H. J. SMITH.

MUSIC ROLL STENCILING MACHINE.

APPLICATION FILED FEB. 19, 1920.

1,375,331.

Patented Apr. 19, 1921.

3 SHEETS—SHEET 1.

FIG. 2

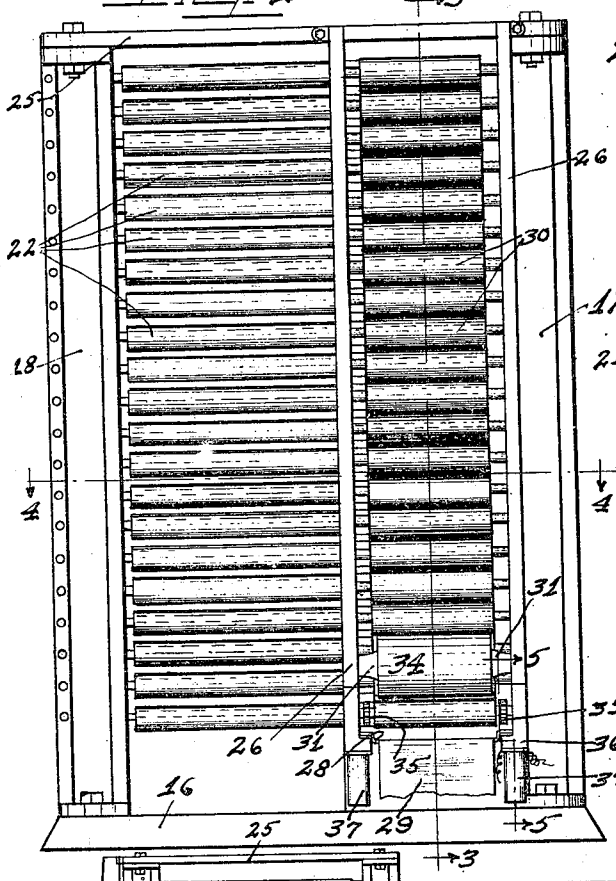


FIG. 3

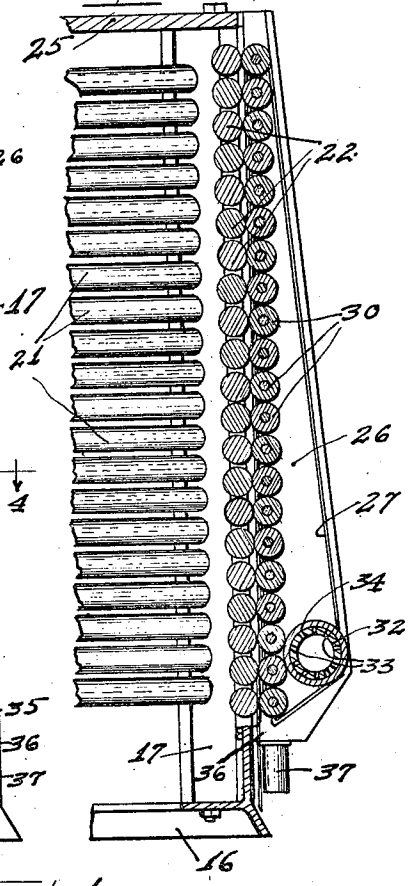
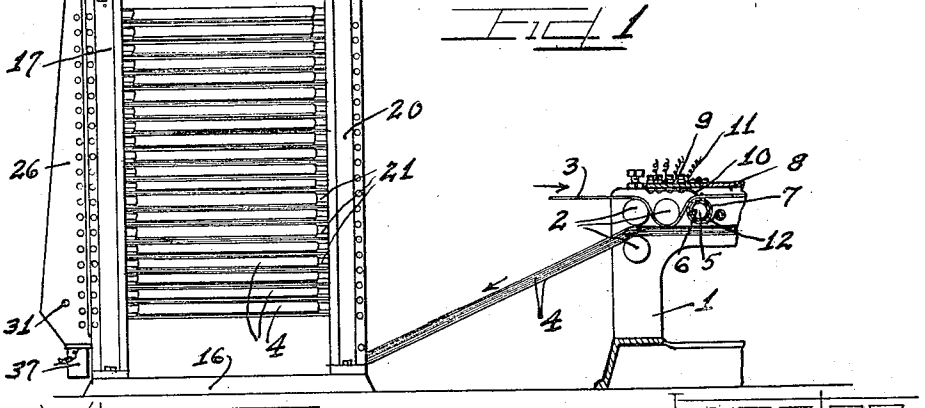


FIG. 1



Witnesses

Rudolph J. Berg.

Inventor

HAROLD J. SMITH.

By Charles W. Hills Atty.

H. J. SMITH.

MUSIC ROLL STENCILING MACHINE.

APPLICATION FILED FEB. 19, 1920.

1,375,331.

Patented Apr. 19, 1921.

3 SHEETS—SHEET 2.

FIG. 4

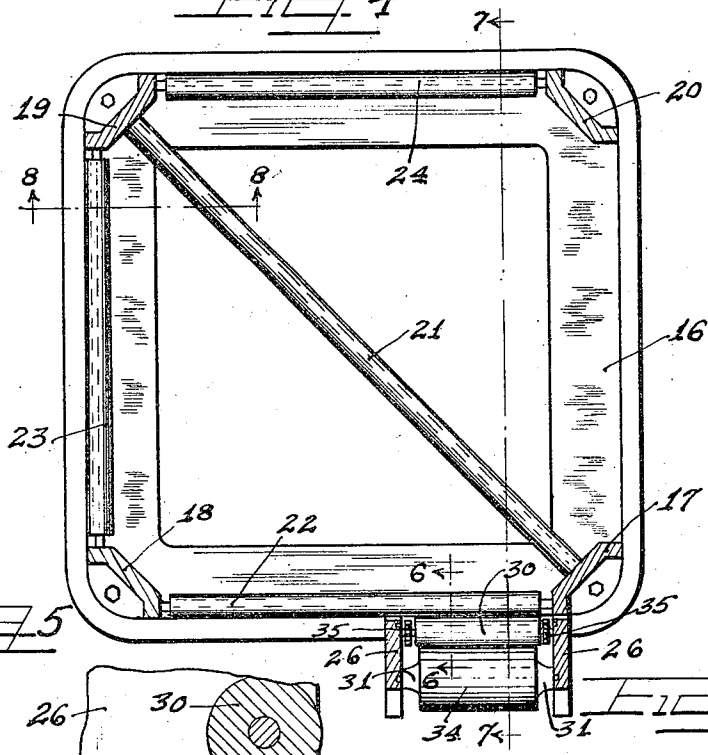


FIG. 5

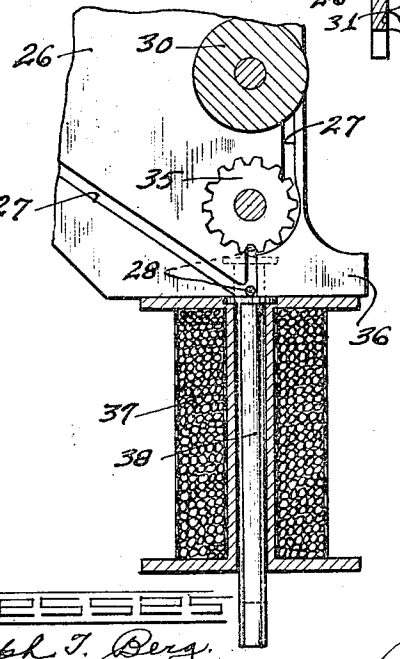
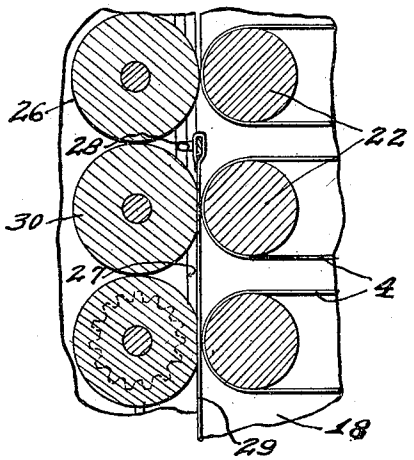


FIG. 6



Witnesses

Rudolph T. Berg.

Inventor

HAROLD J. SMITH.

By Charles O. Fellows Atty.

H. J. SMITH.

MUSIC ROLL STENCILING MACHINE.

APPLICATION FILED FEB. 19, 1920.

1,375,331.

Patented Apr. 19, 1921.

3 SHEETS—SHEET 3.

FIG. 7

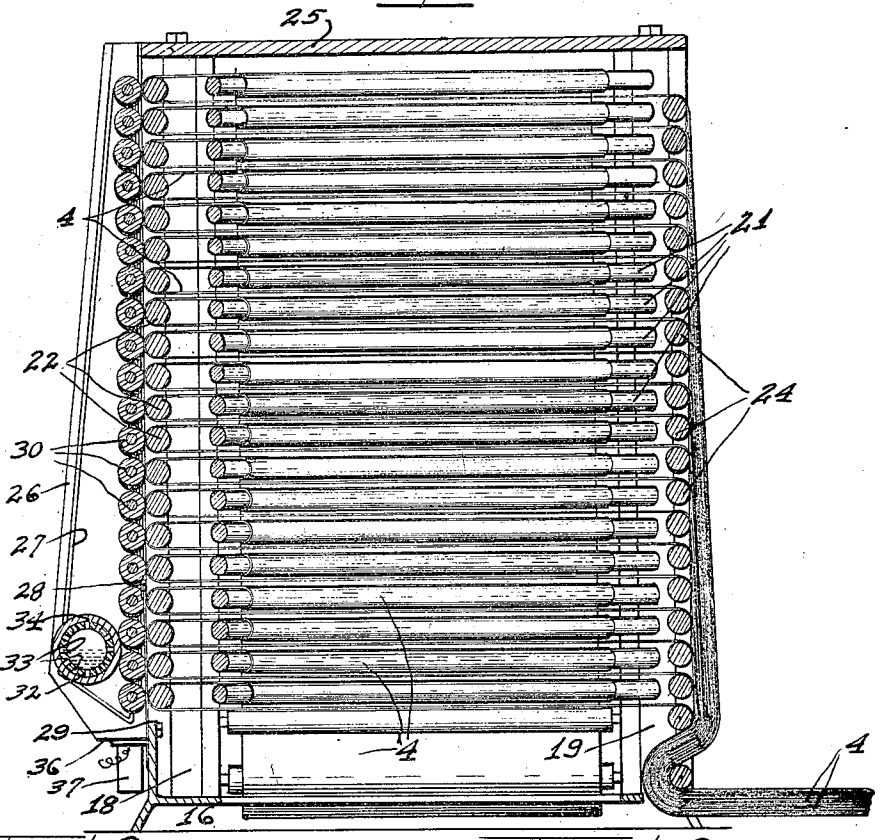


FIG. 8

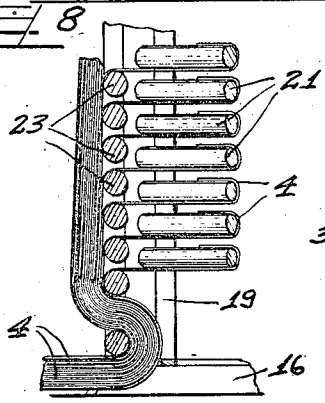
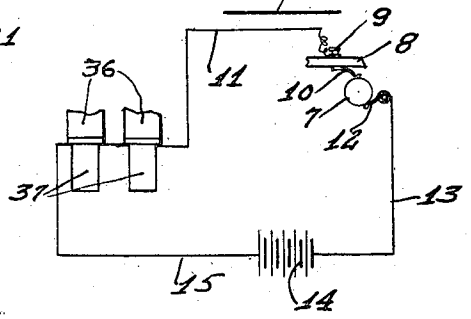


FIG. 9



Witnesses

Rudolph J. Berg.

Inventor

HAROLD J. SMITH.

By Parker & Prindle Atty.

UNITED STATES PATENT OFFICE.

HAROLD J. SMITH, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO HENRY F. BAKER, OF CHICAGO, ILLINOIS.

MUSIC-ROLL-STENCILING MACHINE.

1,375,331. Specification of Letters Patent. Patented Apr. 19, 1921.

Application filed February 19, 1920. Serial No. 360,021.

To all whom it may concern:

Be it known that I, HAROLD J. SMITH, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Music-Roll-Stenciling Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates primarily to an improved type of a machine adapted to automatically stencil words, signs or symbols in proper positions upon perforated music roll ribbons, said stenciling being controlled by a master music roll ribbon which co-acts with an electric switch mechanism to energize solenoids at a predetermined time to start the feeding of a stencil through the machine.

It is an object of this invention to provide an improved type of a stenciling machine wherein a plurality of music roll ribbons may be properly stenciled simultaneously.

It is also an object of the invention to provide a stenciling machine wherein solenoids are employed to automatically lift one end of a stencil into position to be engaged by feed rolls and conducted through the machine.

Another object of the invention is the construction of a stenciling machine wherein a master music roll ribbon is adapted to co-act with a switch mechanism to control the starting of a stencil into a device wherein a plurality of music roll ribbons are adapted to be simultaneously stenciled by said stencil.

It is a further object of this invention to provide a stenciling device adapted to be used in conjunction with a perforating machine, whereby a plurality of ribbons perforated by said machine are adapted to be conducted through the stenciling device to be acted upon by a stencil the movement of which is controlled by electrical mechanisms governed by switch mechanisms on said machine and by a master ribbon co-acting with said switch mechanisms.

It is furthermore an object of the invention to provide a stenciling machine wherein a plurality of rolls are adapted to guide perforated music roll ribbons through the machine in circuitous paths to be stenciled by an electrically controlled movable stencil.

A further object of this invention is to provide a machine wherein an electrically controlled stencil is adapted to be conducted between inking rolls and guide rolls over which sheets are trained to be acted upon by said stencil.

It is an important object of this invention to provide a stenciling device of simple and effective construction adapted to properly stencil a plurality of perforated music roll strips with notations which are duplicates of those stenciled upon a master music roll strip which co-acts with electrical contact means to control the feeding of a stencil into the stenciling device at a predetermined time.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a side elevation of a stenciling machine embodying the principles of this invention and shown connected with a perforating machine.

Fig. 2 is an enlarged end elevation of the stenciling machine.

Fig. 3 is a fragmentary detail section taken on line 3—3, of Fig. 2.

Fig. 4 is a transverse section taken on line 4—4, of Fig. 2.

Fig. 5 is an enlarged fragmentary detail section taken on line 5—5, of Fig. 2.

Fig. 6 is an enlarged fragmentary section taken on line 6—6, of Fig. 4.

Fig. 7 is a sectional view taken on line 7—7, of Fig. 4.

Fig. 8 is a fragmentary detail section taken in line 8—8, of Fig. 4.

Fig. 9 is a wiring diagram.

As shown in the drawings:

The stenciling machine is adapted for use in combination with a perforating machine the switch mechanism of which controls the operation of the stencil in the stenciling machine.

In the fragmentary portion of the music roll perforating machine disclosed in Fig. 1, the reference numeral 1, indicates a machine

frame having rotatably journaled therein a plurality of feed rolls 2, for conducting a perforated master music roll ribbon 3, and a plurality of superimposed duplicate music roll ribbons 4, through the perforating machine. Journaled in the frame 1, is a switch cylinder comprising a cylindrical core 5, surrounded by an insulation sleeve 6, to insulate an outer metal contact sleeve or drum 7, from said core. The master ribbon 3, is conducted over the contact sleeve 7, and is provided with a marginal opening or slot which indicates the beginning of the selection recorded on the master ribbon. Mounted on the frame 1, is a terminal board 8, on which is supported a binding post 9. Secured to the lower projecting end of the binding post 9, is a flexible contact brush 10, the free end of which is adapted to track over one margin of the master ribbon 3, to project through the opening therein to contact the contact sleeve 7. Connected to the binding post 9, is one end of a conductor wire 11. Mounted on the frame 1, is a spring contact brush 12, the free end of which is positioned to track on the contact sleeve 7. One end of a conductor wire 13, is connected with the brush 12, while the other end of said wire is connected to one terminal of a series of batteries 14. Connected to the other terminal of the batteries 14, is one end of a conductor wire 15.

The stenciling machine proper comprises a frame base 16, having rigidly secured at the corners thereof four upright channel braces or channel bars 17, 18, 19, and 20, the flanges of which are provided with openings arranged one above the other. The web plates of the channel bars 17 and 19, are each provided with a row of apertures or openings, for rotatably supporting the trunnion ends of a plurality of horizontal diagonally disposed rollers 21. The diagonal rollers are positioned at forty-five degrees with respect to the sides of the frame base 16. Journaled in the openings of the channel bars 17 and 18, are a plurality of horizontal rear rollers 22, disposed in the same vertical plane one above the other and at forty five degrees with respect to the diagonal rollers 21. Rotatably supported in the openings in the channel bars 18 and 19, are a plurality of horizontal guide or discharge rollers 23, which are disposed in the same vertical plane one above the other and at an angle of forty five degrees with respect to the diagonal rollers 21. The flange openings in the channel bars 19 and 20, afford supports for rotatable entrance guide rollers 24, which are positioned one above the other in the same vertical plane and parallel to the rollers 22.

The upper ends of the channel bars 17, 18, 19 and 20, are braced by means of a top plate 25, which is bolted or otherwise rigidly secured to said channel bars. Mounted at the rear of the stenciling machine are two vertical parallel stencil guide plates 26, the inner surfaces of which are provided with continuous guide grooves or ways 27, in which the opposite ends of a stencil hanger or bracket rod 28, are slidably engaged. The hanger 28, has one end of a stencil 29, attached thereto. The guide plates 26, are provided with vertical rows of openings near the inner margins thereof for rotatably receiving the trunnion ends of inking rollers 30, which are positioned in a vertical plane to co-act with the rear guide rollers 22. Also journaled in suitable openings near the lower ends of the guide plates 26, are the trunnions 31 of an ink supplying roller or cylinder 32, provided with a plurality of outlet openings 33, and a cylindrical inking pad 34.

Keyed or otherwise secured on the trunnions of the lowermost roller 30, are sprocket gears 35, positioned to co-act with the pin ends of the stencil hanger 28, when said hanger is automatically elevated from the full line position of Fig. 5 to the dotted line position. Flanges 36, are integrally formed at the lower ends of the guide plates 26, and rigidly secured to each flange is a vertical solenoid 37, provided with a soft metal core 38. Each solenoid core is provided with a head at the upper end thereof adapted to afford a seat or support for the ends of the stencil hanger 28, when the stencil is in normal position. The two solenoids are connected in series to the circuit wires 11 and 15, as shown in the wiring diagram of Fig. 9.

The lowermost inking roller 30 and the lowermost rear roller 22, are adapted to be driven from any suitable source of power and act as feed rolls for feeding the stencil through the machine in a path following the guide grooves 27. Any suitable type of mechanism may be provided for drawing the ribbons 4, through the machine to permit stenciling thereof.

The operation is as follows:

The stenciling machine is adapted to be used in combination with the perforating machine, as shown in Fig. 1. A plurality of duplicate music roll ribbons 4, after being perforated by the perforating machine are conducted from said perforating machine to the lower portion of the intake or entrance end of the stenciling machine around the lowermost of the front guide rollers 24, and then upwardly to be successively run singly over the respective entrance guide rollers 24, as shown in Fig. 7. Each ribbon 4, passes from its roller 24, horizontally across the machine from front to rear upwardly around a rear roller 22, then back into the machine downwardly around the respective diagonal roller 21, and then outwardly over the re-

spective discharge or side roller 23. From the respective discharge rollers 23, the various music roll ribbons 4, are conducted downwardly and all pass inwardly around the lowermost discharge roller 23, out of the machine as shown in Fig. 8.

Each music roll ribbon 4, conducted through the stenciling machine has its own respective set of guide rollers, each set comprising a diagonal roller 21, and a rear roller 22, disposed in the same horizontal plane, and a discharge roller 23 and an entrance roller 24, both disposed in the same horizontal plane parallel and below the plane of the two rollers 21 and 22.

To properly stencil all of the music roll ribbons 4, passing through the machine it is necessary to start the feeding of the stencil 29, upwardly between the inking rollers 30 and the rear rollers 22, at a predetermined time so that the names, signs or symbols will be stamped or printed on the various music roll ribbons 4, to exactly duplicate the stenciling on the master music roll ribbon 3. The master ribbon 3, automatically controls the starting of the stencil 29, into the stenciling machine. Normally the stencil 29, is in the position shown in Fig. 2, with the ends of the hanger 28, resting on the upper ends of the solenoid cores 38. As the master ribbon 3, is conducted over the switch cylinder 7, and below the brush 10, the opening in the margin of said master ribbon is permitted to pass over said switch cylinder. When this occurs the brush 10, projects through said opening and closes contact with the switch cylinder 7, thereby closing the circuit to the two solenoids 37, which become energized and thereby cause the solenoid cores 38, to be automatically drawn inwardly. The operation of the solenoid cores 38, elevates the stencil hanger or bracket 28, into the dotted line position of Fig. 5, so that the pin ends of said hanger are engaged by the gears 35. The hanger 28, is thus carried upwardly between the lowermost inking roller 30, and the lowermost rear roller 22 with the hanger ends tracking in the guide grooves 27. As soon as the opening in the master ribbon 3, passes the brush 10, the circuit to the solenoids is broken and the solenoid cores return to normal position. The co-acting rollers 22 and 30, however, now act to feed the stencil 29, upwardly therebetween. The ink supply cylinder 32, is adapted to be rotated by any suitable means, thereby permitting ink to flow out of the apertures 33, to saturate the cylindrical inking pad 34. Ink is thus supplied to the inking rollers 30, which are adapted to supply ink to the stencil openings whereby the required words, signs, or symbols necessary for the proper playing of music rolls are stenciled on the various music roll ribbons 4, as they are conducted through the stenciling machine and brought into contact with the upwardly moving stencil 29. The stencil during its progress through the machine follows the guide grooves 27, and returns to normal position ready to again be elevated by the solenoid cores when the next set of music roll ribbons are fed into the stenciling machine from the perforating machine.

It will thus be seen that one or a plurality of music roll ribbons may be stenciled at the same tme to duplicate the stenciling of a master music roll which controls the operation of the electric mechanisms which are adapted to automatically act at a predetermined time to start the feeding of a stencil into the stenciling machine.

The music roll ribbons 4, which are to be stenciled are drawn through circuitous paths through the machine over the respective guide rollers.

I am aware that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art.

I claim as my invention:

1. The combination with a stenciling machine, of a perforating machine, and means on said perforating machine for controlling the perforating and stenciling of music roll ribbons run through said machines.

2. The combination with a perforating machine, of a stenciling machine, means for drawing a plurality of music roll ribbons through said machines in circuitous paths, a switch mechanism on said perforating machine, and a master music roll ribbon adapted to coöperate with said switch mechanism to automatically govern the perforating and stenciling operations of said machines.

3. The combination with a stenciling machine, of electric means for governing the advance of a stencil into contact with music roll ribbons to be stenciled.

4. The combination with a stenciling machine, of electrically operated means for automatically moving a stencil into position to be fed through the machine, and mechanisms for automatically controlling the operation of said means at predetermined times.

5. The combination with a stenciling machine, of means for automatically moving a stencil into position to be fed through the machine, an electric switch mechanism connected with said means, and a master music roll co-acting with said switch mechanism adapted to automatically cause operation of said first mentioned means at a predetermined time.

6. The combination with a stenciling machine, of solenoids for automatically elevating a stencil into position to be fed through the machine, an electric switch mechanism connected with said solenoids, and perfo-

rated means adapted to co-act with said switch mechanism to cause automatic operation of said solenoids at a predetermined time.

7. A stenciling machine having solenoids for automatically elevating one end of a stencil into position to permit feeding of said stencil through the machine.

8. In a stenciling machine the combination with rollers for conducting a stencil through the machine, solenoids on said machine normally supporting one end of said stencil, and means for automatically energizing said solenoids at a predetermined time to cause the same to lift said stencil into position to be engaged by said rollers for conveyance through the machine.

9. In a stenciling machine the combination with a hanger attached to one end of a stencil, guide means on said machine for said hanger, rollers on said machine for conducting the stencil through the machine, rollers for conveying music roll ribbons through the machine to be stenciled, solenoids on said machine normally supporting said hanger, electric means governing the operation of said solenoids, and means for causing said electric means to energize said solenoids at a predetermined time to cause the solenoid cores to automatically elevate said stencil hanger into a position wherein said stencil is engaged by said stencil feeding rollers for conveyance through the machine to stencil said music roll ribbons.

10. A stenciling machine comprising a frame, guide rollers mounted thereon for conducting a music roll ribbon through the machine in a circuitous path, and electrically controlled means on said machine adapted to start the feeding of a stencil through the machine to stencil said music roll ribbon.

11. A stenciling machine comprising a frame, guide rollers thereon for conducting a music roll ribbon through the machine in a circuitous path, inking rollers on said frame adjacent certain of said guide rollers, means for supplying ink to said inking rollers, guide means for a stencil and electric means for automatically starting the feeding of said stencil between said inking rollers and said adjacent guide rollers to cause stenciling of said music roll ribbon.

12. A stenciling machine comprising a frame, guide rollers journaled therein for guiding music roll ribbons through the machine, inking rollers for co-action with certain of said guide rollers, a guide bracket supporting one end of a stencil, guide means on said frame for said guide bracket, gears on one of said guide rollers associated with said guide means, solenoids on said frame adapted to normally support said stencil guide bracket, and means for energizing said solenoids at a predetermined time to cause the same to elevate said stencil bracket into position to be engaged by said gears and carried around into position wherein the stencil is adapted to be engaged by the inking rollers and guide rollers co-acting therewith to cause the stencil to be conveyed through the machine to stencil said music roll ribbons.

13. A stenciling machine embracing a base, a plurality of upright bars secured in vertical position on the corners of said base, a top plate secured to said bars to form a rigid frame, a plurality of guide rollers journaled in said bars in three sides of the frame, a plurality of diagonal guide rollers projecting diagonally through the frame in a vertical plane and journaled in two of said upright bars, grooved parallel guide plates secured to said base and top plate on one side of said frame, a plurality of inking rollers journaled in said guide plates adjacent the guide rollers mounted in that side of the frame, and an ink supplying cylinder journaled in said guide plates in position to supply ink to said inking rollers.

14. A stenciling machine embracing a frame, a plurality of guide rollers journaled in three sides and diagonally across said frame for guiding music roll ribbons through the machine, inking rollers journaled in said frame adjacent the guide rollers in one side of the frame, an ink feed cylinder journaled in said frame to supply ink to said inking rollers, gears mounted at the ends of one of said guide rollers, solenoids supported on said frame below said gears, a bracket normally supported on said solenoids for supporting one end of a stencil, and means for energizing said solenoids to cause the same to lift said bracket into position to be engaged and carried by said gears into position wherein said stencil is adapted to be engaged between the inking rollers and the guide rollers adjacent thereto for conveyance through the machine to stencil said music roll ribbons.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

HAROLD J. SMITH.

Witnesses:
CHARLES W. HILLS, Jr.,
FRED E. PAESLER.