

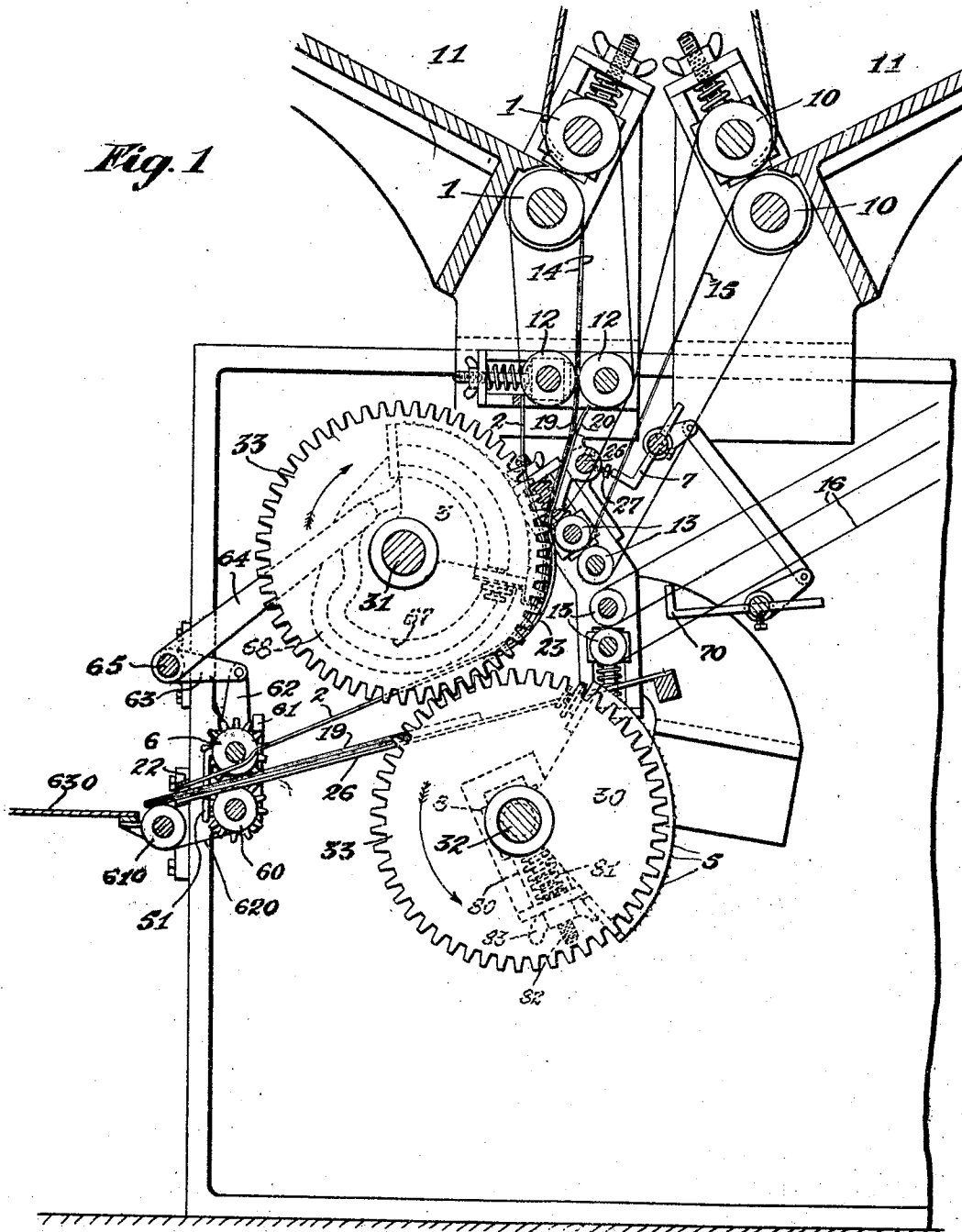
S. HALVORSEN.  
PAPER OPENING DEVICE FOR NEWSPAPER STUFFING MACHINES.  
APPLICATION FILED NOV. 1, 1915.

1,234,897.

Patented July 31, 1917.

5 SHEETS—SHEET 1.

*Fig. 1*



*Inventor*

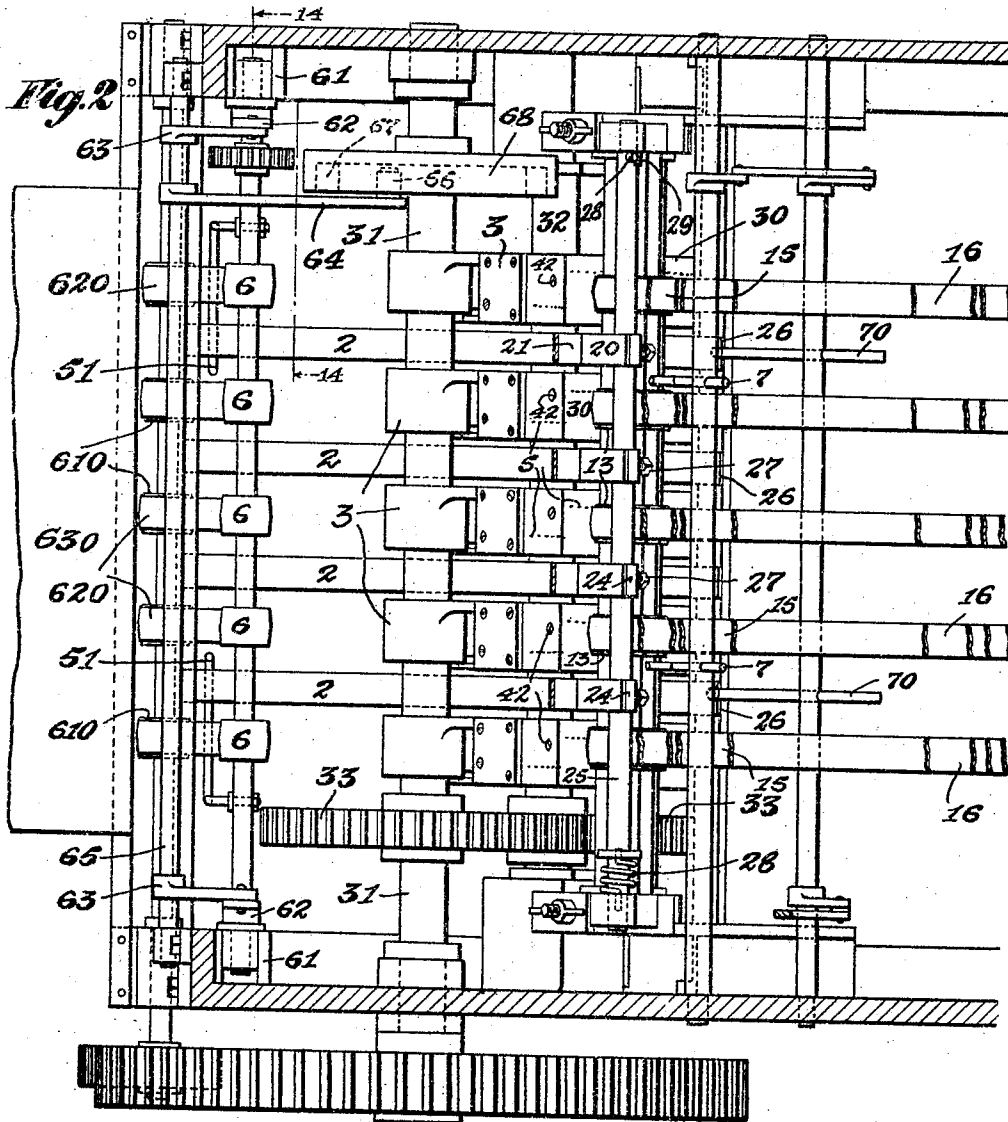
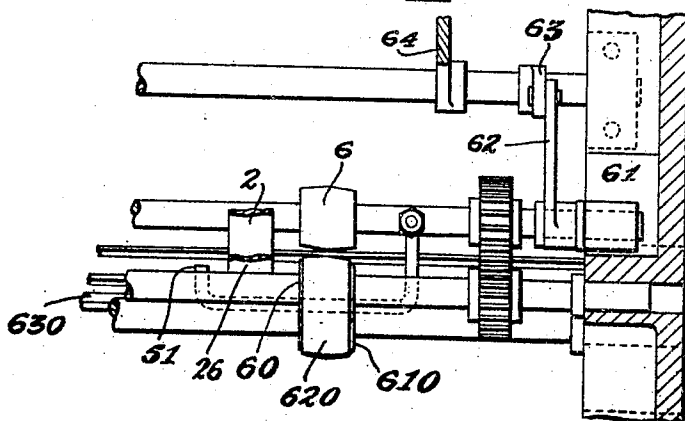
*By Severin Halvorsen.  
Henry L. Reynolds.  
Attorney.*

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Inventor  
Sverin Halvorsen.  
By *Harry L. Reynolds*  
Attorney.

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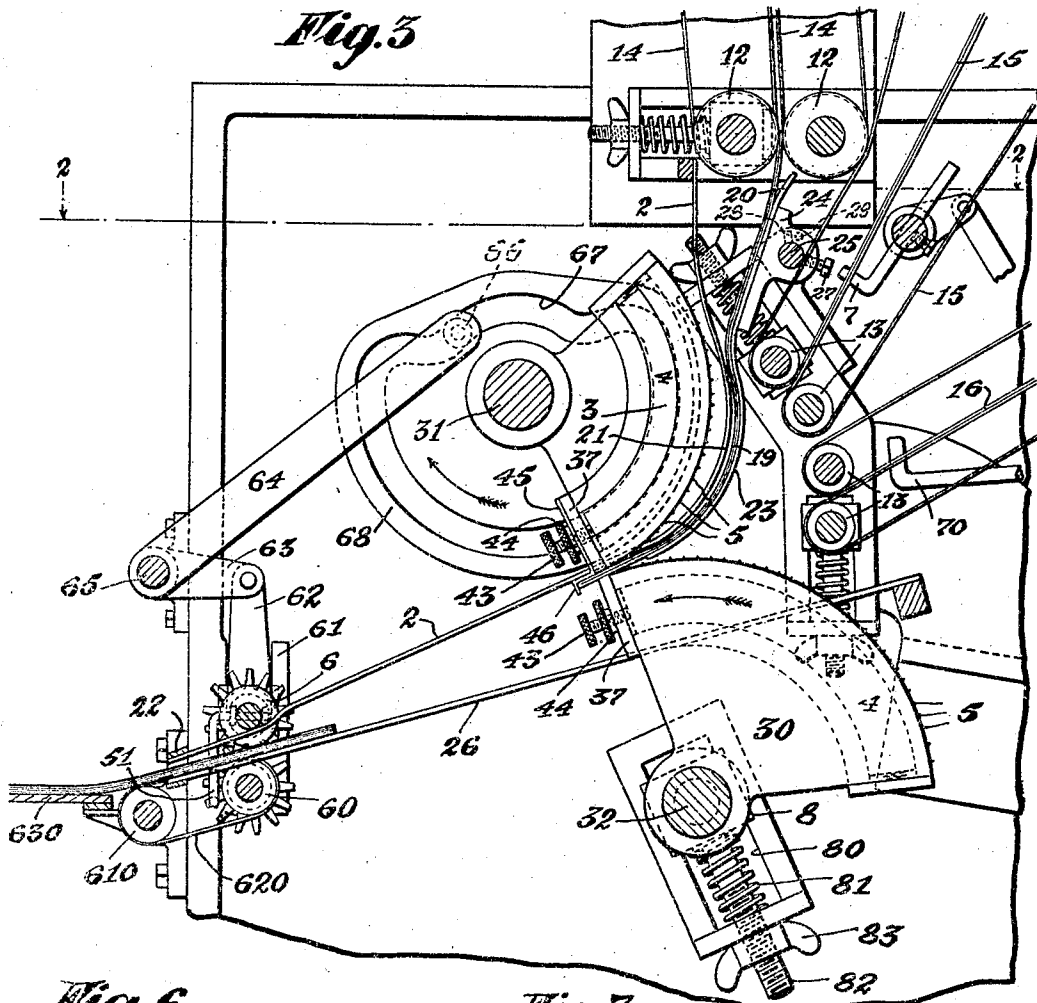
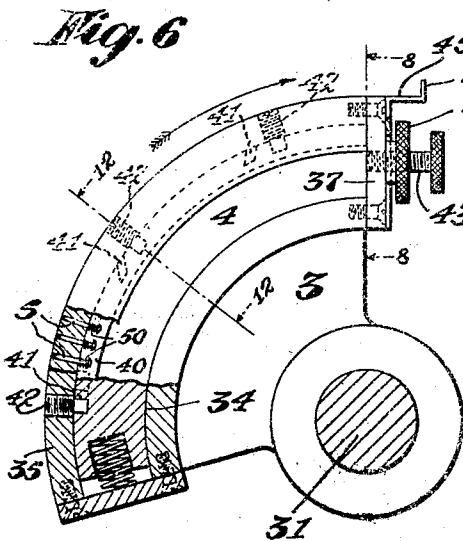
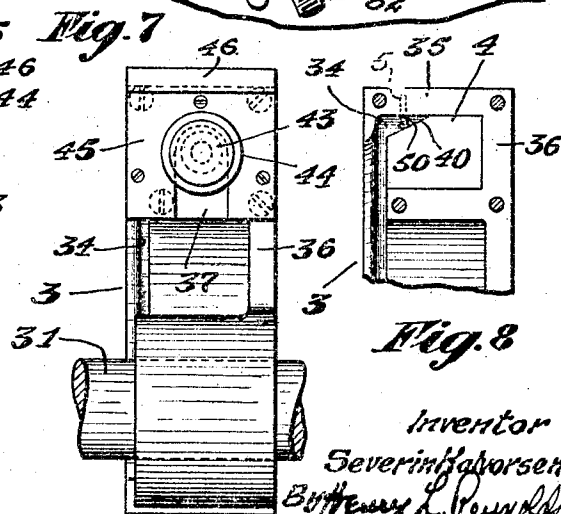


*Fig. 8*

Inventor  
Sverin Halvorsen.  
By Henry L. Reynolds.  
Attorney

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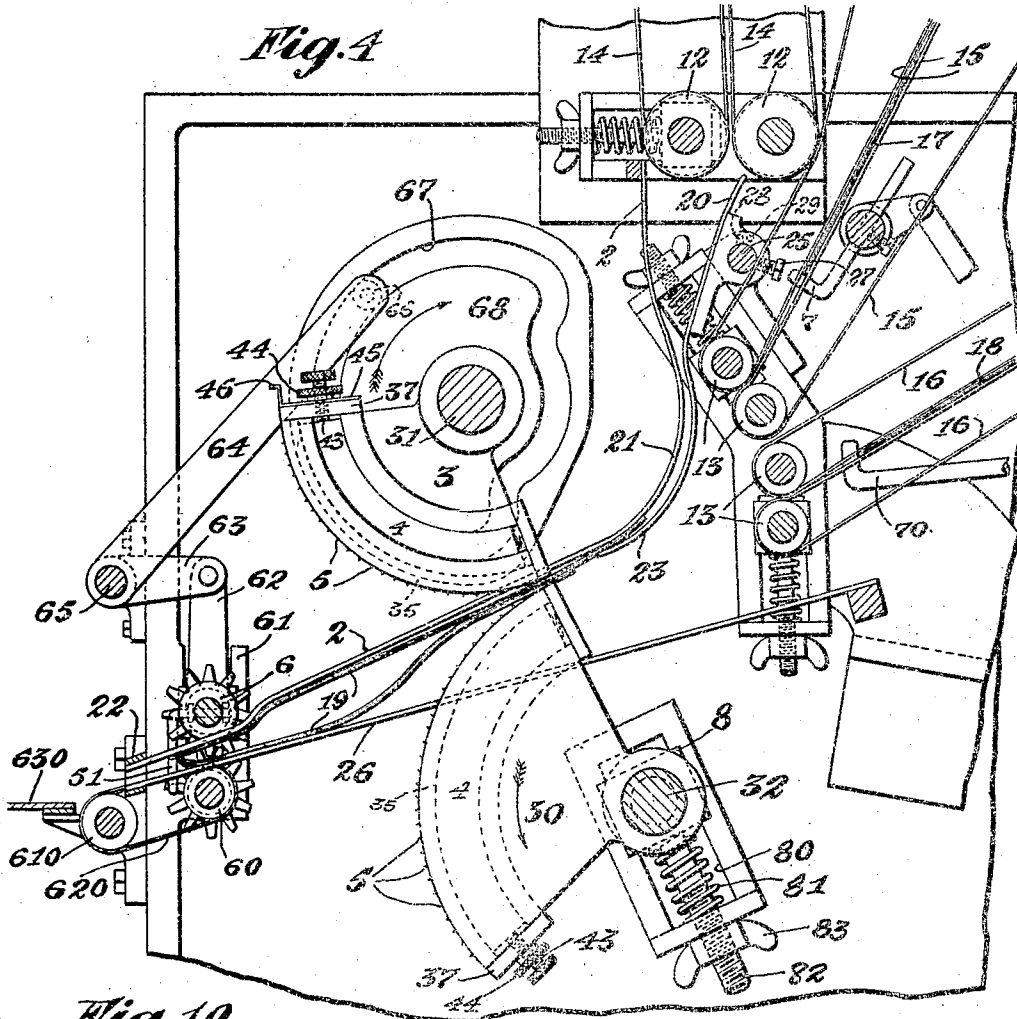


*Fig. 10*



*Fig. 11*

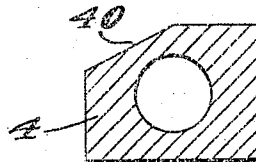
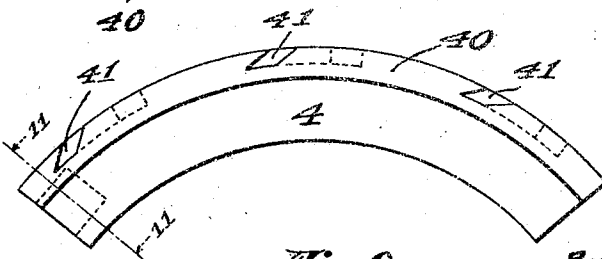


*Fig. 9*

Inventor  
Sverre Halvorsen  
By Henry L. Reynolds  
Attorney

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5 SHEETS—SHEET 5.

*Fig. 5*

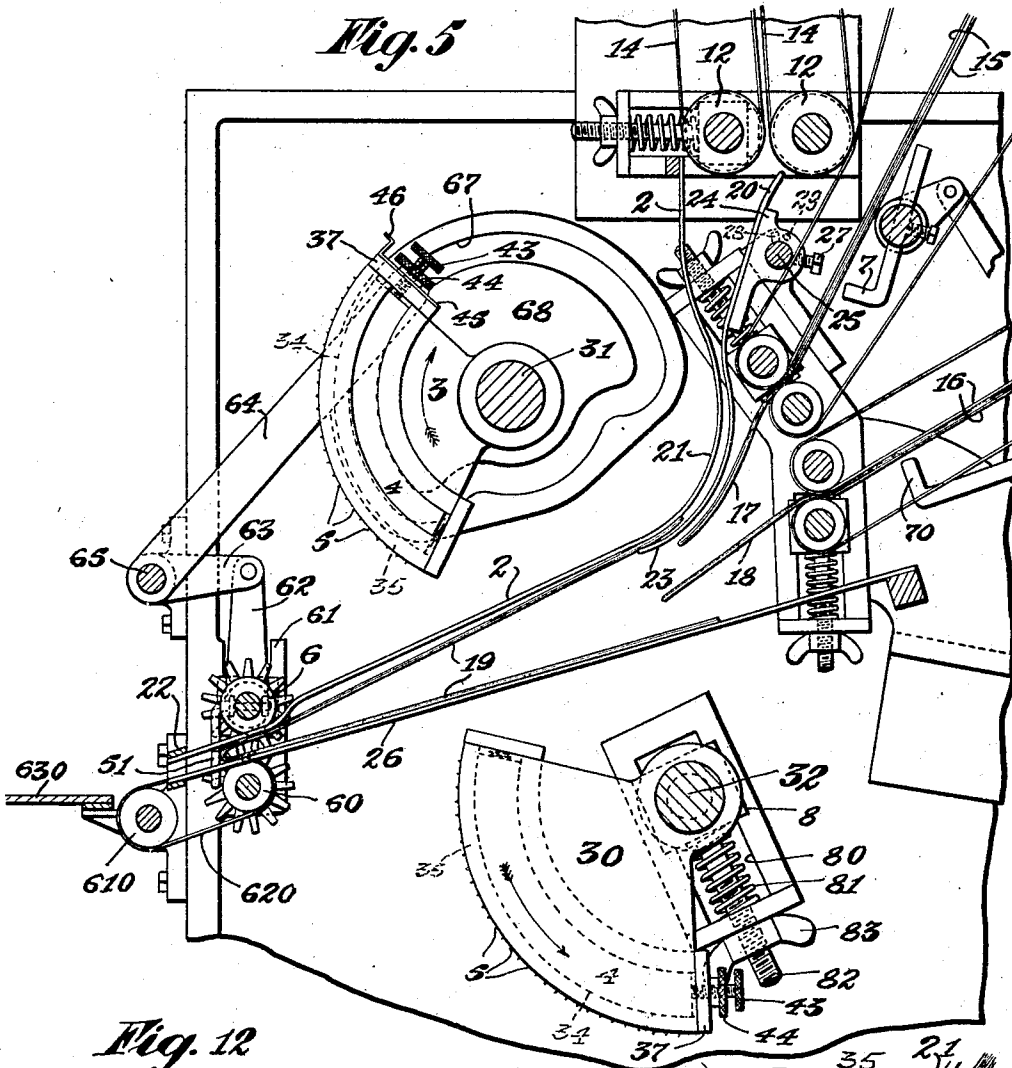


*Fig. 12*

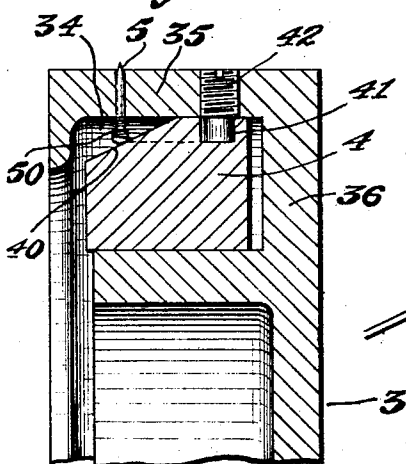
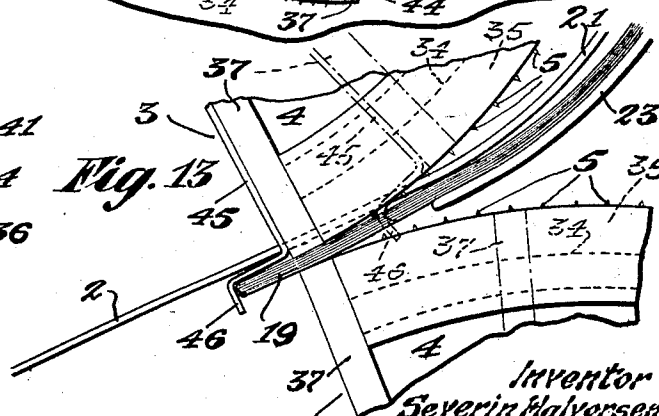


*Fig. 13*



Inventor  
Sverin Halvorsen.  
30 By Henry L. Reynolds.  
Attorney

# UNITED STATES PATENT OFFICE.

SEVERIN HALVORSEN, OF SEATTLE, WASHINGTON, ASSIGNOR TO THE NEWSPAPER STUFFING MACHINES COMPANY, OF SEATTLE, WASHINGTON, A CORPORATION OF WASHINGTON.

## PAPER-OPENING DEVICE FOR NEWSPAPER-STUFFING MACHINES.

1,234,897.

Specification of Letters Patent.

Patented July 31, 1917.

Application filed November 1, 1915. Serial No. 59,151.

*To all whom it may concern:*

Be it known that I, SEVERIN HALVORSEN, a citizen of the United States, and resident of the city of Seattle, county of King, and State of Washington, have invented certain new and useful Improvements in Paper-Opening Devices for Newspaper-Stuffing Machines, of which the following is a specification.

My invention relates to newspaper stuffing machines, and more particularly to the means employed for opening the cover section for the insertion of the filler sections.

The object of my invention is to produce a device for the opening of the cover sections in stuffing newspapers, which device shall be an improvement upon existing devices both in the manner of performing its work and in the compactness and the simplicity of its parts.

My invention comprises certain parts and combination of parts which will be hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings I have shown my invention embodied in the form of construction which is now preferred by me.

Figure 1 is a sectional elevation taken in a vertical plane extending lengthwise of the machine and just inside the frame.

Fig. 2 is a section plane taken upon the line 2—2 of Fig. 3.

Fig. 3 is a sectional elevation taken on a vertical longitudinal plane, showing the paper opening mechanism in one position.

Fig. 4 is a similar view showing the parts in a different position.

Fig. 5 is a similar view to 3 and 4, showing a still different position of the parts.

Fig. 6 is a side view with parts broken away and in section of one of the paper feeding segments.

Fig. 7 is an edge view of the same.

Fig. 8 is a view similar to Fig. 7 with the outer cover plate and adjusting mechanism removed.

Figs. 9 and 10 are side and outer edge views of the adjustable cam member which is incorporated in each of the feeding segments.

Fig. 11 is a section taken on the line 11—11 of Fig. 9.

Fig. 12 is a cross section through the outer portion of one of the feeding segments.

Fig. 13 is a detail showing in a side view the position of the contacting corners of the feeding segment at the time paper is first inserted there between.

Fig. 14 is a section taken on the line 14—14 of Fig. 2.

This invention is an improvement in paper opening devices shown in my application for patent for a newspaper stuffing machine, Serial Number 33,311, filed June 10, 1915. The mechanisms used for delivering the paper sections to the opening mechanism, and the mechanisms employed in caring for the paper after stuffing may be those shown in the said application or any other which is found to be adapted to the purpose. The paper feeding mechanism should be such as present the cover section to the opening mechanism in folded form, with the folded edge forward. The feeding mechanisms which present the insert or filler sections, are preferably such as present their sections in the same relation, although this feature is not strictly essential.

I have shown in 1 and 10, two sets of feed rolls through which paper sections are passed from chambers 11 in which stacks of these sections are placed. The mechanisms by which these papers are removed from the stacks one at a time, and placed to the feed rolls, 1 and 10, are immaterial to my present invention, and I have not herein illustrated them. Any mechanism which will remove a single paper at a time and present it to the rolls, 1 and 10, will answer for this purpose.

The rollers 12—12 are associated with the rollers 1—1, and feed tapes 14 pass about these, thus forming feed and controlling members for the paper section, whereby the latter is properly delivered to the opening mechanism. Similarly rollers 13 and feed tapes 15 deliver papers from another stack to be inserted within the cover section when the latter is open. I have shown a third set of feed tapes 16, which deliver a second insert section. The number of insert sections delivered for placing within the open cover section may be whatever is desired.

The cover section, which is delivered by the operation of the tape 14, is received between guide fingers 2 and 20. The guide

fingers 2 extend downward and are bent to form a curve 21, which raises outside of the path of movement of the periphery of a feeding segment 3. These guide fingers 2 then extend laterally and on a downward incline under the path of movement of the feeding segment 3, and have their other end secured at 22.

Two sets of feeding segments 3 and 30 are employed, these being mounted upon shafts 31 and 32, which are placed in parallel relation and at such distance apart that the peripheries of the two sets of feeding segments will be separated just enough to make a firm contact with the paper section which is to be opened when the latter is passing between them. This relation is clearly shown in Figs. 3 and 4. At the points where the guide fingers 2 pass the point where the feed segments engage the papers to feed them, which point is on and adjacent the line adjoining the two shaft lines 31 and 32, the guiding fingers 2 lie slightly within the path of movement with the upper feeding segment 3.

The feeding segments 3 and 30 are alike in construction, and differ only in the fact that the segment 30 is of larger radius than the segment 3. The shafts 31 and 32 to which these feeding segments are secured are turned at the same rate this being accomplished by any suitable means. The means preferred for this purpose and herein shown consist of two gear wheels 33, which are equal in diameter. The teeth of these wheels should be of such character and length as to permit a slight variation of the distance between the shafts 31 and 32, such adjustment being desirable to accommodate different thicknesses of cover sections used.

One of the feeding segments is shown in detail in Figs. 6, 7, and 8. The peripheral extent of these feeding segments is determined by the widths of the paper sections being fed, in the direction of their line of feed. This peripheral extent is approximately that of the width of such paper sections. Each segment is provided with a groove in its side face, as is shown at 34, and in this is placed a segmental block 4.

This segmental block 4 is shown separately in Figs. 9, 10, and 11. It is of such thickness in a radial direction as to radially fill the curve 34, while in the direction parallel the axis upon which the segment turns, it is of less width than the space in the segmental disk in which it is placed. This block has a coned or beveled peripheral surface, which acts as a cam for the adjustment of the feeding pins when the segment block is adjusted. The outer wall 35 of the segment disk is provided with a series of projections or bores which lie outside of the beveled surface 40 of block 4.

In each of these bores is placed a needle 5, the stem of which is surrounded with a coiled spring 50, which acts against the inner surface of the wall 35, and is held firmly upon the inner end of the pin, thus forcing the pin inwardly. The length of these pins is such that when the block 4 is retracted to the position in which one of its sides is in contact with the web 36 of the segment disk, the point of the needle is flush with, or inside the outer peripheral surface of the disk. Adjustment of the block 4 away from the web 36 will force these pins outwardly, all being adjusted alike.

The manner of securing this adjustment is in a measure immaterial. The construction herein shown by which this is secured consists in the formation of angular grooves 41 in the outer periphery of the block 4 and pins 42 which extend through the outer wall 35 of the segment disk. In such construction the endwise sliding movement of the block 4 in its seat also produces a lateral movement. This sliding endwise movement of the block may be secured by a bolt 43 which screws into the end of the block, and which bears against a plate 37, which is secured to the segment disk opposite the end of the block. This bolt is provided with a lock nut 44. The segment disk is provided with a plate 45 which projects from one end of the segment, and has a lip 46 which extends outwardly, and serves as a stop for the folded edge of the paper. This stop is provided upon one set only of the segmental disks.

Along with the guide fingers 2, complementary fingers 23 are provided. These fingers are of spring character, and are curved at their lower end, corresponding with the curved section 21 of fingers 2. At their upper ends they are secured upon a block 24, which is mounted upon a shaft 25, so that a slight rocky movement is permissible. The free or swinging ends of these fingers terminate a short distance prior to their reaching the nearest point of approach between the two sets of segments 3 and 30.

The paper when discharged from between the feed rolls 12, 12 passes between the guide fingers 2 and 23. After passing the lower end of the fingers 23, it contacts with the stops 46 carried by one set of the segment disks. The segment disks 3 and 30 are separated to such a distance, and the feeding pins or needles 5 are projected enough, so that the needles enter the paper, those of each set penetrating approximately to the middle of the folded section. The segments 3 and 30 are connected so as to make the same number of turns, and so as to bring their edges into registry. As the gears connecting these two shafts are of the same size, and as the segments are of different radii, the result is that one set of segments has a peripheral

speed greater than that of the other. The segments of greater peripheral speed should be the segments 30, which are below the segments 3.

5 It is desirable, for perfect operation of my device, that the paper, at the time it is acted upon by these segments, occupy a position which is well inclined away from vertical, for a reason which will be later  
10 seen.

By reason of the greater peripheral speed of the segment 30 over that of the segment 3, the lower half of the paper will be fed faster than the upper half, from which there  
15 will be a buckling action between the two halves of the paper, and the lower half will be discharged from between the segments before the upper half is discharged. The feeding action of the upper segments 3 will  
20 terminate before the following edges of the upper half of the paper reach the discharge point.

The spring action of the under guide fingers 23, will cause them to spring upwardly against the paper, and grip it securely, thus holding this half of the paper temporarily. At the same time the advancing or folded edge of the paper section contacts with a stop 51 to permit enough of the  
25 paper beyond the point at which its following edge will be held between the two fingers 21 and 23. The lower half of the paper will, however, be discharged, and will fall away from the upper half then resting  
30 upon guide fingers 26.

In this condition the paper has been opened and the upper half is being held for the insertion of the filler sections. These filler sections are being brought into position  
35 by the action of the feeding tapes 15 and 16. These filler sections, 17 and 18, are shown as being discharged between the two sides of the cover section 19 in Fig. 5.

The momentum of discharge of these filler sections will carry them forward until their advancing edges contact with the fold in the cover section. At this point, the stop 51 is removed to permit discharge of the stuffed  
40 paper.

50 Two sets of feed rollers 6 and 60 lie at opposite sides of the position occupied by the folded edge of the cover section while it is receiving the insert sections. One of these, has the roller 6 carried by boxes or a frame, which is free to slide vertically within  
55 guides 61. These boxes are connected by means of links 62, with the short arm 63 of a bell crank lever, which is pivoted at 65, and the long arm of which, 64, carries a cam roller 66, which enters a cam slot 67 of cam 68, carried by the shaft 31 upon which is mounted one set of the segmental disks. The shape of this cam is such that the said roller 6, and the stop 51 which is carried thereby,  
60 are both raised during the time while the

cover section is receiving the insert sections. The position of the stop 51 is such that, in this position of the roller 6, it is in the path of the papers and prevents their passing by.

At the time when the insert sections have  
75 reached the bottom of the cover section, the cam causes the cam roller, carried by the arm 64, to approach nearer the center, this causing a depression of the feed roller 6, and the removal of the stop 51 from the path of  
75 the paper, thus releasing the paper and applying pressure between the rollers 6 and 60 to discharge the paper.

Supplemental rollers 610 are provided, which are connected with rollers 60 by a  
80 short feed tape 620, whereby the paper is conveyed to and deposited upon a table 630. Any means desired may be employed for receiving the papers after being stuffed. As the particular means employed for this purpose  
85 has no definite relationship with my present invention, I have shown nothing of the details thereof.

I have shown stops 7 and 70, which are controlled in such way as to check and control  
90 the position of the insert sections, and to time their entrance into the stuffing chamber. These stops are of the character shown in my application hereinbefore referred to, and as their details of construction form no  
95 part of my present invention, I will not herein describe them.

The blocks 24 to which the fingers 20, 23 are secured are adjustably fixed to shaft 25, as by set screws 27. A coiled spring 28 has  
100 one end fixed to a frame member and the other to shaft 25 and acts torsionally to hold the lower end, 23, of fingers 20 up to the guide bars 2. Shaft 25 carries a pin 28 which is normally held by the spring  
105 against a fixed stop 29 to limit the angular position of the end of fingers 20.

One of each pair of feed members, as the rolls 1, 10, 12, 13 and disks 30, is mounted to be spring held toward its complementary  
110 member, as by having its shaft 32 mounted in a block 8 sliding in guide ways 80 under the action of springs 81. A bolt 82 with stop nut 83 limits the approach of this roll toward its mate.

What I claim and desire to patent is:

1. A paper opening device for stuffing machines comprising oppositely positioned rotative feed members having feed segments adapted for synchronous peripheral contact  
120 with opposite sides of the paper, and means whereby one of said feed surfaces has a different peripheral speed from the other.

2. A paper opening device for stuffing machines comprising oppositely positioned  
125 rotative feeding members having segmental feeding surfaces of unequal peripheral extents and of correspondingly unequal radii.

3. An opening device for folded papers comprising two segment disks of unequal  
130

radii and means for giving them a synchronous rotative movement about separated axes to engage and pass a paper between them.

5 4. An opening device for folded papers comprising two segment feeding disks of unequal radii, rotatively mounted to have feeding engagement with opposite sides of a folded paper, and a synchronous rotative  
10 connection between said disks.

5. An opening device for folded papers comprising two segment disks of unequal radii, shafts carrying said disks in position to engage opposite sides of a paper, and two  
15 equal gears connecting said shafts.

6. A feeding member for a paper opening device comprising a rotative segmental member having an arcuate guideway and needle sockets extending from said guideway to its  
20 periphery, feeding needles in said sockets and adapted to have their points projected, and an arcuate slide movable within said guideway and having a cam surface engaging the inner ends of the feeding needles.

7. A feeding member for a paper opening device comprising a rotative segmental member having an arcuate guideway and needle sockets extending from said guideway to its periphery, feeding needles in said  
30 sockets and adapted to have their points projected, and an arcuate slide within said guideway and having a coned surface engaging the inner ends of the needles, said slide and the segment member having helically disposed guiding surfaces, and means  
35 for adjusting the slide in its guideway.

8. An opening device for folded papers comprising two segmental disks of unequal radii synchronously rotated in peripheral engagement with opposite sides of a paper, means for delivering a paper to said disks, and a peripherally projecting stop carried by one of said disks.

9. An opening device for folded papers comprising two segmental disks of unequal radii synchronously rotated in peripheral engagement with opposite sides of a paper, means for synchronously rotating said disks in registry, a paper stop carried by one disk, and means for delivering the papers to said disk.

10. An opening device for folded papers comprising two segmental disks of unequal radii synchronously rotated in peripheral engagement with opposite sides of a paper, guide bars between which the papers are fed to said feed disks, one of said bars terminating before the other and just short of the point of contact of said disks with the paper, the tip of the shorter bar being spring held against the other bar.

11. In a paper opening means, in combination, a pair of rotative shafts and segment disks thereon positioned to receive and feed

a paper between them, two sets of guide fingers, one set being secured by each end at opposite sides of said rotative feed members and passing within the periphery of one of said disks at the point of contact between the two feed members, a second set of guide fingers outside the first set and terminating short of the point of feeding contact of said feed disks with the paper, said outer guide fingers having their tips yieldingly held toward the first set.

12. In a paper stuffing machine, in combination, two spaced rotative shafts, segmental feeding disks on these shafts of different radius for the respective shafts and adapted to contact with opposite sides of a paper, said disks having projecting feeding needles, and means connecting said shafts for synchronous rotation.

13. In a paper stuffing machine, in combination, two spaced rotative shafts, segmental feeding disks on these shafts of different radius for the respective shafts and adapted to contact with opposite sides of a paper, said disks having projecting feeding needles, means for adjusting the projection of said needles, and means connecting said shafts for synchronous rotation.

14. In a paper stuffing machine, in combination, two spaced rotative shafts, segmental feeding disks on these shafts of different radius for the respective shafts and adapted to contact with opposite sides of a paper, said disks having projecting feeding needles, means connecting said shafts for synchronous rotation, means for temporarily holding the following edge of the upper half of the paper, and means for discharging filler sections between the two halves of the paper.

15. In a paper stuffing machine, in combination, upper and lower spaced bars defining a stuffing chamber, paper discharging rolls at one edge of said chamber, one of said rolls being mounted to move toward and from the other, a paper stop movable in conformity with said roll, rotative paper opening members located at the opposite side of the stuffing chamber and engaging opposite sides of a paper section designed to serve as a cover section, the lower of said paper opening mechanisms having a paper feeding movement more rapid than the upper, spring gripping means acting upon the paper before its engagement by the paper opening members, and means for discharging other paper sections into the opened paper section in the stuffing chamber after release of the lower half of the cover section from said spring gripping members, and means for then gripping the discharge rolls upon the stuffed paper.

16. In a paper stuffing machine, in combination, upper and lower spaced bars de-

fining a stuffing chamber, paper discharging rolls at one edge of said chamber, one of said rolls being mounted to move toward and from the other, a paper stop movable  
5 in conformity with said roll, rotative paper opening members located at the opposite side of the stuffing chamber and engaging opposite sides of the cover section, the lower of said paper opening mechanisms having a paper  
10 feeding movement more rapid than the upper, spring gripping means acting upon the paper designated to serve as the cover section before its engagement by the paper opening members, and means for discharging  
15 other paper sections which constitute the filler sections into the opened cover section in the stuffing chamber after release of the lower half of the cover section from said spring gripping members, a cam rotative  
20 in conformity with the paper opening members, and means actuated by said cam to con-

trol the position of the movable discharge roll and its associate paper stop.

17. In a newspaper stuffing machine, in combination, upper and lower bars defining 25 a stuffing chamber, two spaced shafts outside of the paper entering side of said stuffing chamber, segmental feed disks carried by said shafts, and adapted to engage opposite sides of the paper, those upon the upper shaft being of smaller radius and entering slightly within the stuffing chamber, means for synchronously rotating said disks, means for introducing the cover section to the stuffing chamber along the bars forming 35 the upper side thereof, and means for introducing the filler sections to the stuffing chamber at a lower level.

Signed at Seattle, Washington, this 25th day of October, 1915.

SEVERIN HALVORSEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."