Apr. 24, 1923. 1,452,660

J. Q. SHERMAN

MANIFOLDING REGISTER

Filed Jan. 21, 1921

Fig. 1.

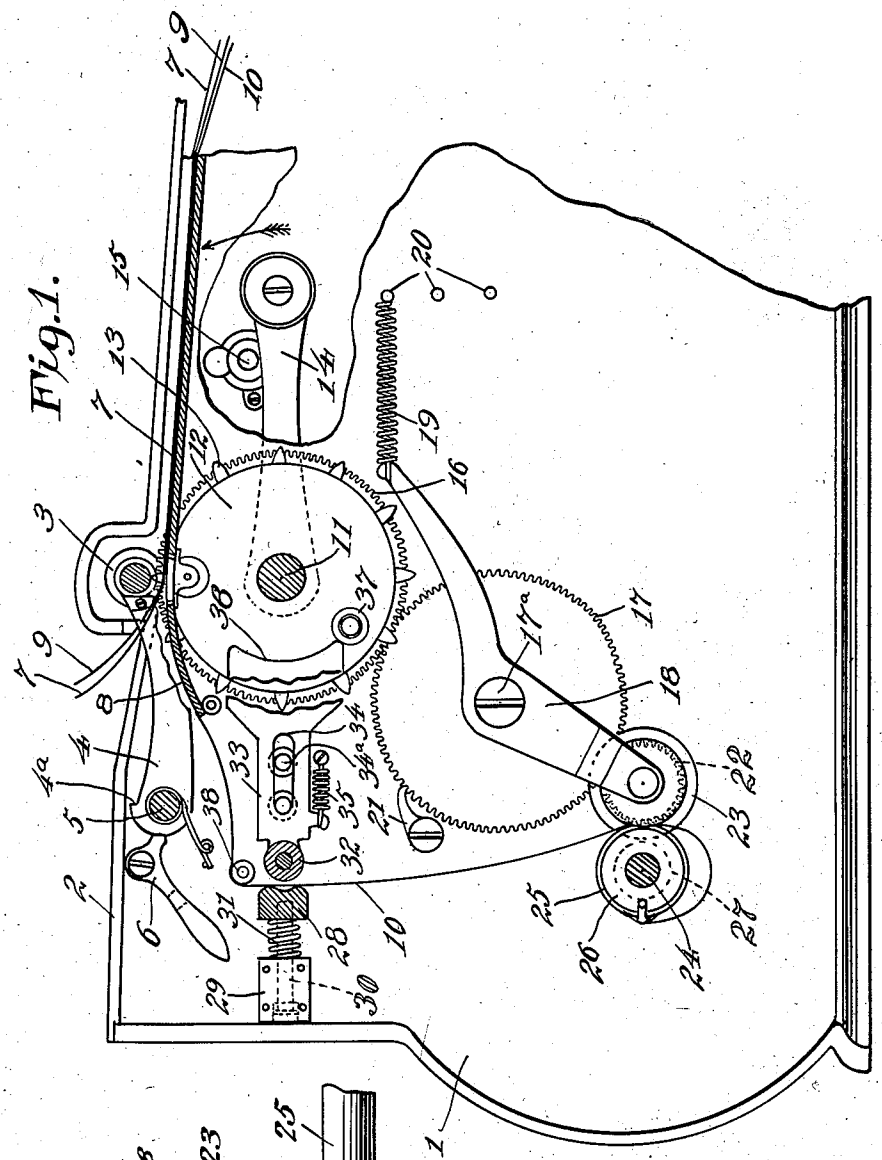
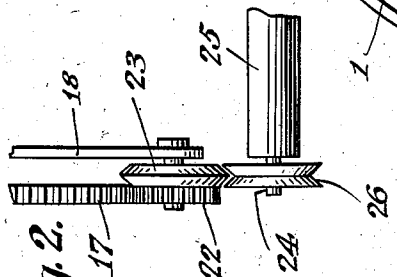


Fig. 2.



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UNITED STATES PATENT OFFICE.

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MANIFOLDING REGISTER.

Application filed January 21, 1921. Serial No. 438,983.

To all whom it may concern:

Be it known that I, JOHN Q. SHERMAN, a citizen of the United States, and a resident of the city of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Manifolding Registers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to manifolding registers of the type wherein webs of paper are fed over a writing table, said webs including among them a record web, which is then stored within the machine, and wherein all webs are preserved in true alignment, said record web being fed in full lengthed sections exactly as the remaining webs.

In machines of this kind in which a record strip is stored within the casing, it is usual to wind the record strip on a storage roll which is driven automatically by the feeding mechanism which feeds the webs over the writing tablet, and difficulty is experienced in winding up the record strip due to the strain placed upon the strip by the rewinding roll. This difficulty is especially objectionable in machines in which the webs of paper are fed by sprocket wheels engaging a series of uniformly spaced perforations along the side edges of the paper webs, in which it is very essential that the webs of paper should be fed loosely in order to preserve uniform registration, all as shown in the patent to T. F. Schirmer, No. 940,481, of November 16, 1909.

It is the object of my present construction to provide means for grasping and holding the record strip after it has passed the common feed devices and before reaching the storage roll to relieve the pull of the storage roll and to furnish a loop of paper which can be subsequently rewound tightly on the storage roll without strain.

I accomplish this special object and other advantages to be noted by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawing, Figure 1 is a detail side elevation showing the essential mechanisms of my invention. Figure 2 is a detail view on a larger scale of the V-shaped friction wheels.

The casing of the machine is more or less diagrammatically indicated at 1, with a top or cover 2, within which clearance is allowed for roll 3, carried by arms 4. The arms 4 are mounted on a shaft 5, extending across the machine, which shaft is spring impelled to throw the roll 3 downwardly, and a latch or latches 6, are provided which engage noses 4^a formed on the said arms 4, so as to hold the roller up when desired.

The writing table 7 is extended forward over the feeding devices where it is slotted to serve as a stripper, and is then bent away as at 8 to form a support for the record strip or web, as will be noted.

The webs of paper 7, 9, and the record web 10 are preferably of exactly the same nature, and printed up in equal length forms, all webs being formed with a series of apertures, in similar locations extending along both margins thereof. All as shown in said Schirmer patent.

The feed shaft 11 is provided with pin bearing members 12, having feed pins 13 thereon, which engage the apertures in the paper, and any desired means are provided to prevent the pressure roller from frictional contact with the paper, while the pins are in movement during the feed, such as the cam construction illustrated in said Schirmer patent.

The feed handle 14, mounted on the feed shaft 11, is provided with a suitable stop 15, all of the above being substantially old structure, well known in the art, as shown in the Schirmer Patent No. 940,481 above referred to.

The feed shaft, is equipped with a gear 16, which meshes with another gear 17, mounted on a suitable stud 17^a. On this stud is a lever 18, under control of a spring 19, said spring being adjustable for tension by setting its one end over any one of a set of pins 20 on the side of the machine. A pawl 21 prevents reverse turning of the gear 17 and hence of the paper feed shaft.

The lever 18 carries on its lower end a pinion 22, which meshes with the gear 17 in all positions of the lever, and this pinion 22 has secured thereto so as to rotate therewith, a friction wheel 23, which is formed with a V-shaped periphery.

The record rewind shaft 24, is equipped with a suitable roll 25, which has mounted

thereon a friction wheel 26, which has a V-shaped channel 27 to be engaged by the V-shaped periphery of the friction wheel 23. This friction wheel 26 lies in the path of the matching wheel 23, so that the revolution of the latter will revolve the former, this revolution being imparted by the rotation of the feed shaft.

The gearing is such that even at the smaller diameters of paper on the rewind roll 25, the revolution thereof will draw the record strip thereover, at a greater speed than is imparted to said strip by the common feed pin operation. For any excess movement over and above that necessary to draw up tightly all of the record strip that is available, the friction drive will slip, so as not to block the movement of the regular feed.

The devices adopted by me for inhibiting the feed of the record strip during a portion of the common feed, so that said strip will be free for full adjustment over the pins, comprise a spring bar 28, mounted across the machine by means of small brackets 29, and posts 30 held in the brackets, there being springs 31 around the posts to thrust the bar inwardly.

Another bar or roll 32 is provided, the same being mounted upon two sliding plates 33. The plates are slotted at 34 and ride over cap screws 34^a set into the sides of the machine, one plate at each side of the machine, and both plates drawn inwardly by means of spring 35.

The plates on their inner ends have curved faces 36, which lie in the path of studs or rollers 37 mounted on the inner faces of the feed pin bearing members.

Thus when the feed shaft is revolved, the rollers 37 will thrust the plates 33 outwardly, carrying with them the roll or bar 32.

This roll then bears against the bar 28, which is channeled, as shown, to receive it, and clamps the web of paper after it passes from the common feed, out over the idler 38, and thence over the roll 32.

It is not believed to be necessary to show more than one side of the machine, since the feed pin bearing members, the sliding plates, and the supports for the two bars making up the clamp, are merely duplicated, while the operating parts for the rewind roll need be used at one side only.

As above described, the operation of my machine is as follows:—

The user will first bring the webs of paper up over the writing table, and align them, so that he may place the paper down over the pins with the said pins in engagement with like holes for all webs. After doing this, he releases the pressure roll from raised position under influence of the latch device, and operates his machine in the usual manner, first guiding the record strip away from the issuing slot beyond the pressure roller or bar.

As soon as enough of the record strip has been fed along with the strips that are issued, the operator brings it down over the idler roll 38 and roll 32, and thence around the rewind roll, where he secures it under the starting bar.

Upon use of the machine after this, the webs of paper will still be fed by the feed pins a like distance for all webs, but the record strip will be wound up on the rewind roll, until the clamp device comes into operation. When this occurs, the rewind device will slip, holding the paper tightly thereon and the record strip will accumulate in a loose body above the clamp.

When the clamp is released, the same being held in operating position during a portion only of the feed, the rewind roll will be able to work again, and will take up the looseness in this web and draw the record strip tight on the storage roll.

As shown in the drawing, the excess of speed of the rewind roll is not such as to immediately take up the looseness, but instead permits the strip to loop down around said roll, during a portion of its operation.

The exact relation of the speed of take-up of the rewind mechanism is a matter of preference, both moderate and quick take-up giving satisfactory results.

During the laxness of the record web, it can be observed that it is free of interference with adjustment over the feed pins, and during the snap up of the web it should be noted that it will be very tightly wound, without running off the roll to either side, since the looseness of the paper permits it to adjust itself on the roll and correct any tendency to creep sidewise.

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

1. In a manifolding register or the like, the combination with a writing table, a single means for feeding a plurality of webs of paper over said writing table, said means being adapted to feed all of said webs alike, an operated roll for storing one of said webs, said roll operatively connected to said feeding means, and an element adapted to clamp and hold said record strip against movement at a point between the feeding means and the operated roll.

2. In a manifolding register or the like, the combination with a writing table, a single means for feeding a plurality of webs of paper over said writing table, said means being adapted to feed all of said webs alike, an operated roll for storing one of said webs, said roll operatively connected to said feeding means, and an element adapted to clamp and hold said record strip against movement

at a point between the feeding means and the operated roll, said element being under the control of the feeding means to operate during a portion only of the feeding movement thereof.

3. In a manifolding register or the like, the combination with a writing table of pin bearing means for feeding a plurality of webs of paper over said writing table, one of said strips comprising a record strip, and said pin bearing means being adapted to engage and feed all strips alike by means of engagement with similarly located apertures in the strips, means for storing said record strip, comprising in part a frictional drive interconnected with the pin bearing means, and means under control of said pin bearing means for clamping said record strip against movement, at a point between the pin bearing means and the storing mechanism.

4. A manifolding register, having a pin bearing feeding means for engaging marginal perforations in a plurality of webs of paper including a web to be retained in said machine and for feeding said webs in registry with each other as described, operated means for storing the retained strip after passing said pin bearing means, and means independent of the said operated means for inhibiting movement of said strip during a portion of the feed of the pin bearing means, to permit a relaxation thereof on said pin bearing means.

5. In a manifolding register, the combination with a feeding device for strips of paper, of a storage roll for rewinding a record strip, a frictional drive between the feeding device and the storage roll, and means for holding the record strip against movement periodically of said feed at a point intermediate the feeding device and the storage roll.

6. A manifolding register or the like, having feeding devices for feeding simultaneously a plurality of webs of paper, operated means for storing a retained web after passing said feeding device, and means independent of the storing means for relieving the retained strip from strain of said storing means during a portion of the feed of the feeding device.

7. In a manifolding register or the like, the combination with a pin bearing feeding means, and a storage device operated thereby, frictional driving means intermediate the pin bearing means and the storage device, and a clamping element located between the storage device and the feeding means, and adapted to grasp paper and prevent movement thereof at a point between said device means, said pin bearing means having a member thereon adapted during a portion of the movement thereof to contact with and set the clamping device into operation.

8. In a manifolding register or the like, the combination with a paper feeding and aligning device, of a storage device operated frictionally thereby, and a paper clamping element intermediate said two devices for preventing storage of paper during a portion of the operation of said feeding and aligning device.

9. In a manifolding register or the like, the combination with a paper feeding and aligning device, of a storage device operated frictionally thereby, and a paper clamping element intermediate said two devices for preventing storage of paper during a portion of the operation of said feeding and aligning device, said means comprising a bar disposed across the line of feed, and a movable bar adapted to contact therewith, said movable bar having elements lying in the paths of the paper feeding and aligning means.

10. In a manifolding register or the like, the combination with a paper feeding and aligning device, of a storage device operated frictionally thereby, and a paper clamping element intermediate said two devices for preventing storage of paper during a portion of the operation of said feeding and aligning device, said means comprising a bar disposed across the line of feed, and a movable bar adapted to contact therewith, said movable bar having elements lying in the path of the paper feeding and aligning means, said means having contact elements adapted to energize said movable bar during a portion only of the feeding movement.

JOHN Q. SHERMAN.