Feb. 7, 1928. 1,658,723

L. JENSEN

AUTOGRAPHIC REGISTER

Filed July 29, 1926 2 Sheets-Sheet 1

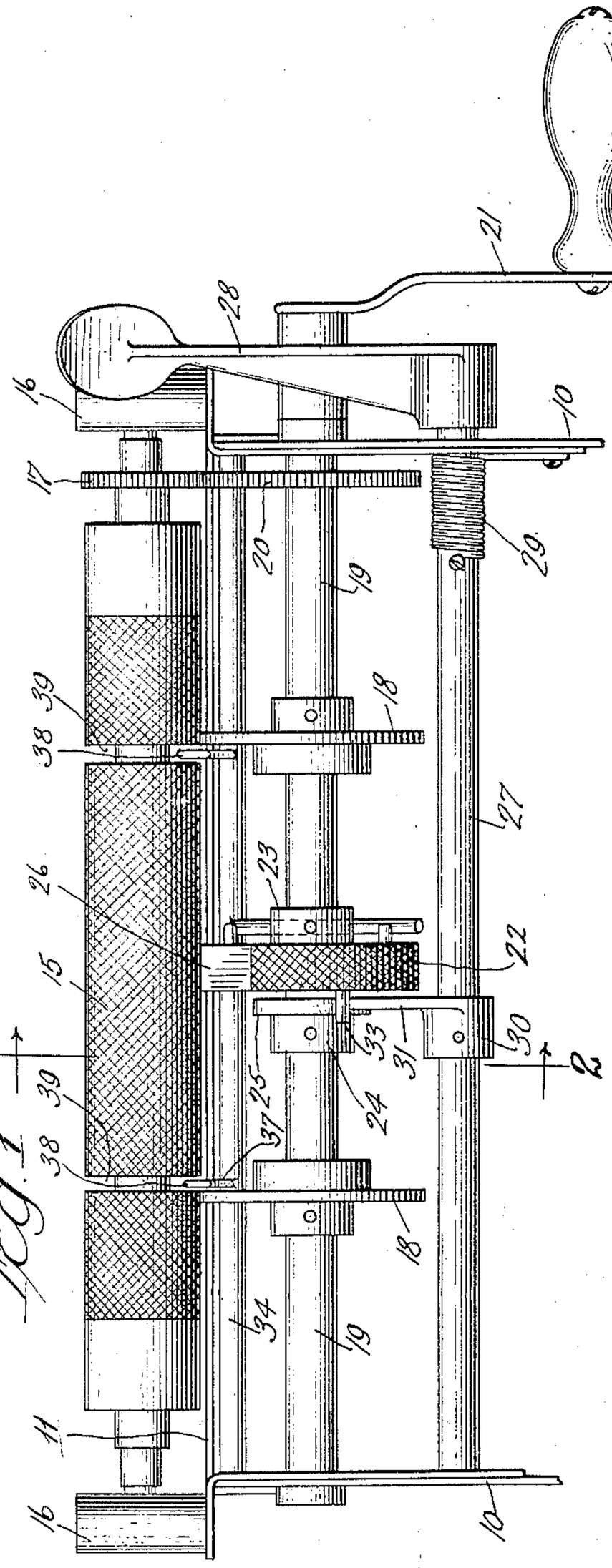

Fig. 1

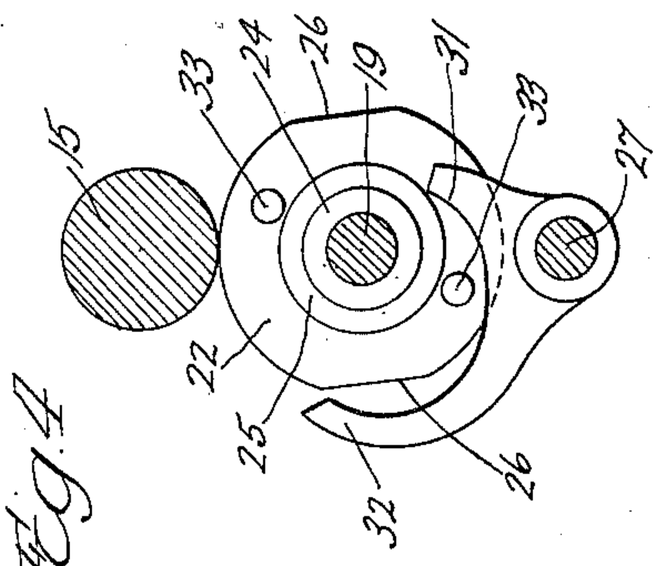

Fig. 4

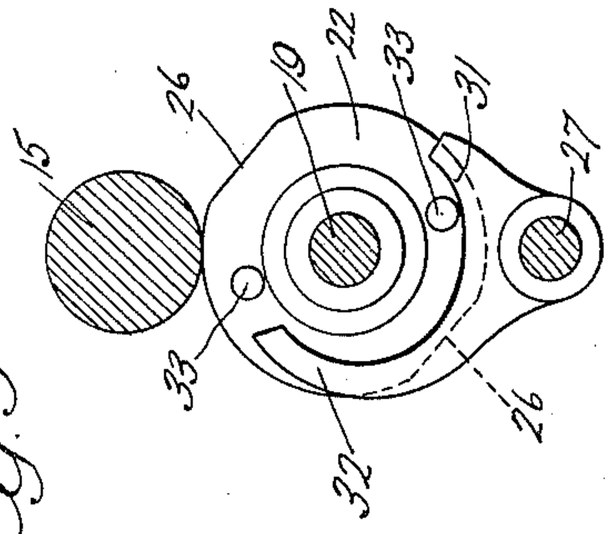

Fig. 3

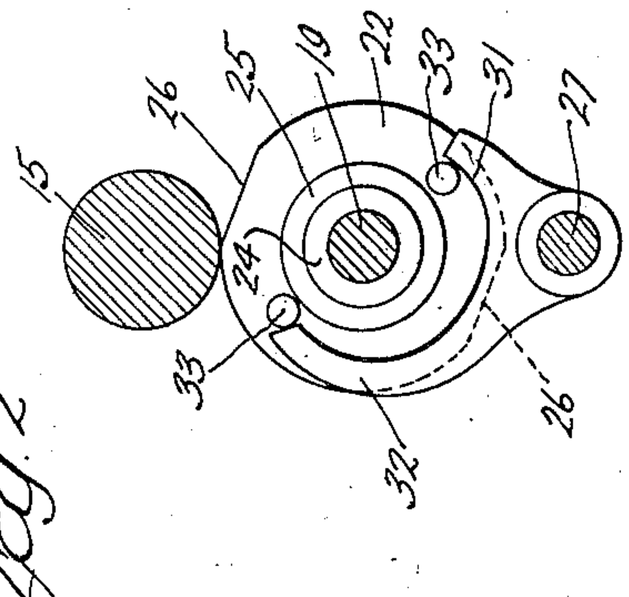

Fig. 2

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Fig. 5.

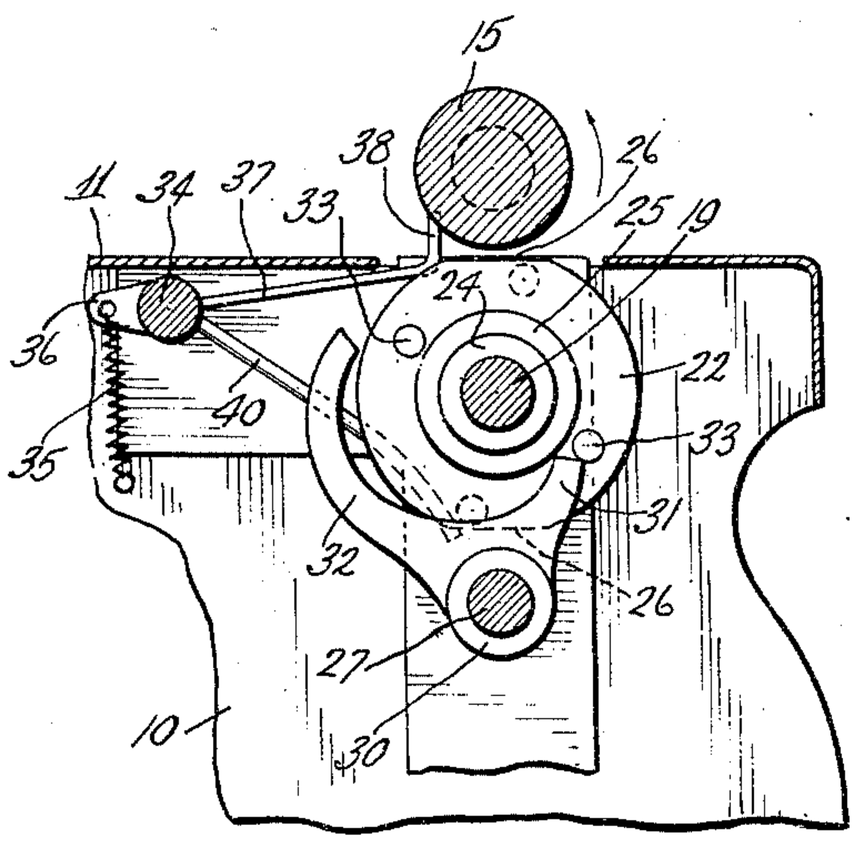


Fig. 6.

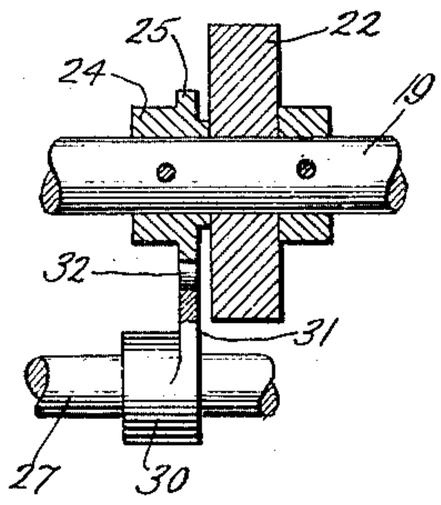
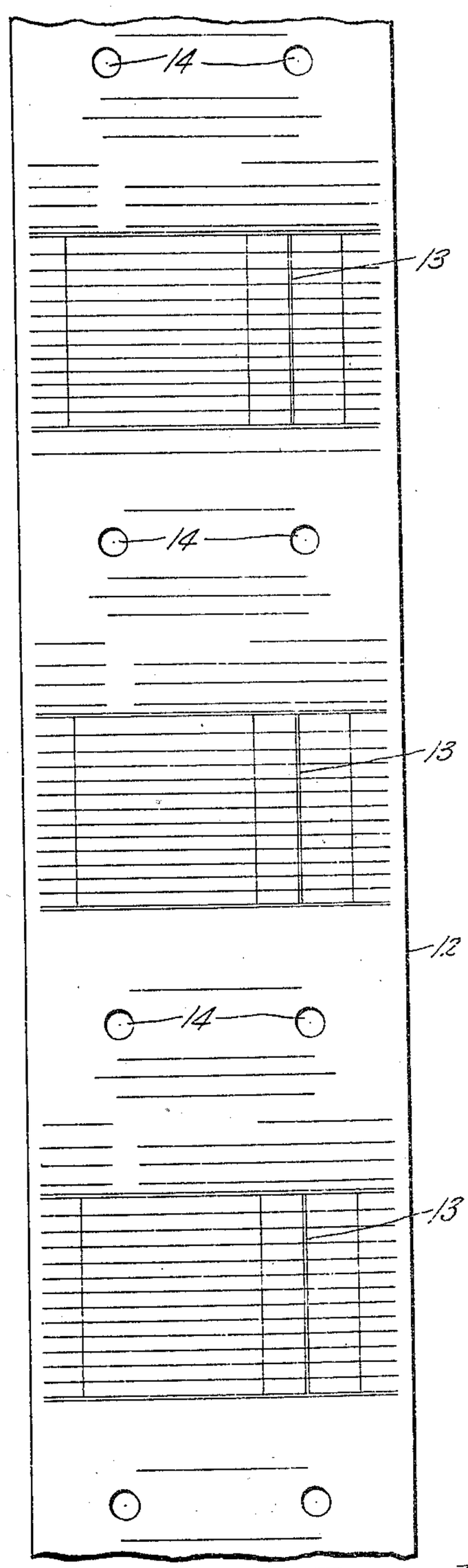


Fig. 7.



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Patented Feb. 7, 1928. 1,658,723

UNITED STATES PATENT OFFICE.

LOUIS JENSEN, OF CHICAGO, ILLINOIS, ASSIGNOR TO UNITED AUTOGRAPHIC REGISTER COMPANY, OF CHICAGO, ILLINOIS.

AUTOGRAPHIC REGISTER.

Application filed July 29, 1926. Serial No. 125,792.

My present invention relates to improvements in autographic registers in which the material being operated upon or advanced is in the form of paper strips that are provided with spaced longitudinal rows of filing-pin perforations or apertures, which latter are employed in the operation of the register to discontinue the advancement of the material at predetermined points in the length of the strips. Specifically, my improvements appertain to mechanism for initially feeding or starting the advancement of the material after the same has been discontinued by the normal feed members of the structure so that said initial feed mechanism will move the material a distance sufficient to take the apertures out of registry with the normal feed members and thereafter permit the latter to become effective to advance the material. Commercially the last described mechanism is known as a "starter" or "restarter", and I have herein employed this term or terms in this description to designate the structure that initially advances the material to such position that the normal feed members may become effective upon the material.

One of the objects of my invention is the provision of a starter mechanism for an autographic register that is made from as few parts as possible and consistent with durability in construction and dependability in operation. Another object resides in providing a starter mechanism that is adapted to be rendered operative to advance the strips of material merely by the operation or depression of a key conveniently located at the side of the register casing adjacent the operating crank, and after moving the strips the required distance will thereafter automatically become ineffective to advance the material.

Further objects of my invention are the provision of a structure of this character that is dependable in operation, novel in construction, and economical to manufacture, so that it will not materially increase the production cost of the register, and which is capable of being incorporated in apparatus of divers types. Additional objects will be apparent to others after my invention is understood.

I prefer to carry out my invention and to accomplish the numerous objects thereof in substantially the manner hereinafter fully described and as more particularly pointed out in the claims, in which description reference is made to the accompanying drawings that form a part hereof.

In the drawings:—

Figure 1 is a vertical elevation of the upper portion of the delivery end of an autographic register showing my improvements incorporated therein.

Figure 2 is a fragmentary section taken vertically on line 2—2, Figure 1, looking in the direction of the arrows, to illustrate the relative positions of the parts of the starter mechanism, and drawn schematically.

Figures 3, 4, and 5 are sectional views similar to Figure 2 also drawn schematically and illustrate the relative positions of the parts several steps during their operation.

Figure 6 is an axial section of the initial feed or starter element in assembly with some of its related parts.

Figure 7 is a face view of a strip of the material that is adapted to be used in connection with the apparatus herein disclosed.

The drawings which accompany this specification are, in a sense, merely diagrams of the structure for the purpose of illustrating in connection herewith a typical or preferred embodiment of my improvements, and in these drawings I have employed similar reference characters to designate the same parts wherever they appear throughout the several views.

For the purpose of convenience, only the upper portions of the discharge end of a typical autographic register is disclosed, and referring to Figure 1 of the drawings, 10 designates the vertically disposed longitudinal side-walls that are connected at their upper edges by a writing table or platen 11, said walls and said platen forming the upper portion of a casing or housing in which the supply of material is stored. The material consists of one or more webs of paper 12, in strip form as disclosed in Figure 7, that has tickets 13 or other matter printed thereon, and filing-pin apertures or perforations 14 are punched in the strips between the tickets for convenience in storing the tickets when

they are separated or severed from the strips. These apertures are arranged in longitudinally disposed spaced rows so that there is a pair of apertures in each ticket, and in the operation of the normal feed devices the said apertures are utilized for the purpose of registering the tickets of a set and for stopping the advance of the strips or strip through the register.

At the discharge end of the platen is the mechanism for advancing the strip or strips in the form of upper and lower opposed members, the upper member being an elongated roller 15, the spindles at the ends of which are journaled in tubular bearing-posts 16 that arise from the upper longitudinal corners of the register casing and one of said spindles has a gear 17 secured to it adjacent its bearing. The lower feed member is in the form of roller disks or flanges 18 mounted upon a rotatable drive spindle or drive shaft 19 that is journaled in the side-walls of the register casing so that the same is in a vertical plane below and alining with the roller 15, and said drive spindle or shaft 19 has a gear 20 secured to it that is larger in diameter than the upper gear 17 and meshed therewith. The disks 18 are spaced apart on the drive shaft a distance corresponding with the transverse spacing of the longitudinal rows of apertures or perforations 14 in the strip, and as seen in the drawings the said disks are larger in diameter than the upper feed member 15 in the same proportion that the large gear 20 is to the small gear 17. One end of the drive spindle or shaft 19 projects through the wall of the casing and has a crank handle 21 secured to it by means of which it is rotated, and when said structure is operated the strip or strips of paper will be advanced upon the platen and will be discharged from the end of the register until a set of perforations or apertures come into registry with the opposed peripheral portion of the upper and lower feed roller members, whereupon the disks 18 will come into contact with the roller 15 through said apertures and the further feed or advance of the strips will be stopped at the end of a ticket or set of tickets, when the discharged portion of the material may be torn off or severed in the usual manner from the portion of the material remaining within the register.

The initial feed mechanism or starter is preferably mounted upon the drive spindle or shaft 19, and preferably includes a starter roller or wheel 22 that is loosely mounted upon said shaft by a plain collar 23 that is secured to the shaft alongside said wheel and a collar 24 secured to the shaft on the opposite side of the wheel and having an annular flange 25 adjacent said wheel. One or more flattened portions 26 upon the periphery of the wheel are adapted to render the wheel active and inactive with respect to the upper roller 15 of the normal feed members, so that when the flattened portion is in juxta-position to the roller, as in the case during most of the advancement of the material by the normal feed members, said wheel is inactive to advance the material; but when said wheel has been rotated to cause the unflattened portion of the wheel to be disposed in opposition to or in engagement with said upper feed roller, as it is when the apertures in the strips register with the disks or lower feed members, the material will be frictionally engaged between the wheel and roller 15 and the material will be advanced thereby a distance sufficient to permit the disks to again become effective upon the material.

The control of the starter wheel is accomplished through the instrumentality of a simple structure that is operated by a depressible key. Extending from side-wall to side-wall of the casing and journaled therein is a rocker-shaft 27, one of the ends of which is extended outside the casing where it is provided with a depressible key or hand-lever 28, and said rock-shaft is rendered automatically returnable by a spring 29 coiled around said shaft with one end secured to it and its opposite end secured to the adjacent casing wall. Intermediate its ends the rock-shaft has a collar 30 secured to it that forms the hub or pivot of a bell-crank element of segmental or crescent shape that extends in opposite direction from said hub to provide two curved arms. One of the arms 31 of the bell-crank is short and curves upwardly and forwardly towards the discharge or delivery end of the register, while the other arm 32 of the bell-crank continues in the opposite direction from the hub and extends inwardly or rearwardly and upwardly. The two arms of the bell-crank form a somewhat crescent-shaped structure that is pivoted in vertical axial alinement below the drive spindle or shaft 19 and said arms extend upwardly and partially surround the annular flange portion 25 of the collar 24 and close to the adjacent side face of the wheel 22 so as to coact with projections on said wheel face. These projections are shown as pins 33 projecting laterally from the face of the wheel next the collar flange 25, and they co-operate with the bell-crank to bring the active or inactive portions of the wheel into position with respect to the upper feed roller member. When the wheel has its active portion in coaction with the roller 15 the end portion of arm 31 will be urged by the return spring 29 towards and engaged with the edge of the collar flange 25 where it will be in the path of movement of the pins 32 and when engaged by one of said pins will stop

the rotation of the wheel with the inactive or flattened portion 26 in opposition to the feed roller. The material or strips of paper are frictionally engaged by the active portion of the wheel and the feed roller and is advanced a distance to permit the feed roller members or disks 18 to engage the paper outside the apertures therein so that by the time the rotation of the wheel has ceased, the material will be acted upon by said disks in co-operation with the feed roller 15. In order to render the feed wheel operative to initially advance the material the end of the arm 32 is adapted to engage the other projection or pin 33 at about the time the short arm 31 is moved from the path of movement of the pin with which it is engaged and the further movement of the arm 32 will rotate the wheel 22 far enough to position its active portion in frictional engagement with the material and in opposition to the upper feed roller. The crank handle 21 is now rotated and the material being frictionally engaged by the initial feed device will be thereby advanced until the lower feed disks take hold and the wheel is stopped by the arm 31 with its inactive portion properly positioned to release its grip upon the material. Each time the advance of the material is discontinued by the normal device, due to their engagement in the strip apertures, the material may be initially advanced by depressing key 28 and rotating the crank-handle in the manner above described.

In operating an autographic register it is sometimes desirable to provide means other than the hereinbefore described devices that cooperate with the strip apertures to insure the stoppage of the material, and for this purpose I have provided herein a rod 34 that extends transversely from wall to wall of the register casing and it is yieldingly urged in one direction by a spring 35 that is connected at one end to the adjacent casing wall and at its opposite end to an arm 36 on the end of said rod as shown in Figure 5. Laterally disposed wires 37 project substantially horizontally from rod 34 toward the feed devices and have upturned ends 38 that register with and are adapted to enter annular channels 39 in the upper feed roller 15. When the strips are being moved, the upturned ends 38 of these wires are below the paper strips and press upwardly against the same until the strip apertures reach the roller disks at which time the upturned ends 38 enter said apertures and press upwardly into the grooves 39 of the roller and assist in preventing slippage or further advancement of the strips. The upturned ends are automatically withdrawn from the apertures upon the depression of the key, which, as before explained, will cause a slight forward rotation of the starter wheel. This withdrawal is accomplished through the medium of an oblique, downwardly extending lever arm 40 projecting from rod 34 and is positioned so that its outer end portion is in the path of movement of a pair of cam or eccentric pins 41 projecting from the face of wheel 22 opposite the stop pins 33. When the wheel is stopped and is inactive upon the strips, one of the cam pins 41 will be in position in front of and ready to engage and oscillate the lever arm 40 when the wheel 22 has been partially moved to render said wheel coactive with the feed roller 15 causing the upturned end 38 of the wires to withdraw from the strip apertures so that the material will be free to be advanced, and upon the cam pins disengaging the lever arm 40 the upturned ends will be ready to enter the strip apertures as soon as the latter have been moved to a position above the same.

What I claim as new is:

1. Devices for feeding strip material having longitudinal spaced apertures, comprising normal feed members that become inoperative to advance the material when engaged in the apertures, and a starter mechanism consisting of a rotatable wheel the periphery of which is provided with active and inactive portions, projections on said wheel, an arm adapted to be positioned in the path of movement of said projections to stop the rotation of the wheel with an inactive portion in opposition to a portion of the normal feed members, a second arm adapted to engage a projection to move the wheel to position the active portion of the latter in engagement with a portion of the normal feed members, and means on which said arms are mounted.

2. Devices for feeding strip material having longitudinal spaced apertures, comprising normal feed members that become inoperative to advance the material when engaged in the apertures, and a starter mechanism consisting of a rotatable wheel having active and inactive portions, projections on said wheel, a rock-shaft, and a bell-crank on said rock-shaft, one arm of said bell-crank adapted to be normally disposed in the path of movement of said projections to thereby stop the rotation of said wheel with an inactive portion in opposition to the normal feed members and the other arm of said bell-crank adapted to engage a projection and rotate the wheel to position an active portion in co-operation with the normal member.

3. Devices for feeding apertured strip material comprising normal feed members that become inoperative to advance the material when engaged in the apertures, and a starter mechanism consisting of a rotatable wheel having active and inactive portions, a projection on said wheel, a rock-shaft, and means mounted on said rock-shaft adapted

to be positioned in the path of movement of said projection to stop the rotation of said wheel and adapted to otherwise engage said projection to rotate said wheel and position an active portion therein in co-action with the normal feed members whereby to initially advance the material.

4. Devices for feeding apertured strip material, comprising normal feed members that become inoperative to advance the material when engaged in the apertures, and a starter mechanism consisting of a rotatable wheel, and an oscillatory device normally in a position to stop the rotation of said wheel with an inactive portion in opposition to said normal feed members and when moved to another position said devices are adapted to rotate said wheel to cause an active portion of the latter to engage said normal feed members whereby to initially advance the material.

5. Devices for feeding apertured strip material, comprising normal feed members that become inoperative to advance the material when engaged in the apertures, and a starter mechanism consisting of a rotatable wheel, an oscillatory device normally in a position to stop the rotation of said wheel with an inactive portion in opposition to said normal feed members and when moved to another position said device is adapted to rotate said wheel to cause an active portion of the latter to engage said normal feed members whereby to initially advance the material, a rock-shaft upon which said device is mounted, and a depressible hand-lever for actuating said shaft.

6. In a device for feeding apertured strip material, a starter mechanism comprising a rotatable wheel having portions that are active and inactive with respect to the strips, and an oscillatory device normally in a position to stop the rotation of said wheel with its inactive portion adjacent the material and when moved to another position said device is adapted to rotate said wheel to bring the active portion of the latter into engagement with the material whereby to initially advance the same.

7. In a device for feeding apertured strip material, a starter mechanism comprising a rotatable wheel having an active and an inactive portion that respectively engage and disengage the material, a projection on said wheel, and an oscillatory device normally in a position to be engaged by said projection to stop the rotation of said wheel with the inactive portion adjacent the material and said device adapted to be moved to another position to rotate said wheel into a position with the active portion in engagement with the material whereby further rotation of said wheel will initially advance the material.

8. In a device for feeding apertured strip material, a starter mechanism comprising a rotatable wheel having an active and inactive portion that respectively engage and disengage the material, a projection on said wheel, an oscillatory device normally in a position to be engaged by said projection to stop the rotation of said wheel with the inactive portion adjacent the material and said device adapted to be moved to another position to rotate said wheel into a position with the active portion in engagement with the material whereby further rotation of said wheel will initially advance the material, a rock-shaft upon which said device is mounted, and a depressible hand-lever for actuating said shaft.

9. In a device for feeding apertured strip material, a starter mechanism comprising a rotatable wheel having an active and an inactive portion that is adapted to respectively engage and disengage the material, stop pins projecting from said wheel, a rock-shaft, a bell-crank secured to said rock-shaft, one arm of which is normally in a position to be engaged by a pin to stop the rotation of said wheel, and means for rotating said rock-shaft whereby to withdraw said arm from the path of said pin and move the other arm into engagement with another pin and thereby rotate said wheel to bring the active portion of the latter into engagement with the material to initially advance the same.

10. In a device for feeding apertured strip material, a starter mechanism comprising a shaft, a rotatable wheel loose thereon having an active and an inactive portion adapted to respectively engage and disengage the material, stop pins projecting from said wheel on opposite sides of said shaft, a bell-crank fulcrumed below said shaft and the arms of which extend upon opposite sides thereof alongside said wheel one of which arms is normally in a position to be engaged by a pin to stop rotation of said wheel, and automatically returnable means for oscillating said bell-crank whereby to withdraw said arm from the path of the pin and to move the other bell-crank arm into engagement with the other pin and thereby rotate said wheel to bring the active portion thereof into engagement with the material.

11. In a device for feeding apertured strip-material, a starter mechanism comprising a shaft, a rotatable wheel loose thereon having an active and an inactive portion adapted to respectively engage and disengage the material, stop pins projecting from said wheel on opposite sides of said shaft, a bell-crank fulcrumed below said shaft and the arms of which extend upon opposite sides thereof alongside said wheel one of which arms is normally in a position to be engaged by a pin to stop rotation of said

wheel, an automatically returnable rock-shaft upon which said bell-crank is secured, and a depressible hand-lever connected to said rock-shaft adapted to rock said bell crank whereby to withdraw said arm from the path of the pin and simultaneously move the other bell-crank arm into engagement with the other pin and thereby rotate said wheel to bring the active portion thereof into engagement with the material.

Signed at Chicago, in the county of Cook, and State of Illinois, this 25 day of June, 1926.

LOUIS JENSEN.