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R. H. HELSEL
TICKET ISSUING MACHINE
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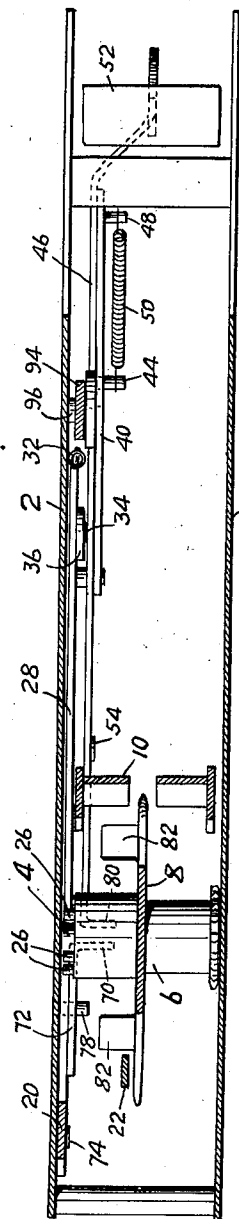


FIG. 2.

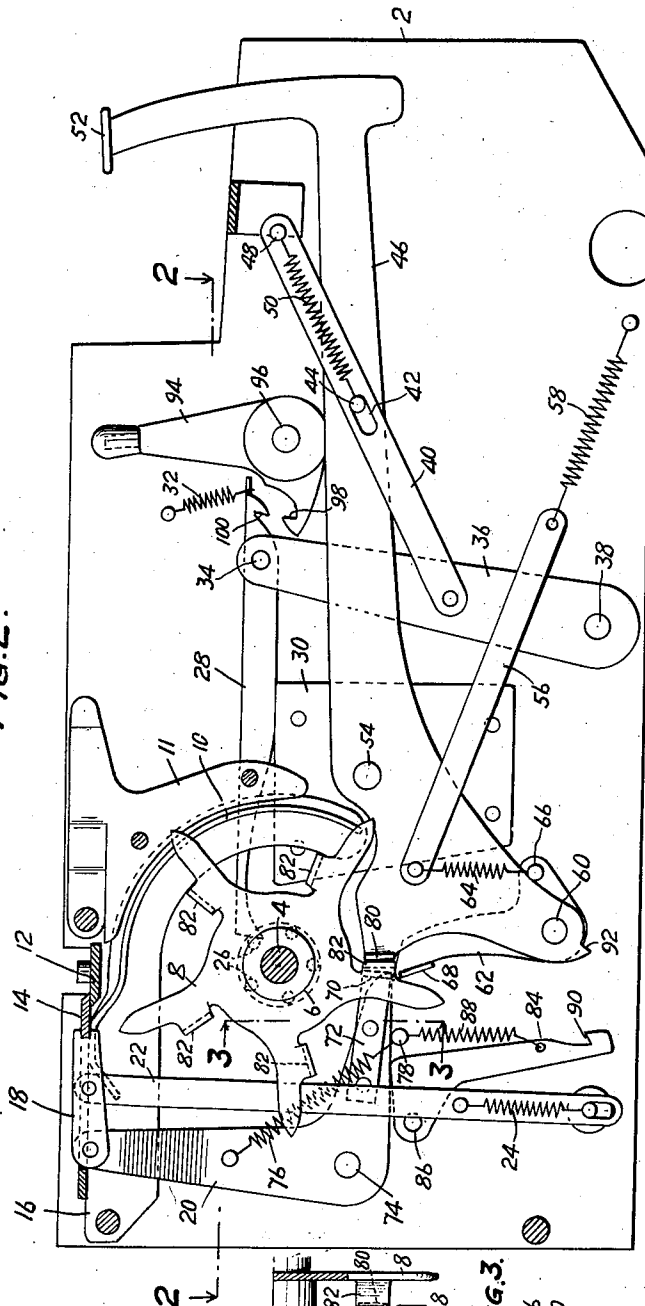


FIG. 1.

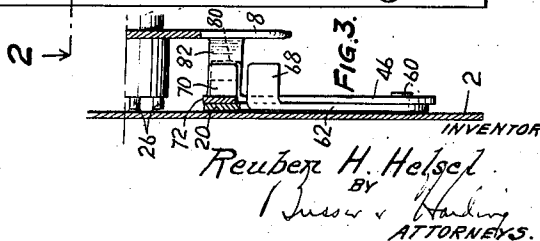


FIG. 3.

WITNESS:

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TICKET ISSUING MACHINE

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10 Claims. (Cl. 164—48)

This invention relates to a ticket issuing machine, and particularly to a machine of the type intended for the issue of single tickets or of the same number of tickets at each operation.

5 While machines designed to issue varying numbers of tickets and of motor driven type are at present commonly used in theaters or the like, there are various instances, as in connection with travelling shows, where machines for issuing and recording the issue of tickets are desired, but 10 where there may not be power available for driving motor operated machines, or where a relatively inexpensive machine must be used despite comparative slowness of operation, or the necessity for manually supplying the power required 15 for the operation of the machine.

It is the object of the present invention to provide a simple machine of the manually operated type which, both in the mode of issue of 20 tickets and from the standpoint of the manipulation by an operator, very closely resembles a motor driven type of machine. That is to say, it is the object of the invention to provide a machine in which tickets may be issued in very rapid succession and which requires relatively little power 25 application by the operator over that required for the operation of motor driven machines. Heretofore, in the case of most hand operated machines the operator has been required to move 30 an actuating device such as a lever or the like through a considerable stroke and with the application of a considerable amount of force. The operations of such machines, furthermore, are generally relatively sluggish and very considerable 35 exertion of force is required. Cutting of individual tickets from a ticket strip is also usually relatively unsatisfactory because to secure a clean cut a very rapid knife action is necessary, which action cannot generally be effected without the 40 exertion of considerable manual force.

In accordance with the present invention, the application of force for the useful purposes of advancing a ticket strip and of severing the same is very efficiently applied with the result that 45 the operator with little effort may rapidly issue tickets with the exertion of little more force than that generally required in the operation of a motor driven machine. In the particular form of the machine which constitutes the preferred 50 embodiment of the invention, single tickets or, at any rate, the same number of tickets are issued at each operation, but it will be obvious that various features of the invention may be applied to the issue of a plurality of tickets.

55 The above general object, as well as more spe-

cific objects of the invention, particularly relating to details of construction, will be apparent from the following description, read in conjunction with the accompanying drawing, in which:

Figure 1 is a vertical section through a ticket issuing unit embodying the principles of the invention;

Figure 2 is a section taken on the plane the trace of which is indicated at 2—2 in Figure 1; and

Figure 3 is a section taken on the plane the trace of which is indicated at 3—3 in Figure 1.

There is illustrated in the drawing a single unit which embodies all of the operating mechanism of the improved ticket issuing machine. A plurality of such units may be associated in a housing beneath a top plate having openings of conventional type. Since the enclosure of such units within housings, however, is quite conventional, there are illustrated and described herein only 20 the details of a single unit.

The unit in its preferred embodiment comprises vertical plates 2 spaced by cross elements and providing bearings for various moving parts of the mechanism located between the plates. 25 Extending transversely between the plates there is a stud 4 on which is mounted the hub of a pinwheel 6 which is provided with a plurality of pin members 8 designed to advance a perforated ticket strip between a fixed guide 10 and a movable guide 11, which may be lifted for the insertion of the strip and the location of holes therein upon the pins 8. The guides 10 and 11 serve to lead the strip between a fixed knife 12 and a movable knife 14, the latter of which is guided 35 upon member 16 and is held down in contact with the fixed knife 12 by means of a pushing link 18 pivoted to a bell crank lever 20 hereafter referred to and urged downwardly by a link 22 and a spring 24 acting upon the link 22.

The hub 6 of the pinwheel is provided with a plurality of axially extending pins 26, there being one pin for each of the pins 8 of the pinwheel. The pins 26 are arranged to be engaged by a pawl 28 which slides upon a plate 30 affixed 45 to one of the plates 2 and is connected at its rear end with a spring 32 reacting between it and the frame to urge it in a counterclockwise direction about its pivotal connection 34 with a lever 36 pivoted at 38 to the frame of the machine. A link 40 pivoted to the lever 36 is provided with a slot 42, which embraces a pin 44 carried by the operating lever 46. A pin 48 is provided on the end of the link 40 and between it and the pin 44 there is arranged a tension 55

spring 50. Normally when the parts are in their raised position the pin 44 is pulled by the spring 50 into the forward end of the slot 42 whereby it is arrested.

5 The operating lever 46 is provided with a manually engageable portion 52 whereby it may be depressed by the operator. The lever 46 is pivoted to the frame at 54 and is normally urged in a counterclockwise direction as viewed in Figure 1 by means of the link 56 and tension spring 58, the latter of which is secured to a pin carried by the frame.

10 At its lower rear portion the lever 46 has pivoted to it at 60 a member 62, which is normally urged in a counter-clockwise direction about its pivot 60 by a spring 64 to a position limited by contact of a stop pin 66 with the lower end of the lever 46. The member 62 is provided with a turned portion 68 providing an ear, more clearly illustrated in Figure 3, which is adapted to engage a turned abutment 70 of a bar 72 fixed to the forwardly extending leg of the bell crank 20, which is pivoted at 74 and urged by a spring 76 to an extreme clockwise position delimited by a stop pin 78. When the bell crank 20 rests against the stop pin 78 the movable knife 14 is over the fixed knife 12, as indicated.

The operating lever 46 is provided with a turned abutment 80 which normally lies at approximately the level of the turned portion 70 of the bar 72.

Each of the pins 8 of the pinwheel, which is preferably formed of sheet metal, is provided with a turned lip 82, one of which is designed to lie between the abutments 70 and 80 in any position of rest of the pinwheel. The relative location of the elements 68, 70, 80 and 82 will be clear from a consideration of Figure 3.

A detent 84 is pivoted at 86 to the frame and normally urged in a counter-clockwise direction by means of a relatively weak spring 88, which causes the upper edge thereof to engage the forwardly extending arm of the bell crank 20. The lower end of the detent 84 has a hook portion 90 adapted to engage a corresponding hook 92 on the operating lever 46.

In order to lock the mechanism against operation there is provided a lever 94 pivoted at 96 to the frame and provided with a hook 98 adapted to engage within a notch 100 in the forward end of the pawl 28. The lever 94 will be normally located below the usual top plate which is locked in position, and hence cannot be tampered with if the machine is locked by some authorized party.

The pinwheel is preferably connected in conventional fashion by gearing to a suitable counter (not shown).

The operation of the improved ticket issuing machine may now be described. The ticket strip having perforations therein engageable with the pins 8 will be located between the guides 10 and 11, preferably in such fashion that the knives will cut the strip through the perforations in the usual fashion. While the machine as illustrated is primarily intended for the issue of single tickets, two or more tickets might be issued at each operation, providing, for example, duplicates where such are desired.

70 The parts initially are in the position illustrated in the figures. With the pin 44 in the end of the slot 42, there is no tension exerted on the lever 36 to advance the pawl 28. As the operating lever 46 is depressed by manual engagement of its operating end 52, the pin 44

is caused to move rearwardly in the slot 42, whereby tension is applied through the spring 50 to the link 40, tending to move the pawl 28 rearwardly against the pin 26 which it engages.

Rotation of the pinwheel, however, is prevented by engagement of the lip 82 which is in lowermost position with the abutment 80 of the operating lever 46, and consequently as the operating lever 46 is pressed downwardly an increasing amount of tension is placed upon the spring 50 and consequently the pawl 28 exerts a greater and greater force upon one of the pins 26.

During this increase of tension on the spring 50 the ear 68 on the member 62 engages the abutment 70 on the bell crank 20, rocking the bell crank counter-clockwise against the action of the spring 76. This, by reason of the engagement of the upper end of the bell crank with the rear portion of the movable blade 14 causes the blade 14 to move rearwardly, providing a passage between the blades 12 and 14 for the advance of the ticket strip. As the bell crank 20 moves counter-clockwise the detent member 84 follows it and ultimately the hook 90 may snap beneath the rising cooperating notch 92 of the operating lever, thus preventing it from moving in a counter-clockwise direction if released.

As depression of the operating lever 46 continues, the ear 68 of member 62 replaces the abutment 70 of the bell crank 20 behind the lip 82 of the pinwheel which now engages abutment 80. Eventually, the abutment 80 of the operating lever 46 clears the lip 82 on the pinwheel and the complete operation of the mechanism then occurs with extreme rapidity.

First, due to the fact that a considerable amount of tension has now been put on the pawl 28 the pawl snaps rearwardly causing a rapid rotation of the pinwheel and thus advancing the ticket strip between the blades 12 and 14. The pinwheel can advance, however, only through the angular spacing between the pins because as the lip 82 subsequent to that which was heretofore held comes around it engages the gear 68 of the member 62, which yields only to the extent of its engagement with the operating lever 46 and then forms a positive stop for the pinwheel. In such position it is substantially vertically aligned with the abutment 80 of the operating lever 46.

When the lip 82 which strikes the ear 68 forces it forwardly, the abutment 70 on the bell crank 20 is released by ear 68, and consequently the bell crank may be urged in a clockwise direction by the spring 76 to effect operation of the movable blade to sever the ticket strip. It will be noted that the knife is not released until the pinwheel has fully advanced to a position to engage the ear 68, and consequently premature operation of the knife will not take place, but operation occurs only after the ticket strip has been properly advanced to position to be cut.

As the bell crank 20 rocks clockwise, it will engage the detent 84, releasing its hook 90 from the notch 92 in the operating lever. If the knife failed to operate, due, for example, to accumulation of lint or the like, the detent would not be so released, and consequently the operating lever 46 would be prevented from returning to its initial position. This would mean that the machine could not be operated for the issue of a succeeding ticket and warning would be given that the knife had failed to operate properly.

Following the severing, the operator may release the lever 46 and it will return to its original position under the action of the spring 58. As

the operating lever rises, the ear 68 of the member 62 will clear the lip 82 on the pinwheel and will move rearwardly under the action of the spring 64 to its original position below the abutment 70 on the bell crank 20. The abutment 80 of the operating lever 46 will follow it downwardly in front of the lip 82 on the pinwheel, which, being located between 70 and 80, will be restrained against both forward and rearward movement. Thus there is no possibility of pulling the strip out of the machine by free rotation of the pinwheel. As the lever 46 returns to its original position, the pawl 28 will ride over the pin newly presented to it and fall in front of it due to the action of the spring 32 in preparation for the issue of the next ticket.

The successive steps in the operation of the machine just described actually take place with extreme rapidity. To secure complete operation it is only necessary for the operator to strike the operating end of the lever 46. The interlock of the various parts, as described above, prevents the knife from operating prematurely and prevents the return of the lever 46 until the knife has operated. However, since the pinwheel and knife are advanced under spring action, there is no perceptible delay in the return of the operating lever after it is pushed downwardly to its pinwheel-releasing position. Tickets may thus be issued one after the other as fast as the operator can impart successive blows to the operating lever 46.

Despite the rapid action thus afforded the operation of the machine is very easy. Even though the movement of the operating lever is relatively small, the tension is applied to the spring 50 throughout the entire movement, serving to build up a quite considerable force for the advance of the pinwheel. In view of this considerable force, rotation of the pinwheel is at a quite rapid rate and, as indicated above, the complete operation of the machine in advancing and severing the ticket strip takes place in a short interval which is, from the practical standpoint, of no operation-delaying consequence.

While the preferred embodiment of the invention has been described in detail, it is obvious that various changes may be made in details of construction without departing from the scope of the invention.

What I claim and desire to protect by Letters Patent is:

1. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for simultaneously imparting operating stresses to said feeding means and said severing means, means preventing operating of the feeding means despite the application of the stress thereto, means rendering said preventing means inoperative, means for preventing operation of the severing means to sever the ticket strip despite the application of the stress thereto, and means for rendering the last named means inoperative upon completion of the operation of the feeding means to advance the ticket strip.

2. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for building up an operating stress upon said feeding means, means for holding said feeding means against ticket feeding movements during the building up of said stress and then releasing the feeding means for feeding movement under the stress, means for building up an operating stress upon

said severing means, and means effective to produce operation of said severing means due to said stress to sever the ticket strip only after the ticket feeding means completes a ticket feeding movement.

3. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for building up an operating stress upon said feeding means, means for holding said feeding means against ticket feeding movements during the building up of said stress and then releasing the feeding means for feeding movement under the stress, means for building up an operating stress upon said severing means including a pair of engageable elements, and means effective to produce operation of said severing means due to said stress to sever the ticket strip only after the ticket feeding means completes a ticket feeding movement, said last means including means moving with the feeding means for disrupting the engagement of said engageable elements.

4. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for building up an operating stress upon said feeding means, means for holding said feeding means against ticket feeding movements during the building up of said stress and then releasing the feeding means for feeding movement under the stress, means for building up an operating stress upon said severing means including a pair of engageable elements, and means effective to produce operation of said severing means due to said stress to sever the ticket strip only after the ticket feeding means completes a ticket feeding movement, said last means including means moving with the feeding means for disrupting the engagement of said engageable elements, one of said engageable elements serving to limit movement of said feeding means.

5. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for actuating said ticket feeding means, means for building up an operating stress upon said severing means including a pair of engageable elements, and means effective to produce operation of said severing means due to said stress to sever the ticket strip only after the ticket feeding means completes a ticket feeding movement, said last means including means movable with the feeding means for breaking the engagement of said engageable elements.

6. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for actuating said ticket feeding means, means for building up an operating stress upon said severing means including a pair of engageable elements, and means effective to produce operation of said severing means due to said stress to sever the ticket strip only after the ticket feeding means completes a ticket feeding movement, said last means including means movable with the feeding means for disrupting the engagement of said engageable elements, one of said engageable elements serving to limit movement of said feeding means.

7. A ticket issuing means comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for actuating said feeding means, spring means for operating said severing means, means comprising a member acting upon said severing means to stress said

spring means, and to prevent operation of the severing means under the action of the spring means to sever the ticket strip, and means for discontinuing the action of said member upon the severing means when the feeding means completes a ticket feeding movement.

8. A ticket issuing means comprising means for feeding and guiding a ticket strip, means for severing the ticket strip, means for actuating said feeding means, spring means for operating said severing means, means comprising a member acting upon said severing means to stress said spring means and to prevent operation of the severing means under the action of the spring means to sever the ticket strip, and means for disrupting the action of said member upon the severing means when the feeding means completes a ticket feeding movement, said member serving to limit movement of said feeding means.

9. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means

movable to apply a stress to the feeding means tending to move it to feed the ticket strip, means for preventing ticket feeding movements of said feeding means during application of the stress thereto, and means for effecting release of the feeding means from said preventing means through movement of said movable means after the stress is applied.

10. A ticket issuing machine comprising means for feeding and guiding a ticket strip, means movable to apply a stress to the feeding means tending to move it to feed the ticket strip, means for preventing ticket feeding movements of said feeding means during application of the stress thereto, means for effecting release of the feeding means from said preventing means through movement of said movable means after the stress is applied, and means for arresting the ticket feeding movement of said feeding means following a predetermined feeding movement.

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