

No. 858,426.

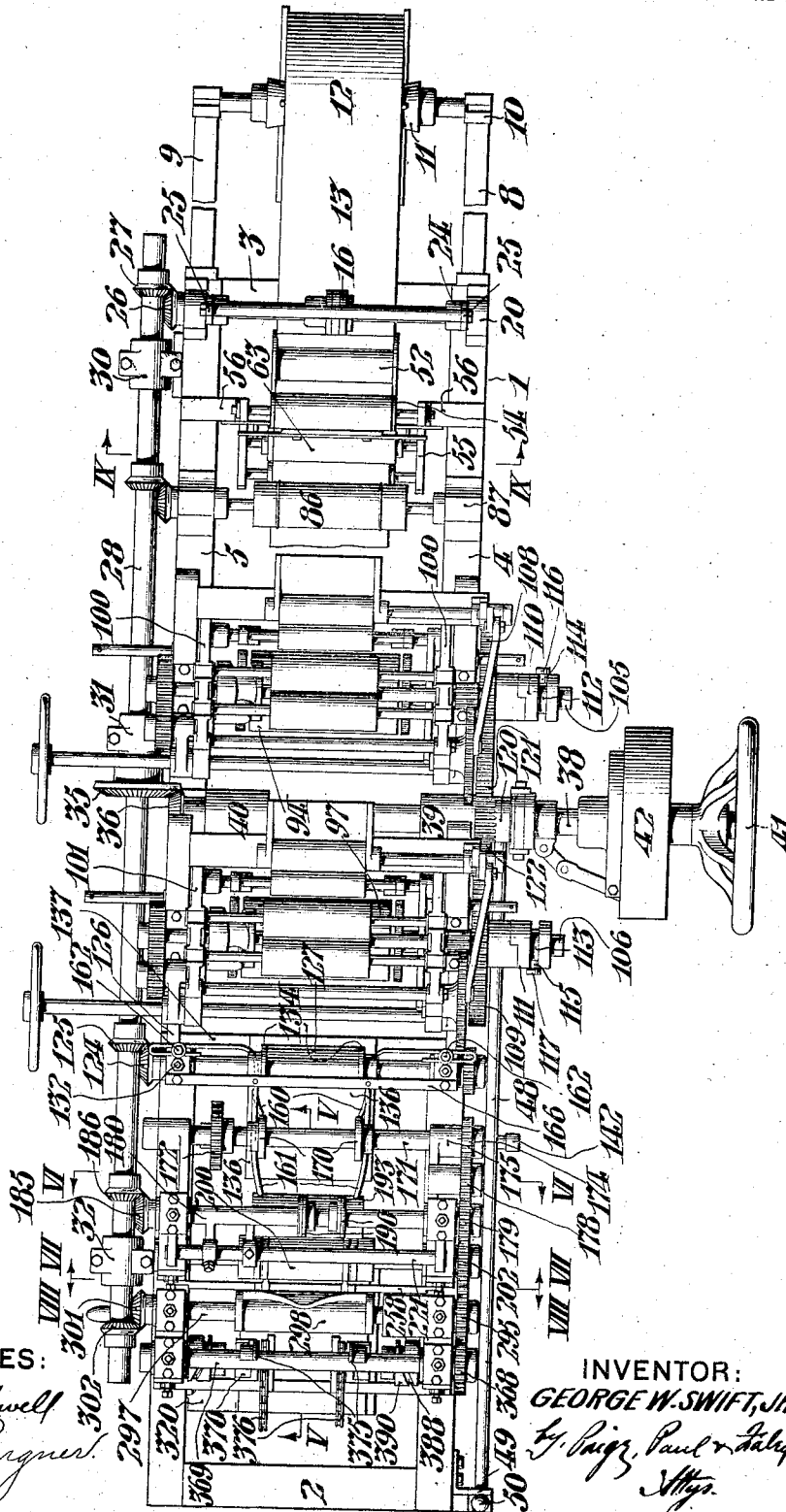
PATENTED JULY 2, 1907.

G. W. SWIFT, JR.
ENVELOP MACHINE.

APPLICATION FILED MAR. 17, 1905.

11 SHEETS—SHEET 1

FIG. 1.



WITNESSES:

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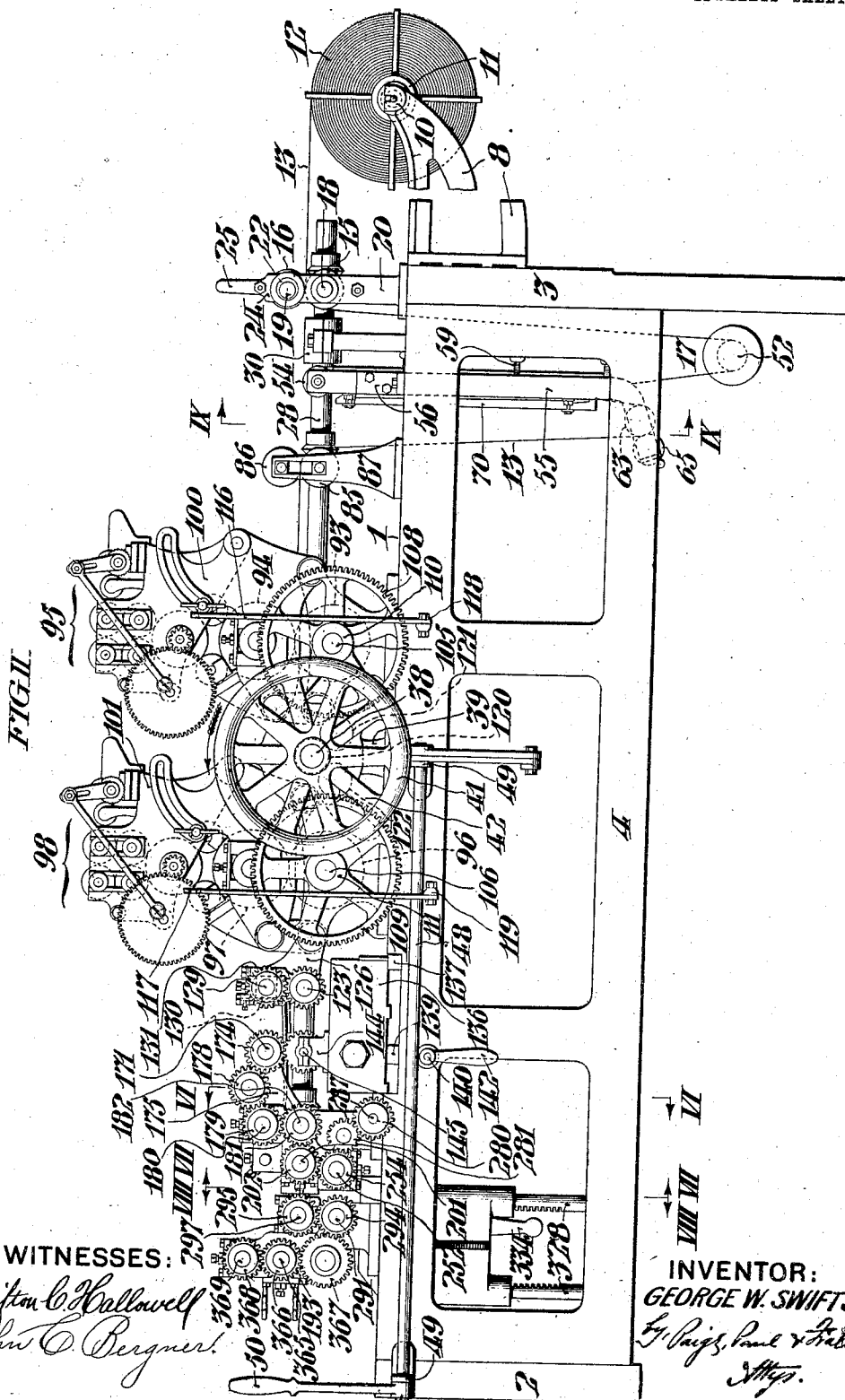
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N^o. 858,426.

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11 SHEETS—SHEET 2.

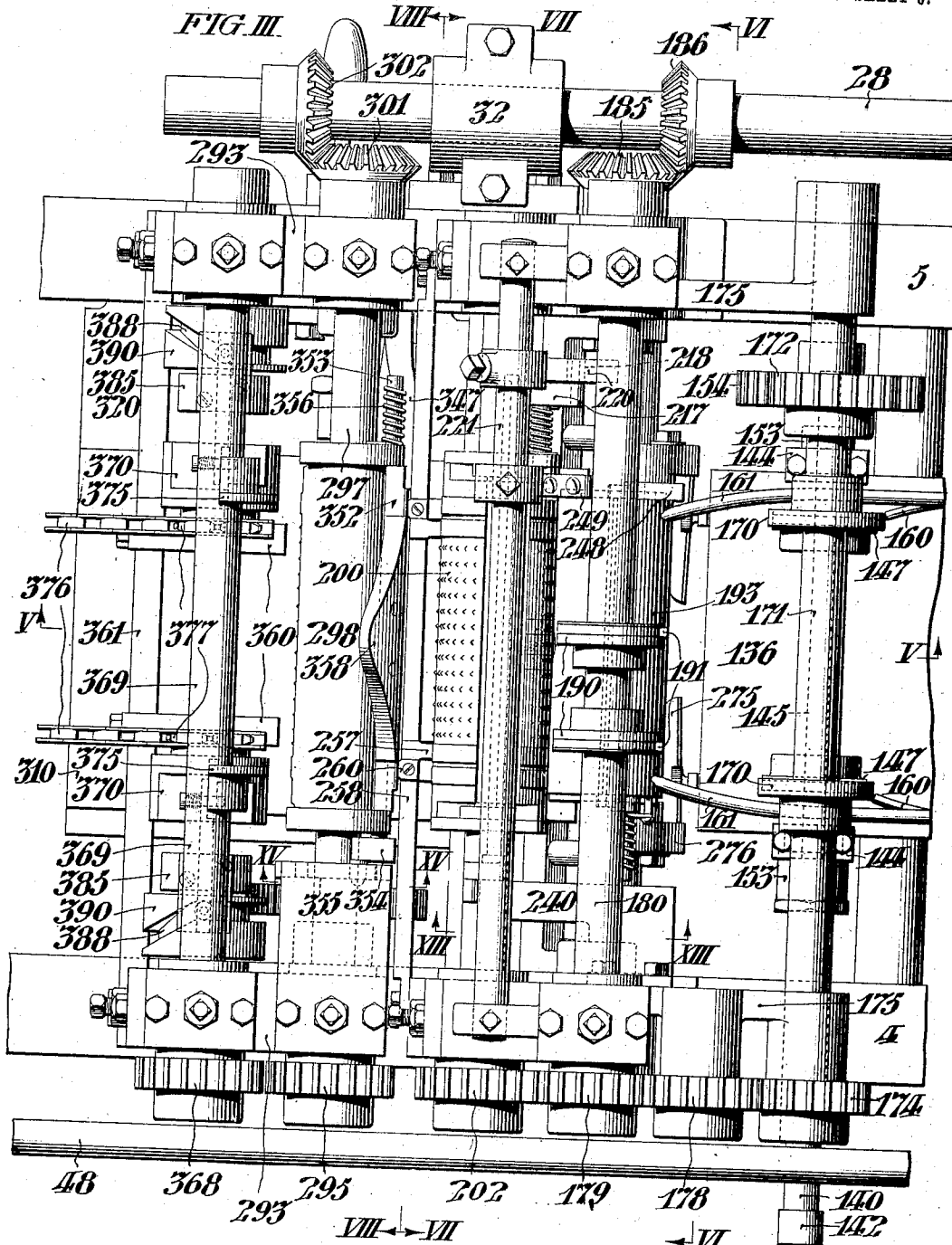


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11 SHEETS—SHEET 3.



WITNESSES:

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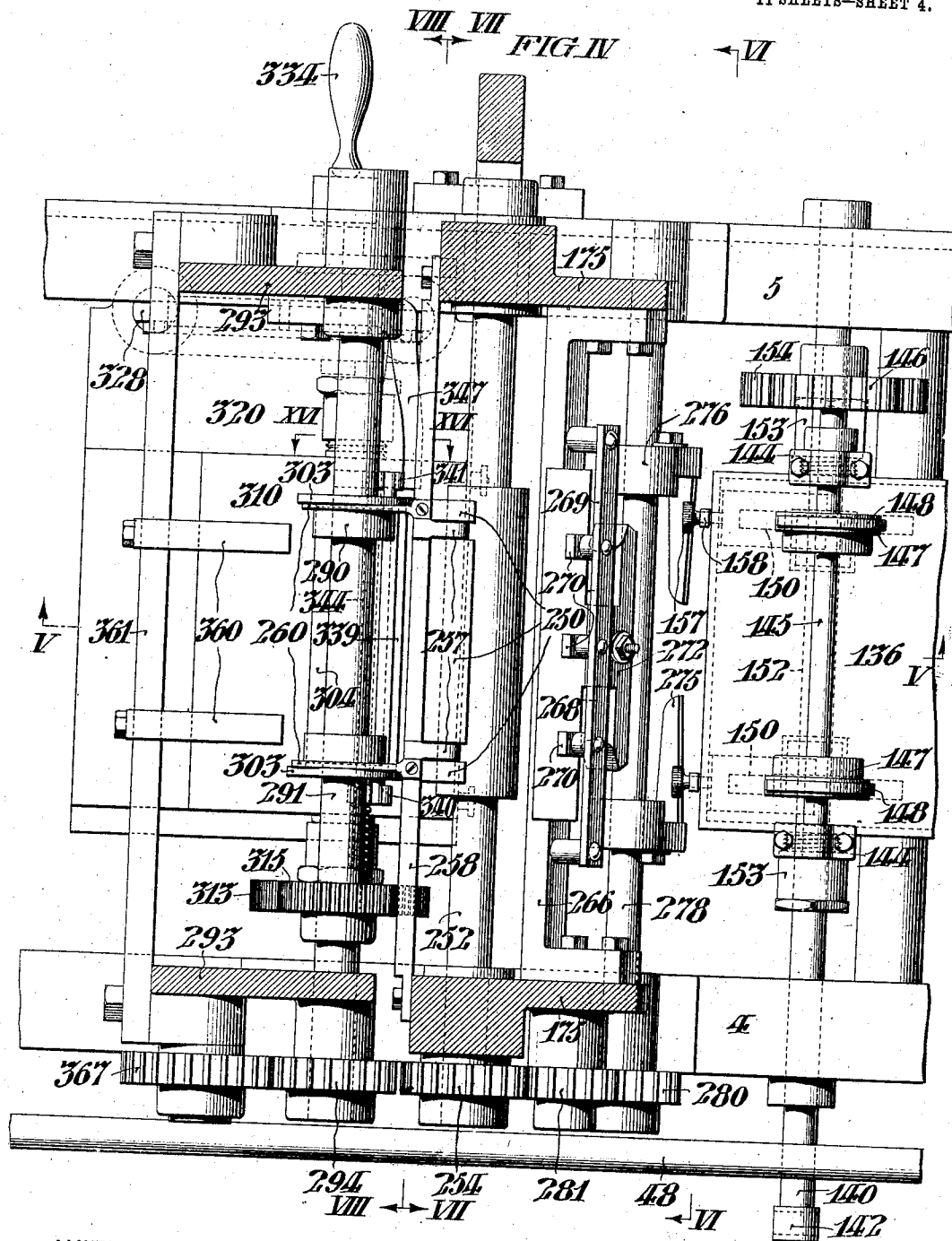
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11 SHEETS—SHEET 4.



WITNESSES:

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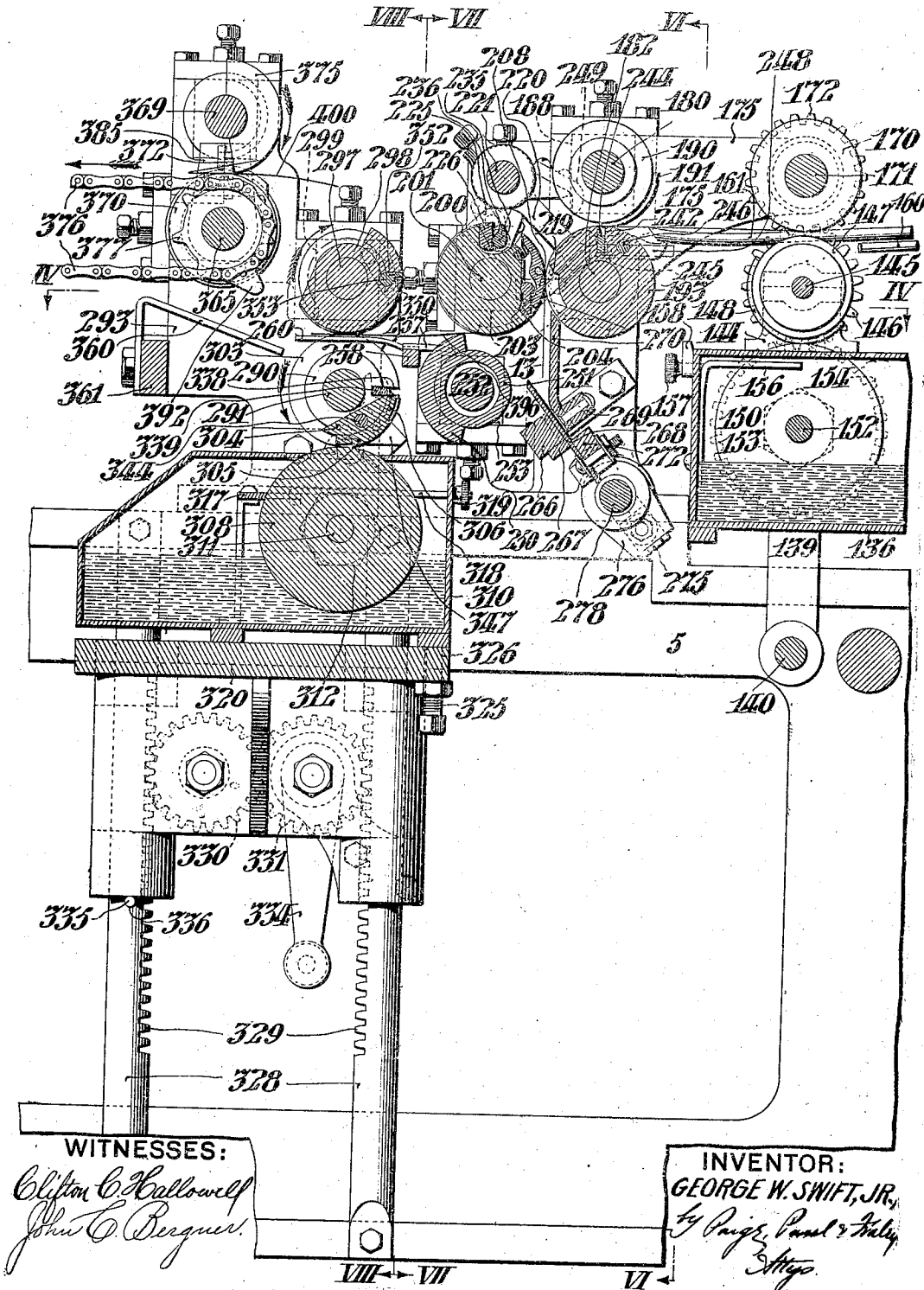
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11 SHEETS—SHEET 5.

FIG. V



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11 SHEETS—SHEET 6.

FIG. VI.

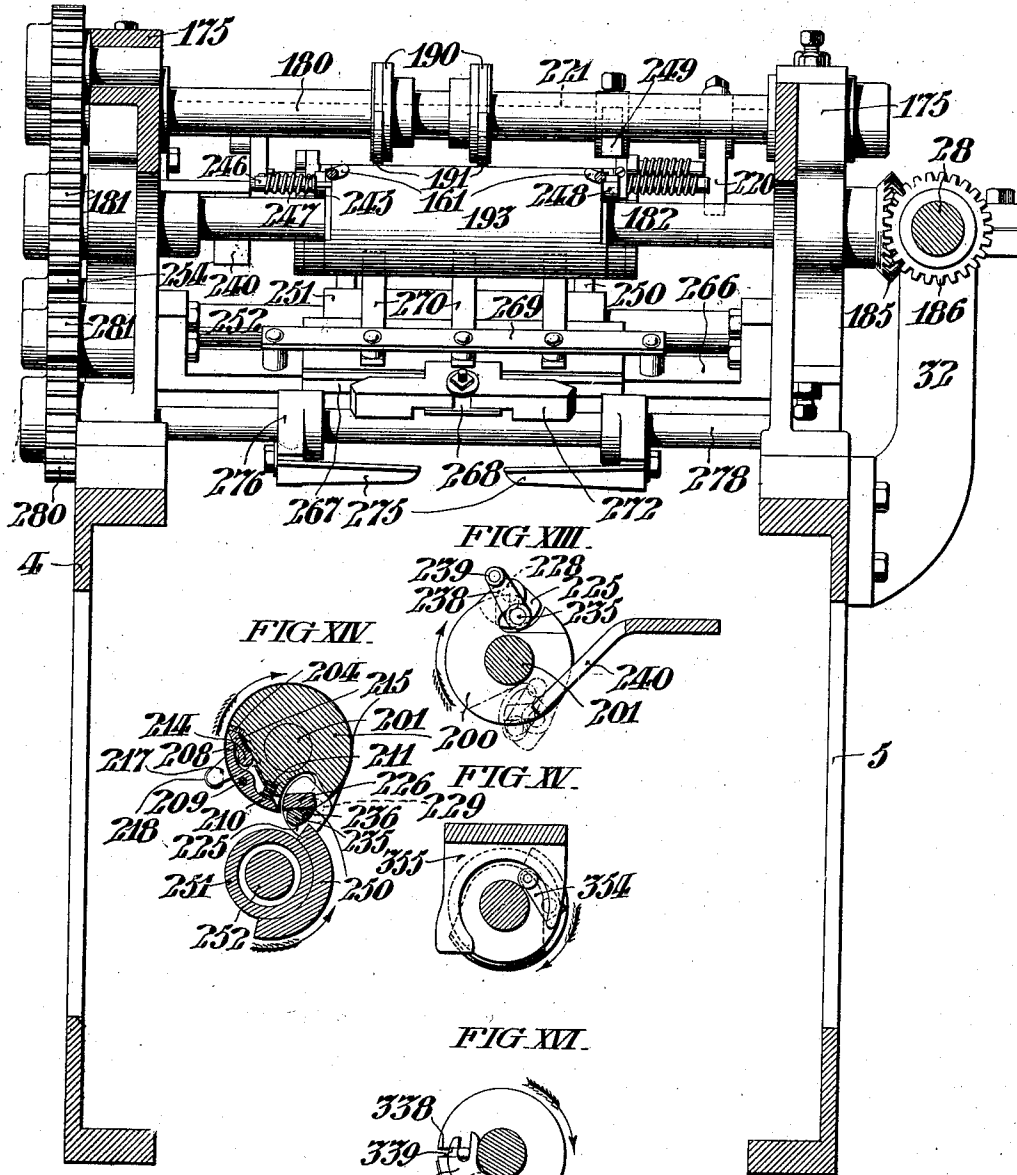


FIG. XIII.

FIG. XIV.

FIG. XV.

FIG. XVI.

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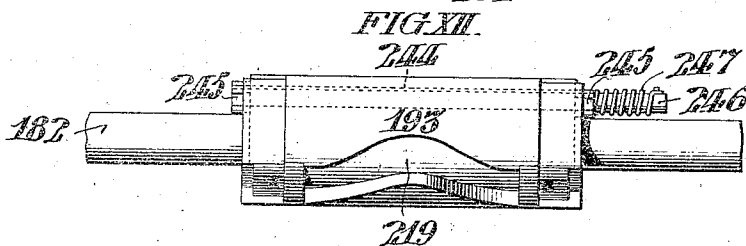
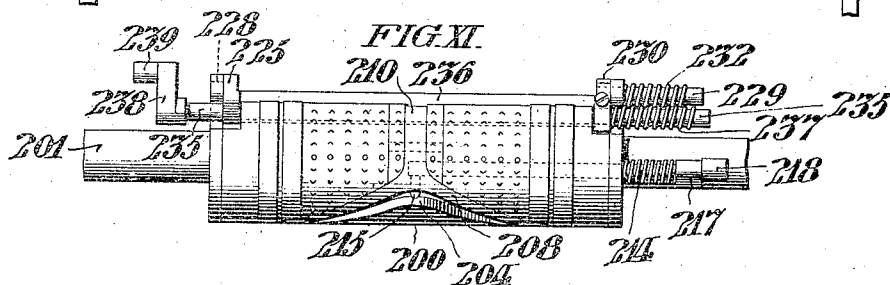
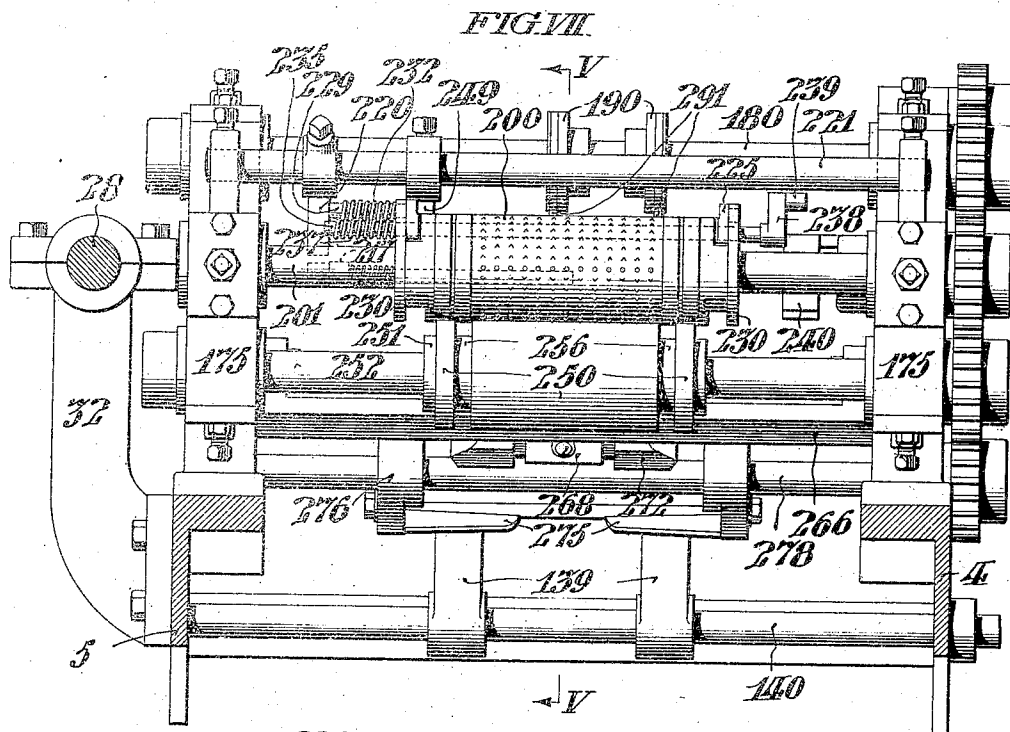
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ENVELOP MACHINE.

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11 SHEETS—SHEET 7.



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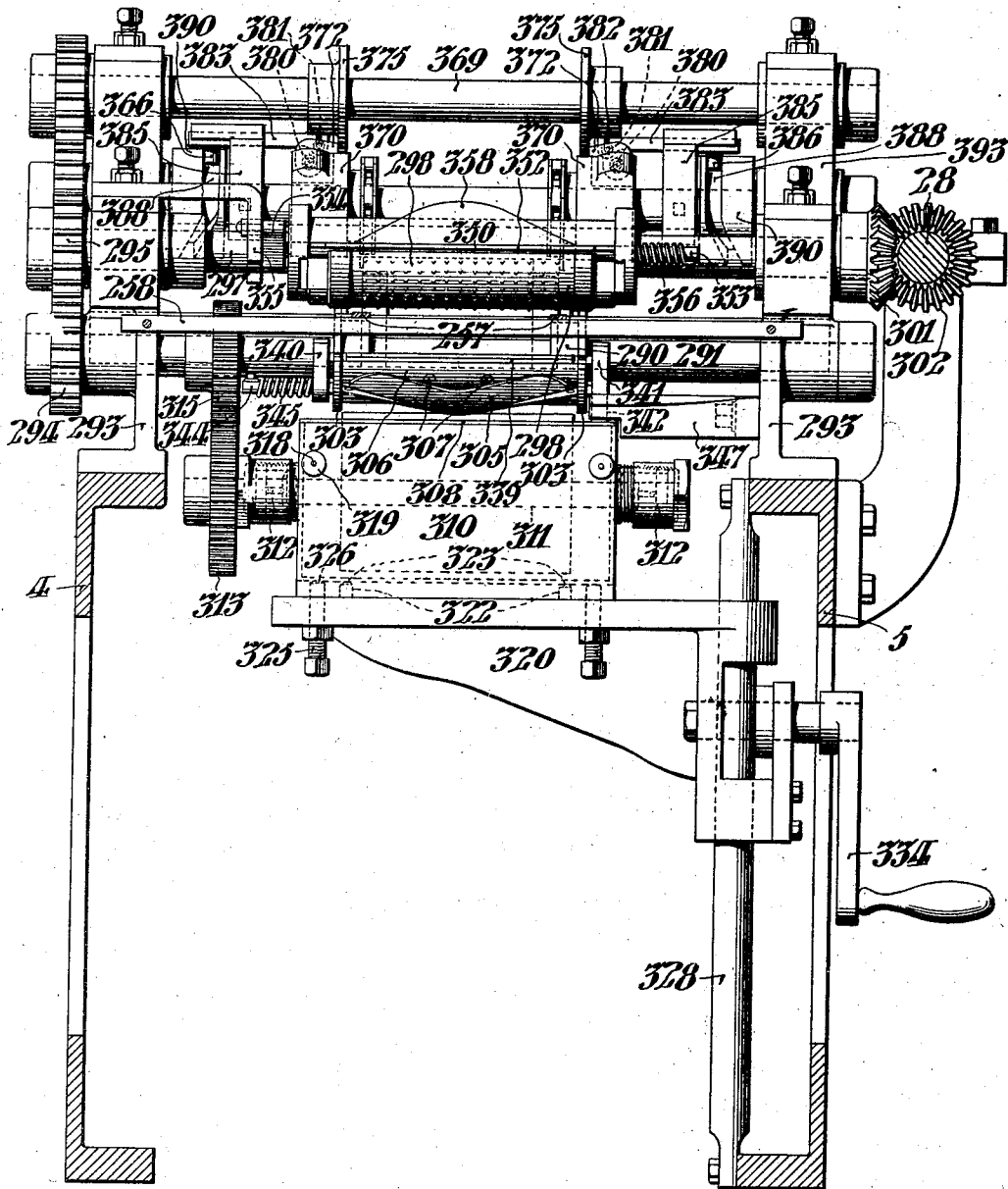
PATENTED JULY 2, 1907.

G. W. SWIFT, JR.
ENVELOP MACHINE.

APPLICATION FILED MAR. 17, 1905.

11 SHEETS—SHEET 8.

FIG. VIII.



WITNESSES:

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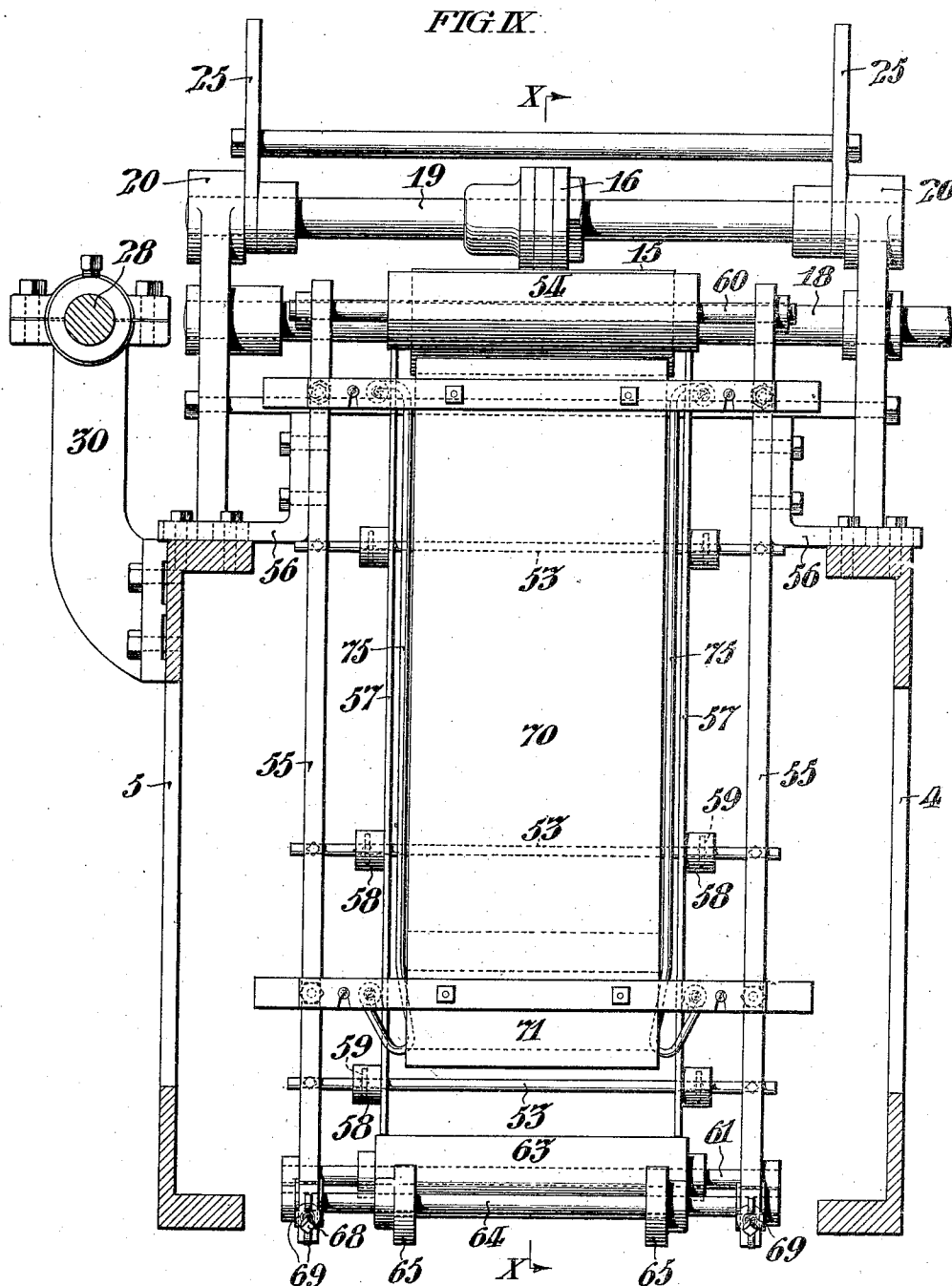
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11 SHEETS—SHEET 9.



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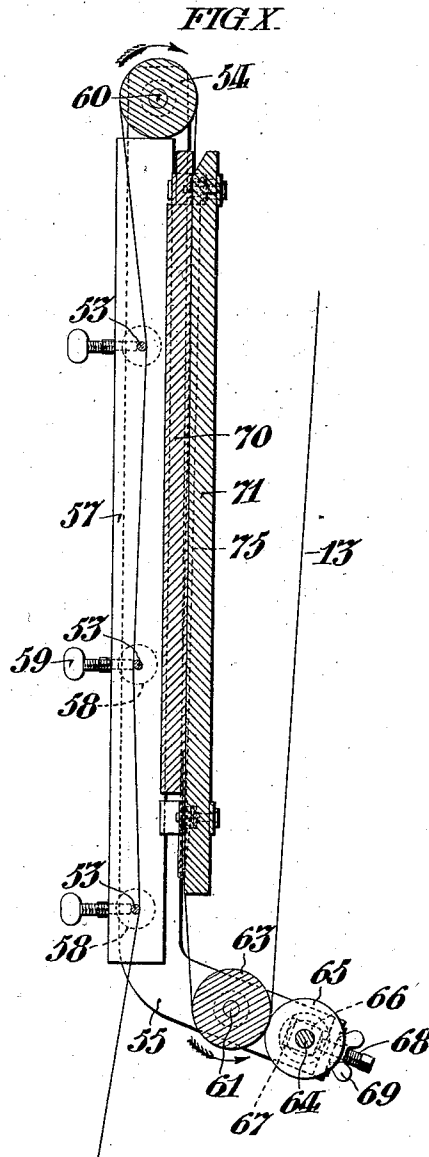
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APPLICATION FILED MAR. 17, 1905.

11 SHEETS—SHEET 10.



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11 SHEETS—SHEET 11.

FIG. XVII.

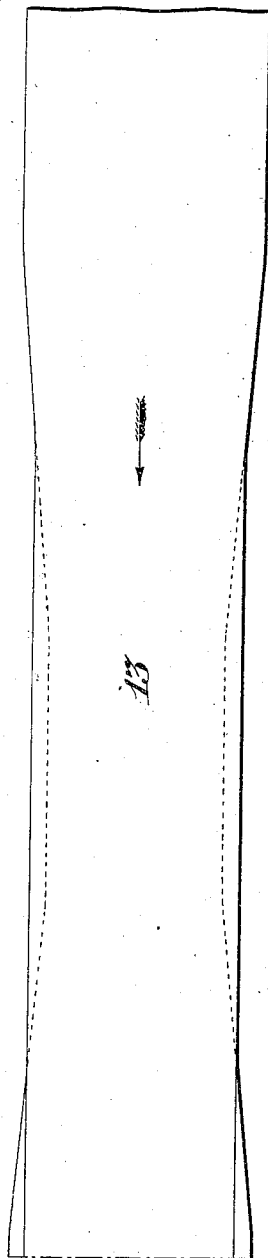


FIG. XVIII.

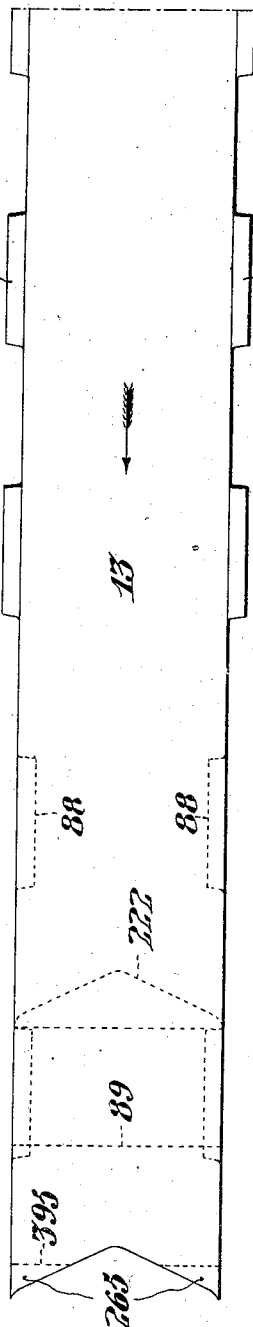


FIG. XIX.

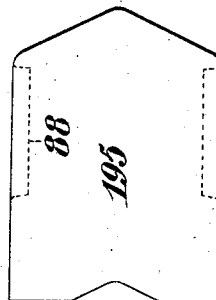


FIG. XX.

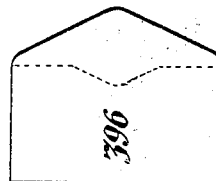


FIG. XXI.

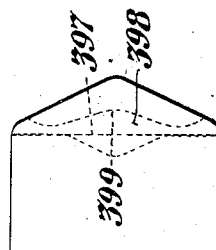
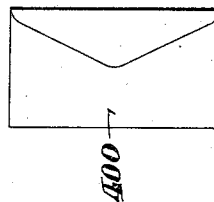


FIG. XXII.



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UNITED STATES PATENT OFFICE.

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

ENVELOP-MACHINE.

No. 858,426.

Specification of Letters Patent.

Patented July 2, 1907.

Application filed March 17, 1905. Serial No. 250,513.

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 Envelop-Machines, 5 whereof the following is a specification, reference being had to the accompanying drawings.

My improvements relate to machines for making envelopes, comprising mechanism for trimming, printing, pasting, and severing blanks from a continuous web of 10 paper, and mechanism for folding said blanks.

It is an object of my invention to provide a machine into which a web of paper is continuously progressed, its longitudinal edges trimmed, an imprint made on said web during its continuous movement, paste de- 15 posited in selected regions on it, and blanks severed therefrom and folded to form envelopes.

The form of my invention hereinafter described comprises web feeding rollers, mechanism for turning over the edge of the paper web, edge trimming rollers, print- 20 ing mechanism, pasting rollers arranged to deposit paste on the trimmed edges of the web, creasing, cutting and severing rollers, a rotary knife arranged to trim the blanks transversely, rollers arranged to deposit paste on the flap of the envelop after it is formed, and, 25 means arranged to convey the finished envelop from the machine.

My invention includes the various novel features of construction and arrangement hereinafter described, but it may be noted that the printing mechanism afore- 30 said, forms the subject matter of a separate application for Letters Patent.

In the drawings, Figure I, is a plan view of a machine conveniently embodying my improvements. Fig. II, is a side elevational view of said machine as seen from the lower side of Fig. I. Fig. III, is a fragmentary plan 35 view of the pasting, forming and folding mechanism. Fig. IV, is a fragmentary plan sectional view, taken on the line IV, IV, in Fig. V. Fig. V, is a fragmentary sectional view, taken on the line V, V, in Figs. I, III, IV, 40 and VII. Fig. VI, is a vertical sectional view, taken on the line VI, VI, in Figs. I, II, III, IV, and V. Fig. VII, is a vertical sectional view taken on the line VII, VII, in Figs. I, II, III, IV, and V. Fig. VIII, is a sectional view, taken on the line VIII, VIII, in Figs. I, II, 45 III, IV, and V. Fig. IX, is a vertical sectional view taken on the line IX, IX, in Figs. I, and II, showing the mechanism for turning over the edge of the web. Fig. X, is a vertical sectional view taken on the line X, X, in Fig. IX. Fig. XI, is an elevational view, look- 50 ing toward the left in Fig. V, and showing the cutting roller which is arranged to sever the web transversely. Fig. XII, is an elevational view looking toward the right in Fig. V, showing the roller which is arranged to co-operate with the cutting roller shown in Fig. XI. 55 Fig. XIII, is a fragmentary vertical sectional view, taken on the line XIII, XIII, in Fig. III, showing the

severing roller and its operating cam. Fig. XIV, is a sectional view of the severing roller, taken on the same plane as Fig. V, but showing it rotated to another position. Fig. XV, is a vertical sectional view, taken on 60 the line XV, XV, in Fig. III. Fig. XVI, is a vertical sectional view, taken on the line XVI, XVI, in Fig. IV. Figs. XVII, and XVIII, are plan views of the continuous paper web, showing the successive steps in the manipulation thereof, during its progression in the direc- 65 tion of the arrows. Fig. XIX, is a plan view of one of the detached blanks. Fig. XX, is a plan view of an envelop, before having its flap pasted. Fig. XXI, is a plan view of an envelop with its flap pasted. Fig. XXII, is an inverted plan view of the completed en- 70 velop.

In said drawings, the frame 1, comprises the vertical end standards 2, and 3, which support the side rails 4, and 5. Said standard 3, is provided with the brackets 8, 75 and 9, having suitable bearings 10, for the reel 11, carrying the roll 12, of paper web 13. The web 13, passes between the feed rollers 15, and 16, having the respective shafts 18, and 19, said roller 15, being mounted for continuous rotation in the bearing standards 20, on the frame 1, and the roller 16, mounted eccentrically in the trun- 80 nions 22, of the oscillatory frame 24, which is provided with the handles 25, and mounted to rock in said standards 20, toward and away from the roller 15.

The shaft 18, is provided with the miter pinion 26, arranged to mesh with the miter pinion 27, on the con- 85 tinuously driven countershaft 28, which is supported for rotation in the bearing brackets 30, 31, and 32, extending from the side rail 5, of the frame 1. Said countershaft 28, is provided with the bevel gear 35, arranged to mesh with the bevel pinion 35, on the main driving shaft 90 38, which is journaled in the brackets 39, and 40, respectively supported on the side rails 4, and 5. Said driving shaft comprises the hand wheel 41, and loose pulley wheel 42, conveniently provided with a well known type of clutch mechanism arranged to be controlled by 95 the rod 48, which is mounted in suitable brackets 49, and provided with the handle 50.

The web 13, extends from the feed rollers 15, and 16, in a bight 17, in which is suspended the takeup roller 52, arranged to remove the normal curl from said web 13, 100 which then passes alternately under and over the cross bars 53, and over the roller 54, of the edge turning mechanism. Said edge turning mechanism comprises the side frames 55, supported by the brackets 56, which are secured upon the side rails 4, and 5. The web 13, is 105 prevented from shifting laterally by the parallel guide plates 57, which have bosses 58, secured on the cross bars 53, by the set screws 59, in such relation that the distance between said plates is equal to the width of said web. Said side frames 55, comprise suitable bearings 110 for the shafts 60, and 61, of the respective rollers 54, and 63; and the shaft 64, carrying the disks 65, which are ar-

ranged to co-operate with said roller 63, in permanently
 creasing the turned over edges of the web 13. Said shaft
 64, is conveniently provided with adjustable bearing
 blocks 66, mounted in the slots 67, in said frames 55, and
 5 provided with the set screws 68, having the winged jam
 nuts 69, arranged to adjust the disks 65, toward and
 away from the roller 63. The web passes from the roller
 54, between the opposed slabs 70, and 71, which are of
 less width than said web so that its edges extend into
 10 the path of the folding wires 75, and are engaged and
 turned over thereby. Said folding wires 75, are dis-
 posed at either side of said slabs, and the web so folded
 passes around and between the roller 63, and its co-
 operating disks 65, where its folded edges are perma-
 15 nently creased. The web 13, passes from the roller 63,
 to the edge trimming rollers 85, and 86, which are jour-
 naled in the bearing standards 87, and which comprise
 suitable cutting blades arranged to trim the longitudinal
 edges of said web, with its folded edges turned out, and
 20 thus the edge flaps 88, are formed as shown at the right
 hand side of Fig. XVIII. Said web 13, then passes be-
 tween the printing rollers 93, and 94, of the printing
 mechanism 95, and between the rollers 96, and 97, of
 the counterpart printing mechanism 98. Said print-
 25 ing mechanisms 95, and 98, are arranged to print in
 different colors and respectively comprise the side
 frames 100, and 101, provided with suitable bearings for
 the shafts 105, and 106, of the respective rollers 93, and
 96. Said shafts 105, and 106, are provided with loosely
 30 mounted gears 108, and 109, arranged to be connected
 therewith by the respective clutch collars 110, and
 111, respectively secured to said shafts 105, and 106, and
 having the grooves 112, and 113, arranged to be engaged
 by the lugs 114, and 115, on the controlling levers 116,
 35 117, respectively pivoted to the side rail 4, at 118, and
 119. Said gears 108, and 109, are arranged to be driven
 in the direction of the arrows in Fig. II, by the pinion
 120, on the main shaft 38, and its idlers 121, and 122.

The shaft 123, is provided with the miter gear 124, ar-
 40 ranged to mesh with the miter gear 125, on the shaft 28,
 and is journaled in the brackets 126, formed on the
 frames 101, and carries the roller 127; the shaft 129,
 which is journaled in the block 130, mounted in the
 housing 131, and which is arranged to be adjusted
 45 toward and away from the shaft 123, by the set screw
 132, is provided with the disks 134, between which and
 the roller 127, the trimmed and printed web 13, is en-
 gaged, and progressed from the printing mechanisms to
 the edge pasting mechanism which is arranged to de-
 50 posit paste on the edge flap 88, of said web.

The edge pasting mechanism comprises the paste re-
 ceptacle 136, supported at its right hand end with re-
 spect to Fig. II, on the cross piece 137, secured to the
 side rails 4, and 5, and its left hand end is supported for
 55 vertical movement by the levers 139, on the rotatable
 shaft 140, which is journaled in suitable bearings in the
 side rails 4, and 5, and which is provided with the con-
 trolling handle 142.

Upon the paste receptacle 136, is mounted the bear-
 60 ings 144, carrying the shaft 145, on which the paste de-
 positing disks 147, are secured, having their resilient
 segments 148, arranged to encounter the paste distrib-
 uting disks 150, which are carried within the receptacle
 136, by the shaft 152, journaled in the stuffing boxes

65 153. The amount of paste carried by the distributing

disks 150, to the depositing segments 148, may be va-
 ried by the scrapers 156, which are secured within the
 receptacle 136, and arranged to bear against said disks
 150, with any degree of friction contact controlled by
 the thumb screws 157, which are in threaded engage- 70
 ment with the wall of the receptacle and secured by the
 jam nuts 158. As the web 13, progresses toward the
 paste depositing disks 147, its edge flaps 88, are again
 turned in by the co-operation of the guide wires 160,
 and 161. Said wires 160, are secured to the housings 75
 131, by the screws 162, and the wires 161, extend from
 the cross piece 166. The flaps 88, are laid flat upon the
 under side of the web as it passes between said paste
 depositing disks 147, and the disks 170. The disks 170,
 are carried by the shaft 171, journaled in the housing 80
 175.

The shaft 152, is provided with the gear 154, arranged
 to mesh with the gear 146, on the shaft 145, which in
 turn is arranged to mesh with the gear 172, on the shaft
 171. Said shaft 171, is also provided with the gear 174, 85
 which is arranged to mesh with the idler 178, meshing
 with the gear 179, on the shaft 180. Said gear 179, is
 arranged to mesh with the gear 181, on the shaft 182,
 which is provided with the miter gear 185, arranged to
 mesh with the miter gear 186, on the countershaft 28. 90
 The shaft 180, is journaled in the adjustable bearing
 blocks 188, in the housings 175, and carries the disks
 190, having the resilient segments 191, between which
 and the creasing roller 193, the web 13, is engaged and
 its progression is assisted after each blank 195, is severed. 95
 Said web 13, is turned from its horizontal position
 partly around the creasing roller 193, passing be-
 tween it and the severing roller 200, in a vertical direc-
 tion to the shearing mechanism which will be herein-
 after described. 100

The roller 200, which is carried by the shaft 201, hav-
 ing the gear 202, arranged to mesh with the gear 181, is
 journaled in the adjustable bearing blocks 203, in the
 housings 175, and is provided with the cutting blade
 204, arranged to indent the web 13, transversely against 105
 the roller 193, but not cut it entirely through. By
 such arrangement of said blade, its cutting edge is pre-
 served by reason of its not coming into direct contact
 with the opposed roller 193. Said roller 200, carries the
 severing winged lever 208, pivoted at 209, and having 110
 the tang 210, engaged by the spiral spring 211, arranged
 to normally retain said wings so that their outer surface
 will be flush with the outer surface of said roller. The
 winged lever 208, is arranged to be actuated by the
 shaft 214, which is journaled in said roller 200, and pro- 115
 vided at one end with the finger 215, arranged to press
 said wings of said lever 208, outward, into the recess
 219, in the roller 193; and at the other end with the cam
 lever 217, having the roller 218, arranged to engage the
 stationary cam 220, which is secured to the stationary 120
 rod 221, supported in the housing 175, to rock said
 shaft 214. The outward movement of the wings 208,
 severs the blank 195, from the web 13, on the indented
 line indicated by the dotted line 222, in Fig. XVIII,
 made by the cutting blade 204. 125

The severing roller 200, carries a pivoted gripping
 frame which comprises the end pieces 225, connected
 by the cross bar 226, and provided with trunnions 228,
 and 229, journaled in the flanges 230, of said roller 200.
 The trunnion 229, is encircled by the coil spring 232, 130

arranged to normally retain said pivoted frame in the position shown in Figs. V, and XIII.

The shaft 235, having the gripping blade 236, arranged to co-operate with the cross bar 226, in gripping the creased web 13, is mounted for oscillation in the end pieces 225, of the gripping frame, and is encircled by the coil spring 237, arranged to normally separate said blade 236, from the cross bar 226, as best-shown in Fig. V. Said shaft 235, is also provided with the cam arm 238, having the roller 239, arranged to engage the stationary cam 240, best shown in Fig. XIII, which rocks the blade 236, against the cross bar 226, to grip the web 13. The further rotation of the roller 200, causes the entire pivoted frame to turn on its trunnions 228, and 229, as shown in full lines in Fig. XIV, and in dot and dash lines in Fig. XIII, thereby holding the creased web 13, in a tangential position with respect to said roller 200.

The roller 193, is provided with a slot 242, in which is set the creasing blade 244, arranged to be reciprocated radially by its engagement with the bifurcated levers 245, on the rock shaft 246, which is mounted for oscillation in said roller 193, and arranged to be normally rocked by the coiled spring 247, to retract said blade 244; and by the engagement of the cam arm 248, with the cam 249, which latter is secured on the stationary rod 221, said shaft 246, is arranged to be rocked to project said blade 244, and thereby press the web 13, between the cross bar 226, and the gripping blade 236, to be gripped thereby and carried to a point slightly beyond that shown in Fig. XIV, where said blade 236, releases its grip on the web 13, which is then caught between the roller 200, and the sectors 250, of the roller 251. Said roller 251, is carried by the shaft 252, which is journaled in the bearing block 253, adjustably mounted in the housing 175, and which is provided with the gear 254, arranged to mesh with the gear 202, on the shaft 201. The sectors 250, are conveniently provided with grooves 256, arranged to receive the horizontal guides 257, on the cross piece 258, which is secured to the housing 175, and which carries the horizontal guides 260, extending in the opposite direction to that of the guides 257, arranged to guide the envelop blank 195, in its passage from the severing roller to the flap pasting and creasing rollers to be hereinafter described.

The shearing mechanism is arranged to shear the corners 265, of the web 13, and comprises the supporting bar 266, which extends between the housings 175, and supports the stationary blade 267, the obliquely disposed guide plate 268, and the guide frame 269, to which the vertical guide pieces 270, are secured. To said guide plate 268, is secured the adjustable stop block 272, which is arranged to stop the web 13, in such a position that the desired portion of the corners 265, will overhang the cutting edge of the blade 267, to be sheared by the rotary blades 275, which are adjustably secured to the cranks 276, carried by the shaft 278, which is journaled in suitable bearings in the feet of the housings 175, and which is provided with the gear 280, arranged to mesh with the idler 281, which meshes with the gear 254, of the shaft 252.

The flap pasting and creasing roller 290, is carried by the shaft 291, which is journaled in suitable bearings in the housings 293, and which is provided with the gear 294, arranged to mesh with the gear 295, on the shaft

297. Said shaft 297, carries the gripping roller 298, and is journaled in the bearing blocks 299, which are adjustably mounted in said housings 293. Said shaft 297, is provided with the miter gear 301, arranged to mesh with the miter gear 302, on the countershaft 28. The roller 290, comprises the flanges 303, joined by the segmental cross piece 304, to which the resilient paste depositing type 305, is conveniently secured by the frame 306, which is retained by the screws 307.

The type 305, is arranged to contact with the paste distributing roller 308, which is mounted for rotation in the paste receptacle 310, and which has its shaft 311, journaled in the stuffing boxes 312. Said shaft 311, is provided with the gear 313, arranged to mesh with the gear 315, on the shaft 291.

The amount of paste carried by the distributing roller 308, may be regulated by the scraper plate 317, suitably mounted in said receptacle and arranged to engage said roller 308, with any degree of frictional contact by adjustment of the links 318, extending through the wall of the receptacle in threaded engagement with the thumb screw 319. The receptacle 310, is supported on the elevator 320, having the dowel pins 322, arranged to enter recesses 323, in the bottom of said receptacle to prevent lateral movement, but is arranged to be adjusted vertically by the set screws 325, in threaded engagement with said elevator and extended into recesses 326, in the bottom of said receptacle.

The elevator 320, is arranged to withdraw the paste receptacle from action when the machine is stopped, and is conveniently supported on the vertical rack bars 328, which are secured to the side rail 5, and comprise rack teeth 329, arranged to be engaged by the gears 330, and 331, which also intermesh with each other, and which are carried by the elevator. The gear 331, is provided with a handle 334, by the rotation of which said elevator may be raised or lowered at will, and may be retained in its uppermost position by the pin 335, extending through the aperture 336, in the rack bar 328.

The flanges 303, of the roller 290, are provided with recesses 338, to receive the radially reciprocating creasing blade 339, which projects beyond the sides of said flanges and is engaged by the bifurcated levers 340, and 341, the latter having the cam arm 342. Said levers 340, and 341, are secured to the rock shaft 344, which extends through the segmental cross bar 304, and which is encircled by the coiled spring 345, arranged to rock said shaft to normally press the blade 339, back into its recess 338.

The cam arm 342, is arranged to engage the stationary cam 347, which is secured to housing 293, to rock the blade 339, radially outward to crease the blank 195, and press said crease into the groove 350, in the gripping roller 298, in which groove the gripping blade 352, is arranged to oscillate, being carried by the rock shaft 353, which is mounted to rock in said roller.

The rock shaft 353, is provided with the cam arm 354, arranged to engage the stationary cam 355, to rock said shaft against the tension of its coil spring 356, to the position shown in Fig. V, to receive the flap crease of the blank 195. When said arm 354, is released by the cam 355, the spring 356, rocks the shaft 353, to oscillate the gripping blade 352, to grip said blank. The further rotation of the rollers 290, and 298, progress the blank 195, so that the edge of its flap is presented be-

tween the paste depositing type 304, of the roller 290, and the platen 358, of the roller 298. As the formed envelop emerges from between the rollers 290, and 298, its bottom edge rides upon the guides 360, which are
5 secured to the cross bar 361, supported by the housings 293.

The shaft 365, journaled in the housings 293, is provided with the gear 366, arranged to mesh with the idler 367, meshing with the gear 294, and said gear 366,
10 also meshes with the gear 368, on the shaft 369. Said shaft 365, carries the drums 370, which are provided with the gripping fingers 372, pivoted to oscillate on axes disposed at right angles to the axis of said drums, to grip the completed envelop as it leaves the flap past-
15 ing and creasing rollers, and to carry it to the position shown in Fig. V, where said gripping fingers release it, and the semicircular disks 375, on the shaft 369, engage its edges against said drums and deposit it upon the conveyer chains 376, which are carried by the sprockets
20 377, mounted on the drums 370.

The gripping fingers 372, are pivoted at 380, on the drums 370, and are provided with the projecting pins 381, engaged by the slots 382, in the slide bars 383, which latter are arranged to reciprocate in the cranks
25 385, carried by the shaft 365. Said slide bars 383, are provided with the rollers 386, arranged to traverse the cam grooves 388, in the stationary cams 390, which are secured to the housings 293. By the reciprocation of the slide bars 383, the gripping fingers 372, are oscil-
30 lated to alternately engage and disengage the periphery of their respective drums, and thereby grip the envelop as it is presented between them. The conveyer chain may be provided with lugs 392, at proper intervals to engage the envelops as they leave the drums 370, to in-
35 sure their proper position on said chain.

During the operation of the machine all of the rollers are arranged to be continuously rotated in the direction of the arrows indicated upon the several views, and the web 13, is arranged to be continuously progressed
40 thereby. Said web 13, is drawn from the roll 12, by the rollers 15, and 16, and depends in a bight around the takeup roller 52, to the edge turning mechanism where its edges are turned and creased as shown in Fig. XVII, whence it passes between the trimming rollers 85, and
45 86, with its folded edges again turned out, which are thereby serrated as best shown at the right hand side of Fig. XVIII. After leaving the trimming rollers, said web passes between the printing rollers 93, and 94, of the printing mechanism 95; and the printing rollers
50 96, 97, of the printing mechanism 98, where it is printed in different colors, and is then progressed by the roller 127, and the disks 134, with its edge flaps 88, in engagement with the wires 160, and 165, which again turn said flaps 88, under as shown at the left hand side
55 of Fig. XVIII, flat upon the under side of the web, which then passes between the disks 170, and the paste depositing disks 147, where paste is deposited upon said turned under flaps. Said web 13, then passes partially around the creasing roller 193, and is creased as indi-
60 cated by the dotted line 89, in Fig. XVIII, and said crease is pressed into the gripping frame, carried by the roller 200, and is gripped by the gripping blade 236, and carried around by said frame. The fish-tail shaped end of the web 13, passes vertically downward,
65 and then turns obliquely into the shearing mechanism

where the corners 265, are sheared as indicated by the dotted lines 395, in Fig. XVIII. The web 13, is then indented by the blade 204, and the severing winged lever 208, operates to break said web on the indented line 222, as indicated in Fig. XVIII, and the blank
70 195, as shown in Fig. XIX, is thus severed from the web 13, and is independently carried between the roller 200, and the segmental disks 250, which tightly press the pasted edges and seal the ends of the formed envelop 396, best shown in Fig. XX. Said formed en-
75 velop passes between the rollers 290, and 298, and the creasing blade 339, creases the flap on the dotted line 397, as indicated in Fig. XXI, and presses said crease into the groove 350, where it is gripped by the blade 352. The flap 398, passes between the paste depositing
80 type 305, and the platen 358, and paste is deposited on the flap as indicated at 399, in Fig. XXI.

After the flap has been pasted, the completed envelop 400, as shown in Fig. XXII, is carried by the roller 298, to the under side of the drums 370, where the
85 fingers 372, grip its edges and carry it to the upper side of said drums, and deliver it to the conveyer chain 376, which are arranged to carry it from the machine to any desired place.

I do not desire to limit myself to the precise details of
90 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 an envelop machine, the combination with means
95 arranged to progress a paper web; of a roller carrying a pivoted gripping frame; an oscillatory gripping blade carried by said frame, arranged to grip said web; a spring arranged to normally open said gripping blade; and
100 means arranged to rock said blade, substantially as set forth.
2. In an envelop machine, the combination with means
105 arranged to progress a paper web; of a roller; a gripping frame pivoted to oscillate in said roller; a gripping blade mounted to oscillate in said frame, arranged to grip said web; a spring arranged to normally open said gripping blade; and, means whereby the rotation of said roller shifts said blade independently of said frame, to close
110 said blade, and then shifts said frame, substantially as set forth.
3. In an envelop machine, the combination with means
115 arranged to progress a paper web; of a roller; a gripping frame pivoted to oscillate in said roller and comprising end pieces connected by a cross bar; an oscillatory grip-
120 ping blade pivoted in said end pieces and arranged to co-operate with said cross bar to grip said web; a spring arranged to normally open said blade; a stationary cam; and, an arm on said blade arranged to engage said cam, whereby the rotation of the roller causes said blade to
125 shift and engage the web between it and said cross bar, and then shifts said frame, substantially as set forth.
4. In an envelop machine, the combination with means
130 arranged to progress a paper web; of a web severing roller; a creasing roller; a gripping frame pivoted to os-
135 cillate in said severing roller, and comprising end pieces connected by a cross bar; an oscillatory blade arranged to co-operate with said cross bar to grip said web; means whereby said blade is normally held open; means to actuate said blade; a reciprocatory creasing blade carried
140 by said creasing roller arranged to press said web between said cross bar and said oscillatory blade; and means arranged to actuate said reciprocatory blade, substantially as set forth.
5. In an envelop machine, the combination with means
145 arranged to progress a paper web; of a web severing roller; a creasing roller; a gripping frame pivoted to os-
150 cillate in said severing roller, and comprising end pieces

connected by a cross bar; an oscillatory blade arranged to co-operate with said cross bar to grip said web; means to normally hold said blade open; a stationary cam; an arm on said blade, arranged to engage said cam to oscillate said blade; a reciprocatory creasing blade, carried by said creasing roller, arranged to press said web between said cross bar and said oscillatory blade; levers arranged to reciprocate said blade; and, a stationary cam arranged to rock said levers, substantially as set forth.

6. In an envelop machine, the combination with means arranged to progress a paper web; of web edge turning mechanism; web edge trimming rollers; printing rollers; pasting disks; and, a severing roller, provided with means whereby the web is first indented; a gripping frame carried by said severing roller, arranged to grip said web and thereby form a transverse crease extending from edge to edge of said web; means arranged to oscillate said frame while gripping the web to carry said web in tangential relation with said severing roller, and then broken where indented, substantially as set forth.

7. In an envelop machine, the combination with means arranged to progress a paper web; of web edge turning mechanism; web edge trimming rollers; printing rollers; pasting disks; a severing roller, provided with means whereby the web is first indented, and then broken where indented; a gripping frame carried by said severing roller, arranged to grip said web along its transverse edge; and carry it in tangential relation with respect to said severing roller, substantially as set forth.

8. In an envelop machine, the combination with means arranged to progress a paper web; of web edge turning and creasing mechanism; edge trimming rollers, arranged to trim the creased edges of said web; a plurality of printing mechanisms arranged to print said web in different colors; means arranged to turn said creased edges flat against said web; pasting disks arranged to deposit paste on said turned edges; folding mechanism; severing mechanism; and, a roller arranged to deposit paste on the flap of the folded envelop, substantially as set forth.

9. In an envelop machine, the combination with means arranged to progress a paper web; of means arranged to support a roll of said web; mechanism arranged to turn and crease the edges of said web; rollers arranged to continuously feed said web to said edge turning mechanism; cutting rollers arranged to trim said creased edges; a plurality of printing mechanisms arranged to imprint said web in different colors; means arranged to turn said web creased and trimmed edges against said web; pasting disks arranged to deposit paste on said turned edges; a roller arranged to sever the web transversely; a roller arranged to crease said web transversely, to form the bottom fold in the envelop; means carried by the severing roller arranged to grip the blank on said transverse crease and carry it tangentially with respect to said severing roller; sectoral disks in co-operation with said severing roller, arranged to progress the severed blank after the gripping means have released it; a flap pasting roller; a creasing blade carried by said flap pasting roller, arranged to crease

the top of said envelop; gripping drums; a roller, carrying means arranged to grip said top crease and carry said envelop to the gripping drums; a conveyer chain; and, means carried by said drums, arranged to grip the edges of said envelop and deliver it to the conveyer chain, substantially as set forth.

10. In an envelop machine, the combination with means arranged to progress a paper web; of means arranged to support a roll of web; means arranged to turn and crease the edge of said web; means arranged to trim the edge of said web; a paste receptacle pivoted at one end, and supported by a lever at the other end, by which it may be raised and lowered; paste distributing disks arranged to rotate in said receptacle; paste depositing disks having sectoral projections arranged to alternately engage said distributing disks and said web; web folding and severing mechanism; a second paste receptacle; a paste distributing roller in said second receptacle; a paste depositing roller arranged to alternately engage said distributing roller and the flap of the envelop; an elevator arranged to support said second receptacle; vertically disposed rack bars carrying said elevator; gears on said elevator arranged to engage the teeth of said bars, and each other; and, a handle secured to one of said gears by the rotation of which said elevator and receptacle may be raised and lowered with respect to said distributing roller; and means distinct from the raising means arranged to determine the position of said elevator, substantially as set forth.

11. In an envelop machine, the combination with means arranged to progress a paper web; of web forming, printing, severing, folding and pasting mechanism; a pair of drums carrying pivoted gripping fingers arranged to grip each envelop in succession; a rotary shaft common to said gripping drums; a pair of slide rods, pivoted to said fingers, arranged to slide in guides carried by said shaft; and, a pair of stationary cams arranged to engage said rods and thereby open and close said fingers, substantially as set forth.

12. In an envelop machine, the combination with means arranged to progress a paper web; of a pair of slabs of less width than the web, between which said web is arranged to be progressed; and, wires arranged in angular relation to the plane of said web, arranged to engage and fold over its edges, substantially as set forth.

13. In an envelop machine, the combination with means arranged to progress a paper web; of a pair of flat slabs of less width than the web, between which said web is arranged to be progressed; wires extending along the edges of said slabs in inclined relation to said web, arranged to fold its edges; and, opposed rollers arranged to crease said folded edges, substantially as set forth.

In testimony whereof, I have hereunto signed my name at Bordentown, in the State of New Jersey, this 14th day of March, 1905.

GEORGE W. SWIFT, JR.

Witnesses:

R. H. AARONSON,
FRED W. TAYLOR.