Nov. 19, 1935. J. D. BRIGHT 2,021,681

AUTOMATIC SAFETY LOCK FOR RECORD FEED

Filed Oct. 8, 1932

Fig. 1.

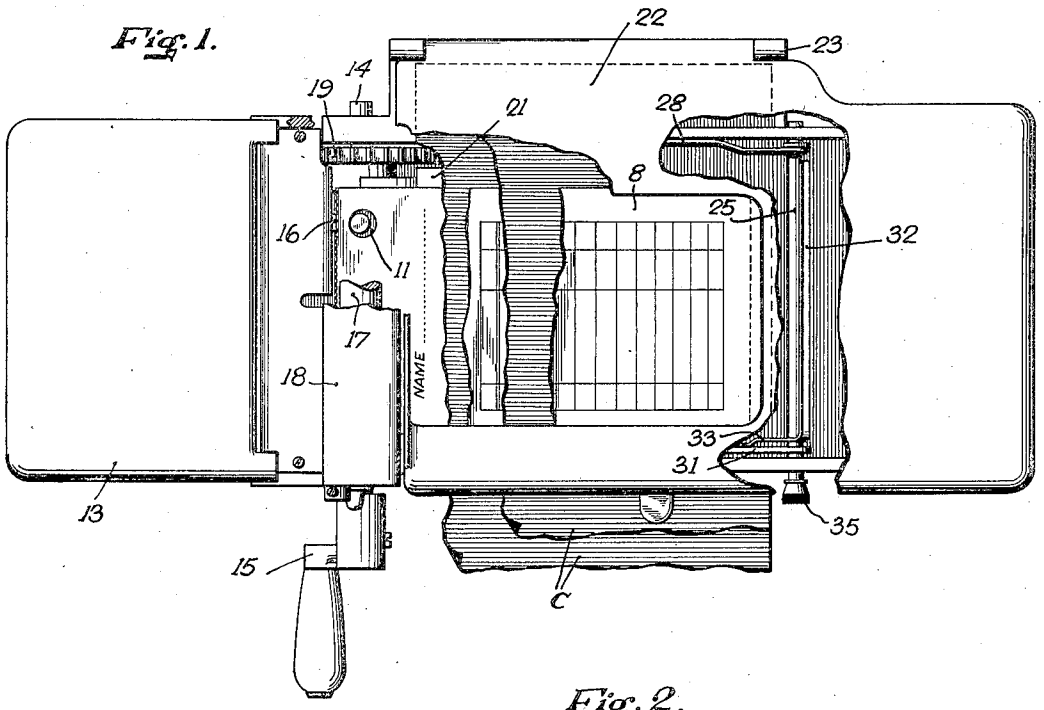


Fig. 2.

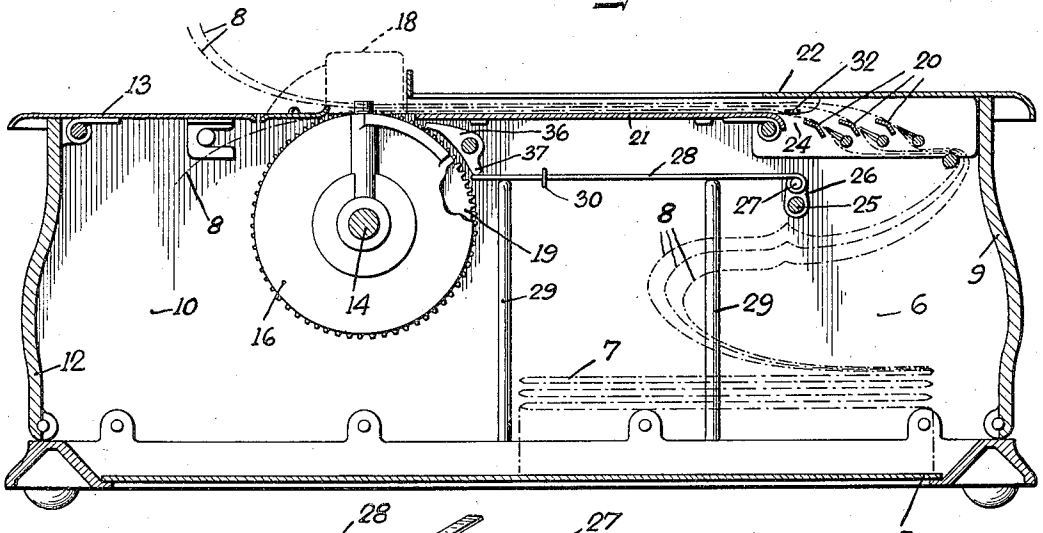
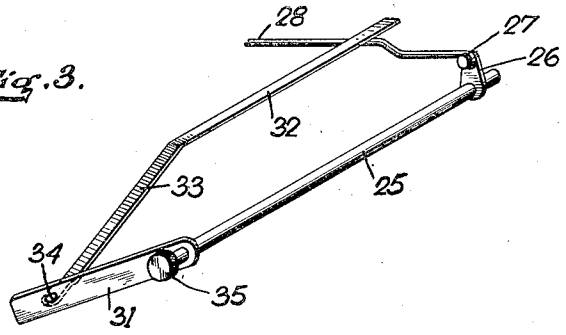


Fig. 3.



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AUTOMATIC SAFETY LOCK FOR RECORD FEED

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9 Claims. (Cl. 271—2.4)

This invention relates to improvements in strip feeding apparatus, more especially in apparatus for feeding record strips utilized in connection with various forms of manifolding devices, such as typewriting machines, billing machines, autographic registers and the like.

It is a general object of the invention to provide a strip feeding apparatus of the class mentioned having an improved and advantageous arrangement for automatically controlling the strip feed under conditions of strip abnormality such for example as breaks or tears and like interruptions in the continuity of the record strips.

It is a more particular object of the invention to provide in machines of the class mentioned, a record strip feeding apparatus having an improved arrangement cooperating directly with one or more of the record strips to automatically control or check the strip feed under predetermined conditions.

According to an important feature of the invention, a feed locking or checking apparatus is provided and is automatically controlled by the strips through the intermediary of a feeler device cooperating with the strip to control the locking mechanism under predetermined strip conditions such as interruptions or similar abnormalities therein.

Still another object of the invention is to provide an improved apparatus for avoiding confusion in the record strips and in the making of records thereon under abnormal strip conditions such for example as a tear or interruption in one of the strips or a failure of the strip supply and other analogous conditions.

Other objects of the invention will be in part pointed out in the following detailed description of an illustrative but preferred embodiment of the invention and will be in part obvious in connection therewith.

The invention accordingly comprises the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter set forth and the scope of the application of which will be indicated in the claims.

For a more complete disclosure and understanding of the nature and objects of the invention, reference is had to the following detailed description of the illustrative embodiment and in the accompanying drawing, in which:

Fig. 1 is a plan view of a manifolding machine of the autographic register type embodying the invention, parts being broken away so as to reveal important structural features;

Fig. 2 is a central, longitudinal, vertical section of the apparatus of Fig. 1; and

Fig. 3 is a detail, perspective view of the feeler mechanism.

Although the invention may be embodied in different forms of manifolding machines, it is herein disclosed for illustrative purposes in connection with a writing or inscribing machine of the autographic register type. This machine as shown may embody a casing or housing indicated generally at 5 and may be of any preferred construction. This housing embodies a storage compartment 6 for the reception of the record supply 7 which may be made up as shown, of a plurality of record strips 8 of the long continuous traveller type. The rear end of the housing is provided with an entrance opening for inserting the record supply 7 and preferably closed by a pivoted closure member 9. At its opposite end, the housing is provided with a filing compartment 10 into which one or more of the record strips 8 may be introduced and folded or filed therein by any appropriate filing mechanism. This strip folding mechanism may for example, be of the type disclosed in the Johnston patent, Serial No. 1,658,127, dated February 7, 1928. It is, therefore, considered unnecessary to describe this folding mechanism in detail herein. The lower record strip 8 for the purpose mentioned, is provided with a longitudinal series of fold directing apertures as in the Johnston patent, while all of the record strips are preferably provided with feed controlling apertures 11 cooperating with the feed mechanism for aligning and controlling the record strips as fully described in said patent. The housing 5 is also provided with a closure member 12 for the storage compartment 10, being pivoted at its lower end to the casing and having pivoted to its upper end a cover 13.

A feeding mechanism of a preferred construction is shown embodying a feed shaft 14 preferably arranged for manual operation by means of a driving crank 15, and having attached thereon in spaced relation feed discs 16. These feed discs are spaced apart laterally of the machine the same as the spacing of the feed controlling apertures 11 of the strips and cooperate with an upper feed roll 17 rotatably mounted in a housing 18. This feed roll 17 is ordinarily spring pressed into engagement with the feed discs 16 so as to grip the record strips in the feeding operation.

Also, in the embodiment shown, a toothed driving gear 19 is rigidly mounted upon the driving shaft 14 for rotation therewith and meshes with a similar but smaller tooth gear mounted upon

the feed roll 17. The feed discs and roll are thus compelled to rotate in unison.

Strip guides 20 are provided at the rearward end of the machine over which the strips pass in their course to the writing platen 21. A cover 22 overlies the top of the machine being pivoted at 23 and having an opening over the platen through which the inscriptions are written upon the record strips. Carbon transfer sheets C may be supported in any convenient manner in interleaved transfer relation with the record strips 8 over the writing platen 21. Inscriptions made upon the top original strip 8 will thus be transferred to the underlying strips.

As thus described, the platen 21 and the forward strip guide 20 provide a support for the record strips having a gap 24 at which the record strips are normally unsupported. It will be observed that the strips bridge or pass over this gap in their course from the record supply compartment to the platen.

Extending transversely of the casing is a rock shaft 25 having attached thereon a crank arm 26. Pivoted at 27 to the crank arm is a locking bolt 28 having its forward terminal positioned adjacent to the teeth of the driving gear 19. This locking bolt as shown, may be supported for longitudinal reciprocation in any desired manner within the casing as for example upon the tops of the ribs 29. A retainer or keeper 30 may also be provided for maintaining the locking bolt in its correct position with reference to the driving gear 19.

Connected to another crank arm 31 fixed upon the rock shaft 25 is a feeler member 32. This feeler member is provided with a connecting arm 33 pivoted at 34 to the crank arm 31. The feeler member 32 as shown, is preferably in the form of a light stiff rod, preferably of metal, and normally positioned directly in alignment above the gap 24 in the record strip support. Also, the crank arm 31 normally extends forwardly of the machine from the rock shaft 25. By means of this arrangement, the rock shaft is normally acted upon by the weight of the feeler member 32 and the crank arm 31 to tend to cause its rotation by gravity in a direction to project the locking bolt forwardly. However, it will be understood that other biasing means such for example as a spring, may be utilized to effect this projection of the locking bolt. The rock shaft 25 preferably extends at one end to a point outside of the casing wall whereat it is provided with a knurled knob 35 by means of which the feeler 32 may be raised or lowered manually.

Cooperating with the toothed gear 19 is a ratchet pawl or dog 36 pivoted to the frame and having a tooth engaging the gear teeth in such a manner as to prevent reverse rotation of the feed shaft 14 and the feed discs 16. This pawl is pivoted to the frame and is provided with a projection or tail member 37 positioned in contact relation with the forward end of the locking bolt 28. The projection 37 thus functions as a stop or anchor for the end of the locking bolt preventing the latter from rising upwardly when in engagement with the gear teeth when the feed shaft is rotating forwardly. Therefore, not only does the pawl provide a stop lug for the locking bolt, but said pawl is held firmly in locking position by the locking bolt thus assuring that the feed discs may not be reversely rotated.

The objects and nature of the invention having been set forth and an illustrative embodiment described in detail, the operation of the invention will now be apparent. The record strips are threaded into operative position in the machine as shown in Fig. 2, at least one of these strips underlying the feeler finger or member 32. In the embodiment shown, only the lower or file strip to be filed in the compartment 18 is shown as underlying the feeler member. When the lower strip is threaded into position, the feeler may be raised by turning the knob 35 thus facilitating the threading. When thus threaded into position, the lower strip supports the feeler member in raised position holding the locking bolt 28 retracted away from engagement with the teeth of the wheel 19. The parts embodied in the locking mechanism are quite light and are balanced so that very little effort is required to maintain the locking bolt in this retracted position. The lower strip arranged as described is sufficient for this purpose.

As long as the lower record strip remains continuous and uninterrupted it functions to maintain the locking bolt in releasing condition. However, when this strip is interrupted in any way as for example by a tear or by exhaustion of the strip supply or similar abnormality, the support of the feeler member is withdrawn. Under these conditions, the feeler member will descend by gravity into the gap 24 and the rock shaft 25 will be correspondingly rotated and the locking bolt 28 thus projected forwardly into engagement with the teeth of the driving gear. When this occurs the bolt 28 thus functions as an effectual lock to prevent further rotation of the feeding mechanism. Therefore, the feeding mechanism will not function to feed the strips until the locking bolt is withdrawn. This may be done manually by turning the knob 35. The action described, however, is notice to the operator that the continuity of the lower strip has been disturbed. The machine will not function normally again to feed the record strips until the continuity of the lower strip has been restored. When this is done the machine again will function normally to feed the record strips forwardly. It will be understood that the feed mechanism of this type of machine normally operates in cycles to feed the record strips forwardly a form length at a time as fully described in the Johnston patent referred to.

Since certain changes may be made in the above construction and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

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

1. In a record machine, in combination, a platen, means for feeding a continuous record strip, locking means including a strip engaging feeler operatively connected thereto for locking said feeding means against feeding action, said feeler normally cooperating with the strip to hold said locking means in releasing condition, and a strip support including said platen and having a gap at the rear of the platen aligned with said feeler whereby said feeler is released from lock holding cooperation with the strip under abnormal strip conditions.

2. In a record machine, in combination, a

platen, means for feeding a record strip, supporting means for the strip having a gap adjacent to said platen, a feeler member in engagement with the strip in alignment with said gap and riding upon the upper surface of the strip, a movably mounted locking bolt positioned in locking relation with a movable part of said feeding mechanism, a controlling connection between said bolt and said feeler member normally holding the bolt in released position through cooperation of the strip with the feeler member, and means including said feeler and said controlling connection for moving said bolt into locking engagement with said movable feeding part when an interruption in the strip comes into alignment with the feeler member.

3. In a record machine, in combination, means for feeding a record strip including opposing feed rolls with toothed rotary driving gears therebetween, a movably mounted locking bolt positioned for engagement in locking relation with the teeth of one of said gears, a strip engaging feeler member operatively connected to said bolt to hold the latter in releasing position through the agency of said strip and means for moving said bolt into locking position under predetermined strip conditions.

4. In a record machine, in combination, feeding means for a continuous record strip, a pawl for holding said feeding means in position following a feeding operation, a movably mounted locking bolt engageable in locking relation with said feeding means and having operative connection with said pawl, and lock operating means operatively connected for control by the record strip for moving said locking bolt into position to lock said feeding means and to retain said pawl in its holding position.

5. In a record machine, in combination, feeding means for a continuous record strip, a pawl for holding said feeding means in position following a feeding operation, a movably mounted locking bolt engageable in locking relation with said feeding means and having operative connection with said pawl, and lock operating means operatively connected for control by the record strip for moving said locking bolt into position to lock said feeding means and to retain said pawl in its holding position, said lock operating means including a rock shaft operatively connected to said bolt and an elongated feeler finger extending transversely of and resting upon the record strip and operatively connected to said rock shaft.

6. In a record machine, in combination, feeding means for a plurality of continuous record strips, a strip support having a transversely disposed elongated gap, a locking member cooperating with said feeding means for locking the latter against feeding action, a rock shaft mounted on the machine and having operating connection with said locking member, a lock controlling elongated feeler finger extending between the strips transversely thereof substantially in the plane of the strip path and resting upon the lower strip in alignment with said gap so as to pass into the latter upon a strip interruption coming into alignment with the gap, operating connections between said finger and said rock shaft to operate the latter so as to set said locking member in locking position when said finger passes into said gap and a handle connected to said shaft for manual operation thereof.

7. In a record machine, in combination, feeding means for a plurality of continuous record strips, a strip support having a transversely disposed elongated gap, a locking member cooperating with said feeding means for locking the latter against feeding action, a lock controlling elongated feeler finger extending between the strips transversely thereof substantially in the plane of the strip path and resting upon the lower strip in alignment with said gap so as to pass into the latter when a strip interruption comes into alignment with the gap, and operating connections between said finger and said locking member to set the latter in locking position when said finger passes into said gap.

8. In a record machine, in combination, means for feeding a plurality of relatively superposed strips, a locking device for said feeding means, a lock-controlling, elongated feeler finger extending between said strips transversely thereof substantially in the plane of the strip path and resting upon the lower strip, operating connection between said locking device and said finger, and means whereby interruption in said lower strip causes actuation of said finger to set said locking device.

9. In a record machine, in combination, means for feeding a plurality of relatively superposed strips, a lower one of which is a file strip, a strip-support having an elongated gap extending transversely of the strip path, a locking device for said feeding means, a lock-controlling, elongated feeler finger extending between said strips transversely thereof substantially in the plane of the strip path, and resting upon and supported by said file strip in alignment with said gap so as to be capable of entering the latter upon failure in said file strip, and operating connection between said locking device and said finger whereby to set the locking device upon interruption in said file strip at said gap.

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