

April 8, 1930.

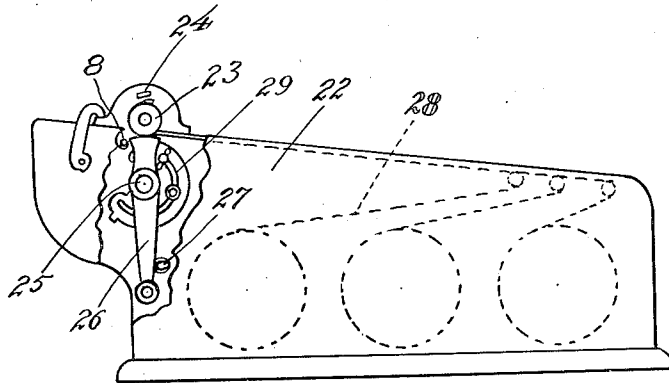
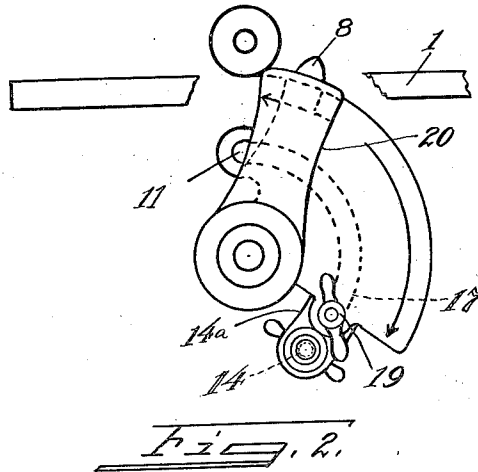
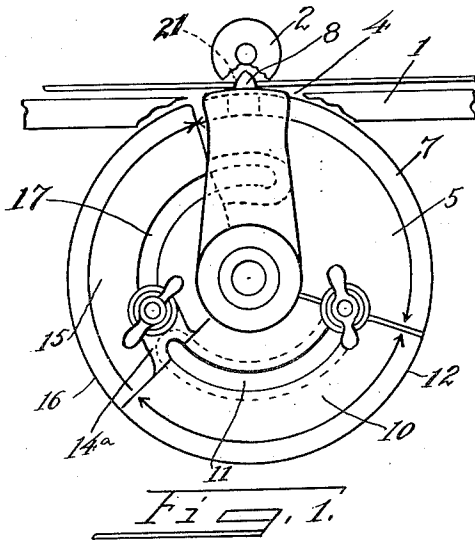
J. Q. SHERMAN ET AL

1,754,057.

MANIFOLDING DEVICE

Filed Jan. 12, 1925

3 Sheets-Sheet 1



INVENTORS

John Q. Sherman
Albert W. Moyer

BY

Allen & Allen
ATTORNEYS.

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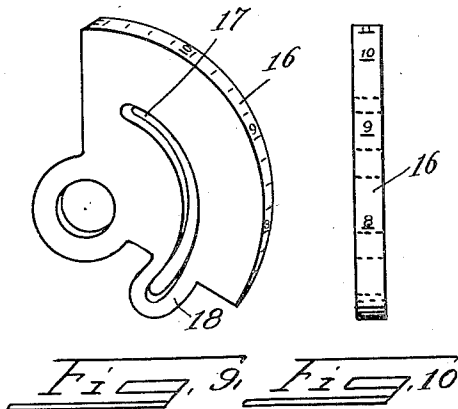
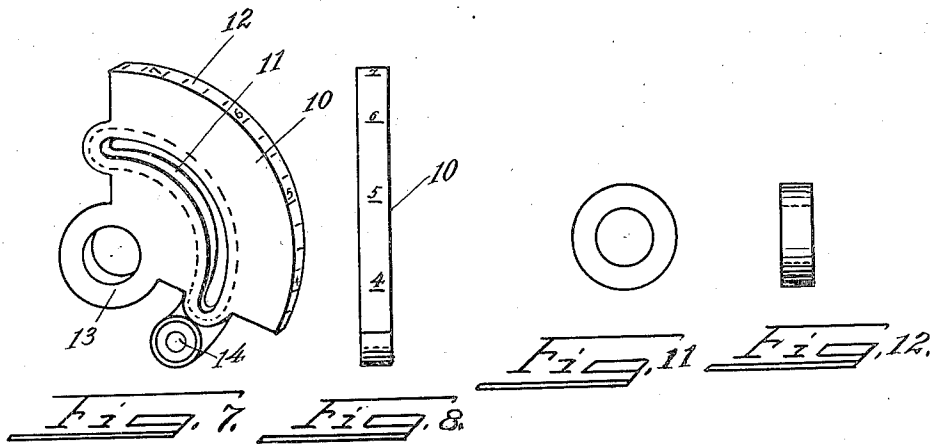
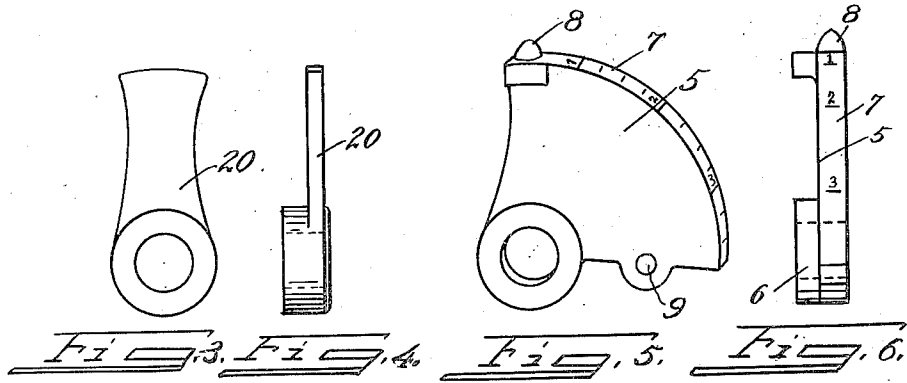
J. Q. SHERMAN ET AL

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MANIFOLDING DEVICE

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3 Sheets-Sheet 2



INVENTORS
John Q. Sherman
Albert W. Metzger
BY Allen Allen
ATTORNEYS.

April 8, 1930.

J. Q. SHERMAN ET AL

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3 Sheets-Sheet 3

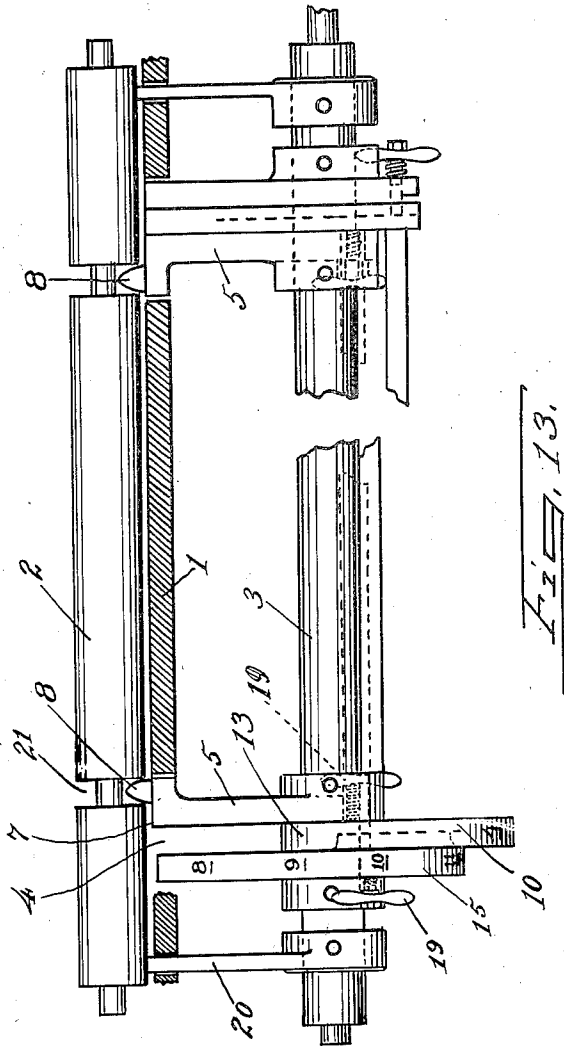


Fig. 13.

INVENTORS

John H. Sherman
Albert W. Metzger

BY

Allen & Allen
ATTORNEYS.

UNITED STATES PATENT OFFICE

JOHN Q. SHERMAN AND ALBERT W. METZNER, OF DAYTON, OHIO, ASSIGNORS, BY
DIRECT AND MESNE ASSIGNMENTS, TO THE STANDARD REGISTER COMPANY

MANIFOLDING DEVICE

Original application filed December 27, 1920, Serial No. 433,208. Divided and this application filed January 12, 1925. Serial No. 1,858.

Our invention relates to paper feeding devices in manifolding machines, and is a division of an application, Serial No. 433,208, filed December 27, 1920, in the United States Patent Office.

It is our object to provide a means of feeding the plural webs which is adjustable for different lengths of feed, and in this connection to adjust the storage feed to correspond to the "issuing" feed, so as to maintain a loop or looseness of paper between the storage device and the writing device, thereby insuring a freedom of the various webs for adjustment free of frictional engagement with each other.

It is further our object to align the webs of paper by means of members adapted to engage the holes in the plural forms during a period of relaxation of the normal feed.

These objects and other advantages to be noted below, we accomplish by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawings,

Figure 1 is a side elevation of the paper feed used on the writing machine or register.

Figure 2 is another view similar to Figure 1 showing the said feeding device in a position of adjustment for a short feed.

Figure 3 is a face view of the pressure roll elevating cam.

Figure 4 is a side view of the part shown in Figure 3.

Figure 5 is a perspective view of the primary member of the adjustable feed element.

Figure 6 is an edgewise view of the said primary member.

Figure 7 is a perspective view of the secondary member of the adjustable feed element.

Figure 8 is an edgewise view thereof.

Figure 9 is a perspective view of the third member of the adjustable feed element.

Figure 10 is an edgewise view thereof.

Figure 11 is a plan view of the retaining ring.

Figure 12 is a side view thereof.

Figure 13 is a detail end elevation showing the new form of adjustable feed.

Figure 14 is a side elevation on a small scale

showing application of the feed principle to autographic registers.

This invention embodies a novel form of feed for a plurality of strips of paper, whereby the length of paper that is fed during one complete continuous operation of the machine may be varied through wide limits by means of an adjustable mechanism, and whereby the various paper webs may be aligned by a mechanism operable in connection with the feeding mechanism, so as to bring the webs into an accurate line for line superimposition.

It will be noted that the surface upon which the writing is to be done, otherwise called the tablet or platen, is indicated at 1, and a spring-pressed tension roller or its equivalent is indicated at 2. Mounted beneath the platen or tablet is a rotary shaft 3, known as the feed shaft, which is revolved by the operator in order to feed the paper along the platen or tablet.

The feeding devices mounted on the feed shaft, are in this instance shown as three in number and arranged in two sets although these numbers are merely adopted as showing a convenient embodiment of the invention. Each device is a segmental plate having a periphery which passes through a slot or suitable clearance left beneath the tension roll, in the tablet or platen. Thus the platen may be cut away into slots 4, as shown, or it may terminate ahead of the vertical plane of the tension roll, as desired.

Of the three elements the first as shown at 5 has a hub 6 mounted fast on the feed shaft, and a periphery 7, the foremost point on the periphery being equipped with a feed pin 8. At the rearmost edge of this element is formed a lug within which is a threaded hole 9. The second element 10 has an arcuate slot 11 therein, and a periphery 12 of preferably like length to that of the first element. The hub 13 of the second element is loosely mounted over the feed shaft, and the piece lies adjacent to the first piece. This second piece has also a lug 14^a within which is a threaded hole 14.

The third piece or segment plate, as 15, is loose on the feed shaft and has a periphery

16, said periphery being of a length alike to that of the other two pieces, and the three pieces preferably having peripheries which make up almost a complete circle when set as extensions of each other. The third piece has an arcuate slot 17, terminating within the body of a lug or extensions 18.

There are clamp screws 19 provided which engage in the threaded holes of the first two pieces, and lie in the slots of the second two pieces, so that the three pieces may be moved fanwise to a position wherein their peripheries are in juxtaposition with each other, or swung out so as to form continuations of each other. The clamp screws secure the pieces fast together in the desired positions, and the combined peripheries will extend as the feed shaft is rotated, to a point of engagement with the tension roll, making up an arc of the desired extent.

As shown the peripheries may be marked off or graduated so that the operator may by reading the number of inches as per the graduations determine accurately the combined length of surface presented to the tension roll during any one complete rotation of the feed shaft.

In addition to the above parts we mount fixedly upon the feed shaft preferably at both ends thereof, a cam member 20, which strikes the tension roll during the rotation of the feed shaft and lifts it up, so that the tension is removed. This cam member is positioned so that during the period that the pins on the primary member of the feed device are uppermost, the tension will be lifted.

The paper employed with our invention is usually printed up into forms, which forms are to be filled out while on the tablet or platen, and the notations on the uppermost form transposed to the forms beneath it by means of carbon paper, or other means. The paper is also formed with holes located in a line across the forms, there being in the example now being described two holes (not shown), arranged at the head of each form in like positions for each form, and located and shaped so that the pins on the primary member will readily and easily enter them.

The feed operates as follows:—when the operator has adjusted the segment plates in the desired position, he rotates the feed shaft. This will cause the peripheries of the plates to engage the paper lying on the upper surface of the platen, and with the co-operation of the spring-pressed tension roll, feed the pieces a given distance depending upon the fan-wise adjustment of the said plates or segments.

After the combined peripheries of the pieces have passed beneath the tension roll, the feed will cease, and the final motion of the feed shaft during its complete rotation will bring the pins on the primary segment plates into engagement with the holes in the

paper webs, the tension roll being raised at the same time. The pins will draw the paper along with them through a short path sufficient to adjust the holes of all webs over the pins, and thus align the paper, said paper being loose during this action so as to permit a ready adjustment.

The tension roll is grooved out at 21 to give clearance for the pin operation, and prevent the paper slipping up off the pins, even though the roll is out of frictional contact.

At the start of the next feed, the pins will still impart a slight feeding movement if desired, after which the tension roll will fall against the peripheries of the feeding elements, and the friction feed will take place as before.

In Figure 1 one of the feeding devices is shown as in fully expanded condition, there being a space left adjacent the pin position, so as to further free the paper for pin action even where the full feed is desired.

In Figure 2 the feed devices are shown as folded up on each other as for the shortest length of feed.

Both devices where there are two, need not be adjusted for the same length of feed, as it may be desirable to set the paper webs over the platen so that one of the webs is engaged by only one of the feed devices, whereupon it may be fed a less distance than the others.

Modifications in size, number, and arrangement of the said feeding devices, pins, and cams are fully contemplated in our invention.

Referring now to the inclusion of this feed in the simplest form of manifold, viz:—the autographic register, we have shown a register casing 22, in the lid of which is mounted the friction roll 23, its ends being spring-pressed downwardly at 24. The feed shaft is shown at 25, having a handle 26, which is stopped at the end of each complete rotation by means of a depressible stop 27. The paper is shown at 28, mounted on suitable spindles, and feeding in continuous webs over a tablet plate when they pass beneath the tension roll. The feeding devices are shown at 29, located in a position of about three quarters of a full possible feed.

After having adjusted the feeding devices to the proper length of feed, the operator draws his forms over the writing tablet and mounts the holes at the heads of the forms over the pins on the primary members of the feeding devices. After making the desired marks on the uppermost sheet, he releases the stop and turns the operating handle through one revolution, after which it comes back against the top. During this motion the operation of the feeding devices will be as described.

Having thus described our invention, what

we claim as new and desire to secure by Letters Patent, is:—

1. A rotary feed element for machines of the character described, comprising a feed shaft, and a plurality of members mounted on said shaft, one of said members being fast thereon and the other loose, and means carried by the fast member for retaining the loose member in desired positions with relation to the fast member, said members having peripheries formed on the same arc the fast member being the one furthest advanced in the direction of movement of the shaft.

2. A rotary feed element for machines of the character described, comprising a feed shaft, a plurality of members mounted on said shaft, one of said members being fast thereon and the other loose, and means carried by the fast member for retaining the loose member in desired positions with relation to the fast member, said members having peripheries formed on the same arc, and said means carried by the fast member comprising a clamping screw, said loose member having suitable means within which said clamp screw member engages the fast member being the one furthest advanced in the direction of movement of the shaft.

3. In combination with the feed shaft in machines of the character described, a plurality of segmental or fan-shaped plates having their peripheries formed on the same arc, one of said plates having a fixed position on the shaft, and the others being loose thereon, and means carried by the fixed plate and the succeeding other plates for securing all plates in desired positions of mutual adjustment, and a pressure roll adapted to contact with the peripheries of said plates, whereby paper may be fed between them, said fixed plate being the one furthest advanced in the direction of movement of the shaft.

JOHN Q. SHERMAN.
ALBERT W. METZNER.