A. A. JOHNSON.

AUTOGRAPHIC REGISTER AND THE LIKE.

APPLICATION FILED FEB. 5, 1920.

1,368,994.

Patented Feb. 15, 1921.

Fig 1

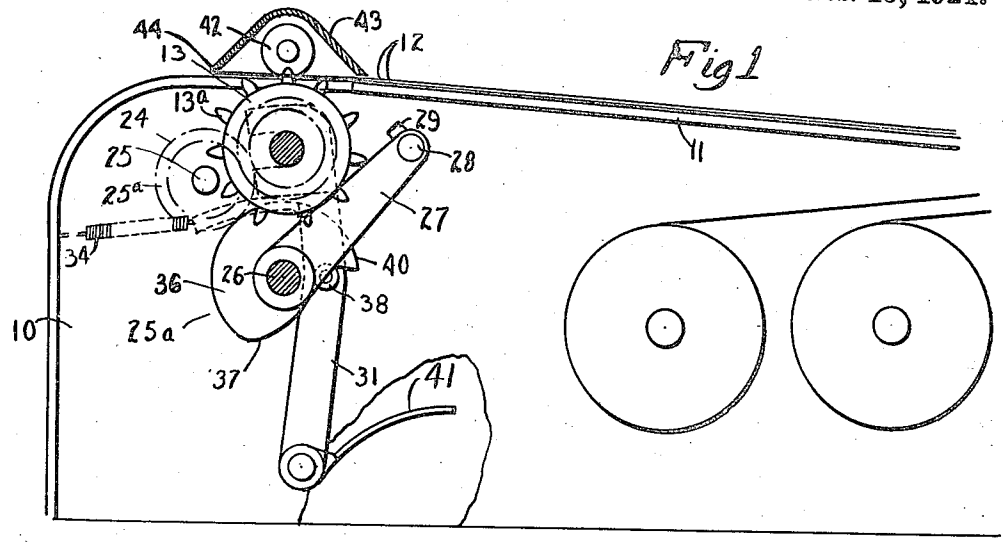


Fig. 3

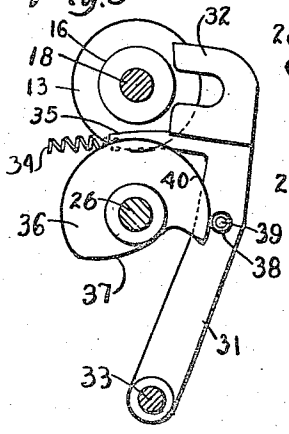


Fig 2

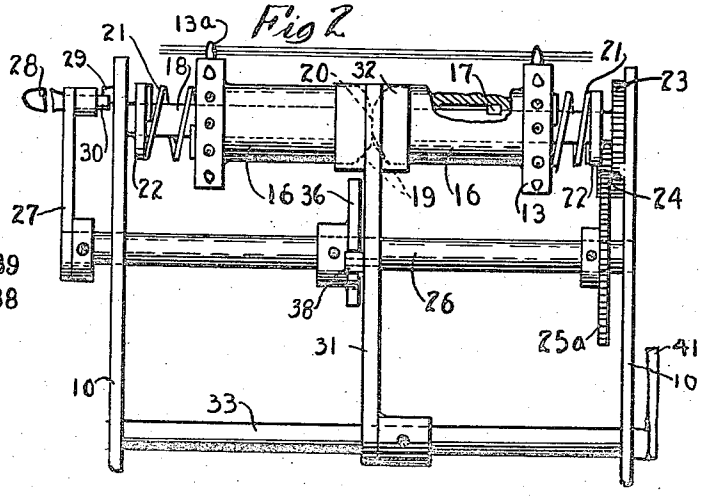
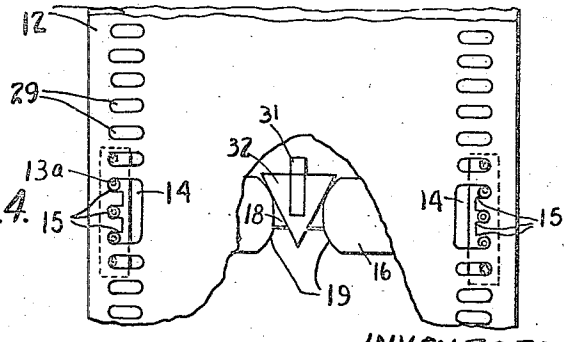


Fig. 4.



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AUTOGRAPHIC REGISTER AND THE LIKE.

1,368,994. Specification of Letters Patent. Patented Feb. 15, 1921.

Application filed February 5, 1920. Serial No. 356,563.

To all whom it may concern:

Be it known that I, ARTHUR A. JOHNSON, citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Autographic Registers and the like, of which the following is a specification.

This invention relates to autographic registers and more particularly to web feeding mechanism therefor, whereby a plurality of webs are fed simultaneously, stopped automatically and maintained in proper alinement.

In certain autographic registers now on the market, the superposed webs are fed frictionally by driving means against which the webs are pressed by suitable pressure members until the driving members extend through perforations in the webs, at which time the forward movement of the webs ceases. The advantages of this form of feed are well known, one of these being the feeding of webs the form lengths of which differ.

The machine above referred to being of the "friction-roll" type necessitates the provision not only of the driving members but also the coöperating pressure members to cause sufficient friction between the webs and the driving members. It also necessitates the provision of additional means for jogging the webs into proper registration and alinement at some time before or after or during the feeding operation, in some instances.

A feature of the present invention is the provision of means for feeding the webs positively but nevertheless permitting the web feeding means to move in web advancing direction without feeding the webs, after the webs have been each fed a form length.

This means for positively feeding the webs may comprise a feed mechanism of the "pin-wheel" type; and the webs therefor may be provided with marginal perforations to be engaged by the pins of said pin-wheels. The means for permitting the advance movement of the feeding means to continue after the webs have been advanced a form length may comprise a perforation or other physical alteration in the webs through which the pins of the pin-wheels extend and move independently of the webs or the particular web which has been fed a form length.

Another feature of the present invention is the provision of means whereby the pin-wheel feed may again resume the feeding of the webs when it is desired. This means may comprise manually or automatically operated means for moving the pin-wheels so that they again engage marginal perforations in the webs and this means may be so arranged that they move the pins of the pin-wheels sidewise out of range of the stopping perforation and into engagement with the marginal perforations which are wide enough for this purpose.

Another feature of this invention is the jogging of the webs into alinement at the end of each feeding operation and for holding the webs in this position until the next feeding operation. This means according to the present invention may comprise part of the pins of the pin-wheel feeding mechanism, the sides of the pins being so shaped as to engage at notched portions which are formed by the stopping perforations and the marginal perforations for feeding.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Figure 1, is a side elevation of an autographic register showing my invention as applied thereto.

Fig. 2, is a front view and shows the mechanism for causing the pin-wheel feed to be resumed.

Fig. 3, is a side view of the feed mechanism showing the parts in the position they occupy during portion of the feeding operation.

Fig. 4, is a plan view showing the parts in "writing position."

Referring to the drawings which show a physical embodiment of my invention.

The usual side walls 10 of an autographic register support the usual platen 11 in the usual manner. The webs 12 are supported in the usual manner and are led over the platen 11 to the forward part of the machine where the feeding device is located. The feeding device may comprise pin-wheels 13 one adjacent each side of the webs, said

wheels 13 having pins 13ª adapted to extend through feeding perforations arranged in rows one row at each side of the webs.

According to the present invention the webs 12 are each provided with a slot or perforation 14 at times in line with each pin-wheel 13, there being one set of openings or perforations 14 for each form. As the pin-wheels are rotated, causing their pins to project through and feed the webs by means of the marginal perforations therein, the webs are advanced until the slots 14 are located directly above the pin-wheels, at which time there is no material for the pins to engage; therefore the webs cease to advance, permitting, however, the pin-wheels to continue to rotate in web advancing direction. If the forms on the various webs are of different lengths, the shorter form web, having the stopping perforations at shorter intervals, stops advancing first, while the longer webs continue to advance until the openings 14 therein reach the pin-wheels, when they too will stop advancing.

With this form of feeding mechanism the webs not only feed the form distance without the aid of a measuring device but are constantly maintained in alinement and registration during the entire feeding operation thereof which is an important advantage in many cases.

In order to cause the feeding operation to be resumed and for other purposes, the webs are provided with a plurality of notches 15 adjacent the opening or stopping perforation 14, so that the pins 13 by sidewise movement of the pin-wheels may engage the webs again and advance the same when the pin-wheels rotate.

The sides of the pins are so shaped that when they are moved sidewise into engagement with the notches 15 they will re-aline or jog the webs into proper registration with one another by engaging the notches of the webs.

The pin-wheels 13 are mounted on hubs 16 which are splined as at 17 to a drive 18. The hubs 16 extend toward the center of the machine and have their rounded ends 19 contacting as at 20 under the influence of springs 21 disposed between the hubs 16 and disks or collars 22 secured to the shaft 18. Thus it will be seen that the pin-wheels have a normal tendency to move toward the center of the machine and have this movement limited by the hubs contacting at 20. This position is the normal driving position of the pin-wheels 13.

The shaft 18, is suitably journaled in the side walls 10 of the machine and has secured at one end a gear 23. This gear 23 meshes with a gear 24 mounted on a shaft 25 journaled in the frame of the machine which gear 24 meshes with a gear 25ª secured to a shaft 26. Secured to the shaft 26, at its end which extends outside the casing, is a lever 27, by means of which the shaft 18 is rotated. The handle 28 is mounted on the lever 27 secured to the shaft 25.

When the handle 28 is operated, the pin-wheels 13 are rotated, causing the pins 13ª to feed the webs by extending through successive perforations 29 in the side margins of the webs until the opening 14 therein is reached.

The handle 28 is limited to a single rotation by means of a stop 29 secured to the side wall 10, which stop is in position to be engaged by a pin 30 carried by the handle 28. In order to again rotate the lever 27 the handle 28 is drawn outwardly against the tension of a spring (not shown) to remove the pin 30 from the path of the stop 29, and this is done before each feeding operation.

The pin-wheels 13 are moved outwardly against the pressure of the spring 21 by means of a cam lever 31 having a double face cam 32 secured to its upper end and disposed opposite the rounded ends 19 of the hubs 16. The lower end of the cam lever 31 is pivoted on a shaft 33 pivoted in the side walls of the machine. The cam lever 31 is urged toward the forward end of the machine by means of a coil spring 34 attached to the front wall and the other end attached to the arm 35 at the upper end of the lever. The spring 34 is preferably more powerful than the two springs 21 combined, or at least has sufficient power to cause the cam lever, when free to do so, to engage and move the hubs 16 outwardly, thus moving the pin-wheels 13 to engage the notches 15 at the side of the slots 14 in the webs.

In order to control the cam lever 31, I provide a cam disk 36 secured to the shaft 26 and having a cam surface 37 to engage a roller 38 pivoted on a pin 39 carried by the cam lever 31. Thus when the shaft 36 is rotated, from its position shown in Fig. 1 to feed the webs, the cam surface 37, on the cam disk 36, moves the cam lever 31 causing the cam 32 to free the hubs 16 of the pin-wheels, so that the springs 21 may force the pin-wheels together into alinement with the openings 14. This movement takes place during the initial portion of the feeding operation and is completed before the shortest forms have been fed the proper amount. During the continued movement of the cam disk 36 by the operation of the handle the cam lever 31 is held in this position by a surface 40, until just before the completion of the feeding operation when the roller 38 rides off the surface 40 and drops to the position shown in Fig. 1 bearing at this time against the cam surface 37. As the roller drops off the surface 40 the spring 34 pulls the cam lever 31 forward and causes the

pin-heels 13 to be moved toward the outside of the machine to engage the notches 15 in the webs and adjust and hold the same while the machine is at rest and during the writing operation.

It will be noted that in the present device, while the webs are stopped in their advance by the opening in each web, nevertheless the webs are held in their normal position during the writing operation by the same pins that cause the feeding of the webs, thus making it unnecessary to provide special or separate means to hold the web in adjusted position, and further, that the pins in moving to position to hold the webs, also aline and move the webs into proper registration with one another and with the platen.

A handle 41 is provided on the shaft 33 so that the cam lever 31 may be manually operated for any purpose desired, for instance, when threading the webs into the machine to prepare the machine for use.

An anti-friction roller 42, may be provided for holding the webs in engagement with the pin 13ª, of the pin-wheel 13.

The housing 43 for the roller 42 is provided at its forward end with a sharp edge 44 along which the webs may be severed when fed out of the machine the proper amount.

The cam 32, on the cam lever 31 is provided with a slot 45, so that the forward part of the cam can extend past the shaft 18 and so that its movement will be properly guided.

The form of web that I have provided comprises a perforation 29 which is elongated so that the pins can always engage the perforations whether the pins are in their innermost or outermost position and so as to provide the notches 15 by merely cutting out a piece to form the opening 14, which piece is substantially the width of the pins 13ª. By providing the web with the elongated perforations the feeding operation can be commenced with the pins in their outermost positions, which positions they can maintain for a considerable part of the feeding operation and the pins can gradually move toward the center of the machine as the roller 38 rides along the cam surface of the cam disk.

The term slot, as used in the annexed claims, is intended to include any aperture or hole or any equivalent physical alteration of the web for the purpose specified.

I am aware that it has been proposed to utilize mechanism for the purpose of feeding webs until a stopping slot or other physical alteration causes the cessation of the feeding operation; and therefore I do not claim such mechanism broadly, nor is my invention to be understood as limited to any particular type of feeding mechanism, excepting in such claims as recite specifically pin feeding.

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

Having now described my invention, I claim:

1. In an autographic register, the combination of a plurality of superposed webs; a platen over which said plurality of perforated webs is directed; pin-wheels having pins for engaging the perforations in said webs to feed the webs over the platen; means for rotating the pin-wheels to cause said webs to be fed, said webs having slots into which the pins of the pin-wheels are adapted to extend and move idly so that the web feeding is stopped; and means for causing the pin-wheels to resume the feeding operation.

2. In an autographic register, the combination of a plurality of superposed webs; a platen over which said plurality of perforated webs is directed; pin-wheels having pins for engaging the perforations in said webs to feed the webs over the platen, said webs having stopping slots dividing the webs into form lengths into which the pins of the pin-wheels extend and move idly when the webs have each been fed a form length whereby the feeding of the webs by the pins ceases; and means for rotating the pin-wheels.

3. In an autographic register, the combination of a plurality of superposed webs; a platen over which said plurality of webs is directed, said webs having a series of perforations arranged longitudinally therein; and feeding wheels having pins for engaging in said perforations to positively feed the webs and maintain the webs in alinement during the feeding thereof, each of said webs having slots dividing the web into form lengths, the pins of the feeding wheels being adapted to pass idly through said slots after each web has been fed a form length and whereby the feeding of the web is discontinued after a form length has been fed.

4. In an autographic register, the combination of a plurality of superposed webs; a platen over which said plurality of superposed webs is directed, said webs having a series of perforations arranged longitudinally therein; feeding wheels having pins for engaging said perforations to feed the webs positively and maintain the webs in alinement during the feeding operation, said webs each having slots therein at predetermined intervals along said web, the feeding pins of the feeding wheels being adapted to pass idly through said slots after each web has been fed an extent determined by the interval between said slots whereupon the feed of the web is discon-

tinued; and means for causing the pins to resume the feeding operation at will.

5. In an autographic register, the combination of a plurality of superposed webs; a platen over which said plurality of superposed webs is directed, said webs having a series of perforations arranged longitudinally therein; feeding wheels having pins for engaging said perforations to feed the webs positively and maintain the webs in alinement during the feeding, said webs each having slots therein at predetermined intervals along said webs, the feeding pins of the feeding wheels being adapted to pass idly through said slots after each web has been fed an extent determined by the interval between the slots whereupon the feed of the webs is discontinued.

6. In an autographic register the combination of a plurality of superposed webs; a platen over which said plurality of superposed webs is directed, said webs having a series of perforations arranged longitudinally therein; feeding pins for engaging said perforations to feed the webs positively and maintain the webs in alinement during the feeding thereof, said webs each having slots therein at predetermined intervals along said webs, the feeding pins being adapted to pass idly through said slots after each web has been fed an extent determined by the interval between said slots whereupon the feed of the webs is discontinued.

7. In an autographic register, the combination of a plurality of superposed webs; a platen over which said plurality of superposed webs is directed, said webs having adjacent each edge a series of perforations arranged longitudinally therein; and feeding means comprising a pin-wheel for each longitudinal series of perforations having pins thereon for engaging in the perforations to positively feed the webs and to maintain the webs in alinement during the feeding operation, said webs having slots dividing the web into sections of predetermined length, one slot being associated with each series of perforations, the pins of the pin-wheels being adapted to pass idly through said slots after each web has been fed the extent of one section length and whereby the feed of each web is discontinued after a section thereof has been fed.

8. In an autographic register, the combination of a plurality of superposed webs; a platen over which said plurality of webs is directed; feeding devices for feeding said webs, comprising web-engaging means and operating means for said web-engaging means, said webs being provided with slots into which the web-engaging means are adapted to extend and be disengaged from the webs whereby the feeding of the webs is discontinued; and means operated by said operating means after the feeding of the webs has been discontinued for causing the web-engaging means to reëngage the webs whereby the webs are held by the web-engaging means against movement during the writing operation.

9. In an autographic register, the combination of a plurailty of superposed webs; a platen over which said plurality of webs is directed; feeding devices for feeding said webs comprising web engaging means, said webs being provided with slots into which the web-engaging means are adapted to extend and to be disengaged from said webs whereby the feeding of the webs is discontinued; and means automatically operated after the feeding of the webs has been discontinued for causing the web-engaging means to reëngage the webs whereby the webs are held by the web-engaging means against movement during the writing operation.

10. In an autographic register the combination of a plurality of superposed webs; a platen over which said plurality of webs is directed; feeding devices for feeding said webs, comprising web-engaging means and operating means for said web-engaging means, said webs being provided with slots into which the web-engaging means are adapted to extend and pass idly therethrough whereby the feeding of the webs is discontinued; means for subsequently arresting the movements of the operating means for the web-engaging means; and means operated after the feeding operation has been discontinued and before the arrest of the operating means for the feeding devices for causing the web-engaging means to reëngage the webs and hold said webs against movement during the writing operation.

11. In an autographic register, the combination of a platen; of a web having perforations along each side edge; feeding wheels; pins on the feeding wheels for engaging said perforations to feed the web; and openings in said web associated with said feeding perforations into which said pins extend and pass idly without feeding the web and whereby the length of the fed web is determined.

12. In an autographic register, the combination of a platen; a web adapted to be directed over said platen and having transverse elongated perforations along each side edge; feeding wheels; pins on the feeding wheels for engaging portions of said elongated perforations; and means for moving said pin-wheels into position to engage other portions of said elongated perforations.

13. In an autographic register, the combination of a platen; a web adapted to be directed over said platen and having transverse elongated perforations along each side

edge; feeding devices; and pins on the feeding devices for engaging portions of said elongated perforations, said web having portions between the perforations removed to provide slots through which the feeding pins are adapted to pass idly after said web has been fed a predetermined extent.

14. In an autographic register, the combination of a platen; a web adapted to be directed over said platen and having transverse elongated perforations along each side edge; feeding devices; pins on the feeding devices for engaging portions of said elongated perforations, said web having portions between the perforations removed to provide slots through which the feeding pins are adapted to pass idly after said web has been fed a predetermined extent, and means for moving said pins into the perforations contiguous said slots to cause the pins to engage the portions of the web between the last named perforations whereby the feeding of the web by said pins may continue.

15. The combination with a web having a series of transverse elongated perforations along each side edge and having portions of the web between certain of the elongated perforations of each series removed to provide a slot having teeth extending into said slot; of a platen over which said webs is directed; and feeding devices having pins for engaging said elongated perforations to positively feed said web, said pins being adapted to extend into said slot and move idly therethrough whereby the feeding of the web is discontinued; and means for causing the pins to be moved to position to engage between the teeth extending into said slots whereby the feeding of the web by said pins may continue.

16. The combination with a plurality of webs each having a series of transverse elongated perforations along each side edge and having portions of each web between certain of said elongated perforations of each series removed to provide slots each having teeth extending into each slot; of a platen over which said plurality of webs is directed; feeding devices having pins for engaging said elongated perforations to positively feed the webs, said pins being adapted to extend into said slots and move idly therethrough whereby the feeding of the webs is discontinued; and means for causing the pins to be moved to engage between the teeth extending into said slots to readjust the webs preparatory to the next feeding operation and whereby the feeding of the webs by said pins may be resumed.

17. A new article of manufacture consisting of a web having a series of transverse elongated perforations along each side edge and having portions of the webs between certain of the elongated perforations of each series removed to provide slots each having teeth extending therein.

18. In an autographic register, the combination of a platen; a web-feeding shaft; pin-wheels mounted to rotate with the rotation of said shaft; and means for causing the pin-wheels to have a normal tendency to slide on said shaft toward each other.

19. In an autographic register, the combination of a platen; a web-feeding shaft; feeding pin-wheels mounted on said shaft to rotate therewith and to have a free movement longitudinally of said shaft; means tending to move said pin-wheels toward each other longitudinally of said shaft; and means for holding said pin-wheels against said movement.

20. The combination of a shaft; pin-wheels slidable on said shaft; means for causing said pin-wheels to tend to move toward each other on said shaft; and means for moving said pin-wheels apart against the pressure of said first named means.

21. The combination of a feed shaft; pin-wheels individually slidable on said shaft and adapted to rotate with said shaft; springs tending to move said pin-wheels toward each other along said shaft; and spring operated means for moving said pin-wheels apart against the pressure of said springs.

22. The combination of a feed shaft; pin-wheels individually slidable on said shaft and adapted to rotate with the shaft; springs tending to move said pin-wheels toward each other along said shaft; and means for moving the pin-wheels apart against the pressure of the springs.

23. The combination of a feed shaft; pin-wheels individually slidable along said shaft and adapted to rotate with said shaft; means tending to hold said pin-wheels in one position on said shaft; a driving device for said feed shaft; and means operated by said driving device for controlling the position of said pin-wheels on said shaft.

24. The combination of a feed shaft; pin-wheels slidable along said shaft and rotatable therewith; means tending to hold the pin-wheels in one position on said shaft; a driving device for said feed shaft; and means operated by said driving device for holding the pin-wheels in another position on said shaft.

25. The combination of a feed shaft; pin-wheels slidable along said shaft and rotatable therewith; means tending to hold the pin-wheels in one position on said shaft; a driving device comprising a handle; connection from the driving device to said shaft; a wedge adapted to spread said pin-wheels on said shaft; and means operated by the driving device for controlling the operation of said wedge.

26. The combination of a feed shaft; pin-wheels slidable along said shaft and rota-

table therewith; means tending to hold the pin-wheels in one position on said shaft; a driving device comprising a handle; connections from the driving device to the feed shaft; means adapted to move the pin-wheels to another position on the shaft; mechanism operated by the driving device for automatically controlling the operation of the last named means; and manually operable mechanism for controlling the operation of the last named means.

27. The combination of a shaft; feeding devices slidable along said shaft; means for causing said feeding devices to tend to move toward each other on said shaft; and automatically operated means for moving said feeding devices apart against the pressure of said first named means.

28. The combination of a feed shaft; feeding devices individually slidable along said shaft and adapted to rotate with said shaft; springs tending to move said feeding devices toward each other along said shaft; and spring operated means for moving said feeding devices apart against the pressure of said springs.

29. The combination of a feed shaft; feeding devices individually slidable along said shaft and adapted to rotate with the shaft; springs tending to move said feeding devices toward each other along said shaft; and means for moving the feeding devices apart against the pressure of the springs.

30. The combination of a feed shaft; feeding devices individually slidable along said shaft and adapted to rotate with said shaft; means tending to hold said feeding devices in one position on said shaft; a driving device for said feed shaft; and means operated by said driving device for controlling the position of said feeding devices on said shaft.

31. The combination of a feed shaft; feeding devices slidable along said shaft and rotatable therewith; means tending to hold the feeding devices in one position on said shaft; a driving device for said feed shaft; and means operated by said driving device for holding the feeding devices in another position on said shaft.

32. The combination of a feed shaft; feeding devices slidable along said shaft and rotatable therewith; means tending to hold the feeding devices in one position on said shaft; a driving device comprising a handle; connections from the driving device to said shaft; a wedge adapted to spread said feeding devices on said shaft; and means operated by the driving device for controlling the operation of said wedge.

33. The combination of a feed shaft; feeding devices slidable along said shaft and rotatable therewith; means tending to hold the feeding devices in one position on said shaft; a driving device comprising a handle; connections from the driving device to the feed shaft; means adapted to move the feeding devices to another position on the shaft; mechanism operated by the driving device for automatically controlling the operation of the last named means; and manually operable mechanism for controlling the operation of the last named means.

34. The combination of a feed shaft; pin-wheels slidable along said shaft and rotatable therewith; means tending to hold the pin-wheels in one position on said shaft; a driving device comprising a handle; connections from the driving device to the feed shaft; means adapted to move the pin-wheels to another position on said shaft and comprising a wedge; and a cam operated by the driving device adapted to control the wedge.

35. The combination of a feed shaft; pin-wheels slidable along said shaft and rotatable therewith; means tending to hold the pin-wheels in one position on the shaft; a driving device comprising a handle; connections from the driving device to the feed shaft; means tending to move the pin-wheel to another position on the shaft; and means operated by the driving device, which means in its cycle of operations causes the pin-wheels to occupy both of their positions.

36. In an autographic register, a platen over which webs are fed; and pin-wheel feeding devices movable transversely relative to said platen.

37. In an autographic register. a platen over which webs are fed; and pin-wheel feeding devices movable transversely relative to said platen and to the webs carried by said platen.

38. The combination of a platen over which a plurality of webs are fed, each web being provided with two longitudinal series of perforations; pin-wheel feeding devices having pins to engage through both series of perforations of each of the webs at each longitudinal series whereby the webs are fed; and means whereby said pin-wheels may feed one of said webs to a greater extent than other of said webs.

39. In an autographic register, a platen over which webs are fed; a plurality of pin-wheel feeding devices for feeding said webs; and means for moving said pin-wheels transversely relative to one another.

40. In an autographic register, a platen over which webs are fed; feeding devices for said webs movable transversely of said platen and of the webs carried thereby; a device for rotating said feeding devices; and means operated by said driving device during a portion of said feeding operation for causing the feeding devices to be moved transversely of the platen.

41. In an autographic register, a platen over which webs are fed; feeding devices for

said webs movable transversely of said platen and of the webs carried thereby; a device for rotating said feeding devices; means operated by said driving device during a portion of the feeding operation for causing the feeding devices to be moved transversely of the platen; and means for holding the feeding devices so moved during a portion of the feeding operation.

42. In an autographic register, a platen; webs fed over said platen; feeding devices for said webs, said webs and feeding devices being movable transversely relatively; and automatically operated means for causing said relative movement during predetermined portion of a feeding operation.

In testimony whereof I affix my signature.

ARTHUR A. JOHNSON.