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MANIFOLDING MACHINE.

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To all whom it may concern:

Be it known that we, JOHN Q. SHERMAN and ALBERT W. METZNER, citizens of the United States, and residents of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Manifoldng Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to manifoldng machines wherein particularly the framework is covered by a cabinet or cover which combines the functions of a writing-table exposing-top with that of a cabinet in unitary structure.

There has been some development by John Q. Sherman, one of the co-inventors herein, of closed cabinet type registers, same being witnessed by several patent applications now pending in the Patent Office, viz., Serial No. 372,299, filed April 8, 1920, Serial No. 381,626, filed May 15, 1920, and Serial No. 436,649, filed January 12, 1921.

It is the object of our invention to improve in certain details the matters described and claimed in said previous applications, these details involving (1) the cabinet itself, more particularly in the means for mounting it, which saves much space and provides an easily removable cover as well and in which a special hinge permits the cabinet to move to open position without fouling the desk on which the machine is set, (2) the feed handle in which a simple form of latch release is provided and an improved threaded lock to the feed shaft of the machine, (3) the carbon paper mounting in which an improved mounting device is provided to bring the roll within the outlines of the machine frame and save space and in which the cabinet carries the upper carbon tension finger instead of the machine frame.

These objects and other advantages to be noted 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 an end elevation showing the carbon paper mounting and simple handle stop pin structure.

Figure 2 is a side elevation of a complete

machine with the detail of the cabinet semi-hinge device brought out.

Figure 3 is a detail elevation of the said semi-hinge device on a larger scale.

Figure 4 is an elevation showing the improved feed handle and threaded lock therefor.

Figure 5 is a section taken vertically through the center of the parts shown in Figure 4.

Figure 6 is an elevation of the feed shaft engaging portion of the handle.

Figure 7 is a detail side elevation of a simpler form of semi-hinge.

Figure 8 is an end elevation on a smaller scale of a differently formed support for the machine and its cabinet.

Figure 9 is a detail section on the line 9—9, of Figure 3.

Referring first to the cabinet and frame parts, we have shown a base for the machine made up of a piece of sheet metal 1 flanged downwardly at the edges, as at 2, to provide an elevated support for the main body thereof.

On this base are erected the side plates 3 and 4 of the machine frame, said plate 3, as in the former designs above noted, being brought up to full height, and plate 4 being left at but little height above the position of the paper roll spindle, so that it can be notched, as at 5, in its upper edge to support the same, while the high side 3 has a flange 6 turned in to leave a space and has the notches 7 extending from said space.

The frame has a writing-table and stripper member of ordinary construction formed of a plate 8 having arms 9 hinged to the rear of the frame and carrying between the arms the idler rolls 10 over which the various webs of paper are interleaved.

The feed shaft 11 of the main paper feed is set in the frame and carries feed pin disks 12 to clear which the writing-table is suitably slotted.

The cabinet for this frame and other portions thereof, to be described in detail below, is formed in a unitary piece having a top 13, open above the writing table, and so as to provide a withdrawal slot for the strips to be issued, and having sides 14 coming down against the base when in closed position so as to completely house the mechanism within.

On the forward corners at the base of this

cabinet (i. e., the issuing end of the machine) are mounted plates 15 which carry two interspaced rollers 16, 17, there being one of these roller assemblies at each of said corners.

Erected on the corners of the machine base, as shown in the drawings, (or on register frames, if so desired) are two standards 18 having a rounded upper end and carrying a stop 19. Pivoted near the upper end of these standards are roughly S-shaped hook members preferably having pivoting portions 20, rearwardly directed terminal hooks 21, and shoulders 22 to engage against the stops at one side while the hook portions 21 engage them in the other.

The two rollers are so spaced that they will straddle the standards when the cabinet is closed down, and the plates 15 carry next to the corners of the cabinet hooks 23 which will extend down through slots 24 in the base when the cabinet is closed and engage the said base to hold the cabinet in locked position with the base.

In raising the cabinet from full closed position (Figure 3) to open position (Figure 2) the standards are so formed that the one roller travels on the rearward edge thereof until it enters the hook 21, and the other roller travels over the front edge of the standard.

Since the hooks, as shown in one construction, can not move but a certain distance, the upper rollers (when the cabinet is lifted) will be held against moving any further by the fully rocked hooks in which they are engaged, while the lower rollers stay in contact with the standards.

This construction permits of lifting the cabinet entirely away when desired by disengaging the upper rollers from the hooks, which may be easily done by moving the cabinet in other than the normal closing path.

This construction is very compact and simple and saves much space, while permitting the cabinet to be lifted to a vertical position where it will stay without dropping off whenever access to the interior of the machine is desired.

This device has been termed by us a semi-hinge, because it is partly a latch and partly a hinge, and requires no manipulation of screws, spring dogs or the like to mount the cabinet or remove it. Of course, it also provides a hinge with a movable pivot, whereby a much closer fitting device can be used.

In instances where it is not desired to have a pivoted hook, this may be omitted. Thus in Figure 7 are shown standards 18^a, which have hooks 21^a formed directly thereon. It may be observed of this simpler alternative structure that the relative position of the upper and lower rollers 16 and 17 is slightly out of the vertical in the dot-

ted line showing, which is also the case with the pivoted hook.

The advantage of the pivoted hook is that it moves to the position shown in Figure 3 when the cabinet is closed. This brings the hook away from a position to block a closing down of the cabinet, so that the cabinet can be made just so much more compact. In the modification, the hook will, of course, always be in the position necessary for supporting the cabinet, beyond a vertical position, and thus preventing it from falling shut. This will in turn require a roomier cabinet.

In both cases the pivotal center of the cabinet moves up along the standards, thereby holding the end of the cabinet higher than the level of its base, and avoiding injury to its finish or the likelihood of its striking against some article that would keep it from opening. In both cases it is easy to entirely remove the cabinet without unscrewing any parts.

One other point should also be noted. The use of the term "base" is not intended by us to carry any significance other than that of a support. Thus the frame sides 3 and 4 (Figure 8) might be flanged outwardly as at 3^a to provide a base or supporting feet, and the standards 18^b could be erected on these flanges.

Other means of coupling the standards to the mechanism frame could also be provided, but the one alternative structure (Figure 8) is believed to illustrate sufficiently the point above made.

Referring next to the feed handle and its stops, it will be noted that mounted against the side frame is a small U-shaped bracket 25, which does not extend out as far as the edge of the base. Sliding in the top of this bracket and in the side frame are a pair of pins 26 and 27 which have springs mounted on them and housed between the bracket and the side frame. The pins extend into a position to pass through holes 28, 29, in the side of the cabinet, which holes have their inner wall beveled off to permit the cabinet to thrust the pins out of the way after an initial depression by the finger. The cabinet has also at its lower edge a formed out portion 30 which rides over and depresses the pins as the cabinet is lowered.

The feed shaft has its end part rounded and part square, and the feed handle has a like part to fit the shaft end in but one position, thereby correlating the handle and the stop pins for starting to feed again after a period of removal (as shown in Figure 6 and noted below).

The handle has a barrel 31 into which is set a bushing 32 and a flanged plug 33. The plug has a threaded end 34 which is to be screwed into a threaded hole in the end of the feed shaft.

The barrel 31 has secured to it a collar 35, which has a hole 36 in it to fit the odd shaped end of the feed shaft, and mounted spirally over the threaded end of the plug within the chamber formed by the collar and the barrel end is a spring or lock washer 37.

The outer face of the barrel has a key slot 31^a in it, and the head of the plug has a key notch or notches. When the key 38 is thrust into the barrel until its end engages the notched plug end and the collar member is thrust over the end of the feed shaft, the operator can revolve the plug with the key to screw the threaded end thereof into the feed shaft.

This is done until the joint is tight, whereupon the lock washer will act to hold it so and will avoid rattling or jogging loose of the handle.

The feed handle has a pair of ears 39 on its inner face to contact one with the pin 26 and one with the pin 27. The handle has formed on its one side an ear 39^b which pivotally mounts a trigger 39^a which has a tip 40 that engages the head of the spring pin 27 when the handle is in locked position behind it. The operator presses this trigger with his finger when he grasps the handle so that the ear on the handle will pass the pin. The pin 26 snaps in behind the handle when it comes up against the pin 27, thereby holding it against movement backwardly unless the operator pushes this back pin out of the way with his fingers.

While the above described arrangements are partly similar to ones previously shown in the applications referred to, they are improved and simplified in the structure now noted.

The carbon paper arrangements are as follows. A slot is cut in the high-side frame piece on a partial slant equal to that of the writing-table. Part of the metal is turned out, as at 42 to form a ledge, and the metal, at the ends, is bent in and then out to form brackets 43 crosswise of the slot in the side frame. These two brackets or plates have holes for the insertion of the desired form of carbon paper roll spindle 44, and the outer portions of the plates are employed to carry an idler roller 41 to guide the carbon paper 45 up along the outside of the high-side wall of the frame, in which the spindle is mounted.

The writing-table carries the carbon paper clamp knife 45^a of ordinary construction for the purpose and on the inside of the cabinet is mounted a spring finger 46, which, when the cabinet is closed, holds the carbon paper against the high-side frame piece until it is all used up independent of whether it has been drawn clear off the spindle.

We do not wish our invention herein to

be limited to the exact structure described because of our failure to specifically describe but one set of mechanical equivalents which might be varied without departing from the spirit of the invention set forth.

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

1. In a manifolding machine, the combination with a framework, paper feeding and supporting mechanism therein, and a cabinet adapted to come down over said framework so as to enclose its sides, top and ends, and having open spaces therein to expose a certain portion of the frame for making impressions upon the paper, of a hinge structure for the cabinet, comprising interengaging means on the cabinet and the frame adapted to retain said parts together in an arc of movement limited in scope from closed position of the cabinet to a substantially vertical position therefor.

2. In a manifolding machine, the combination with a frame and operating parts, of a cabinet, adapted to entirely cover the frame and rest against a portion provided thereon, engaging means on the cabinet and frame adapted to remain in engagement during an arc of movement of the cabinet, with the means on the cabinet adapted to slide on the means on the frame during said movement, whereby the relative pivotal center between the cabinet and base will change during said movement.

3. In a manifolding machine, the combination with a frame and operating parts, of a cabinet adapted to entirely cover the frame and rest against a provided part thereof, and interengaging means on the cabinet and frame adapted to remain in engagement during an arc of movement of the cabinet, said means being independent of attachment to each other.

4. In a manifolding machine, the combination of a register frame and cabinet, a hinge structure for the cabinet on the manifolding register frame, comprising standards on the said frame, standard engaging means on the cabinet, and hook portions on the standards to limit the movement of the cabinet engaging means.

5. In a manifolding machine, the combination of a register frame and cabinet, a hinge structure for the cabinet on the base or frame parts of the manifolding register frame, comprising standards on the said base or frame, standard engaging means on the cabinet, and hook portions on the standards to limit the movement of the cabinet engaging means, said hook portions comprising pivotal members on the standards having a limited arc of movement.

6. In a manifolding machine, the combination of a register frame and cabinet, a hinge structure for the cabinet on the mani-

folding register frame, comprising standards on the said frame, standard engaging means on the cabinet, and hook portions on the standards to limit the movement of the cabinet engaging means, said engaging means on the cabinet comprising a pair of rollers for straddling each standard.

7. In a manifolding machine, the combination of a register frame and cabinet, a hinge structure for the cabinet on the manifolding register frame, comprising standards on the said frame, standard engaging means on the cabinet, and hook portions on the standards to limit the movement of the cabinet engaging means, said hook portions comprising pivotal members on the standards having a limited arc of movement, said engaging means on the cabinet comprising a pair of rollers for straddling each standard.

8. In a manifolding machine, the combination of a register frame and cabinet, a hinge structure for the cabinet on the manifolding register frame, comprising standards on the said frame, standard engaging means on the cabinet, and hook portions on the standards to limit the movement of the cabinet engaging means, said engaging means on the cabinet comprising a pair of rollers for straddling said standard, the cabinet having a hook on its lower corners, and slots in the frame base for passage of said hooks to lock the cabinet to the base when in closed position.

9. In a manifolding machine, the combination of a register frame and cabinet, a hinge structure for the cabinet on the manifolding register frame, comprising standards on the frame extending upwardly therefrom and rounded to an apex, hooks pivoted to the standards so as to present their openings adjacent said apex, said hooks having a limited arc of movement and interspaced members on the cabinet adapted to straddle the standards.

10. In a manifolding machine, the combination of a register frame and cabinet, a hinge structure for the cabinet on the manifolding register frame, comprising standards on the frame extending upwardly therefrom and rounded to an apex, hooks pivoted to the standards so as to present their openings adjacent said apex, said hooks having a limited arc of movement, and interspaced members on the cabinet adapted to straddle the standards, said interspaced members adapted to rest against or near the base of the standards when the cabinet is closed, and to be engaged in part by the hooks when the cabinet has been swung to a substantially vertical position.

11. The combination with the frame of a manifolding machine having operating mechanism thereon, of a cabinet having a top and sides permanently united together

in one piece, said sides being adapted to rest on a base or other provided resting means when the cabinet is closed, and means for pivoting said cabinet and frame at the one end thereof, said means having a movement substantially vertical of the base as well as a pivotal movement, for the purpose described.

12. In combination with the frame of a manifolding machine having operating mechanism thereon, of a cabinet having a top and sides permanently together in one piece, said sides being adapted to rest on the base or frame when the cabinet is closed, and means for pivoting said cabinet and base or frame at one end thereof, said means comprising members on the cabinet and on the base or frame adapted to engage each other, but unsecured to each other, whereby a detachable hinge is provided.

13. The combination with a frame for a manifolding machine having a feed shaft for paper therein, a cabinet adapted to enclose said frame and rest against the base or lower part of said frame, a handle for the feed shaft, clearance in the cabinet being provided for insertion of the same after the cabinet is closed, and stops for the handle comprising a bracket secured against the side frame in the space between it and the cabinet, pins slidably set in the bracket and the frame, and springs over the pins in the space between the bracket and the frame, said cabinet having clearance openings for the pins.

14. The combination with a manifolding machine, of a feed shaft for paper in said machine, and a handle therefor, said handle having a hub comprising a member to non-rotatably engage over the shaft, and means for holding the handle irremovably on the hub comprising a movable threaded member operable through and confined within the hub, said shaft having a hole therein to receive the threaded member, and a spring device within the hub and adapted to engage the threaded member when screwed home into the shaft.

15. A handle for the feed shaft of manifolding machines, comprising a crank portion and a hub portion, said hub portion having a non-rotatably engaging portion for the shaft, and means for holding the handle irremovably on the hub comprising a key-hole forming member at the other end of the hub from said engaging portion, a chamber within the hub between said two portions, a plug slidable within the chamber, said plug having a screw portion extending through the shaft engaging portion, a spring washer over the screw portion, said plug having a head adapted to be engaged by a key thrust through the said key-hole, as and for the purpose described.

16. In combination with a base and verti-

cal side frame walls for a manifolding machine, a cabinet adapted to enclose said side walls and rest against said base, of means for mounting carbon paper for use in the
 5 machine, comprising a pair of brackets mounted in a cut-away portion of one side frame wall, and means in said brackets for engaging the spindle of a carbon paper roll within the outlines of said wall.

10 17. In combination with a base and vertical side frame walls for a manifolding machine, a cabinet adapted to enclose said side walls and rest against said base, of means for mounting carbon paper for use in the
 15 machine, comprising a pair of brackets mounted in a cut-away portion of one side frame wall, and means in said brackets for engaging the spindle of a carbon paper roll within the outlines of said wall, said brackets
 20 carrying means for diverting the path of the carbon paper in the form of a roller or the like outside of the outlines of said wall.

18. In combination with a base and vertical side frame walls for a manifolding machine, a cabinet adapted to enclose said side
 25 walls, and rest against the base, of means for mounting carbon paper in said machine, comprising spindle supporting means, one of said side walls having a clearance space

therein in which the supporting means are
 30 set to bring the carbon roll within the confines of the said wall, and means on the cabinet to engage the paper at a point adjacent the upper edge of said wall, whereby the
 35 removal of paper from the spindle will not destroy the tension thereof across the machine.

19. In a manifolding machine the combination of a feed shaft for paper strips, a handle for operating the same, a spring pin
 40 projecting from the machine in the path of the handle and adapted to stop its operation, and means for depressing said pin to release the handle comprising a movable member
 45 mounted on the handle.

20. In a manifolding machine the combination of a feed shaft for paper strips, a handle for operating the same, a spring pin
 45 projecting from the machine in the path of the handle and adapted to stop its operation, and means for depressing said pin to
 50 release the handle comprising a movable member mounted on the handle, said means comprising a hinged finger piece on the handle, arranged thereon so as to strike the pin
 55 when the handle is in position of abutment thereagainst,

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