April 24, 1951 G. L. McCARTHY 2,550,644

ENDORSING MACHINE

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FIG. 1.

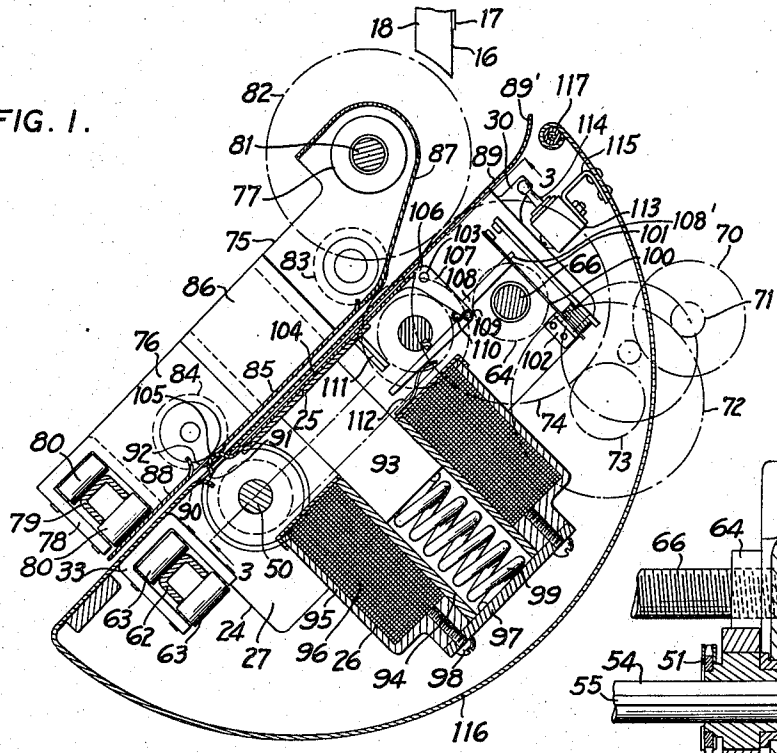


FIG. 3.

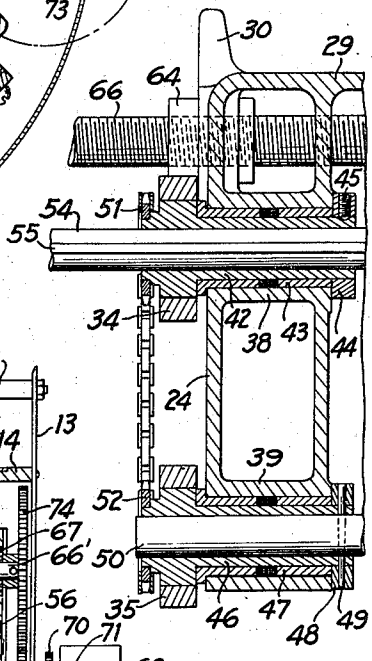
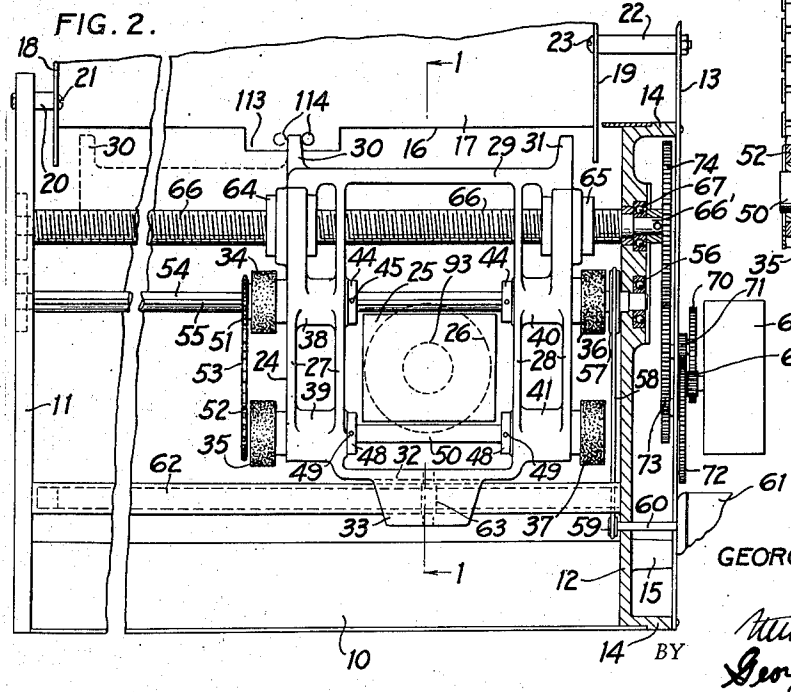


FIG. 2.



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ENDORSING MACHINE

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1 Claim. (Cl. 101—316)

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The present invention relates to an endorsing machine and more particularly to an endorsing machine for checks or the like.

Known endorsing machines provide the marking or endorsement in substantially the same position on each document or check or on the same document or check which may be marked or endorsed several times. Frequently, a negotiable instrument is endorsed several times and when such endorsements are effected in the same or similar machines the several endorsements are made one over the other so that it becomes extremely difficult, if not impossible, to read any or all of the endorsements.

The primary object of the present invention is the provision of an endorsing machine in which the relative position of the marking or endorsement is varied so that it is unlikely that successive endorsements of a document or check will interfere with or obliterate each other.

Another object of the invention is the provision of a marking assembly to which documents are introduced from a guideway, and a means or arrangement for relative movement between the assembly and guideway.

A further object of the invention is the provision of an endorsing machine including a marking assembly, a stationary guideway and translating means for relatively moving the marking assembly with respect to said guideway.

Still another object of the invention is the provision in an endorsing machine of a marking assembly, stationary guideway and translating means for transverse relative movement of the marking assembly with respect to the direction of document movement from the guideway into and through the marking assembly.

A still further object of the invention is the provision in an endorsing machine of transverse supports for the marking assembly and for transversely moving the same with respect to a stationary guideway and/or for operating a document advancing means of the marking assembly.

Other and further objects of the invention will be suggested to those skilled in the art by the disclosure which follows:

The above and other objects of the invention are embodied in an endorsing machine comprising a marking assembly having a document path and for marking upon a document in said path, a guideway for directing the document into the document path of said assembly, and an operating means relatively moving said guideway and assembly with respect to each other. Preferably, the guideway is stationary and the marking assembly is moved with respect thereto. In general, the relative movement of the marking assembly and guideway is transversely of the direction of document movement from the guideway into and through the marking assembly. While the illustrated embodiment shows a stationary guideway and transverse movement of the marking assembly with respect thereto, it shall be definitely understood that either or both the marking assembly and guideway may be moved to obtain relative movement therebetween and such relative movement may be longitudinally of the direction of document movement.

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Reference is hereby made to the accompanying drawings wherein similar reference characters designate similar elements and wherein:

Fig. 1 is a vertical section through the marking assembly taken on the line 1—1 of Fig. 2.

Fig. 2 is a plan elevation of the endorsing machine with the top half of the marking assembly removed.

Fig. 3 is a fragmentary section on the line 3—3 of Fig. 1.

As shown, the endorsing machine comprises a frame, a guideway mounted thereon, a marking assembly movable with respect to said guideway, and means for moving said assembly with respect to said guideway and for operating document advancing means on or associated with said assembly.

The aforementioned frame comprises a base plate 10, a side plate 11, a side frame 12 and a side plate 13 in spaced relation to said side frame 12. The side frame 12 has lateral flanges 14 and a spacer 15 to which the side plate 13 is attached.

The guideway 16 preferably is trough-shaped and has a bottom 17 and side flanges 18 and 19. Said guideway 16, when made stationary, is mounted upon the frame member by means of a sleeve 20 and bolt 21 between side plate 11 of the frame member and side flange 18 of the guideway and by means of a sleeve 22 and bolt 23 between side plate 13 and side flange 19.

The marking assembly may be provided in two halves for ease of assembly of the machine and to facilitate cleaning or servicing thereof. The lower half of the marking assembly comprises a frame member 24, a platen 25, an electromagnet 26 and a control therefor. Document advancing rollers are mounted upon both halves of the marking assembly in a manner to be described.

The frame member has side walls 27 and side walls 28, an end wall 29 carrying projections 30 and 31 and has an end wall 32 including a U-shaped support 33.

The document advancing means preferably

comprises rollers 34, 35, 36 and 37 which are respectively rotatably mounted in bushings 38, 39, 40 and 41 between pairs of side walls of the frame member 24. The roller 34 has a sleeve 42 provided with a keyway, for a purpose to be later described, and rotates in a bearing sleeve 43 in bushing 38, a collar 44 being attached to sleeve 42 by a set screw 45. The mounting for the roller 36 is similar to that for roller 34 and need not be described in more detail. Roller 35 has a sleeve 46 rotatable in a bearing sleeve 47 in bushing 39 and carries a collar 48 fastened thereto by a pin 49. Roller 37 is similarly mounted and a shaft 50 extends through rollers 35 and 37 which are attached for rotation therewith by the pins 49. Each of the rollers 34 to 37, inclusive, may be covered with a friction material for better engagement with the document or checks. A sprocket 51 is affixed to roller 34 and a sprocket 52 is affixed to roller 35 and a chain 53 encircles said sprockets 51 and 52 so that rollers 35 and 37 rotate simultaneously with roller 34.

A transverse shaft 54 has a longitudinal key 55 complementary to the keyway in the sleeves 42 for rollers 34 and 36 and is rotatably mounted at one end in a ball bearing 56 in side frame 12 and at the other end in side plate 11. A pulley 57 is mounted upon said shaft 54 and is encircled by a belt 58 which also encircles a pulley 59 on the shaft 60 of a motor 61 attached to side plate 13. Upon operation of motor 61 the shaft 54 is rotated through the pulley and belt connection just described, rollers 34 and 36 are rotated by the key 55 and rollers 35 and 37 are rotated through the connecting chain 53. As a result, rollers 34, 35, 36 and 37 are rotated simultaneously even though the frame member 24 is moved along shaft 54.

A channel-shaped bar 62 has its opposite ends mounted respectively on side plate 11 and on side frame 12. Guide rollers 63, rotatably mounted in opposite legs of U-shaped support 33, engage opposite sides of said bar 62 to support one end of the frame member 24 but permitting movement thereof.

The translating means for the marking assembly comprises threaded bushings 64 and 65 mounted respectively in the side walls 27 and 28 of the frame member 24. A threaded rod 66 is rotatably mounted in side frame 12 by a ball bearing assembly 67 and may be similarly rotatably mounted at the other end in side plate 11. Said threaded rod 66 engages the threaded bushings 64 and 65 on frame member 24 so that upon rotation thereof the frame member is moved along shaft 54 and channel-shaped bar 62. The drive of said translating means comprises a motor 68 driving a gear 69 on the shaft thereof. Any suitable reduction gearing may be interposed between the driving motor 68 and threaded rod 66. For example, the gear 69 meshes with the gear 70 integral with a gear 71 in mesh with a gear 72 which carries a gear 73 meshing with a gear 74 mounted upon an extension 66' of threaded rod 66. The gear pairs 70—71 and 72—73 are rotatably mounted in a known manner upon side plate 13. When the driving motor 68 is operated the gear train just described drives the threaded rod 66 for rotation thereof and transverse movement of the frame member 24. For reasons to be mentioned the driving motor 68 should be reversible.

The upper half of the marking assembly comprises a frame member 75 which may have the same general form as frame member 24 and which comprises side walls 76 including threaded bushings 77 and having a U-shaped support 78 at the other end thereof. A channel-shaped bar 79, like bar 62, is supported between side plate 11 and side frame 12 and rollers 80 in the U-shaped support 78 engage opposite sides of the bar 79 for support of the marking assembly permitting movement thereof. A second threaded rod 81 is rotatably mounted between side plate 11 and side frame 12 in the same manner as threaded rod 66 is mounted and carries a gear 82 meshing with the gear 74 of the drive for threaded rod 66. Said rod 81 is in threaded engagement with the bushings 77 so that upon operation of motor 68, rod 81 is rotated and bushings 77 are moved therealong.

Said frame member 75 also carries a pair of rollers 83 and a pair of rollers 84 which are opposite to and in peripheral engagement with said rollers 34 to 37, inclusive. The rollers 83 and 84 are freely rotatable and serve as reaction rollers to rollers 34 to 37, inclusive. A reaction plate 85 is mounted upon a central support 86 of the frame member 75. The frame member 75 also carries a guide apron 87 at one end and a guide plate 88 at the other end thereof and forming with reaction plate 85 one side of a document guideway or path through the marking assembly. A lower guide plate 89 is mounted on the lower frame member 24 and has a curved end 89'. A second guide plate 90 is mounted on the lower frame member 24 opposite the guide plate 88 on the upper frame member 75. The guide plates 89 and 90 form the other side of the document guideway or path. An opening 91 is provided between guide plates 89 and 90 and an opening 92 is provided between reaction plate 85 and guide plate 88 for a purpose later to be described.

The platen 25 is mounted upon a post 93 which is slidable in and supported by a sleeve 94 within electro-magnet 26. Said electro-magnet has a cylindrical casing 95, a coil 96 therein and an end plate 97 attached to casing 95 by screws 98. A coil spring 99 is placed between post 93 and said end plate 97 within the sleeve 94 and normally presses platen 25 against the reaction plate 85.

The marking assembly also includes type or other means for impressing or marking upon a document between platen 25 and reaction plate 85. It may also be that a strip of carbon ribbon will be placed between the document and the well known type or impression member. Inasmuch as the marking means such as stamps or impression members are well known, it is not necessary to describe the same in detail. However, it is to be understood that the invention is not limited to the type of marking means and contemplates the use of embossing, printing or other means of marking upon a document.

The control for the platen member of the marking assembly comprises a pair of normally open contact arms 100 and 101 mounted by a bracket 102 upon the frame member 24 such as the wall 27 thereof. Said contact arms 100 and 101 are connected in a known manner in series with the coil 96 across any suitable source of electricity. A control lever 106 is rotatably mounted by a pivot 103 to said frame member 24 or the side wall 27 thereof and has an arm 104 extending along guide plate 89 and having a curved end 105 extending through opening 91 and into opening 92 between the guide plates

forming the document path. Control lever 106 has an arm 107 carrying a rod 108 pivotally mounted thereto and urged in a clockwise direction by a wire spring 109 until a pin 110 on rod 108 engages the edge of arm 107. A reduced end 108' of rod 108 extends through an opening in contact arm 100 and has a shoulder adapted to engage the face of contact arm 100. The other end of rod 108 is in the path of a post 111 on the rear of platen 25. A leaf spring 112 on the top of solenoid casing 95 may also engage said other end of rod 108 to return it to its normal position.

When a document is moved through the document path or between reaction plate 85 and guide plate 89 as by said rollers 34 to 37, 83 and 84, the curved end 105 of control lever 106 is moved in a counter clockwise direction as seen in Fig. 1, or downwardly so that arm 107 and rod 108 are moved toward contact arm 100 to close the contacts on arms 100 and 101, to complete an energizing circuit through coil 96 and to retract the post 93 and platen member 25 against the action of coil spring 99. After predetermined retraction of platen 25 the post 111 strikes one end of rod 108 to turn it in a counter clockwise direction and to disengage its shoulder from the face of contact arm 100 which thereupon normally opens. This interruption of the solenoid energizing circuit permits the spring 99 to act and move the platen 25 against the document and the reaction plate 85 rapidly to create an impression, imprint or other marking upon the document. The advantage of electro-magnet retraction of the coil spring 99 which actuates the platen member 25 is that more uniform impression or imprinting is obtained in spite of any variations in line voltage in the source of supply.

Inasmuch as the endorsing machine is usually operated continuously, there should be some arrangement for reversing the relative movement between the marking assembly and guideway. To this end a switch 113 having an arm 114 is mounted by a bracket 115 on the inside of a semi-circular guard 116 mounted between side plate 11 and side frame 12 to cover the undersurface of the lower half of the marking assembly. Such guard 116 may be pivotally mounted upon a hinge 117 extending between said side plate 11 and side frame 12. The switch arm 114 extends into the space between projections 30 and 31 on the frame member 24 and said switch 113 is connected, in a known manner, into the operating circuit for motor 68 so that the same will be operated in one direction in one position of switch arm 114 and in another direction in the other position of switch arm 114. Assume that the marking assembly or frame member 24 is moved toward the right in Fig. 2, when projection 30 strikes switch arm 114, the operating circuit to motor 68 will be changed for reversal of said motor 68 whereupon the threaded rods 66 and 81 are rotated in the opposite direction and the marking assembly including frame members 24 and 75 is moved in the opposite direction or toward the left as viewed in Fig. 2. When the marking assembly has moved to its extreme lefthand position, the projection 31 will abut the switch arm 114 and move it to the dotted line position shown in Fig. 2 for another reversal of the motor 68 and return of the marking assembly in the original direction. The reversing switch and reversible motor disclosed herein are merely illustrative and other means of reversing the movement of the marking assembly at the extremes of its travel may be used without departing from the scope of the invention. For instance, double threads in the rods 66 and 81 may accomplish automatic reversal or oscillating movement of the marking assembly without the need of a reversing switch.

The operation of the endorsing machine according to the invention will now be described. In stand-by condition the motors 61 and 68 are operating so that threaded rods 66 and 81 are rotating and rollers 34 to 37, 83 and 84 are turning. The document is then advanced along a guideway 16, being guided by side flanges 18 and 19 and its leading edge is introduced into the bights between the document advancing rollers by guide apron 87 and guide plate 89. Inasmuch as the marking assembly is being moved transversely the distance between the stationary guideway 16 and the bights of the document advancing rollers is preferably only slightly greater than the usual dimension of the document in the direction of document movement. The rollers 34, 36 and 83 advance the document past reaction plate 85 and into engagement with the curved end 105 of the control lever 106 and into the bights between rollers 35, 37 and 84. By movement of control lever 106, the document arm 107 and rod 108 are moved so that the shoulder of arm 107 presses the contact arm 100 against the contact arm 101. With contact arms 100 and 101 so made the coil 96 is energized and platen 25 is retracted. The coil energizing circuit is interrupted by the post 111 on platen 25 in a manner already described and the platen 25 is spring pressed toward the document and reaction plate 85. Such action of the platen 25 to create an impression or imprint is so rapid that movement of the document by said rollers 34 to 37, 83 and 84 is not affected. The document is finally discharged between guide plates 88 and 90 by the rollers 35, 37 and 84 to drop into a hopper or other receiver which may be placed upon the base plate 10.

In view of the relative movement between the marking assembly and guideway, successive documents will have the impression made at different positions thereon. For instance, checks being fed sideways through the guideway 16 and through the marking assembly will have the endorsements at progressively increasing distances from the ends. Thus, when a second endorsement is to be made upon a check and is fed into an endorsing machine with relative movement between the guideway and marking assembly it is quite unlikely that the second endorsement will be in the same position as any other previous endorsements on the check. Consequently, a check or other document may receive several impressions or endorsements with only small likelihood that any of the several endorsements will be undistinguishable.

Many modifications of the endorsing machine disclosed herein are possible without departing from the spirit of the invention. The present disclosure is merely illustrative and the scope of the invention is defined by the claim which follows.

Having now particularly described my invention what I desire to secure by Letters Patent of the United States and what I claim is:

In an endorsing machine, the combination comprising a stationary guideway for successively directing discrete documents into a document path, a plurality of supports in spaced relation and extending transversely of said guideway and

path, a frame member supported and movable upon said supports transversely of said guideway and said document path, a document moving means completely mounted upon said frame member and for moving documents in a path transversely of said supports, a marking means completely mounted upon said frame member and for printing on documents being moved by said document moving means, and a frame reciprocating means for continuously moving said frame member to and fro transversely of said guideway and said document path and including a threaded connection between one of said supports and said frame member.

GEORGE L. McCARTHY.

REFERENCES CITED

The following references are of record in the file of this patent:

Number	Name	Date
1,006,474	Fulk	Oct. 24, 1911
1,168,651	Kraus	Jan. 18, 1916
1,965,573	Casto	July 10, 1934
2,181,935	Carroll	Dec. 5, 1939
2,255,010	Lake	Sept. 2, 1941