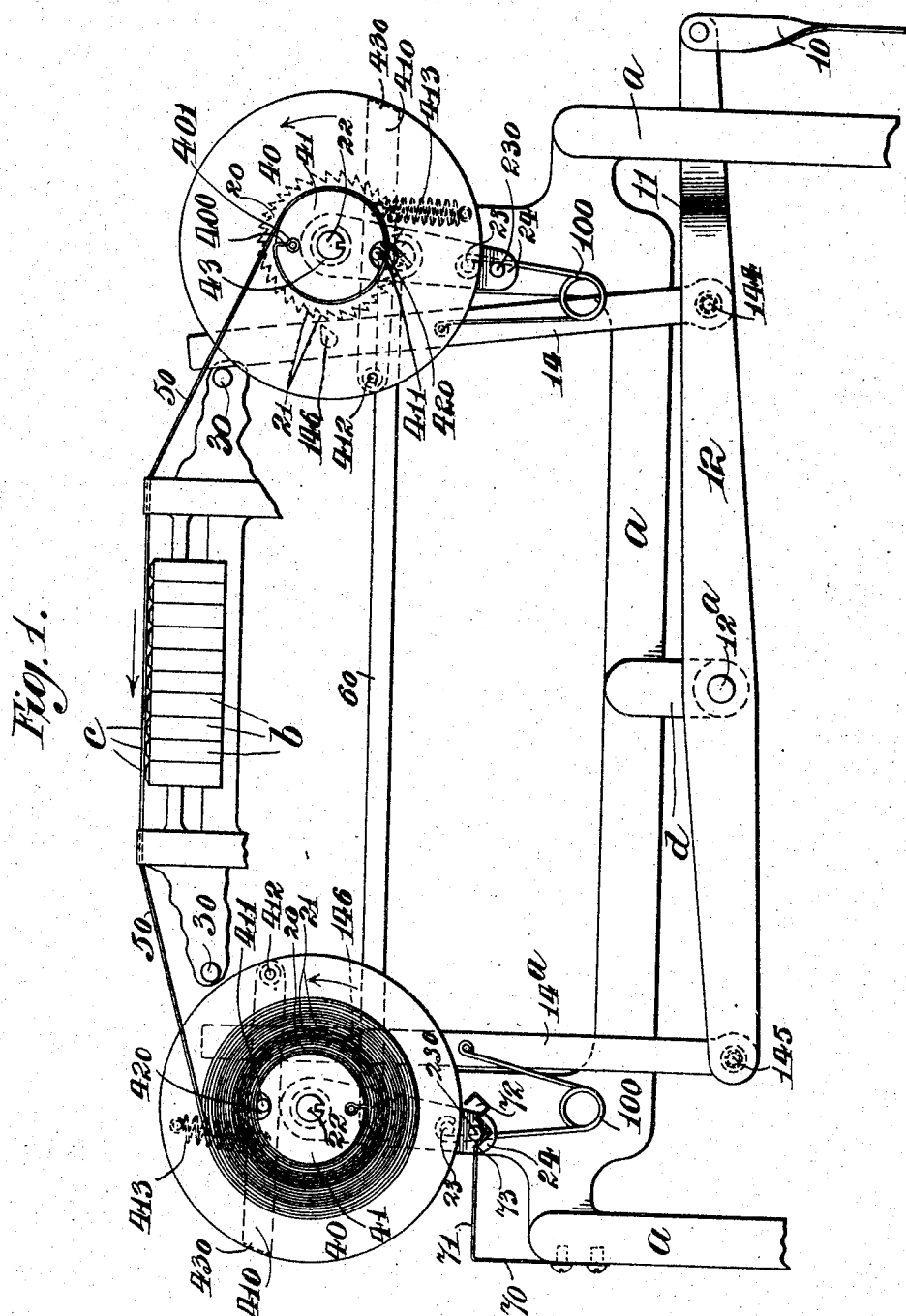


C. WALES.
INKING MECHANISM FOR ADDING MACHINES.

APPLICATION FILED JUNE 23, 1904.

3 SHEETS—SHEET 1.



Witnesses
German Meyer
Alan McDonnell

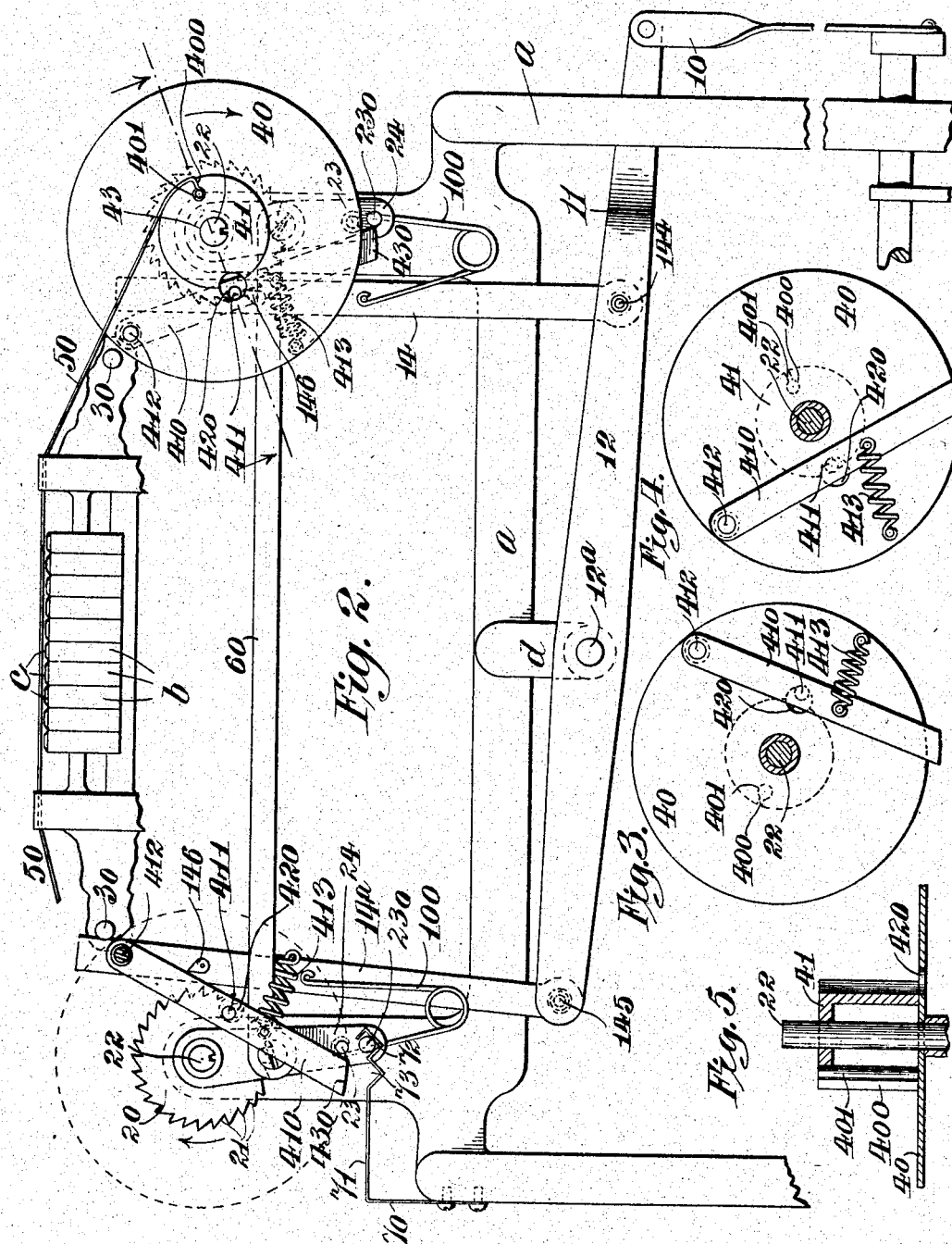
Charles Wales Inventor
By His Attorney William R. Baird

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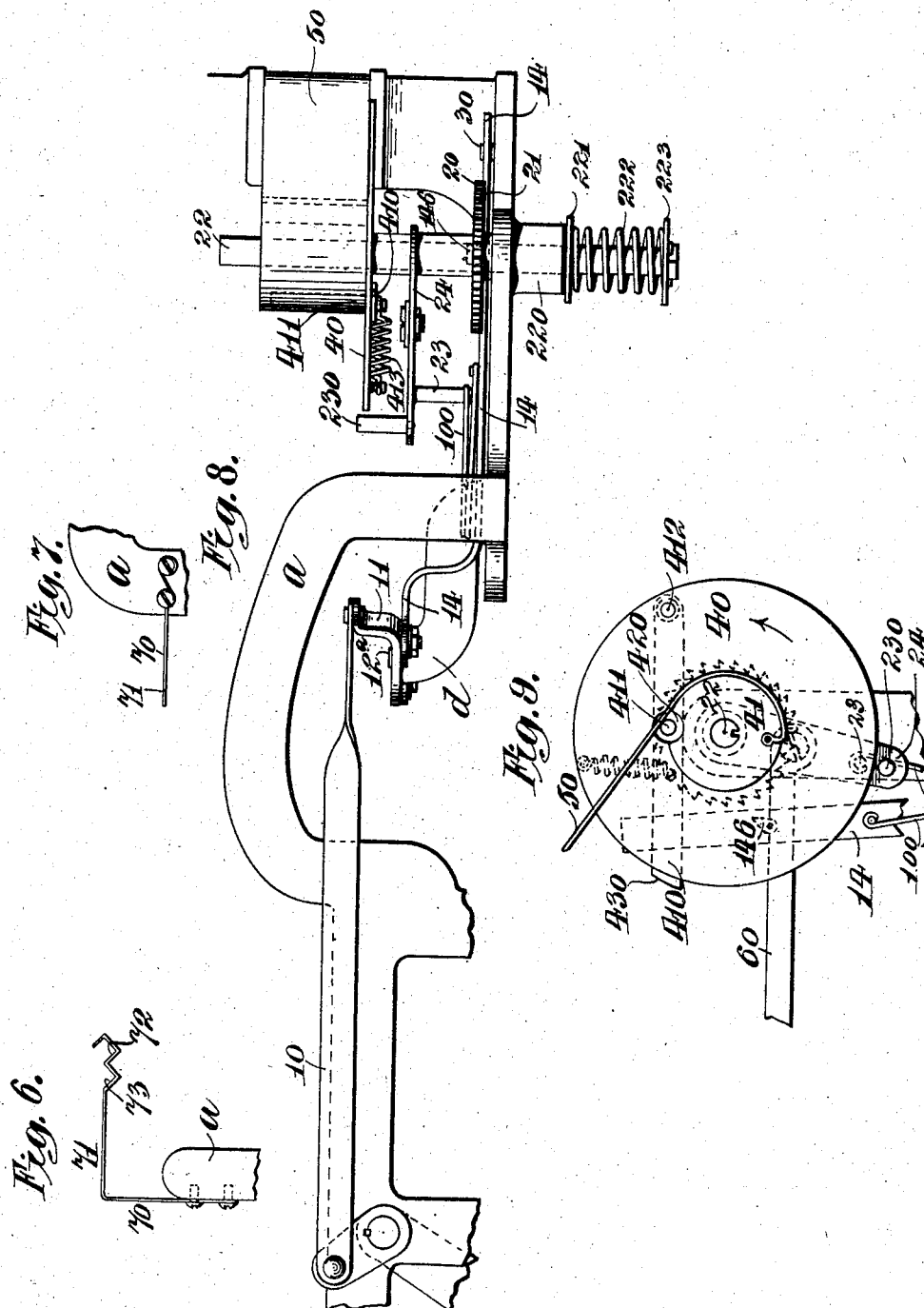


Witnesses
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Alan M. Donnell.

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Witnesses
Herman Meyer
Alan McAlinnell.

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UNITED STATES PATENT OFFICE.

CHARLES WALES, OF DETROIT, MICHIGAN.

INKING MECHANISM FOR ADDING-MACHINES.

No. 796,024.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed June 23, 1904. Serial No. 213,767.

To all whom it may concern:

Be it known that I, CHARLES WALES, a citizen of the United States, and a resident of the city of Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Inking Mechanism for Adding-Machines, of which the following is a specification.

My invention relates to inking mechanism for adding-machines and the like, and its novelty consists in the construction and adaptation of the parts, as will be more fully hereinafter pointed out.

The object of my invention is to provide improved means for feeding and reversing the direction of the feed of the inking-ribbon; and with this object in view the invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically claimed.

In the drawings, Figure 1 is a top plan view of a portion of an adding and printing machine provided with my improved device. Fig. 2 is a similar view with the ribbon removed from the left-hand side of the machine. Fig. 3 is a bottom plan view of the disk of the ribbon-spool, showing the reversing-lever extending beyond the periphery of the wheel-disk to actuate the reversing mechanism. Fig. 4 is a bottom plan view of the same parts, showing the reversing-lever flush with the periphery of the wheel-disk. Fig. 5 is a transverse section of the ribbon-spool. Fig. 6 is a top plan view of the positioner, and Fig. 7 a side view thereof. Fig. 8 is a side elevation of the right-hand ribbon-spool and its connection; and Fig. 9 is a top plan view of the ribbon-spool, showing the ribbon in the act of unwinding and upon the point of releasing the reversing-lever.

In the drawings, *a* represents part of the frame of an adding and printing machine, the type-bars being indicated at *b* and the faces of the types at *c c*. The inking-ribbon is represented by 50 and is adapted to be passed in front of the type-faces along the line of print, so that the impact of the type will force the ribbon smartly against a suitable platen provided for that purpose (and which is not shown) to press the ink against the paper carried by the platen to receive the impression of the particular type or types actuated.

10 represents any suitable part of the machine adapted to be horizontally reciprocated.

It is pivoted to a yoke 12, curved upward at 11 to lie in the same plane with the part 10, and which yoke is in turn pivoted at 12^a to a bracket *d* on the frame of the machine.

14 and 14^a are two pawl-rods pivoted at 144 and 145, respectively, to the yoke 12, and which by its oscillation are reciprocated horizontally across the machine. 146 146 are the pawls upon these rods and are adapted to engage with the teeth 21, formed on the peripheries of the wheels 20 of the ribbon-spools 41. The pawls 146 are held in engagement with the teeth 21 by means of the grasshopper-springs 100. The wheels 20 are each keyed or otherwise secured to a separate vertical shaft 22, to which is also secured and adapted to rotate with it the ribbon-spool 41, provided with the wide disk 40. Beneath the wheel 20 is a dependent cylindrical flange 220, below it a disk 221, and below it is a similar disk 223, both keyed to the shaft. Between them is a coiled spring 222, serving as a yielding frictional connection between the shaft and the ribbon-spool.

24 24 are levers secured to rock or oscillate on the shafts 22 22. They are each provided with a downwardly-projecting pin 23 and an upwardly-projecting pin 230, the latter being placed at a point slightly farther away from the center of the shaft 22 than the outer edge of the disk 40. A cross-rod 60 connects the levers together and causes them to move in unison.

30 30 are stop lugs or pins secured at suitable points on the frame of the machine to limit the lateral movement of the pawl-rods 14 14^a away from the wheel-shafts. Each ribbon-spool 41 is provided with a top 42 and with a vertical slot 400, extending into the aperture 401 at one side. At the other side it is recessed at 420. The slot 400 and aperture 401 are for the purpose of receiving the end of the ink-ribbon, the latter being slipped on edge through the slot 400 and knotted or otherwise enlarged within the aperture 401, so that it cannot slip out.

Each disk 40 is provided underneath with a reversing-lever 410, secured near the edge by a pivot 412 and provided with an upwardly-extending pin 411, which fits readily within the recess 420 of the spool. The lever 410 is also secured to a coiled spring 413, which has a constant tendency to pull it outward. When pulled outward, its extremity 430 is beyond the periphery of the disk 40 to such an extent that the continued rotation of the disk will

cause such extremity to strike the pin 230, and thereby move the lever 24, and with it the grasshopper-spring 100, secured to the pin 23 and to the pawl-rod 14.

Secured to the frame of the machine is a positioner 70, formed of a wire bent at 71 and again bent at 72 and 73 to form two notches corresponding substantially to the correct position of the pin 23 when the pawl 146 is out and in engagement with the teeth 21 of the wheel 20. It is, in effect, a yielding positioner which limits the location of the pin 23 after it has been moved to one of two positions.

The mode of operating the device is as follows: Suppose the parts are in the position shown in Fig. 1. The ribbon 50 has been wound upon the left-hand spool and the reciprocation of the rod 10 as it oscillates the yoke 12 reciprocates the pawl-rods 14 and 14^a. The former is, however, not in an actuating position while the latter is, and each of its reciprocations moves its pawl 146 against the teeth 21 of the wheel 20, and therefore rotates the shaft 22 and ribbon-spool intermittently and by a step-by-step motion. The pin 23 is also held in the notch 73 of the positioner 70, and the reversing-lever 410 of the right wheel is completely within the periphery of that wheel. Suppose now the rotation of the wheels be continued. It will be observed that the pin 411 (see Fig. 1) has been kept and is kept within the recess 420 of the right-hand wheel by the pressure of the ribbon-strip against it. As the rotation continues and the ribbon is unwound it no longer presses this pin within its recess, but allows it to be moved outwardly by the pull of the spring 413. (See Fig. 9.) This throws out the reversing-lever 410 beyond the edge of the wheel 40, so that its extremity 430 strikes the pin 230 and moves it and the lever 24 toward the right. This action brings a pull upon the grasshopper-spring 100 and through it upon the pawl-rod 14, the connecting-rod 60, the pawl-rod 14^a, and the left-hand grasshopper-spring 100 until the pin 230, with which the latter is connected, is jumped into the notch 72. (See Fig. 2.) The further reciprocation of the pawl-levers 14 and 14^a will therefore actuate the right wheel now and not the left one, as the pawl of the rod 14 is in engagement with the teeth of the right wheel and the pawl of the rod 14^a is out of engagement with the teeth of the left wheel. The next stroke of the pawl 14 will cause the right wheel to rotate one step in the reverse direction. (See Fig. 2.) As this continues the ribbon 50 is wound on the right spool and unwound on the left spool, and as the winding continues the ribbon encircles and incloses the pin 411 and pulls it back into the recess 420, and so brings the end 430 of the reversing-lever 410 again within the periphery of the wheel 40. The con-

tinued rotation of the right-hand wheel will, as the ribbon is unwound from the left-hand wheel, finally bring into operation the reversing mechanism attached to that wheel and cause the action of the ribbon-spools to be again reversed.

What I claim as new is—

1. In a ribbon-feeding mechanism, the combination of a ribbon-spool, a pawl for actuating it, a lever pivoted on the ribbon-spool shaft, and a spring connecting the lever with the pawl.

2. In a ribbon-feeding mechanism, the combination of a pair of ribbon-spools, ratchet-wheels secured thereto, pawls for actuating the ratchet-wheels, levers pivoted on the ribbon-wheel shafts connected for simultaneous movement, and springs connecting the levers with their respective pawls.

3. In a ribbon-feeding mechanism the combination of a pair of ribbon-spools, ratchet-wheels secured thereto, a reciprocating part of the machine, a centrally-pivoted yoke connected thereto, pawl-rods pivotally connected to the yoke on opposite sides of its pivot, pawls on the rods engaging the respective ratchet-wheels, levers pivoted on the ribbon-spool shafts, a cross-rod connecting said levers, and a spring connecting each lever with its respective pawl-rod.

4. In a ribbon-feeding mechanism the combination with a ribbon-spool provided with a wide disk, of a reversing-lever pivoted to the disk held inoperative entirely within the periphery thereof by the coils of the ribbon and adapted to project into the operative position beyond the periphery of the disk when the ribbon is unwound, a pawl for actuating the ribbon-spool, and a lever pivoted on the ribbon-spool shaft projecting into the path of movement of the reversing-lever when in operative position and yieldingly connected to the pawl.

5. In a ribbon-feeding mechanism the combination with a pair of ribbon-spools provided with wide disks, pawls for actuating the spools, levers pivoted upon the spool-shafts projecting beyond the peripheries of the disks and connected for simultaneous movement, springs connecting the levers with their respective pawls, reversing-levers pivoted to the disks and held inoperative entirely within the peripheries thereof by the coils of the ribbon, and means for projecting the reversing-levers beyond the peripheries of the disks in position to strike the levers before named when the ribbon is unwound.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES WALES.

Witnesses:

HERMAN MEYER,
S. J. COX.