No. 845,537. PATENTED FEB. 26, 1907.

G. W. DIETZ.

ENVELOP MAKING MACHINE.

APPLICATION FILED AUG. 1, 1904.

5 SHEETS—SHEET 1.

Fig. 1.

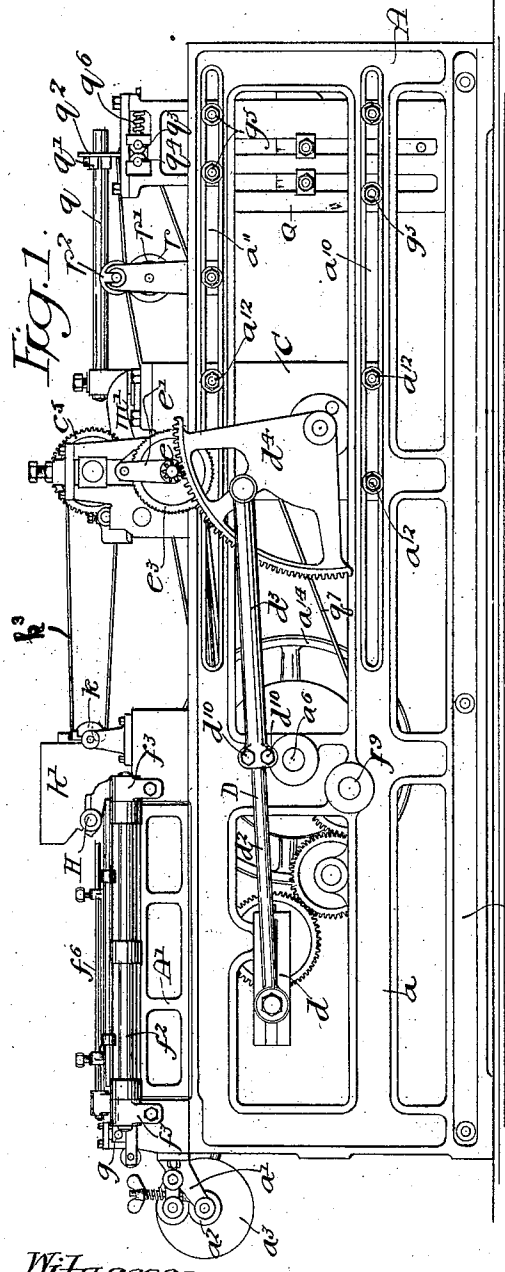
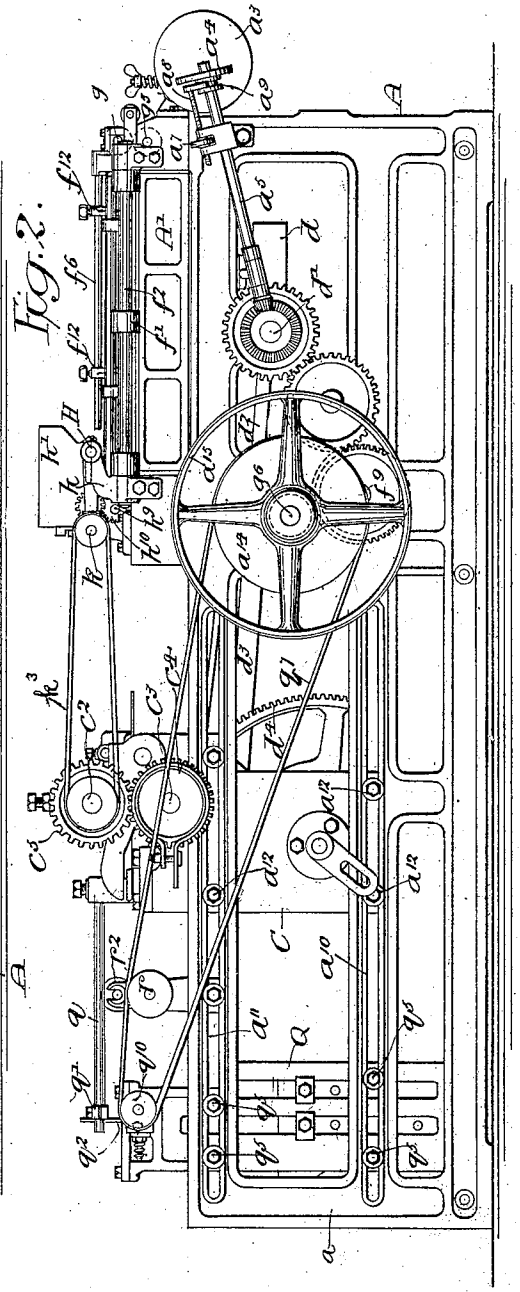


Fig. 2.



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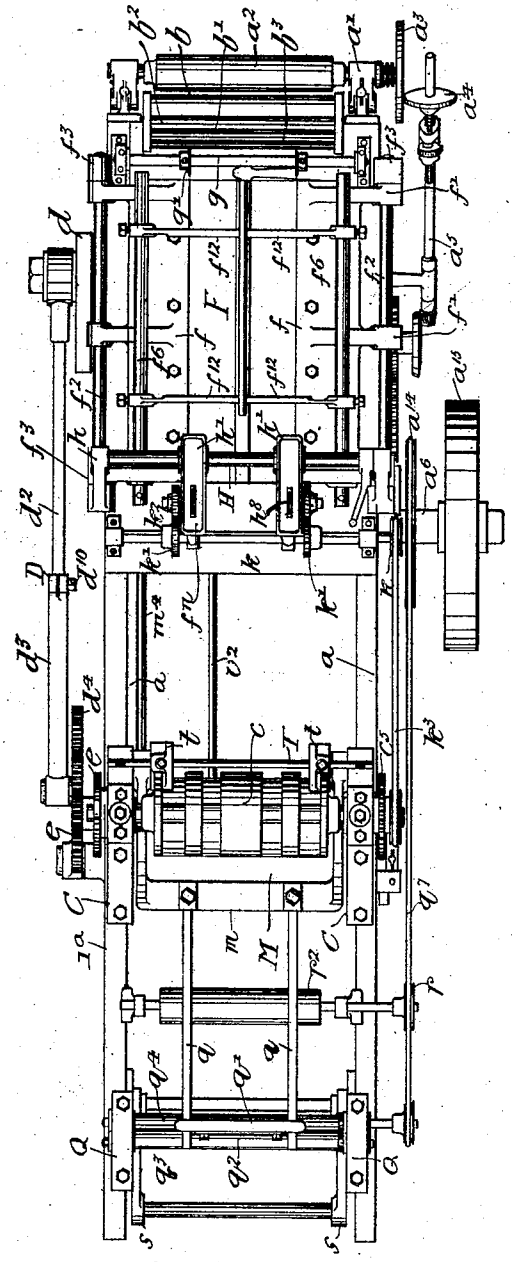
5 SHEETS—SHEET 2.

Fig. 3.



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5 SHEETS—SHEET 3.

Fig. 4.

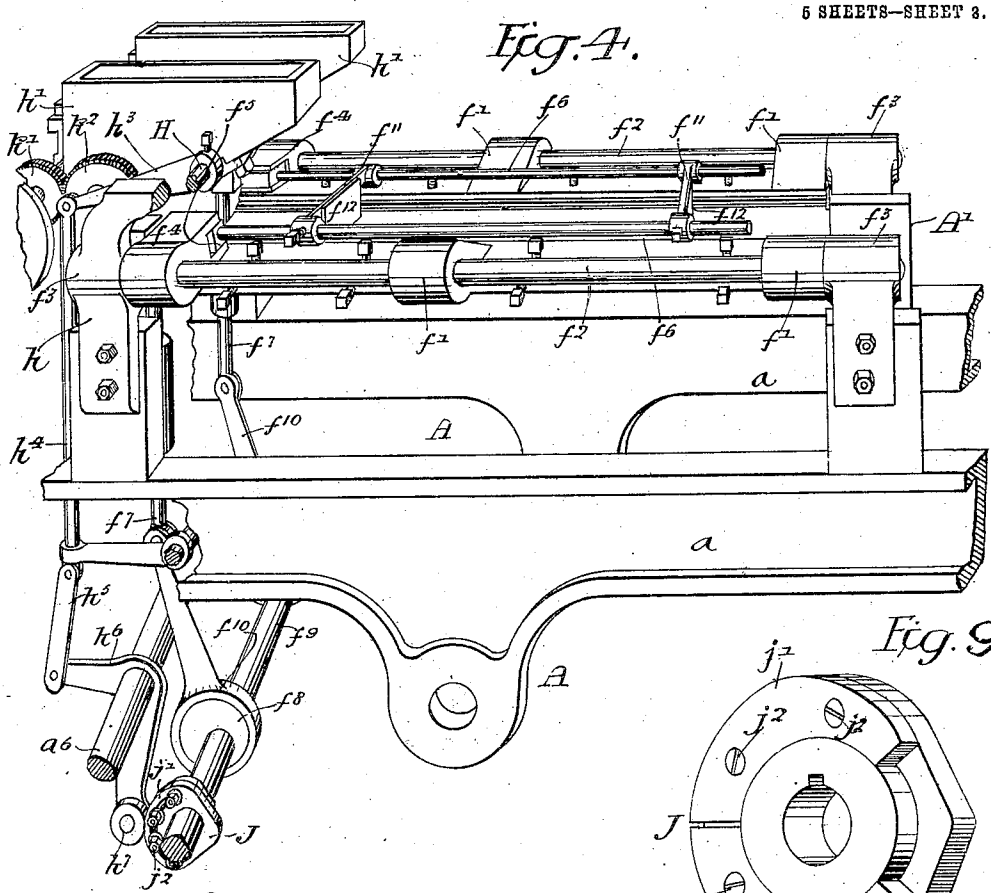


Fig. 9.

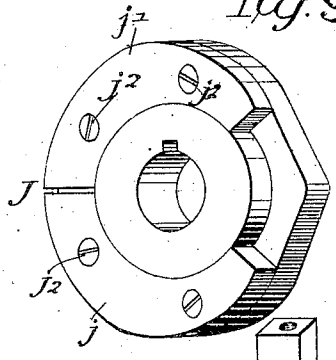
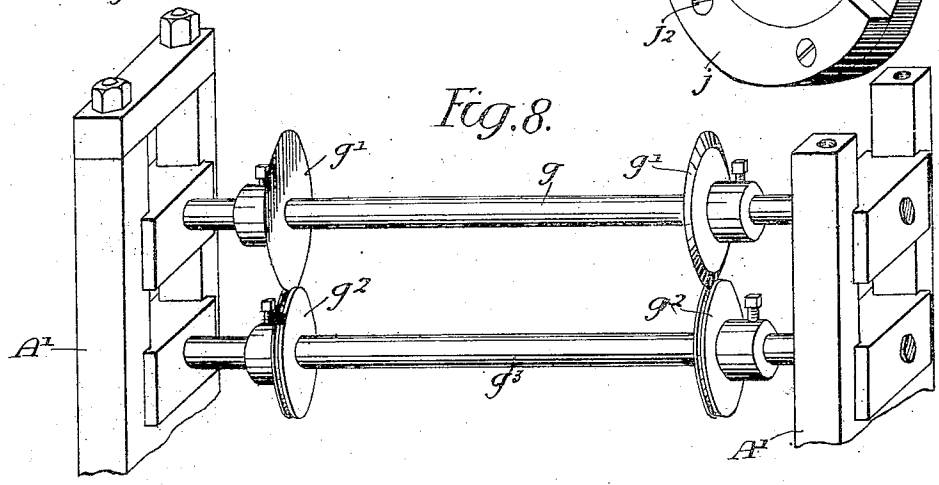


Fig. 8.



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No. 845,537. PATENTED FEB. 26, 1907.

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APPLICATION FILED AUG. 1, 1904.

5 SHEETS—SHEET 4.

Fig. 5.

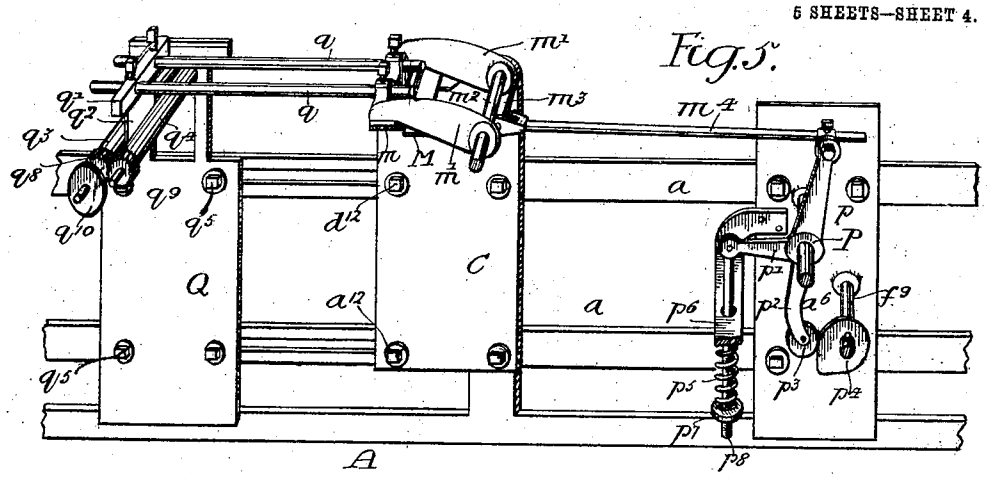
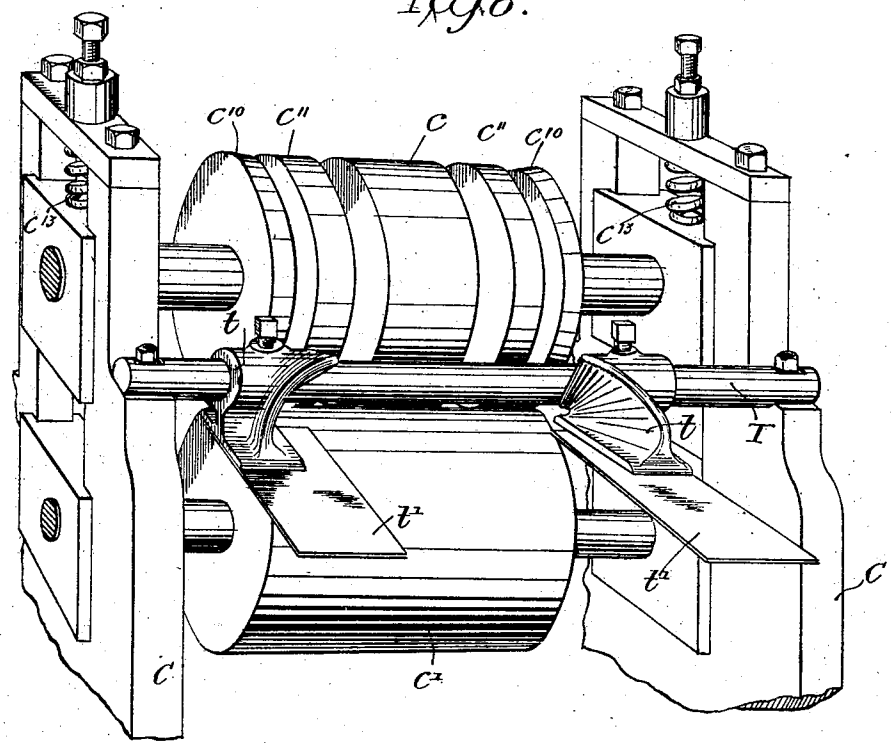


Fig. 6.



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No. 845,537. PATENTED FEB. 26, 1907.

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5 SHEETS—SHEET 5.

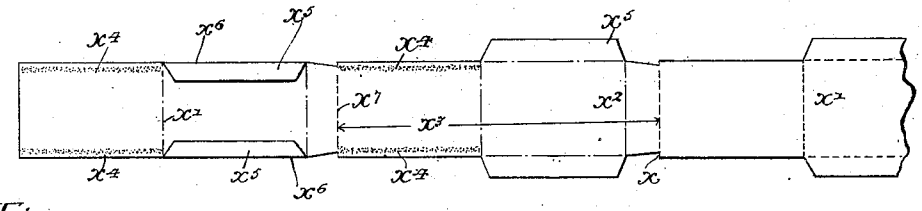


Fig. 11.

Fig. 10.

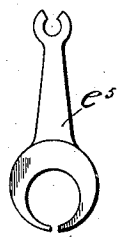
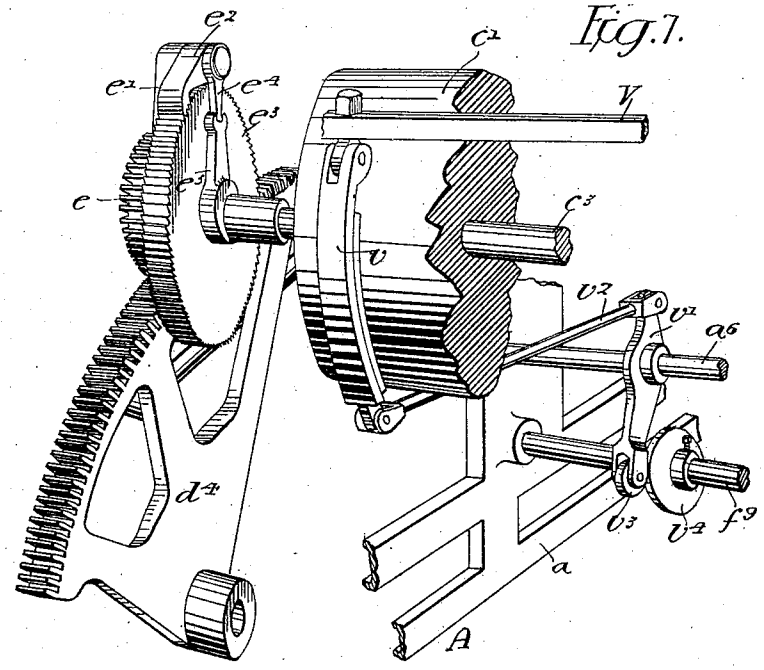


Fig. 7.



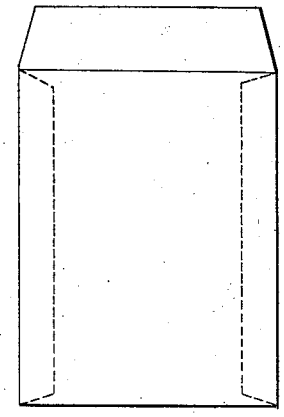


Fig. 12.

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UNITED STATES PATENT OFFICE.

GEORGE W. DIETZ, OF PHILADELPHIA, PENNSYLVANIA.

ENVELOP-MAKING MACHINE.

No. 845,537. Specification of Letters Patent. Patented Feb. 26, 1907.

Application filed August 1, 1904. Serial No. 219,100.

To all whom it may concern:

Be it known that I, GEORGE W. DIETZ, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Envelop-Making Machines, of which the following is a specification.

One object of my invention is to provide an envelop-making machine whose various parts shall be relatively adjustable to permit of the manufacture of envelops of any desired size and shall at the same time be so arranged and constructed that it may be operated at a high rate of speed.

A further object of the invention is to provide a machine of the above-noted general character which shall have improved mechanism for operating its paste-cups and their attached mechanism, said mechanism being so arranged that the paste wheel or wheels shall be moved at predetermined times into and out of engagement with the web of paper from which envelops are to be formed as said web is moved through the machine.

It is further desired to provide an envelop-making machine which while cutting out an envelop-blank from a web of paper also removes certain portions of the sides of said web, thereby reducing the quantity of paper necessary for an envelop of a given size as well as securing a valuable by-product from the pieces so cut off.

I also desire to provide an envelop-making machine which shall include a device for braking the blank-feeding mechanism so that this latter shall be periodically stopped and held at a predetermined point, thereby insuring that the envelop-blank is cut and folded at the proper points.

I further desire to provide a machine having the above elements so constructed and assembled that it shall as a whole be of relatively simple construction and inexpensive as regards the labor and material involved in its production.

These objects, together with other useful results more fully set forth hereafter, I secure as follows, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of one side of my improved envelop-making machine. Fig. 2 is an elevation of the opposite side of the machine. Fig. 3 is a plan view of the structure shown in Figs. 1 and 2. Fig. 4 is a perspective view, on a somewhat enlarged scale, illustrating the detail construction of certain of the dies as well as of the paste-cups, together with the mechanism for operating these parts. Fig. 5 is a perspective view illustrating the detail construction of the cutting-off die and one of the feed devices, together with the mechanism for operating the same, certain portions of the machine being omitted from this figure, as well as from Fig. 4, for the sake of clearness. Fig. 6 is a perspective view showing the feed-rollers and the side following devices. Fig. 7 is a perspective view showing the detail construction of a portion of the mechanism for operating the feed-rolls, and also illustrating the brake employed for checking their movement at a predetermined time, it being understood in this figure, as well as in Figs. 4, 5, and 6, certain parts of the machine have been omitted for the sake of clearness. Fig. 8 is a perspective view of the longitudinal scoring devices. Fig. 9 is a perspective view of the adjustable cam for varying the length of time during which the paste wheels or rollers remain in engagement with the web of paper or envelop-blank. Fig. 10 is a side elevation of a portion of the ratchet mechanism shown in Fig. 7. Fig. 11 is a plan view of a portion of the paper web during its passage through the machine, showing the various steps in its formation into envelop-blanks; and Fig. 12 is a front elevation of a finished envelop made by my machine.

In the above drawings, A is the frame of the machine, the main portion of which is composed of two side panels *a*, which in the present instance are illustrated as resting upon a floor, but which may, if desired, be supported in any desired manner upon legs or standards. These panels which, as shown in Fig. 3, are parallel to each other, have projecting from their rear ends two brackets a', formed with bearings for the support of a shaft a^2, carrying the roll or web of paper from which envelops are to be made. This roll is positively driven by a pair of friction-disks a^3 and a^4, the latter of which is carried on a shaft a^5 continuously driven through a train of gears from the main driving-shaft a^6, on which is a driving-pulley a^{14}, as shown in Fig. 2. The speed of revolution of the roll-carrying shaft a^4 may be varied by moving the friction-disk toward or from the center of the disk a^3 by proper manipulation of a nut a^7 on a screw a^8, which has an arm in engagement with a collar a^9, fixed to the disk a^4. Revolution of

the nut therefore moves the screw a^8 longitudinally, and consequently slides the friction-disk a^4 on its shaft a^5.

From the roll a^2 the web of paper passes over rolls or small shafts b and b' and under rolls b^2 and b^3, and thence through mechanism hereafter described to a pair of feed-rolls c and c', carried on shafts c^2 and c^3, supported in bearings in upwardly-projecting frames or standards C, adjustably held to the side panels of the frame of the machine, as hereinafter set forth.

In order to drive the feed-rolls, I provide a crank d, fixed to a shaft d', on which is carried one of the train of gears driven from the main shaft a^6 and heretofore referred to as "driving" the shaft a^5. This crank is slotted for the reception of one end of a connecting-rod D, made in two sections d^2 and d^3, telescoping into one another, as shown in Fig. 1, and connected at its opposite end to a toothed segment d^4. The crank end of section d^2 may be moved in the slot of said crank toward or from the crank center, and the two sections of the connecting-rod may be moved together or pulled apart to adjust the length of said rod by properly loosening the nuts d^{10}. As illustrated in Fig. 7, the teeth of the segment d^4 mesh with a pinion e, loosely carried upon the shaft c^3 and having fixed to it an arm e', provided at its upper end with a pawl e^2, shaped to engage the teeth of a ratchet-wheel e^3, keyed or otherwise fixed to the shaft c^3. Fixed to said pawl, so as to be movable upon its pivot, is an arm e^4, projecting toward the shaft c^3 and having on its inner end a head loosely engaged by one end of an arm e^5, movably mounted upon the shaft c^3, and yet so fitted that there is considerable friction between it and said shaft.

The two standards C in the present instance consist of plates or frames extending each parallel with one of the side panels a of the frame of the machine and slidably resting upon the upper edge of said panel, which is faced off to serve as a guideway or slide. In each of the side panels are two elongated slots a^{10} and a^{11} for the reception of bolts a^{12}, screwed into each standard.

On the opposite end of the shaft c^3 from that having the ratchet-wheel e^3 is a gear c^4, meshing with a similar gear c^5 on the shaft c^2, so as to drive the upper feed-roll c. This roll consists of a number of parallel disks or rolls, as shown in Fig. 6, or it may be described as a roll having a number of annular recesses, whose distance apart depends upon the distance between the two lines along which paste is applied to an envelop-blank. In the present instance there are five sections to this feed-roll, and this latter, as a whole, is pressed toward the lower roll c' by springs c^{13}, active upon the bearings, in which is carried the shaft of the roll c. Carried upon portions A' of the side panels of the frame A is a die-plate F, having adjacent to each of its longitudinal edges an oscillatory knife f, which has projecting lugs f', fixed to a bar f^2, supported in bearings f^3.

Fixed to that end of each of the shafts nearest to the feed-rolls c and c' is an arm f^4, slotted at its outer end for the reception of a block f^5, attached to a bar f^6, which projects rearwardly and horizontally therefrom longitudinally of the machine. Said latter bar is fixed to and extends at right angles from a vertically-movable shaft f^7, reciprocated by means of an eccentric f^8, fixed to the shaft f^9, which is driven from one of the gears connecting the main shaft a^6 and the shaft a^5, as shown in Fig. 2, there being an eccentric-rod f^{10}, connecting said eccentric to the lower end of the shaft f^7. Each of the bars f^6 has upon it two arms f^{11}, respectively, projecting toward each other and supporting between them a pair of vertical plates f^{12}, having sharp lower edges and serving as transverse scorers for the web of paper.

In line with the edges of the knives f and between the rear ends of the same and the rolls b b', &c., is a shaft g, carrying a pair of scoring-disks g', each of which has coacting with it a grooved disk g^2, carried upon a shaft g^3. Both pairs of these disks are fixed to their respective shafts by set-screws, so as to be adjustable toward and from each other to suit various widths of envelop-blanks.

Just in front of and beyond the die-plate F and the knives f is a shaft H, carried in bearings in brackets h, projecting upwardly from the side panels of the frame, which brackets also have the bearings f^3 for shaft f^2 and having a pair of paste-cups h' adjustably fixed to it in such manner that as said shaft is oscillated the forwardly-projecting and lower front portions of said cups are raised and lowered. From Figs. 3 and 4 it will be seen that these cups may be moved upon their shaft H toward and from each other, and for oscillating said shaft there is provided an arm h^3, fixed to it and connected to a downwardly-extending bar h^4, attached by a link h^5 to one arm of a bell-crank lever h^6, loosely mounted upon the main driving-shaft a^6. The second arm of this lever carries a roller h^7, which engages with the periphery of a cam J, preferably of the construction shown in Figs. 4 and 9. This cam is carried on the shaft f^9 and has movable segments j and j' adjustably held to its body by means of screws j^2.

By loosening the screws j^2 and moving the segments j and j' the times at which the bell-crank lever h^6 is oscillated may be varied, so as to correspondingly vary the times during which the lower ends of the paste-cups are in their normal or lowered position—that is, with the past-distributing rollers h^8 in engagement with the web of paper. One of said rollers h^8 projects into the bottom of

each paste-cup through a suitable slot therein and is supported so that it rests upon the web of paper when the paste-cup h' is in its normal position, it being fixed to a shaft h^9, journaled in the sides of the cup. This shaft has fixed to it a pinion h^{10}, driven from a shaft k, through pinions k' and k^2, there being a belt k^3 extending between pulley-wheels, respectively, on shafts k and c^2.

In Fig. 5 is shown the mechanism for finally cutting off and folding the envelop-blanks, this consisting of a stationary knife or die-plate M, extending transversely of the machine and having an oscillatory knife m parallel to and coacting with it. This knife m is carried on a pair of arms m', fixed to a shaft m^2, to which is also attached a downwardly-projecting arm m^3, having fixed to it a bar m^4. Said bar is adjustably engaged with one arm p of a lever P, loosely carried on the main shaft a^6 and provided with two other arms p' and p^2, on the latter of which is a roller p^3, held in engagement with a cam p^4 on the shaft f^9 by means of a spring p^5. Said spring is confined between a bracket p^6 projecting from the side panel a of the frame A, and a nut p^7 on a rod p^8, attached to the third arm p' of said lever. It will be noted from Fig. 5 that with this arrangement of parts the knife m is normally retained in an elevated position, and consequently also maintains elevated a plate q^2, which constitutes part of the final folding mechanism for the envelop-blanks. Said plate is carried on a bar q', slidingly adjustable on two bars q, adjustably held at one end in the casting extending between the arms m' and carrying the knife m. Said plate q^2 acts between two rollers q^3 and q^4, carried in bearings at the upper part of frames or standards Q, adjustably carried by the side panels of the machine-frame in a manner similar to that in the case of the plates C—that is to say, they are held in position by stud-bolts q^5, which pass through the slots a^{10} and a^{11}, so as to permit of said plates Q and the mechanism carried by them being moved toward and from the plates C and the mechanism thereon. The roller q^3 is carried in a movable bearing yieldingly pressed toward the roller q^4 by means of springs q^6, said roller q^4 being driven by means of a belt q^7, passing around pulley-wheels q^{10} and a^{14}, respectively, on its shaft and on the main driving-shaft a^6. A gear q^8 on the shaft of roller q^3 meshes with a second gear q^9 on the shaft of roller q^4, thereby driving the latter. Said belt also passes over a pulley-wheel r, fixed to the shaft of a roller r', there being a second roller r^2, resting upon said first roller and so placed that the line of contact of the two rollers is in the plane of the web of paper passing through feed-rolls c and c' and over rolls q^3 and q^4.

Between the feed-rolls and the paste-cups h' and adjacent to said rolls is a cross-bar T, carried upon the two plates C and having adjustably depending from it two curved pieces t, which together form a folding throat for turning inwardly the edges of flaps of an envelop-blank prior to its passage through the rolls c and c'. These two pieces have guide-plates t', projecting toward the paste-cup and are provided with set-screws, so that they may after being adjusted toward or from each other be held in any desired position upon the cross-bar T.

In order that the feed-rolls may be instantly stopped from turning as soon as the driving means therefor ceases to act, I provide a brake of the construction shown in Fig. 7. Said brake includes a bar V, extending between the side frame panels and having pivoted to it a shoe v, whose free end is connected to one arm of a lever v' by means of a link v^2. Said lever is loosely carried upon the shaft a^6 and is provided with a roller v^3, coacting with a cam v^4 upon the shaft f^9. Said cam is so adjusted on the shaft that at predetermined times it turns the lever v' and forcibly draws the shoe v against the roller c', thereby preventing further rotation of the roll for the time being.

Under operating conditions the roll a^2, upon which is carried the web of paper, is continuously rotated from the driving-shaft a^6, so that said web is delivered therefrom and falls in a loop between said roll and the roll b. Since by means of the crank d, connecting-rod D and segment d^4, the pinion e is alternately revolved in opposite directions, it will be seen that the pawl e^2 is alternately engaged with and disengaged from the ratchet-wheel e^3, thereby intermittently turning the two feed-rolls c and c'. By means of the device shown in Fig. 7 the pawl is raised from engagement with the teeth of said ratchet-wheel as soon as the pinion e, and with it the arm e', start to move backward, since the arm e^4, and with it the pawl, is caused to turn on its pivot by means of the piece e^5 immediately upon reversal of the direction of movement of the arm e'. Similarly when the movement of the pinion is again reversed said piece e^5 by reason of its frictional bearing on the shaft c^3 again turns the arm e^4 and the pawl on their pivot, and so throws said pawl into engagement with the ratchet-teeth. It will thus be seen that while the paper is fed from its supply-roll continuously it is intermittently taken up by the machine.

During the time that the feed-rolls c and c' are inactive the eccentric f^8 on shaft f^9 causes the bar f^7 to be moved downwardly, thus bringing the two bars f^6 bodily nearer to the die-plate and causing the blocks f^5 on said bars to slide in the slots of the arms f^4, so as to oscillate the shafts f^2 in their bearings and cause the knives f to move downwardly past the shearing edges of the die-plate F.

There is thus cut in each side of the web of paper an elongated recess, as indicated at x in Fig. 11, it being noted that previous to such action the scoring-wheels g' and g^2 make longitudinal scores in the web in the line of cut of said knives. The bodily downward movement of the bars f^6 brings the transverse scoring-plates f^{12} into engagement with the web of paper along the lines indicated at x' and x^2, and after this operation knives and score-plates are raised and the feed-rolls c and c' move the web forward through the length of one envelop-blank, (indicated in Fig. 11 at x^3.)

The cam J on the shaft f^9 is so set that as the web is moved under the front lower portions of the paste-cups the rollers h^8 for feeding the paste from said cups are permitted to rest upon the portions of said web (indicated at x^4) until said web has been moved so that the transverse score-line comes adjacent to the line of contact of said rollers with the web. When this point is reached, said cam acts and oscillates the paste-cups on their shaft H so as to lift the rollers out of engagement with the web. The next operation of the feed-rolls causes the projecting flaps x^5 to be engaged by the folding throat formed by the curved pieces t, and inasmuch as the web has been scored by wheels g' along the lines x^6 its passage through the feed-rolls causes the turned-in flaps to remain in their folded positions. After passage through said feed-rolls c and c' the end of the web rests in the machine so that the portion indicated by the line x^7 is directly over the shearing edge of the stationary knife M, while the scored line x' is directly over the line of contact of the two rollers q^3 and q^4 and under the edge of the folding-plate q^2. The cam p^4 is therefore so placed on the shaft f^9 that as soon as the feed-rolls have brought the end of the web to the position above noted and have been stopped by the application of the brake-shoe v under the action of the cam v^4 the knife m, and with it the folding-plate q^2, are moved downwardly, the former cutting off the end of the web from the body thereof and the latter starting a double thickness of said web down between the rolls q^3 and q^4, whereby the portions x^4 of said end, to which adhesive material has been applied, are pressed against the outer faces of the inwardly-turned flaps x^5, thereby completing the envelop, which is delivered into any suitable receptacle or conveyer, which, however, is not shown, as it forms no part of the present invention.

The upper feed-roll c is made in a number of sections, as shown, in order that the portions of the paper web to which adhesive material has been applied may pass said roll without sticking thereto or without depositing any of the adhesive material thereon. It will be seen that if it be desired to manufacture envelops of greater width than those for which the machine is set in the drawings the various disks or sections of the feed-roll may be moved upon their supporting-shaft, so as to bring the spaces between sections c^{11} and c^{11} in line with the line of paste deposited by the paste-wheels h^8, operating in the paste-cups. The paste-cups are also movable upon their supporting-shaft toward and from each other, and similarly the gear-wheels k' are also movable upon their shaft k to permit of this adjustment of said paste-cups. In order that the greater width of web may be accommodated and cut to the proper dimensions, the die-plate F and the knives f coacting therewith may be removed and replaced by others of the desired width, the score-wheels g' and g^2 being adjusted upon their supporting-shafts g and g^3 in order to form the longitudinal scoring-lines in the desired positions on the envelop-blank.

When it is desired to produce a longer envelop than would be formed with the various parts of the machine adjusted, as shown in the drawings, I vary the length of the connecting-rod D by slacking off the nuts d^{10} and pulling apart its telescoping sections d^2 and d^3, also correspondingly varying the throw of the crank d. Such adjustment causes the length of web drawn out by one operation of the feed-rolls c and c' to be increased, it being also necessary to move the plates C and Q farther away from the part of the machine carrying the paste-cups, &c., as well as farther away from each other. The folding-plate q^2 will also require to be correspondingly moved upon the bars q, it being understood that the various connecting-belts will have to be lengthened accordingly.

In order that the paste-cups may deposit adhesive material upon the web for a greater distance than originally, it will be necessary to slack off the screws j^2 of cam J and so adjust the segments j and j' that the active portions thereof will not operate the bell-crank lever h^6 so as to raise the rod h^4, and consequently the paste-cup and its feeding-roller, until a later point in the cycle of operations of the machine.

From the above it will be noted that the various parts of the machine may be easily and quickly adjusted, so that it is possible to make envelops of any desired size within very wide limits, and it will be further noted that owing to the particular type of envelop which it is designed to manufacture I am enabled to recover the long pieces of paper web cut off from the sides thereof, where otherwise the same parts have been required in the making of the envelop. Such scrap-paper is of very appreciable value, and its saving constitutes one of the valuable features of the machine.

I claim as my invention—

1. In an envelop-making machine, the

combination of means for feeding a continuous web of material to the machine, means for cutting successive portions from the sides of said web, means for transversely scoring the web, the same being carried by and operated simultaneously with said side-cutting means, means for applying adhesive material to a portion of the web, with means for cutting off and folding successive lengths of said web, substantially as described.

2. In an envelop-machine, the combination of means for feeding a continuous web of material to the machine, means for cutting successive portions from the sides of said web so as to leave projecting flaps, transverse scoring-blades having means whereby they are reciprocated by said cutting means, means for applying adhesive material to a portion of the web, means for folding the flaps, with means for cutting off and finally folding successive lengths of the web, substantially as described.

3. The combination of means for feeding a web of material, means for cutting successive elongated portions from the sides of the web, means for applying adhesive material to said web in lines parallel with and substantially the same length as the portions cut off from the sides, and means for cutting off and folding successive lengths of said web, said adhesive-applying means being constructed and arranged to operate before the successive lengths have been cut from the web, substantially as described.

4. The combination of means for cutting successive elongated portions from the sides of a web of material, means for transversely scoring successive portions of said web, said means being positively actuated from said cutting means, means for applying adhesive material to the web, and means for finally cutting off and folding successive lengths of the web, substantially as described.

5. The combination of means for cutting successive portions from opposite sides of a web of material, so as to leave projecting flaps, means for longitudinally scoring the web adjacent to the flaps, an oscillatory blade for transversely scoring successive lengths of the web, means for turning the flaps toward each other, means for applying adhesive material to portions of the web, and means for cutting off and folding successive lengths of the web, substantially as described.

6. The combination of means for cutting successive elongated portions from the edges of a web of material so as leave projecting portions forming flaps, means for folding said flaps upon the web, means for applying adhesive material to portions of the web in line with the folded flaps while omitting said adhesive material from said flaps, and means for afterward cutting off and finally folding successive lengths of the web, substantially as described.

7. In an envelop-machine, the combination of means for forming an envelop-blank from a continuous web of material, means for applying adhesive material to said web along predetermined lines, with feed-rolls for moving said web, one of the same including a series of substantially cylindrical portions adjustable toward and from each other, there being spaces between said cylindrical portions in line with the lines along which adhesive material is applied to the web, with means for cutting off and folding said blanks, substantially as described.

8. In an envelop-machine, the combination of means for forming a succession of envelop-blanks from a web of material, means for cutting off and folding said blanks, said forming means including a vibrating knife at each side of the web and a scoring-blade supported by the knife structures so as to act simultaneously with the knives, substantially as described.

9. In an envelop-machine, means for forming, cutting off and folding envelop-blanks from a web of material, with means for applying adhesive material to said web, said forming means including a vibrating knife on each side of the web, a bar extending between said knives and a scoring-blade on said bar, substantially as described.

10. In an envelop-machine, the combination of means for forming, cutting off and folding envelop-blanks from a web of material, said forming means including a shaft on each side of the web, an arm or arms on each shaft, a knife carried by said arm or arms, with two transversely-placed scoring-blades carried by said knife structures, substantially as described.

11. In an envelop-machine, the combination of means for forming, cutting off and folding envelop-blanks, with two containers having a supporting-shaft and adjustable toward and from each other on said shaft, means for delivering material from the containers to the envelop-blanks, and means for oscillating said shaft, substantially as described.

12. In an envelop-machine, the combination of means for forming, cutting off and folding envelop-blanks from a continuous web of material, an oscillatory shaft, two containers movable toward and from each other on the shaft, means for delivering material from said containers to the web and means for periodically actuating said shaft to move said containers so as to cause adhesive material to be applied to the web during predetermined times, substantially as described.

13. In an envelop-machine, the combination of means for forming, cutting off and folding a succession of envelop-blanks from a continuous web of material, an oscillatory shaft, two containers adjustably mounted

thereon, so as to be movable toward and from each other, a wheel for delivering material from each container to the envelop-blanks, and means for periodically oscillating said shaft so as to move said delivery-wheels out of engagement with the blanks, substantially as described.

14. The combination in a machine for forming envelops, of means for cutting off and folding blanks, means for applying adhesive material to the blanks, the same including a reservoir, a delivery-wheel therefor, and means for periodically moving said reservoir to cause the wheel to engage successive blanks, said means including a cam and mechanism for driving the same, substantially as described.

15. In an envelop-making machine, the combination of means for intermittently feeding a continuous web of material, independent vibrating knives having cutting edges extending substantially parallel with and adjacent to the sides of said web, mechanism for operating said knives to cut pieces from the sides of the web, means for scoring the web transversely and means for cutting off and folding successive lengths of said web, substantially as described.

16. The combination in an envelop-machine, of means for forming, cutting off and folding envelop-blanks, an oscillatory reservoir for adhesive material, a delivery-wheel normally in engagement with the web of material, and a cam for causing oscillation of said reservoir, said cam having an adjustable segment and means whereby it is operated, substantially as described.

17. An envelop-machine including means for intermittently feeding a web of material, means for longitudinally scoring the same, independently-operative means for transversely scoring the web, knives acting simultaneously with the transverse scoring means for cutting off portions of the sides of the web, with means for cutting off successive lengths of the web, substantially as described.

18. An envelop-machine including means for intermittently feeding a web of material, means for longitudinally scoring the same, means for transversely scoring the web, knives having means whereby they are caused to operate simultaneously with the transverse scoring means for cutting off portions of the sides of the web along the lines of the longitudinal scoring, means for turning toward each other portions of the sides of the web, and means for cutting off successive lengths of the web, substantially as described.

19. An envelop-machine including means for feeding a web of material, a stationary die-plate, independent oscillatory knives on opposite sides of the same coacting with said die-plate to cut elongated strips from the sides of the web, means for scoring uncut portions of the web in lines substantially coincident with the lines of cut of the said knives, and means for cutting off successive lengths of the web, substantially as described.

20. An envelop-machine including means for intermittently feeding a web of material, means for cutting out, cutting off and folding successive lengths of said web, and a plurality of transverse scoring devices having supporting structures, said devices being adjustable on said structures toward and from each other, substantially as described.

21. An envelop-machine including means for forming, cutting off and folding envelop-blanks, with longitudinally-extending bars each having a plurality of transverse scoring-plates constructed so as to be adjustable toward and from each other on said bars, substantially as described.

22. An envelop-machine including a pair of wheels for longitudinally scoring a web of material, an oscillatory shaft, a blade thereon for transversely scoring said web, means for actuating the shaft, and means for forming, cutting off and folding successive portions of said web, substantially as described.

23. An envelop-machine including means for forming, cutting off and folding a succession of envelop-blanks from a continuous web of material, said forming means including an oscillatory knife at each side of the web structure, a longitudinally-extending bar carried by each of the knife structures, a transverse bar or bars extending between said longitudinal bars and a scoring-blade carried by the transverse bar, substantially as described.

24. An envelop-machine including a stationary die-plate, a shaft on each side of the same carrying a knife, means for causing said knives to act with the said plate to cut pieces out of the sides of a web of material, transverse scoring devices actuated from said knife-operating mechanism, means for feeding the web of material through the machine and means for cutting off successive lengths of the web, substantially as described.

25. An envelop-machine including means for forming, transversely scoring and intermittently feeding a succession of envelop-blanks made from a web of material, means for cutting successive blanks from such web and means for folding said blanks, said last means having a supporting-frame independent of the frame of the machine and adjustable thereon to vary the distance of the folding means from the other mechanism of the machine, substantially as described.

26. An envelop-machine including means for forming, cutting off and folding a succession of envelop-blanks from a continuous web of material, said forming means including an oscillatory knife at each side of the web structure, a longitudinally-extending bar carried by each of the knife structures, a

transverse bar or bars extending between said longitudinal bars and a scoring-blade carried by the transverse bar, said transverse bar being adjustable upon the longitudinal bars, substantially as described.

27. An envelop-machine including longitudinal and transverse scoring devices, means for feeding a web of material to said devices, means for cutting off portions of the sides of said web, means for applying adhesive material to the web along the edges from which said portions have been cut, means for folding inwardly portions of the sides of said web other than those having the adhesive material, said folding means being placed to operate after said adhesive material has been applied, with means for cutting off lengths of the web and folding the same, substantially as described.

28. The combination with means for forming and scoring a succession of blanks from a continuous web of material, of means for feeding said web, a transverse knife for cutting off successive lengths of the web, with folding mechanism for said cut-off lengths, the same being actuated from said transverse knife, substantially as described.

29. An envelop-machine including means for applying adhesive material to a succession of lengths of a web of material, an oscillatory knife with means whereby it is periodically actuated to cut off said successive lengths of said web, a pair of folding-rollers, means for turning the same, and a plate actuated from the knife for moving a cut-off length of said web between said rollers, substantially as described.

30. An envelop-machine including means for applying adhesive material to a succession of lengths of a web of material, an oscillatory knife with means whereby it is actuated to cut off said lengths, folding-rollers having driving means, a plate for starting a length of cut-off material between said rollers and means adjustably connected to said knife for operating said plate, substantially as described.

31. An envelop-machine including means for applying adhesive material to a succession of lengths of a web of material, with a knife for cutting off said lengths and a device including means operated by said knife, for folding said cut-off pieces, substantially as described.

32. An envelop-machine having means for applying adhesive material, an oscillatory knife for cutting off lengths of a web of material, a bar carried by the knife structure, a folding plate on said bar, and folding-rollers, with means for operating the knife and causing the plate to start a length of material between the said rollers, substantially as described.

33. An envelop-machine including means for forming a succession of envelop-blanks from a continuous web of material, means for applying adhesive material to portions of said web, an oscillatory knife for cutting off successive lengths of the web, a bar carried by the knife, a plate on the bar having means for varying its distance from the knife, and folding means placed to coact with the plate, substantially as described.

34. An envelop-machine having means for forming a succession of envelop-blanks from a continuous web of material, means for intermittently feeding the web through the machine, means for intermittently applying adhesive material to the web, and means for cutting off and folding successive lengths of said web, said cutting-off and folding means having a supporting-frame independent of the frame of the machine and being adjustable upon said machine-frame to vary the distance of said cutting-off and folding means from the blank-forming means, substantially as described.

35. An envelop-making machine having a main frame, means thereon for forming, cutting off and folding a succession of envelop-blanks, said cutting-off and folding means being removably supported upon said main frame, and being respectively adjustable thereon to vary their distances from each other and from the blank-forming means, substantially as described.

36. The combination of a supporting-frame, means supporting a web of material thereon, means for forming envelop-blanks from said web including side-cutting knives, scoring mechanism and means for applying adhesive material, with a cutting-off knife having a supporting-frame adjustable as to its distance from the blank-forming mechanism, substantially as described.

37. An envelop-machine including means for forming envelop-blanks from a continuous web of material, a main frame supporting said means and provided with driving mechanism, an adjustable frame movable on said frame, feeding mechanism on said adjustable frame, adjustable means for connecting said feeding means with the driving mechanism, a cutting-off knife, and means for folding pieces of material after they have been cut off, substantially as described.

38. The combination of a frame with two side panels, side-cutting knives and a roll-supporting device carried thereby, a roll on said device, means for applying adhesive material to a web of material delivered from said roll, a framework carrying a feed-roll and a cutting-off knife, said framework being adjustable as to its distance from said side-cutting knives, substantially as described.

39. The combination of a frame having two side panels, side-cutting knives and a roll-supporting device carried by said panels, means for applying adhesive material to a web of material delivered from the roll, a

framework carrying a feed-roll and a cutting-off knife, said framework being adjustable as to its distance from the side-cutting knives, with folding-rollers, a supporting-framework adjustable as to its distance from the cutting-off knives and supporting said folding-rollers, with means for causing successive lengths of material to pass between said folding-rollers, substantially as described.

40. The combination in an envelop-machine, of means for forming envelop-blanks from a continuous web of material, and means for cutting off and folding said blanks, said cutting-off and folding means being removably carried on the frame of the machine and being adjustable thereon to vary the distance from the forming means, with mechanism for operating said cutting-off and folding means, the same including a connecting-rod of adjustable length for permitting adjustment of the cutting-off and folding means, substantially as described.

41. The combination of means for forming envelop-blanks from a continuous web of material, means for applying adhesive material to the blanks and means for cutting off and folding said blanks, said forming means including a device for intermittently feeding the web to the machine and a device having means for varying its speed of operation independently of the remainder of the machine, for continuously unwinding said web from its roll, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEO. W. DIETZ.

Witnesses:

WILLIAM E. BRADLEY,

JOS. H. KLEIN.