June 3, 1930. S. BRAND 1,761,558

AUTOGRAPHIC REGISTER

Filed Feb. 25, 1927

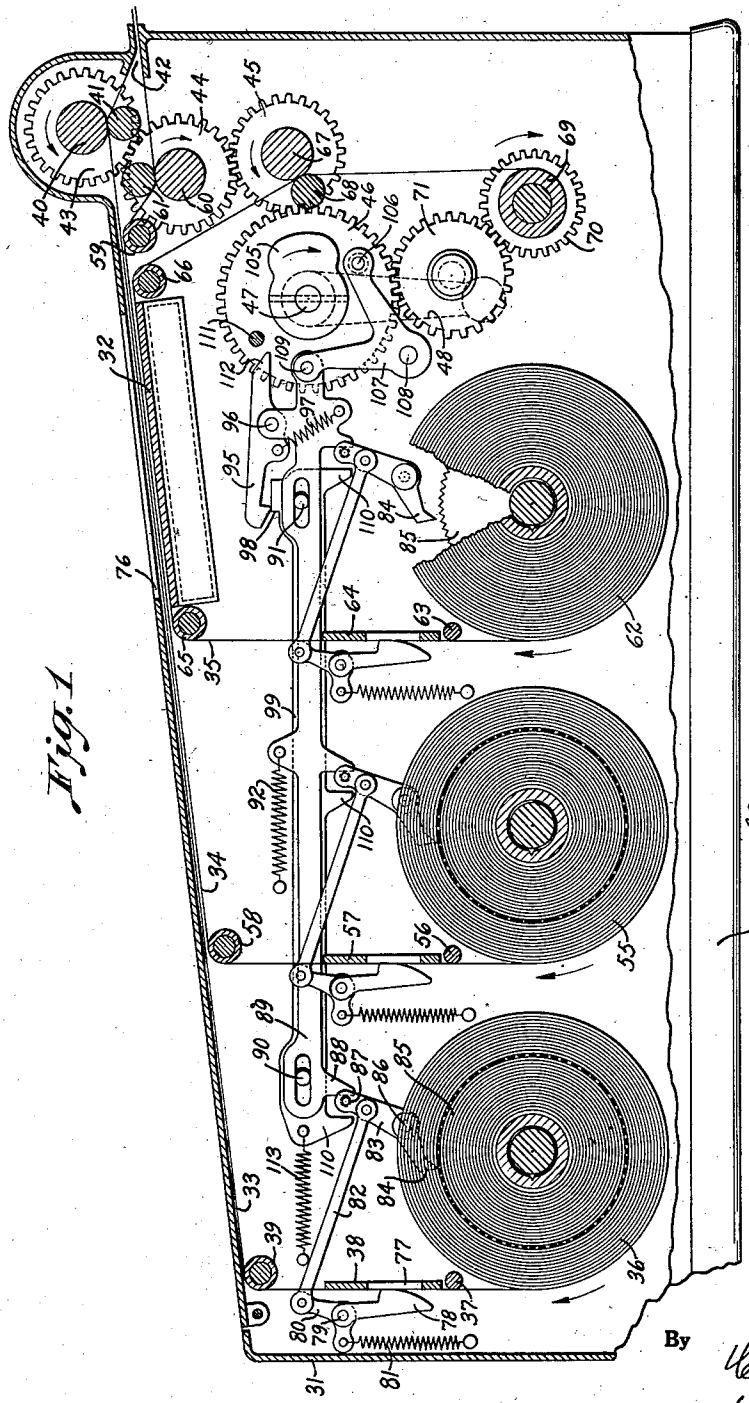


Fig. 1

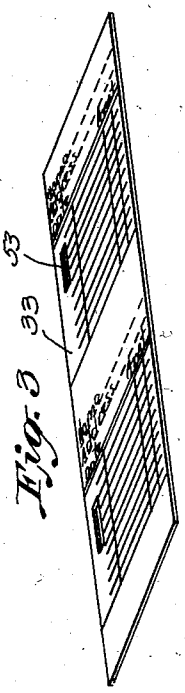


Fig. 3

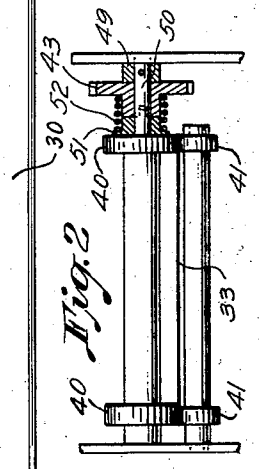


Fig. 2

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UNITED STATES PATENT OFFICE

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AUTOGRAPHIC REGISTER

Application filed February 25, 1927. Serial No. 170,350.

This invention relates to autographic registers and more particularly to that type having a plurality of check strips.

An object of the invention is to provide an autographic register which will feed out from the register a plurality of slips of various predetermined lengths.

Another object of the invention is to aline the checks with each other at each operation of the register.

Another object of this invention is to provide individual devices for each strip to stop the feeding thereof, after said strip has been fed the required distance.

Another object of this invention is to maintain the strip feed stopping devices in their effective positions to prevent the feeding of those strips which have been properly fed at a time when one of the strips, due to slippage, did not receive its proper feed. These stopping devices are maintained in their effective stopping positions during a subsequent operation of the machine, but the device associated with the improperly fed strip is maintained ineffective until its strip has been properly fed.

With these and incidental objects in view, the invention includes certain novel features of construction and combinations of parts, the essential elements of which are set forth in appended claims and a preferred form or embodiment of which is hereinafter described with reference to the drawings which accompany and form part of this specification.

Of said drawings:

Fig. 1 is a longitudinal, sectional view through the autographic register.

Fig. 2 is a detail view showing the friction drive between the driving gear and the feeding rollers for the original strip.

Fig. 3 is a facsimile of a portion of one of the strips, showing the aligning perforations therein.

In general the register contains two check strips and a record strip, all of which are fed from supply rolls of paper contained within the register.

Records are entered on the uppermost strip, and by the aid of carbon paper or carbon coated backs of strips duplicate entries are simultaneously made upon the second check strip and also on the record strip. The two check strips are fed out of the register through a suitable opening on the edge of which they may be severed to produce separate slips or checks. The record strip is fed on to a receiving roll within the register as a permanent record of the transactions.

The various strips are advanced by a plurality of pairs of feed rollers which are actuated by a common driving means manually operated by a crank.

Described in detail, the register consists of a base 30 which supports a casing 31 having a writing table 32 over which passes an original strip 33, a duplicate strip 34, and a record strip 35. The original strip 33 is fed from a supply roll 36, around a guide rod 37, across a bar 38, around a guide roller 39 over the writing table 32, and between feed rollers 40 and 41, passing out through an opening 42 in the casing 31. The feed roller 40 is driven through friction means (Fig. 2) by a gear 43 which meshes with an intermediate gear 44 meshing with a gear 45, and this gear is in mesh with a driving gear 46, secured to the shaft 47 to which is secured an operating crank 48. The friction means includes a collar 49 (Fig. 2) secured to a trunnion 50 of the roller 40; a friction disk 51 loosely mounted on the trunnion 50 and connected by mortice and tenon to the hub of the gear 43, also loosely mounted on the trunnion 50; and a compression spring 52 acting to separate the friction disk 51 and gear 43 to create friction between the roller 40 and disk 51, and between the gear 43 and friction collar 49, to drive the roller 40 to feed the check strip. The above described frictional drive is substantially the same as that shown in United States Letters Patent, No. 1,506,056, granted to M. M. Goldberg on August 26, 1924. The reason for the friction drive between the roller 40 and the gear 43 is to permit the continued rotation of the gear 43 while allowing the feed roller 40 to stop when a braking device is applied to the supply roll 36 to stop the feeding of the strip 33.

The duplicate strip 34 is fed from a supply roll 55, over a rod 56, across a bar 57, around

a roller 58, over the writing table 32, around a guide roller 59, between a pair of feed rollers 60 and 61, and then out through the opening 42 in the casing 31. The feed roller 60 is driven by friction means between the roller and the gear 44, exactly like that shown in Fig. 2 between the feed roller 40 and gear 43.

The record strip 35 is fed from a supply roll 62 over a rod 63, across a bar 64, around a roller 65, across the writing table 32, around a roller 66, between a pair of feed rollers 67 and 68, and then on to a receiving roller 69 which is driven through friction means, exactly like that shown in Fig. 2 between the feed roller 40 and gear 43, by a gear 70 meshing with an intermediate gear 71, which meshes with the driving gear 46, previously described.

Each strip is provided along one edge with holes 53 (Fig. 3), to control the feeding of the respective strips so as to issue slips or checks from the strips 33 and 34 of predetermined length. In connection with the record strip 35, the holes 53 in the strip will determine the amount of paper fed across the writing table, which amount is usually equal to the writing space on the issuing slips. The casing 31 has an opening 76 to enable records to be made upon the original strip 33, and by the aid of carbon paper placed between the original strip and the duplicate strip, and also between the duplicate strip and the record strip, triplicate records are simultaneously made upon these strips.

An individual braking device is provided for each strip to control the feeding thereof. As these devices are all similar in construction, only the device that for the original strip 33 will be described. The bar 38, over which the strip 33 passes, is provided with an opening 77 in alinement with a feeler arm 78, pivoted at the point 79, and fastened to a bell crank lever 80 which is constantly under the tension of a spring 81 to move the arm 78 in counter-clockwise direction. The drawing shows the arm 78 bearing upon the surface of the strip 33 in alinement with, but at a point between the holes in the strip. As a hole 53 reaches the arm 78 the spring 81 enters the feeler arm 78 into the hole in the strip and the opening 77 in bar 38. This counter-clockwise movement of the arm 78 rocks the bell crank lever 80 and through the connecting link 82 operates a pawl 83, to move the lower end 84 thereof into engagement with a ratchet 85, this ratchet being shown more clearly back of the record strip roll 62, to prevent further feeding of the strip. The pawl 83 is freely mounted upon a stud 86. The upper end of the pawl has a laterally projecting pin 87 which, when the strip is feeding, contacts a downwardly projecting lug 88 on a horizontal sliding bar 89, supported near each end by studs 90 and 91. This bar is constantly under the tension of a spring 92, one end of which is attached to the bar and the other end to a pin. The bar 89 has lugs 88 for each of the several strips and, as the arm 78 of each unit enters the hole in its respective strip, the pin 87 carried by the pawl 83 will move away from its lug 88, and when all three pins have moved away from their respective lugs 88, the bar 89 will be drawn toward the left to an extent permitted by the elongated slots in the bar in cooperation with the studs 90 and 91. As this bar moves toward the left, a pawl 95 pivoted at 96 thereon will, by the aid of a spring 97, latch in front of a shoulder 98 formed on a horizontal sliding bar 99 mounted upon the studs 90 and 91. At the proper time, the bar 89 will be moved toward the right to its home position, and by the connection between the pawl 95 and the shoulder 98 the bar 99 will also move toward the right. The movement of these bars is effected by a cam 105 secured to the shaft 47. This cam engages a roller 106 mounted on a bell crank lever 107 pivoted at 108, the upwardly projecting arm of this bell crank lever being pivoted to the bar 89 at the point 109. As bars 89 and 99 move toward the right. lugs 110 projecting downwardly from the bar 99 will engage their respective pins 87 carried by the pawls 83 and move these pawls on their pivots in clockwise direction, disengaging the ends 84 of the pawls from the ratchets 85 and simultaneously withdrawing the arms 78 from the holes in the strips permitting the feed rollers to again feed their strips to issue another slip.

As the bars 89 and 99 are moved toward the right, a pin 111 will be engaged by an inclined surface 112 formed on the pawl 95 and cause this pawl to move clockwise around its pivot and disengage the pawl from the shoulder 98, allowing the bar 99 to return to its normal positions under the tension of a spring 113.

The operation of the bars 89 and 99 and pawl 95 will now be described for an operation of the register wherein, for example, a slippage in the feed of the check strip 33 occurred.

As has been previously described at the beginning of the operation, the cam 105 rocks the bell crank 107 clockwise and draws the bar 89 towards the right. During this time, due to the gears 43 to 46 and 71, the strips 33, 34 and 35 are being fed.

During the operation now to be described, let it be assumed that the strips 34 and 35 from the supply rolls 55 and 62 are properly fed and that the arms 78, associated with these strips have entered holes therein thus causing their respective pawls 83 to engage the ratchets 85 and stop the feed of said strips 34 and 35.

Let it also be assumed that, due to some slippage in the supply roll 36, the strip 33 is

only partially fed out of the machine, therefore, the arm 78, associated with this strip, will remain in the position shown and the pawl 83, therefore, will not be permitted to engage its ratchet 85 to stop the feeding of this strip 33.

During this operation and with the parts in this condition, as the roller 106 passes off the high part of the cam 105, the bar 89 is moved toward the left, but it can only move to the position shown, due to the fact that it will be stopped by the left hand lug 88 contacting the pin 87 of the pawl 83, associated with the supply roll 36. Consequently the pawl 95 cannot latch over the shoulder 98 of the bar 99.

After the handle 48 reaches its normal position, the pawls 83 for the strips 34 and 35 will be in engagement with the ratchets 85 on the rolls 55 and 62. The strips 34 and 35 will have been fed their full distance. The strip 33 will have been but partially fed.

It is now necessary for the operator to make an immediate second operation of the machine in order that the top strip 33 may be fed, to properly align it with the strips 34 and 35 so that another entry may be entered. During this second operation, all three pairs of feeding rollers are operated, but due to the fact that the pawls 83, associated with the supply rolls 55 and 62 are in engagement with their respective ratchets 85, the two lower strips 34 and 35 will not be fed, but since the pawl 83, associated with the supply roll 36, did not engage its ratchet 85 in the previous operation, the strip 33 will be fed until the hole in this strip reaches the point opposite its associated arm 78, whereupon said arm will immediately be drawn into the hole, thus moving its pawl 83 into engagement with its ratchet 85 to stop the feed of this strip. The amount which the strip was fed at this operation is equal only to the amount of slippage which occurred during the previous operation.

As the pawl 83 is rocked counter-clockwise, the pin 87 is moved to the left and the bar 89 may be moved to the left, by the spring 92, when the roller 106 passes off the high part of the cam 105, until the pawl 95 latches over the shoulder 98 on the bar 99. As both strips 34 and 35 are now in proper alignment, they may be torn off by the operator, and the machine is in condition for a subsequent operation.

At the beginning of the subsequent operation, as the bar 89 is moved to the right by the cam 105, the pawl 95 moves the bar 99 to the right and the projections 110 engage the pins on the pawls 83 and restore the pawls to their ineffective positions so that the strips 33, 34 and 35, may all be fed as required.

The feeding rollers are of such diameter that they will feed the strips so as to produce slips of proper length prior to a complete rotation of the operating crank. This is for the purpose of assuring strips of proper length being issued at each operation of the machine, the difference between the feeding and the rotation of the crank being taken care of by the friction drive between the gears and the feeding rollers. By regulating the spacing of the holes in the strips it is possible to issue slips of different lengths and also control the amount of record paper fed across the writing table at each operation.

The various shafts, guide rollers, bars, studs, etc., may be suitably supported on the casing or on side frames within the casing, as is well known in this art.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form or embodiment herein disclosed, for it is susceptible of embodiment in various forms all coming within the scope of the claims which follow.

What is claimed is:

1. In an autographic register, the combination of a plurality of pairs of feed rollers adapted to feed a plurality of check strips and a record strip, a driving means for said feed rollers, separately mounted spring actuated members, one associated with each strip, the members adapted to enter holes in their associated strips to aline the same, independent means associated with each spring-actuated member adapted to stop the feeding of each strip, means connecting the feeding stop means with their respective spring actuated members to make the independent means effective when said spring actuated members enter the holes in their respective strips, a single restoring means to restore all of the feeding stop means and spring actuated members to their ineffective positions, and projections on each feeding stop means, any one of said projections acting to prevent the single restoring means from becoming effective until all the feeding stop means are effective.

2. In an autographic register, the combination of a plurality of pairs of feed rollers adapted to feed a plurality of check strips and a record strip, a common driving means for said feed rollers, spring actuated members, one for each strip, each member adapted to enter a hole in its respective strip to aline the strips with each other at each operation of the machine, independent means adapted to stop the feeding of each strip after it is in alinement, a link intermediate each independent means and each spring actuated member to control the operation of said independent means from said spring actuated member, means for disabling said independent means at the beginning of a subsequent operation, and projections on each independent means

to maintain the disabling means ineffective until all of the independent means are in their effective positions.

3. In an autographic register, the combination of a plurality of pairs of feed rollers adapted to feed a plurality of strips, a common driving means for said feed rollers, spring actuated members, one associated with each strip and adapted to enter holes in their respective strips to aline the strips with each other at each operation of the machine, means independent of said driving means to stop the feeding of each strip after it is in alinement, means intermediate said stopping means and said spring actuated members to control the operation of said stopping means from said spring actuated members, and means common to and controlled by all of the stopping means for disabling said stopping means and removing said spring actuated members from the holes in their strips at the beginning of a subsequent operation.

4. In an autographic register, the combination of a plurality of pairs of feed rollers adapted to feed a plurality of strips, a common driving means for said feed rollers, spring actuated members adapted to bear on the surface of their respective strips and enter holes in the strips at each operation of the machine, individual stopping means for each strip adapted to control the feeding of said strips, means intermediate said stopping means and said spring actuated members to render said stopping means effective when said spring actuated members enter the holes in said strips, means for simultaneously disabling all of said stopping means, and means cooperating with said stopping means and controlled by any operated one of the stopping means to control the operation of said disabling means.

5. In an autographic register, the combination of a plurality of pairs of feed rollers adapted to feed a plurality of strips, a common driving means for said feed rollers, spring tensioned members adapted to bear on the surface of their respective strips and to enter holes in the strips at each operation of the machine, means for preventing the feeding of each strip, means intermediate the spring tensioned members and the feed preventing means to render said feed preventing means effective when said spring tensioned members enter the holes in their respective strips, means operated by said driving means for simultaneously disabling all of said feed preventing means, and a common means cooperating with each feed preventing means to effect the operation of said disabling means.

6. In an autographic register, the combination of a plurality of pairs of feed rollers adapted to feed a plurality of strips; a common driving means for said rollers; members adapted to bear upon the surfaces of their respective strips and enter holes in said strips on each operation of the register; devices for preventing the feeding of each strip; means intermediate said members and said devices to render said devices effective; means common to all of said devices to restore them to their ineffective positions; and means including a latch adapted to engage the restoring means to operate the same.

7. In an autographic register, the combination of a plurality of pairs of feed rollers adapted to feed a plurality of strips; a common driving means for said rollers; members adapted to bear upon the surfaces of their respective strips and enter holes in said strips on each operation of the register; devices for preventing the feeding of each strip; means intermediate said members and said devices to render said devices effective; means common to all of said devices to restore them to their ineffective positions; means including a latch adapted to engage the restoring means to operate the same; and means operable by the last mentioned means and controlled by said devices to prevent an operation of the restoring means.

8. In an autographic register adapted to feed a plurality of strips; a plurality of feeling members, one associated with each strip, and adapted to enter a hole in its respective strip when the strip has been fed the proper distance; devices associated with each strip for stopping the feeding of the same when its respective feeler finger enters the hole in the strip, said devices being operated by connections intermediate the same and their respective members; means common to all of said devices and adapted to be operated to restore said devices to their ineffective positions; a sliding bar carrying a latch for operating said restoring means; and means on said bar and associated with each of said stopping devices and adapted to contact an unoperated device to maintain said latch in ineffective position and prevent the restoring means from restoring the operated stopping devices to their ineffective normal positions.

9. In an autographic register, the combination of means for feeding a plurality of superimposed strips; and a separately operable means to limit the extent of feeding movement of each strip at a predetermined point.

10. In an autographic register, the combination of means for feeding a plurality of super-imposed strips; and a separately operable means for each strip controlled by the respective strips to limit the feeding movement of each strip at a predetermined point.

11. In an autographic register, the combination of a plurality of spindles adapted to support strips arranged on rolls; a friction-driven feed means for each spindle; a common device to actuate all of the feed means; and a separately operable member associated with each strip to positively stop the feed of

its associated spindle at a predetermined point.

12. In an autographic register, the combination of a plurality of spindles adapted to support strips arranged on rolls; a friction-driven feed means to rotate each spindle; a common device to actuate all the feed means; a separately operable member associated with each strip to positively stop the rotation of the spindle of its associated strip at a predetermined point; and means operable under control of each strip to move each separately operable member into its effective position.

13. In an autographic register, the combination of a plurality of spindles adapted to support strips, each strip having perforations at regular intervals; a feed means for each strip; a spring-actuated feeler for each strip to contact the surface of the strip as the strip is fed, and adapted to be moved into a perforation by its spring when the strip has been fed a certain extent; and a device actuated by the feeler as the feeler enters a perforation to positively stop further feeding of the strip, said feeler and device being operable separately from the feed means.

14. In an autographic register, the combination of spindles adapted to support a plurality of strips arranged on rolls, and provided with perforations; a ratchet disk on each spindle; a friction-driven means to rotate the spindles to feed each strip; a common device to actuate all the feed means; a spring-actuated feeler for each strip to contact the surface of the strip as the strip is fed, and adapted to enter a perforation when the strip has been fed a certain extent; and a device, operable by the feeler, to engage the ratchet disk of its respective spindle as the feeler enters the perforation, to positively stop further rotation of the spindle.

15. In an autographic register, the combination with feed rollers adapted to feed a plurality of perforated strips; and a driving means for the feed rollers; of a spring-actuated alining member for each strip, adapted to bear against its associated strip and enter the perforations therein; means controlled by the alining means to arrest the feed of each strip; and means common to and controllable by any of the several arresting means to disable the arresting means and disengage the spring-actuated alining members from the perforations in their strips, at the beginning of a subsequent operation.

16. In a machine of the class described, the combination with feed rollers to feed a plurality of perforated strips; and driving means for the rollers; of a spring-actuated alining member for each perforated strip, adapted to press against the surface of its strip and to enter the perforations therein; individual arresting means for each strip and controlled by its associated alining member to stop the feed of its strip; means controlled by the driving means to disable all of the arresting means; and a universal means co-operating with the individual arresting means and controlled by any one of such arresting means, to control the operation of the disabling means.

17. In an autographic register, the combination with a plurality of spindles adapted to support rolls of perforated strips; and means to feed the strips; of individual spring-pressed feelers for the respective strips, the feelers adapted to press against the strips and enter the perforations therein; individual locking members controlled by their respective feeler fingers and adapted to arrest the feed of their respective strips; means including a releasable connection, normally operable coincidently with the operation of the strip feeding means to render the locking members ineffective; and means controlled by any of the locking members when in ineffective position, to retain the releasable connection ineffective.

18. In an autographic register, the combination with means to feed a perforated strip; of a locking member to arrest the strip against feeding; a feeler finger to control the locking member, the finger bearing against the perforated strip and adapted to enter a perforation therein, means including a releasable coupling to shift the locking member to its ineffective position and to withdraw the feeler finger from a perforation in the strip; means to release the coupling; and means controlled by the locking member to prevent restoration of the coupling to effective position.

In testimony whereof I affix my signature.

SAMUEL BRAND.

CERTIFICATE OF CORRECTION.

Patent No. 1,761,558. Granted June 3, 1930, to

SAMUEL BRAND.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 4, lines 111 and 112, claim 8, for "ineffective normal positions" read "normal ineffective positions"; page 5, line 30, claim 14, after the word "of" insert the words "a plurality of", and lines 30 and 31, strike out the words "a plurality of"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22nd day of July, A. D. 1930.

(Seal)

Wm. A. Kinnan,
Acting Commissioner of Patents.