May 15, 1956 F. HASELOFF 2,745,341

PRINT ROLL SECURING MEANS

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Fig.1

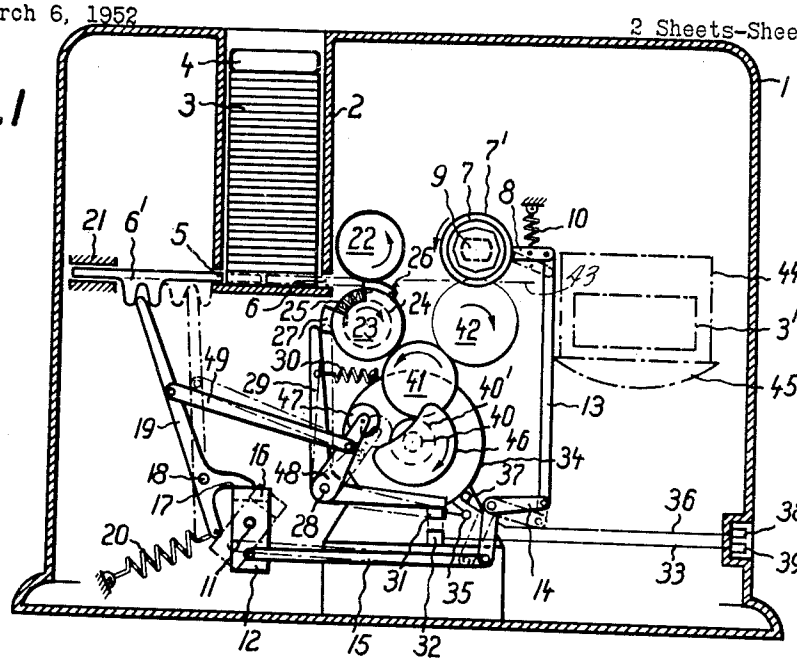


Fig.2

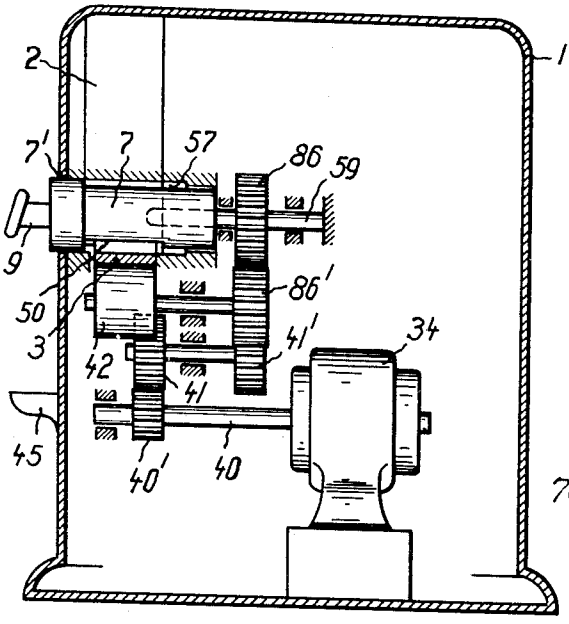


Fig.4

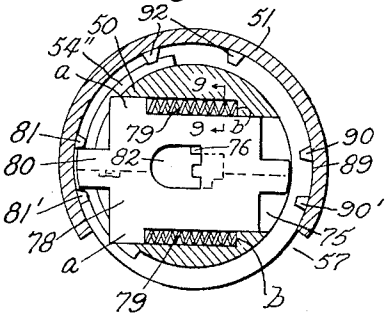
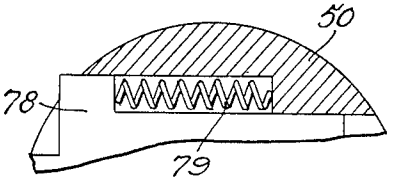


Fig.8



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PRINT ROLL SECURING MEANS

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Fig.3

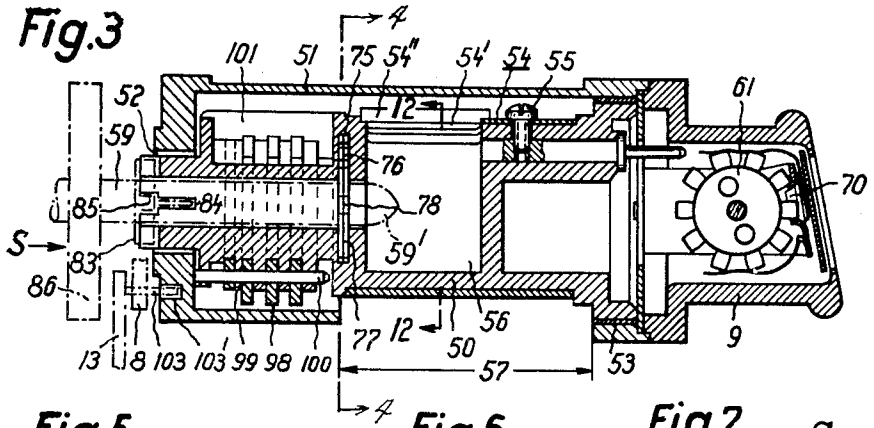


Fig.5

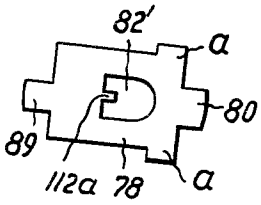


Fig.6

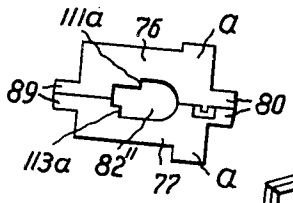


Fig.7

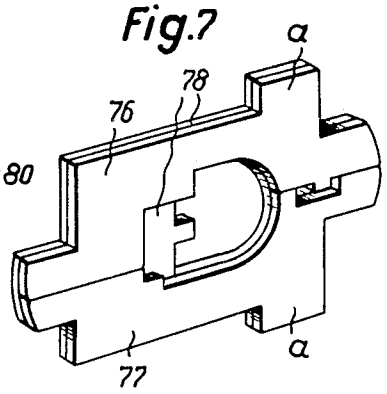


Fig.12

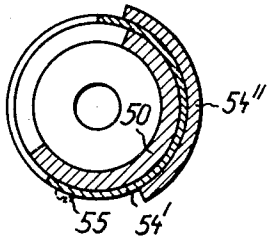


Fig.9

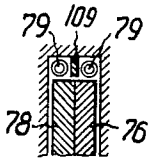


Fig.10

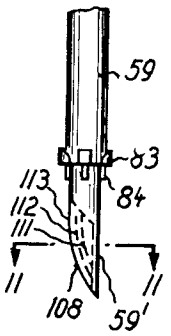


Fig.13

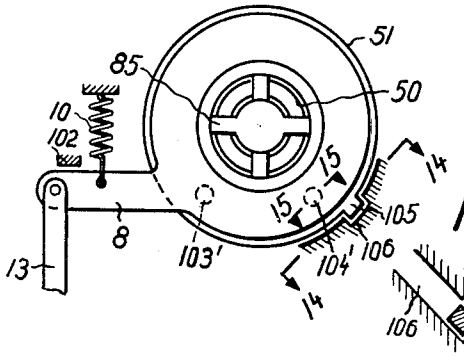


Fig.14

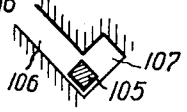


Fig.11

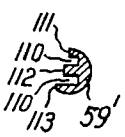
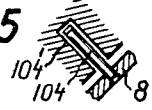


Fig.15



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PRINT ROLL SECURING MEANS

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Application March 6, 1952, Serial No. 275,058

8 Claims. (Cl. 101—212)

The present invention relates to a printing apparatus.

More particularly, the present invention relates to a printing apparatus adapted to be removably mounted in a printing machine so as to print tickets, for example. This printing apparatus may be used to print railroad tickets, for example.

One of the objects of the present invention is to provide a printing apparatus of the above type with a locking means to prevent unauthorized use of the printing apparatus.

The objects of the present invention also include decreasing the cost of known printing apparatus of the above type as well as improving the operation thereof.

With the above objects in view, the present invention mainly consists of a printing apparatus which comprises a casing having a printing roller mounted therein for rotation with respect thereto. A bearing is mounted in the casing and engages the roller to support the same for rotation. A locking means is mounted on the roller and casing to prevent rotation of the former with respect to the latter except when the printing apparatus is mounted in the printing machine, this locking means being made of a plurality of movable locking members having cut away portions adapted to cooperate with a key-shaped end of a drive shaft of the printing machine to be moved to an open position. A spring means is operatively connected to the locking members to urge the same to a locking position where an end of the locking members is located against the inner surface of the casing and between a pair of projections thereon so as to prevent rotation of the printing roller with respect to the casing, this casing having a plurality of additional projections located on the inner surface thereof to prevent rotation of the printing roller when the locking members are moved against the action of the spring means beyond a predetermined distance.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a schematic elevational view of a printing machine adapted to cooperate with the printing apparatus of the present invention;

Fig. 2 is a schematic elevational partly sectional view of the apparatus of Fig. 1 as seen from the right, Fig. 2 showing the position of the printing roller in the apparatus and the drive for the printing roller as well as a card being printed;

Fig. 3 is a side sectional view of the printing apparatus of the present invention;

Fig. 4 is a sectional view of the structure of Fig. 3 taken along the line 4—4 thereof in the direction of the arrows;

Fig. 5 is an elevational view of a lock member shown in Figs. 3 and 4;

Fig. 6 is an elevational view of two additional lock members adapted to cooperate with the lock member of Fig. 5 and shown also in Fig. 4;

Fig. 7 is a perspective view of the lock members shown in Figs. 5 and 6 in cooperative relationship;

Fig. 8 is an enlarged fragmentary view of part of the structure shown in Fig. 4, illustrating the spring tensioning of a lock member within the body of the printing apparatus;

Fig. 9 is a fragmentary sectional view taken along the lines 9—9 of Fig. 4 in the direction of the arrows and shows a part of the lock apparatus of the invention;

Fig. 10 is a fragmentary elevational view of a detail of the drive shaft of the printing machine;

Fig. 11 is a sectional view taken along the line 11—11 of Fig. 10 in the direction of the arrows and shows a part of the drive shaft which forms an unlocking key;

Fig. 12 is a sectional view of a printing roll and is taken along the line 12—12 of Fig. 3 in the direction of the arrows;

Fig. 13 is a fragmentary view of a part of the printing machine as viewed in the direction of arrow S of Fig. 3;

Fig. 14 is a sectional view taken along the line 14—14 of Fig. 13 in the direction of the arrows; and

Fig. 15 is a sectional view taken along the line 15—15 of Fig. 13 in the direction of the arrows.

Referring now to the drawings, there is diagrammatically shown in Figs. 1 and 2 the housing 1 of a printing machine. Mounted on this housing 1 is a supply chute 2 adapted to contain a plurality of blanks 3 upon which various data is to be printed, these blanks 3 being urged toward the bottom of the chute 2 by the weight 4. The chute 2 is formed adjacent its lower end with a pair of opposite slits 5, 6 so that the lowest blank 3 may be moved to the right, as viewed in Fig. 1, by an elongated pusher member 6' which enters through slit 5 and forces the lowest blank 3 out through opening 6. The printing apparatus of the present invention is designated by numeral 7 in Fig. 1 and is inserted into the machine through an opening in the front wall of housing 1, this front wall not being shown in Fig. 1.

As will be more fully described below, the printing apparatus 7 comprises an outer casing which, when the apparatus 7 is inserted into the machine, engages a lever 8. The printing apparatus 7 is provided with a handle 9 so that the casing of the printing apparatus may be turned after it is set into the machine, this turning of the casing causing a turning of the lever 8 in a downward direction against the action of spring 10.

This downward movement of lever 8 causes the pawl member 12 to turn in a clockwise direction, as viewed in Fig. 1, to the dotted line position shown in Fig. 1 This movement of pawl 12 is derived from the bar 13 which is pivotally connected at one end to the lever 8 and at an opposite end to the bell crank lever 14 which is pivotally connected to the bar 15, this bar 15 being connected to the pawl 12 as illustrated in Fig. 1.

The pawl 12 consists of an upper, rearwardly bent portion 16 which engages an extension 17 of lever 19 which is mounted for pivotal movement on the pin 18, so that when the portion 16 of pawl 12 engages extension 17, as shown in solid lines in Fig. 1, the lever 19 is maintained in the illustrated solid line position against the action of spring 20. Thus, when handle 9 is turned to cause a clockwise turning of pawl 12, as described above, the lever 19 is released to the action of spring 20 which turns this lever in a clockwise direction, about pivot 18 as viewed in Fig. 1, to the dotted line position illustrated in Fig. 1.

The pusher member 6' is mounted for reciprocating movement in a bearing 21 and comprises a pair of downwardly extending projections between which the upper end of lever 19 is located. Thus, the movement of lever 19 under the action of spring 20 causes the pusher 6' to move through slit 5 and thereby move the lowest blank 3 out through slit 6 toward the rollers 22 and 23.

The roller 22 serves to print such matter as a date, for example, on the blank, and the roller 23 serves as a counter pressure roller to maintain the blank against the roller 22, these rollers 22 and 23 being diagrammatically illustrated in Fig. 1 slightly apart from each other so as to clearly show other features of the printing machine. The roller 23 is formed on its outer periphery with an annular groove in which a ring 24 is located, this ring 24 being rotatable in this groove with respect to the roller 23. The ring 24 is interconnected with the roller 23 by a spring 25 which urges the ring 24 to a predetermined position of rest on the ring 23. The ring 24 is provided with a pair of projections 26 and 27 which are respectively located in different planes, the projection 26 being located in the path of movement of the lowermost blank 3 which is moved out of the chute 2 and the projection 27 being located in the plane of the bell crank lever 29.

The lowermost blank card 3 is moved by pusher 6' between the rollers 22 and 23, and the card 3 thereby engages the projection 26 to turn ring 24 against the action of spring 25 and with respect to the roller 23. This movement of ring 24 causes the projection 27 to move unwardly, as viewed in Fig. 1, out of engagement with the bell crank lever 29 which is pivotally mounted at 28, so that this bell crank lever is released to the action of spring 30 connected thereto. The bell crank lever 29 has an electrical contact 31 mounted thereon, and, when lever 29 is turned by spring 30, this electrical contact 31 moves into engagement with the stationary electrical contact 32 to complete an electrical circuit to the motor 34. The contacts 31 and 32 are located in line 33 of the electrical circuit, this line 33 being joined to the electrical motor at 35. The electrical circuit also includes the line 36 which is joined to the electric motor 34 at 37. The leads 33 and 36 respectively extend to the electrically conductive projections 38 and 39 which are adapted to cooperate with an electric plug interconnected with any suitable source of current, this plug not being shown in the drawings and being adapted to be located in the recess of housing 1 where extensions 38 and 39 are located.

Upon closing of contacts of 31 and 32 in the manner described above, the motor 34 commences to rotate and, as shown in Fig. 2, its shaft 40 drives, through the medium of wheel 40', an intermediate wheel 41 which cooperates with the two rollers 23 and 42. These latter rollers drive, through the medium of intermediate gears, the roller 22 and the printing roller of apparatus 7, these latter rollers having the same peripheral speed as the rollers 23 and 42. Only one of these intermediate gears 86 is shown in dotted lines in Fig. 3.

The direction of rotation of the above described members is shown by the arrows of Fig. 1. The roller 42 forms a counter pressure roller for the printing apparatus 7. The blank 3, which has moved between the rollers 22 and 23 under the action of pusher 6', is now moved, by the motor and drive therefrom, to the right, in the direction of the dotted line 43 of Fig. 1. After this blank passes between the rollers 22 and 23 and has a date, or the like, printed thereon, this blank moves between the printing apparatus 7 and roller 42. Upon passing through printing apparatus 7 and roller 42, the blank has additional subject matter printed thereon, such as railroad ticket information, for example. After passing through the printing apparatus 7 and roller 42, the printed card 3' is received in a collecting chamber 44 which is open on the front side of the housing 1 and comprises a lower collecting dish 45. The elements 3', 44 and 45 are illustrated in dotted lines in Fig. 1.

The entire printing process for a single blank takes place during one revolution of the rollers 22 and 23 as well as the printing apparatus 7 and roller 42. At the termination of this one revolution, the projection 27 of ring 24, which, as soon as the card 3 has left the rollers 22 and 23, is returned by spring 25 to its original position, has turned the bell crank lever 29 against the action of spring 30 so as to move contact 31 away from contact 32 to open the circuit to motor 34 and stop operation of the latter. At this time elements 22, 23 and 7, 42 are again in their original starting position.

During the early part of the rotation of the motor, the pusher member 6' is moved back to its orignal position. This is brought about by a cam 46 mounted on the motor shaft 40 to be rotated thereby. This cam cooperates with a follower roller 47 mounted on a lever 48 which is pivoted at 28. This lever 48 is interconnected with the lever 19 through the medium of bar 49 so that when the cam 46 turns it moves the lever 19 from the dotted line toward the solid line position shown in Fig. 1, so as to thereby move pusher 6' back to its original position. The cam 46 is so shaped that it moves the lever 19 in a counterclockwise direction, as viewed in Fig. 1, through a sufficient distance for the portion 16 of pawl 12 to move beneath the projection 17 under the action of spring 10.

The above described machine is only representative of one possible embodiment of a construction adapted to be used with the printing apparatus of the invention now to be described. This latter printing apparatus may also be used with other types of printing machines.

The printing apparatus of the present invention is illustrated in Fig. 3. This apparatus comprises an outer casing 51 in which a printing roller 50 is located. Fixedly connected to the outer casing 51 at the right-hand part thereof, as viewed in Fig. 3, in a hollow handle 9. The left-hand end wall of casing 51 is formed with a bore 103', shown in Fig. 3, and a bore 104' shown in Fig. 15. These bores 103' and 104' of the casing 51 are adapted to respectively receive pins 103 and 104 extending from a portion of the lever 8 (Fig. 13). In Fig. 13 there is shown the left end wall of the casing 51, as viewed in Fig. 3, and an end of the printing roller 50, this end being adapted to be driven by a free end of a drive shaft which is rotated by gear 86 (Fig. 3). As is shown in Fig. 13, the lever 8 is partly in the form of a ring member which is mounted for rotation in the machine by a bearing which is not illustrated. The spring 10 urges the lever 8 against the stop 102, and the pins 103 and 104 extend from the ring portion of lever 8. In order to properly guide the casing 51 when it is inserted into the machine, this casing is provided with a projection 105 which engages a groove 106, formed in a part of the machine, so that the recesses 103' and 104' will be properly aligned with the pins 103 and 104 to receive the same. The groove 106 is formed at its innermost end with a widened portion 107 (Fig. 14) so that when the casing 51 is in operating position on the machine, the handle 9 may turn the casing, and projection 105 in portion 107 of groove 106, to turn lever 8 against the action of spring 10 to start the operation of the machine, as described above.

The printing roller 50 of the present invention (Fig. 3) is rotatably mounted in the casing 51 by means of the bearing 53 mounted on the inner surface of casing 51. The curved printing stock 54 is fixedly mounted on the printing roller 50 by means of screws 55, one of which is shown in Fig. 3 and another of which is shown in Fig. 12. The printing stock 54 is made up of a base portion 54' upon which the printing portion 54'' is located, these two portions being joined to each other by soldering, for example. The printing roller 50 is formed to the left of screw 55, as viewed in Fig. 3, with an opening 56 over which an end of portions 54' and 54'' are located, as shown in Fig. 3. Upon rotation of printing roller 50, the printing stock moves in the opening 57 of the casing 51

so as to print a card, the roller **42**, diagrammatically illustrated in Fig. 1, extending into this opening **57** to press a blank against the printing stock **54**. The printing roller **50** and casing **51** may be manufactured from a light metal and may be formed by a die casting. No bearing means is required in the opening **52** of the left end wall of casing **51**, as viewed in Fig. 3, because the end portion of printing roller **50** extending through opening **52** is supported, by drive shaft **59**, with clearance in the opening **52**, this drive shaft **59** being shown in dotted lines in Fig. 3.

Mounted on the right hand open end of casing **51**, as viewed in Fig. 3, is the handle **9** which is joined to the casing **51** by screws or the like. This handle **9** is hollow, and a counting mechanism is located therein to indicate how many cards or tickets are printed with the apparatus. Parts of this mechanism, which is not per se a part of the present invention, are illustrated in Fig. 3. A pin **60** is provided with a collar located against the printing roller **50** and has the thickest portion **63** thereof extending into a bore **64** formed in the printing roller **50**. The screw **55**, shown in Fig. 3, extends into this bore **64** to fixedly mount the pin **60** on the printing roller **50**.

Between the handle **9** and casing **51** there is fixedly mounted a ring plate **67** which serves to support a framework formed with a front opening **70**. The counting mechanism is located on the shaft **65**, which is supported by side plates of the framework, and is located behind the gear **61**, as viewed in Fig. 3, this counting mechanism being connected to gear **61** by means of pins **71** extending into the gear so as to be operated thereby. Upon rotation of the printing roller **50**, during the operation of the printing machine, the pin **60** describes a circle in a central cutout of plate **67** and, during each revolution, contacts one of the teeth of gear **61** to move the latter through a distance equal to one tooth. In this manner the number of printed cards is registered on the counting mechanism.

The front face of the handle **9** is provided with a transparent sheet over opening **70** so that the counting mechanism is visible through the front face of handle **9**, as shown in Fig. 3.

When the printing apparatus of Fig. 3 is located outside of the printing machine, the rotation of printing roller **50** with respect to casing **51** is prevented by a locking means. This locking means comprises the locking members **76**, **77** and **78** which are illustrated in Figs. 4, 5, 6, 7, 8, and 9 of the drawings. As is shown in Figs. 4 and 9, the printing roller **50** carries a plurality of springs **79** which respectively bear against shoulders of the lock members **76–78** to urge the left-hand ends thereof, as viewed in Fig. 4, toward the left hand inner surface portion of casing **51**, as viewed in Fig. 4. A thin partition **109** (Fig. 9) is provided to keep the springs **79** apart from each other. The two locking members **76** and **77** have a combined width which is equal to the width of the locking member **78**, these locking members **76** and **77** being located in side by side relation and against the locking member **78** as seen in Fig. 4, the locking members **76** and **77** lie behind the locking member **78**.

The three lock members are illustrated in Figs. 5 and 6. They consist of essentially rectangular sheets formed with specially shaped projections and cutouts as clearly seen in Figs. 5 and 6. Fig. 7 shows the lock members, in perspective view, in cooperative relationship. Members **76** and **77** are placed alongside one another in a common plane superposed in contact with the third lock member **78**, the outer configurations of members **76** and **77** together being the same as the outer configuration of member **78**. These cooperating lock members are placed in a slit **75** in the roller **50**, the slit having parallel side walls and being adapted to receive the lock members at right angles to the roller (see Fig. 3). Fig. 4 is a section through the roller **50** across the slit **75** as viewed in the direction of arrows **4**, and shows the locking members in the slit in locking position. The width of the slit is the same as the width of locking member **78**, so that the cooperating locking members just fit, in the direction of their greater length, into the slit. The roller is formed, adjacent the slit with cutouts so as to present shoulders *b* on either side of the slit, these shoulders being adapted to be located opposite projections *a* on the locking members, so that when the locking members are located within the slit, springs **79** can be placed between shoulders *b* and projections *a* (as seen in Fig. 4, and in enlarged view in Fig. 8) to urge the locking members into locking position.

The above-mentioned left-hand ends of the locking members **76–78** are in the form of tongues **80** which are located between projections **81** and **81'** on the inner surface of casing **51** when the locking members are in their locking position, so that rotation of printing roller **50** with respect to casing **51** is prevented by engagement of tongues **80** with projections **81**, **81'**. Each of the locking members **76–78** is formed in a central part thereof with a cut away portion, one possible configuration of these cut away portions being illustrated in Figs. 5 and 6, the locking members being viewed in a direction opposite to that shown in Fig. 4. The locking member **78** is formed with the cut away portion **82'**, and the locking members **76** and **77** are formed with the cut away portions **82''**.

When the apparatus shown in Fig. 3 is set into the printing machine, the free end **59'** of drive shaft **59** extends through the axial bore at the left end of printing roller **50**, as viewed in Fig. 3, and through the cut outs **82'** and **82''**. This free end **59'** of drive shaft **59** is provided with a grooved curved surface **108** (Fig. 10) so that this free end **59'** is in the shape of a key adapted to cooperate with the cut away portions **82'** and **82''** to move the locking members **76–78** to an open position where the printing roller **50** is free to rotate with respect to the casing **51**. The key-shaped end **59'** of shaft **59** is formed to simultaneously move all of the locking members against the action of springs **79**. The tapered free end of **59'** of shaft **59** is illustrated in Figs. 10 and 11. The shaft **59** is mounted for rotation about a fixed axis in the printing machine so that when the casing **51** is set into the machine, as is partially illustrated in Fig. 13, the key-shaped end **59'** of shaft **59** will move the locking members **76–78** to a central unlocking position. The end **59'** of shaft **59**, adapted to cooperate with the cutouts **82'** and **82''** of the locking members, is tapered as shown in Fig. 10 and is formed with two parallel axially extending grooves **110**. The cross sectional view in Fig. 11 indicates that the end of shaft **59** is so tapered, that ridges **111**, **112** and **113** (between the grooves **110**) project radially different distances from the axis of the shaft **59**. The cutouts **82'** and **82''** are so shaped as to mate exactly with the projections and grooves in the end **59'** of shaft **59**. Thus shoulders **111***a*, **112***a* and **113***a* of the locking members (see Figs. 5 and 6) engage with the ridges **111** to **113** of shaft end **59'** and because of the tapered shape of end **59'**, when the roller **50** is engaged with shaft **59**, the introduction of end **59'** into the locking members forces the latter, against the action of springs **79**, to a central unlocking position where tongues **80** are out of engagement with projections **81** and **81'**. The end portion of roller **50** which extends through opening **52** of casing **51** is formed with a plurality of slots **85**, as shown in Figs. 3 and 13, and key members **83** and **84**, fixedly mounted on shaft **59** (Fig. 10), extend into these slots **85** so as to transmit rotation of shaft **59** to the printing roller **50**. As is shown in dotted lines in Fig. 3, the shaft **59** has fixedly mounted thereon a driving wheel **86** which is joined to the motor **34** in the manner described above (Fig. 2).

In order to provide structure, in addition to that described above, for preventing unauthorized use of the printing apparatus **7** when the latter is located out of the machine, even though the locking cooperation of tongues **80** with projections **81** and **81'** should be interrupted, the locking members are provided with further tongues **89** located opposite to tongues **80** (Figs. 5 and 6), and these

tongues 89 will be located between projections 90 and 90', located on the inner surface of casing 51 opposite to projections 81 and 81' (Fig. 4), if, during unauthorized tampering with locking members 76–78, the latter are moved beyond their central open position. In this way the rotation of printing roller 50 with respect to casing 51 will also be prevented. In the event that unauthorized tampering with the locking means results in partial rotation of the printing roller 50 with respect to casing 51, additional projections 92 are provided on the inner surface of casing 51 (Fig. 4) to engage tongues 89 or 89 so that any rotation of printing roller 50 with respect to casing 51 is impossible unless the locking members are all located in their central open position, which requires a key of the configuration of end 59' of shaft 59 in the particular example illustrated in the drawings. The cut away portions of the locking members and end 59' of shaft 59 obviously may have any desired configuration.

As is apparent from Figs. 3, 4 and 10, when the printing roller 50 is locked in the casing 51, the printing stock 54'', which does the actual printing, is angularly displaced from the window 57.

In Fig. 3 there are also illustrated the segments 98 which cooperate with the price calculating mechanism of the printing machine. These segments 98, which extend only partially about the printing roller 50 so that only the lower ends thereof are shown in section in Fig. 3, are respectively located in annular grooves 99 of the roller 50 and are held in position by the pin 100. The segments 98 act through the opening 101 of casing 51 to cooperate with the price calculating mechanism, the latter forming no part of the present invention.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of printing apparatus differing from the types described above.

While the invention has been illustrated and described as embodied in a printing apparatus particularly suitable for printing railroad tickets and the like, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

What is claimed as new and desired to be secured by Letters Patent is:

1. Printing apparatus, comprising in combination, a casing having an inner surface and having a side wall portion formed with an opening passing therethrough; a printing roller mounted in said casing opposite said opening for rotation with respect thereto, said printing roller carrying a printing stock which extends only part way about the axis of said roller; releasable locking means mounted on said roller and casing to prevent rotation of the former with respect to the latter and to lock said roller in said casing in a position where said printing stock is angularly displaced from said opening, said locking means comprising at least one pair of projections mounted on said inner surface of said casing, at least one locking member mounted on said roller for movement toward and away from said inner surface of said casing, and spring means operatively connected to said locking member for urging the same toward said inner surface of said casing so that an end of said locking member is located between said pair of projections to prevent rotation of said roller with respect to said casing; and release means located in the apparatus for engaging said locking member and moving the latter against the action of said spring means away from said inner surface of said casing and said projections to release said roller for rotation in said casing by said opening thereof, whereby an article in said opening may engage said roller to be printed thereby.

2. Printing apparatus, comprising in combination, a casing having an inner surface and having a side wall portion formed with an opening passing therethrough; a printing roller mounted in said casing opposite said opening for rotation with respect thereto, said printing roller carrying a printing stock which extends only part way about the axis of said roller; releasable locking means mounted on said roller and casing to prevent rotation of the former with respect to the latter and to lock said roller in said casing in a position where said printing stock is angularly displaced from said opening except when said locking means is released, said locking means comprising at least one pair of projections mounted on said inner surface of said casing, at least one locking member mounted on said roller for movement toward and away from said inner surface of said casing, and spring means operatively connected to said locking member for urging the same toward said inner surface of said casing so that an end of said locking member is located between said pair of projections to prevent rotation of said roller with respect to said casing, said locking member being formed with a cut away portion adapted to be engaged by a key to move said locking member away from said projections, against the action of said spring means, to permit rotation of said roller with respect to said casing whereby an article in said opening of said casing may engage the rotating roller to be printed thereby.

3. Printing apparatus, comprising in combination, a casing having an inner surface; a printing roller mounted in said casing for rotation with respect thereto, said printing roller carrying a printing stock which extends only part way about the axis of said roller; locking means mounted on said roller and casing to prevent rotation of the former with respect to the latter and to lock said roller in said casing in a position where said printing stock is angularly displaced from said opening, said locking means comprising a first pair of projections mounted on said inner surface of said casing, at least one locking member mounted on said roller for movement toward and away from said inner surface of said casing, and spring means operatively connected to said locking member for urging the same toward said inner surface of said casing so that an end of said locking member is located between said first pair of projections to provent rotation of said roller with respect to said casing, and a second pair of projections mounted on said inner surface of said casing opposite to said first pair of projections so that, when said locking member is moved beyond a predetermined distance away from said first projections, an opposite end of said locking member will be located between said second pair of projections to prevent rotation of said roller with respect to said casing; and release means located in the apparatus for engaging said locking member and moving the latter against the action of said spring means away from said inner surface of said casing through said predetermined distance away from said first projections to release said roller for rotation in said casing.

4. Printing apparatus, comprising in combination a casing having an inner surface; a printing roller mounted in said casing for rotation with respect thereto, said printing roller carrying a printing stock which extends only part way about the axis of said roller; locking means mounted on said roller and casing to prevent rotation of the former with respect to the latter and to lock said roller in said casing in a position where said printing stock is angularly displaced from said opening, said locking means comprising a first pair of projections mounted on said inner surface of said casing, at least one locking member mounted on said roller for movement toward and away from said inner surface of said casing, and spring means operatively connected to said locking member for urging the same toward said inner surface of said casing so that an end of said locking member is located between said first pair of projections to prevent rotation of said roller with respect to said casing, and a second pair of projections mounted on said inner surface of said casing opposite to said first pair of projections so that, when said locking member is moved beyond a predetermined distance away from said

first projections, an opposite end of said locking member will be located between said second pair of projections to prevent rotation of said roller with respect to said casing, and a plurality of additional projections located on the inner surface of said casing to further prevent rotation of said roller with respect to said casing when said locking member is moved beyond said predetermined distance against the action of said spring means; and release means located in the apparatus for engaging said locking member and moving the latter against the action of said spring means away from said inner surface of said casing through said predetermined distance away from said first projections to release said roller for rotation in said casing.

5. Printing apparatus, comprising in combination, a printing machine having a rotatable shaft formed with a free, key-shaped end; a casing having a side wall portion formed with an opening passing therethrough; a printing roller mounted in said casing opposite said opening thereof for rotation with respect thereto, said printing roller carrying a printing stock which extends only part way about the axis of said roller; support means located on said machine adjacent to said end of said shaft to receive and support said casing; and releasable locking means mounted on said roller and casing to prevent rotation of the former with respect to the latter and to lock said roller in said casing in a position where said printing stock is angularly displaced from said opening when said casing and roller are out of said machine, said locking means mating with said free end of said shaft to be released thereby when said casing and roller are mounted on the machine so as to then permit rotation of said roller with respect to said casing, whereby an article located in said opening thereof may be engaged by said roller to be printed thereby.

6. Printing apparatus, comprising in combination, a printing machine having a rotatable drive shaft formed with a free, key-shaped end; a casing having a side wall portion formed with an opening passing therethrough; a printing roller mounted in said casing opposite said opening thereof for rotation with respect thereto, said printing roller carrying a printing stock which extends only part way about the axis of said roller; support means located on said machine adjacent to said end of said drive shaft to receive and support said casing; releasable locking means mounted on said roller and casing to prevent rotation of the former with respect to the latter and to lock said roller in said casing in a position where said printing stock is angularly displaced from said opening when said casing and roller are out of said machine, said locking means mating with said free end of said drive shaft to be released thereby when said casing and roller are mounted on the machine so as to then permit rotation of said roller with respect to said casing; and key means mounted on said drive shaft and engaging said printing roller, when said locking means is released, to transmit rotation of said drive shaft to said roller, whereby an article located in said

opening of said casing may be engaged by said roller to be printed thereby.

7. Printing apparatus adapted to be removably mounted in a printing machine, comprising in combination, a substantially cylindrical casing having an open end; a printing roller mounted in said casing for rotation with respect thereto and having an end portion extending at least partially through said open end of said casing, said printing roller being formed with an axial bore extending through said end portion thereof; a key in said machine; a plurality of locking members mounted in said roller for movement toward and away from said casing and extending across said axial bore of said roller, said locking members being formed with cooperating cut away portions adapted to receive said key through said axial bore for moving said locking members to a central open position; and spring means mounted on said roller and being operatively connected to said locking members for urging the same to a locking position where an end of said locking members is in engagement with said casing.

8. Printing apparatus adapted to be removably mounted in a printing machine, comprising in combination, a substantially cylindrical casing having an open end; a printing roller mounted in said casing for rotation with respect thereto and having an end portion extending at least partially through said open end of said casing, said printing roller being formed with an axial bore extending through said end portion thereof; a key in said machine; three locking members mounted in said roller for movement toward and away from said casing and extending across said axial bore of said roller, two of said locking members having a total width approximately equal to the width of the third locking member and being located in side by side relation against the latter and said locking members being formed with cooperating cut away portions adapted to receive said key through said axial bore for moving said locking members to a central open position; and spring means mounted on said roller and being operatively connected to said locking members for urging the same to a locking position where an end of said locking members is in engagement with said casing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,171,490	Wood	Feb. 15, 1916
1,563,487	Herb	Dec. 1, 1925
1,715,451	Eller	June 4, 1929
1,962,729	Andrews	June 12, 1934
2,132,403	Davis	Oct. 11, 1938
2,168,457	Strother	Aug. 8, 1939
2,204,577	Davis	June 18, 1940
2,283,130	Sadler	May 12, 1942
2,568,624	Hanson	Sept. 18, 1951
2,587,766	Rouan	Mar. 4, 1952
2,599,278	Osgood	June 3, 1952
2,599,279	Osgood	June 3, 1952