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MANIFOLDING MACHINE

Filed Feb. 18, 1924

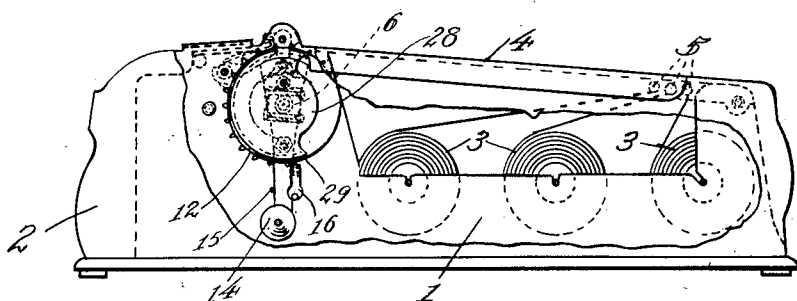


Fig. 1.

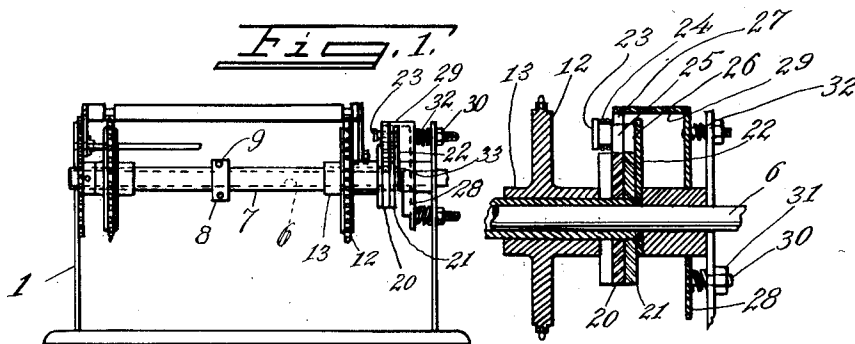


Fig. 2.

Fig. 4.

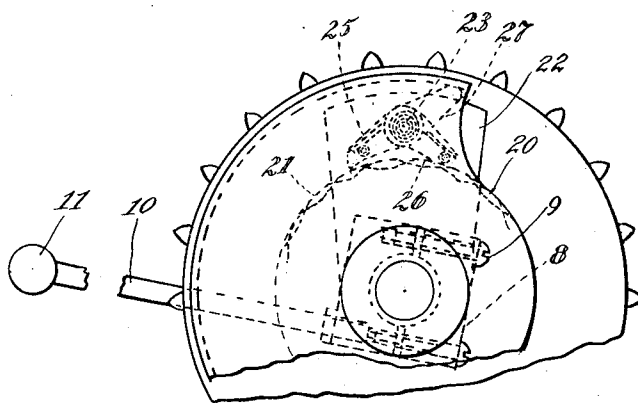


Fig. 3.

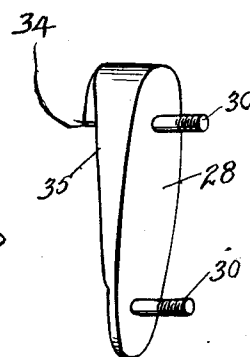


Fig. 5.

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MANIFOLDING MACHINE.

Application filed February 18, 1924. Serial No. 693,484.

My invention relates to manifolding machines, and more particularly to machines which are adapted to feed printed forms of definite length over a writing support upon
5 which notations are made, said notations being transferred from one web to another by means of interleaved carbon paper.

In the construction of manifolders of the type noted above, same being generally
10 termed autographic registers, one of the manufacturing problems involved is the provision of a standard type of feed for the paper, which will accommodate a wide range of demand in length of printed form which
15 is to be fed.

Where the feed shaft is driven by means of gearing the gears can be arranged to give the desired length of feed, but this manner of solving the manufacturing problem is not
20 fully satisfactory because a wide variety of gears have to be carried, and furthermore, the conversion of a machine built to issue a given length of form cannot readily be altered to issue another length, and result in a
25 neat job, without returning the machine to the factory.

Also it is found convenient to mount the operating handle, where the machines are manually operated, on the same center as
30 the feed shaft of the machine, as this makes the assembly simpler, and the handle location most convenient. Also it is advantageous, as is evident, to produce a machine in which every element of each machine is alike
35 except for some final adjustment or equipment, and furthermore if the customer can himself without difficulty or special tools convert his machine from one length feed to another, an added possibility of use is obtained which often becomes of value, making
40 it possible for the business man to change the length forms which he desires to use, without having to send all of his machines back to the factory to be equipped for the
45 new size forms.

It is thus the object of my invention to provide a machine of the manifolding type, particularly of the autographic register type, in which a simple paper feed is provided,
50 which can be easily converted to feed different lengths of form, or which can be made adjustable to feed different lengths.

I accomplish my object by that certain construction and arrangement of parts to be

hereinafter more specifically pointed out and
55 claimed.

In the drawings:

Figure 1 is a side elevation of a manifold-
ing machine showing my invention.

Figure 2 is a detail end elevation of the
60 machine with the cabinet removed.

Figure 3 is a larger scale side elevation of the pin wheel operating and mounting devices.

Figure 4 is a detail vertical section
65 through the parts shown in elevation in Figure 3.

Figure 5 is a perspective of a modified form of pawl trip.

Referring generally to the machine, I show
70 a frame generally marked 1, and a cabinet marked 2, covering the frame. The paper rolls are shown at 3, and the writing table indicated at 4. The paper webs are drawn
75 up over idlers 5 on the rear end of the table, thence over the table when they are interleaved with carbon and then to the feed mechanism. My invention concerns only the feed mechanism.

Mounted across between the side walls of
80 the frame is a shaft 6, on which is a sleeve 7, loosely mounted so as to permit relative rotation. A friction piece formed of two halves of rubber or fibre as at 8, bolted together by bolts 9 around the sleeve at some intermediate
85 point, is held in fixed position in the frame by means of a mounting arm 10 thrust into a hole in one of the cross braces 11 of the frame. This friction piece holds the sleeve against rotation on the shaft, when
90 it is desired to permit the shaft to rotate without the sleeve.

Mounted on the sleeve are one or more pin wheels 12, of the type shown in the patent to John Q. Sherman, No. 1,372,460, of March
95 22, 1921, said wheels having hubs 13 fast on the sleeve. The paper is fed through the machine by the pins on the wheels engaging equally interspaced holes formed in the webs of paper to be fed, and for the feeding action
100 reference is made to the John Q. Sherman patent aforesaid.

The shaft 6 is revolved by means of an operating handle 14, secured thereto in any desired manner, and this handle is provided
105 with a stop in the form of spring pins 15 controlled by means of a trip plate 16 mounted on the handle. For a full descrip-

tion of this stop mechanism, reference is made to the patent to John Q. Sherman, No. 1,541,285, dated June 9, 1925.

The purpose of the stop is to define the single cycle of operations of the machine whereby the operating handle is revolved one complete revolution, each time the paper is to be fed, this revolution to accomplish the feeding of a single set of forms of the desired length. There may be types of operating members for the feed shaft in the form of a motor drive, or in the forms of rock levers which do not make a complete revolution, all of which are familiar in the art and could be used instead of a mere direct connected handle with a stop, operative once each complete revolution. The essential point is that the operator can guide his operations by moving the operating element from start to stop position, and no more and no less.

In order to control the amount of paper fed by the pin wheels, a mechanism is inserted between the shaft and the sleeve thereon, which will feed the pin wheels through such portion of one or more revolutions as may be desired and arranged for.

To this end the sleeve or the hub of the one pin wheel is equipped with two ratchets 20 and 21, of which the ratchet 20 is for forward feeding, the ratchet 21 for back feeding, and locking the handle to the pin wheels against forcible withdrawal of webs of paper when the handle is in stopped position.

Mounted on the shaft 6 is a pawl carrier 22, in the form of a plate having a pivot pin 23 thereon. A spring 24 is wound around the pin and its ends rest against the edges of two pawls 25 and 26 both mounted on the pin and extending in opposite directions. The pawls will be so located as to engage each one, a ratchet on the pin wheel sleeve. The pawl 25 which engages the ratchet 20 and is used for forward feeding has an extension 27 which is struck down by means of a guard, to prevent the feed for the desired portion of the revolution of the shaft 6.

An adjustable guard, which of course, could be replaced with a non-adjustable or fixed guard, at the factory if desired, is shown in two forms in the drawings. The guard in the assembly views has a mounting plate 28, and a partially circumferential flange 29, which projects inwardly from the side wall of the frame into a position to engage the extension on the pawl 25. A plurality of mounting bolts or studs 30 are set into the mounting plate, which if desired, can be made to engage around the shaft 6 loosely, said studs extending out through the side frame wall, and equipped there with adjusting nuts 31. Springs 32 set around the studs between the mounting plate and

the side wall tend to force the mounting plate inwardly while the nuts pull the plate toward the side wall. The flange is cut in one form in steps 33, for several standard lengths of paper web to be fed. The pawl is struck up by its extension striking the full width edge of the flange at 34, and escapes to come into mesh with the ratchet when it is freed by one of the steps. The controlling factor as to which step is used for the releasing point, is the distance of the mounting plate in from the side wall, which is controlled by the adjusting nuts, described above.

If desired, to have an adjustable element for small gradations of length of form, the inner edge of the flange can be cut at a slant as indicated at 35 (Figure 5), the pawl being struck down at its extension and up at its ratchet engagement by the edge 34, and escapes whenever the extension rides out from under the tapering edge of the flange.

If it is desired to have the pawl controlling device non-adjustable, it is evident that the mounting studs can be used to mount a controlling device or guard, which has its flange of full width throughout, and of the desired length of arc. The manufacturer can then make up different lengths of guard, and provide them to the customer, with the mounting studs placed alike so that all guards will fit each machine. The springs on the mounting studs could, of course, be omitted in such a structure, which will not require illustration.

While I have shown a particular form of feeding mechanism for paper, and a particular form of pawl controlling device, it will be understood that other equivalent structures could be substituted without departing from the spirit of my invention.

The back pawl 26 engaging the forwardly faced ratchet 21, will permit the operator to turn the pin wheel back should he desire for a partial revolution, but chiefly serves to hold the pin wheels against overthrow, and to prevent the paper being withdrawn from the machine by pulling it out by hand, without operating the hand lever, drive motor or whatever is used to impart the feeding impulse.

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

1. In a manifolding machine, a paper feeding device having a rotating member, a power means, a pawl and ratchet drive intermediate the power means and the rotating member and means adapted to hold the pawl out of engagement during desired portions of a single operation of the power means, said pawl holding means comprising a member, having an arc shaped flange concentric with the movement of the pawl and the pawl having an extension to be engaged by

said flange, said flange having an edge presenting pawl engaging zones of different length dependent upon the position of said member.

5 2. In a manifolding machine, a paper feeding device having a rotating member, a power means, a pawl and ratchet drive intermediate the power means and the rotating member, and means adapted to hold the pawl
10 out of engagement during desired portions of a single operation of the power means, said pawl holding means comprising a member, having an arc shaped flange concentric with the movement of the pawl, and the
15 pawl having an extension to be engaged by said flange, said flange having an edge presenting a pawl tripping face, and a pawl releasing face which tapers away from the engaging face toward the side of the machine,
20 and means for adjusting the member to and from the side of the machine, for the purpose described.

3. A paper feeding device for manifolding machines comprising a shaft, a sleeve on the
25 shaft, feed wheels on the sleeve, a handle for rotating the sleeve, a pawl and ratchet drive between the shaft and its sleeve, and a pawl guard for controlling the contact of the pawl element with the ratchet element, said
30 pawl guard adjustable to and from the path of the pawl in a plane at right angles to the path of the pawl, said guard having an edge shaped to release the pawl at a plurality of points depending upon its adjustment,
35 and an end to engage the pawl at a definite point for all adjustments.

4. In a manifolding machine, a paper feeding device having a rotating member, a power means adapted to rotate from a stop
40 position to another stop position for accom-

plishing the feeding of a single set of forms from such machine, a pawl and ratchet drive intermediate the power means and the rotating member and adjustable means adapted
45 to hold the pawl out of engagement during desired portions of each movement from stop to stop of the rotating power means, whereby a measured feed to issue a selected individual form will result from a uniform
50 movement of the power means.

5. In a manifolding machine, a paper feeding device having a rotating member, a feed handle adapted to rotate through a complete circle from a stop position to another stop position for accomplishing the
55 feeding of a single set of forms from such machine, a pawl and ratchet drive intermediate the power means and the rotating member, and means adapted to hold the pawl out of engagement during desired portions
60 of the movement from stop to stop of the rotating handle, said pawl holding means being adjustable to control the portion of the single operations during which the pawl will be out of engagement, for the purpose de-
65 scribed.

6. In a manifolding machine, a paper feeding device having a rotating member, a power means, a pawl and ratchet drive intermediate the power means and the rotating member and means adapted to hold
70 the pawl out of engagement during desired portions of a single operation of the power means, said pawl holding means comprising a member having an arc shaped flange concentric with the movement of the pawl and the pawl having an extension to be engaged
75 by said flange, and means for adjusting the position of said member.

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