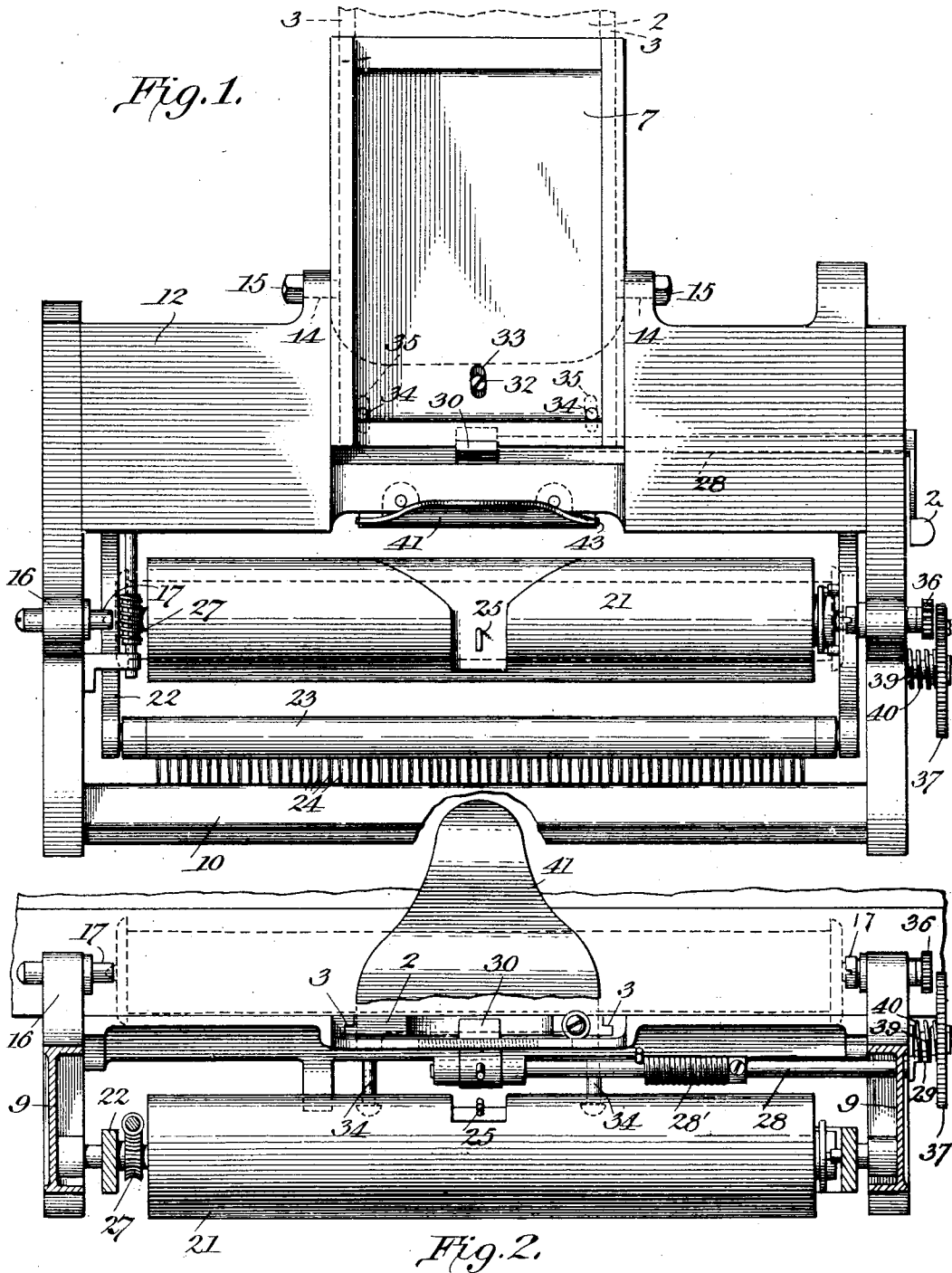


I. B. SMITH.
MUSIC ROLL HOLDER FOR MECHANICALLY OPERATED PIANOS.
APPLICATION FILED JULY 12, 1906.

945,056.

Patented Jan. 4, 1910.

4 SHEETS—SHEET 1.



Witnesses:
J. M. Studer
D. M. Kennedy

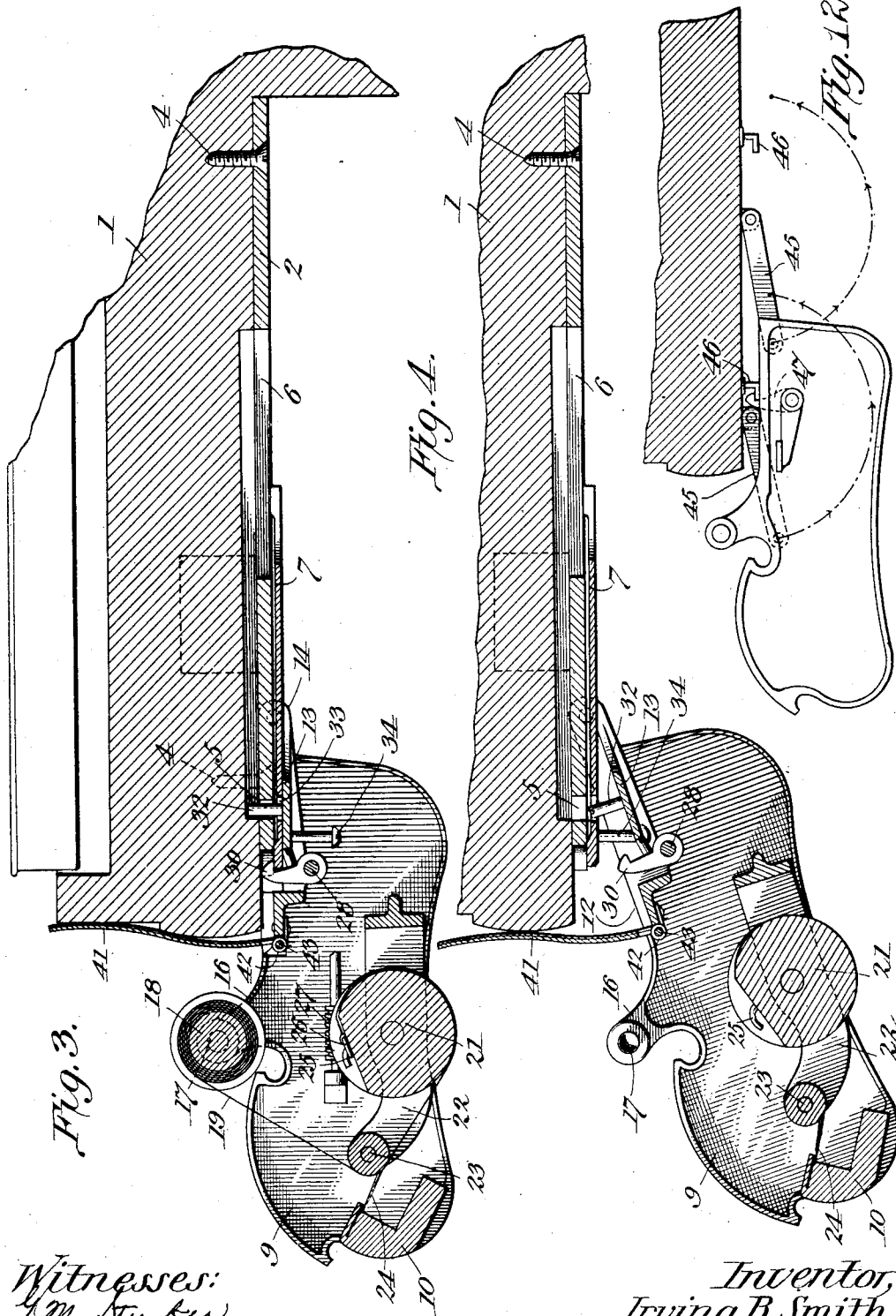
Inventor,
Irving B. Smith.
By Meyers, Cushman & Allen
Attys.

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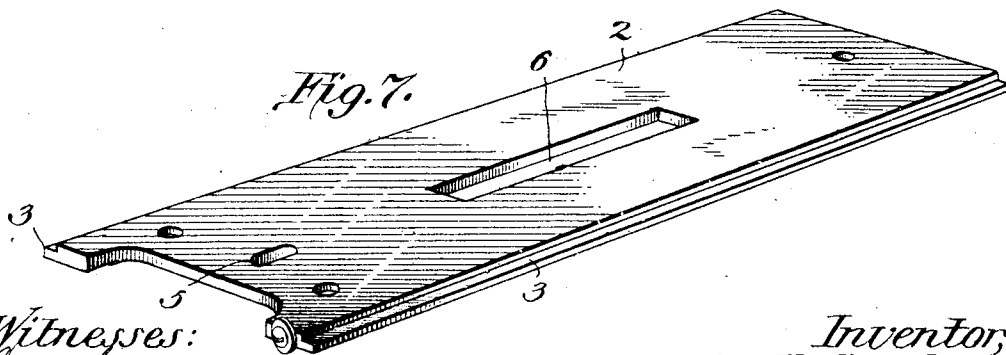
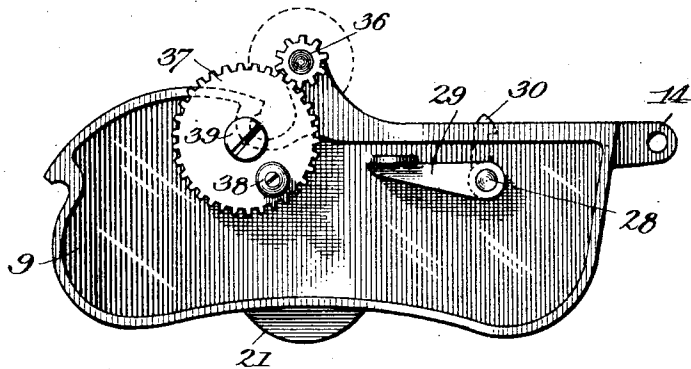
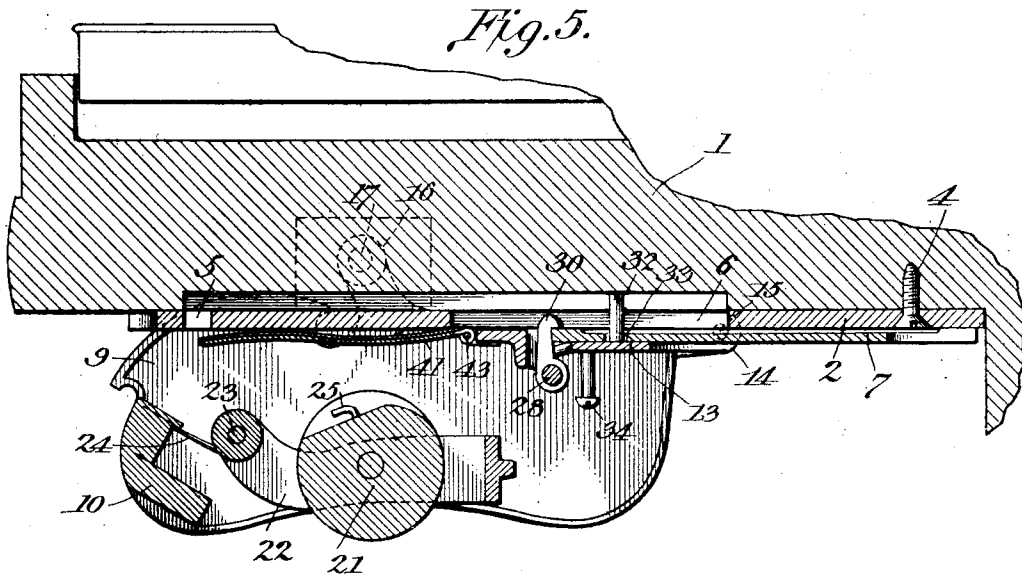
Witnesses:
J. M. Stucker
D. M. Kennedy

Inventor,
Irving B. Smith.
By, Meyer, Cushman & Co.
attys.

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Witnesses:
G. M. Stuckey.
D. M. Kenealy.

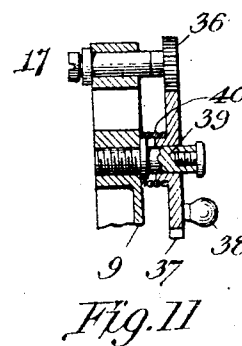
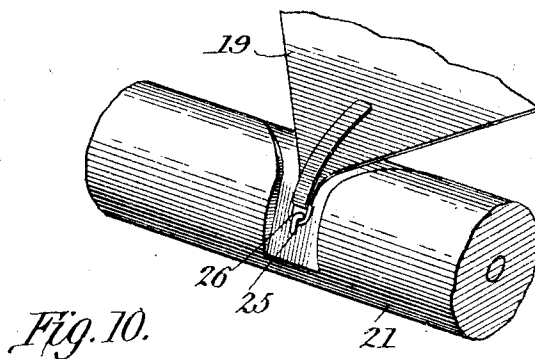
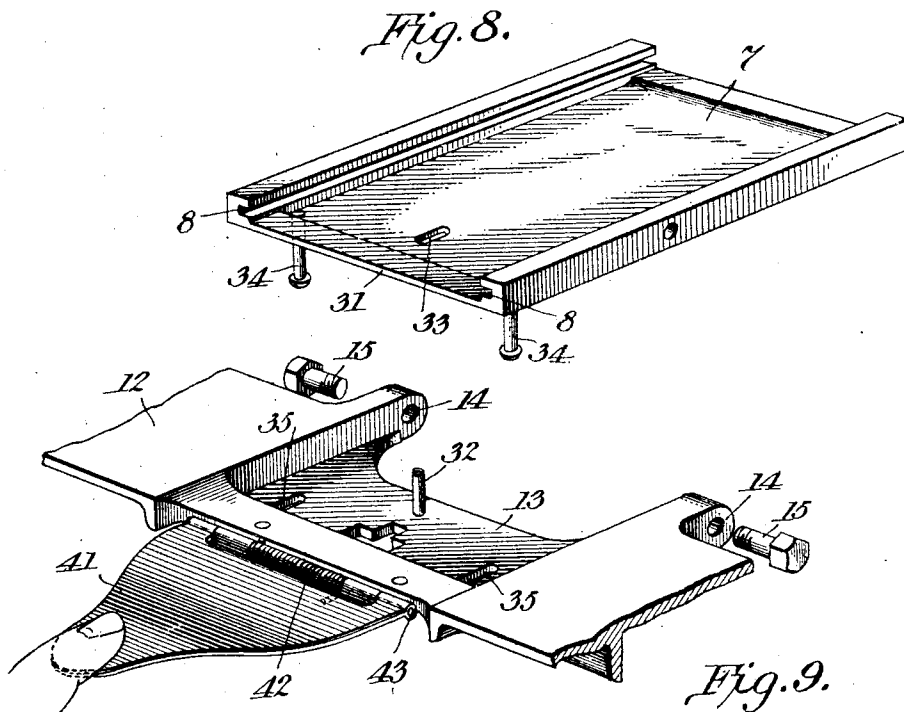
Inventor;
Irving B. Smith.
By, Meyers, Bushman & Reed
Attys.

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4 SHEETS—SHEET 4.



Witnesses:
J. M. Stucker
S. M. Kennedy

Inventor,
Irving B. Smith.
By, Meyer, Crookman & Co.
attys.

UNITED STATES PATENT OFFICE.

IRVING B. SMITH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO ELECTRELLE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

MUSIC-ROLL HOLDER FOR MECHANICALLY-OPERATED PIANOS.

945,056.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed July 12, 1906. Serial No. 325,827.

To all whom it may concern:

Be it known that I, IRVING B. SMITH, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Music-Roll Holders for Mechanically-Operated Pianos, of which the following is a specification.

My present invention relates to certain new and useful improvements in music roll holders for mechanically operated pianos, and is especially designed to be attached to the underside of the piano key-board, in such manner that it may be drawn out beyond the front edge of the key-board, as when in playing position, and may be moved back under the same, when it is out of playing position, where it will be out of the way of the knees of the performer when playing the piano manually, and where it will be out of view. To serve the best purposes, and at the same time to meet all the requirements of the most critical and fastidious persons, music roll holders attached in the manner referred to should be relatively shallow, so as not to interfere with the knees of the operator, either when playing manually, or mechanically, and the delivery and take-up rollers for the music sheet should be so disposed relatively to each other as that a considerable length of the music sheet will be exposed to view in its travel, and will move in a plane approaching the vertical; thus avoiding undue bending of the head of the operator and enabling him to readily follow the expression marks or characters on the sheet without strain or exertion on his neck incident to such bending of the head. This has been found to be an objection with music roll holders of the type wherein the music sheet travels strictly in a horizontal plane.

The present invention has been designed primarily with a view to obviating the above noted and other objections such as will hereinafter appear.

A further object of the invention is to provide a shell or guard for the polished front of the piano keyboard to protect the latter against injury caused by the beating

action of the attaching eye or ring carried by the free end of the music sheet when the latter frees itself from the retaining hook on the take-up roll at the end of the rewinding operation.

Briefly and generally stated, the invention comprises a music roll holder having a bodily downward, outward (or inward) and upward movement from and beneath the piano keyboard, with means for retaining the same locked in its inner and outer positions.

The invention further comprises a music roll holder of the type referred to carrying delivery and take-up rollers mounted one above the other and a cooperating contact roll offset from a vertical plane taken through the axis of said rollers, in such manner that the music sheet will be caused to travel in an inclined plane across the line of vision of the performer or operator.

The invention further comprises a novel guard or shield for the front of the keyboard base, said guard or shield being mounted to retreat beneath the keyboard when the music roll-holder is moved out of operative position.

The invention further comprises the novel features of construction and combinations and arrangements of parts hereinafter set forth in detail and then definitely pointed out in the claims.

In the annexed drawings in which like characters indicate corresponding parts throughout the several views,—Figure 1 is a top plan view of a music roll holder and its carrier shown detached from the piano; Fig. 2 is a front elevation partly in section; Fig. 3 is a longitudinal sectional view of the music roll holder shown attached to the key-board base of a piano and in playing position; Fig. 4 is a similar view, the roll holder frame being unlatched and dropped to the position it assumes preparatory to being pushed back under the keyboard base; Fig. 5 is a similar view showing the roll-holder pushed back under the keyboard and out of operative position; Fig. 6 is a view of the right hand end of the roll holder showing the rewinding gears and unlatching crank; Fig. 7 is a perspective view

of the supporting base-plate for the roll-holder and carrying element; Fig. 8 is a perspective view of the roll-holder carrying element; Fig. 9 is a perspective view, partially broken away, of the rear end of the roll-holder; Fig. 10 is a perspective of a part of the take-up roll and an end of the music sheet; Fig. 11 is a sectional view taken through the shafts of the rewind gears; and Fig. 12 is a side elevation of another embodiment of the invention.

Referring to the drawings, the reference numeral 1 designates the key-board base of a piano, to the underside of which is attached a base-plate 2, (see Fig. 7) having its opposite longitudinal edges provided with ledges 3, said plate being attached to the key-board base by means of wood screws 4. The said base-plate 2 is provided, near its front end, with an opening 5, and further provided with a centrally disposed, elongated slot 6, for purposes that will obviously appear.

Slidably mounted upon the base-plate 2, is a carrier element for the music roll-holder proper, comprising a plate 7, having upstanding and rabbeted longitudinal edges 8, into which rabbets the ledges 3 of the base-plate 2, take and upon which latter said carrier element is adapted to slide.

The music roll holder proper, in the embodiment of the invention herein shown, consists of two side or end members 9, suitably connected at the front by a transverse connecting member 10, and at the rear by the transverse web 12, having the centrally disposed depressed portion 13, and the two rearwardly extending apertured lugs or ears 14. The roll-holder frame is pivotally connected to the carrier element 7, by means of pivot pins 15, which pass through the apertured ears 14, and enter openings in the opposite sides of the upstanding portions 8 of said element as more clearly shown in Figs. 8 and 9. The side members 9 of the frame are preferably shaped as shown and each is provided with an upwardly projecting arm 16, carrying an end bearing 17 for the delivery music roll or spool 18 upon which the perforated music sheet 19 is wound. By referring to Fig. 3 of the drawing, it will be seen that when in operative or playing position, this music spool lies in a plane above the plane of the underside of the piano keyboard base to secure advantages presently to be explained.

The take-up roll 21, for the music-sheet, is located almost directly below the music spool 18, said take-up roll being journaled in a swinging cradle 22, constructed and operating in substantially the manner as the corresponding part shown and described in my copending application, Serial No. 286,412, filed November 8, 1905. The said cradle also carries a contact roller 23, which

is offset forwardly from a plane taken through the axis of the delivery and take-up rollers respectively, in such manner that as the music sheet travels from the delivery to the take-up roll it is caused to move in an inclined plane across the natural path of vision of the operator, so as to enable the latter to readily read the expression characters on the music sheet without causing him to unduly bend his head. This construction, for obvious reasons, has been found to have marked advantages over the prior constructions where the music sheet travels in a horizontal plane. The electric selector fingers 24, which may be of any known construction, are carried by the transverse rail 10, and bear at their free ends upon the contact roll 23, in the usual manner. The take-up roll is provided with the ordinary hook 25, to receive the ring or eye 26 carried by the free end of the music sheet, and said roll may be driven in any suitable manner, as by the worm gear 27. These elements form no part of the present invention, being fully described in my aforesaid application, and they need not, therefore, be described in detail here.

Provision is made for locking the roll-holder frame in its operative and inoperative positions and for limiting its downward swinging movement, and these means will now be described.

Extending transversely of the frame and journaled in the two side members 9, is a spring-impelled rock-shaft 28, having a forwardly extending crank arm 29 at one end, (see Fig. 6) said arm being located outside one of the frame members 9. The shaft 28 is urged to rotate the rock rearwardly by means of a coiled spring 28' coiled thereabout, as shown in Fig. 2. Fixed to said shaft is a latch 30, adapted to take over the forward edge 31 of the carrier plate 7, when the frame is in its operative, or inoperative, positions, as shown in Figs. 3 and 5, whereby to hold the frame elevated. An upstanding pin 32 is carried by the depressed portion 13 of the web 12, which pin passes through an opening 33 in the carrier plate 7, and also through the similar opening 5 in the base-plate 2, when the roll-holder is in its operative position and holds the same against sliding movement in either direction so long as it is held by the latch 30. The slot 5 allows the roll holder to be elevated only when sufficiently forward to permit the pin 32 to enter the same. This prevents the holder from marring the front edge of the keyboard base when it is being raised to operative position. Downward movement of the frame is limited by means of the two-headed pins 34, depending from the underside of the carrier plate 7, the shanks of the pins passing through the slots

35 in the depressed portion 13 of the web 12. The heads of the pins, being wider than the slots, act as stops to prevent the frame from swinging freely on its pivot. When it is desired to move the roll-holder frame from its operative position, as seen in Fig. 3, to the inoperative and concealed position, seen in Fig. 5, the shaft 28 is rocked by depressing the crank-arm 29, thus releasing the latch 30 from its engagement with the edge 31 of the plate 2. The frame may now be lowered to the position shown in Fig. 4, where it is supported on the headed pins 34, and can then be pushed back by sliding the carrier element 7 on its base-plate 2. When at the limit of its rearward sliding movement, the frame is elevated until the latch 30 again engages the forward edge 31 of the plate 7, and is thus held upward where it will be out of view and out of the way of the knees of a performer who desires to play the piano manually. To bring the frame forward again the operation just described is substantially reversed, as will be obvious.

The underside of the piano keyboard base 2, is preferably recessed as shown, to receive the upwardly extending parts of the roll-holder frame and this enables the frame to be brought up well under the key-board where it will be entirely out of the way.

In order to rewind the music sheet from the take-up roll 21, back on its own spool, I provide one of the end-bearings 17 for said spool with a pinion 36, with which a gear 37, provided with a hand crank 38, may be brought into mesh. This gear 38 is mounted to slide longitudinally on a shaft and is normally urged outwardly by means of a coiled spring 40, confined between the inner face of the gear and the outer face of the side member 9 of the frame (see Figs. 1 and 2). As shown in said figures the gear and pinion are normally out of mesh, so that there is no resistance imposed on the end bearing during the winding operation. When it is desired to rewind the music sheet, the gear 37 is pushed inwardly until it is brought into mesh with the pinion, and the rewinding may then be accomplished. When pressure on the gear 37 is relieved the gear will be instantly thrown out of mesh with its pinion by means of the spring 40.

In order to prevent the ring or eye 26 on the free end of the music sheet from striking and marring the highly polished face of the keyboard base 1, of the piano, at the end of the rewinding operation after said eye has left the retaining hook 25 on the take-up roll, I have provided a novel form of shield or guard for said front face which will now be described.

The reference numeral 41 designates the guard or shield which may be made of any suitable material, the inner face of which is

preferably faced or covered with cloth, felt or other soft substance. This shield 41 is hinged to the front edge of the web 12 of the music roll holder frame as more clearly shown in Fig. 9, and is normally urged upward by means of a spring 42, coiled about the hinge pintel 43, and having one end bearing upon the front edge of the web 12, and the other end lying flat against or engaging the shield 41. This construction permits the shield to swing on its spring hinge so that when the music roll holder is moved back under the piano keyboard, it will retreat with the holder, and when the holder is drawn out the shield will immediately swing upward and assume a position in front of the polished face of the keyboard base and receive the blows or impacts of the ring or eye 26 on the music sheet incident to any overwinding of the music spool at the end of the rewinding operation.

I do not wish to be understood as limiting myself to the precise details of construction herein shown and described, except as I may be so limited by the terms of the appended claims, recognizing that changes or modifications may be made without departing from the spirit of the invention, as herein outlined.

In the embodiment of the invention illustrated in Fig. 12, the carrier element for supporting the music roll holder consists of links 45, each pivoted at one end to the underside of the keyboard base and at its other end to the roll holder. Any suitable form of catch may be employed for supporting the holder in its operative and inoperative positions, as, for instance, the catches 46, which coöperate with the latch 47, the latter being substantially like the latch 30, heretofore described. This construction is an obvious modification of the broad idea of invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In combination with the keyboard base of a piano, a carrier element mounted to slide back and forth beneath said base, a music roll holder frame pivotally connected to said carrier element, a delivery and a take-up roller mounted one above the other in said frame, and a latch for locking said frame in its operative and inoperative positions.

2. In combination with the keyboard base of a piano, a carrier element mounted to slide back and forth beneath said base, a music roll holder-frame pivotally connected to said carrier element, a pair of upstanding arms or projections on opposite sides of the frame, each arm carrying a spindle-bearing for a music spool, a take-up roll journaled in the frame, lying below said spindle bearings

and means for locking said frame in its operative and inoperative positions.

3. In combination with the keyboard base of a piano, a carrier element mounted to slide back and forth beneath said base, a music-roll holder frame pivotally connected to said carrier element, a take-up roll journaled in said frame, and a pair of end-bearings for a music spool carried by the frame, said end bearings located above the take-up roll.

4. In combination with the keyboard base of a piano, a music roll holder mounted beneath said base, and means whereby said holder may have a combined forwardly and rearwardly sliding and forwardly and downwardly swinging movement relatively to the base, and a delivery and a take-up roller mounted one above the other in said holder.

5. In combination with the keyboard base of a piano, a music roll holder mounted beneath the base, means whereby said holder may have a horizontally sliding and vertically swinging movement relatively to the base, and a delivery and a take-up roller mounted one above the other in said holder.

6. In combination with the key-board base of a piano, a base-plate secured to the underside thereof, a music-roll holder, means whereby said holder may have a combined forwardly sliding and upwardly swinging movement upon and relatively to said base-plate, and a delivery and a take-up roller mounted one above the other in said holder.

7. In combination with the keyboard base of a piano, a base-plate secured to the underside of said base, a carrier plate mounted to slide back and forth upon said base-plate, and a music-roll holder pivotally connected to the carrier plate, said roll holder carrying a music and a take-up roller one mounted above the other.

8. In combination with the keyboard base of a piano, a music-roll holder, means for supporting said holder beneath the keyboard base so that it may be brought out beyond the forward edge thereof and moved back under the same, a take-up roll journaled in the frame, a pair of end-bearings for a music spool located above said take-up roll, and a contact roll offset forwardly from the take-up roll and located in a plane beneath the plane of the end-bearings.

9. In combination with a base-plate, a carrier element freely slidable thereon, and a music roll holder pivotally connected to said carrier element, said roll holder carrying a music and a take-up roll one mounted above the other.

10. In combination with a base-plate, a carrier element freely slidable thereon, a music-roll-holder pivotally connected to said carrier element, a delivery and a take-up roll mounted one above the other in said holder,

and means for limiting the swinging movement of the said holder in one direction.

11. In combination with a base-plate, a carrier element freely slidable thereon, a music roll holder pivotally connected to said carrier element and capable of swinging relatively thereto, a delivery and a take-up roll mounted one above the other in said holder, and means for locking said element against swinging movement.

12. In combination with a base-plate, a carrier element freely slidable thereon, a music roll holder pivotally connected to said carrier element and capable of swinging movement relatively thereto, a rock-shaft journaled in the frame, and a latch on said shaft adapted to engage the carrier element and lock the holder against swinging movement.

13. In combination with a base plate, a carrier element freely slidable thereon, a music roll holder pivotally connected to said carrier element and capable of swinging movement relatively thereto, and means for holding said frame and carrier element against sliding movement.

14. In combination with a base-plate, a carrier element freely slidable thereon, a music roll holder pivotally connected to said carrier element and capable of swinging movement relatively thereto, and means for holding the carrier element against sliding movement.

15. In combination with a base-plate, a carrier element freely slidable thereon, a music-roll-holder pivotally connected to said carrier element and capable of swinging movement relatively thereto, and means carried by the roll-holder and engaging the carrier element for locking said holder against sliding and swinging movement.

16. In combination with the key-board base of a piano, a member mounted to retreat beneath the base, and a shield for the front face of the base, carried by said member.

17. In combination with the key-board base of a piano, a member mounted to retreat beneath said base, a shield carried by said member, and means for moving the shield over the front face of the base when said member is moved outward.

18. In combination with the key-board base of a piano, a member mounted to retreat beneath the base, and a shield for the front face of the base hinged to said member.

19. In combination with the keyboard base of a piano, a member mounted to retreat beneath said base, a shield hinged to said member, and a spring normally urging said shield to move upward.

20. In combination with the key-base of a piano, a music spool mounted in front of

said base, and a shield movable over the front face of the base in rear of the spool.

21. In combination with the keyboard base of a piano, a music spool, and a spring-impelled shield interposed between said spool, and the front face of said base.

22. In combination with the keyboard base of a piano, a music-roll holder mounted to move back and forth beneath said base, and a shield carried by the holder and adapted to assume a position over the front face of the keyboard base when the holder is moved forward.

23. In combination with the keyboard base of a piano, a carrier element freely slidable back and forth beneath said base, a music roll holder frame pivotally connected to said carrier element, a delivery and a take-up roller mounted one above the other in said frame, and a latch for locking said frame in its operative position.

24. In combination with the keyboard base of a piano, a bodily movable music roll holder and a delivery and a take-up roller mounted one above the other in said holder, and freely movable means supporting said roll holder beneath the keyboard base and permitting it to assume a position forward of the front face of the base or rearward thereof.

25. In combination with the keyboard base of a piano, a freely movable carrier

element supported from beneath the base, and a music roll holder pivotally connected to said carrier element, said roll holder carrying a delivery and a take-up roller one mounted above the other.

26. In combination with the key-base of a piano, a music-roll holder associated therewith and mounted to be moved back and forth beneath the same, and a delivery and a take-up roller mounted one above the other in said holder, and forwardly and rearwardly movable means connecting the holder with the base whereby said holder may be moved downward, forward and upward or downward, rearward and upward relatively to the base.

27. In combination with the keyboard base of a piano, a music roll holder associated therewith, freely movable means connected with the holder and with the base and permitting the holder to be moved downward, outward and upward relatively to the base, and means for preventing upward movement of the holder except when in a predetermined position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

IRVING B. SMITH.

Witnesses:

F. W. ECKELMEYER,
THOS. J. MEGEAR.