

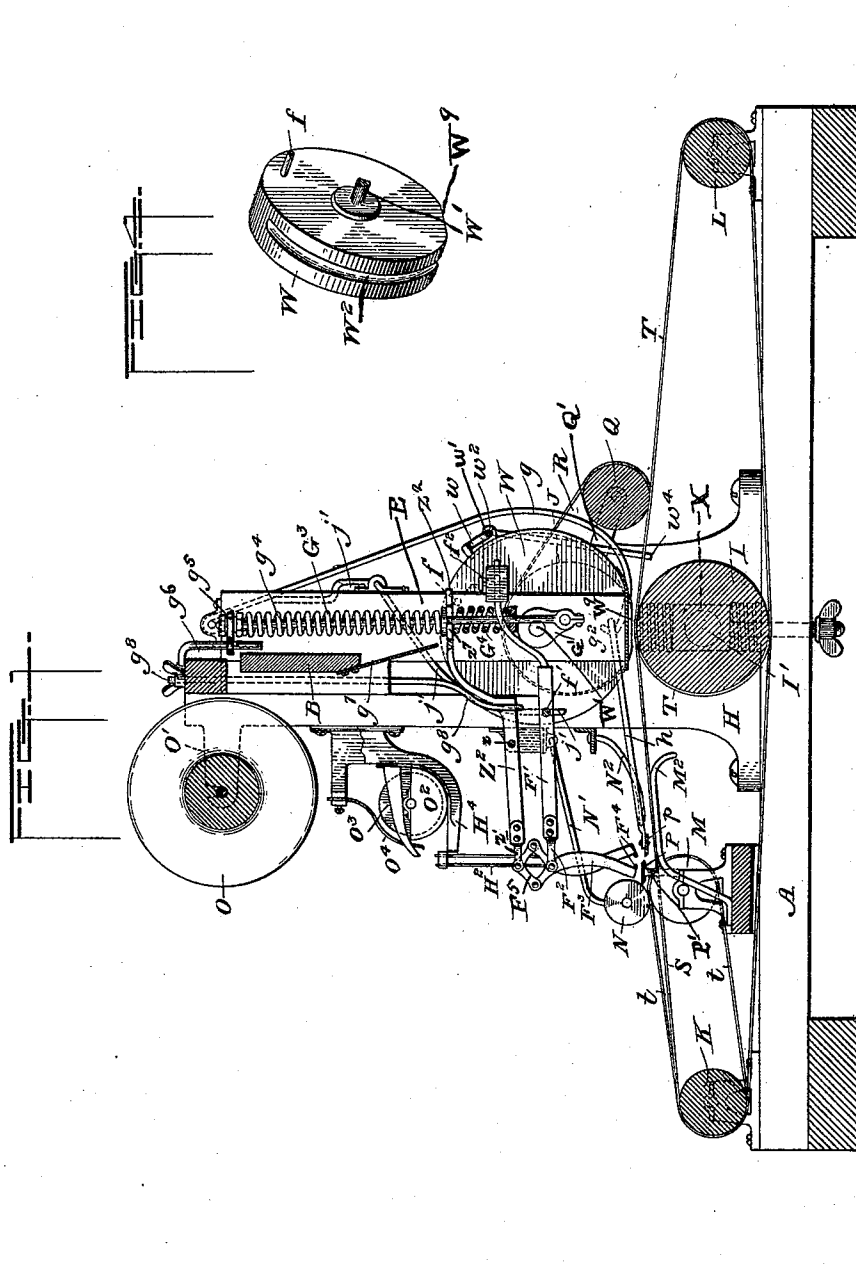
(No Model.)

3 Sheets—Sheet 1.

W. H. SANDERS.
MAILING MACHINE.

No. 461,277.

Patented Oct. 13, 1891.



WITNESSES

L. A. Gammeter
S. L. Johnson

INVENTOR

W. H. Sanders
By Buttrick Hall & Brown
his attorneys

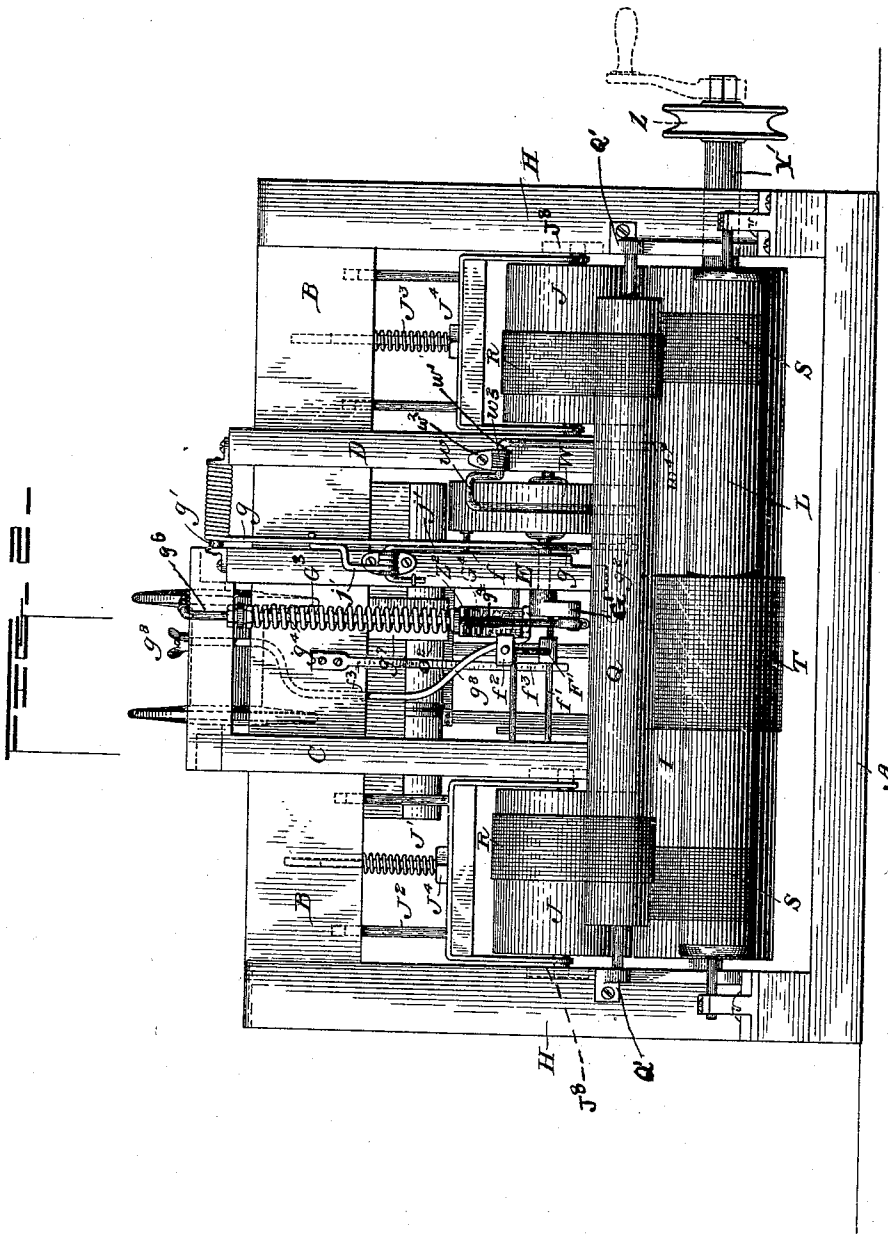
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W. H. SANDERS.
MAILING MACHINE.

3 Sheets—Sheet 2.

No. 461,277.

Patented Oct. 13, 1891.



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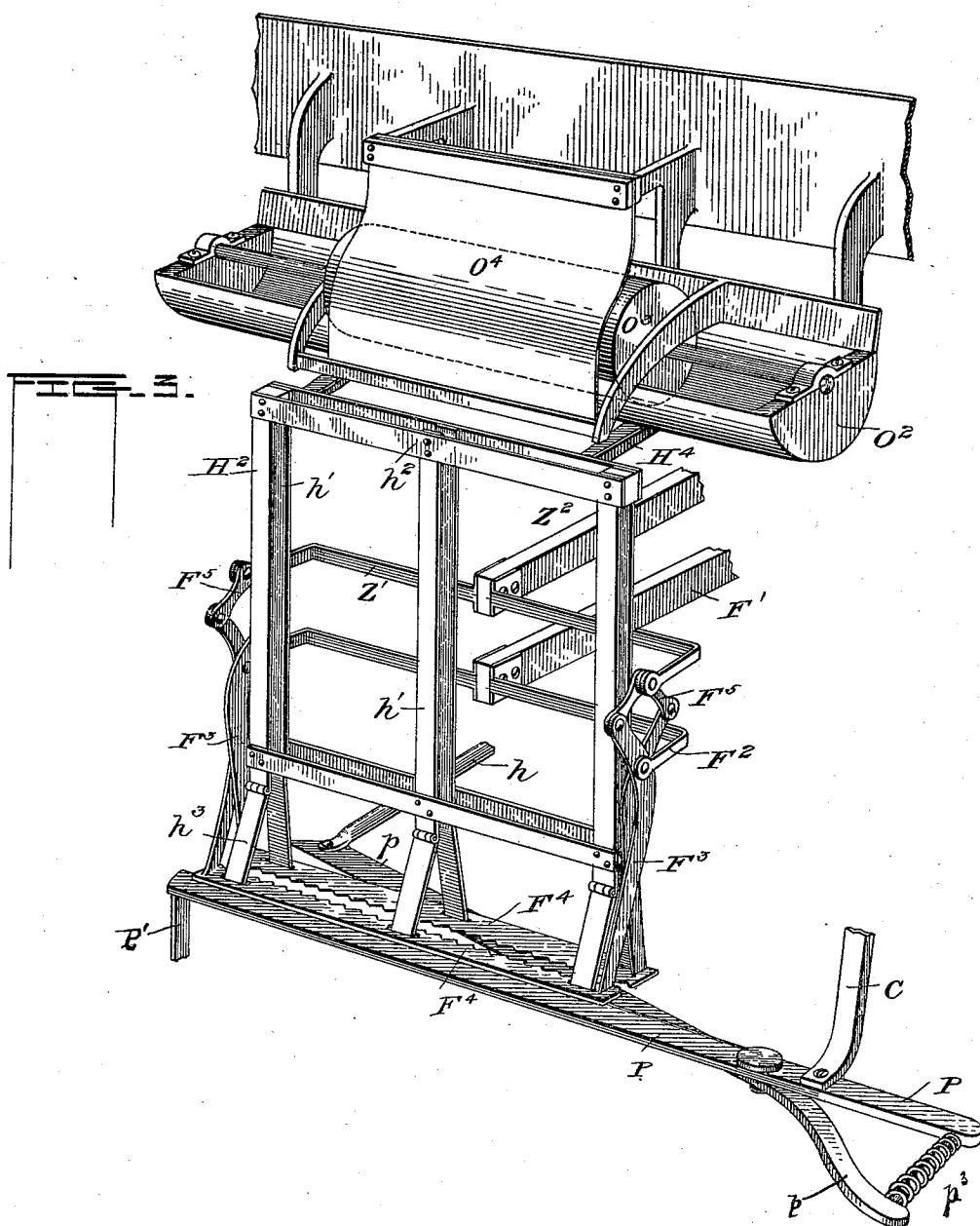
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3 Sheets—Sheet 3.

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WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM H. SANDERS, OF MARION, INDIANA.

MAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 461,277, dated October 13, 1891.

Application filed May 24, 1890. Serial No. 353,111. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. SANDERS, a citizen of the United States, residing at Marion, in the county of Grant and State of Indiana, have invented a new and useful Mailing-Machine, of which the following is a specification.

My invention relates to mailing-machines wherein a cutter is employed in conjunction with automatic feed devices to clip from a strip of paper bearing a printed list of names and addresses each name and address in succession and paste the name on the package to be mailed; and the objects of my invention are, first, to provide an automatic strip-feed adjustable to suit mail-lists printed in different-sized types or of different widths; second, to provide a combined automatic strip-feed and cutting mechanism acting alternately to feed the addresses and clip them from the list; third, to automatically apply an adhesive coating to the blank side of the strip previous to severing the addresses therefrom; fourth, to afford improved means for rapidly addressing mail-matter of different sizes and kinds by the same machine, and, fifth, to reduce the labor and expense and increase the speed of addressing matter for the mails.

To these ends the invention consists in a novel mechanism for automatically severing a printed address from a strip of paper, gumming the same before severance, however, and applying the address automatically to a package or letter passing through the machine, and to cause each piece of mail-matter passing through the machine to itself release the devices whereby the address is applied thereto, and to automatically control the operation of the machine so that it will work only during the passage of a package therethrough, and is operated but once for each package passed therethrough.

The invention further consists in the novel construction and combination of parts in the machine, as will be hereinafter more particularly described and claimed.

Referring to the drawings, Figure 1 represents a sectional side elevation of the complete machine. Fig. 2 is a front view thereof. Fig. 3 is a detail perspective view of the strip gumming, feeding, and severing devices. Fig. 4 is a detail.

A represents the base of the machine, and H H are uprights at the sides and about the center of the base and connected at top by a transverse bar B.

I designates a roller, having its shaft X journaled in vertically-adjustable spring-supported boxes I', playing in guides in the lower ends of uprights H, as indicated in Fig. 1, and on one projecting end of shaft X is a pulley Z, by which roller I may be rotated.

K and L designate rollers journaled in proper bearings at the opposite ends of the base A, and S S designate endless belts running over said rollers and the intermediate roller I, as shown in Fig. 1.

T designates an endless belt running over rollers L and I only, as indicated, and intermediate the belts S S, and t designates a belt running over roller K and a stationary roller M, journaled in proper bearings on base A and lying between rollers K and I, as shown in Fig. 1. Only one belt T and one belt t are shown; but any desired number of such belts may be used. Belt T might, if desired, be extended to roller K, like belts S; but I prefer to use belt t, as shown.

D, E, and C represent parallel hangers depending from bar B near the center thereof and above roller I.

J J designate friction-rollers having their shafts playing in slots J⁸ in the uprights H and in the adjoining hangers C D, respectively, and journaled in bearings in the arms of U-shaped frames J', which are guided by rods J², sliding in openings in bar B. The frames and rollers are pressed downward by springs J³, placed on one or more rods J², and the tension of the springs may be regulated by nuts J⁴ or in other suitable manner.

Q designates a feeding-roller journaled in arms Q', attached to uprights H and overlying belts S T, and R R indicate endless belts running over rollers J and Q.

The rollers J and belts R are driven by frictional contact with roller I and co-operate therewith to direct the packages and letters over the roller I.

W is a frictional wheel intermediate rollers J J and suspended between the hangers D E on a shaft W', journaled therein, as indicated, and having its periphery flattened, as at W⁹, which is the lowest portion of the wheel when

at rest, so that the wheel will not contact with the roller I or belts thereon.

W² is a peripheral groove or recess in wheel W, which is engaged by a detent *w*, that is attached to one end of the rock-shaft *w'*, journaled in a bracket *w*², attached to hanger D, and is controlled by a spring *w*³, which normally presses the detent against the wheel.

*w*⁴ is a depending arm on shaft *w'*, which projects into the plane of the upper line of belts S and T, so that if a package be carried inward on said belts it will strike arm *w*⁴ and cause it to rock shaft *w'*, disengaging detent *w* from wheel W and permitting the latter to be revolved by frictional contact with the package passing thereunder. After passing between roller I and rollers J and wheel W the package is carried forward on belts S to roller M, where it is again positively fed forward and delivered by belts S and *t* through the medium of a roller N, connecting with roller M and lying above the same, being supported upon spring-arms N', attached to the frame of the machine. The packages are directed and guided to and between rollers M N by transverse series of guide fingers or arms M² and N², of spring-wire, respectively above and below the upper portions of belts S, as shown in Fig. 1.

P designates a fixed blade or bar situated transversely of the machine to the inside of, parallel with, and just above the roller M and supported by bracket-arms P', attached to the frame, and *p* is a blade pivoted near one end to bar-blade P. This blade is operated by a rod *h*, which is connected to the blade and to the lower end of the spring-lever *g*, which is suspended from a spring-controlled rock-shaft *g'*, supported on the upper ends of the hangers E D. The lower end of lever *g* depends beside wheel W and has an upstanding finger *g*², which is adapted to be contacted by a pin *f*, projecting from the side of wheel W, and so adjusted that at the proper time in the revolution of wheel W the lever *g* will be swung inward and through its connections operate blade *p* and sever an address from a slip of paper fed between the blades. As the wheel W continues to revolve pin *f* will disengage lever *g*, which should fly back to normal position and open the cutter-blade; but to make this action positive I use a double armed lever *j'*, mounted on a spring-controlled rock-shaft journaled in a bracket attached to hanger E. The upper arm of said lever is bent under lever *g*, and its lower end depends beside wheel W, in position to be engaged and forced outward by pin *f* as the wheel revolves, (after the pin has disengaged finger *g*²), and the oscillating movement thus given lever *j'* positively throws lever *g* back to its original position. A spring may be connected to blades P *p*, if desired, as shown at *p*³ in Fig. 3, to expedite the operation thereof.

F' designates a bar pivotally mounted on a shaft *f'* between hangers C E and project-

ing forward toward rollers M N and having laterally-projecting arms F² on its outer end, the extremities of which are bent forwardly at right angles and from which are suspended cross-levers F³ F³, pivoted to each other and on the arms F² at the points of intersection. The lower ends of the opposite corresponding levers F³ are connected by parallel pinch-bars F⁴, which together form a gripping device for catching a strip of paper. The inner end of bar F' is provided with an adjustable weight *f*² to counterbalance the gripping-levers. A friction spring or rod *f*³ is attached to the bar B and depends beside and bears against bar F', as shown in Fig. 2, so as to prevent casual vibration of the latter. The upper ends of levers F³ are connected by pivoted toggles F⁵, which are in turn pivoted to the extremities of arms Z', projecting laterally from the forward end of a bar Z², fulcrumed on a shaft *z*, attached to the hangers C E above shaft *f'*, and when bar Z² is oscillated the gripping-levers are raised and closed and then lowered and opened.

The end of the shaft of wheel W projects through hanger E, and on it is fixed a crank G', to which is connected the lower end of a vertically-reciprocating rod *g*⁴, to the upper end of which is connected a plate *g*⁵, through which passes a guide-wire *g*⁶, attached to the frame, as indicated in Fig. 1, to direct the vertical movements of the rod. The rod *g*⁴ passes loosely through a slot Z' in the rear end of bar Z², and springs G³ G⁴ are placed on the rod above and below and bear against the end of the bar Z², so that the latter is oscillated by the reciprocations of the rod *g*. The springs may be regulated and adjusted by suitable nuts or collars on rod *g*⁴, as indicated.

*g*⁷ designates a stop-plate attached to the bar B and depending above the inner end of the bar Z² in position to limit the movement thereof in one direction, and *g*⁸ is a stop-rod depending through the bar B and having its lower end curved beneath the inner end of the bar Z², so as to limit the downward movement thereof, this rod being adjustable by a thumb-nut, as shown, or in other suitable manner. The resistance caused by the friction of rod *f*³ against the bar F' is sufficient to prevent movement of bar F' by the connections between the same and bar Z², formed by the gripping devices, until bar Z² has first opened the grippers in ascending or closed the grippers in descending, so that if a strip of paper be led downward between the grippers it will be intermittently fed down by the grippers a certain amount for each reciprocation of bar Z², which is once for each revolution of the wheel W, and the amount of movement of bar Z² and consequent length of strip fed by the grippers to the cutters is regulated by the stops *g*⁷ and *g*⁸, which arrest the movement of the bar Z², but not of rod *g*⁴, as the springs G³ G⁴ will yield and permit the necessary play of the rod *g*⁴ and rotation of wheel W.

O designates a roller or spool on which the

printed strips are wound and from which they are fed to the grippers. This spool is mounted in bracket-arms O' on the frame, and below the spool is a trough O^2 , mounted in the brackets attached to the frame above the gripping devices, and in the trough is journaled a gumming-roller O^3 , and O^4 is an apron or shield-plate partly overlying the rollers, and between which and the roller the printed strip is led from the spool in its passage to the grippers, and a suitable adhesive or dampening liquid in the trough is supplied by the roller O^3 to the plain unprinted surface of the strip as it passes, thereby either providing the strip with an adhesive substance or dampening such a substance previously applied to the strip.

H^2 designates a guide rack or frame composed of front and rear parallel strips h' , united at top and bottom by suitable cross-pieces h^2 . The frame H^2 is suspended on bracket-arms H^4 , attached to the frame or trough and in such position as to receive the strip as it passes from the roller and direct it to the gripping devices. To the lower ends of the front strips h' are connected hinged pieces h^3 , which pass loosely through openings in the front pinch-bar, and similar pieces may be attached to the rear pieces h' and play through openings in the rear pinch-bar, if desired, so as to guide the strip but yet not interfere with the opening and closing of the pinch-bars.

The operation may be briefly described as follows: A suitably-printed address-strip is placed on spool O and threaded between the apron and gumming-roller and frame H^2 until its extremity is just above the cutters Pp . Then roller I is suitably driven by machine-power applied to pulley Z , or by hand-power applied to a crank on the shaft x' , as shown in dotted lines in Fig. 2, and the packages to be addressed are placed on belts T and S and carried forward successively between the belts T , S , and R to and between rollers I and rollers $J J$ and wheel W . As each package moves forward it strikes arm w^4 , releasing detent w^3 , and by frictional contact revolving wheel W . The rod g^4 is first depressed, causing bar Z^2 to rise, and thereby opening and elevating the pinch-bars, and as the wheel W continues to revolve the bar Z^2 is depressed, which causes the pinch-bars to first grip the strip and pull it downward just sufficient to pass one address between the open knife-blades Pp . Then as the package is passing from between the roller I and the wheel W and just as its edge has passed beneath the cutters pin f engages finger g^2 and through rod h operates the blade p , severing the address from the strip and leaving its mucilaged face down on the package, and it is carried forward therewith between rollers $M N$, which complete the operation of fastening the address to the package and deliver it ready for stamping or mailing. The gumming-roller mucilages the strip before the cutting, as de-

scribed. The detent w^2 engages and locks wheel W after the passage of each package thereunder until it is released by another incoming package. Because of the spring-mountings of the various rollers packages of different thicknesses can be run through the machine and addressed, substantially as described, in succession without previous manipulation or adjustment of parts. If desired, several or all of the rollers might be driven positively by suitable means instead of depending so much upon frictional contact from the single roller I .

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an addressing-machine, the combination of a wheel adapted to be rotated by the passage of the packages thereunder, cutting mechanism for severing an address from a printed strip, and mechanism for feeding a predetermined length of said strip between the cutters while the latter are opened, both the cutters and feed mechanisms being operated from said wheel during one rotation thereof, substantially as described.

2. In an addressing-machine, the combination of a wheel adapted to be rotated by the passage of the packages thereunder, a cutting mechanism for severing an address from a printed strip, and mechanism for feeding a predetermined length of said strip between the cutters while the latter are opened, both the cutters and feed mechanism being operated from said wheel during one rotation thereof, with the devices for mucilaging the blank side of the said strip previous to severing the addresses therefrom, all substantially as described.

3. In an addressing-machine, the combination of a wheel adapted to be rotated once during the passage of each package through the machine and an automatic detent for controlling the rotations of said wheel, released by each incoming package, with mechanism for severing an address from a printed strip and mechanism for feeding a predetermined length of said strip to the cutters, both the cutting and feeding mechanism being operated but once during the passage of each package through the machine, substantially as described.

4. The combination, in an addressing-machine, of a wheel adapted to be rotated once during the passage of each package through the machine, a series of belts for carrying the packages through the machine, a cutting mechanism adapted to sever an address from a printed strip, operated once during the rotation of said wheel, a vibratory mechanism for feeding a predetermined length of said strip to the cutters, operated once during each revolution of the wheel, and rollers for uniting the severed address to the package, all substantially as described.

5. The combination, in an addressing-machine, of a wheel adapted to be rotated once by frictional contact with and during the pas-

sage of each package through the machine and a series of belts and rollers for carrying the packages beneath the same with a cutting mechanism adapted to sever an address from a printed strip and a vibratory mechanism for feeding a predetermined length of said strip to the cutters, both mechanisms being controlled by and operated once for each revolution of the wheel, devices for mucilaging the blank side of the strip previous to severing thereof, and rollers for attaching the severed address to the package, all substantially as described.

6. The combination, in a mailing-machine, of a cutter with movable blade, a bar connecting said blade with a spring-lever, a friction-wheel carrying a lateral pin adapted to engage said lever and propel said blade to the cutting-point, and a spring adapted to return said blade to its initial position, substantially as described.

7. The combination, in a mailing-machine, of a cutter with movable blade, a bar connecting said blade with a spring-lever, and a friction-wheel with a lateral pin upon said wheel, adapted to engage said lever and propel said knife to the cutting-point and also to engage a double lever adapted to return said lever and knife each to its initial position, substantially as described.

8. The combination, in a mailing-machine, of a cutter having a fixed and movable blade, a spring-lever, a bar connecting said movable blade to said lever, a double lever, and mechanism for operating said lever and propelling said movable blade to the cutting-point and subsequently engaging said double lever and thereby returning said oscillating lever to its initial position, substantially as described.

9. In a mailing-machine, the combination of carrier-belts borne upon transverse rollers, friction-rollers intervening between said transverse rollers and adapted to propel said belts, a friction-wheel adapted to the lower friction-roller, a depression on the periphery of said wheel sufficient when confronting said lower friction-roller, the machine being empty, to permit said roller to revolve without rotating said wheel, and a combined detent and arm adapted to unlock said wheel and permit it to revolve as the mail-matter passes through the machine and subsequently to lock said wheel at each revolution when it returns to its initial position, substantially as described.

10. The combination, in a mailing-machine, of carrier-belts borne upon transverse rollers and passing between intervening upper and lower friction-rollers adapted to propel said belts, a feed-roller belted to the upper friction-rollers and adapted to turn upon said carrier-belts and draw the mail-matter into the machine, and two receiving-rollers adapted to receive and draw the mail-matter between them as it passes through the machine, substantially as described.

11. In a mailing-machine, the combination

of carrier-belts borne upon transverse rollers and propelled by intervening friction-rollers, a feed-roller on one side of said friction-rollers and belted to the upper friction-rollers and adapted to turn upon said carrier-belts and draw the mail-matter into the machine, and a plurality of guide-arms extending in the direction of said carrier-belts and adapted to guide the mail-matter to the cutter and to and between the receiving-rollers, substantially as described.

12. The combination, in a mailing machine, of carrier-belts borne upon transverse rollers, and intervening friction-rollers for propelling said belts, a feed-roller superimposed upon said belts and adapted to draw the mail-matter into the machine, a plurality of guide-arms projecting in the direction of the carrier-belts and adapted to guide the mail-matter through the machine, and receiving-rollers placed together and turned by an intervening belt and adapted to receive and unite the addresses to the mail-matter passing through the machine, substantially as described.

13. The combination, in a mailing machine, of two independent friction-rollers and a friction-wheel, each actuated, respectively, by a friction-roller, a crank on the shaft of said wheel, a reciprocating bar bearing springs carrying lateral arms, grippers attached by toggle-joints to said arms, a supporting-lever having lateral arms pivoted to the sides of said grippers, and a resistance-bar engaging said supporting-lever, said grippers actuated by said rocking lever, toggle-joints, supporting-lever, and resistance-bar, substantially as described.

14. In combination with the friction-wheel bearing a pin and having a flattened or depressed peripheral portion, a friction-roller for rotating said wheel, a detent adapted to arrest the rotation of said wheel, having an arm projecting below the line of contact between said wheel and friction-roller, an oscillating lever, a double lever, a fixed and a movable cutting-blade, and a bar connecting said movable blade to said oscillating lever, said pin being adapted to engage said arm and propel said movable blade to the cutting-point and to subsequently engage said double lever and thereby return said oscillating lever and movable blade to their initial positions, substantially as described.

15. In a mailing-machine, cross-levers combined to form grippers, fulcrumed to a supporting-lever and attached to a rocking lever by toggle-joints for opening and closing the grippers, and a resistance-bar for retarding the motion of said supporting-lever until the grippers are opened or closed by the oscillations of said rocking lever, substantially as described.

16. The combination of two levers for operating a pair of grippers and a pair of cross-levers combined to form said grippers and fulcrumed to one of said levers and suspended

by toggle-joints from the other lever, said fulcrum-lever having contact with a resistance-bar for retarding its motion until the other lever sufficiently actuates said toggle-joints to open or close the grippers, substantially as described.

17. The combination of a friction-wheel, a crank on the shaft of said wheel, and a rocking lever for raising and lowering a pair of grippers, combined with intervening mechanism, substantially as described, for oscillating said lever, substantially as set forth, and for the purposes specified.

18. The combination of a pair of cross-levers combined to form grippers suspended by toggle-joints to a rocking lever and fulcrumed to a supporting-lever, said supporting-lever having contact with yielding devices adapted to retard the movement of said grippers in their start from or toward their initial position, said levers arranged to support and open or close said grippers, substantially as described.

19. The combination of two independent friction-rollers and a friction-wheel, each actuated, respectively, by a friction-roller, a crank on the shaft of said wheel for actuating a reciprocating bar, a rocking lever having one end loosely engaging said bar, return-springs placed loosely on said bar between nuts traveling on a screw-thread on said bar, the ends of said springs abutting at opposite sides of the end of said rocking lever and adapted to engage said end, and a pair of grippers actuated by said rocking lever, substantially as described.

20. The combination, in a mailing-machine, of the spool, the paste-trough, the cylinder therein, the feeding devices and cutters below said trough, and the intermediate guide-rack suspended above the feeding devices, so as to receive the strip as it passes over the cylinder and direct it to the feeding and cutting devices, substantially as described.

21. In a mailing-machine, the combination of the paste-trough and fixed guide, a cylinder adapted to revolve in said trough, a guide-rack, and vibratory grippers, substantially as described, for the purposes specified.

22. The combination, in a mailing-machine, of a spool for carrying a mail-list, a cylinder turning in a paste-trough, an apron for bringing said mail-list in contact with the paste carried by said cylinder, a fixed guide-rack and cutter, and vertically-movable grippers for feeding the mail-list through said guide-rack and into said cutter, substantially as described.

23. The combination of a guide-rack, grippers for feeding the mail-list through said rack, a cutter to receive and clip from the mail-list the addresses in succession as they are fed through said rack, an actuating friction-roller, a pair of vibratory levers, and mechanism, substantially as described, for operating said grippers and cutter.

24. The combination of a cutter, an actuating friction-roller, a pair of oscillating levers, and mechanism, substantially as described, for operating said cutter.

25. In a mailing-machine, the combination of the grippers, the oscillating bars or levers for actuating said grippers, the friction-rod or resistance-bar, the friction-roller, and connections between the same and said levers for operating the latter, substantially as described.

26. The combination, in a mailing-machine, of the grippers having the parallel pinch-bars and mechanism for operating the same, and the guide-rack having depending hinged guide strips or pieces which pass through openings in the pinch-bars, substantially as described.

WILLIAM H. SANDERS.

Witnesses:

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