C. R. BUSCHMEYER,
RECORDING AUTOGRAPHIC REGISTER.
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By
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To all whom it may concern:

Be it known that I, CLARENCE R. BUSCHMEYER, a citizen of the United States, and a resident of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Recording Autographic Registers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to autographic registers which are adapted to feed duplicate strips of paper over a writing tablet and thence out over the top thereof, and at the same time feed a record strip over the tablet and thence down around a record roll which stores up the record strip for future reference inside of the machine.

In my machine, the "pin wheel" or "sprocket" type of feed is employed for the feeding of the usual duplicate strips and the record strip passes in between the pin wheels, so as not to be engaged by the pins, and thence to the record roll. The invention has special merit with this type of feed, but it should be understood that I do not limit myself in this invention to any particular type of feed in autographic registers.

Moreover, although the method of feed to be described has been devised by me with special reference to autographic registers, and is termed an improvement in recording autographic registers, I do not wish to limit myself to the application of the central idea of the invention to autographic registers alone.

So far as the essential features of the record roll and its method of mounting and operation are concerned, there should be no reason why the device could not be used in any machine which winds a strip of paper or the like over a roll.

The objects of the invention are to provide a means of mounting and winding up on a roll of a strip of paper which permits of the very easy removal and insertion of the roll, and provides a means for making a very tight winding of paper on it due to the operating means. It is an improvement over old ways of winding of paper or the like on rolls by being based on an entirely new mechanical movement for such purposes, the obvious advantages of which naturally result from the new method of mounting and operation. These are:—tight winding, even winding on a true line, accommodation of the roll itself to unevenness of the paper or the like wound, absence of necessity of a friction slippage in the roll operating parts due to the fact that the roll and feeding means automatically accommodate themselves to slow down the speed of the roll as the roll becomes larger, and, as above stated, the simple means of mounting and taking out the roll.

These objects and advantages I accomplish by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawing,

Figure 1 is a vertical longitudinal section taken through an autographic register illustrating the invention.

Figure 2 is a top plan view of the register with the tablet top removed so as to show the parts of the new improvement.

Figure 3 is a detail side elevation of the contractible roll.

Figure 4 is a perspective view of the insert piece for the end of the roll.

The machine shown has a casing 1, in which are mounted the paper rolls, 2, 3, 4, of which the roll 2 contains the record strip. The strips of paper pass up over the idler rollers 5 at the one end of the machine, thence over the tablet 6 to the feeding devices, the record strip being the bottom one, and pieces of copy paper being set between the strips.

As stated, the feed for the strips 3 and 4 comprise the pin wheels 7, which will engage in suitable perforations in the paper. The pin wheels are connected by a shaft 8 which is operated by a suitable crank (not shown), and the record strip 2 will be narrow so as to pass between the wheels, whence it is pulled downwardly into the machine as will be described.

Rotatably mounted ahead of the pin wheels, in the casing of the machine, are two rolls 9 and 10 which have roughened surfaces. These rolls have pinions 11 and 12 which mesh each with an intermediate idler pinion 13, mounted between them. On the pin wheel shaft is set a pinion 14 which meshes with the pinion 12 and thus drives both of the roughened rolls at the same speed. As will be shown, the proportionate size of the gears and rolls will absolutely
control the speed with which the record strip will feed, which speed will not vary due to the increasing size of the roll on which the paper is wound.

Pivoted at the far end of the machine at 15, is the yoke 16, which extends through the machine and serves to mount an idler roller 17 at a position beneath and between the rollers 9 and 10. The yoke is spring-pulled to bring the roller upwardly toward the roughened rolls, by means of springs 18, 19, mounted on any desired fixed member such as the casing 1 and connected to the yoke arms. The yoke is of such structure and position that the roller 17 thereof will form a triangle with the two roughened rolls.

In this triangle is set the record roll 19. There is no other mounting needed for the said roll except the mere abutment against the sides of the casing to hold it in operative position as the spring yoke pressing upwardly holds the roll firmly between the rollers 17, 9 and 10. While the sizes of the rolls are shown as being somewhat less as to length than the record roll, it will be understood that this is merely a selected form and not essential. It is merely essential that the rolls 9 and 10 should have the same diameter.

With the record roll removed from its place, to insert it the operator merely sets it between the yoke roll and the roll 9 and pushes it in place, the yoke roller moving down to permit the record roll to slip into place. In the device shown, the yoke roller is held so that it does not spring up too far in between the rolls 9 and 10 because it will strike against the pin wheel device before reaching such a position.

The record roll 19 should be of some collapsible form so that the tightly wound paper on it can be removed by means of slightly collapsing the roll which would then form the core of the paper roll. In the structure shown (figures 3 and 4), the roll is made of wood and is longitudinally kerfed at 20. The slot or kerf 20 serves to receive the end of the paper strip so as to hold the paper to the roll when starting to wind, and can be pushed inwardly so as to slightly contract or collapse the roll for removing the paper therefrom.

To hold the kerfed end distended during the operation of the roll, a plug 21 is provided having a pin 22 to seat in a socket in the roll and a flange or tongue portion 23 to seat in the slot or kerf 20. The plug must thus be removed when removing a winding of paper from the roll and must be inserted before the roll is placed in the machine for operation.

The form of roll shown is merely for purposes of illustration, since the requisites are that the paper be secured to the roll without any extension from the periphery thereof, and it is desirable that the collapsible feature be present.

As described, the paper film 2 is brought up over the tablet top and thence between the pin wheels and down to the record roll, where its end is inserted in the slot 20. The operation of the pin wheel device will then cause the roughened rolls to revolve against the pressure of the spring on the yoke and these rolls will revolve the record roll. The film or strip of paper is engaged by the roll 9 which draws it firmly down against the receiving roll. The receiving roll also revolves, but this motion does not determine the amount of paper wound on the roll, since this is determined by the revolution of the rolls against the surface of the paper. In the use in autographic registers, the amount of paper turned onto the record can be gaged without reference to the feed of the delivere strips, and thereby a great deal of paper saved. The record strip is without printing usually, and the operation can be adjusted to wind up from four or five inches for each six inches of duplicate checks torn off, without any difficulty.

As the roll becomes larger, the yoke moves lower and the speed of feeding is always the same since it is controlled by the drawing of the paper over the roll on the surface thereof independent of its diameter.

Although both of the rolls 9 and 10 are positively operated, I do not wish to limit myself to this feature, as one only would be sufficient.

The device is shown in the simplest form in the drawing herewith, but it should not be understood that the invention is limited to the exact form shown and described. It may be that in the various applications of the principle of the invention, some particular means be provided to enforce an exact "tracking" of the paper. It has been found that if the proper friction is applied to the supply roll of paper, the feed onto the record roll will be so accurate that the strip of paper will at no time run against the pin wheels.

If there is any catching of the paper strip, the roll will cease operating since the feed is purely by friction. Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In an autographic register or the like, the combination with a casing, of a revolving paper feeding element therein, paper rolls mounted in the casing below said feeding element, a pair of rollers driven from the feeding element, and a third roller resiliently mounted so as to be releasable pressed toward the pair of rollers, said pair of rollers and third roller so mounted as to form a pocket opening toward the delivery end of
the register, as and for the purpose described.

2. In an autographic register or the like, the combination with means for feeding a plurality of strips of paper in alignment, and means for rewinding one of said strips, said means comprising a spindle disconnected from any other parts, and means for winding paper on said spindle, comprising a fixed revolving element driven from the feeding means, and a freely revolving element forming a pocket with the fixed revolving element for retaining the spindle, said freely revolving element being mounted so as to be resiliently pressed toward the fixed element, and so as to permit the spindle and accumulated paper thereon to be withdrawn from the pocket by merely grasping and withdrawing it.

3. In an autographic register, the combination with a duplicate strip feed of a paper receiving roll, a pair of rolls in contact with the paper receiving roll, and means for positively operating said pair of rolls, a yoke mounted in said machine and having an idler roll, said yoke being spring-pressed toward the pair of rolls, to confine the paper receiving roll between its idler roll and said pair of rolls.

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