No. 864,493. PATENTED AUG. 27, 1907.

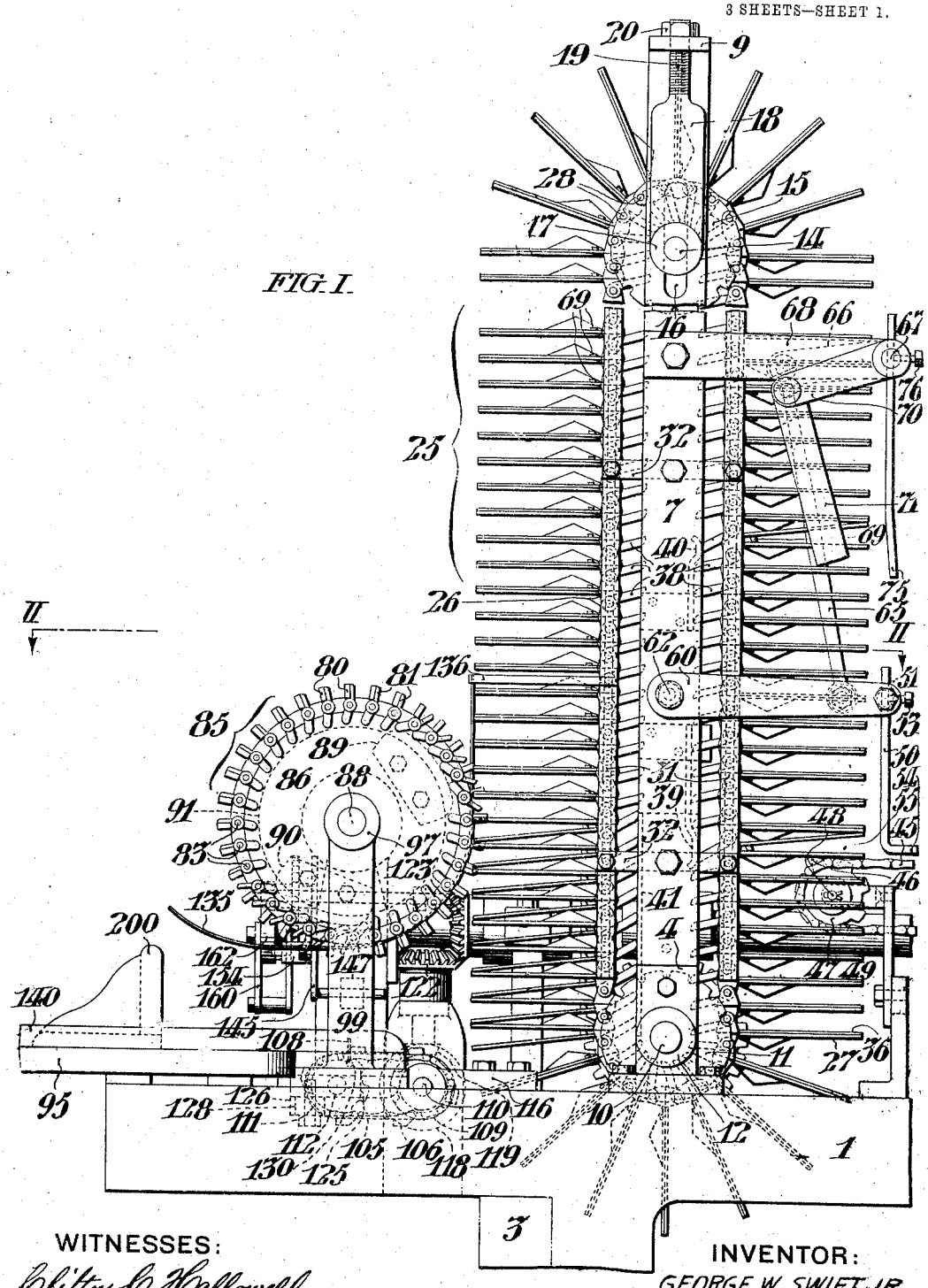
G. W. SWIFT, JR.

DRYING AND COUNTING MECHANISM.

APPLICATION FILED APR. 22, 1905.

3 SHEETS—SHEET 1.

FIG. 1.




WITNESSES:

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No. 864,493 PATENTED AUG. 27, 1907.

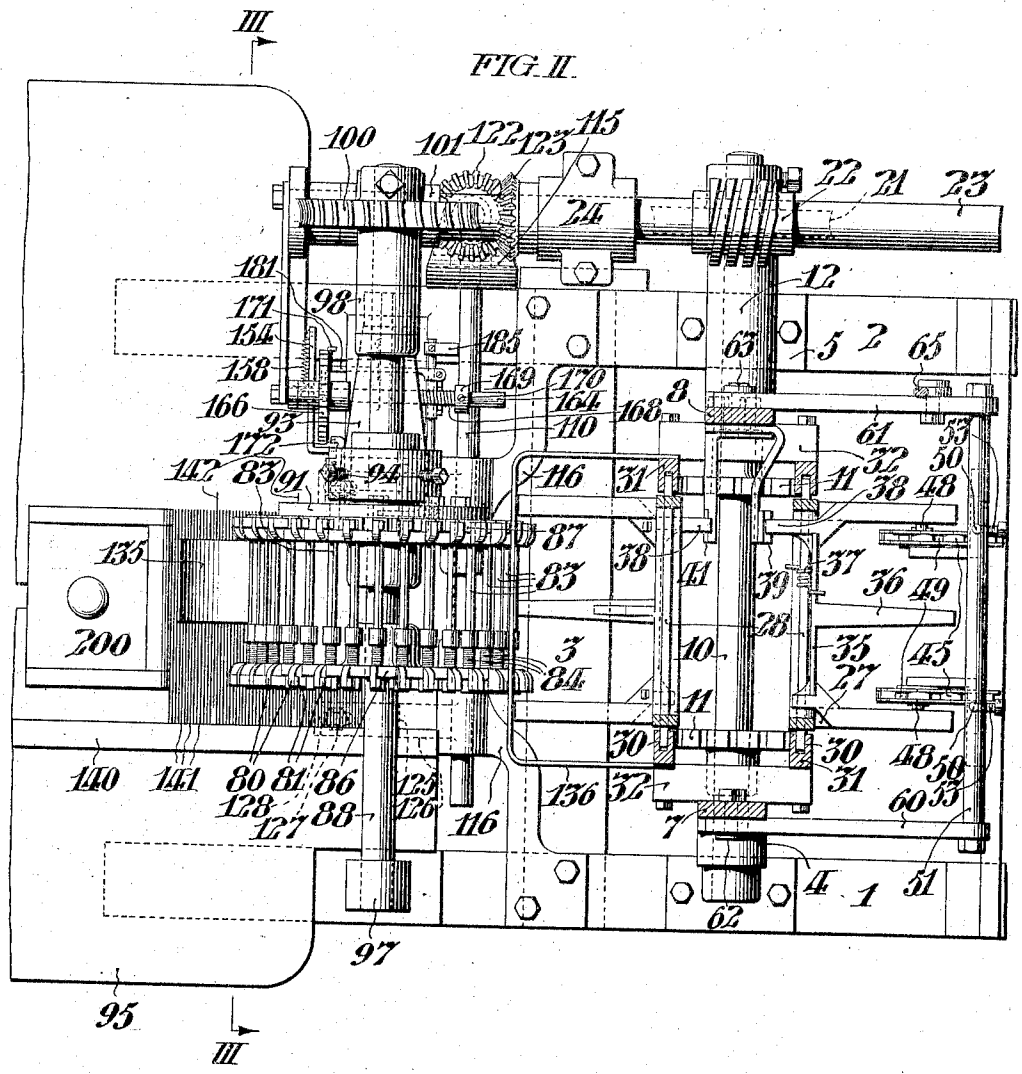
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DRYING AND COUNTING MECHANISM.

APPLICATION FILED APR. 22, 1905.

3 SHEETS—SHEET 2.

FIG. II.




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No. 864,493. PATENTED AUG. 27, 1907.

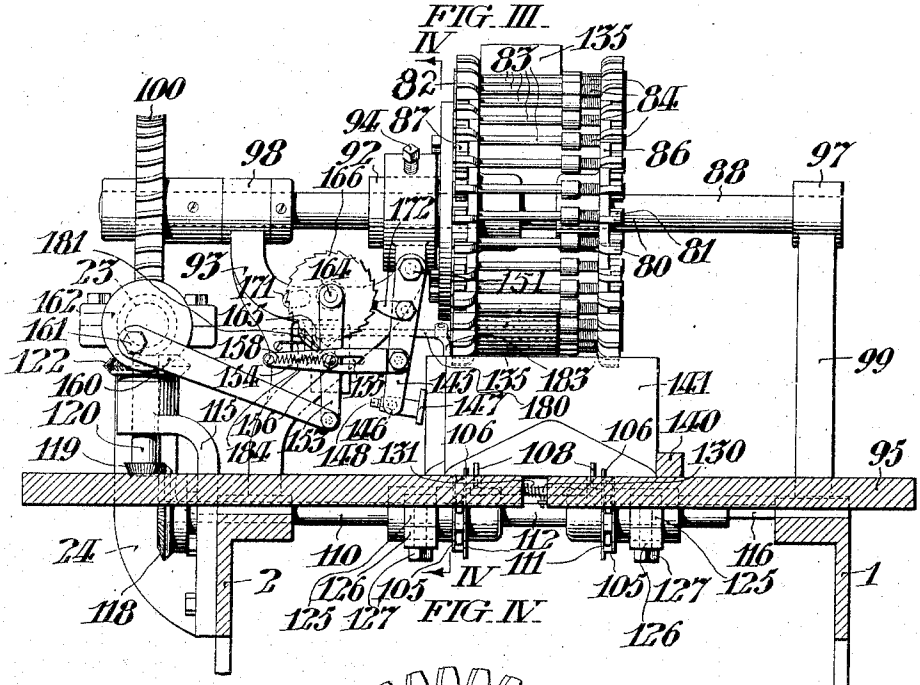
G. W. SWIFT, JR.

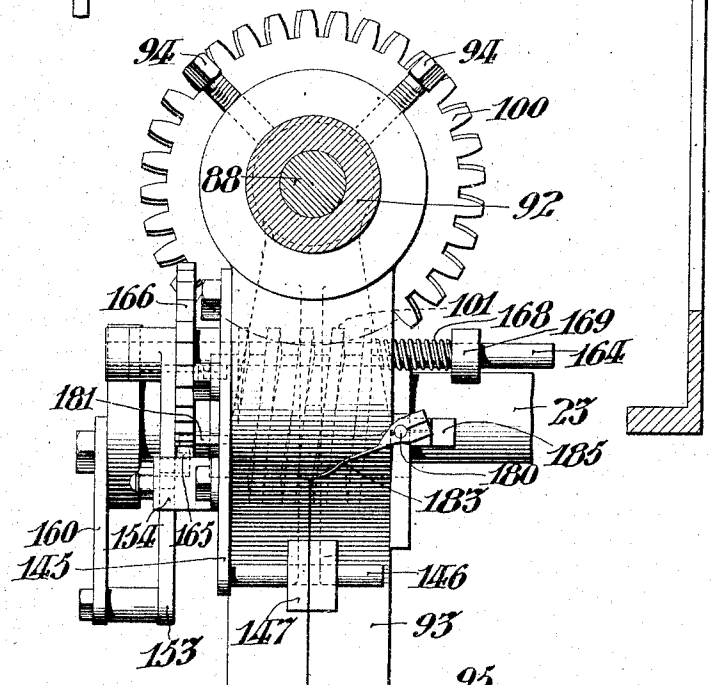
# DRYING AND COUNTING MECHANISM.

APPLICATION FILED APR. 22, 1905.

3 SHEETS—SHEET 3.

FIG. III.




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# UNITED STATES PATENT OFFICE.

GEORGE W. SWIFT, JR., OF BORDENTOWN, NEW JERSEY.

## DRYING AND COUNTING MECHANISM.

No. 864,493. Specification of Letters Patent. Patented Aug. 27, 1907.

Application filed April 22, 1905. Serial No. 256,852.

*To all whom it may concern:*

Be it known that I, GEORGE W. SWIFT, Jr., of Bordentown, in the State of New Jersey, have invented certain new and useful Improvements in Drying and Counting Mechanism, whereof the following is a specification, reference being had to the accompanying drawings.

My invention may be employed with particular advantage in conjunction with a machine for pasting or printing envelops or similar articles, and, comprises mechanism arranged to receive and separately hold such articles until imprints of paste or ink upon them are dried and said articles counted, while being progressed from the region where they are received, to a region where they are discharged on a receiving table in such relation that they may be readily packed in boxes.

The form of my invention hereinafter described comprises an endless chain having projecting leaves arranged to open and close at selected points in its progress to receive, grip and release the articles which are to be dried; disks having fingers arranged to take said articles from said chain and deposit them on a table; a lever arranged to consecutively press a selected number of said articles into alinement on said table, and means whereby said lever is arranged to be engaged after the selected number of articles have been alined to permit one of said articles to remain out of alinement.

My invention comprises the various novel features of construction and arrangement hereinafter more definitely specified.

In the accompanying drawings, Figure I, shows a side elevation of a convenient embodiment of my invention. Fig. II, is a plan sectional view, taken on the line II, II, in Fig. I. Fig. III, is a transverse sectional view, taken on the line III, III, in Fig. II. Fig. IV, is an enlarged vertical sectional view taken on the line IV, IV, in Fig. III.

In said figures, the frame comprises the side rails 1, and 2, supported by the end standard 3, of the delivery end of an envelop forming, pasting and printing machine. Said side rails are provided with brackets 4, and 5, which support the side frames 7, and 8, of the drying mechanism having the cap plate 9.

The shaft 10, having the sprocket 11, is journaled in the bearings 12, in the brackets 4, and 5, and the shaft 14, having the sprocket 15, extends through slots 16, in the side frames 7, and 8, and is journaled in the bearing 17, in the adjustable links 18, which have their threaded ends 19, projecting through apertures in the cap plate 9, and are provided with nuts 20. The shaft 10, is driven at a comparatively slow speed, being provided with the worm gear 21, arranged to mesh with the worm 22, on the driving shaft 23, which is journaled in the bearing 24.

The sprockets 11, and 15, are arranged to carry the drying chain 25, which comprises links 26, having leaves 27. Said links 26, are pivoted together by the pivot rods 28, which project slightly beyond the sides of the links 26, and are arranged to be engaged by the teeth of said sprockets.

The slack in the chain 25, may be taken up to any desired degree of tension by turning the nuts 20, and thereby raising the shaft 14, and its sprockets 15. Said chain is maintained in accurate alinement by having the projecting ends of the pivot rods 28, (of that portion of the chain which lies in a straight line) extending into the grooves 30, in the parallel guides 31, which latter are supported by the blocks 32, secured to the side frames 7, and 8.

The leaves 27, of the links 26, are arranged to extend substantially perpendicular to the line of travel of the chain 25, and each of said links 26, are provided with the frame 35, pivoted on the pivot rods 28, and having leaves 36, arranged to coöperate with the leaves 27, in gripping the envelop between them. The coiled spring 37, which encircles each of the pivot rods 28, is arranged to rock the frame 35, to normally press the leaves 36, into engagement with the leaves 27.

The frames 35, are each provided with a cam arm 38, arranged to be engaged by the cams 39, 40, and 41, which extend into the path of said arms to rock said frames 35, and thereby separate the leaves 27, and 36, to respectively receive, adjust and release the envelop.

The envelop is conveniently carried to the drying mechanism by the conveyer chain 45, having the high links 46, and said chain is carried by the sprockets 47, journaled on the projecting pins 48, which extend from the brackets 49.

A pair of L shaped guide wires 50, are adjustably secured in the rod 51, by the set screws 53, and have their horizontal portions 54, extending parallel with and adjacent to the straight portion of the conveyer chain 45, and are arranged to prevent displacement of the envelop as it enters the opening 55, between the separated leaves 27, and 36.

The guide wires 50, are arranged to be raised when the envelop is entering beneath them, and then depressed to keep the envelop in contact with the chain 45, and in engagement with the high links 46, until said envelop has been carried into the drying chain 25, which is continuously moving and would tend to lift the envelop from the conveyer chain 45, before it had reached its proper position between the leaves 27, and 36.

The rod 51, is carried by the levers 60, and 61, which are respectively pivoted to the side frames 7, and 8, at 62, and 63. Said lever 61, is connected by the link 65, to the lever 66, on the rock shaft 67, which is journaled in the brackets 68, extending from the side frames 7,

and 8. The rock shaft 67, is also provided with the lever 70, connected by the link 71, to any convenient portion of the envelop forming mechanism, (not shown) that will give said link 71, a reciprocatory motion and thereby oscillate the shaft 67, and the levers 60, and 61.

The cam 40, above referred to, is arranged to separate the leaves 36, from the leaves 27, against the tension of the springs 37, for the adjustment of the envelop being carried between them, which is accomplished by the inward oscillation of the depending levers 75, secured to the shaft 67, by the set screws 76.

As each link 26, passes the cam 40, the leaves 36, are separated from the leaves 27, thereby leaving the envelop resting free upon said leaves 27, and the oscillation of the shaft 67, swings the levers 75, inward to push said envelops into proper alinement against the stop lugs 69, on the leaves 36, when the leaves again close together and carry the envelops up the right hand and down the left hand side of the mechanism with respect to Fig. I.

As before described, the cam arms 38, are arranged to engage the cam 41, and separate the leaves 36, from the leaves 27, to release the envelops, which are at substantially the same time, gripped between the lugs 80, and the levers 81, of the drum 85, which comprises the rotary disks 86, and 87, carried by the shaft 88. Said disks carry a series of rock shafts 83, on which the levers 81, are secured and are arranged to be normally rocked by the coiled springs 84, to engage the lugs 80, and thereby grip the envelops between them. Said levers 81, are provided with the cam arms 82, and those which are adjacent to the disk 87, are arranged to engage the cams 89, and 90, on the stationary disk 91, which has its hub 92, adjustably secured in the bracket 93, by the set screws 94.

As best shown in Fig. I, the cam 89, is so arranged that the levers 81, are rocked to receive the envelop and grip it slightly before it is released by the leaves 27, and 36, and when thus gripped, they are carried and deposited in a vertical position on the table 95, and released by the engagement of the cam arms 82, with the cam 90, which again separates the levers 81, from the lugs 80. The shaft 88, is journaled in the bearings 97, and 98, respectively in the brackets 99, and 93, and in the hub 92, and said shaft is provided with the worm gear 100, arranged to mesh with the worm 101, on the driving shaft 23.

The chains 105, having projections 106, on its alternate links arranged to push the bottoms of the envelops past the check levers 108, are carried by the sprockets 109, on the shaft 110, and the sprockets 111, on the shaft 112. Said shaft 110, is journaled in the brackets 115, and 116, and is provided with the bevel gear 118, arranged to mesh with the bevel pinion 119, on the shaft 120, which is also journaled in the bracket 115, and provided with the bevel gear 122, arranged to mesh with the bevel gear 123, on the driving shaft 23.

The shaft 112, is journaled in the adjustable bearing blocks 125, which are supported on the extensions 126, of the brackets 116, and which have the tap bolts 127, extending through slots 128, in said extensions, whereby said block 125, may be conveniently adjusted.

The check levers 108, which are arranged to permit the envelops to pass to the left with respect to Fig. I, and to prevent their backward movement are secured to the rock shaft 130, which is journaled in suitable bearings in the table 95, and which is encircled by the coil spring 131, arranged to normally rock said levers 108, to a vertical position, best shown in Fig. I.

The spring guard 135, which is secured to the yoke 136, extending from the guides 31, is arranged to press the envelops downward and to insure their proper contact with the table as they are deposited thereon.

The table 95, is provided with the rib 140, against which the envelops 141, are successively pushed by the counting mechanism until twenty-four have been alined, when said counting mechanism is arrested for one stroke, thereby leaving every twenty-fifth envelop 142, out of alinement, as best shown in Fig. II. The counting mechanism comprises the thrust lever 145, having the projecting pin 146, on which the platen 147, is secured in adjustable relation by the set screw 148. Said lever 145, is pivoted to the bracket 93, at 151, and is connected to the pawling lever 153, by the link 154, which is provided with the slot 155, through which the stud 156, on the pawling lever extends. Said stud is connected to the link 154, by the coiled spring 158. The pawling lever 153, is secured to the rock shaft 164, and connected by the link 160, to the pin 161, on the rotary disk 162, which is secured on the driving shaft 23. Said pawling lever 153, is provided with the pawl 165, arranged to successively engage the teeth of the ratchet 166, journaled in the rock shaft 164, which latter extends through the bracket 93, and is encircled by the coil spring 168, whose tension may be adjusted by the collar 169, which is secured in adjusted position by the set screw 170. The ratchet 166, is provided with the lug 171, which is arranged to be engaged once during each rotation by the hook 172, on the thrust lever 145, to hold said lever out of action during one stroke of the pawling lever 153, whose stud 156, travels idly in the slot 155, against the tension of the spring 158. As the accurate count of the envelops is dependent upon the rotation of the ratchet 166, only when an envelop is in position to be engaged by the platen 147, it is necessary that the pawl 165, be normally held out of engagement with said ratchet and to engage it only when an envelop is passing.

The rock shaft 180, journaled in the bracket 93, and having the lever 181, arranged to raise the pawl 165, into engagement with the ratchet 166, is arranged to be rocked by its lever 183, which depends into the path of the envelops and which is upliftod by each as they pass beneath it. Said levers are limited in their downward movement by the stop guard 184, upon which the lever 181, is arranged to normally rest.

The counter weight 185, secured to the rock shaft 180, is arranged to partially counterbalance the levers 181, and 183, and thereby afford a more delicate movement for said levers, which the envelops must actuate.

The abutment 200, is arranged to accommodate the envelops deposited on the table 95, by sliding backward as the number increases and the operator may readily take said envelops from the table in one, two, or five hundred lots as desired, and place them in boxes.

I do not desire to limit myself to the precise details of construction and arrangement herein set forth, as it is obvious that various modifications may be made therein without departing from the essential features of my invention.

I claim:—

1. In mechanism of the class described, the combination with a chain; of straight, flat leaves arranged in rigid relation to the links of said chain; leaves movable with respect to said rigid leaves; and, means to actuate said movable leaves, substantially as set forth.

2. In mechanism of the class described, the combination with a chain; of flat leaves arranged in rigid relation to the links of said chain; leaves parallel to and movable with respect to said rigid leaves; cam arms arranged to extend from said movable leaves; and, cams arranged to engage said cam arms and actuate said movable leaves, substantially as set forth.

3. In mechanism of the class described, the combination with a chain; of wheels arranged to carry said chain; guides arranged to retain said chain in alinement between said wheels; leaves in unitary relation with the links of said chain; leaves movable with respect to said unitary leaves; and, means arranged to actuate said movable leaves, substantially as set forth.

4. In mechanism of the class described, the combination with a chain arranged to carry blanks; of leaves in rigid relation to the links of said chain, arranged to support said blanks in perpendicular relation to said chain irrespective of its direction of travel; leaves movable with respect to said rigid leaves; a spring tending to press said leaves together; and, cams arranged to separate said leaves against the tension of said spring, substantially as set forth.

5. In mechanism of the class described, the combination with a frame; of wheels journaled in said frame; a chain carried by said wheels; leaves, comprising end members and a tongue intermediate thereof, extending in rigid relation to the links of said chain; leaves movable with respect to said rigid leaves; springs tending to press said leaves together; and, cams arranged to separate said leaves against the tension of said springs, substantially as set forth.

6. In mechanism of the class described, the combination with a frame; of wheels journaled in said frame; a chain, carried by said wheels, arranged to carry blanks; leaves upon which said blanks are supported, extending in rigid relation to the links of said chain; leaves, movable with respect to said rigid leaves, arranged to hold said blanks flat upon said rigid leaves; cam arms carried by said movable leaves; and, cams on said frame arranged to encounter said cam arms and actuate said movable leaves, substantially as set forth.

7. In mechanism of the class described, the combination with a chain; of leaves in rigid relation to the links of said chain, arranged to receive articles to be conveyed; leaves movable with respect to said rigid leaves, arranged to normally grip said articles; means arranged to separate said leaves; a drum arranged to rotate in definite relation to the travel of said chain; lugs on said drum; and, levers carried by said drum, arranged to coöperate with said lugs to remove the articles carried by said chain, substantially as set forth.

8. In mechanism of the class described, the combination with a chain; of leaves in rigid relation to the links of said chain, arranged to receive articles to be conveyed; leaves movable with respect to said rigid leaves, arranged to normally grip said articles; means arranged to separate said leaves; a drum arranged to rotate in definite relation to the travel of said chain; lugs on said drum; levers arranged to coöperate with said lugs to grip the articles carried by said chain and remove them therefrom; and, means arranged to actuate said levers, in definite relation to the travel of said chain, substantially as set forth.

9. In mechanism of the class described, the combination with a chain; of leaves in rigid relation to the links of said chain, arranged to receive articles to be conveyed; leaves movable with respect to said rigid leaves, arranged to normally grip said articles; means arranged to separate said leaves; a drum arranged to rotate in definite relation to the travel of said chain; lugs on said drum; levers arranged to coöperate with said lugs to grip the articles carried by said chain and remove them therefrom; springs arranged to normally engage said levers with said lugs; cam arms on said levers; and, cams arranged to encounter said cam arms to separate said levers from said lugs, substantially as set forth.

10. In mechanism of the class described, the combination with a chain; of leaves in rigid relation to the links of said chain, arranged to receive articles to be conveyed; leaves movable with respect to said rigid leaves, arranged to normally grip said articles; means arranged to separate said leaves; a drum arranged to rotate in definite relation to the travel of said chain; lugs on said drum; levers arranged to coöperate with said lugs to grip the articles carried by said chain and remove them therefrom; springs arranged to normally engage said levers with said lugs; cam arms on said levers; a stationary disk; and, cams secured to said disk and arranged to encounter said cam arms to separate said levers from said lugs, substantially as set forth.

11. In mechanism of the class described, the combination with a chain; of guides for said chain; projections on said chain arranged to be engaged by said guides; leaves arranged in rigid relation to the links of said chain; leaves movable with respect to said rigid leaves; and, means to actuate said movable leaves, substantially as set forth.

12. In mechanism of the class described, the combination with a chain; of guides provided with grooves; projections on said chain arranged to travel in said grooves; leaves arranged in rigid relation to the links of said chain; leaves movable with respect to said rigid leaves; cam arms arranged to extend from said movable leaves; and, cams arranged to encounter said cam arms to actuate said movable leaves, substantially as set forth.

13. In mechanism of the class described, the combination with a chain arranged to convey articles such as envelops; of leaves arranged in rigid relation to the links of said chain; leaves movable with respect to said rigid leaves; stop lugs on said leaves arranged to determine the position of said articles; and, means arranged to actuate said movable leaves, substantially as set forth.

14. In mechanism of the class described, the combination with a chain arranged to carry articles such as envelops; of leaves arranged in rigid relation to the links of said chain; leaves movable with respect to said rigid leaves; means arranged to deposit articles between the leaves of said chain; and, mechanism arranged to take said articles from said chain, substantially as set forth.

15. In mechanism of the class described, the combination with a drum; of radially projecting lugs on said drum; levers pivoted on said drum; springs arranged to normally press said levers against said lugs; an adjustable disk; and, cams on said disk arranged to separate said levers from said lugs against the tension of said springs, substantially as set forth.

16. In mechanism of the class described, the combination with a drum comprising means arranged to carry articles such as envelops disposed in radial relation to said drum; grippers comprising levers arranged to open and close to grip said articles; springs arranged to normally close said levers; and, stationary cams arranged to open said levers against the tension of said springs, substantially as set forth.

17. In mechanism of the class described, the combination with a drum comprising disks having radial lugs; rock shafts journaled in said disks; levers secured to said rock shafts; springs arranged to normally rock said shafts to engage said levers with said lugs; and, means arranged to rock said levers to disengage said disks, substantially as set forth.

18. In mechanism of the class described, the combination with a rotary drum comprising disks; of a shaft for said disks; bearings for said shaft; a series of rock shafts carried by said disks; levers secured to said rock shafts and arranged to engage and disengage said disks to grip articles such as envelops disposed in radial relation to said drum; a disk in adjustable stationary relation to one of said bearings; and, cams on said stationary disk arranged to actuate said levers, substantially as set forth.

19. In mechanism of the class described, the combina-

tion with a rotary drum arranged to grip and release articles such as envelops; of a lever arranged to oscillate in definite relation to the rotation of said drum and aline said articles, substantially as set forth.

20. In mechanism of the class described, the combination with means arranged to deliver articles such as envelops in definite relation to each other; of a lever; means to oscillate said lever to shift said envelops into alinement; and, means arranged to withhold said lever at intervals determined in accordance with the number of envelops successively shifted, substantially as set forth.

21. In mechanism of the class described, the combination with means arranged to deliver articles such as envelops in definite relation to each other; of a lever arranged to shift said envelops into alinement; means to oscillate said lever; a ratchet; means to rotate said ratchet in definite relation to the number of envelops shifted; a lug on said ratchet; and, a hook on said lever, arranged to engage said lug to withhold said lever at intervals determined in accordance with the number of envelops shifted, substantially as set forth.

22. In mechanism of the class described, the combination with means arranged to deliver articles such as envelops in definite relation to each other; of a thrust lever arranged to shift said envelops into alinement; a ratchet; a ratchet lever; a pawl carried by said ratchet lever; means connecting said ratchet lever with said thrust lever; means arranged to engage said pawl with said ratchet only when an envelop is in position to be shifted; and, means carried by said ratchet arranged to withhold said thrust lever when a predetermined number of envelops have been shifted, substantially as set forth.

23. In mechanism of the class described, the combination with means to deliver articles such as envelops in definite relation to each other; of a thrust lever arranged to shift said envelops into alinement; a ratchet; a ratchet lever; a pawl carried by said ratchet lever; means connecting said ratchet lever with said thrust lever in resilient relation; a lever arranged to be actuated by each envelop to engage said pawl with said ratchet; and, means carried by said ratchet arranged to withhold said thrust lever when a predetermined number of envelops have been shifted, substantially as set forth.

24. In mechanism of the class described, the combination with means arranged to deliver articles such as envelops in definite relation to each other; of a thrust lever arranged to oscillate intermittently to successively shift said envelops; a ratchet; a ratchet lever arranged to oscillate continuously; a pawl carried by said ratchet lever, arranged to rotate said ratchet; means whereby said ratchet is actuated only when an envelop is in position to be shifted; and, means carried by said ratchet arranged to withhold said thrust lever when a predetermined number of envelops have been shifted, substantially as set forth.

25. In mechanism of the class described, the combination with means arranged to deliver articles such as envelops in definite relation to each other; of a thrust lever arranged to shift said envelops; a ratchet; a ratchet lever; means to oscillate said ratchet lever; a link connecting said thrust lever with said ratchet lever; a slot in said link; a stud on said ratchet lever extending through said slot; a spring connecting said stud with said link, whereby said ratchet lever may be continuously oscillated while said thrust lever is intermittently oscillated; a pawl carried by said ratchet lever arranged to rotate said ratchet; and, means carried by said ratchet arranged to withhold said thrust lever at intervals determined by the number of envelops shifted, substantially as set forth.

26. In mechanism of the class described, the combination with a chain arranged to convey articles such as envelops; of leaves in stationary relation to the links of said chain; leaves movable with respect to said stationary leaves and normally in contact therewith; means arranged to separate said leaves; a drum arranged to rotate in definite relation to the travel of said chain; levers carried by said drum arranged to grip said envelops; means arranged to actuate said levers to release said envelops; a thrust lever arranged to oscillate in definite relation to the rotation of said drum and shift said envelops into alinement; means to oscillate said lever; and, means arranged to withhold said lever at intervals determined by the number of envelops successively shifted thereby, substantially as set forth.

In testimony whereof, I have hereunto signed my name at Bordentown, N. J., this 20th day of April, 1905.

GEORGE W. SWIFT, JR.

Witnesses:
R. H. AARONSON,
JULIA A. MALONE.