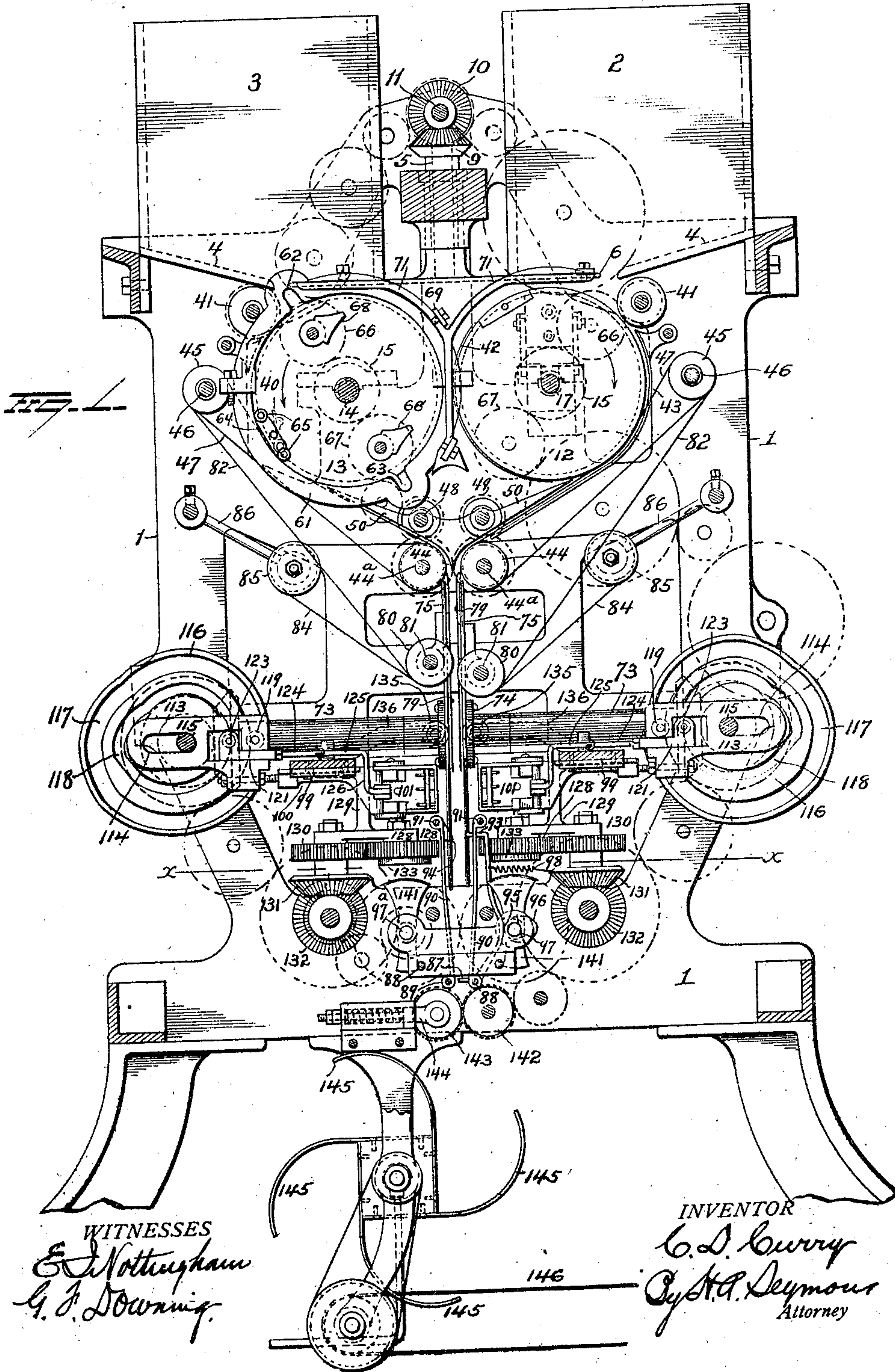


C. D. CURRY.
PAPER ASSOCIATING MACHINE.
APPLICATION FILED JAN. 17, 1910.

Patented Jan. 17, 1911.

982,038.

6 SHEETS—SHEET 1.

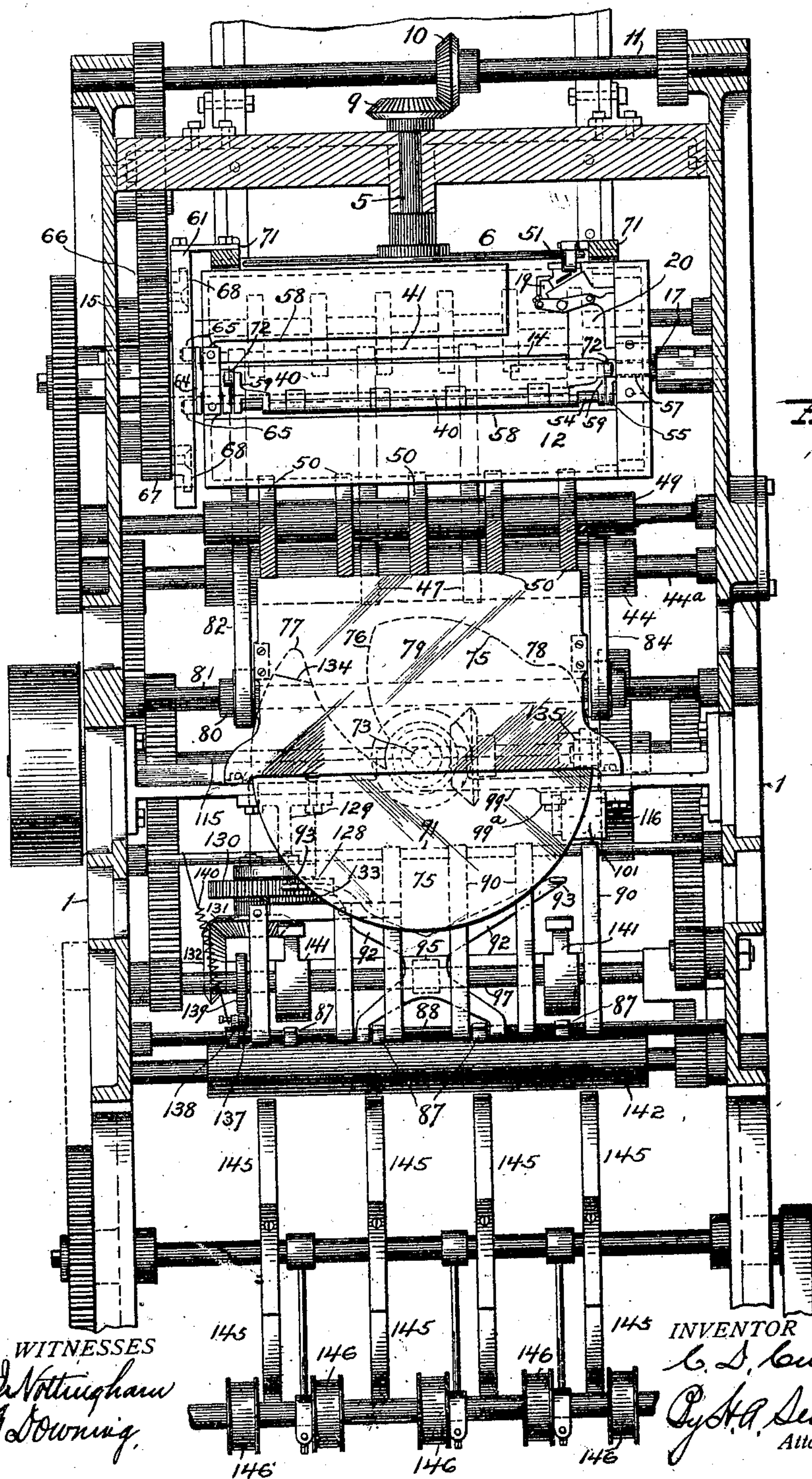


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6 SHEETS—SHEET 2.



WITNESSES
E. J. Nottingham
G. J. Downing

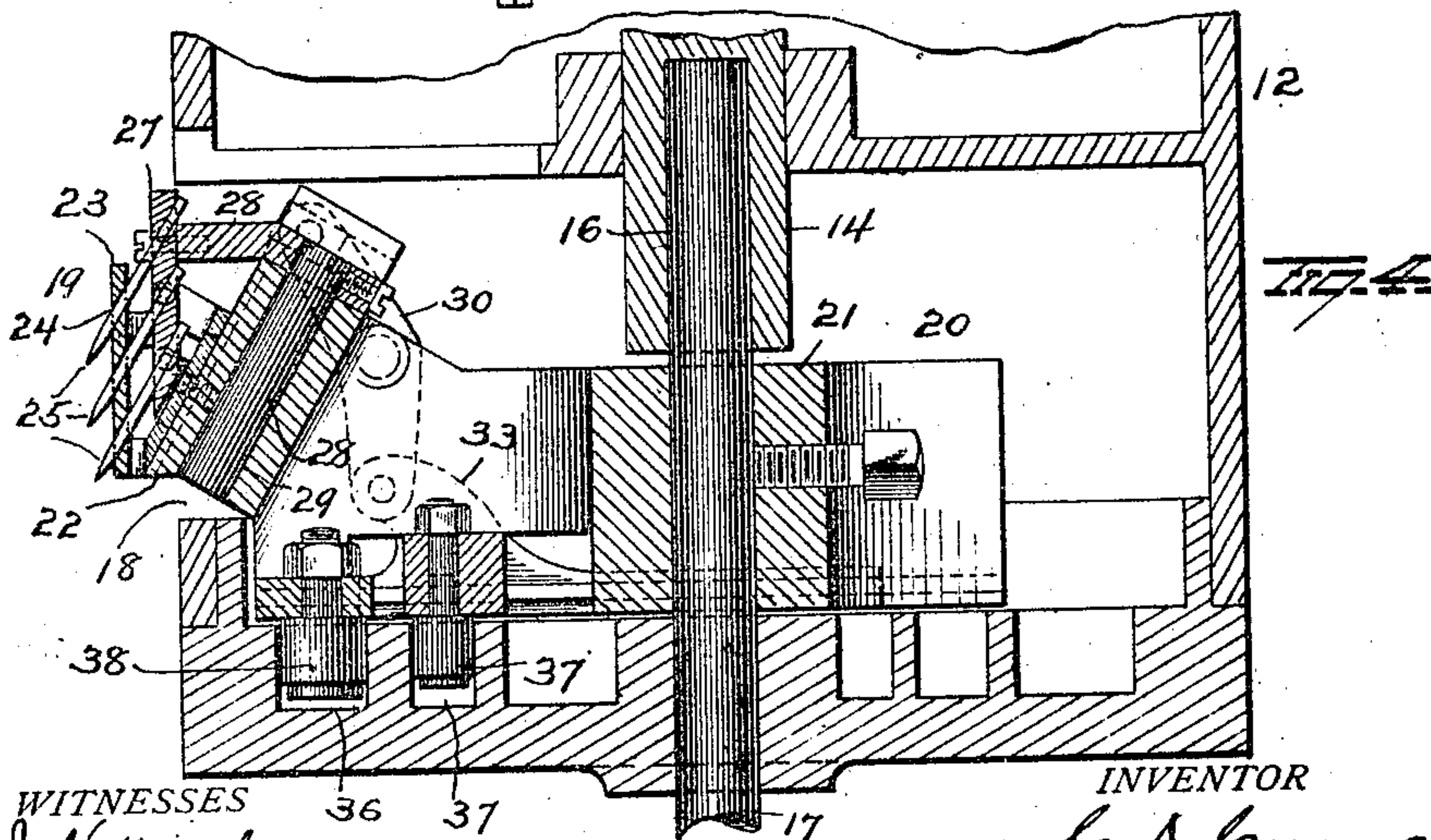
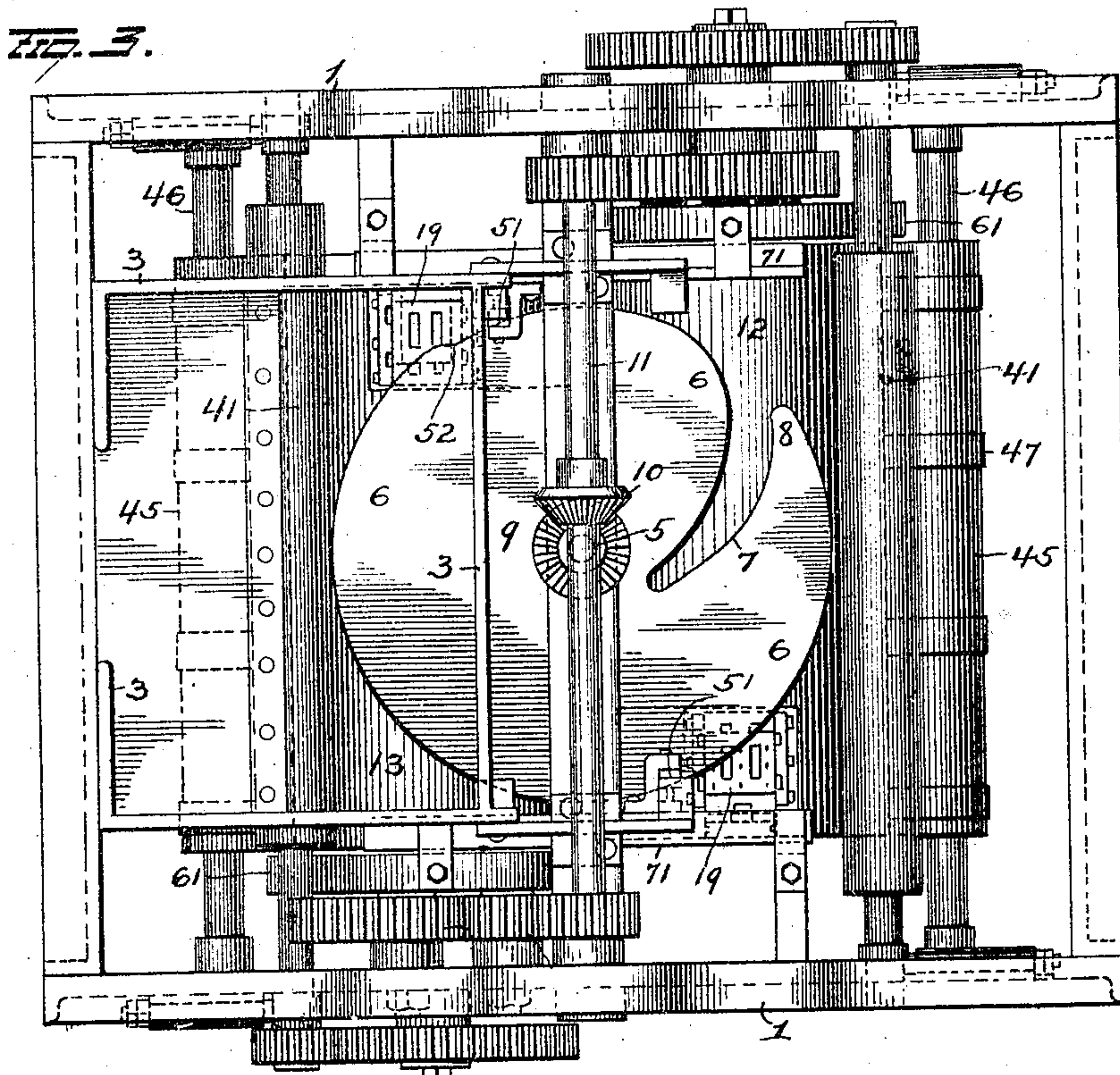
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6 SHEETS-SHEET 3.



WITNESSES
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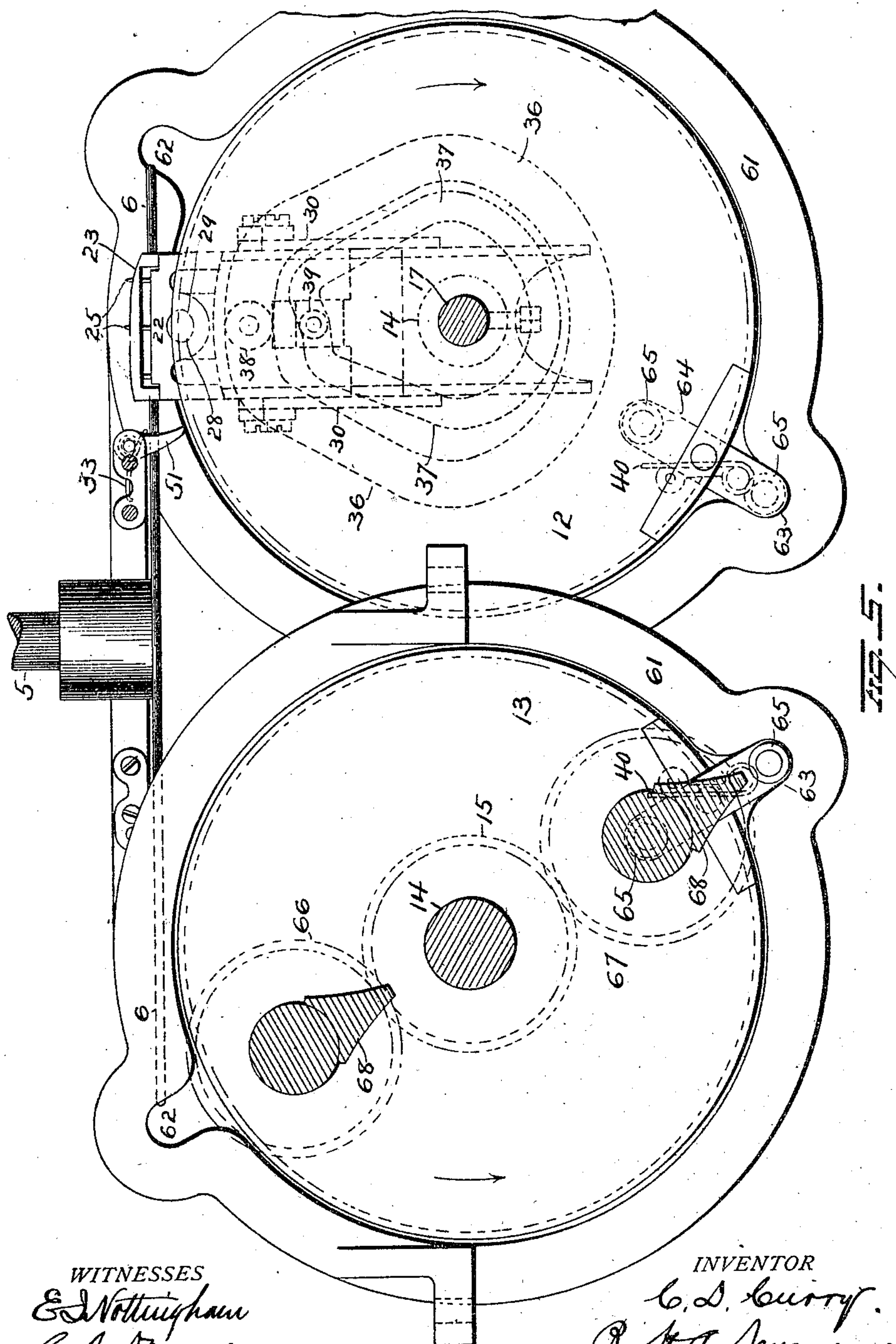
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6 SHEETS—SHEET 4.



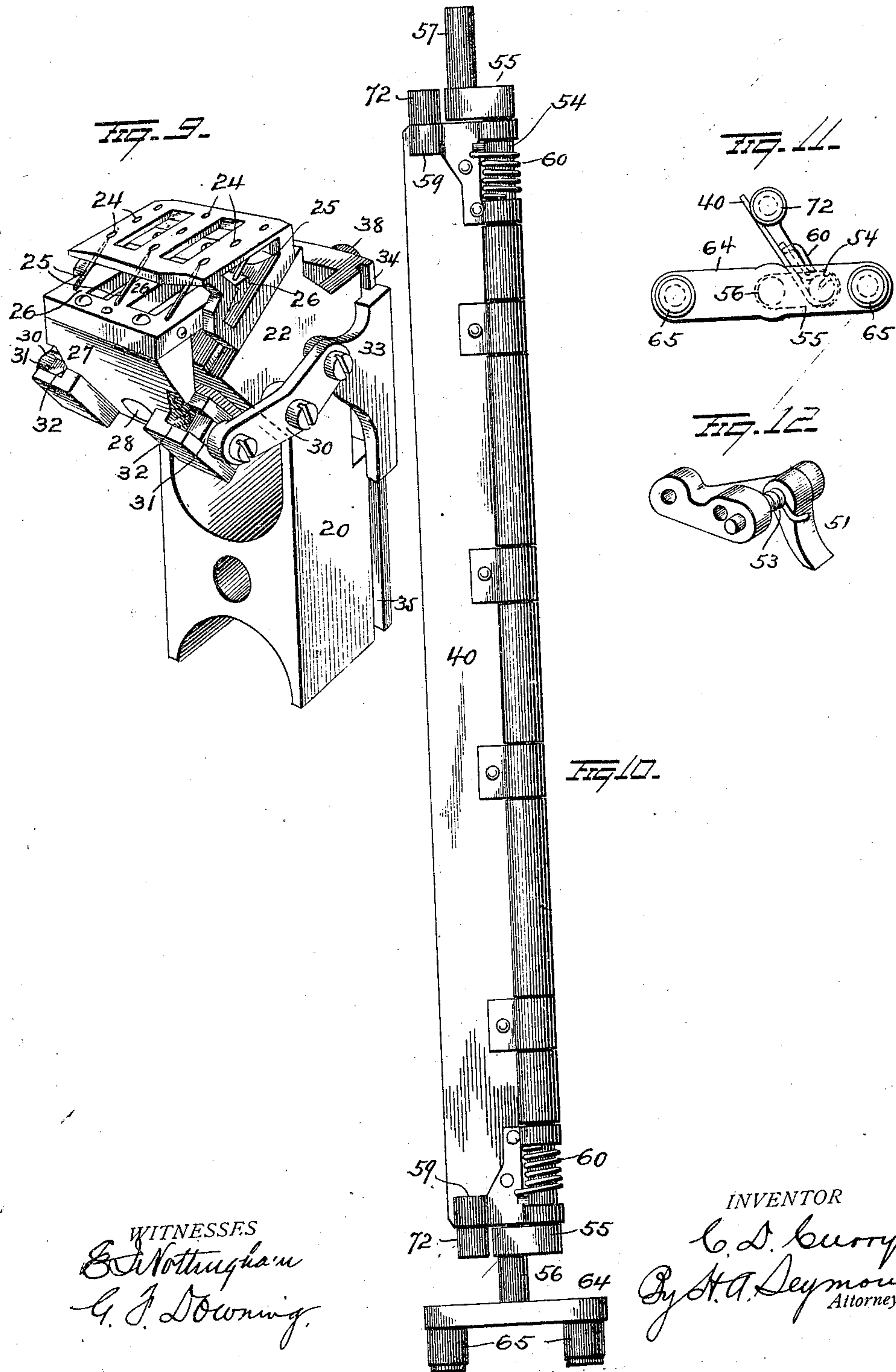
WITNESSES
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6 SHEETS—SHEET 6.

982,038.



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UNITED STATES PATENT OFFICE.

CLAUD D. CURRY, OF MEMPHIS, TENNESSEE.

PAPER-ASSOCIATING MACHINE.

982,038.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed January 17, 1910. Serial No. 538,530.

To all whom it may concern:

Be it known that I, CLAUD D. CURRY, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Paper-Associating Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to paper associating machines, and more particularly to improved means for inserting or "stuffing" newspaper "parts" or "sections."

One object of the invention is to provide a machine of the character specified which will operate to rapidly and accurately insert an inner "part" or "section" of a newspaper or other collection of sheets, into an outer "part" or "section" and deliver the paper thus "stuffed" from the machine.

A further object is to provide improved means for opening an outer "part" or "section" comprising a series of folded sheets, and holding the same open for the reception of an inner part which also comprises a series of folded sheets.

A further object is to provide mechanism which will operate automatically and mechanically to open a folded newspaper part or section and positively hold the same open; which will then insert a part or section into the said open part or section, and which will then release the newspaper thus "stuffed" and discharge the same from the machine.

A further object is to provide, in a newspaper stuffing machine, means for preventing the collapsing of the papers on account of their own weight, and thus prevent the clogging of the machine.

A further object is to provide simple and efficient devices for mechanically opening a folded newspaper part or section.

With these and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings: Figure 1 is a vertical transverse section, partly in elevation of a machine showing an embodiment of my invention; Fig. 2 is a transverse vertical section through the cen-

ter of the machine, at right angles to Fig. 1; Fig. 3 is a plan view with the hoppers removed; Fig. 4 is an enlarged sectional view of a portion of one of the cylinders and needle box devices; Fig. 5 is an enlarged end view showing the cylinders and cooperating devices; Fig. 6 is a horizontal section on the line $x-x$ of Fig. 1; Figs. 7 and 8 are views in plan and side elevation respectively of the needle box constructions employed in opening a folded paper section; Fig. 9 is a perspective view of one of the needle box constructions employed in the cylinders of the feeding mechanism; Fig. 10 is a plan view of one of the tumbling blades; Fig. 11 is an end view of the same, and Fig. 12 is a perspective view showing one of the spring actuated fingers.

1 represents suitable frame-work, upon which two hoppers 2, 3 are located and these hoppers are provided with inclined bottoms 4 which extend partially across the lower ends of the same and terminate appreciable distances from the inner side walls of the hoppers. A vertical shaft 5 is mounted in the framework between the hoppers 2-3 and at its lower end, carries a horizontally-disposed disk 6 which projects partially across the open lower ends of both hoppers. This disk is made with a curved tapering slot or recess 7 extending inwardly from its peripheral portion and forming a tapering finger 8. The upper end of the shaft 5 is provided with a bevel gear 9 which receives motion from a bevel gear 10 on a horizontal shaft 11, for continuously driving the disk 6.

Below the disk 6 and at respective sides of the axis thereof, horizontally-disposed cylinders 12 and 13 are located. Each cylinder is provided with a shaft 14, one end of which projects beyond the cylinder and forms a journal mounted in a suitable bearing in the framework, and to the journal of each shaft 14, a gear 15 is secured to receive motion from the driving mechanism. The inner end of the shaft 14 of each cylinder terminates within the latter and is made with a socket 16 which receives the inner end of a short shaft 17 secured to the framework. The shaft 14 of each cylinder is thus journaled at one end in a bearing on the framework and at the other end, on the inner end of the fixed shaft 17.

It may be here stated that the mechanisms at respective sides of the vertical center of the machine, are duplicates in construction and mode of operation, but the two sets of devices are arranged in reverse positions at respective sides of the vertical center of the machine.

Each cylinder 12—13, is provided in its peripheral wall near one end, with an opening 18 for the accommodation of a mechanical withdrawing device or needle box 19 as shown in Fig. 1 and in detail in Figs. 7 and 8. In constructing this withdrawing device or needle box, I provide a rectangular frame 20 which embraces and slides on a block 21 secured to the fixed shaft section 17 so as to be guided in its longitudinal movements by said block. The frame 20 is provided at one end with an inclined enlargement 22, the outer face of which is disposed at an angle of approximately 45° to the axis of the frame 20. To the inclined face of the enlargement 22, a skeleton head 23 is adjustably secured. The outer member of the skeleton head 23 is disposed at right angles to the axis of the frame 20 and is provided with a number of inclined perforations 24 for the passage of a number of pins or needles 25, projecting in an inclined direction from a series of fingers 26, which constitute the upper or outer members of a movable head 27. A guide rod 28 projects from the lower or inner portion of the movable head 27 and moves freely in a socket 29 in the enlargement 22 of the frame 20. Levers 30 are pivotally supported between their ends, at diametrically opposite portions on the frame 20. The inwardly projecting arms of these levers carry pivotal blocks 31 mounted to move in ways 32 at the inner end of the movable head 27, and the outwardly projecting arms of said levers are pivotally attached to a cross head 33 mounted on the frame 20 and provided with ribs 34 to move in guide grooves 35 in said frame. It is apparent that if the cross head 33 be moved on the frame 20, motion will be imparted, through the medium of the levers 30 to the movable head 27 for the purpose of projecting or withdrawing the pins or needles 25. For thus operating the cross head and for sliding the frame 20 longitudinally, each cylinder (12 and 13) is provided at one end with two cam grooves 36 and 37, one within the other. A pin 38 projecting from the sliding frame 20 enters the larger outer cam groove 36 and a pin 39 projecting from the cross-head 33 coöperates with the inner cam groove 37.

As shown in Fig. 3 of the drawing the needle box, or withdrawing devices 19 above described, are located at one end of the cylinder 12 and at the opposite end of the cylinder 13. Hinged fingers 51 are located near the needle boxes or withdrawing de-

vices 19 and are held up in engagement with the bottom paper sections in the hoppers by the peripheral portions of the disks 6. It will be observed in Fig. 3 of the drawing, that the peripheral portion of the disk 6 is depressed from the point 52 to the slotted portion of said disk. When, during the rotation of the disk, the depressed portion 52 reaches the finger 51, the latter will be free to drop and it will be forced down by the action of a spring 53, so as to be out of the way of the needle box or withdrawing device 19.

The cams 36 are so formed that they will cause the needle box 19 to be projected toward the lower ends of the hoppers 2—3 and subsequently withdraw them, and the cams 37 will so coöperate with the cross heads 33 as to cause the needles 25 to be projected and afterward withdrawn. The cams 36—37 of the respective cylinders are so disposed that the needle boxes or withdrawing devices in one cylinder (say the cylinder 12) will operate in advance of those in the other cylinder, so that an outer "part" or "section" of sheets will be withdrawn from one hopper in advance of the withdrawal of an inner "part" or "section" from the other hopper. Thus the needle box in one end of the cylinder 12 will be projected upwardly toward the folded section of papers lying in the bottom of the hopper 2 and the needles 25 of this needle box will be thrust upwardly in an inclined direction as previously explained, and caused to engage the bottom folded paper section. As the cylinder and its cams continue to turn, the needle box will be caused to retreat and thus to pull the corner of the folded paper section downwardly into the slot 7 of the horizontal disk 6. The cam 37 in the cylinder will afterward operate to withdraw the needles 25 from the paper section. The rotation of the disk 6 will first cause its finger 8 to pass over the paper section, and during the rotation of the disk, a portion thereof will become disposed over a portion of the folded paper section. As the disk 6 turns, its finger portion 8 will engage the finger 51 which had been dropped and raise said finger to its normal horizontal position. During such raising of the finger 51, any portion of a superimposed paper section which may have descended with the lowermost paper section being fed from the hopper, will be raised and its entanglement with the disk 6 effectually prevented. The paper section having been partially removed from the hopper, will now be met by a tumbling blade 40 carried by the cylinder and deflected by said blade so as to be fed between the cylinder and a feed roller 41. The cylinder is provided with shoes 42 of leather or other suitable material, which are so placed that they will arrive approximately opposite the feed roller

41 after the paper section reaches the latter. The cooperation of the shoes 42 on the cylinder with the feed roller 41, will cause the paper section to be fed downwardly and said
 5 paper section will be made to follow the cylinder by means of curved guides 43. After conforming to the contour of the cylinder throughout a portion of their length, the guides 43 project downwardly in a
 10 straight diagonal direction and terminate adjacent to rollers 44 secured to a shaft 44^a located at one side of the vertical axis of the machine. Rollers 44 are similarly located
 15 at the other side of the vertical axis of the machine and the guides 43 and feed roller 41 are also duplicated so as to cooperate in the same manner as above described with the cylinder 13 and the paper sections removed
 20 in the same manner as previously explained from the hopper 3. Rollers 45 are located on shafts 46 adjacent to the cylinders 12 and 13. Feeding tapes 47, cooperating with the
 25 respective cylinders 12 and 13, pass over the rollers 44 and 45 at respective sides of the vertical axis of the machine and are driven by power applied to the shafts of the rollers 44. Shafts 48 are located above the
 30 rollers 44 and carry rollers 49, which cooperate with the tapes 47 to feed the paper section downwardly over the rollers 44. Guides 50 are hung on the shafts 48 and extend from the longitudinal center of the machine approximately to the cylinders 12 and
 35 13, so as to cooperate with the tapes in directing the paper sections downwardly between the rollers 44.

Reverting now to the tumbling blade 40, its construction and mode of operation will be explained: Each cylinder (12 and 13) is
 40 provided with an elongated slot or opening, 58 behind which a shaft 54 is located and provided with crank arms 55, having journals 56—57 mounted in the respective heads of the cylinder. On the shaft 54, the blade
 45 40 is hinged and pressed in one direction against stops 59 on the shaft, by means of springs 60. It will be understood that each cylinder is provided with a tumbling blade and are duplicates in construction and mode
 50 of operation. Near one end of each cylinder, a ring 61 is located and provided at diametrically opposite points with recesses 62—63. A cross head 64 is located at the end of the journal 56 of each shaft 54 and from
 55 the respective ends of this cross head, pins 65 project into the ring 61. Gears 66—67 are mounted on suitable studs secured to the framework adjacent to the ring 61, and each
 60 of said gears is provided with a lug 68 disposed within said ring 61. T-shaped trackways 69 are located adjacent to the respective ends of the cylinders, and each comprises a vertical portion 70 located between the cylinders and lateral portions 71 project-
 65 ing upwardly over the cylinders. With these

trackways, rollers 72 at respective ends of the tumbling blades 40 cooperate as presently explained. During the passage of the tumbling blade 40 under the disk 6, it will be prevented from engagement with the lat-
 70 ter, by the engagement of the rollers 72 with the upper members 71 of the trackway 69. When the blade, moving with cylinder, deflects the paper section and causes it to be fed under the feed roller 41 as previously
 75 explained, one of the lugs 68 will engage one of the pins 65 on the shaft 54 and force the same into one of the recesses (62 or 63) in the ring 61. As the cylinder continues to
 80 turn, the engagement of one of the pins on the shaft 54 with the recess in the ring 61 will cause the shaft 54 and the blade 40 to be turned over. When, during the rotation of the cylinder, the tumbling blade reaches
 85 the other recess in the ring 61, one of the pins 65 will enter the other recess (62 or 63) and the blade will again turn so as to place it in proper position to deflect the next paper section coming from the hopper. After the
 90 blade 40 has been thus turned, it will be prevented from engagement with the adjacent cylinder by the riding of the pins or rollers 72 on the vertical portion 70 of the trackway 69, the blade being thus pressed back
 95 against the resistance of the springs 60.

I have hereinbefore described the construction and operation of the mechanism which will take a folded paper section from the bottom of a hopper and deliver the same,
 100 with the folded edge at the bottom, at the rollers 44. The mechanisms for the duplicate sets are so timed that after an outer paper section has been fed from one hopper downwardly past the rollers 44, the inner
 105 paper section will be fed in the same manner and made to follow the first-fed section, the purpose being to insert the said inner paper section into the outer paper section. Before the inner paper section can be in-
 110 serted into the outer section, the latter must be opened to receive it, and after the paper sections shall have been "stuffed," they must be discharged from the machine. For these
 115 purposes, the mechanism now to be described will be employed.

Some distance below the rollers 44, two shafts 73 are mounted in the framework and terminate at their inner ends at respective
 120 sides of the vertical center of the machine. These shafts are provided at their inner ends with annular flanges 74 to which vertically disposed disks 75 are secured, each of said
 125 disks being made with a curved slot forming a finger 77, and with a depressed peripheral portion 78, for a purpose hereinafter explained. Parallel guide plates 79 are suitably supported by the framework and extend from the rollers 44, downwardly be-
 130 tween the disks 75, said guide plates terminating at their lower ends somewhat below

the axes of the disks 75. Rollers 80 are mounted on the shafts 81 located in proximity to the guide plates 79. Tapes 82 pass over rollers 45 near one end of each shaft 46 and, extending downwardly parallel with the tapes 47, pass over rollers 44 on the shafts 44^a; then downwardly and under the rollers 80, and finally back to the rollers 45 on shafts 46. Tapes 84 pass over rollers at one end of each shaft 44^a, and over rollers at one end of each shaft 81, said tapes 84 also passing over rollers 85 supported by brackets 86 secured to the framework.

A paper section is fed downwardly by the action of the tapes above described and after passing between and beyond the lower ends of the guide plates 79, will rest on fingers 87 projecting from a shaft 88 located below the vertical disks 75. Adjacent to the shaft 88, another shaft 89 is located, and to the shafts 88 and 89, the lower ends of guide strips 90 are secured, the upper ends of said strips being supported by transverse rods 91 located short distances outwardly from the outer face of the disks 75.

In order to prevent the paper section from collapsing or crowding upon itself by dropping too heavily upon the fingers 87, I provide arms 92 pivotally supported at the lower end on the shaft 88 and provided at their upper ends with fingers 93 adapted to cooperate with stops 94 supported by one of the rods 91. The arms 92 are provided with a shoulder 95 to be engaged by a cam 96 on a shaft 97. The gearing which operates the shaft 97 is so turned that the cam 96 will force the arms 92 toward the stops 94 and catch the descending paper section before the latter reaches the fingers 87, and as the cam 96 passes the shoulder 95, the arms will be retracted by a spring 98 so as to release the paper section and permit it to drop lightly upon the fingers 87.

Transverse bars or brackets 99 are fixed to the framework some distance laterally from the disks 75 and these bars or brackets are provided with guides 99^a (Fig. 2) which support longitudinally movable arms 100 carrying needle boxes 101 at their inner ends. These needle boxes are located near the front of the machine in proximity to the disks 75 and the depressed peripheral portions of these disks will permit said needle boxes to reach the upper front corners of a paper section resting between the disks.

In constructing each needle box 101, a head 102 is made integral with the inner end of the arm 100 and provided with a beveled forward end, to which a skeleton head 103 is adjustably secured. This skeleton head is provided with a number of inclined holes 104 for the passage of a number of needles 105. These needles are carried by a head 106 movable on the arm 100. Bell-

cranks 107 are pivoted to the arm 100, and these bell-cranks carry pivoted blocks 108 movable in ways 109 at the ends of the movable head for operating the latter to project or withdraw the needles carried thereby. The bell-cranks 107 are connected by a rod 70 or bar 110 (Fig. 8) and the latter is provided with a crank-arm 111. The outer end of each arm 100 is adjustably connected, by means of a screw 112, with a yoke 113 having an elongated slot 114 for the passage of a shaft 115 (Fig. 1). Two shafts are mounted near respective sides of the framework, and to each shaft 115, a cam wheel 116 is secured and provided with cam grooves 117 and 118, one within the other. Each yoke 113 is provided with a pin 119 which cooperates with the larger cam groove 117, for moving the arm 100 longitudinally and projecting near the needle box toward the folded paper section or retracting it therefrom. Each yoke 113 is made with a recess 120 for the accommodation of a longitudinally movable L-shaped bar 121, and with an elongated slot 122 for the passage of a pin 123 projecting from said L-shaped bar, said pin 123 being thus in position to cooperate with the smaller cam groove 118 of the adjacent cam wheel 116. A rod 124 is adjustably secured to one end of the L-shaped bar 121, and to the end of said rod, an L-shaped rod 125 is hinged. The arm 126 of the rod 125 is provided with a lateral projection 127 pivotally attached to the crank arm 111 on the rod 110 which connected the bell cranks 107. It is apparent that with such construction, motion will be imparted from the cam-wheels to the movable heads of the needle boxes and the needles thus projected to engage the paper section or retracted to withdraw the needles from the paper.

The mechanism above described for operating the needle boxes 101 is so timed and proportioned that the two needle boxes will be simultaneously moved toward each other and caused to confine the corner of the folded paper section between them, after which the needles will be projected and made to engage the paper section. In order to insure such engagement of the needles with the paper section so that when the needle boxes are withdrawn, the corners of the folded paper section will be moved laterally, the devices now to be described will be employed; the journal bearings of gears 128 are supported by brackets 129 secured to the framework and receive motion from gears 130, the shafts of the latter being provided with bevel gears 131 to receive motion from bevel gears 132. The gears 128 are provided with projections 133 which cooperate to grasp the paper section and pull the same laterally with sufficient force to cause the

inclined needles to properly penetrate the paper.

Each disk 75 is made with a shoulder 134 (Fig. 2) near the free end of the finger 77 and in the paths of these shoulders, rollers 135 (Fig. 1) are disposed, said rollers being carried at the free inner ends of arms 136 secured to the fixed transverse bars 99.

The paper section having been disposed between the disks 75 and made to rest with its folded lower edge upon the fingers 87, the needle boxes 101 will advance to grasp the corner of the paper section between them and the needles caused to penetrate the members of the folded paper section, all as previously explained. The needle boxes will now be retracted to cause the corners of the members of the paper section to separate from each other, and afterward, the needles will be withdrawn from the paper by the action of the cam 118 and the devices which cooperate therewith. When the corners of the folded members of the paper section shall have been moved away from each other, the nose or finger portions 77 of the disks 75 will approach the separated corners of the paper section members and, as the shoulders 134 on said fingers 77 pass over the rollers 135, said fingers will be depressed sufficiently to cause them to enter between the members of the folded paper section. Now as the disks continue to rotate, they will become disposed on the inside of or between the members of the folded paper section, and thus said paper section will be opened out and, supported by the guide strips 90, be in position to receive an inner paper section between its members. When the operations on an outer paper section coming from one of the hoppers, shall have been completed, an inner paper section or "insert" will arrive between the guide plates 79 and will drop down between the disks and therefore into the opened-out outer paper section. The "stuffed" paper sections are now resting upon the fingers 87 and these fingers are maintained in a horizontal position to sustain the paper section or sections during the operations above described, by the engagement of a roller 137 (Fig. 2) on an arm 138 secured to shaft 88, with a cam 139 on the shaft 97. When the stuffing operation shall have been completed, the cam 139 on the shaft 97 will have moved to a position to release the arm 138 on shaft 88, when a spring 140 attached to said arm 138 will cause the shaft 88 to turn and the fingers 87 carried by this shaft, to descend and thus remove the support for the stuffed paper sections. Opposite the shaft 97, another shaft 97^a is located, and these shafts 97 and 97^a carry clutch arms or jaws 141. The shafts 97 and 97^a are geared to rotate in opposite directions, so that the arms or jaws 141 moving

toward each other, will cooperate to grasp the stuffed paper sections and move the same downwardly between positively-driven feed rollers 142, 143, the latter being supported by a spring-pressed or yielding bracket 144. The stuffed paper sections are fed by the rollers 142—143 to one of a series of rotating delivery fingers 145, by means of which latter, the paper is placed upon a traveling conveyer 146 which will carry the same from the machine.

The gearing by means of which the various parts of the mechanism are driven, is shown diagrammatically in Fig. 1 of the drawing power being applied to one of the shafts 115.

While my improvements are designed for "stuffing" newspapers they may be employed also for assembling papers of a different character, such for example, as signatures for books or magazines.

Various slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope and hence I do not wish to restrict myself to the precise details herein set forth.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a machine of the character described, the combination with opening means for a folded paper section, of reciprocating means for engaging corners of the members of said paper section and feeding the same to the opening means.

2. In a machine of the character described, the combination with opening means for a folded paper section, of reciprocating needle boxes disposed to engage corner portions of the folded paper section and move the same into operative relation to the opening means.

3. In a machine of the character described, the combination with opening means for a folded paper section, of needle boxes in position to engage free corner portions of the folded paper section and move the same into operative relation to the opening means, means for reciprocating said boxes, and means for independently reciprocating the needles therein.

4. In a machine of the character described, the combination with opening means for a folded paper section, of devices for moving free corners of said paper section into operative relation to the opening means, said devices comprising reciprocating heads having inclined holes, a movable head carried by each reciprocating head, inclined needles carried by each movable head and means for moving the movable heads to project or withdraw the needles.

5. In a machine of the character described, means for moving a portion of a paper section laterally, said means compris-

- ing a member provided at one end with a fixed head, a skeleton head on the fixed head and provided with inclined holes, a movable head, inclined needles carried by the movable head and passing through the holes of the skeleton head, means for reciprocating the device bodily, and means for independently reciprocating the movable head carrying the needles.
6. In a machine of the character described, a paper withdrawing device comprising a head having an inclined face, a skeleton head adjustable on said face and having inclined holes, a movable head carried by the first-mentioned head, inclined needles carried by the movable head and passing through the holes of the skeleton head, means for reciprocating the first-mentioned head, and means for independently reciprocating the movable head.
7. The combination in a machine of the character described, of a withdrawing device comprising a member having an inclined head, a skeleton head adjustably mounted on said inclined head and provided with inclined holes, a movable head supported by the inclined head, needles carried by the movable head and passing through the holes in the skeleton head, means cooperating with the member having the inclined head for reciprocating the same, and means for reciprocating the movable head to project and withdraw the needles.
8. The combination in a machine of the character described, of a member carrying a fixed head and a movable head, a perforated part on the fixed head, needles carried by the movable head and passing through the perforated part on the fixed head, two cams, means cooperating with one of said cams and the member carrying the fixed and movable heads, and means cooperating with the other cam and with said movable head.
9. The combination in a machine of the character described, of an arm, a fixed head at one end thereof and having a perforated part, a movable head supported by said arm, needles carried by the movable head and movable through the perforated part of the fixed head, a yoke secured to said arm, a pin on said yoke, a cam with which said pin cooperates, a bell-crank supported by said arm and connected with the movable head, a bar supported by the yoke, connections between said bar and the bell-crank, a second cam, and a pin on said bar cooperating with said second cam.
10. The combination in a machine of the character described, of an arm, a fixed head on one end thereof having a perforated part, a movable head supported by said arm, needles carried by the movable head and passing through the perforated part on the fixed head, a yoke adjustably connected with said arm, a pin on said yoke, a cam cooperating with said pin, a bell-crank supported by said arm and connected with the movable head, a reciprocating bar carried by the yoke, a pin projecting from said bar, a cam cooperating with said last-mentioned pin, a rod adjustably connected with said bar, and connections between said rod and the bell-crank.
11. In a machine of the character described, the combination of two parallel disks, each having a slotted portion, means for disposing a folded paper section between said disks, and means for rotating said disks to open said folded paper section.
12. In a machine of the character described, the combination of two parallel disks, each having a slotted portion, means for disposing a folded paper section between said disks, means for forcing free corners of said folded paper section through the slotted portions of the disks, and means for rotating said disks.
13. In a machine of the character described, the combination of two parallel disks, each having a slotted portion, means for disposing a folded paper section between the disks, reciprocating needle boxes for moving corners of the folded paper section from each other to permit the slotted portions of said disks to straddle the members of the folded paper sections, and means for rotating the disks.
14. In a machine of the character described, the combination of two vertically disposed parallel disks, spaced apart and each provided with a slotted portion forming a finger, means for depressing the fingers of the disks to cause them to enter between the members of the folded paper section, and means for rotating the disks.
15. In a machine of the character described, the combination of parallel disks spaced apart and each having a slotted portion forming a finger, means for supporting a folded paper section between said disks, means for separating corners of the members of the folded paper section, means for depressing the fingers of the disks to cause them to enter between the separated portions of the paper section, and means for rotating said disks.
16. In a machine of the character described, the combination of two parallel disks spaced apart and each having a slotted portion forming a finger provided with a shoulder, means for supporting a folded paper section between said disks, means for rotating said disks, and means cooperating with the shoulders on the fingers of the disks to force the said fingers to enter between the members of the folded paper section.
17. In a machine of the character de-

scribed, the combination of two vertically disposed parallel disks spaced apart and each having a slotted portion forming a finger, means for rotating said disks, means for supporting a folded paper section between said disks, means for causing the fingers of the disks to enter between the members of the folded paper section and the disks to become disposed outside of said members, means for disposing an inner paper section between said disks, and means for discharging the stuffed paper sections from the machine.

18. In a machine of the character described, the combination of means for supporting a folded paper section, means including inclined needles for engaging free corners of the paper section and separating the same, means for moving the paper section laterally to insure the proper engagement of the needles with the same, and means for opening said folded paper section.

19. In a machine of the character described, the combination of means for supporting a folded paper section, means including inclined needles for engaging free corners of the members of the folded paper section and separating the same, means for moving the paper section laterally to insure the engagement of the needles, parallel slotted disks for opening the folded paper section, and means for rotating said disks.

20. In a machine of the character described, the combination of means for supporting a folded paper section, of means including inclined needles for engaging free corners of the members of said folded paper section and separating the same, cooperating jaws, means for operating said jaws to grasp the paper section and move it laterally to insure the proper engagement of the inclined needles, and means for opening said folded paper section.

21. In a machine of the character described, the combination with means for opening a folded paper section, of supporting fingers for said paper section, means for feeding the folded paper section to the opening means and said supporting means and means for checking the descent of the paper section and preventing it from dropping too heavily upon said supporting fingers.

22. In a machine of the character described, the combination with means for opening a folded paper section, of supporting fingers for said section, means for inserting an inner paper section between the members of the opened paper section, feed rollers below said supporting fingers, means for tripping said supporting fingers, and cooperating jaws for grasping the stuffed paper sections and moving the same to said feed rollers for discharging said stuffed paper sections.

23. In a machine of the character described, the combination with means for supporting a folded paper section, of means for opening the folded paper section, comprising needles to engage the paper section and movable toward the paper section to engage the same and movable in the opposite direction to move one member of the paper section from the other member thereof, and means for reciprocating said needles in a plane substantially at right angles to the plane of the folded paper section to be separated.

24. In a machine of the character described, the combination with means for supporting a folded paper section in an upright position, of means for opening the paper section, comprising two sets of needles movable toward each other in substantially the same horizontal plane to engage two members of a paper section and movable away from each other in the same horizontal plane to separate the members of the paper section.

25. In a machine of the character described, means for separating the members of a folded paper section, said means comprising carriers movable toward and away from each other, needles carried by said carriers, means for reciprocating the carriers, and means for reciprocating the needles.

26. In a machine of the character described, the combination with means for supporting a folded paper section in an upright position, of opening means for the paper section, comprising needles disposed opposite each other, and means for reciprocating said needles in substantially the same horizontal plane and at substantially right angles to the plane of the folded paper section to cause them to engage the members of a paper section and separate said members.

27. In a machine of the character described, the combination with a plurality of supports for paper sections, of a slotted disk disposed horizontally below said supports, a plurality of cylinders, feed rollers cooperating with said cylinders, withdrawing devices for paper sections disposed in said cylinders, tumbling blades carried by said cylinders for presenting paper sections edgewise between the cylinders and feed rollers, stuffing mechanism, and means for directing paper sections successively to said stuffing mechanism from the respective cylinders and their cooperating feed rollers.

28. In a machine of the character described, the combination with a plurality of supports for paper sections, of cylinders disposed below said supports, means for feeding paper sections successively from said supports to the cylinders, feed rollers cooperating with said cylinders, means carried

by the cylinders for feeding paper sections
edgewise between the cylinders and feed
rollers, stuffing mechanism, and guides and
feeding tapes for directing the paper sec-
5 tions from said cylinders and feed rollers to
the stuffing mechanism.

In testimony whereof, I have signed this

specification in the presence of two subscri-
ing witnesses.

CLAUD D. CURRY,

Witnesses:

F. M. ROGERS,

J. H. T. MARTIN