W. H. BANZETT & E. KENNY.

MACHINE FOR MAKING PERFECTED ENVELOP BLANKS.

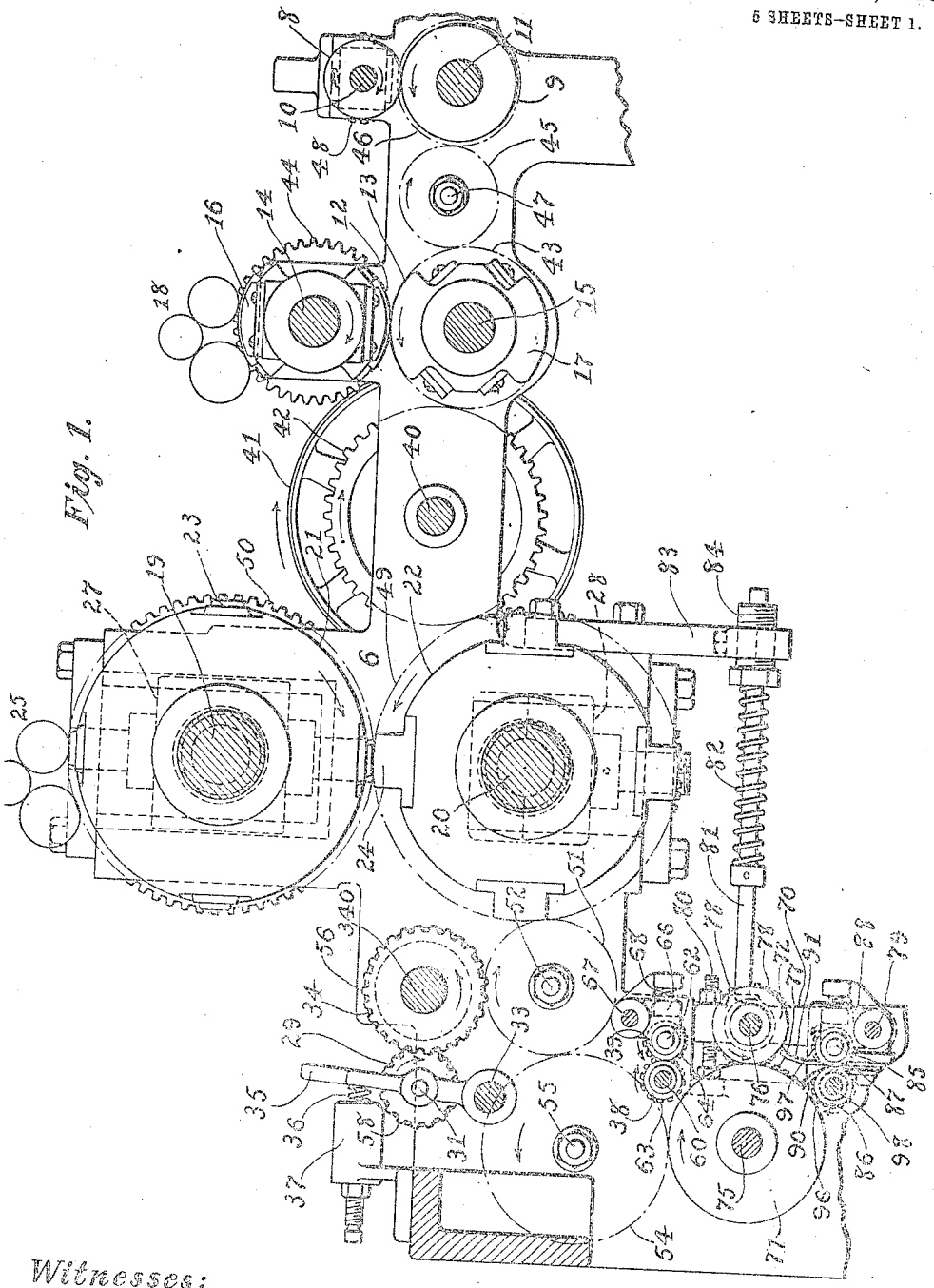
APPLICATION FILED MAY 7, 1912.

1,123,658.

Patented Jan. 5, 1915.

5 SHEETS—SHEET 1.

Fig. 1.



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5 SHEETS-SHEET 2.

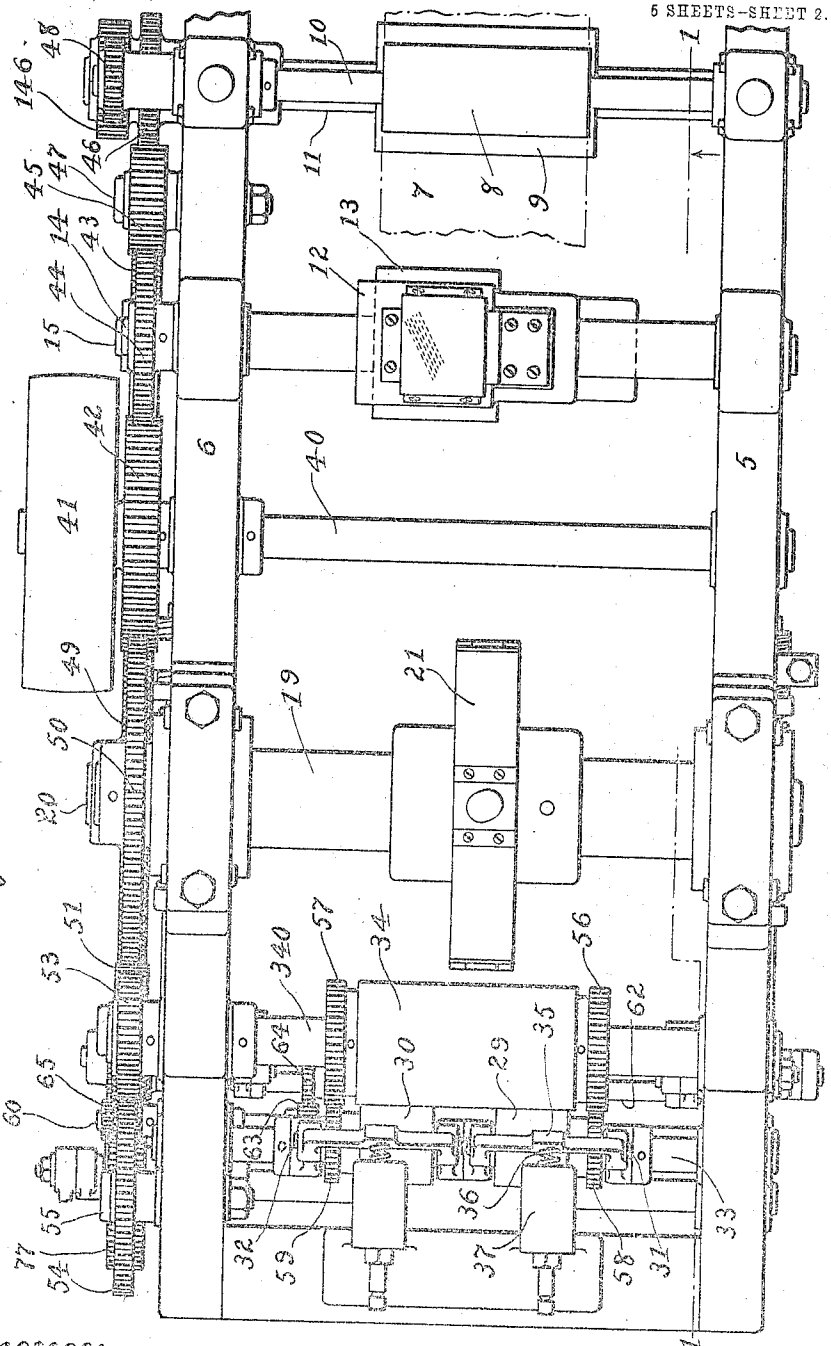


Fig. 2.

Witnesses:

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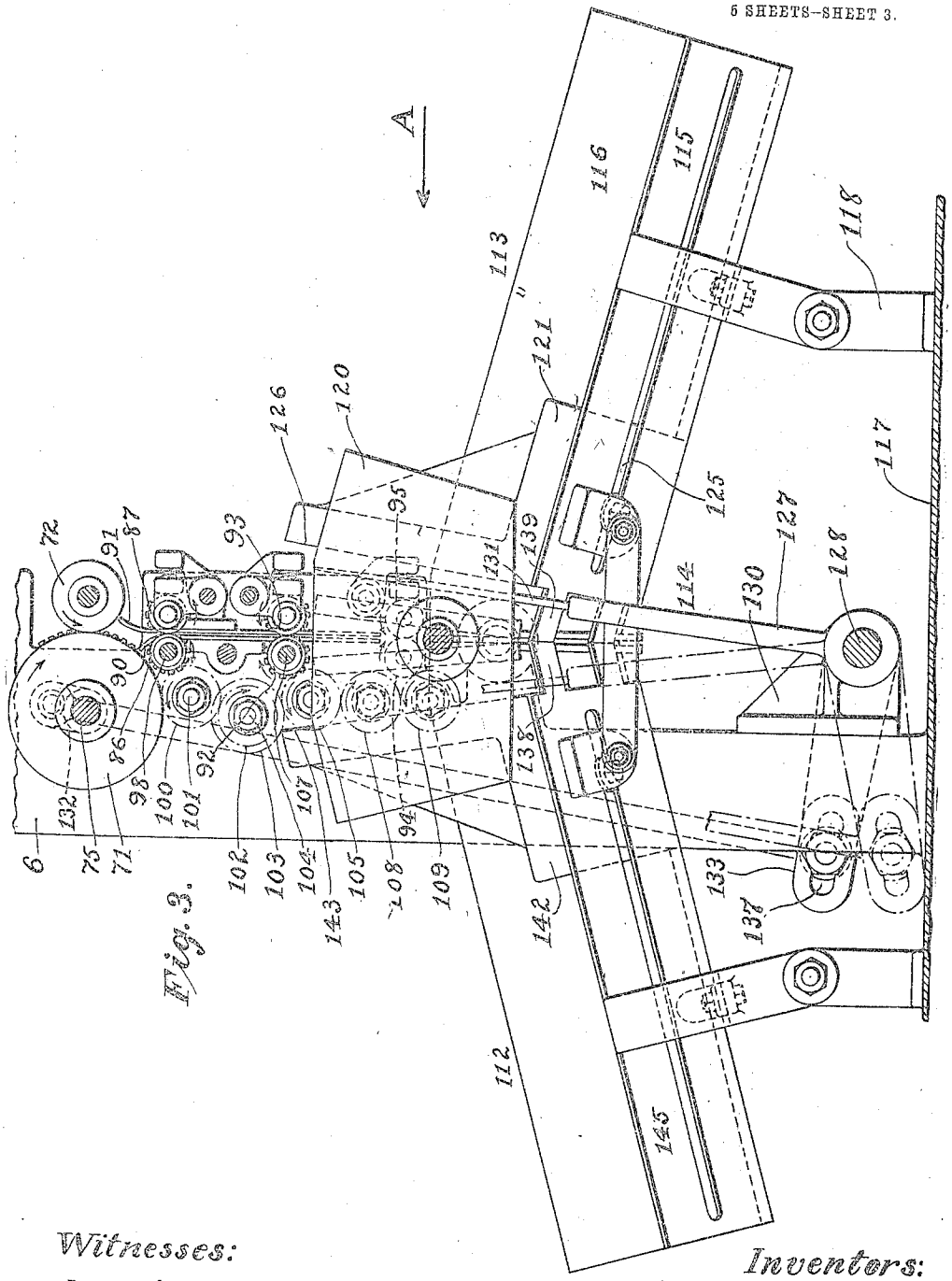



Fig. 3.

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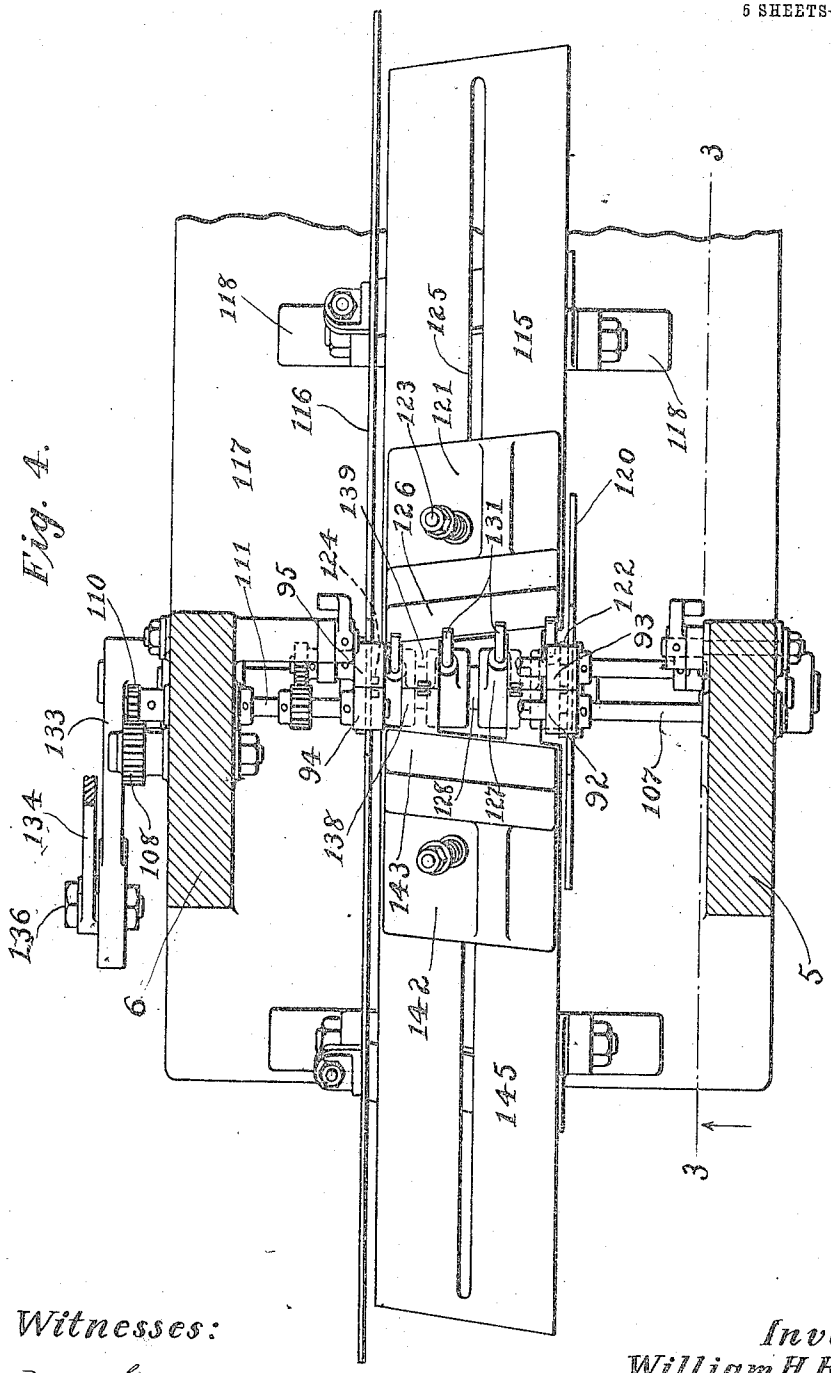
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5 SHEETS—SHEET 4.

Fig. 4.




Witnesses:

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5 SHEETS—SHEET 5.

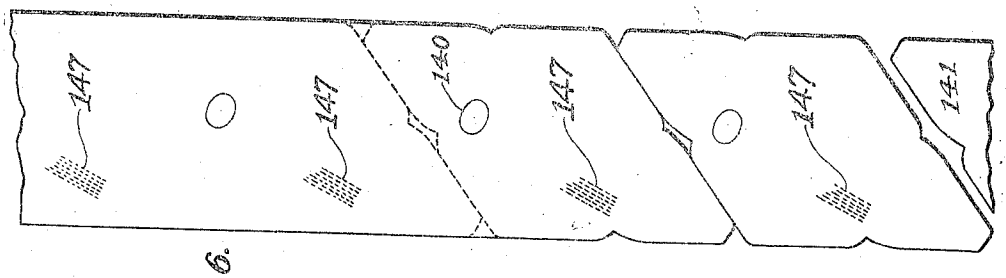



Fig. 6.

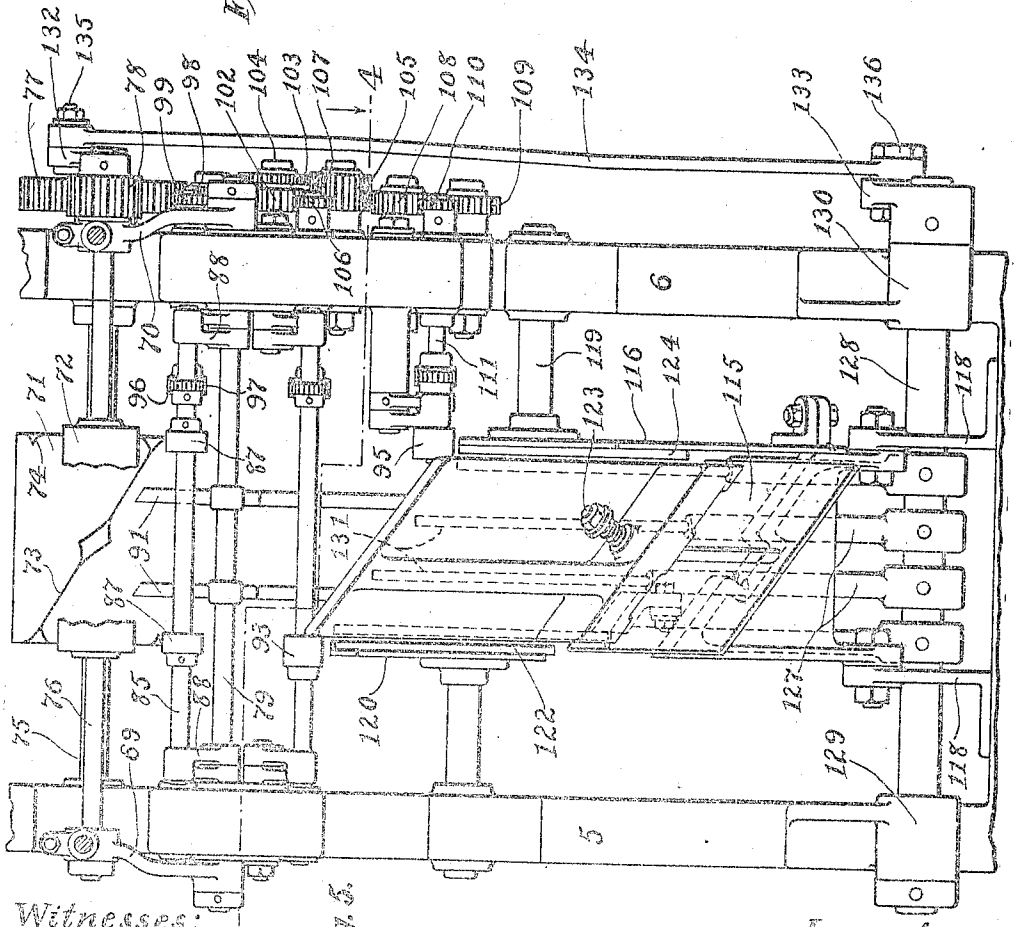



Fig. 5.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. BANZETT, OF BERGENFIELD, NEW JERSEY, AND EDMOND KENNY, OF NEW YORK, N. Y., ASSIGNORS TO MERCANTILE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## MACHINE FOR MAKING PERFECTED ENVELOP-BLANKS.

1,123,658. Specification of Letters Patent. Patented Jan. 5, 1915.

Application filed May 7, 1912. Serial No. 695,653.

*To all whom it may concern:*

Be it known that we, WILLIAM H. BANZETT and EDMOND KENNY, citizens of the United States, and residing, respectively, at Bergenfield, in the county of Bergen and State of New Jersey, and at New York, borough of Richmond, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Machines for Making Perfected Envelop-Blanks, of which the following is a specification.

This invention relates to machines for making blanks from a continuous web of paper or the like and is directed particularly to providing a machine of the character specified for producing perfected diamond-shaped envelop blanks having a printed and embossed postage stamp and a printed return address and, if desired, a sending address or other matter in such positions relatively to the blank and to each other that said stamp and address or addresses will be in their suitable and conventional positions on the face of the envelop when said blank is finally gummed and folded into an envelop. Said gumming and folding may be done in any one of several well known machines provided for that purpose, but which folding and gumming machines do not form a part of the present improvements.

A further feature of our improvements and an inherent part of the integral problem of producing perfected envelop blanks is the mechanism for receiving the completed blanks and for delivering them in systematic order. Said delivery further includes the separation of those blanks into classes according to their character as determined by the stamps or printed matter thereon or both.

It has heretofore been customary to cut envelop blanks from a pile or stack of sheets of paper by means of a cutting die and then to print and emboss the postage stamp on said blanks one at a time and in another machine to print the return address in the corner and the sending address, if desired, in a suitable place relatively to said stamp and return address.

In our improved machine the printing and embossing of the stamp and the printing of the return address and any other desired matter is done at proper intervals and in suitable relative positions on the continuous web prior to its formation into blanks, and while that web is moving at high speed, thus producing in one unitary machine, perfected blanks ready for gumming and folding, in one other machine, into finished stamped and return addressed envelops.

Our improvements comprise parts and combinations of parts illustrated in their preferred embodiment in the drawings accompanying this specification wherein—

Figure 1 is a side sectional elevation on line 1, 1, Fig. 2, of the upper part of our improved machine. Fig. 2 is a plan view thereof. Fig. 3 is a side sectional elevation on line 3, 3, Fig. 4, of the lower part of our improved machine. Fig. 4 is a plan view of what is shown in Fig. 3 and with those parts above line 4, 4 of Fig. 5 removed. Fig. 5 is an end elevation corresponding with Fig. 3 and looking in the direction of arrow A. Fig. 6 is a diagrammatic layout of the paper web illustrating the several steps of transforming that web into stamped and printed envelop blanks.

In the usual side frames 5, 6 are mounted in suitable bearings the several shafts, and to said frames are attached other parts of our improved mechanism. The continuous web of paper 7 is preferably of a width to be used without edge trimming whereby the edges of the web form portions of the edges of the envelop flaps, see Fig. 6. Said web is led into the machine between rolls 8, 9 fixed to shafts 10, 11 respectively and thence between opposite members of rotary printing mechanism, comprising type form 12 and platen 13 fixed to shafts 14, 15 respectively. Said type form 12 is preferably duplicated at 16 diametrally opposite thereto and platen 13 is duplicated at 17 diametrally opposite thereto. Inking mechanism for said type form is indicated diagrammatically at 18 in Fig. 1. On shaft 19 is fixed printing and embossing cylinder 21 preferably having thereon a plurality of printing and embossing dies 23 for coaction with corresponding dies 24 mounted on cylinder 22 on shaft 20. As illustrated, said pairs of coacting dies are four in number and the diameter of cylinders 21 and 22 are each double the diameter of each mem-

ber of the printing device on shafts 14, 15. Inking mechanism for the printing and embossing dies is indicated diagrammatically at 25 in Fig. 1. Shafts 19, 20 may be mounted in adjustable boxes as 27, 28, of well known construction, for moving said shafts toward and from each other. Adjacent to embossing disk 22 is web feed roll 34 fixed to shaft 340, for engagement with rolls 29, 30 fixed to shafts 31, 32 respectively. Shaft 340 may be mounted in fixed bearings in side frames 5, 6. Rolls 29, 30 are mounted independently of each other, substantially coaxial, and are arranged for engagement with opposite end portions of roll 34, whereby space is provided between said rolls 29, 30 for the passage without smearing of the printed midportion of the web. Rolls 29, 30 are similarly mounted and a description of one will suffice for both. Roll 29 is fixed to shaft 31 having bearings in yoke 35 turning freely on shaft 33 fixed in side frames 5, 6. Roll 29 is urged to engagement with roll 34 by means of spring 36 supported in bracket 37 and pressing against yoke 35.

The path of the web is preferably in a straight line from the time of its engagement by feed rolls 8, 9 until said web passes over and preferably downwardly around roll 34 where its direction of travel is changed to a direction normal to its previous direction. Below rolls 29, 30 and 34 are small feed rolls 38, 39 by which the web is delivered to the cutting mechanism to be hereinafter described.

For driving the various shafts and rolls thus far described we provide main shaft 40 having pulley 41 fixed to the outboard end thereof, Fig. 2. Main gear 42 fixed to said shaft between pulley 41 and frame 6 drives gear 43 fixed to shaft 15 and gear 43 drives gear 44 fixed to shaft 14. Gear 43, through intermediate gear 45 on stud 47 in frame 6, drives gear 46 fixed to shaft 11 and gear 146 slightly smaller than gear 46 and also fixed to shaft 11, drives gear 48 fixed to shaft 10. By this means feed rolls 8, 9 are driven at a surface speed slightly less than that of feed rolls 29, 30 and 34, whereby web 7 is advanced under tension. Returning now to main gear 42, said gear drives gear 49 fixed to shaft 20 and gear 49 drives gear 50 fixed to shaft 19. Gear 49, through intermediate gear 51 on stud 52 in frame 6, drives gear 53 fixed to shaft 340; said intermediate 51 also drives a second intermediate 54 on stud 55 in said frame 6.

Fixed to shaft 340 between frames 5 and 6 and adjacent to the ends of roll 34 are gears 56, 57 driving respectively gears 58, 59 fixed to shafts 31, 32 of rolls 29, 30. Rolls 38, 39 are fixed respectively to shafts 60, 62 which are geared together by gears 63, 64. Shaft 60 has gear 65 fixed to its outboard end and is driven from intermediate gear 54. For urging roll 39 to engagement with roll 38, shaft 62 may be hung in brackets as 66 pivoted on shaft 67 and springs as 68 employed, all according to well known construction.

The rotary cutting mechanism of our improved machine comprises a pair of rolls 71, 72, the former having cutting blades 73, 74 thereon for coaction with the hardened surface of roll 72. Said cutter roll 71 is of such a diameter and has its cutting members so disposed as to produce two complete diamond shaped blanks at each revolution, and hardened roll 72 is conveniently made of one half the diameter of roll 71, thereby making two revolutions for each single revolution of roll 71. Rolls 71, 72 are fixed to shafts 75, 76, respectively, and said shafts have fixed to their outboard ends coacting gears 77, 78, respectively, gear 77 being driven from intermediate gear 54 thereabove. Roll shaft 76 has bearings in opposite brackets 69, 70 pivotally mounted on shaft 79. Said brackets may be adjusted to move cutter roll 72 toward or away from roll 71 by means of screws as 80 and push pins as 81. Said push pins as 81 have their rearward ends supported in brackets as 83 fixed to the side frames as 6 and may be urged to their work by springs as 82, the tension of said springs being adjusted by means of screw sleeves as 84, according to well known practice.

Directly below cutter rolls 71, 72 are delivery rolls 86, 87 similar in all respects of mounting and operation to rolls 38, 39 above said cutter rolls. Roll shaft 85 has bearings in brackets 88 pivotally mounted on shaft 79. For directing the leading end of the blanks from the cutting rolls to engagement with feed rolls 86, 87 we employ one or more pairs of opposite guide blades 90, 91 supported from some convenient fixed member of the machine. Below the left hand pair of feed rolls 86, 87, Fig. 5, are a pair of feed rolls 92, 93 for engagement with the left side of the blank. Lower down on the right hand side, Fig. 5, are another pair of similar rolls 94, 95 for engagement with the right side of the blank. Said two pairs of opposite edge rolls are actuated at a speed slightly faster than the speed of the previous feed rolls and of the cutting rolls. The object of this increase of speed is to separate each blank as severed from the leading end of the web, whereby space between consecutive blanks is provided to facilitate the operation of the blank delivery mechanism, which will be presently described.

Feed rolls 86, 87, 92, 93 and 94, 95 are actuated as follows: One member of each pair is spring urged to coaction with the other member of its respective pair, as al-

ready described in connection with rolls 38, 39. The shafts of rolls 86, 87 are geared together by gears 96, 97, and the shafts of the succeeding pairs of rolls are similarly geared together. Shaft 98 of rolls 86 has fixed to its outboard end gear 99, which is driven from gear 77 on cutter shaft 75 through intermediate 100 on stud 101 in frame 6. For increasing the speed of feed rolls 92, 93 and 94, 95, a pair of coaxial intermediate gears 102, 103 relatively fixed, are mounted on stud 104 in frame 6. Said gear 102 is of equal size and is driven by intermediate 100, while gear 103 is of slightly larger size and drives intermediate gear 105 which drives gear 106 fixed to shaft 107 of roll 92 on the one hand, and, on the other hand, through intermediate gears 108, 109, supported on studs in frame 6, drives gear 110 fixed to shaft 111 of roll 94.

The blank handling mechanism comprises two oppositely disposed receiving troughs 112, 113 and a vibrating member 114 therebetween. Said troughs each comprise a bottom as 115 and side 116 for trough 113. Said bottom is inclined downwardly toward said side wall to conform to the shape of the blank to be received thereby. Said trough members may be conveniently supported from fixed parts of the machine as base 117 and side frame 6 by means of brackets as 118 and studs as 119 respectively. Receiving portions of said troughs opposite walls as 116 may be provided with guide blade 120. Said walls as 116 and blade 120 have fixed thereto edge guides 124, 122, respectively, for guiding the edges of the downwardly moving blanks. Each trough as 113 is provided with a movable angular abutment as 121 having frictional means as spring held bolt 123 in engagement with slot 125 of bottom 115 for partially resisting the movement of said abutment lengthwise in said trough as the blanks are delivered against the face 126 of said abutment. Vibrating member 114 comprises a plurality of upstanding arms 127 fixed to rock-shaft 128 pivoted in brackets 129, 130 fixed to side frames 5, 6, respectively. Said arms 127 terminate upwardly in thin flattened blades 131 which in the central position of their stroke lie in the plane of the descending envelop blanks, and said fingers are oscillated back and forth from one side to the other of that plane. Said oscillation is accomplished as follows: Crank arm 132 is fixed to the outboard end of cutter shaft 75 and oscillating arm 133 is fixed to the similar end of shaft 128. One end of connecting rod 134 is pivoted at 135 to crank arm 132 and the other end of said connecting rod is pivoted at 136 to rock arm 133. Said rock arm may be slotted at 137 to provide adjustment for the stroke of rock arm 133 and vibrating member 114. Bottoms 115 and 145 of troughs 113, 112, respectively, terminate inwardly in fingers as 139, 138, respectively, and which fingers meet in the plane of the descending blanks. Spaces are thus provided for the operation of blades 131.

The operation of our improved machine is as follows: Main pulley 41 having been started in rotation in the direction of its arrow and the leading end of a web of paper being delivered to the bite of rolls 8, 9, said web is advanced between printing members 12, 13, whereby the corner card address 147, Fig. 6, is imprinted. The web then passes forwardly between printing and embossing cylinders 21, 22, whereby the stamp 140 is imprinted and embossed and thence forwardly over roll 34 and downwardly between said roll and its coacting rolls 29, 30; thence downwardly between feed rolls, 38, 39 and between cutter rolls 71, 72. The partly severed blank is then guided by blades 90, 91 into the grip of edge rolls 86, 87, said rolls running at the same surface speed as the web. From thence the severed leading end of the web is delivered to feed rolls 92, 93 on the one hand near one edge of the web and lower down to rolls 94, 95 near the other edge of the web. Said rolls, being rotated at a speed somewhat faster than the speed of the web, advance the now severed blank as 141, Fig. 6, at a speed greater than its previous speed, thereby separating said blank slightly from the succeeding leading end of the web from which another blank is about to be severed. Said blank 141, when first engaged by feed rolls 92, 93 and 94, 95 is still in the grip on one side, of rolls 86, 87, but the tension between opposing members of the pairs of the high speed rolls is greater than that between the opposing members of rolls 86, 87, whereby said blank is drawn from between said rolls 86, 87 as it is advanced downwardly by the high speed rolls. The opposite longitudinal edges of said blank pass between the adjoining members of guides 122 and 124 of the blank handling mechanism and are thereby assisted to keep their downward direction in the plane of the web. The leading end of the blank now impinges against the inreaching portions as 138, 139 of the trough bottoms and fingers 131 vibrating from their full lined position of Fig. 3 to their dotted position in the same figure will engage the right hand face of the blank, delivering said blank against the upstanding face 143 of angular abutment 142. Said blades 131 then oscillate to the right and deliver the next succeeding blank against the upstanding face 126 of angular abutment 121. As said blanks accumulate against said upstanding faces, said angular abutments are

slowly crowded outwardly in their respective troughs by the impact of said blades 131.

We claim:

1. A machine for making paper blanks including in combination, means for continuously advancing a web of material, means for tensioning the web in the line of its advancement during said continuous advancement, means for simultaneously printing and embossing a device upon the tensioned moving web, means for printing upon the moving web alternate legends corresponding in position lengthwise said web with alternate blank positions on said web, means for severing the continuously advancing web into blanks, and means for delivering one series of alternate blanks in one direction and the other series of alternate blanks in another direction.

2. A machine for making paper blanks including in combination, means for continuously advancing a web of material, means for tensioning the web in the line of its advancement during said continuous advancement, means for simultaneously printing and embossing a device upon the tensioned moving web, means for printing upon the moving web a plurality of differing legends in rotation, said legends corresponding in position lengthwise said web with successive blank positions on said web, means for severing the continuously advancing web into blanks, and means for delivering those blanks bearing one legend in one direction and those blanks bearing another legend in another direction.

Signed at New York, N. Y., this 6th day of May, 1912, before two subscribing witnesses.

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