 11 A, 11 B, 11 C

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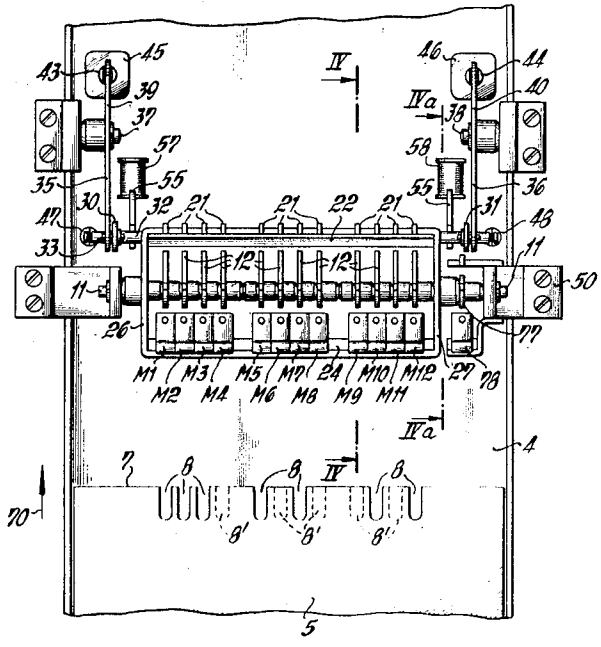
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Primary Examiner—Thomas A. Robinson
Attorney—John J. McGlew, Alfred E. Page and McGlew and Tuttle

[57] **ABSTRACT**

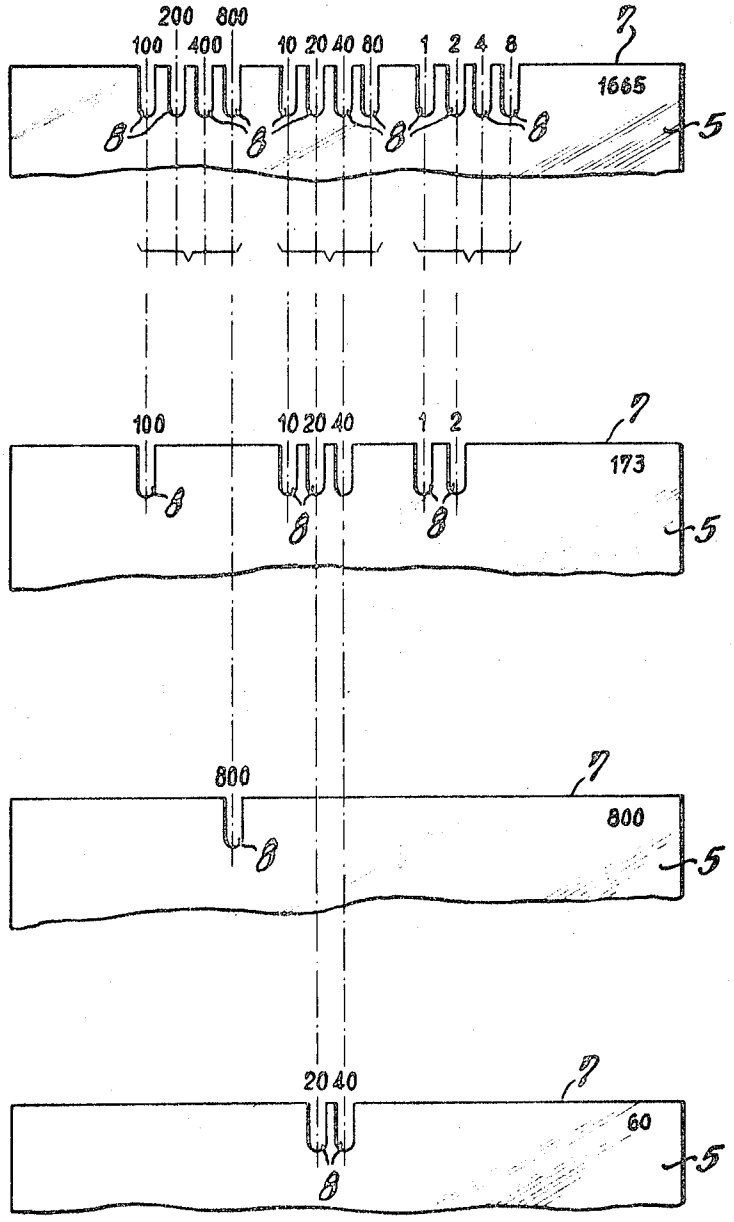
A plurality of control levers are pivotally mounted, on a common shaft, extending transversely of the path of movement of an original for deflection by the leading edge thereof, Each lever has a respective electric switch associated therewith for actuation responsive to deflection of the lever. The leading edge of each original is formed with one or more forwardly opening recesses, representing a binary code, with the recesses being arranged in groups, each group corresponding, for example, to units, ten, hundreds, etc. The recesses effect delayed deflection of the correspondingly located levers and corresponding delayed actuation of the associated electric switches. After each lever not opposite a recess has been deflected by the leading edge of an original, a transverse rod is engaged beneath hooked end of the deflected levers and a frame mounting both the deflected levers and the non-deflected levers is pivoted to move all of the levers out of the path of movement of the original. Only certain electric switches are actuated in accordance with those levers corresponding to the recesses in the leading edge of the original. The switches may be connected to a value storage, or the switches and the actuating levers therefor may constitute a value storage and be used in a coincidence circuit arrangement with corresponding switches actuated by a mechanical counter which counts the number of copies. When the number of copies reproduced is equal to the number set in the value storage, the reproduction is interrupted and all of the levers are returned to their initial positions. The forwardly opening recesses may be U-shaped, V-shaped, or rectangular.

19 Claims, 9 Drawing Figures



4 Sheets-Sheet 1

FIG. 1



INVENTORS
Heinz Joachim SCHINKE
Werner LEHMANN
BY
John J. McGlew
their ATTORNEY

FIG. 3

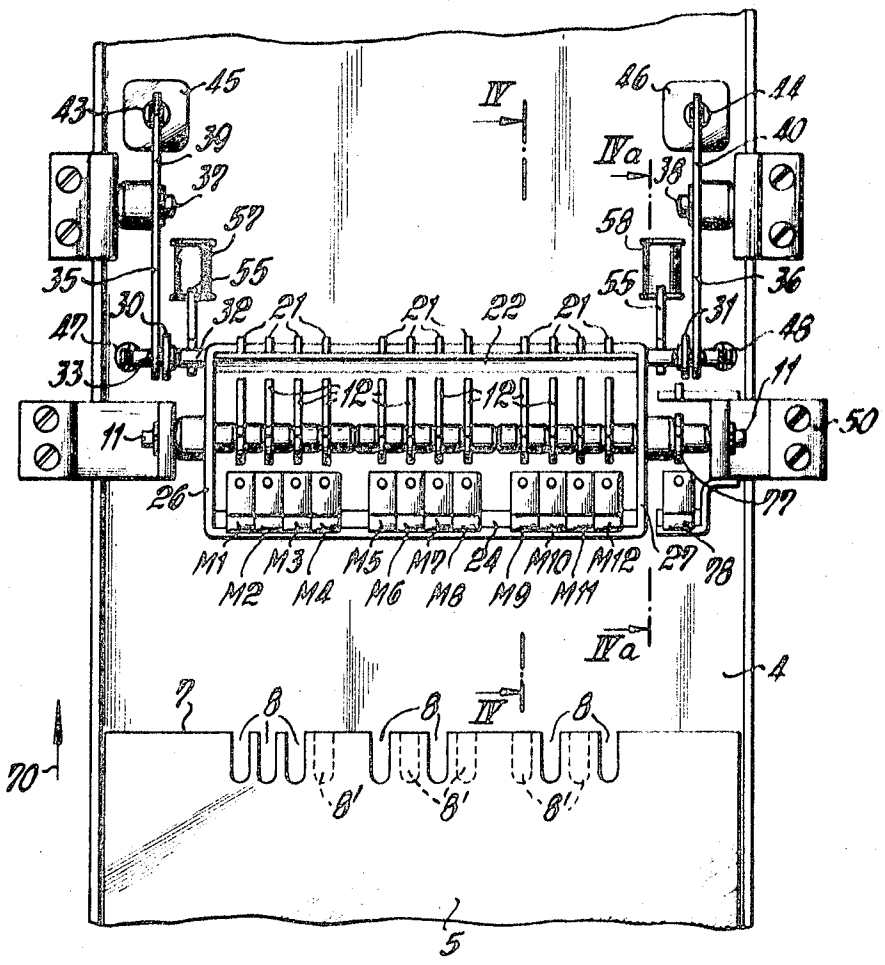
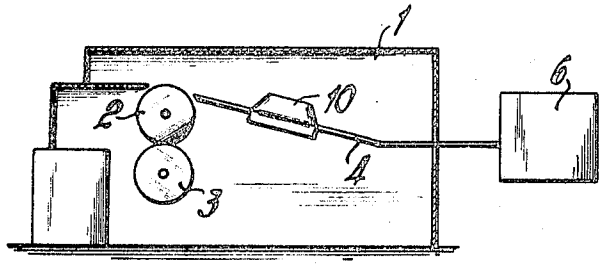


FIG. 2



INVENTORS
Heinz Joachim SCHINKE
Werner LEHMANN
BY
John J. McGlew
their ATTORNEY

FIG. 4

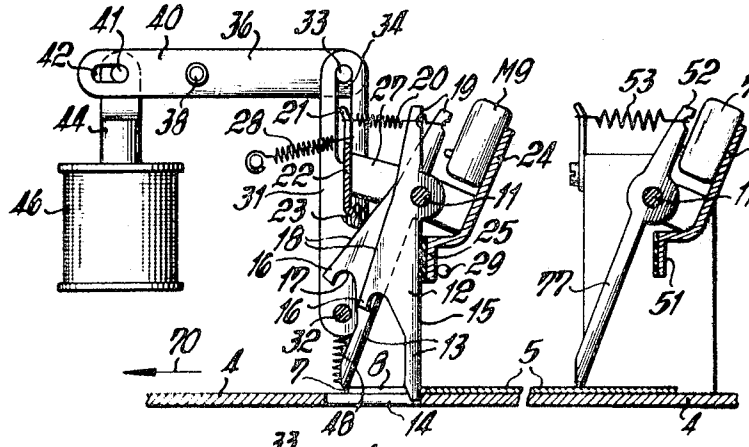


FIG. 4a

FIG. 5

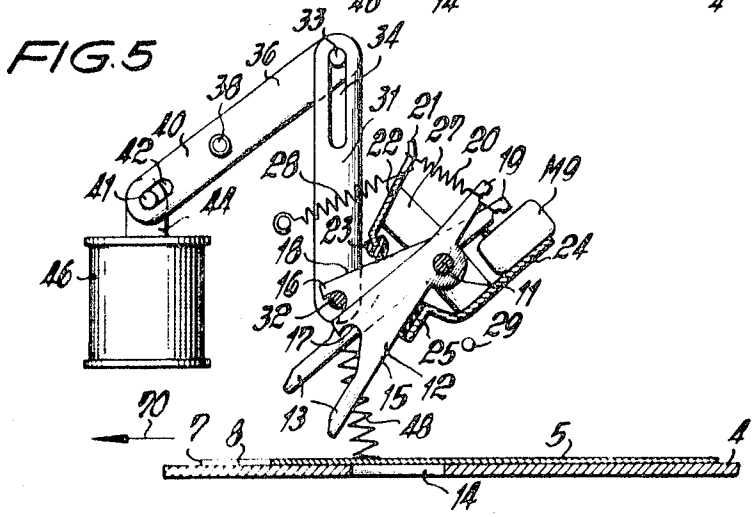
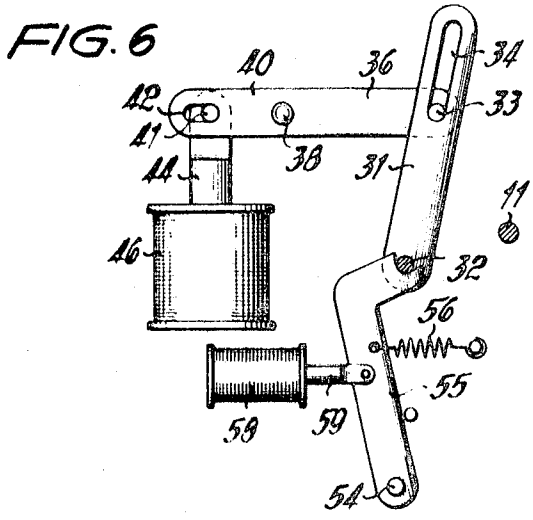


FIG. 6



INVENTORS
Heinz Joachim SCHINKE
Werner LEHMANN
BY John J. McGlew

their ATTORNEY

FIG. 7

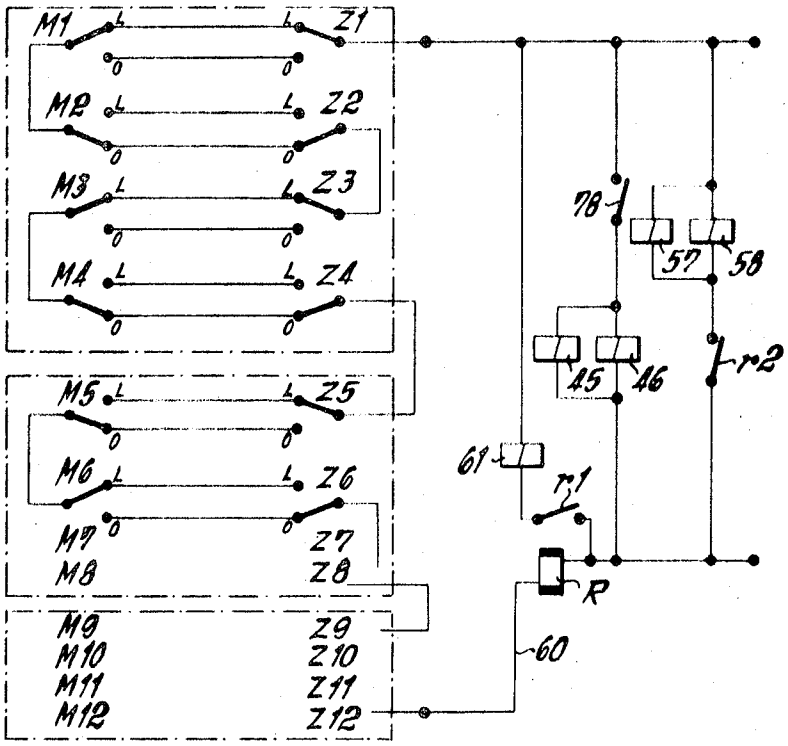
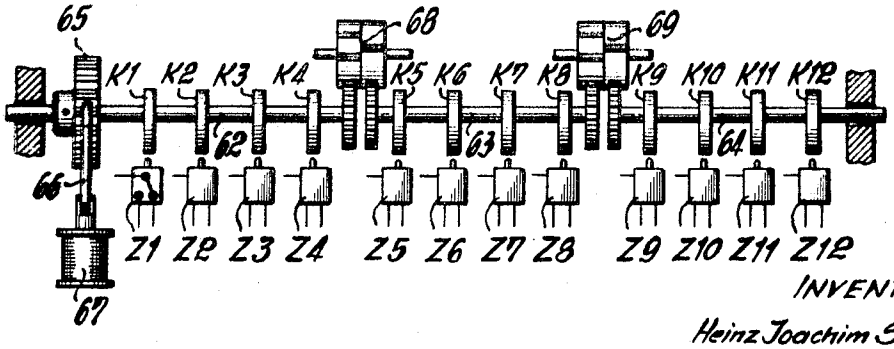


FIG. 8



INVENTORS
Heinz Joachim SCHINKE
Werner LEHMANN
BY
John J. McGlew
Their ATTORNEY

AUTOMATICALLY PRESETTABLE COPY COUNTER FOR AUTOMATIC PRINTING MACHINES, COPIERS, AND THE LIKE

FIELD OF THE INVENTION

This invention relates to automatically presettable copy counters for automatic printers and the like and, more particularly, to such an automatically presettable copy counter which is simpler and cheaper, safer, easy to install, and permits the use of code characters or scanning indicia on an original and of a type which can be applied in a simple manner without the use of additional apparatus and which also can be read free of error without major expense for precision.

BACKGROUND OF THE PRIOR ART

In automatic printing machines, or similar machines, a long standing disadvantage has been that the presettable copy counter had to be set by hand to the desired value prior to each printing or reproduction. In order to save this time-consuming work, methods and devices for automatic setting of the copy counter have already been suggested and developed. These methods and devices are of the type where the desired number of copies is recorded in code on the original which is to be introduced automatically into the printing machine, and in the form of electronically readable characters which can be read by a corresponding reading unit and which are fed to a value storage. The value storage is connected to a comparison device to which counting pulses are fed from a sheet counter, and which transmits a control signal to the printing machine when the number of reproduced copies equals the value previously supplied to the value storage, in order to disconnect or interrupt the printing or reproduction operation.

Such a device is known, for example, from published German Patent application DAS 1,803,925. In the known device, there is suggested the exclusive use, on the original, of code characters which can be read electronically, for example, characters of magnetic ink which are read magnetically, holes, or dark markings which are read photoelectrically.

A disadvantage of these known devices is that they are relatively expensive and complicated, and require a special current supply unit. Both the reading units and the guides for the original must meet high requirements with respect to precision. In addition, specially developed mechanisms are required for applying the code characters on the printed original, which further increases the total costs of the known devices.

SUMMARY OF THE INVENTION

In accordance with the invention, a number of pivotally mounted control levers are positioned in the path of movement of the original for deflection by the leading edge of the original. These control levers actuate respective electric switch means. Each original has, in its leading edge, one or more forwardly opening cutouts or recesses, representing the desired number of copies, and which effect a delayed deflection of correspondingly located control levers and corresponding delayed actuation of the associated electric switch means.

This solution offers very important advantages. For example, the entire reading or scanning unit can consist of simple, strictly mechanically working parts, of which only a very small number is required. The code characters or markings, in the form of forwardly opening cutouts or recesses in the leading edge of each original, can be easily applied and assure adequate reading or scanning precision, even if normal manufacturing tolerances are maintained. Additionally, the entire device can be mounted, at any time and even subsequently, on existing machines and can be connected to any source of electric potential.

As a feature of the invention, it is additionally provided that the electric switching means are contact switches which are actuated mechanically by the associated feed control levers, and either represent a value storage or are connected, in a known manner, to a value storage. The use of contact switches as the switching means, and which contact switches preferably can be microswitches, has many advantages as compared to the use of electronic switching means.

On the one hand, these contact switches can be installed easily and, on the other hand, they are inexpensive and reliable. It is further possible to use them simultaneously as value storages, or connect them to any other value storage. In combination with the first mentioned features of the invention, another essential advantage arises from the fact that the electric switching means of the reading or scanning unit embodying the invention can always be switched or transferred in the voltage-free state, so that the switching means not only have a long service life, with no wear of contacts by sparking, but also are reliable in operation.

These contact switches, in accordance with a further feature of the invention, can be connected, in a known manner, to a relay storage and can be used to set a value storage designed as a binary counting unit supplied by a counting pulse generator whose individual stages consist of flip-flops.

As a further development of the invention, the electric switching means are mounted, in the form of single pole double throw microswitches, on a holder and in a row extending transversely of the path of movement of the original, with the feed control levers for the several switches being pivotally mounted on a shaft extending parallel to the row of microswitches. Due to the use of single pole double throw microswitches as electric switching means, and each of which can assume the switching position "L" or "O," it is very simple to use these microswitches themselves as value storages, and to include them in a coincidence circuit as well as to design the coding on the original so that it can be read readily, even by laymen, in real values.

Further features of the invention reside in the pivotal mounting of the holder for the microswitches, and in the control levers being provided with projections which are engaged by an electromagnetically operated switch rod which turns those control levers which have been deflected without delay by the leading edge of an entering original out of the path of the original.

Due to these measure, which can be realized in a very simple manner at very little cost, it is readily possible to use the switching means, arranged on the holder in cooperation with the control levers, as value storages. On the other hand, there is the advantage that the actuation of the switching means need not be effected by the force exerted by the entering original, but can be effected by the electromagnetically operated switch rod. On the one hand, this increases the reliability and,

on the other hand, does not slow down the original in its passage through the reading or scanning unit.

As a further development of the invention, the holder has, above the backs of the projections of the control levers, a stop bar which effects turning of the holder when those feed control levers which are deflected without delay are swung out by the switch rod from the path of the original, and an entraining bar which swings the other control levers, through a small distance, out of the path of the original during turning of the holder.

This measure assures, in a simple manner, that the relative position between those feed control levers deflected with delay and those feed control levers deflected without delay is maintained during deflection of all the control levers from the path of the original. That is, only those control levers which were deflected by the uninterrupted leading edge of the original actuate switches before the switch rod becomes operative, and the other control levers, which engage into the coded cutouts, cannot actuate the associated switches.

As a further feature, the control levers deflected without delay are moved, by the switch rod, sufficiently far with respect to the holder that they actuate the associated switches, while the other control levers have no influence on their associated switches.

In accordance with another feature of the invention, an additional feed control lever is provided for the control of the electromagnet or electromagnets actuating the switch rod, and is operable to actuate an additional fixedly mounted switch. With this additional control lever and switch, it is possible to actuate the switch rod in a simple and reliable manner at the proper moment, controlled by the original itself, which also influences the other control levers in correspondence with their coding, in the sense of a varying deflection, so that the time relation, necessary for control of the switch rod, is positively assured. Due to the fixed arrangement of the switch associated with the additional control lever, it is additionally possible to actuate this additional switch by the associated control lever for a length of time sufficient for the original to pass completely through the reading unit, so that the electromagnet or electromagnets actuating the switch rod are, on the one hand, excited sufficiently long to set the desired counting value correctly, by actuating the switching means through the control levers in correspondence to the coding of the original, and, on the other hand, to de-energize these electromagnets automatically again. It naturally is also possible, with a corresponding dimensioning of the electromagnet or electromagnets, to leave the latter energized during the entire following counting period, and to store the scanned values in the switches.

However, in accordance with a further feature of the invention, it is advisable to associate, with the switch rod, a releasable locking device which locks the control levers and the switches in a closed position until the counting and printing processes are completed. This has the advantage that the electromagnets actuating the switch rod need be energized only briefly, and can be both connected and disconnected from a source of potential by the additional control lever. It is further advantageous and simple to provide for this locking device to be released electromagnetically by the control signal at the end of the counting process. With the release of this locking device, all parts of the reading or scanning unit return into their original positions so that a new original can be introduced and read or scanned immediately thereafter.

The switches actuated by the control levers are, in accordance with a further development of the invention, included in a coincidence circuit in which single pole double throw switches are also arranged on the opposite side and are actuated by a counter corresponding to the code of the value storage, these further switches being stepped up in the cycle of the production of the copies. As a result, the entire counter is very simple, inexpensive and reliable in its operation.

It is advantageous and expedient to design the counter so that it has a number of control discs actuating the associated single pole double throw switches, which number corresponds to the number of control levers, and which discs are combined and driven in correspondence with the code key of the value storage.

Preferably, the cutouts on the leading edge of the original are U-shaped, V-shaped, or rectangular. The application of the cutouts to the original is facilitated considerably if the cutouts are pre-marked in the original by corresponding tear-out perforations. With this arrangement, it is possible to provide the cutouts by hand in correspondence to the desired number of copies, without using any tool or, if necessary, by means of an available pointed object, for example, a pencil, a paper clip, etc.

An object of the invention is to provide an improved automatically presetting copy counter which is simpler and cheaper.

Another object of the invention is to provide such a counter which is safer and easier to install.

A further object of the invention is to provide such a counter which permits the use of code carriers on an original which can be applied in a simple manner and without additional means.

Another object of the invention is to provide such a copy counter which can be read error-free without any major expense for precision.

For an understanding of the principles of the invention, reference is made to the following description of a typical embodiment thereof as illustrated in the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. **1** is a plan view illustrating the leading edges of four originals coded with respective different values;

FIG. **2** is a schematic representation of the arrangement of the reading or scanning unit in a printing machine;

FIG. **3** is a top plan view of the reading or scanning unit;

FIG. **4** is a sectional view taken on the line IV—IV of FIG. **3** illustrating different operating positions of the parts;

FIG. **4***a* is a section taken on the line iv*a*—IV*a* of FIG. **3**;

FIG. **5** is a view similar to FIG. **4** but illustrating the parts in a different position;

FIG. **6** is a side elevation view of the locking mechanism, which has been omitted from FIGS. **4** and **5** to clarify the illustrations therein;

FIG. **7** is a schematic wiring diagram of a coincidence circuit usable with the invention; and

FIG. **8** is a somewhat schematic view of a counter.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring first to FIG. 2, a schematically illustrated automatic printing machine 1 has a foil roll 2 and an inking roll 3. Foil roll 2 has an automatic clamping means, which has not been shown, by means of which an original, such as a printed original, 5 fed along a slideway 4 by driving means, which have not been illustrated, can be retained on roll 2 and ejected therefrom again. The printed original 5 can be, for example, a zinc oxide foil, which is fed automatically from a copier 6, or can be a metal foil or any other record support in sheet form suitable as a printed original.

Turning now to FIG. 1, the leading edge portions of four printed originals 5 are illustrated with U-shaped cutouts 8 provided on the leading edges 7. Cutouts 8 are arranged according to a certain code key, for example, a binary code, and represent numerical values which correspond to desired number of copies which are to be reproduced from the respective original 5. In the illustrated example, a maximum number of twelve cutouts 8 can be provided in correspondence with the reading or scanning unit described hereinafter. The four cutouts 8 in the left hand group represent the "hundreds" tetrad, the four central cutouts 8 represent the "tens" tetrad, and the four right hand cutouts 8 represent the "ones" tetrad. Reading from left to right, the following numerical values are associated with the individual cutouts in the following order:
100, 200, 400, 800, then 10, 20, 40, 80, and then 1, 2, 4, 8. Consequently, a maximum value of 1665 can be represented, that is, with these 12 cutouts 8 and the corresponding reading unit, it is possible to set a maximum count of 1665 copies in the counter.

The cutouts 8 of the second printed original 5 in FIG. 1 represent the number 173, the cutout 8 of the third printed original 5 represents the number 800, and the two cutouts 8 of the fourth printed original 5 represent the number 60. It will be readily apparent that the maximum selectable number can be increased easily by adding additional cutouts and widening the reading unit 10 (FIG. 2) correspondingly.

In the automatic introduction of a new original 5 into the printing machine, and onto its foil roll 2, the original passes automatically along slideway 4 through reading unit 10, which reads the numerical values represented on the original by the corresponding cutouts 8. As best seen in FIGS. 3 through 6, reading unit 10, in the embodiment selected for illustration, comprises a horizontal shaft 11 extending transversely of the feeding direction or path of movement of the original 5. On shaft 11, there are mounted a total of twelve feed control levers 12, which can be deflected individually and independently of each other. The lateral center-to-center spacing of the individual juxtaposed control levers 12 is equal to the center-to-center spacing of the individual cutouts 8 of the original 5 as shown in FIG. 1 at the top. The arrangement of levers 12 with respect to slideway 4 is such that a respective control lever 8 can dip, with its finger 13, into each cutout 8 provided in an original 5.

In their rest position, fingers 13 of control levers 12 protrude into correspondingly arranged slit-shaped openings 14 of slideway 4. On the edge opposite the original contacting edge 15, each lever 12 has a projection 16 with a downwardly opening recess 17, the back edge 18 of each lever being rectilinear. At its upper end, each lever 12 has a switch arm 19 connected to one end of a return spring 20, and the other ends of springs 20 are connected to hooks 21 arranged on a stop bar 22 which, in its rest position, is substantially vertical. The bottom edge of stop bar 22 is provided with a stop cushion 23 which extends laterally over the back edges 18 of all the control levers 12.

Each control lever 12 has operatively associated therewith a respective microswitch M1 – M12 which can be actuated by switch arm 19 of the associated control lever 12. These microswitches are secured in a row on a holder 24 in groups of four, corresponding to the groups of control levers 12. Holder 24 has, at its lower end, an entraining bar 25 on which the contacting edges 15 of control levers 12 bear when the control levers are in the rest position. Entraining bar 25 serves, simultaneously, as a cushion stop and to limit the pivotal movement of levers 12 under the bias of their respective return springs 20.

Holder 24, which extends over the entire length of the row of control levers 12, is fixedly connected with stop bar 22 by two side pieces 26 and 27, as shown in FIG. 3. Side pieces or connectors 26 and 27 are pivotally mounted on shaft 11, so that holder 24, with microswitches M1 – M 12, can be turned, together with stop bar 22. The rest position of holder 24 and stop bar 22 is determined by a tension spring 28, connected between stop bar 22 and a fixed anchor, which exerts a counterclockwise bias on holder 24 to bias entraining bar 25, positioned at the bottom of holder 24, toward a stationary stop 29.

At the bottom ends of two tongues 30 and 31, extending substantially vertically adjacent the longer sides of slideway 4, there is secured a switch rod 32 extending throughout the length of the row of control levers 12, and whose rest position is illustrated in FIG. 4. Tongues 30 and 31 are connected, by pin-slot joints 33, 34, with pivoted switch levers 35 and 36, respectively, which are pivotally mounted on respective stationary journals 37 and 38. The shorter arms 39 and 40 of the respective switch levers 35 and 36 are connected, by pin slot joints 41, 42, respectively, with the respective armatures 43, 44 of two electromagnets 45, 46. Switch rod 32 is biased by tension springs 47 and 48 into a rest position, when electromagnets 45 and 46 are not energized, and in which it is spaced from projections 16 of control levers 12 when the latter are likewise in their rest position. When the respective control levers 12 are deflected by the front edge 7 of an original 5, recesses 17 of projections 16 are positioned above rod 32, as the leading edge 7 of original 5 deflects certain control levers through a distance corresponding to the depth of the cutouts 8.

To control electromagnets 45 and 46, an additional control lever 77 is also arranged on shaft 11, but has no projection. Lever 77 is operatively associated with a switch 78 fixedly mounted on a separate holder 79 which is secured on one bearing block 50 of shaft 11. Holder 79 also has a stop 51 for control lever 77, this stop being stationary, however, and control lever 77 has a switch arm 52 to which is connected one end of a return spring 53 whose other end is fixedly anchored. Switch arm 52, upon pivoting of control lever 77, actuates switch 78.

In the range of motion of switch rod 32, there are arranged laterally two locking levers 55 pivotally

mounted on stationary journals **54** and which are biased by springs **56** into rest positions. Levers **55** form a lock for switch rod **32** and which prevents switch rod **32** from returning automatically or prematurely into its starting position from the position represented in FIG. **5**, in which it holds certain control levers **12** in operating position, when electromagnets **45** and **46** are de-energized by a corresponding opening of switch **78**.

To release locking levers **55** from the locked position, and for releasing switch rod **32**, there are provided respective electromagnets **57** and **58** each having an armature **59** pivotally connected to the respective locking lever **55**. Excitation of electromagnets **57** and **58** can be controlled by the control signal emitted at the end of the counting operation, or from a signal from the machine.

As illustrated in the schematic wiring diagram of FIG. **7**, the single pole double throw microswitches M1 – M12 are included, together with single pole double throw microswitches Z1 – Z12, in a coincidence circuit, in one supply line **60** of which there is arranged a switching relay R which has two make or front contacts *r*1 and *r*2. While make contact *r*1 is in series in the energizing circuit of an electromagnet **61**, make contact *r*2 is connected in series in the energizing circuit for electromagnets **57** and **58**, which are connected in parallel with each other, and which control the locking of switch rod **32** as illustrated in FIG. **6**. FIG. **7** also illustrates switch **78** as connected in series in the energizing circuit of electromagnets **45** and **46**, which are connected in parallel with each other, and which actuate switch rod **32**.

While microswitches M1 – M12 are actuated by control levers **12**, as mentioned above, microswitches Z1 – Z12 are actuated by respective cam discs K1 –K12, as shown in FIG. **8**. Cam discs K1 – K4 are secured on a common shaft **62**, cam discs K5 – K8 are secured on a second common shaft **63**, and cam discs K9 – K12 are secured on a third common shaft **64**. On shaft **62**, there is non-rotatably secured a 15-teeth ratchet **65** which is stepped, by one tooth division, by a pawl **66** actuated by an electromagnet **67** at each counting pulse which is produced by a pulse generator, which has not been shown, responsive to each production of a copy. After each complete revolution of shaft **62** with cam discs K1 – K4, shaft **63** is stepped by a corresponding step by a control mechanism **68**, and, correspondingly, shaft **64** is stepped after each complete revolution of shaft **63**, by a control mechanism **69**. Cam discs K1 – K12 are so designed that they set the correct or actual counting value on the associated microswitches Z1 – Z12 corresponding to the stepping of shaft **62** in accordance with the code used.

In the printed original **5** shown in FIG. **3**, only seven of the possible twelve cutouts are provided, while the other possible cutouts **8'** are indicated, at the proper points, by tear-out perforations on original **5** along the leading edge **7** and can be formed into cutouts **8** by tearing out the appropriate tear slip. The cutouts of original **5** as illustrated in FIG. **3** represent the number **760**.

The described device operates in a manner which will now be set forth. After entering reading or scanning unit **10** in the direction of arrow **70**, front edge **7** of an original **5** initially strikes against those control levers **12**, as well as the additional control lever **77**, at the points where no cutouts **8** are provided, and deflects these levers, as illustrated in FIGS. **4** and **4***a*, while traveling along a path length corresponding to the depth of cutouts **8**, through a certain angle. Due to this deflection or rotation, recesses **17** of projections **16** of those control levers **12** turned without delay arrive in a position which is exactly above the later path of motion of switch rod **32**, but in which the respective switch arms **19** do not yet actuate the corresponding microswitches M1 – M **12**. During this time, those control levers **12** which have entered a respective cutout **8** remain in their rest positions. Shortly before the control levers **12** entering cutouts **8** reach, during further movement of original **5**, the bottom ends of the associated cutouts, switch **78** is actuated by additional control lever **77**, and energizes electromagnets **45** and **46**. The resultant retraction of armatures **43** and **44** pivots the associated levers **35** and **36** to pull up the respective tongues **30** and **31** which move switch rod **32** upwardly, as illustrated in FIG. **5**. Switch rod **32** thus enters recesses **17** of projection **16** of those control levers **12** which have already been deflected, and swings the latter, with actuation of the corresponding microswitches M1 – M **12**, against stop bar **22** and its cushion **23**. During this movement, stop bar **22** and holder **24**, with microswitches M1 – M12 arranged thereon, are turned to the position shown in FIG. **5**.

At the end of the switching movement of switch rod **32**, locking levers **55** drop, in rest position, under switch rod **32** and retain the latter in the position shown in FIGS. **5** and **6**. Thus, in this position, all those microswitches M1 – M12 associated with a control lever **12** deflected without delay are switched from "L" to "O," the undelayed control levers being those which are engaged by switch rod **32**. During pivotal movement of holder **24**, those control levers **12** which did not engage the front edge **7** of original **5**, due to the presence of a corresponding cutout **8**, are also turned out of the path of original **5** by entraining bar **25**. The relative relation between these now pivoted control levers **12** and holder **24**, mounting the associated microswitches M1 – M12, is not changed, which means that these control levers do not actuate their associated microswitches so that the latter remain switched to "L."

As soon as original **5** has passed completely through reading or scanning unit **10**, additional control lever **77** falls back into its rest position and opens switch **78**, so that electromagnets **45** and **46** are de-energized. However, due to locking levers **55**, switch rod **32** remains in its locking position so that the corresponding microswitches M1 – M12 are also retained in their respective control positions. The values fed in this manner are stored, so that one side of the coincidence circuit illustrated in FIG. **7** thus is set to a desired counting value. With each copy produced thereafter, the counting mechanism is stepped up by one step, as mentioned above, until microswitches Z1 – Z12 are set to the desired counting value when the desired number of copies has been reproduced and coincidence is established in the coincidence circuit of FIG. **7**. At this moment, switching relay R is excited so that, on the one hand, electromagnet **61** is energized through make contact *r*1 and electromagnets **57** and **58** are energized by make contact *r*2 and pull locking levers **55** out of the locking position, to allow switch rod **32**, biased by springs **47**, to return to its rest position in which all control levers **12**, under the bias of their respective return springs **20**,

are returned to their rest or starting positions together with holder **24** and stop bar **22.**

As soon as the original is ejected from foil cylinder **2** of printing machine **1,** the cycle, and the introduction of a new original, can start again, after the corresponding operations for disconnecting the machine or interrupting the printing and ejecting the old foil have first been initiated by electromagnet **61.**

While a specific embodiment of the invention has been shown and described in detail to illustrate the application of the principles of the invention, it will be understood that the invention may be embodied otherwise without departing from such principles.

What is claimed is:

1. In an automatically presettable copy counter, for automatic printers, copiers and the like of the type in which automatically introduced originals are provided with scannable indicia representing the desired number of copies to be reproduced the originals are conducted through a scanning means which scans the indicia and supplies a corresponding electric counting value which is stored and compared with the actual counted number of copies reproduced, and a reproduction terminating signal is produced when the stored counting value is equal to the actual counted number, the improvement comprising, in combination, said scanning means including a plurality of pivotally mounted control levers positioned in the path of movement of the original for deflection by the leading edge of the original; and respective electric switch means actuable by said levers responsive to such deflection thereof; each original having, in its leading edge, at least one forwardly opening recess, at a selected position, laterally of said leading edge, corresponding to a mathematical code and effecting delayed deflection of the correspondingly located lever and corresponding delayed actuation of the associated electric switch means.

2. In an automatically presettable copy counter, the improvement claimed in claim **1,** in which said switch means are contact switches actuated mechanically by the associated control levers; said contact switches constituting a value storage.

3. In an automatically presettable copy counter, the improvement claimed in claim **1,** in which said electric switch means are contact switches actuated mechanically by the associated control levers; and a value storage connected to said contact switches.

4. In an automatically presettable copy counter, the improvement claimed in claim **3,** in which said value storage is a relay storage.

5. In an automatically presettable copy counter, the improvement claimed in claim **3,** in which said value storage is a multi-stage binary counting unit having pulses supplied thereto by a counting pulse generator whose individual stages consist of flip-flops and which generator is presettable by said contact switches.

6. In an automatically presettable copy counter, the improvement claimed in claim **1,** in which said electric switch means are single pole double throw microswitches; a holder mounting said microswitches in a row extending transversely of the path of movement of an original; and a shaft extending parallel to said row and pivotally mounting said control levers.

7. In an automatically presettable copy counter, the improvement claimed in claim **6,** including means pivotally mounting said holder.

8. In an automatically presettable copy counter, for automatic printers, copiers and the like of the type in which automatically introduced originals are provided with scannable indicia representing the desired number of copies to be reproduced, the originals are conducted through a scanning means which scans the indicia and supplies a corresponding electric counting value which is stored and compared with the actual counted number of copies reproduced, and a reproduction terminating signal is produced when the stored counting value is equal to the actual counted number, the improvement comprising, in combination, said scanning means including a plurality of pivotally mounted control levers positioned in the path of movement of the original for deflection by the leading edge of the original; respective electric switch means actuable by said levers responsive to such deflection thereof; each original having, in its leading edge, at least one forwardly opening recess effecting delayed deflection of a correspondingly located lever and corresponding delayed actuation of the associated electric switch means; said electric switch means being single pole double throw microswitches; a holder mounting said microswitches in a row extending transversely of the path of movement of an original; a shaft extending parallel to said row and pivotally mounting said control levers; means pivotally mounting said holder; each of said control levers being formed with a projection; and an electromagnetically operated switch rod engageable with the projections of those control levers which have been deflected without delay by the leading edge of an original, to swing the same out of the path of movement of the original.

9. In an automatically presettable copy counter, the improvement claimed in claim **8,** including a stop bar on said holder extending along the back edges of said projections of said control levers; said stop bar pivoting said holder when those control levers deflected without delay are swung by said switch rod out of the path of the original; and an entraining bar on said holder engageable with those control levers deflected with delay, due to engaging in associated recesses in the leading edge of the original, to swing the same through a certain angular distance out of the path of movement of the original during pivoting of said holder.

10. In an automatically presettable copy counter, the improvement claimed in claim **9,** in which those control levers deflected without delay by the leading edge of the original are moved by said switch rod sufficiently far, relative to said holder, that they actuate the associated switches; the other control levers being deflected by said entraining bar a distance insufficient to actuate their associated switches.

11. In an automatically presettable copy counter, the improvement claimed in claim **10,** including electromagnet means operable, when energized, to operate said switch rod; an additional control lever pivotally mounted on said shaft and engaged by the leading edge of an original; and an additional fixedly mounted switch actuated by said additional control lever and controlling energization of said electromagnet means.

12. In an automatically presettable copy counter, the improvement claimed in claim **11,** including disengageable locking mechanism associated with said switch rod and operable to lock said control levers and the associated switches in the deflected position until completion of the reproduction process.

13. In an automatically presettable copy counter, the improvement claimed in claim **12**, in which said locking mechanism is released electromagnetically by a control signal at the end of the counting procedure.

14. In an automatically presettable copy counter, for automatic printers, copiers and the like of the type in which automatically introduced original are provided with scannable indicia representing the desired number of copies to be reproduced, the originals are conducted through a scanning means which scans the indicia and supplies a corresponding electric counting value which is stored and compared with the actual counted number of copies reproduced, and a reproduction terminating signal is produced when the stored counting value is equal to the actual counted number, the improvement comprising, in combination, said scanning means including a plurality of pivotally mounted control levers positioned in the path of movement of the original for deflection by the leading edge of the original; respective electric switch means actuable by said levers responsive to such deflection thereof; each original having, in its leading edge, at least one forwardly opening recess effecting delayed deflection of a correspondingly located lever and corresponding delayed actuation of the associated electric switch means; said electric switch means being single pole double throw microswitches; a holder mounting said microswitches in a row extending transversely of the path of mogement of an original; a shaft extending parallel to said row and pivotally mounting said control levers; said single pole double throw microswitches being connected in a coincidence circuit including an equal number of three-pole counter-actuated microswitches each in series correspondence with one of said control lever actuated microswitches; a counter operable to actuate said counter-actuate microswitches in correspondence with the code of the value storage; and means operable to step said counter in the cycle of the production of copies.

15. In an automatically presettable copy counter, the improvement claimed in claim **14**, in which said counter includes a number of cam discs corresponding to the number of said counter-actuated switches and each operatively associated with a respective one of the latter; the number of cam discs being equal to the number of said control levers; said control levers being arranged in tetrad groups corresponding to the code key; said discs being combined and driven in tetrad groups corresponding to the code key.

16. In an automatically presettable copy counter, the improvement claimed in claim **1**, in which said forwardly opening recesses are U-shape.

17. In an automatically presettable copy counter, the improvement claimed in claim **1**, in which said forwardly opening recesses are V-shape.

18. In an automatically presettable copy counter, the improvement claimed in claim **1**, in which said forwardly opening recesses are rectangular.

19. In an automatically presettable copy counter, the improvement claimed in claim **1**, in which said forwardly opening recesses are pre-marked in the original by corresponding tear-out perforations.

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