Feb. 2, 1926. 1,571,448

A. A. JOHNSON

AUTOGRAPHIC REGISTER

Filed Feb. 9, 1924

Fig. 1.

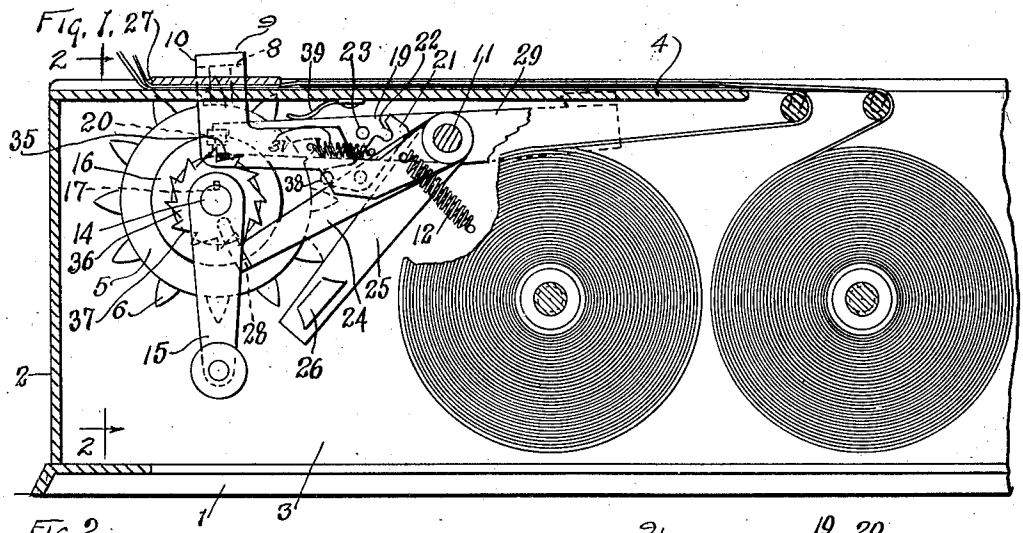


Fig. 2.

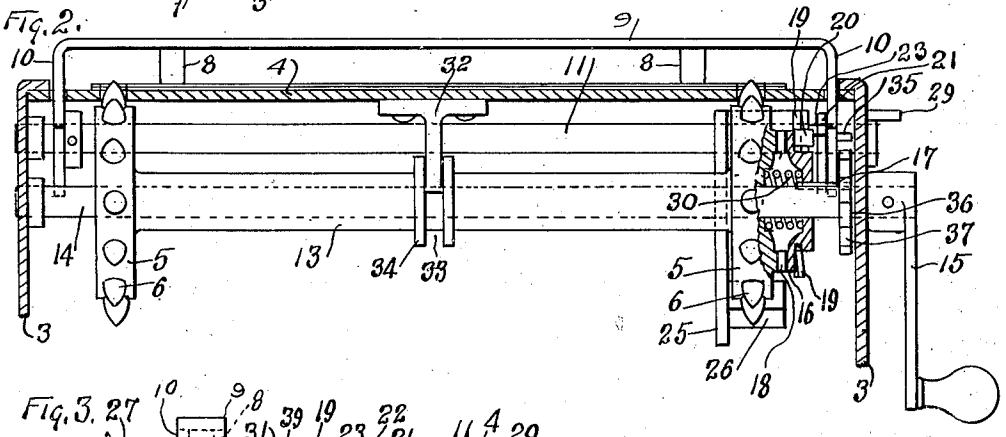


Fig. 3.

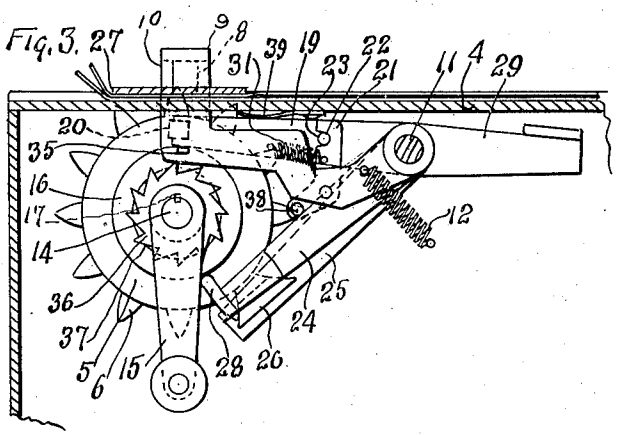
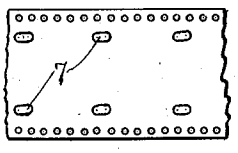


Fig. 4.



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Patented Feb. 2, 1926. 1,571,448

UNITED STATES PATENT OFFICE.

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AUTOGRAPHIC REGISTER.

Application filed February 9, 1924. Serial No. 691,787.

To all whom it may concern:

Be it known that I, ARTHUR A. JOHNSON, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Autographic Registers, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to autographic registers and particularly to registers of the pin-wheel type, the more important features being the provision of means for causing the feeding of "forms" or "tickets" to cease after a predetermined portion of the webs, of which the "forms" constitute a part, has been fed, said means being controlled by perforations or cut-out portions of the webs.

In a more specific aspect, this invention comprises one or more controlling devices adapted during the feeding operation to rest against imperforate portions of the webs and for causing the pin-wheels to be disconnected from the operating means therefor when said devices engage through said perforations in the webs so as to cause the feeding to cease irrespective of further operation of the operating device.

In this form of the invention the controlling devices by their movement into the perforations cause the pin-wheels to be disconnected from the operating means.

In this embodiment of the invention the controlling devices merely trip another device so that a spring previously energized will function to cause the disconnection.

In this embodiment of the invention the controlling devices are permitted to remain in the perforations after the pin-wheels are out of operative relation with the driving means.

In the accompanying drawings:

Figure 1 is a side elevation of a conventional form of autographic register of the pin-wheel type having one side wall removed and showing my invention as applied thereto.

Fig. 2 is a section substantially on the line 2—2 of Fig. 1.

Fig. 3 is a side elevation of the mechanism shown in Fig. 1, showing the parts in the positions they occupy between feeding operations.

Fig. 4 is a plan view of the web, on a reduced scale.

As shown in the accompanying drawings, the autographic register comprises a box like structure having a bottom 1, end plates 2, side plates 3 between which is supported a writing bed or platen 4 for receiving the free ends of paper webs supplied from rolls journaled in the side plates 3, suitable duplicating material being provided at the platen for making manifold copies of work done manually upon the uppermost web. The webs are usually printed so as to provide a succession of forms or tickets which are separated by a tearing operation after a written form has been delivered from the machine. The register, being of the pin-wheel type, comprises a pair of pin-wheels 5 at or near the delivery side thereof which have pins 6 projecting through slots in the platen 4 and thence through a longitudinally arranged series of marginal perforations formed in the webs. The pins 6 remaining continuously in engagement with the webs, prevent any appreciable relative movement between separate superimposed webs, thus preserving correct registration and maintaining the webs properly aligned with respect to the platen and other parts of the register.

It has been the common practice, heretofore, in registers of this type, to mount the pin-wheels on a shaft and to rotate this shaft by a suitable crank connected directly thereto, or by gearing, and to determine the amount of rotation to be given to the pin-wheels and their shaft for measuring form-lengths by a prearranged stop for the crank or by a prearranged ratio of gearing between the crank and the pin-wheels, when it is desirable for the crank to have a uniform throw irrespective of the form-length. In such cases it was necessary to especially prepare each register in accordance with the particular form-lengths of the work sheets which in practice requires a large number of extra parts and labor. Moreover, the work had to be fitted to the register, to some extent, because these arrangements did not adapt themselves to fine variations or adjustments.

In a register made in accordance with this invention, the extent of rotation of the

crank does not determine the length of the webs fed at each operation. This is controlled by the webs themselves through the medium of apertures 7 arranged therein at predetermined and substantially uniform distances longitudinally of the marginally perforated web, the distances being each equal to a form-length. Mechanically, it is merely necessary that a single series of apertures be provided, but, since it is common practice to provide each ticket with a pair of apertures for receiving the posts of a loose-leaf binder, the webs preferably are provided with two transversely aligned series of apertures 7, as shown in Fig. 4.

For cooperating with the apertures 7 there is provided by this invention a pair of feeler fingers 8 mounted on a transversely arranged bar 9 carried by arms 10 which in turn are secured to a shaft 11 located in rear of the pin-wheels. The bail thus formed by the bar 9, arms 10 and shaft 11 is normally urged downwardly by a spring 12 so that the fingers 8 press against the imperforate portions of the webs between the apertures 7 when the feeding operation is in progress, or move into the apertures 7 when the feeding operation should or has ceased. The movement of the fingers 8 through the apertures 7 is utilized for causing the disconnection of the pin-wheels 5 from their driving means.

The mechanism for accomplishing the disconnection of the pin-wheels from the driving means will now be described.

The pin-wheels 5 are mounted upon and secured to a sleeve 13 rotatably mounted on a shaft 14 journaled in the side plates 3. The shaft 14 constitutes the driver of the pin-wheels and is preferably provided on one end which protrudes from the register with a crank or handle 15. If desired, however, the handle may be separately mounted and geared to the drive shaft 14.

The drive shaft 14 is coupled to the pin-wheel during the feeding operations and the means for accomplishing this comprises a clutching disk 16 slidably mounted on the shaft 14 and caused to rotate therewith by means of a spline 17. The clutching disk 16 is preferably provided with teeth cooperating with similar teeth provided on a disk 18 secured to one of the pin-wheels 5 and located at the left side of the register.

During feeding operations, that is when the crank is driving the pin-wheels, the disk 16 is held in clutching position (see Fig. 1) by an arm 19 pivoted on the shaft 11 of the controlling finger bail, the forward end of the arm 19 having a roller 20 for directly engaging the disk 16. In the invention, the arm 19 is normally held in this engaging position by a spring 39. A projection 23 on the arm 19 is adapted to be engaged by a latch 20 having a hook 22 in the manner and for the purpose hereinafter set forth, said latch being pivotally mounted on one of the arms 10 and moved about its pivot by a spring 31.

To prevent accidental movement of the pin-wheels during the time in which the latter are disconnected from the shaft 14 an arm 25 is secured to the locking arm 19. This arm 25 has a bent end 26 adapted to engage between two of the pins 6 of one of the pin-wheels, as shown in Fig. 3. The locking arm 25 is held in pin-wheel engaging position because of the fact that the arm 19 in its upper position, after the clutching disk has been released, rests upon the latter and is prevented from returning so long as the disk is in unclutched position.

The webs or tickets which have been fed or delivered from the register by the feeding operation are then torn or severed from the remaining webs by a knife 27 placed in advance of the pin-wheels.

For engaging the clutching disk 16 with the cooperating disk 18 on the pin-wheel 5 when it is desired to deliver the next form from the register, there is provided a cam 28 carried by an arm 24 pivoted on the shaft 11 and having a handle 29. The cam 28 engages the disk 16 and shifts the same to clutching position with the member 18 against the tension of the spring 30.

The pin-wheel sleeve 13 is held in proper position on the shaft 14 against axial movement by means of an arm 32 mounted on the underside of the platen 4 and engaging an annular groove 33 formed by flanges 34 secured to the sleeve 13.

One of the arms 10 of the controlling finger bail is provided with a projection 35 adapted to move into engagement with a cam wheel 36 secured to the pin-wheel drive shaft 14, at the same time the fingers 8 drop into the apertures 7. The movement of the arm 10 of the bail causes latch 21 carried thereby to engage the pin 23 carried by the clutch controlling arm 19 so that the arm 10 and the arm 19 are coupled. The shaft 14 will not operate the pin wheels 5 to any material extent when the fingers 8 are in the apertures 7 and the member 35 is in engagement with the cam wheel 36. The shaft 14 will cause the pin-wheel 5 to operate when the roller 20 is causing the clutch surface 16 to engage the clutch member 18 of the pin-wheel. The continued rotation of the shaft 14 causes one of the teeth 37 on the toothed wheel 36 to raise the arm 10 of the finger carrying bail and at the same time remove from the holes 7 fingers 8 and cause the pin-wheel locking arm 25 which is rigid with the arm 19 to lock the wheels. The clutch disk 16 engages under the arm 19 and maintains it elevated. The bail 10 also is held elevated with the fingers out of reg-

ister of the apertures. When the handle 15 has reached a predetermined position the locking bar 25 is brought into operation, holding the pin-wheel 5 against any further rotation during the tearing off operation and subsequent writing of another form.

When the parts are in the position shown in Fig. 3 and it is desired to start feeding the next written form, the parts are shifted to the position shown in Fig. 1 in the following manner. The operator depresses the handle 29 until the cam 28 on the arm 24 which is secured to said handle engages the disc 16 and shifts the same to clutching position with the member 18 against the tension of the spring 30. The arm 24 while being so moved engages with the projection 38 on the latch 21 and releases said latch so that the arm 19 and finger carrying arm 10 will be uncoupled and the arm 19 permitted to descend under the influence of the spring 39, in which position it will serve to hold the disc 16 in clutching engagement with the member 18, as shown in Fig. 1. At the same time that the arm 19 descends, the arm 25 will move out of engagement with the pin wheel, as shown in Fig. 1. The operation of the handle 29 to move the arm 24 also serves to move the finger carrying arms 10 upward until the fingers 8 are out of engagement with the notches in the paper, the handle 29 being held in such depressed position by the operator, until the web of paper has been fed to an extent sufficient to move the portion having the apertures 7 beyond the fingers 8 which will then ride on the surface of the web until the next series of apertures 7 are reached, when the fingers 8 will automatically drop into said apertures and cause the parts to assume the position shown in Fig. 3.

Variations may be resorted to within the scope of my invention and portions of the improvements may be used without others.

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

1. In an autographic register the combination of a platen over which webs are fed; pin-wheels for feeding said webs; a driver for said pin-wheels; a clutch for connecting said driver to said pin-wheels; and means under the control of the webs and operated by the driver for breaking the connection between said pin-wheels and driver.

2. In an autographic register, the combination of a platen over which webs are fed; pin-wheels for feeding said webs; a driver for said pin-wheels; a clutch for connecting said driver to said pin-wheels; a feeler device adapted to enter apertures arranged at intervals in said webs; and means operated by the movement of said feelers into said apertures for causing the driver to break the connection between the pin-wheels and the driver as an incident to the continued movement of the driver.

3. In an autographic register, the combination of a platen over which webs are fed; pin-wheels for feeding said webs; a driver for said pin-wheels; a clutch for connecting the driver to the pin-wheels; a feeler device adapted to enter apertures arranged at intervals along the webs; means operated by the movement of the feelers into said apertures for causing the driver to break the connection between the pin-wheels and the driver as an incident to the continued rotation of the driver; means for maintaining said parts in disconnected position.

4. An autographic register as set forth in claim 3 having means for causing the feelers to be automatically removed from said apertures when the clutch is moved to disconnected position.

5. An autographic register as set forth in claim 3 having manually operable means for causing the driver to be connected to the pin-wheels.

6. An autographic register as set forth in claim 2 having means for holding the pin-wheels against rotation when the clutch is in disconnected position.

7. An autographic register as set forth in claim 3 having means for holding the pin-wheels against rotation when the clutch is in disconnected position.

In testimony whereof, I affix my signature.

ARTHUR A. JOHNSON.