June 2, 1931. M. HOLNY 1,808,500

PERFORATING MACHINE

Filed Oct. 22, 1927 6 Sheets-Sheet 1

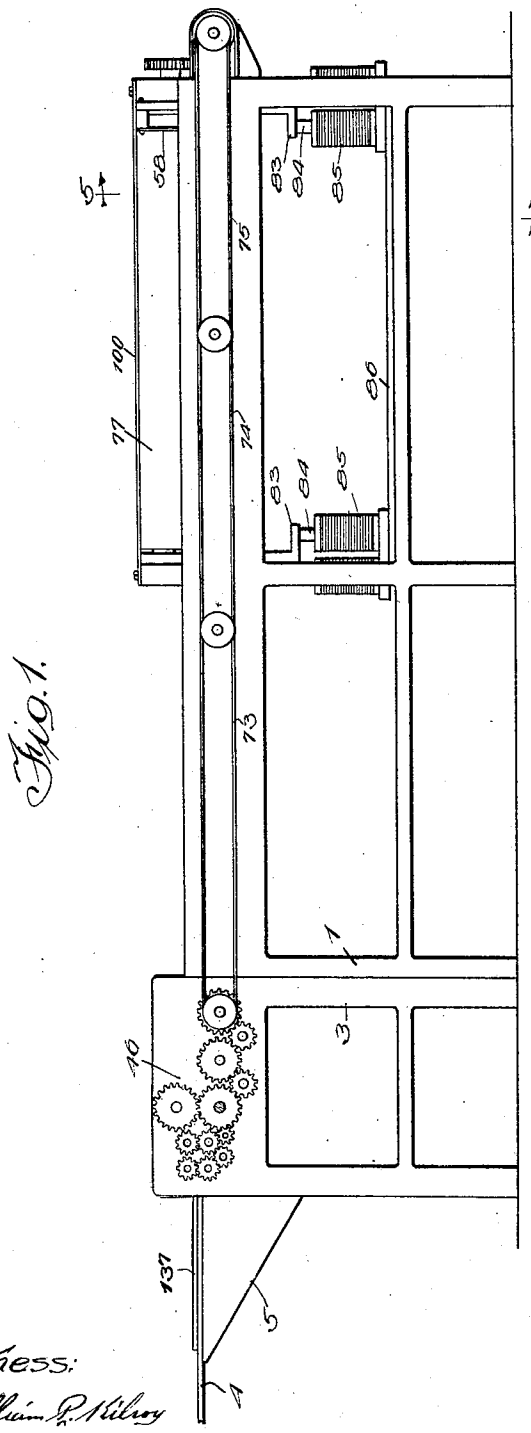


Fig. 1.

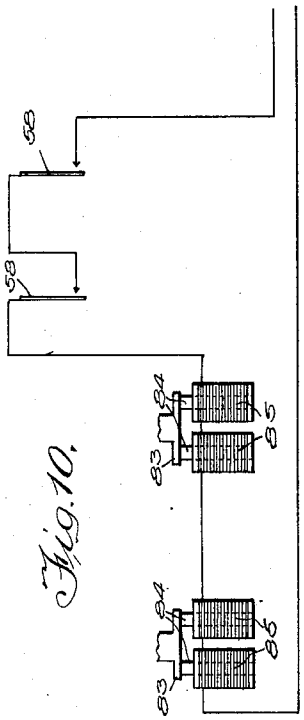


Fig. 10.

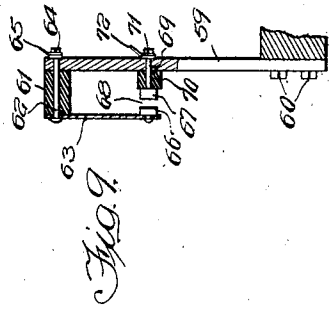


Fig. 9.

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June 2, 1931. M. HOLNY 1,808,500

PERFORATING MACHINE

Filed Oct. 22, 1927 6 Sheets-Sheet 2

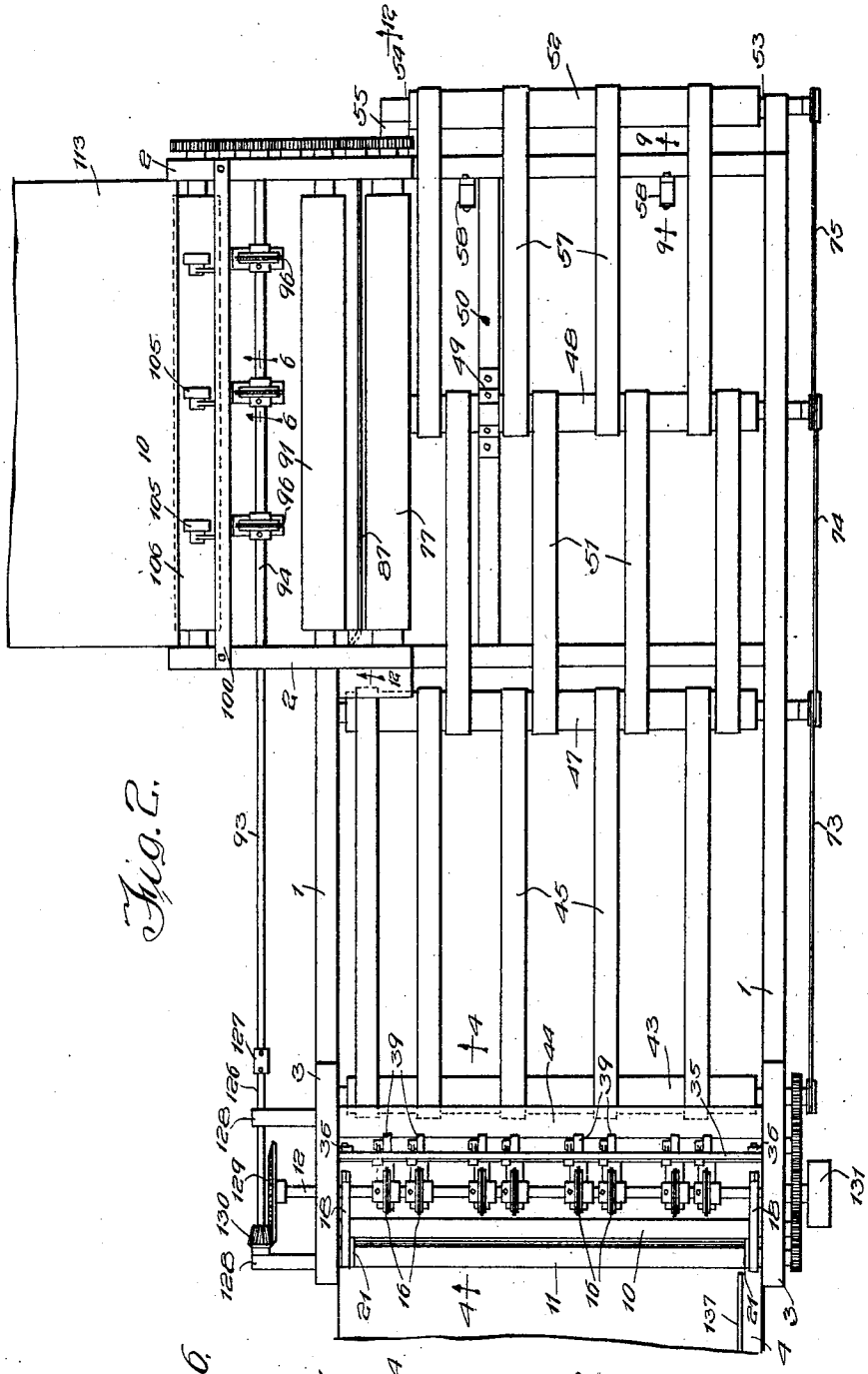


Fig. 2.

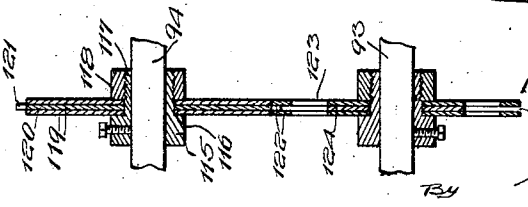


Fig. 6.

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June 2, 1931. M. HOLNY 1,808,500

PERFORATING MACHINE

Filed Oct. 22, 1927 6 Sheets-Sheet 3

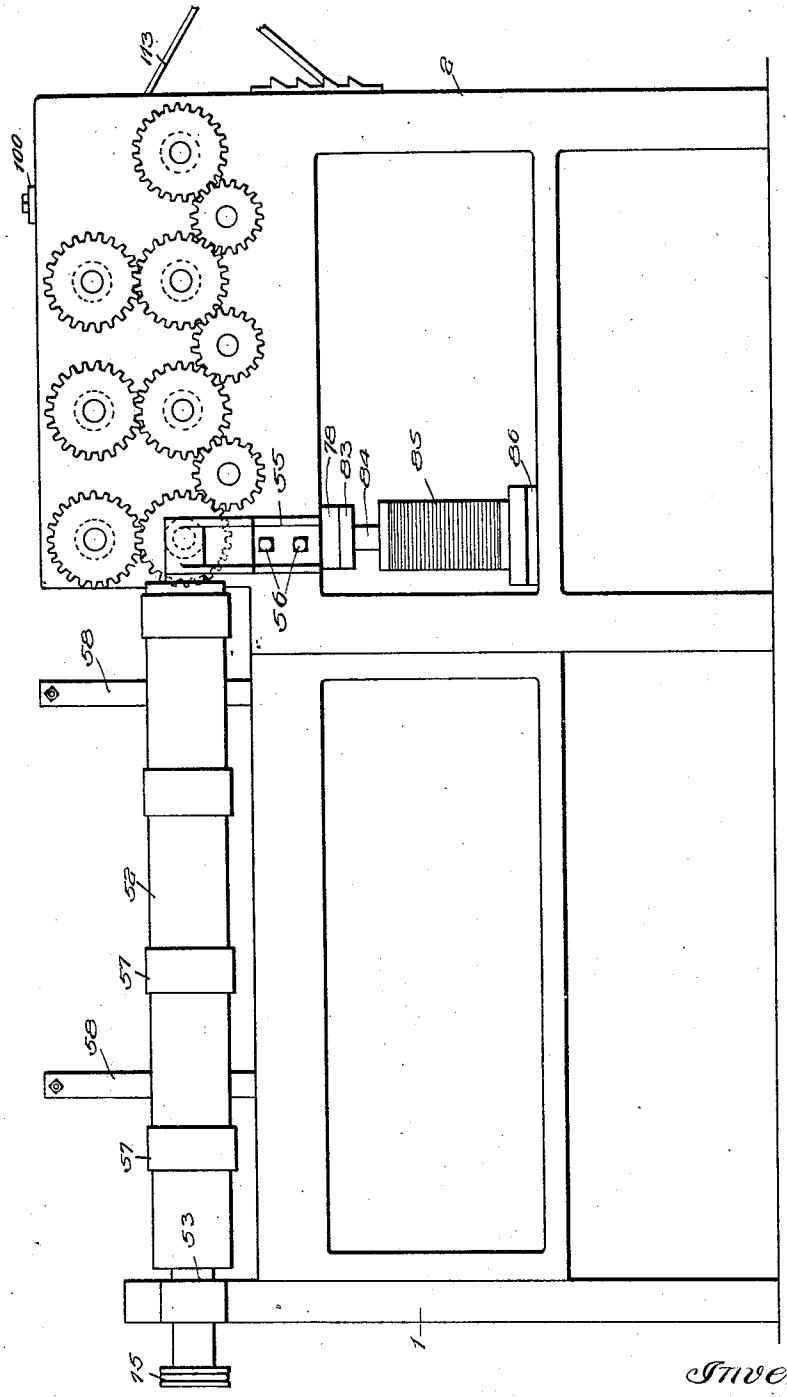


Fig. 3.

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June 2, 1931. M. HOLNY 1,808,500

PERFORATING MACHINE

Filed Oct. 22, 1927 6 Sheets-Sheet 4

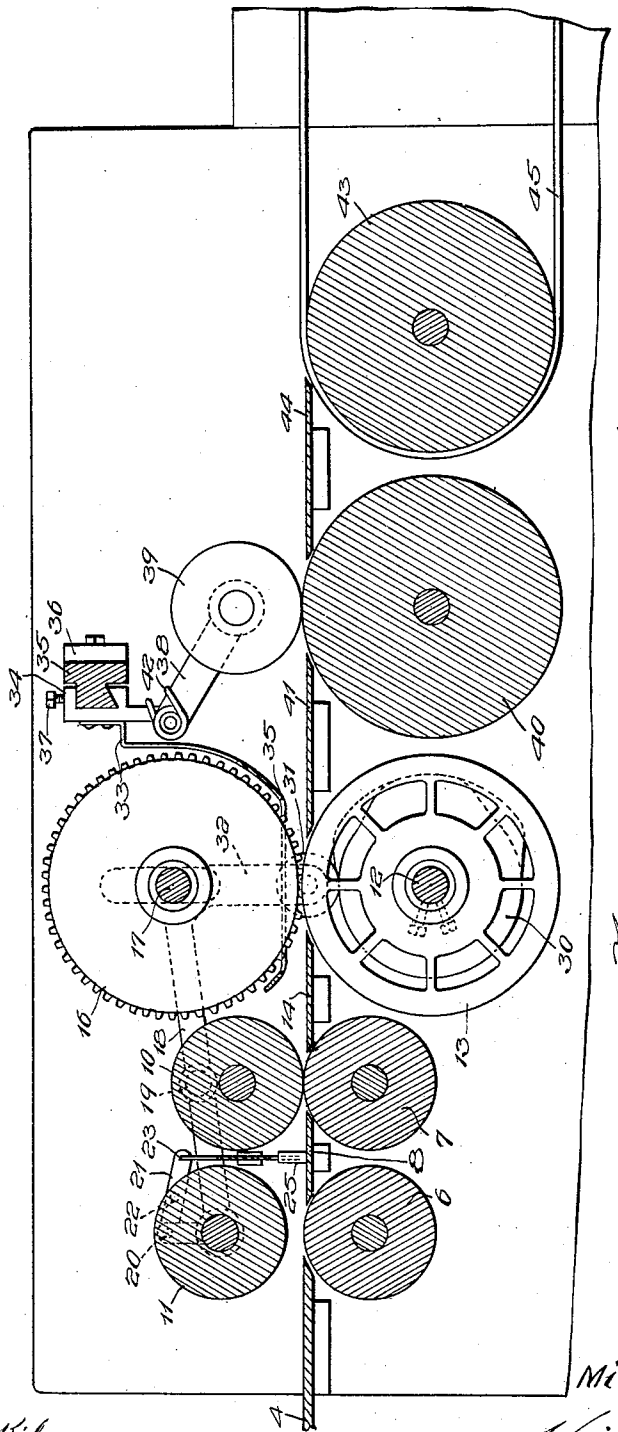


Fig. 4.

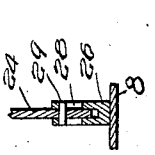


Fig. 6.

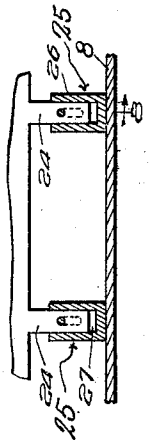


Fig. 7.

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June 2, 1931. M. HOLNY 1,808,500

PERFORATING MACHINE

Filed Oct. 22, 1927 6 Sheets-Sheet 5

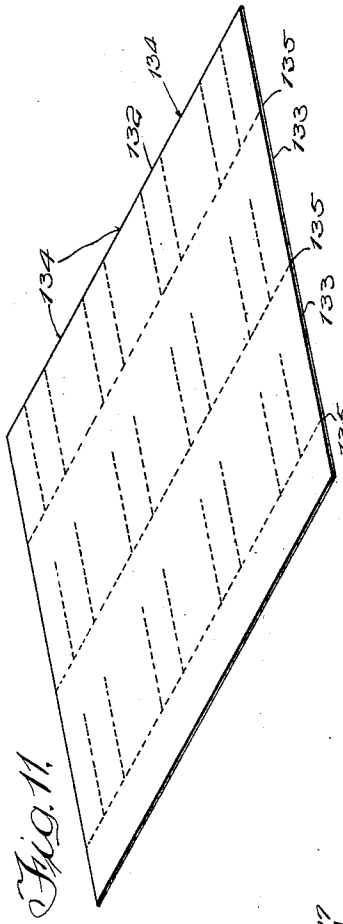


Fig. 11.

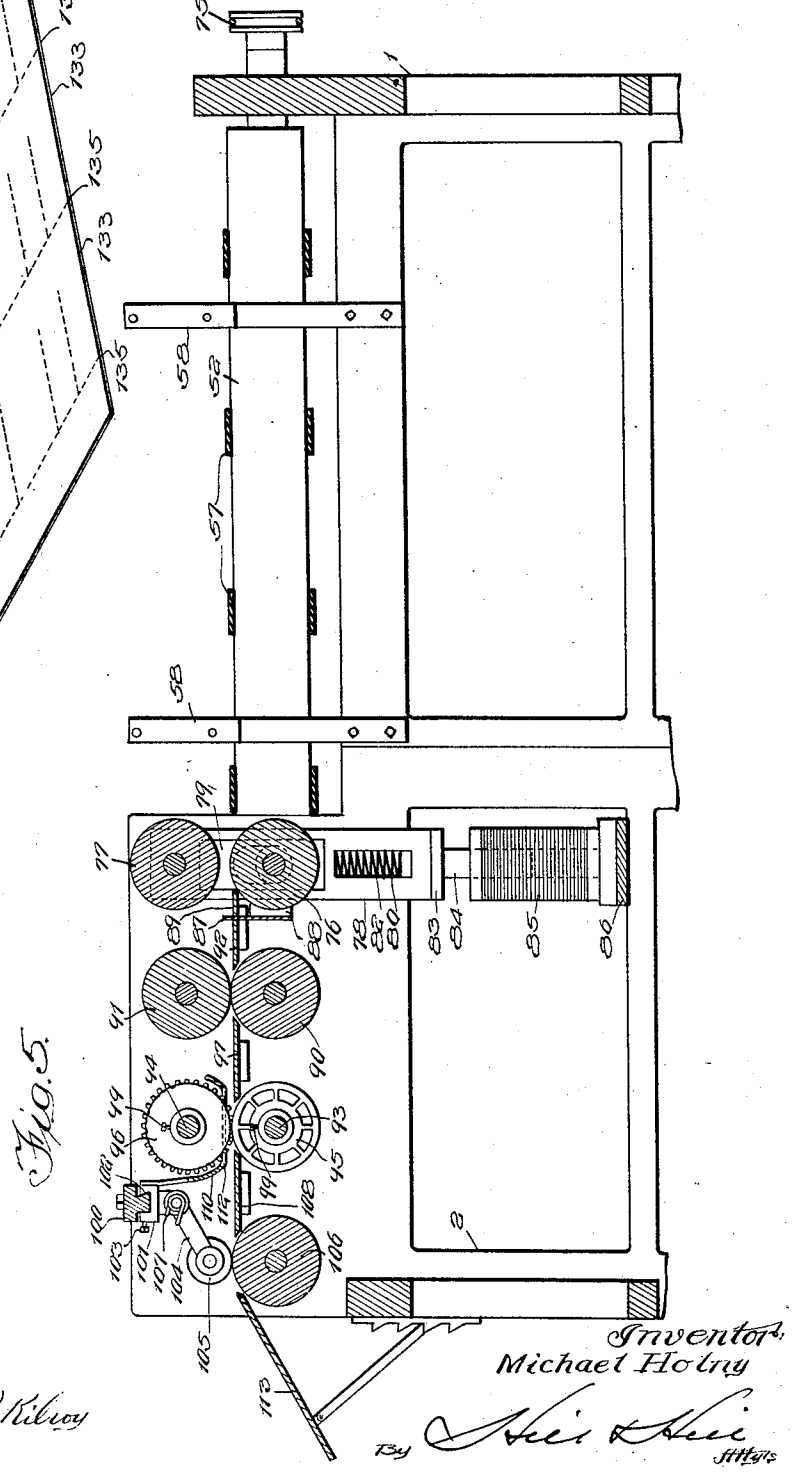


Fig. 5.

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June 2, 1931. M. HOLNY 1,808,500

PERFORATING MACHINE

Filed Oct. 22, 1927 6 Sheets-Sheet 6

Fig. 13.

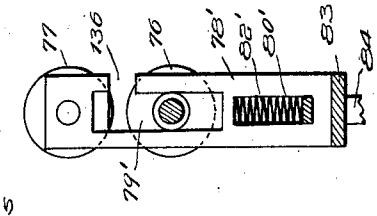
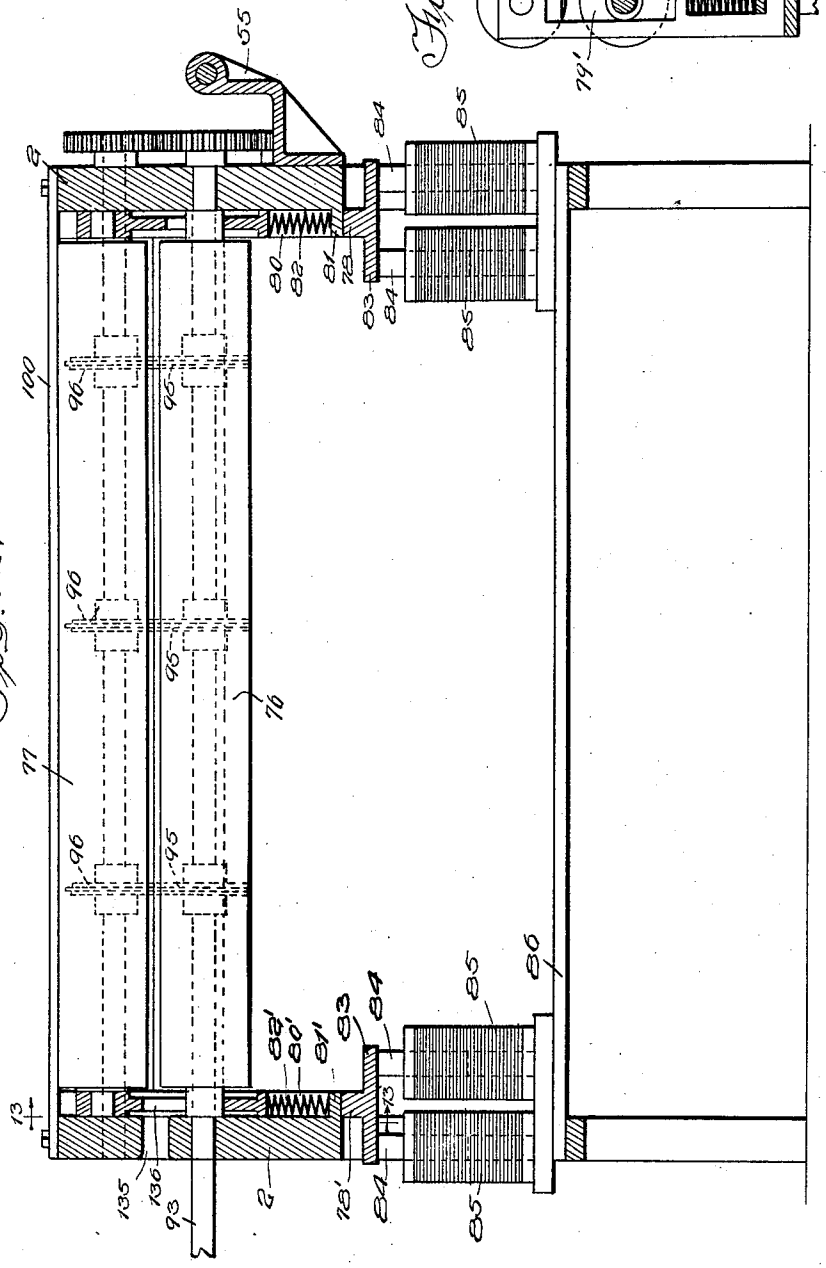


Fig. 12.



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By

Patented June 2, 1931 1,808,500

UNITED STATES PATENT OFFICE

MICHAEL HOLNY, OF CHICAGO, ILLINOIS

PERFORATING MACHINE

Application filed October 22, 1927. Serial No. 228,031.

This invention pertains to the general class of machines adapted for the manufacture of paper articles, and particularly to the class of perforating machines. An object of applicant's invention is to provide a perforating machine whereby the handling of the material is reduced to a minimum.

A further object of applicant's invention is the production of a device whereby material may be perforated in a plurality of directions.

A further object of applicant's invention is the production of a perforating machine simple and durable in construction, of a small number of parts, economical in operation, fool-proof and of high efficiency.

A particular object of applicant's invention is the production of a perforating machine wherein sheets of paper are perforated in a plurality of directions without re-handling of the paper.

A further object of applicant's invention is the production of a perforating machine wherein particular portions of the paper are perforated leaving other portions imperforate, said perforate and imperforate portions occurring at regular intervals.

As far as applicant is aware devices now on the market for the purpose of perforating paper require the paper to be re-handled through the machine in order to procure perforations in more than one direction. Furthermore to applicant's knowledge these machines are not capable of perforating paper or other material in more than one direction, leaving spaces imperforate.

In the form of the invention illustrated in the drawings a machine is provided for the perforation of bank checks, stamps and various similar articles. The checks are made up in book form. In the particular form shown the finished book would have three checks per page. The margins of the checks proper, except those which form a part of the page margin, are perforated in order that they may be readily torn from the book. The check stubs, however, are left imperforate and are intended to be left bound in the book. During the perforating operation several pages of the finished book form one large sheet. In the sheet shown in Fig. 11 there are twelve of these smaller sheets or pages which appear in the finished book. It is apparent, therefore, that during the perforating operation it is necessary when perforating in a longitudinal direction to separate the perforating means at regular intervals in order to leave the space designed for the check stub imperforate. Furthermore, it is readily apparent that the sheet of paper must be timed with respect to the means separating the perforating means in order that the desired portions of the sheet are perforated and other portions of the sheet left imperforate. In other words, the sheet of paper must start forward on its way toward the perforating cutters at a particular position of the means provided to separate said cutters.

In applicant's device in the preferred embodiment the perforating cutters are separated by means of a cam. A stop for the paper is provided, which stop is spaced from the perforating cutters at a predetermined position. The stop is operatively connected with said cam and is removed regularly at a particular position of the cam. In the particular embodiment shown the stop is removed at the same time that the cam spreads the perforating rolls. At the same time that the stop is removed a roller above the sheet is lowered, said roller being opposite a complementary roller below the sheet. Both of these rollers are power-driven and when the upper roller comes in contact with the sheet of paper the paper moves forward. The removal of the stop and the dropping of the roller is simultaneous and occurs at regular intervals. This locates the sheet of paper definitely with respect to the perforating cutters, thus permitting definite portions of the paper to be perforated and other portions to be left imperforate.

Furthermore in order to obviate re-handling of the sheet of paper in order to obtain perforation in a vertical direction (with respect to the finished book) applicant provides means to draw off the sheet of paper side-ways after same has come through the first-mentioned perforating cutters. This device is brought into operation automatically when the sheet of paper has reached, and

has been aligned in, a particular position. The sheet of paper is conveyed from the first perforating cutters in the preferred embodiment by a series of belt conveyors. A plurality of stops are provided in the path of the sheet. Each stop is composed of an electric switch which closes when contacted by the forward traveling edge of said paper. When all of the contacts are closed a solenoid is energized which brings together two rolls which contact a side edge of the sheet. Both of these rolls are power-driven. In this manner the direction of the sheet is changed and the sheet is perforated a second time preferably at right angles to the first perforation.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a side elevation of the perforating machine;

Fig. 2 is a top plan view thereof;

Fig. 3 is an end elevation;

Fig. 4 is an enlarged section taken on the line 4—4 of Fig. 2;

Fig. 5 is an enlarged section taken on the line 5—5 of Fig. 1;

Fig. 6 is a vertical section through a pair of perforating cutters, taken substantially on the lines 6—6 of Fig. 2;

Fig. 7 is a view partly in section illustrating the stop adjacent the first set of perforating rolls;

Fig. 8 is a section taken on the line 8—8 of Fig. 7;

Fig. 9 is a section through a switch member of an aligning stop taken substantially on the line 9—9 of Fig. 2;

Fig. 10 is a diagrammatic view showing the electrical connections;

Fig. 11 is a perspective view of a sheet after being perforated;

Fig. 12 is an enlarged sectional elevation taken substantially on the line 12—12 of Fig. 2; and

Fig. 13 is a view taken on line 13—13 of Fig. 12.

Referring now to Figs. 1 and 2, 1 illustrates a main frame of the machine to which is attached at one end and at right angles thereto the frame 2. Frame 1 is either integral with, or is connected to frame 3 which is the feeding end of the machine. At the end of frame 3 opposite that attached to frame 1 is attached table 4 by suitable brackets 5. Table 4 is located at the feeding end of the machine and is for the convenience of the operator in handling the material to be perforated. In the sides of frame 3 are journaled power-driven rollers 6 and 7 (see Fig. 4). These rollers are in line and the upper portions of same are approximately in the same plane of the platform 4. Between rollers 6 and 7 is a plate 8. Plate 8 is slightly beveled along its longitudinal edges in order to follow approximately the curvature of the rollers, leaving a slight clearance between the beveled portions and each of the rollers. The upper surface of plate 8 is in approximately the same plane as platform 4. Directly above roller 7 and normally in contact therewith is roller 10 suitably journaled in frame 3.

Directly above roller 6 is roller 11 mounted upon movable journals, the purpose of which will be hereinafter set forth. Adjacent roller 7 is shaft 12, upon which are slidably mounted a plurality of perforating cutters 13. The upper surfaces of cutters 13 are in alignment with the upper surfaces of rollers 6 and 7. Between cutters 13 and roller 7 is located plate 14 upon a suitable support. Plate 14 is located between roller 7 and cutters 13 in a manner similar to the location of plate 8, the purpose of which is to provide a continuous path between the rollers for the material passing through the machine. Above each perforating cutter 13 is a complementary perforating cutter 16 slidably mounted on shaft 17. Shaft 17 is journaled at its ends in levers 18, said levers 18 are journaled on trunnions 19 attached to the inner sides of frame 3. Levers 18, however, may be pivotally mounted by any suitable means. Levers 18 at their ends opposite from those which support shaft 17, support roller 11. At the end of each lever 18 adjacent the roller 11 is formed a projection 20 to which is attached one end of a lever 21. Each lever 21 is supported at 22 by suitable means on the inner side of frame 3. Levers 21 are also attached to and support stop support 23 which extends transversely of the machine, and between rollers 10 and 11. At the bottom of stop support 23 are legs 24 (see Figs. 7 and 8). Stop 25 is provided with a plurality of members 26 which are provided with rectangular recesses 27 into which fit legs 24. Members 26 are also provided with slots 28. Members 26 are secured to the legs 24 by means of suitable pins 29 or other means, thus allowing for relative sliding movement between parts 24 and 26. Adjustably attached to shaft 12 at either or both of the outer ends thereof, but within frame 3, are cams 30, which may be of the adjustable type having a plurality of adjustable raised portions. Cams 30 contact rollers 31 attached to the bottom end of followers 32. Followers 32 are attached to members 18. However, a guide may be furnished for followers 32, in which case it is pivoted to member 18. Cam 30 when in operation thus transmits a rocking movement to lever 18, together with

an up and down movement to shaft 17. Opposite each cutter 16 is a stripping mechanism 33 which straddles roller 16 at 35. Stripper 33 is preferably of resilient material, and strips the material from cutter 16 should same have a tendency to follow the cutter after being perforated. Each member 33 is attached to a sliding bracket 34. Sliding brackets 34 are attached to cross support 35 which is secured to the sides of frames 3 by means of brackets 36. Each bracket 34 is secured to cross support 35 by means of a dove-tailed construction as clearly shown in Fig. 4, which permits each bracket 34 to slide sideways on support 35. Each bracket 34 is secured in position by a set screw 37. To the bottom end of each bracket 34 is pivoted one end of a link 38. On the other end of each link 38 is journaled a smoothing roller 39. Adjacent perforating cutters 13 and in the path of the material is roller 40. Between roller 40 and cutters 13 is a suitable plate 41 located similar to plates 8 and 14. Rollers 39 rest on top of roller 40. Each roller 39 is resiliently held in contact with roller 40 by means of a spring 42. The purpose of the rollers 39 is to smooth out the perforations after the paper leaves the perforation cutters. Adjacent roller 40 and in line therewith is a roller 43. Between roller 40 and roller 43 is located a suitable plate 44 located between the rollers similar to the location of plates 8, 14 and 41. Passing over roller 43 are belts 45. At 46 in Fig. 1 is clearly illustrated a gear train for driving the various rollers mounted in the frame 3. The arrangement of these gears will be clearly understood by persons skilled in the art.

Referring now to Fig. 2, 47 is a roller journaled at its ends in the sides of frame 1. Belts 45 pass over the roller 47. 48 is a roller with one end journaled in the side of frame 1 and with its other end journaled in the bearing 49. Bearing 49 is mounted on the member 50 of frame 1. Passing over rollers 48 and 47 are belts 51. 52 is a roller with one end 53 journaled in the end of frame 1 and with its other end 54 journaled in the bracket 55. Bracket 55 is secured to the side of frame 2 by bolts 56. Passing over rollers 48 and 52 are belts 57. It is clearly seen that belts 45, 51 and 57 form a continuous conveyor. Mounted on the frame 1 and between belts 57 are stops 58. Stops 58 comprise an upright standard 59 (see Fig. 9) secured to the frame 1 by suitable bolts 60 or other means. The upper end of stop 58 comprises an electric switch which is formed as follows: 61 is a spacing member with a hollow bore through which bolt 62 passes. Bolt 62 also passes through standard 59. Intermediate the head of the bolt and the member 61 is a resilient conducting member 63. Bolt 62 is held in place by burr 64 which contacts electrical connection 65 which fits over bolt 62. At the bottom of member 63 is a contact 66 which is opposite a similar contact 67 normally forming therewith a gap 68. Contact 67 is mounted on the standard 59 by means of a bolt-like member 69 integral therewith and spaced from the standard 59 by means of member 70. The end of member 69 is threaded and a burr 71 provided therefor. An electrical connection 72 fits over member 69 and the entire assembly securely held to the standard 59 by means of the burr 71. In the preferred embodiment of the invention, standard 59 is preferably of insulating material. However, any form of construction may be employed such that contacts 66 and 67 and the leads thereto are normally insulated from each other. It is readily seen that an electrical contact is established by pressing the member 63, thus bringing contacts 66 and 67 together.

Motion is transmitted to rollers 47, 48 and 52 from roller 43 by means of a belt train comprising belts 73, 74 and 75. Stops 58 project into the path of the material on belts 57 such that the material will contact member 63 of each stop 58 upon coming to the end of its path, thus closing the electrical circuit through the stops 58. I preferably provide a plurality of stops in order that the paper will align itself. The stops are connected in series electrically and it is readily understood that a complete electrical circuit is not effected until the material is in contact with all of the stops.

Mounted in the sides of frame 2 and parallel with belts 57 and 51 is roller 76 (see Fig. 5). Roller 76 is so mounted that it will contact the side edge of the paper as it travels toward stops 58. Mounted above roller 76 is roller 77. The ends of roller 77 are journaled in sliding members 78 and 78′. Members 78 and 78′ are slotted as shown at 79 and 79′ (see Figs. 5 and 13) through which the supporting ends of roller 76 project. The supporting ends of roller 76 are journaled in the sides of frame 2. Members 78 and 78′ are additionally slotted as shown at 80 and 80′. Within these slots project spring supporting brackets 81 and 81′, respectively, formed integral with the sides of frame 2 as shown clearly in Fig. 12. Mounted between the upper ends of slots 80 and 80′ and brackets 81 and 81′ are springs 82 and 82′, respectively. Springs 82 and 82′ are compression springs and normally hold roller 77 upward out of contact with roller 76. At the bottom of members 78 and 78′ are cross pieces 83 to which are secured cores 84. Cores 84 form a part of solenoids 85 and move along the longitudinal center line thereof to operate members 78 and 78′ as will be hereinafter set forth. Solenoids 85 are suitably mounted upon member 86 of frame 2. The electrical circuit through solenoids 85 is connected in series with stops 58 through a source of elec-

trical energy, not shown, such that when all of the stops 58 are engaged by the material on the belts 57, such as to close the electrical switches of stops 58, the solenoids are energized, thus drawing roller 77 down in contact with roller 76. Adjacent roller 76 is stop 87. Stop 87 is mounted on the brackets 88 formed integral with members 78 and 78′ or secured thereto. Between stop 87 and roller 76 is a plate 89. Adjacent roller 76 is roller 90 journaled in the sides of frame 2. Above roller 90 is a complementary roller 91 also journaled in the sides of frame 2. Between roller 90 and stop 87 is a suitable plate 92. Adjacent rollers 90 and 91 and mounted on the shafts 93 and 94, respectively, are a plurality of perforating cutters 95 and 96, respectively. Between perforating cutters 95 and roller 90 is a plate 97. Cutters 95 and 96 are slidably mounted upon shafts 93 and 94, respectively, and are secured in position by set screws 99. Mounted cross-wise on frame 2 and adjacent rollers 96 is a bracket support 100 upon which are slidably mounted brackets 101 which form therewith a dove-tailed connection shown clearly at 102. Brackets 101 are held in position by set screws 103. At the bottom of each bracket 101 is pivotally mounted a link 104. At the other end of each link 104 is mounted a roller 105. Adjacent cutters 95 and in line therewith is a roller 106. Roller 106 is journaled in the sides of frame 2. Rollers 105 are directly above roller 106 and each is held normally in contact therewith by a spring 107 mounted about the pivotal connection between each link 104, and each bracket 101. The purpose of rollers 105 is to smooth out the perforations after the paper leaves perforating cutters 95 and 96. Between cutters 95 and roller 106 is a plate 108. Mounted upon each bracket 101 is a resilient member 110. Each resilient member 110 straddles a cutter 96 at 112. The purpose of the resilient members 110 is that of stripping from cutters 96 material that has a tendency to follow the cutter. The operation of the stripper will be readily apparent to persons skilled in the art. Table or plate 113 may be placed adjacent roller 106 to receive the material as it leaves the machine. In Fig. 3 is clearly shown a gear train for the purpose of driving the rollers and cutter shafts 93 and 94 journaled in the sides of frame 2.

Referring now to the upper perforating cutter shown in Fig. 6, 115 represents a collar reduced at one end to form a shoulder 116, said reduced portion being threaded as shown at 117 accommodating an internally threaded collar 118. Collars 115 and 118 secure therebetween the members composing an upper perforating cutter (either 16 or 96) composed of disk-like side members 119 and central member 120. Member 120 has formed upon its peripheral edge projections 121 which, together with the complementary space 125 in the lower perforating cutter, form a die. The lower perforating cutters 13 and 95 both being similar are secured to their respective shafts 12 and 93 by means similar to that just described for the upper perforating cutters 16 and 96. The side disks 122, however, are formed with apertures 123 in order to allow for the escape of the waste material pressed from the paper during the perforating operation. Central disk 124 is merely a spacer. Members 121 press small portions of material from the paper going through the perforating cutters thereby forming the perforations. Shaft 93 upon which are mounted perforating cutters 95 projects through the frame 2 and connects to the shaft 126 by means of a sleeve 127. Shaft 126 is journaled in brackets 128 on the frame 3. Shaft 12 extends through the side of frame 1 and has attached thereto, bevel gear 129. Shaft 126 has attached at one end thereof, bevel pinion 130 which meshes with ring gear 129. Shafts 12 and 93 are thereby operatively connected. Power is furnished to the perforating machine by means of a pulley 131 on the other end of shaft 12. The operation of the device is as follows:

The sheet of paper is placed against the stop 25 and guide strip 137 on table 4. When cam 30 rotates such as to raise shaft 17 and therewith perforating cutters 16 and therewith the inner ends of levers 18, roller 11 being mounted on the other ends of levers 18, is lowered into contact with the paper and stop 25 is simultaneously elevated by means of levers 21. The paper is thus firmly engaged between rollers 6 and 11 and moves forward. Stop 25 is spaced from the perforating cutters at a predetermined distance such that the edge of the paper just reaches the perforating cutters 16 as the cam lowers the cutters 16. Rollers 7 and 10 cooperate in advancing the paper into the perforating cutters. The paper having reached the perforating cutters just as the cam has closed same, the paper will be perforated until the raised part of the cam again raises the shaft 17. This latter action leaves a space unperforated. When the cam again lowers cutters 16, the paper is again perforated. The unperforated spaces are repeated when the cam again raises cutters 16 on shaft 17. Perforated and unperforated spaces are thus formed in the paper. The number of perforated and unperforated spaces in one sheet depends upon the length of the sheet. In the sheet shown in Fig. 11, 132 is the advancing edge. The perforations start immediately at the advancing edge. Three alternate perforated and unperforated spaces are formed in the sheet shown. The sheet shown is 36″ square. The perforated lines are 8″ long leaving unperforated spaces of 4″ in width. The sheet shown in Fig. 11

will be cut along the imaginary lines 133 by suitable means and each one of the sections thus formed will be cut transversely along imaginary lines indicated by arrows 134. However, before the sheet shown in Fig. 11 is cut as thus indicated, same is perforated in the opposite direction along lines 135. As the paper leaves perforating cutters 13 and 16, the perforated portions are smoothed out by means of rollers 39 and 40 and the paper delivered to belts 45. Belts 45 deliver the paper to belts 51. Belts 51 deliver the paper to belts 57 which cause the leading edge of the paper to abut stops 58. The side edge of the paper passes through slot 135 in frame 2 (see Fig. 12) and slot 136 in sliding member 78′ and is engaged by roller 76, but is held from traveling further in a sidewise direction by stop 87. When the material abuts both stops 58 and closes the contacts thereof, the electrical circuit through the solenoids 85 is closed. The cores 84 of the solenoids 85 are drawn downward into the solenoids thus pulling roller 77 downward and into contact with the top of the paper. Stop 87 is simultaneously moved with the downward movement of roller 77, inasmuch as the brackets 88 which support stop 87 are attached to members 78 and 78′. The paper is drawn off sideways and advanced through the perforating cutters 95 and 96 with the cooperation of rollers 90 and 91. Rollers 105 and roller 106 serve to smooth out the portions that have been perforated. The electrical current is broken as soon as the paper disengages one stop 58 and roller 77 returns to its original position. Brackets 81 and 81′ limit the upward movement of sliding members 78 and 78′. The paper will be engaged by rollers 90 and 91 before the electrical circuit is broken.

The electrical circuit through the solenoids and stops 58 is shown diagrammatically in Fig. 10 and it will be readily understood by persons skilled in the art. The perforating cutters being adjustably secured to their shafts, it is readily seen that same may be adjusted to provide any desired width between the perforated lines. The brackets 34 and 101 are also adjustably mounted and can be adjusted to conform with any adjustment of the perforating rollers.

It will be noted that stop 25 is slidably mounted on its support 23. It is obvious that stop 25 will touch the top of the material under it except when shaft 17 is elevated. However, due to the small weight of the part 25 same does not have a tendency to retard the movement of the material into the machine.

Cams 30 may be of the adjustable type whereby any series of lengths of perforated and unperforated portions may be obtained. Rollers 11 and 77 although on movable journals are driven at all times. The slight up and down movement is not sufficient to disengage their respective gears.

This invention has been described as applied to the manufacture of bank checks; however, it is obvious that the machine in view of the adjustable cams may be readily adjusted for many analogous purposes wherever perforations are desired.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein shown and described, or uses mentioned.

What I claim as new and desire to secure by Letters Patent is:

1. In a perforating machine, perforating means, means for feeding material to said perforating means at desired intervals comprising a stop for said material, a roller on one side of said material, a second roller on the opposite side of said material, one of said rollers having a movable axis, means for urging said rollers together to grip said material at said desired intervals, means for simultaneously removing said stop and means for rendering said perforating means functionally inoperative at desired intervals.

2. In a perforating machine and in combination, means for perforating desired portions of the material leaving spaces imperforate comprising a stop for said material, a roller for engaging one side of said material, a second roller for engaging the opposite side of said material, means for urging said rollers together to grip said material, means cooperating with said urging means for simultaneously removing said stop, coacting perforating cutters spaced from said stop, said material passing between said coacting perforating cutters, and means for periodically separating said cutters, and causing said rollers to grip said material when said cutters are in separated relation.

3. In a perforating machine, means for delivering a partially perforated sheet to an aligning stop, and means controlled by said aligning stop for drawing off said sheet sideways upon said sheet becoming aligned.

4. In a perforating machine, means for delivering partially perforated material to a plurality of aligning stops, and means controlled by said aligning stops for drawing off said material sideways upon said material becoming aligned.

5. In a perforating machine, means for feeding the material comprising a stop for aligning the material, means for removing said stop, means for causing the material to travel forward and to abut a second stop, and means for drawing off the material sideways relative to its first-mentioned course upon abutting said second stop.

6. In a perforating machine, means for perforating the material in one direction and delivering same to a stop, and means for perforating said material at an angle thereto including a roller to receive a side edge of said material, a second stop adjacent said roller in the path of said side edge, a second roller opposite said first roller and on the opposite side of said material, means for moving said rollers toward each other when said material engages said first-mentioned stop, and means cooperating with said last-mentioned means for removing said second stop.

7. In a perforating machine, means for perforating a sheet of material in a plurality of directions comprising means for perforating said sheet of material in one direction and delivering same to a stop, and means for perforating said sheet of material at a right angle thereto including revolving means to receive a side edge of said material, a second stop adjacent said revolving means in the path of said side edge, a second revolving means opposite said first revolving means and on the opposite side of said sheet, means for moving said revolving means relatively toward each other when said sheet of material engages said first-mentioned stop, and means cooperating with said last-mentioned means for removing said second stop.

8. In a device of the kind described, means for conveying material in one direction and means for causing said material to travel in a transverse direction to its original course, including revolving means for engaging a lower side edge of said material, cooperating revolving means above said first-mentioned revolving means and above said material, and electrical means for moving said cooperating revolving means into contact with said material.

9. In a device of the kind described, means for causing material to travel in one direction and means for causing transverse movement of said material said last mentioned means including cooperating rollers relatively movable toward and from each other for engaging a side edge of said material, and means including a solenoid for causing said rollers to move relatively toward each other to engage said material.

10. In a perforating machine, means for perforating desired portions of a material leaving spaces imperforate comprising perforating means, means for positioning said material in said machine in a desired relation with respect to said perforating means, means for periodically advancing said material at desired times, continuously operable material advancing means between said perforating means and said periodically advancing means, and means for rendering said perforating means functionally operative and inoperative at desired consecutive intervals.

11. In a perforating machine, means for perforating desired portions of a material leaving spaces imperforate comprising a stop for said material, a pair of material advancing rollers movable relative to each other, means for urging said rollers together to grip said material, means cooperating with said urging means for removing said stop, perforating means, means operating in timed relationship with respect to said stop removing means and said urging means for rendering said perforating means functionally inoperative, and a second pair of rollers positioned between said perforating means and said first pair of rollers for continuously advancing said material to said perforating means.

12. In a perforating machine, means for delivering a partially perforated sheet to an aligning stop, said stop being provided with a switch operable by said sheet, said switch providing means for controlling means for drawing off said sheet sideways upon said sheet becoming aligned with said stop.

13. In a perforating machine the combination of feeding means, a stop, perforating means and means for simultaneously actuating said feeding means and stop to respectively engage and permit feeding a sheet of material to said perforating means, said actuating means providing means for arranging said perforating means to receive said sheet of material and to actuate said stop to prevent feeding of a second sheet of material to said perforating means when said feeding means is rendered inoperative.

14. In a perforating machine, the combination of means for perforating a sheet of material comprising a stop for said material, feeding means, means for actuating the feeding means to grip the material and for simultaneously moving said stop, perforating means, means for periodically arranging said perforating means to receive said sheet of material and simultaneously causing said feeding means to be arranged to receive a second sheet of material and causing the stop to be arranged to prevent feeding of said second sheet of material to said perforating means during the operation thereof, a second stop adapted to be engaged by one end of said material, and a second feeding means operatively related to said perforating means in a manner to be driven thereby for feeding the material in a direction transverse to that in which it travels upon being discharged from said perforating means, said second feeding means being arranged adjacent said second stop and having means associated therewith for engaging one of the side edges of said material, said second stop having means associated therewith for controlling the operation of said second feeding means.

In testimony whereof, I have hereunto signed my name.

MICHAEL HOLNY.