Oct. 6, 1931. J. Q. SHERMAN 1,825,706

MULTIPLE MANIFOLDING MACHINE

Filed May 22, 1926 2 Sheets-Sheet 1

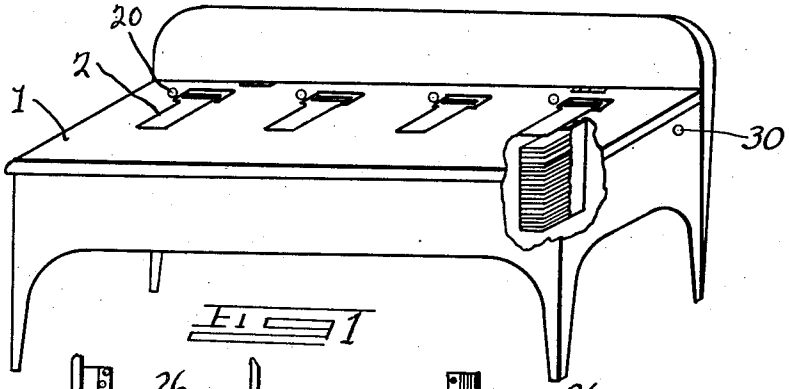


FIG 1

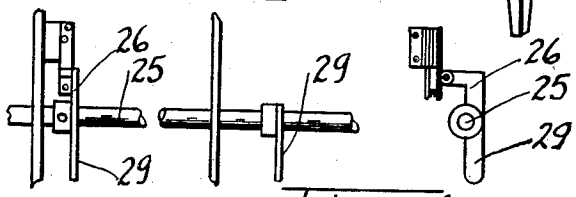


FIG 4

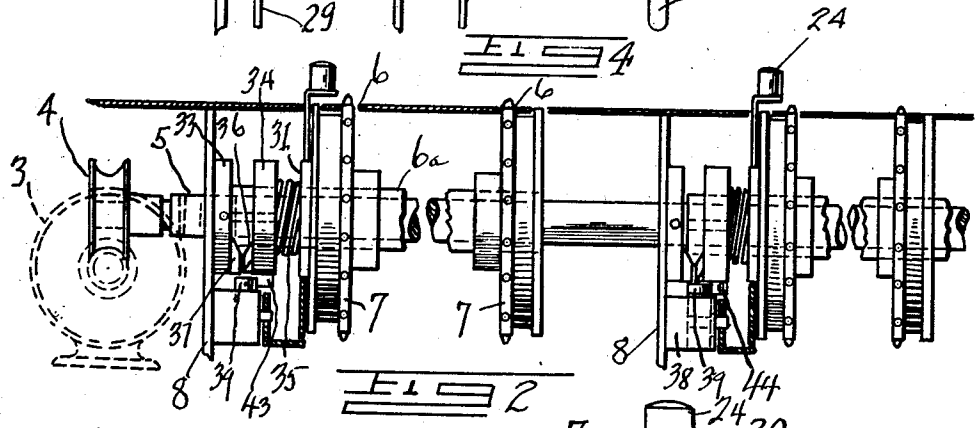


FIG 2

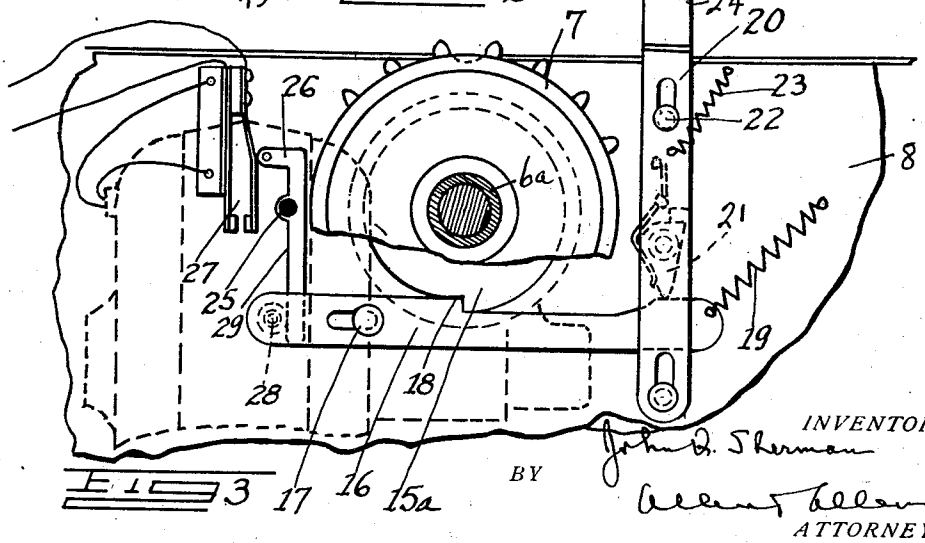


FIG 3

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MULTIPLE MANIFOLDING MACHINE

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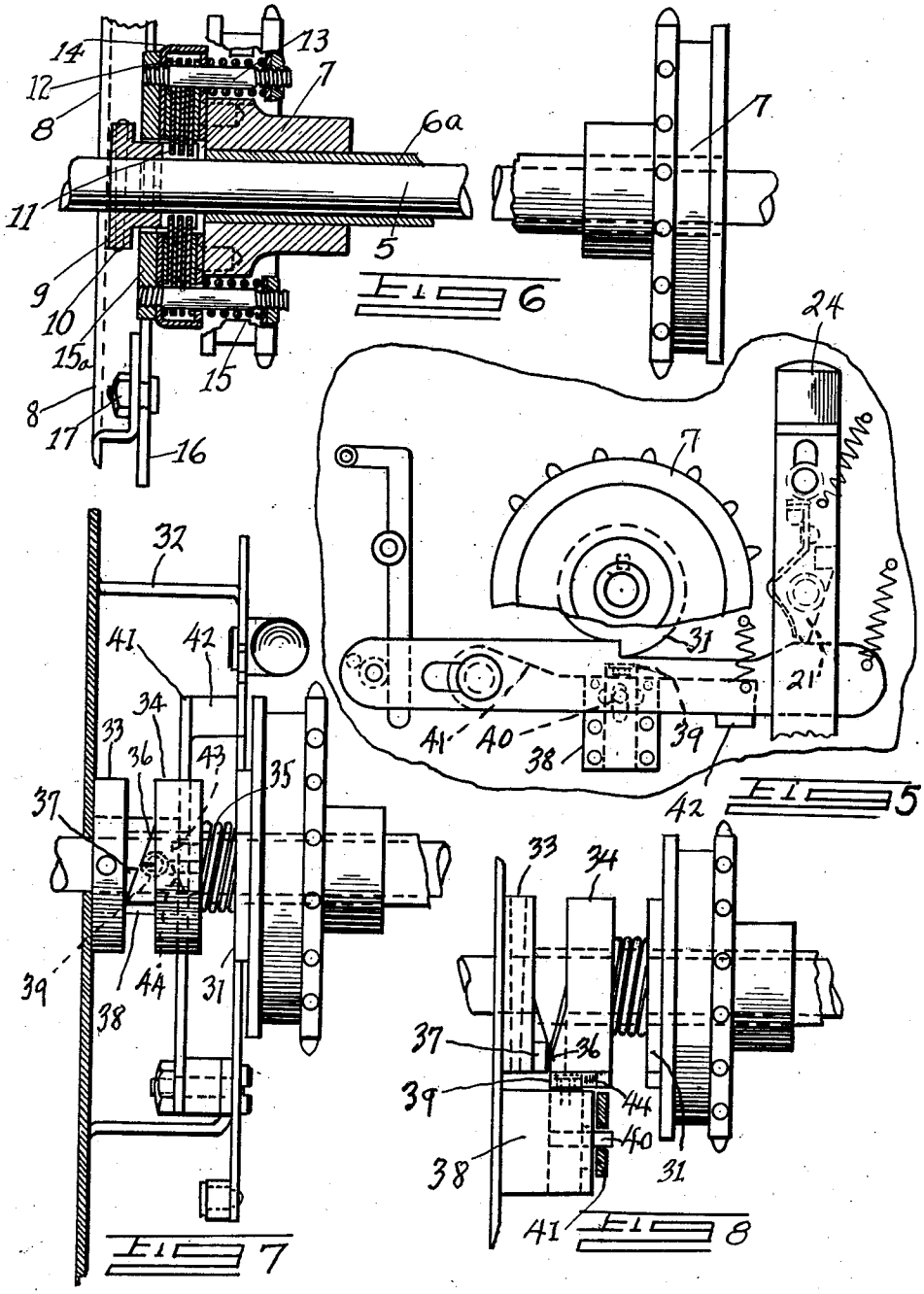


FIG 6

FIG 5

FIG 7

FIG 8

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Patented Oct. 6, 1931 1,825,706

UNITED STATES PATENT OFFICE

JOHN Q. SHERMAN, OF DAYTON, OHIO, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE STANDARD REGISTER COMPANY

MULTIPLE MANIFOLDING MACHINE

Application filed May 22, 1926. Serial No. 111,056.

My invention relates to manifolding machines in which a series of paper feed elements and paper storage elements are arranged in a bank, with operating device therefor. The practice of making out duplicate deposit slips in banks is the main object of my machine. It provides a convenient fixture for making an original and duplicate deposit slip and at the same time leaves no extra slips for persons to carry away for scratch paper. Also in certain financial transactions where a number of different kinds of forms are employed, it is often convenient to arrange the manifolders along side of each other, with a clerk who makes the entries and handles all issued slips and duplicate and record slips. To these ends I have provided a machine in which a table is provided, in the top of which are a series of writing openings, with paper supporting tablets beneath them.

The operating device for feeding paper over the supporting elements, across the openings, is in my device arranged to operate any selected one or ones of the series of paper feed shafts, from a single power source.

An electrical operating device is illustrated, but hand power or other power could be employed just as readily, requiring, however, first a selection of the unit to be operated followed by an operation of the common power means, while the electrical power means can be set into motion by the same operation as releasing the paper feed shafts, through the control of the motor circuit to the actuating element.

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

In the drawings:

Figure 1 is a perspective showing a typical table for a multiple unit manifolder.

Figure 2 is a detail elevation showing the paper drive of several paper feed units.

Figure 3 is a side elevation detail showing a modified release for a single unit.

Figure 4 is a diagram showing the arrangement of shafts of the control devices.

Figure 5 is a modified type of Figure 3, same being shown in Fig. 2.

Figure 6 is a section showing the type of Fig. 3.

Figure 7 is a larger scale plan of the feed device of the type in Fig. 5.

Figure 8 is a detail showing the parts in Fig. 7 in side elevation, showing the means for removing the wedging stud.

I have illustrated a table having a top 1, with a series of apertures 2 therein, through which paper is exposed for writing thereon. At one end of the table, which is formed as an enclosed box is a motor 3, having a coupling at 4 with the main shaft 5, that extends clear across the machine just beyond the openings 2 in the table.

Over this shaft and extending across between the pin clearance slots 6, 6, for each unit, sleeves 6*a*, are mounted over the shaft, one sleeve for each unit. On each sleeve are mounted the hubs of two pin wheels 7, the pins of which are disposed to engage marginal lines of holes in the paper webs to be fed.

Located to the left, in the instance shown, of each of the paper feeding units are partitions or frames 8, which serve to mount the tripping devices.

In the form of device of Figures 3 and 6, on the shaft are collars 9, one for each unit, pinned to the shaft as at 10. The collars have grooved extensions engaging the disks 11, and disks 12 are engaged by the pin wheels. For this latter purpose the disks 12 are arranged over posts 13, set into a housing 14, the posts being held by springs and nuts 15 to the pin wheels. Each of the posts engages in an end plate 15*a* which structure establishes a friction clutch between the shaft and the wheel, since it is loose on the shaft and engages the assembly of disks.

These end plates are formed as cams, the shoulders of which are engaged each by tilting bars 16. There is a tilting bar or trip for each cam, said trips being mounted on posts 17, so as to lie in the paths of the cams, and having shoulders 18 to engage the cam shoulders. Springs 19 hold the trips against

the faces of the cams, and they are depressed at the outer end thus releasing the cams, by means of plungers 20, having spring pawls 21 thereon. The plungers are held sildably on the partition walls, by means of studs 22, engaging slots in the plungers, and the pawls are arranged to engage the trips, but having moved them, to swing into a position of non-interference with the return of the trip to normal position, even though the plungers be held down.

Springs 23 hold the plungers up, with their heads 24 extending through the top of the machine table.

Across the rear of the device is mounted a shaft 25, having an arm 26 thereon, that moves into contact the members of the switch 27 of the motor circuit.

Each trip or tilting bar has a roller 28 at its inner end, said roller bearing against an arm 29, on the shaft 25.

The arrangement is such that when any of the plungers are depressed, the resulting action of the trips will rock the shaft 25, in such a way as to close contact with the motor because when the trips are tripped away from the cams, the springs 19 will pull them forwardly of the machine. The mounting of the trips is a slotted one so as to permit this movement, and the pulling forward will result in the shaft 25 being rocked and held in rocked position by the trips.

It will be noted upon examination of Figure 3, that when the cams, which rotate counterclockwise, are released by the trips, that the effect of the motor will be to revolve the one that is released, one revolution, whereupon it will pick up the trip by engaging its shoulder, and move the trip to position of permitting the shafts 25 to rock to position of shutting off the motor.

Whether or not the motor is shut off, however, the cam will move but one revolution, after each release, and thus any one or more than one of the paper feeding devices can be operated simultaneously, and the motor will keep running until all feeds have stopped. Those feeds which are not released will merely stand still and the frictions will slip, and the motive power is easily sufficient to permit all of the devices to slip, and still rotate at a good speed, the shaft 5.

It is evident that a mere manual revolution of the shaft 5, subsequent to a release of one of the paper feed device cams will accomplish the same purpose, as the motor feeds, and to that end the terminus of the shaft at the end opposite the motor is at a hole 30 in the table through which a handle can be inserted.

It is required to release any one plunger permitting it to rise to normal position before the feed controlled by it can operate.

The other form of device shown, in which no friction must be carried when a selected device operates, is arranged as follows: With the parts otherwise the same, and cams are formed by faces 31, at the sides of the pin wheels, which are as before secured fast to the sleeves. As in the first instance the plunger member is mounted on posts, which are elevated from the face of the partition, the lips 32 for this purpose being made a little longer.

Instead of the friction clutch devices, the collars 33 are pinned to the shaft, and sliding keyed collars 34 mounted on the sleeves. Springs 35 press these collars 34 away from the pin wheels and toward the collars 33. Noses 36, 37 on the two collars of any set will contact so that the one collar will drive the other.

In order to thrust the collar 34 normally away from driving position a small bracket or housing 38 is placed on the partition, and carries a plunger 39, which has a pin 40 therein extending horizontally. Secured to the mounting stud 17 of trigger bar 15, is an arm 41, which has a lip 42 that lies under the outer end of the trigger bar.

The collar 34 has a projection 43 at its periphery which will engage the plunger 39 (Fig. 7), the projection having a sloping face 44 for this purpose.

As a result, when the trigger bar is depressed to release the pin wheel cam, the arm 41 is depressed thereby, and is held depressed as long as the trigger bar is in contact with the cam. The action of drawing down the arm 41, serves to depress the plunger 39, thereby permitting the collar 34 to engage with the collar 33. The shaft will then drive the pin wheel around once, and as the cam permits the trigger bar to rise, the plunger 39 will rise, and strike the slanting face of the projection 44. This will serve to force the collar 34 away from driving relation with the collar 33, and the action will be to stop the drive, properly timed with relation to the positive stop of the paper feed by means of the trigger.

The advantage of this structure over the one first described is that it does not require the friction to slip on all devices but the one that is being operated upon, as did the first form. The first form is more completely definite in its operation as no timing of a clutch and a trip are necessary.

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

1. In a manifolding machine having a single power means, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, individual controls for each unit, said controls comprising a clutch and a stop arranged together with the unit to permit only single

cycles of operation of a released unit upon each operation of the control thereof.

2. In a manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, a clutch from each paper feed to the power shaft, and individual stops for each paper feed mechanically controlled with the clutch and arranged to release any feed for a single cycle of operation only, upon each operation of its stop.

3. In a manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, a clutch from each paper feed to the power shaft, and individual stops for each paper feed mechanically controlled with the clutch and arranged to release any feed for a single cycle of operation only, upon each operation of its stop, an electric motor to drive said shaft, and circuit closing means for the motor, each stop having means for operating said circuit closing means.

4. In a manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, paper feeds comprising rotary members loosely mounted over the shaft, clutches between the shaft and each paper feed, and trips for each feed, arranged to release the feeds for single cycles of operations upon each operation of the trips, each of said trips also arranged to operate the clutch for its feed.

5. In a manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, paper feeds comprising rotary members loosely mounted over the shaft, clutches between the shaft and each paper feed, and trips for each feed, arranged to release the feeds for single cycles of operations upon each operation of the trips, each of said trips also arranged to operate the clutch for its feed and electric motor to drive said shaft, a switch for said motor, and each trip arranged to close said switch.

6. In a manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, paper feeds comprising rotary members loosely mounted over the shaft, clutches between the shaft and each paper feed, and trips for each feed, arranged to release the feeds for single cycles of operations upon each operation of the trips, an electric motor to drive said shaft, a switch for said motor, and each stop arranged to close said switch, and hold it closed during the operation of the released feed.

7. In a manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, paper feeds comprising rotary members loosely mounted over the shaft, clutches between the shaft and each paper feed, and trips for each feed, arranged to release the feeds for single cycles of operations upon each operation of the trips, an electric motor to drive said shaft, a switch for said motor, and each stop arranged to close said switch, and hold it closed during the operation of the released feed, said feeds and trips so arranged that incident to stopping the feeds the trips are moved to a position to open the motor switch.

8. In a manifolding machine having a single power means, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, cams for each feed, and trips to engage said cams, a driving motor, a control therefor, said trips arranged each to operate the control, means for operating the trips to release the cams, said trips having a movement under influence of springs to operate the control, and a movement under influence of the cams to shut off the control.

9. A manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, clutches from each paper feed to the power shaft, and individual controls for each paper feed, arranged to release any feed for a single cycle of operation only, upon each operation of its control, said clutches being urged by springs to constant driving connection with the power shaft, and means on the individual controls to keep the clutches out of the driving connection except when their feeds are released.

10. A manifolding machine having a single power shaft, a series of units each having an individual paper feed, and a paper support exposed so as to permit marking upon the paper fed thereover by each feed, clutches from each paper feed, arranged to release any feed for a single cycle of operation only, upon each operation of its control, and said controls for each paper feed being formed as single trip latches to positively stop the feeds after one revolution thereof.

11. In a manifolding machine having a support for a series of separate plural webs of paper to be issued in form length, and a single power means and shaft, a plurality

of means for setting said shaft into motion, a separate feed for each of the series of plural webs, releases for each feed arranged to release the feeds for an operation which will issue a single form length, and shiftable driving connection between each feed, and the power shaft, said releases having means for controlling a shift to driving connection when the feed in any instance is released, and a shift back to idle position when the feed has been latched against movement, for the purpose described.

JOHN Q. SHERMAN.