Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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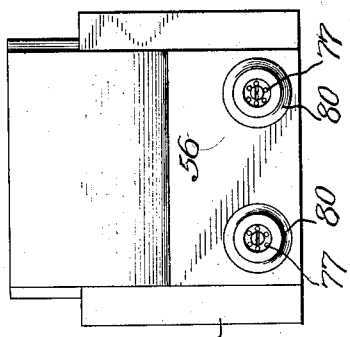


Fig. 15

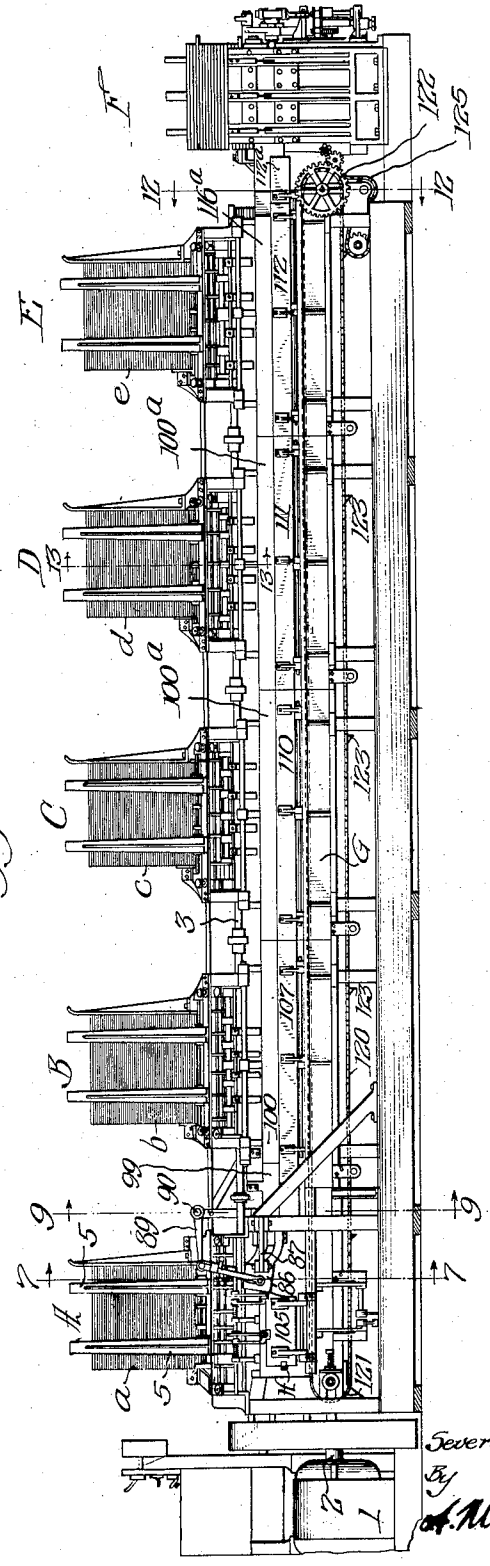


Fig. 1

Witness:
Fred. C. Dyson

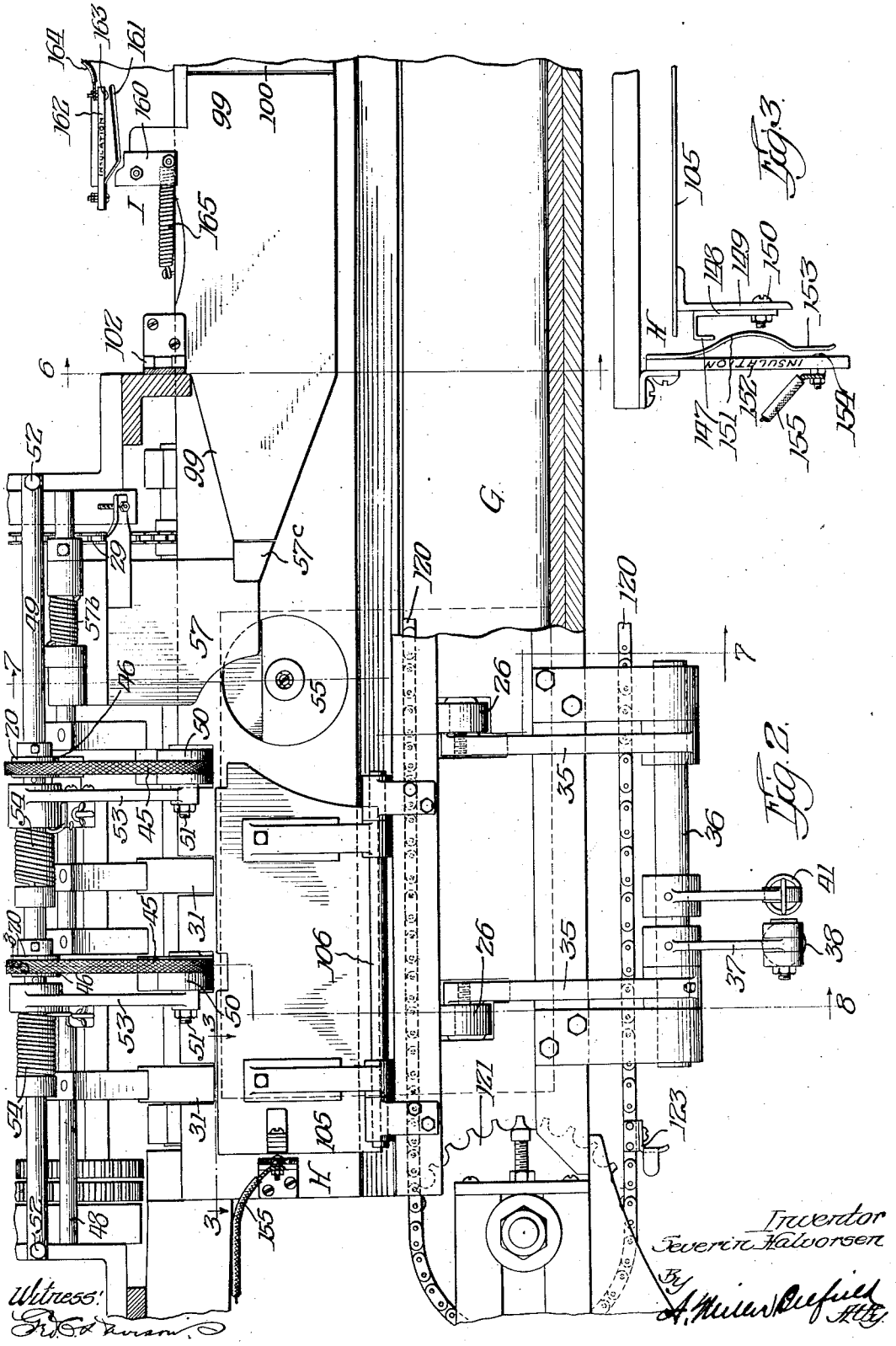
Inventor
Severin Halvorsen
By
A. Miller Belfield
Atty.

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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S. HALVORSEN

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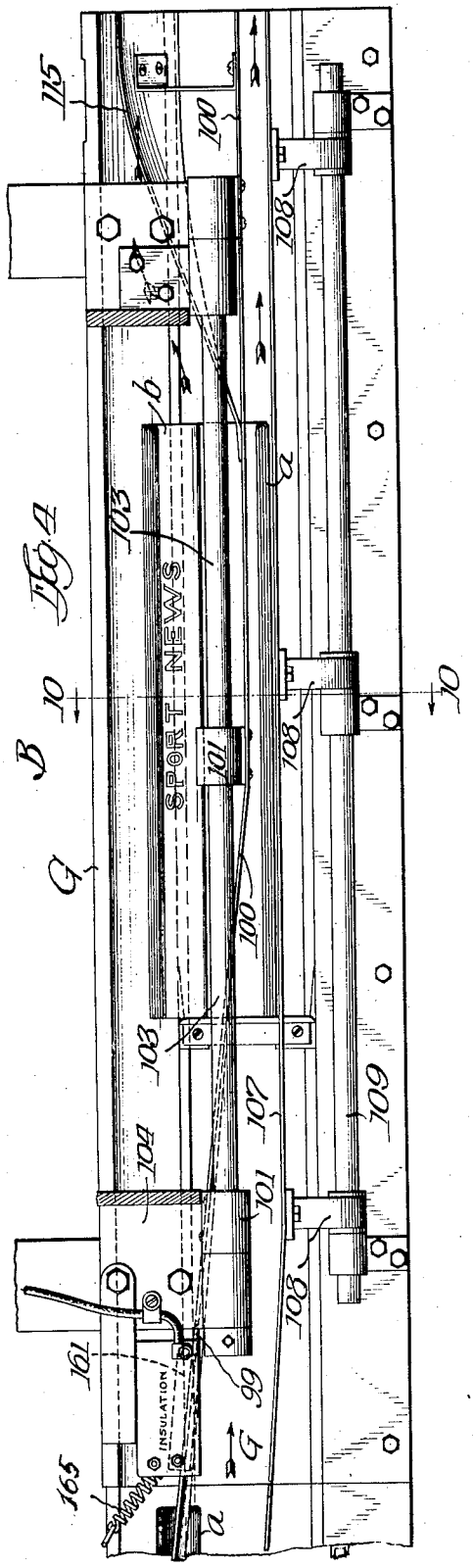


Fig. 4

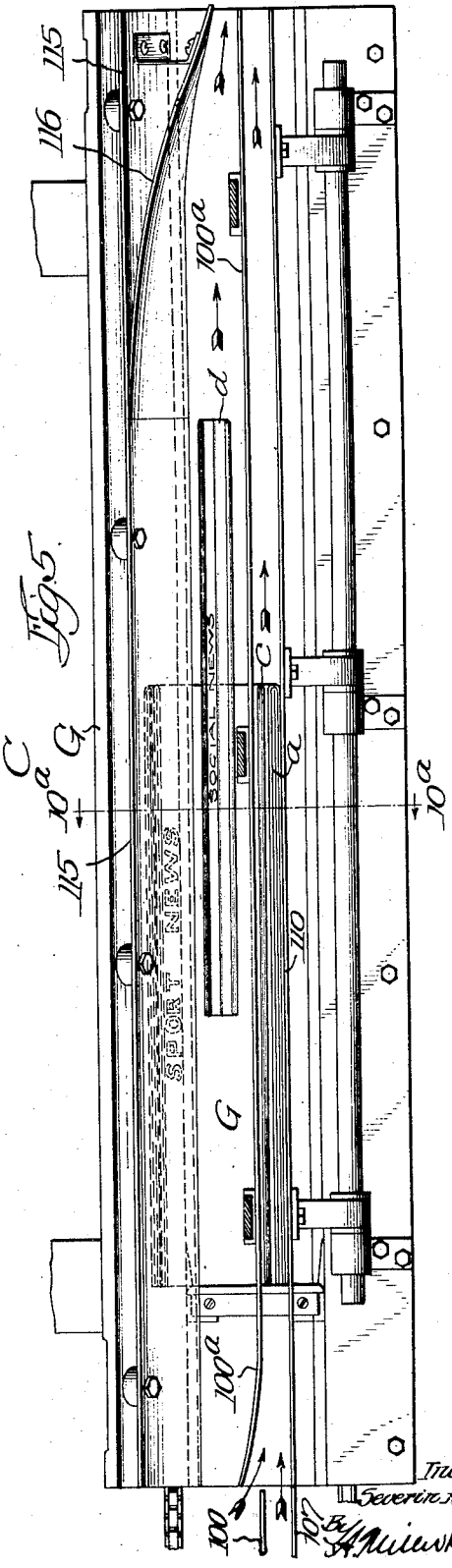


Fig. 5

Inventor
Severin Halvorsen
By
Attorneys

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

Filed May 20, 1922 18 Sheets-Sheet 4

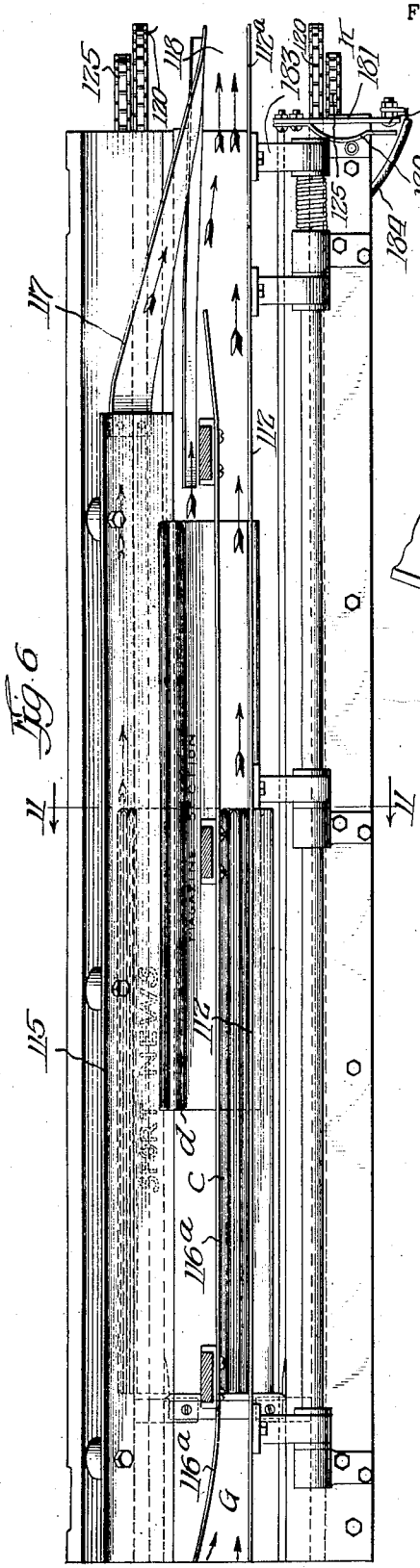


Fig. 6

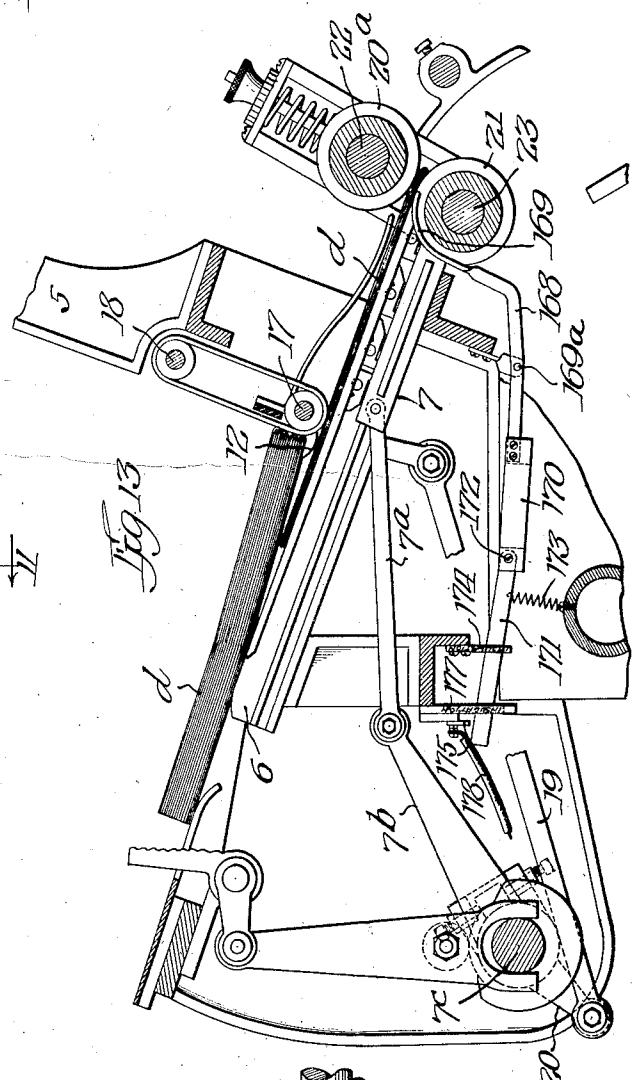


Fig. 13

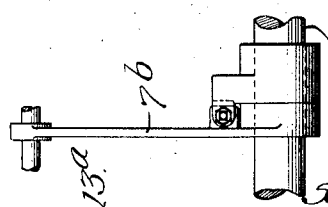


Fig. 13a

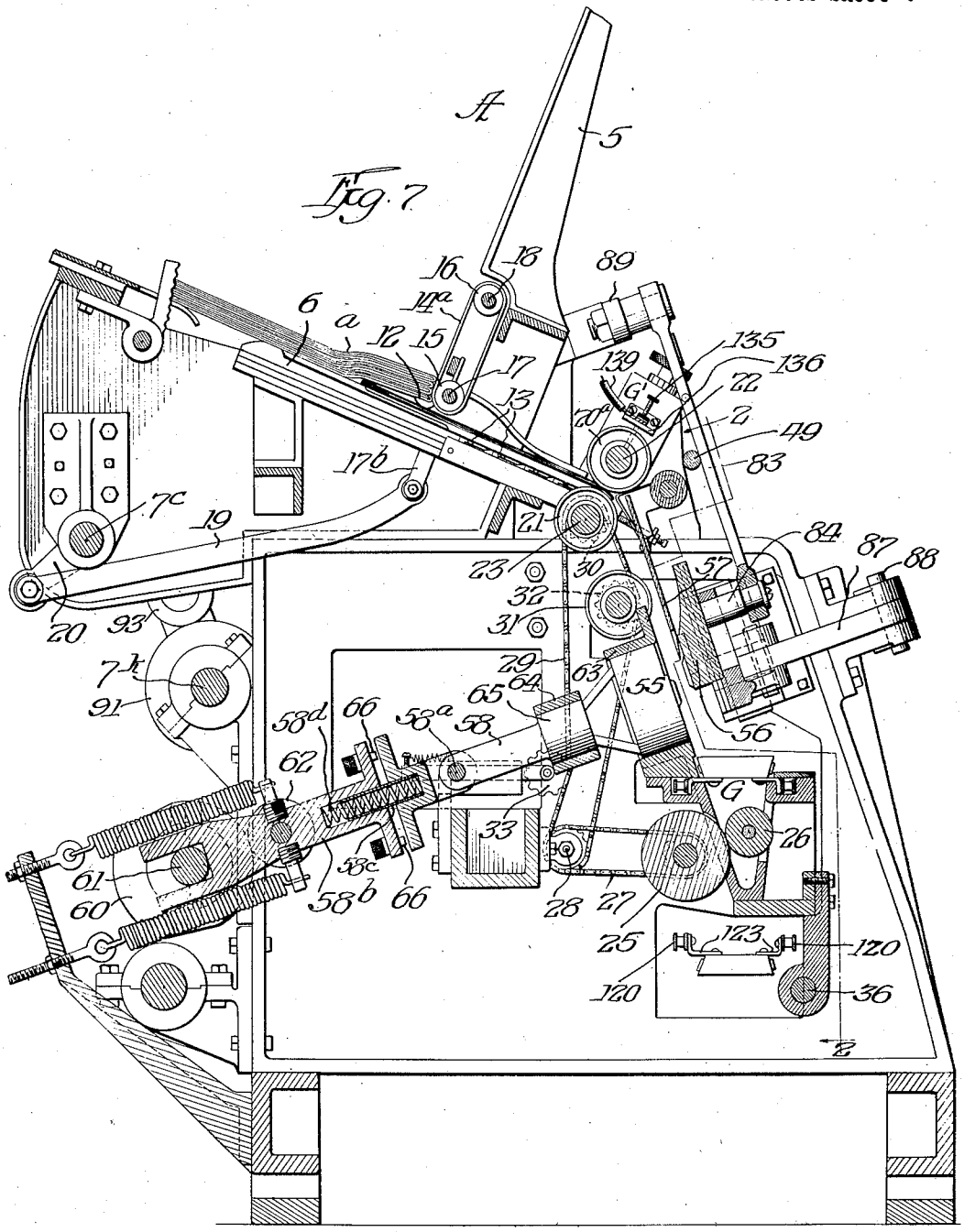
Inventor:
Severin Halvorsen
By H. Miller Bedfield Atty.

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

Filed May 20, 1922 18 Sheets-Sheet 5



Witness:

Inventor:
Severin Halvorsen

By A. Glenn Bedfield Atty

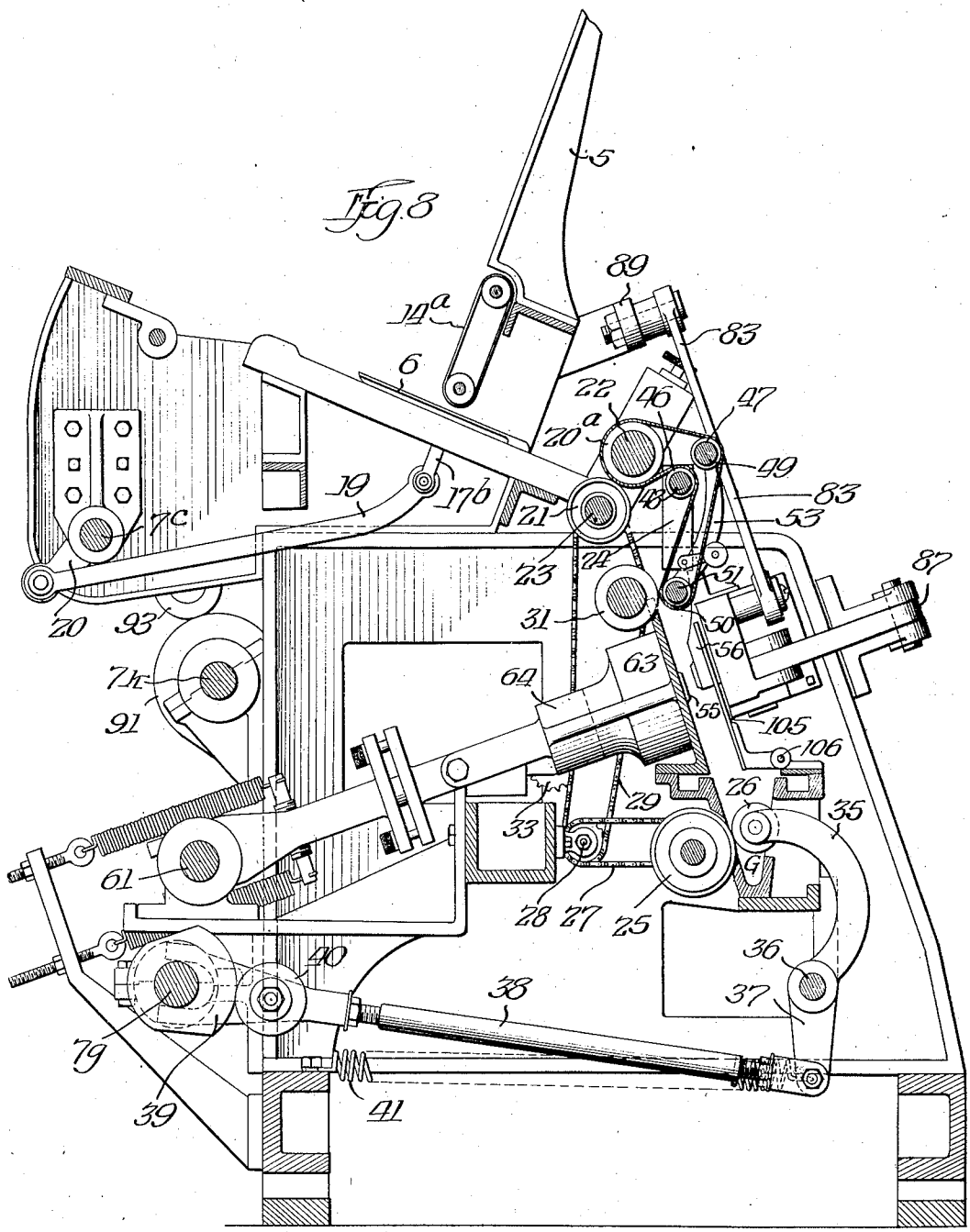
Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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Fig. 8



Witness:

Inventor
Severin Halvorsen

By A. Mumbelfield Atty.

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NEWSPAPER STUFFING MACHINE

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Fig. 9.

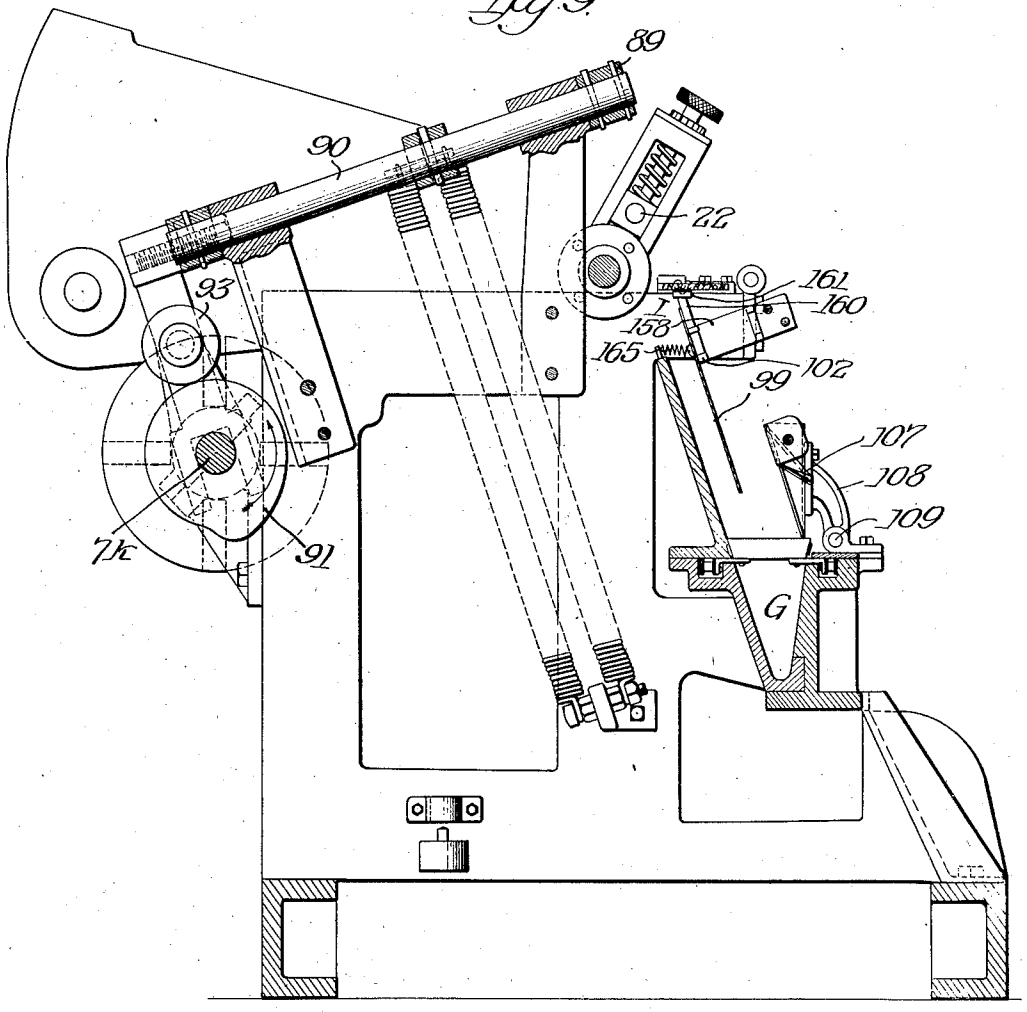
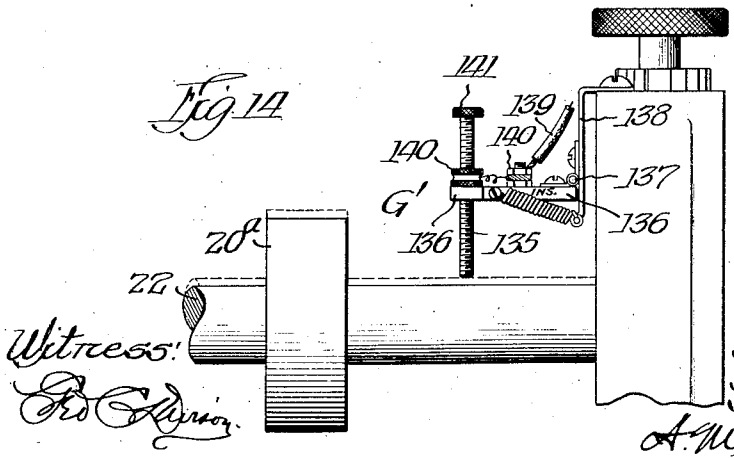


Fig. 14



Witness:
Fred Gibson

Inventor
Severin Halvorsen
By
A. Miller Belfield. Atty.

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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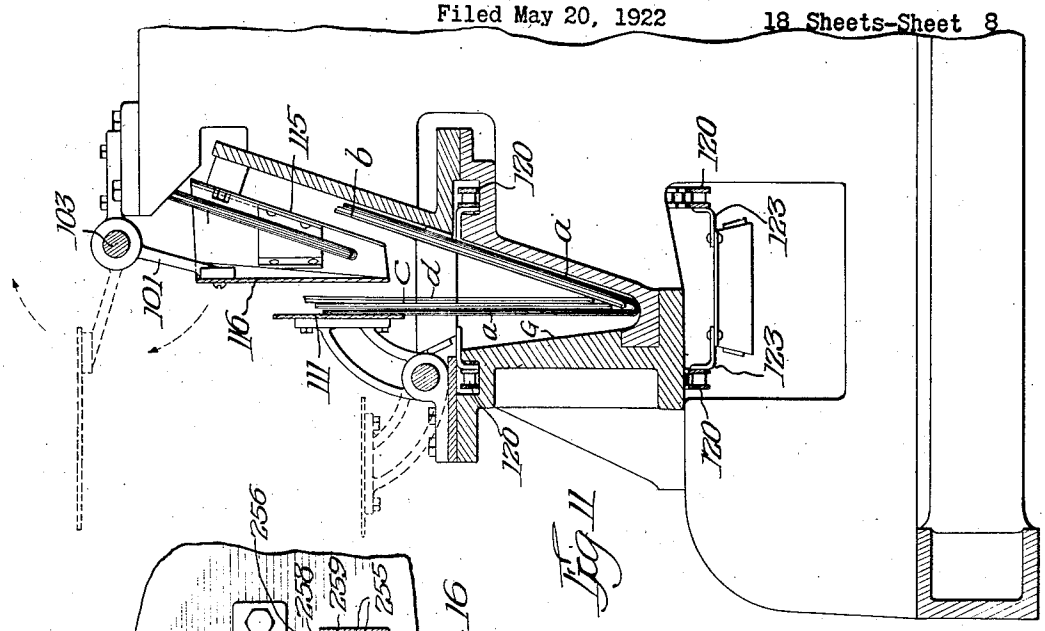


Fig. 11

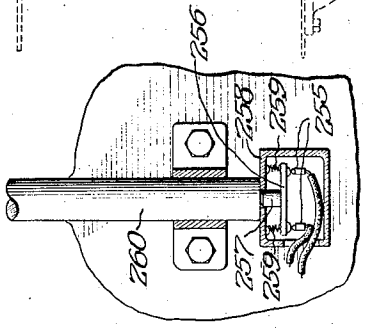


Fig. 16

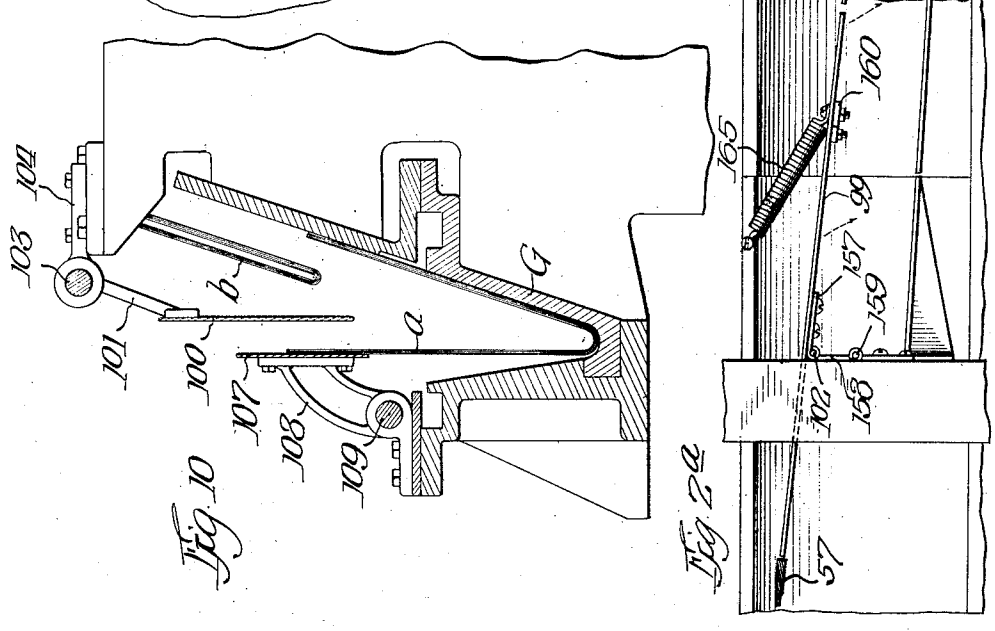


Fig. 10

Fig. 22

Witness:

Fred. C. Dawson

Inventor
Severin Halvorsen

By A. Miller Belfield Atty

Feb. 14, 1928. 1,659,099

S. HALVORSEN

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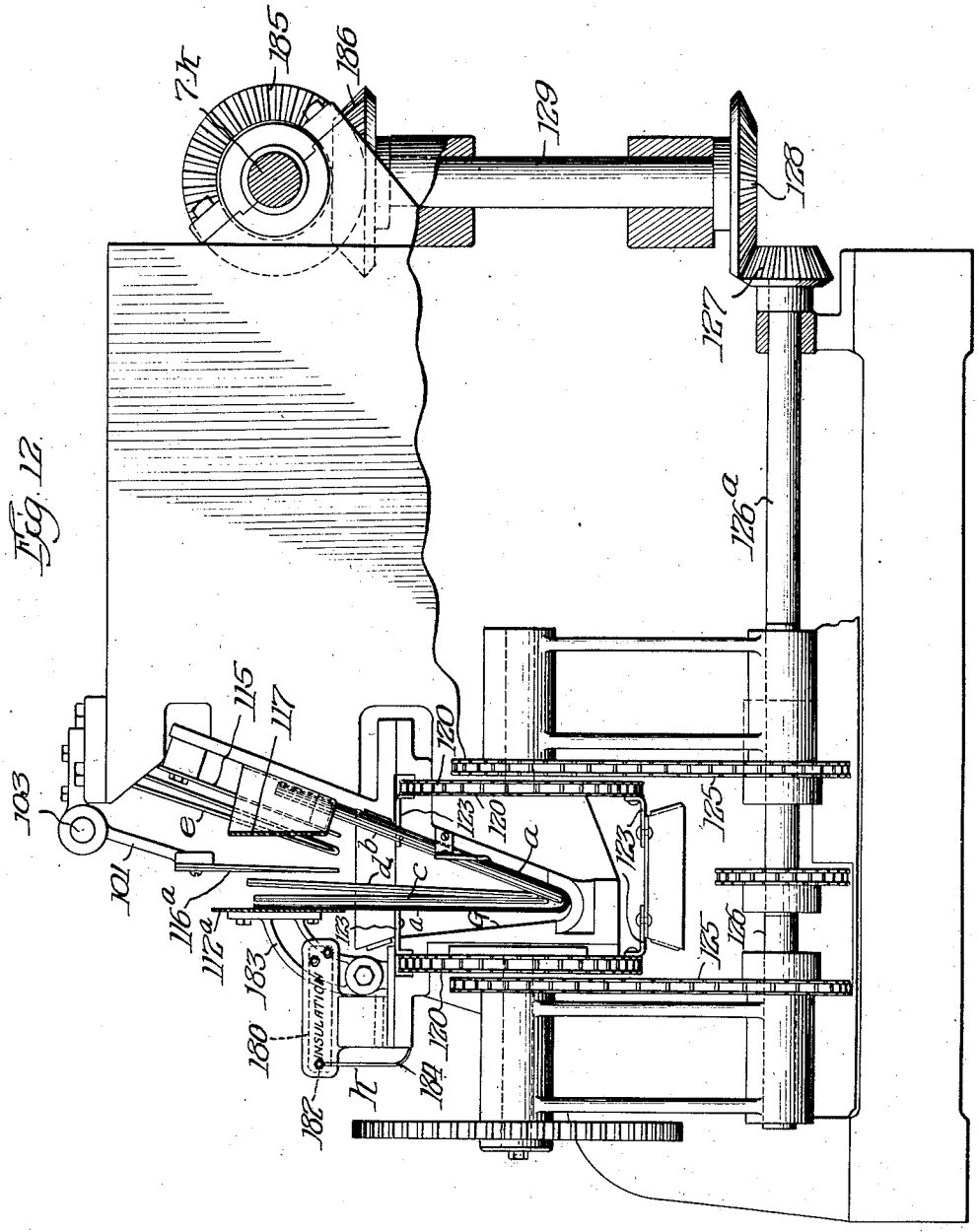


Fig. 12.

Witness:
Fred. C. Dorsen

Inventor
Severin Halvorsen
By A. Miller Bedfield Atty.

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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Fig. 17

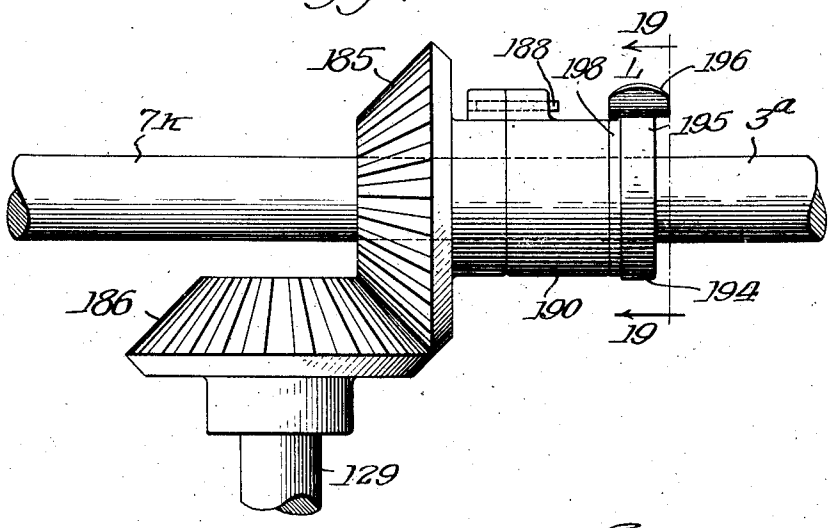


Fig. 18.

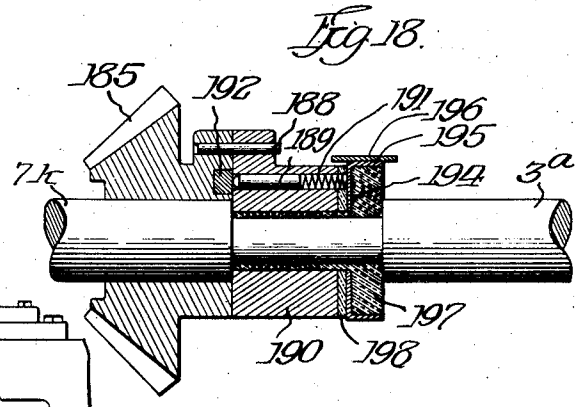


Fig. 10a

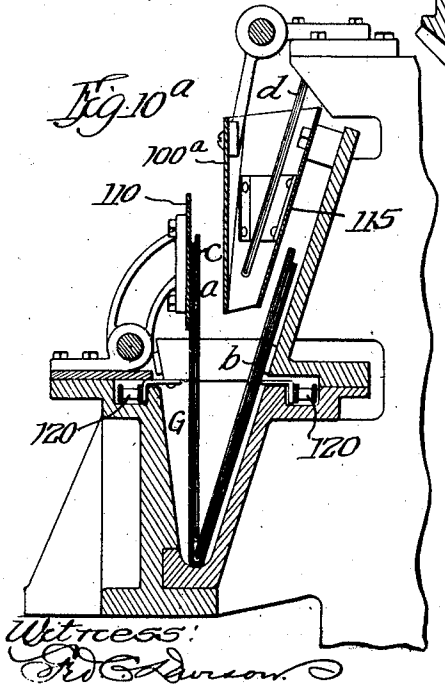
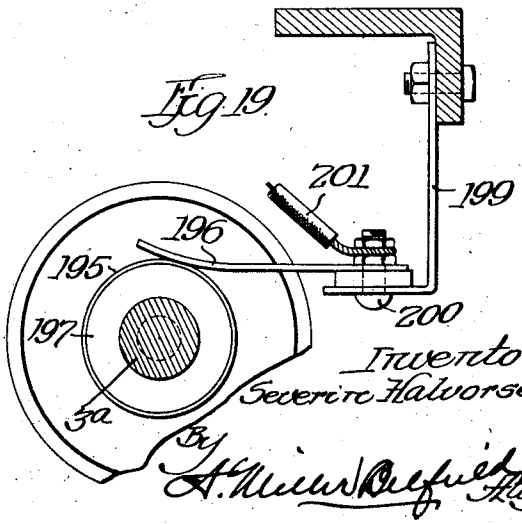


Fig. 19



Witness:

Inventor
Severine Halvorsen
By

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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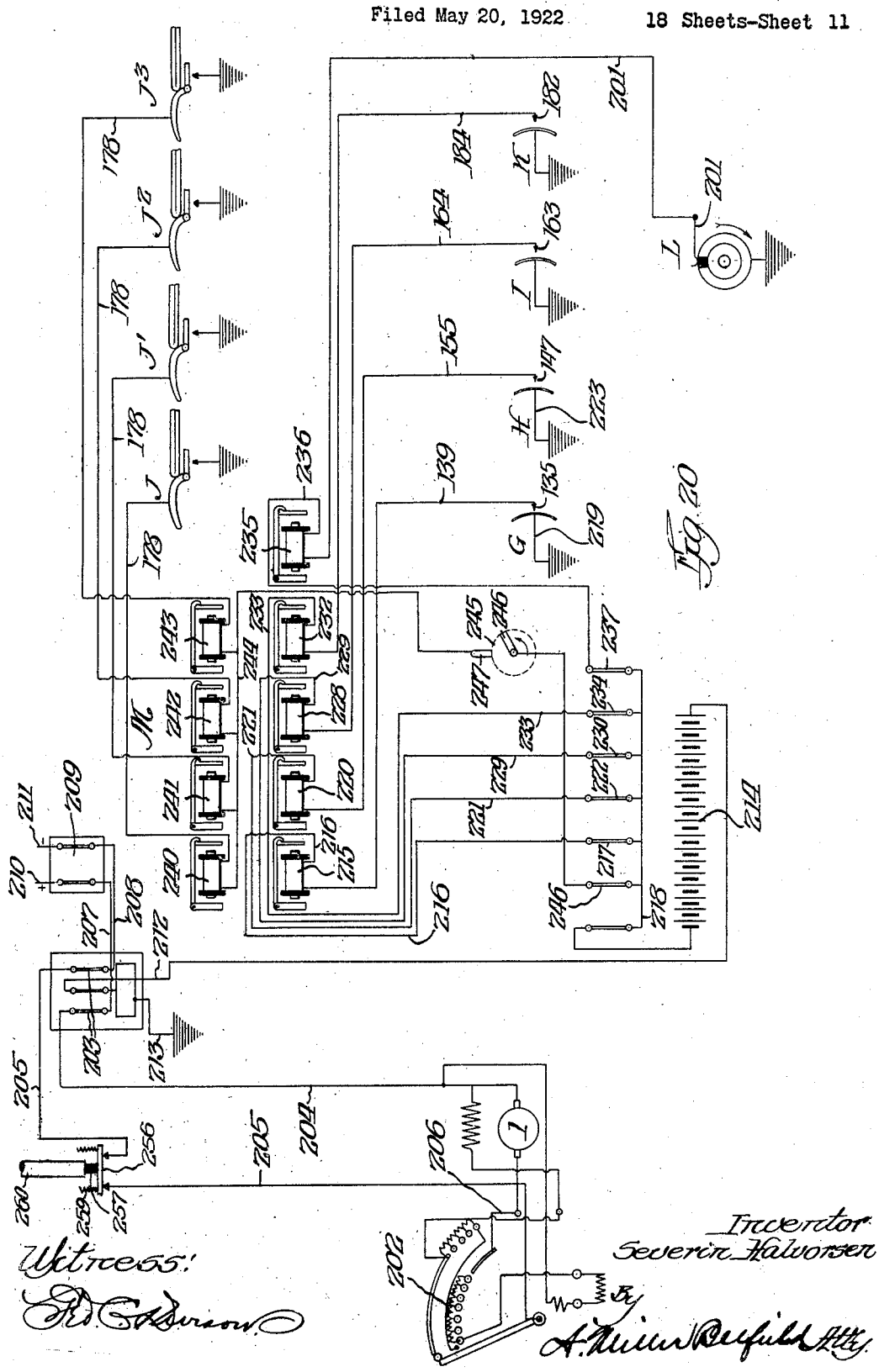


Fig. 20

Witness:

Inventor
Severin Halvorsen

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

Filed May 20, 1922 18 Sheets-Sheet 12

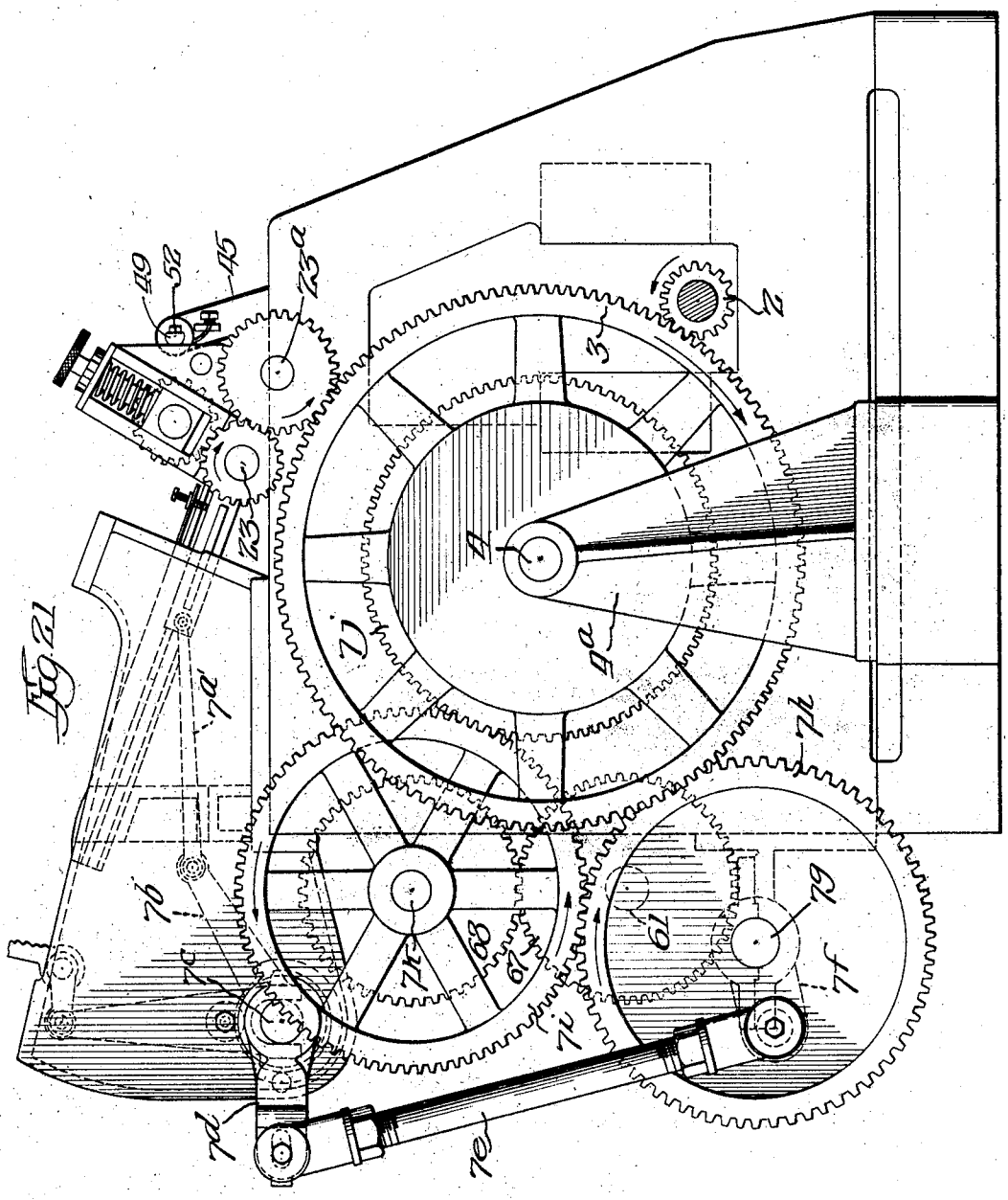


Fig. 21

Witness:

Inventor
Severin Halvorsen

By A. Wilmer Barfield Atty.

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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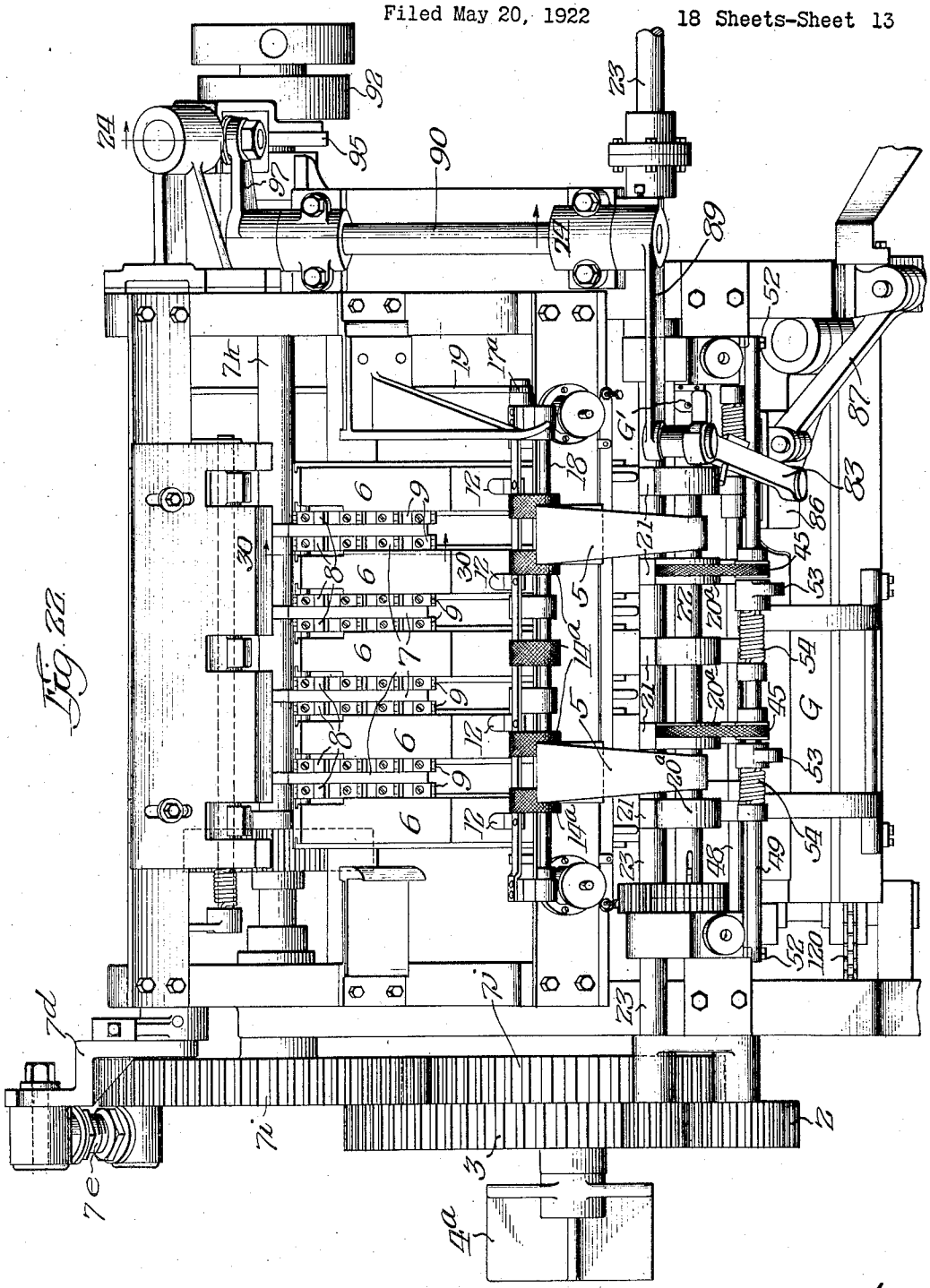


Fig. 22.

Witness:

Inventor
Severin Halvorsen

By A. Wiener Redfield. Atty.

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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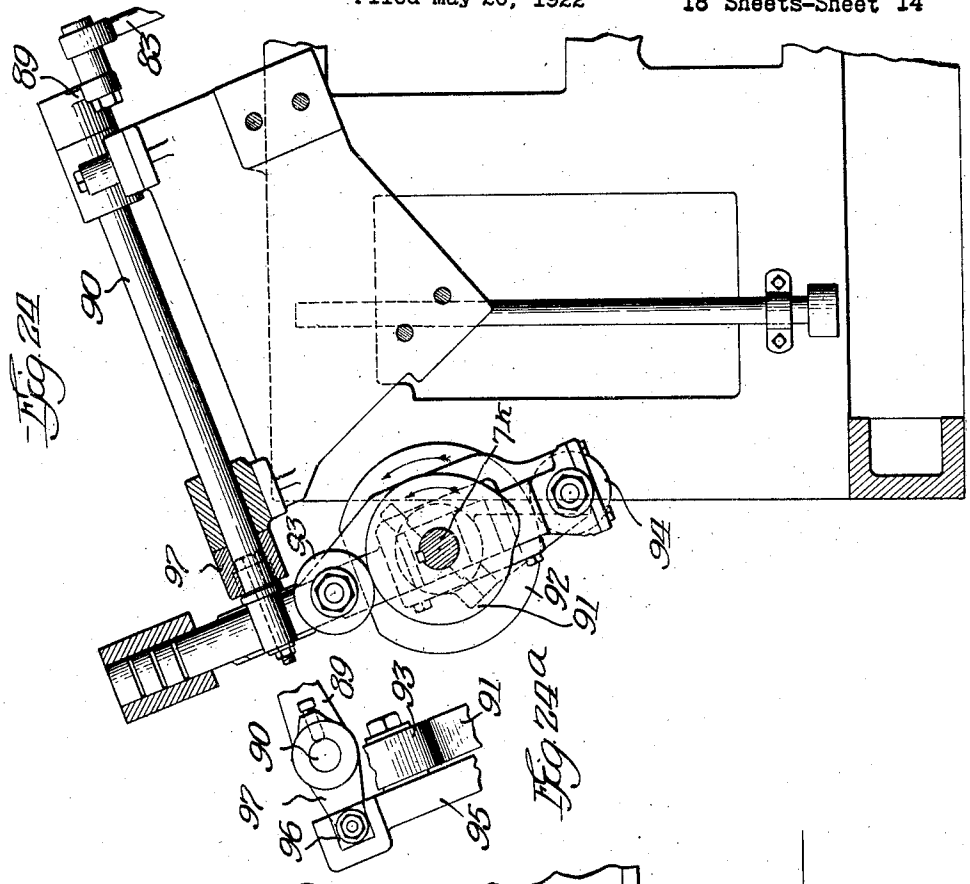


Fig 22

Fig 22a

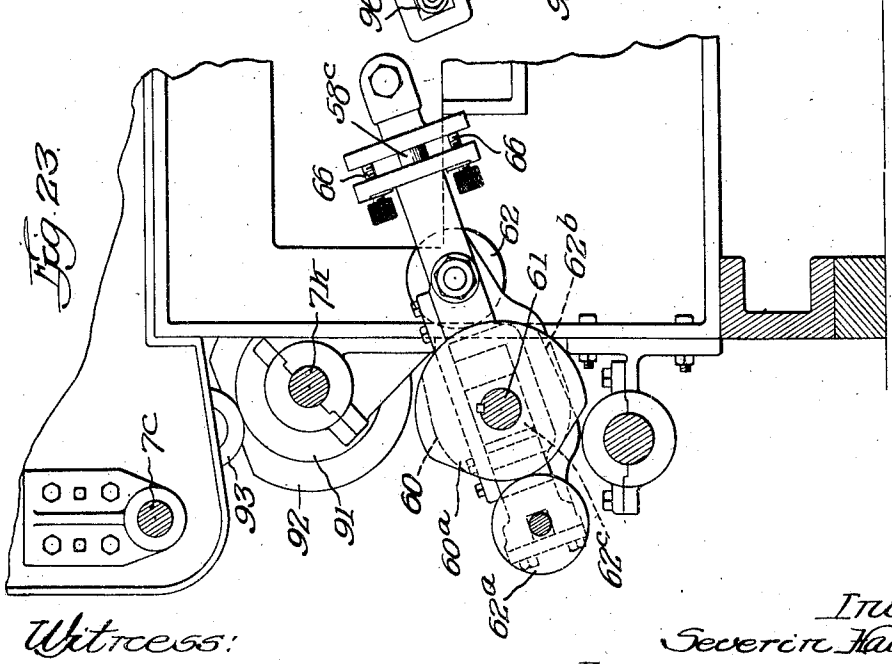


Fig 23

Witness:

Inventor
Severin Halvorsen

By
A. Wilmer Redfield. Atty

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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Fig. 25

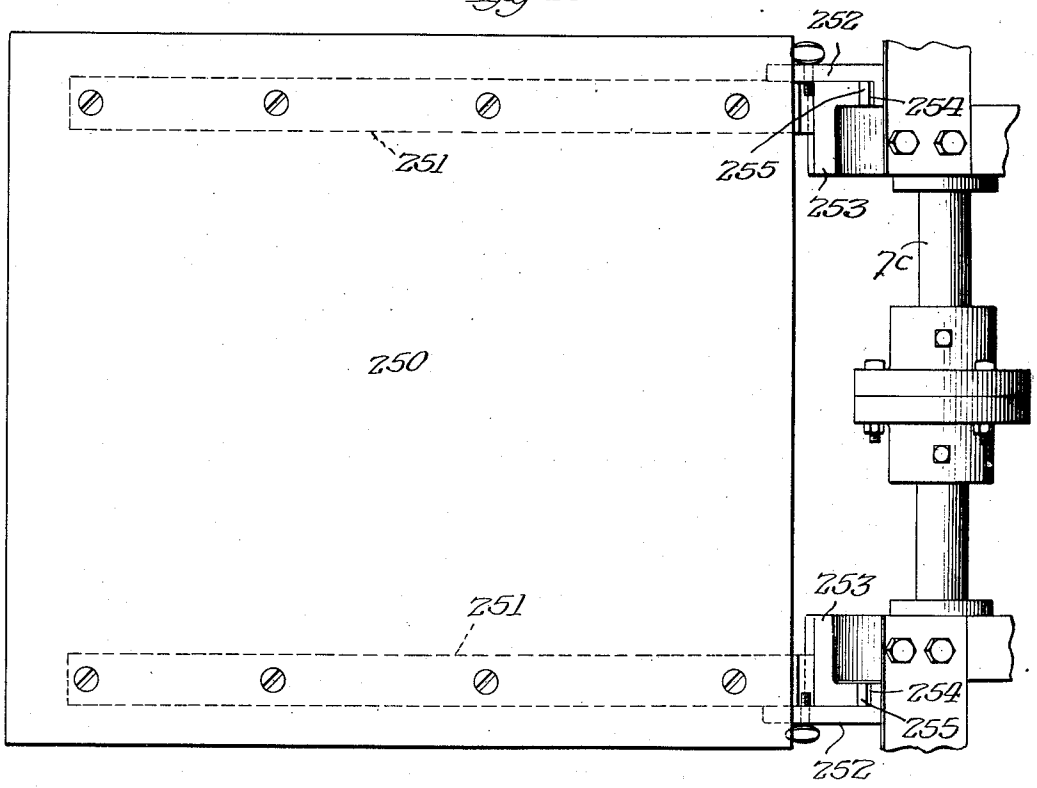
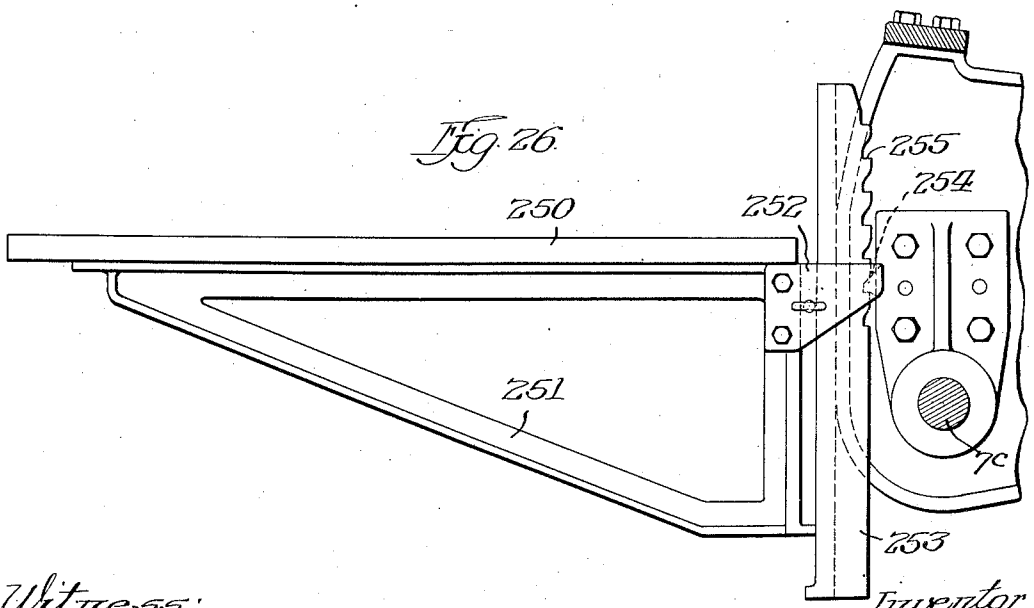


Fig. 26



Witness:
Fred. C. Dennison

Inventor
Severin Halvorsen
By A. G. Mercer Redfield Atty.

Feb. 14, 1928.

1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

Filed May 20, 1922

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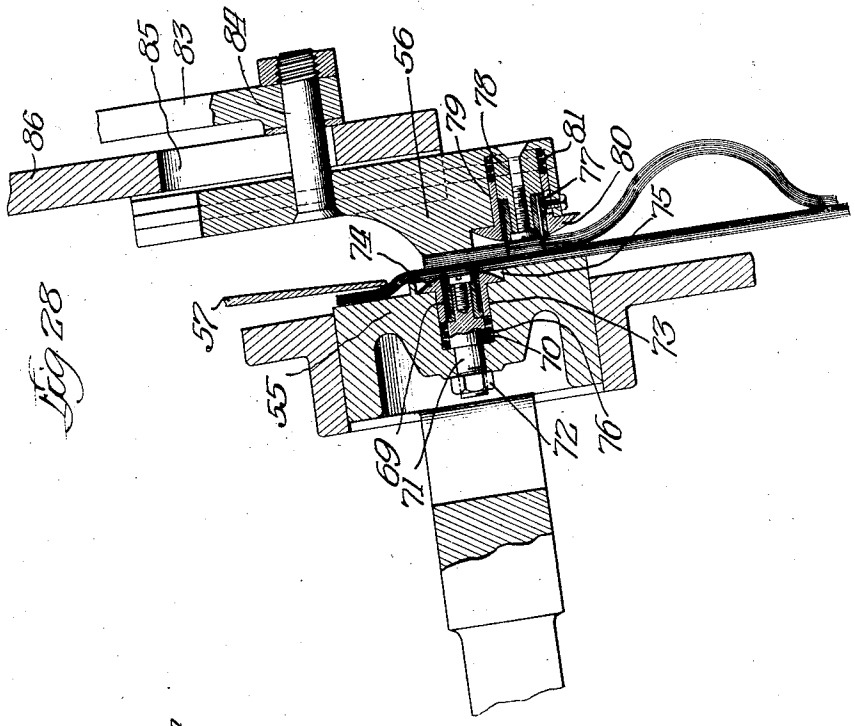


Fig 28

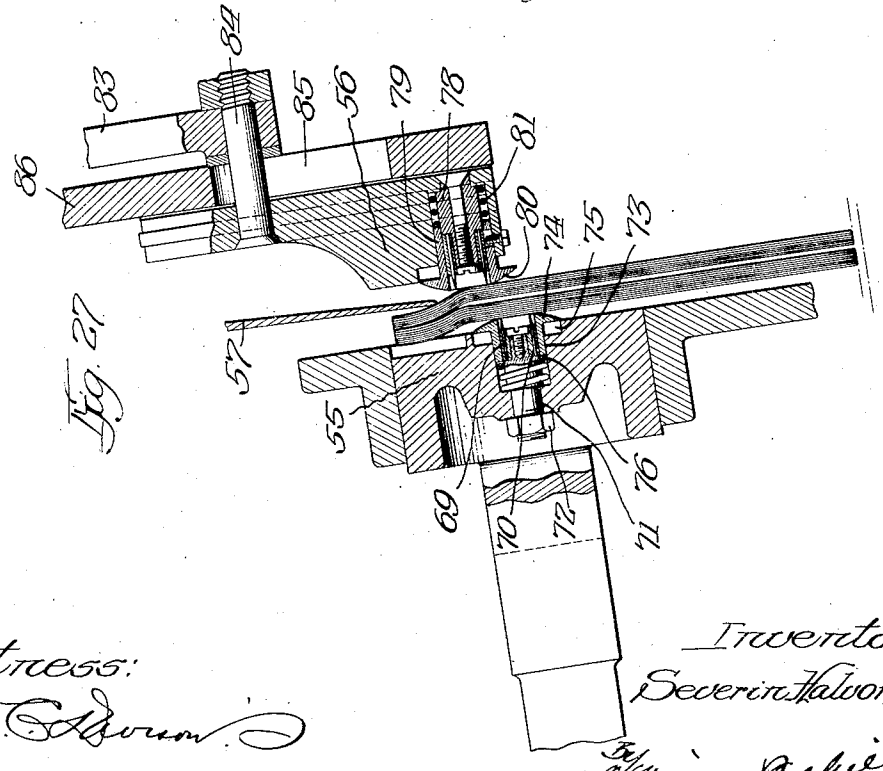


Fig. 27

Witness:
Geo. C. Thorsen

Inventor
Severin Halvorsen
By H. Miller Reefield Atty.

Feb. 14, 1928. 1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

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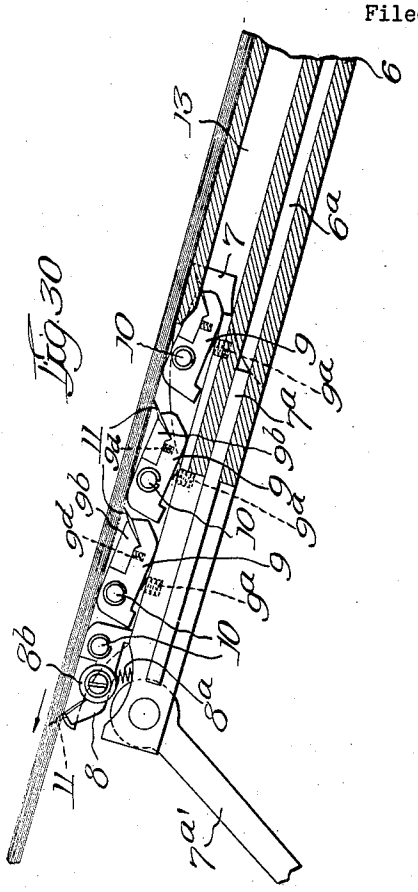


Fig. 30

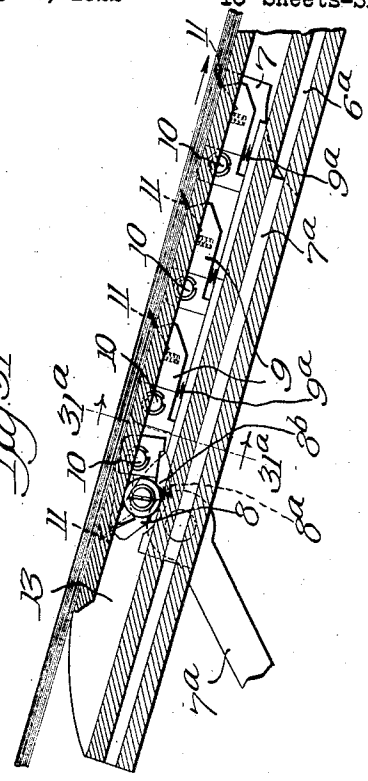


Fig. 31

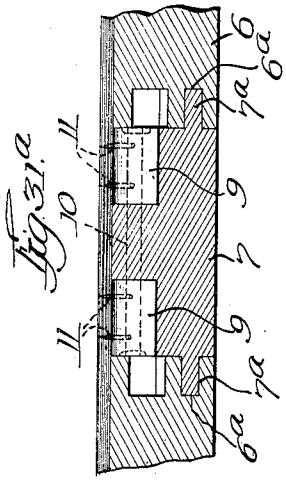


Fig. 31a

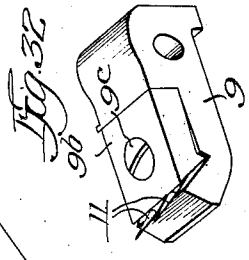


Fig. 32

Fig. 29

Witness:

Inventor
Severin Halvorsen

By A. Wilson Benfield Atty.

Feb. 14, 1928.

1,659,099

S. HALVORSEN

NEWSPAPER STUFFING MACHINE

Filed May 20, 1922

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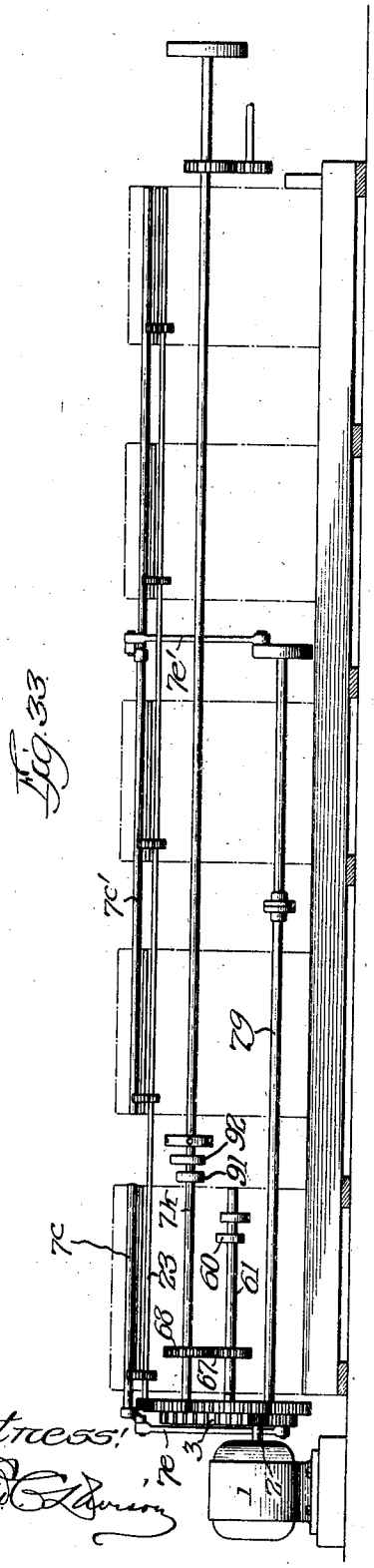


Fig. 33

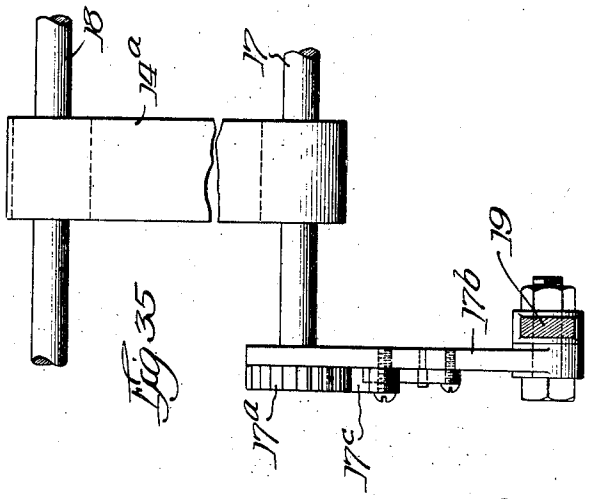


Fig. 35

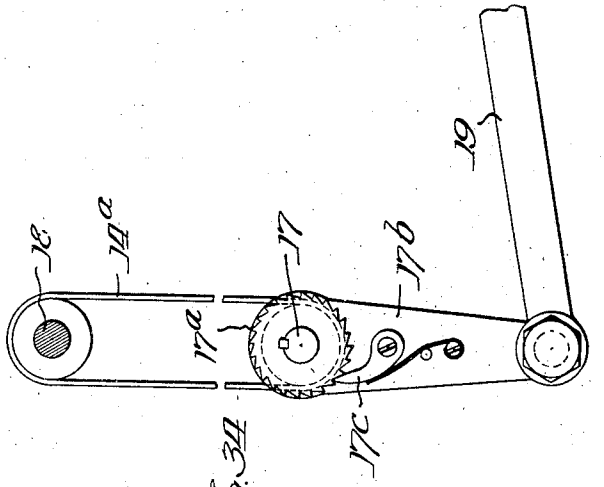


Fig. 34

Witness:

Inventor:
Severin Halvorsen

By A. Miller Belfield Atty.

Patented Feb. 14, 1928. 1,659,099

UNITED STATES PATENT OFFICE.

SEVERIN HALVORSEN, OF CHICAGO, ILLINOIS.

NEWSPAPER STUFFING MACHINE.

Application filed May 20, 1922. Serial No. 562,462.

My invention relates to newspaper stuffing machines, by which is meant machines which insert the various sections or parts of a newspaper into one of the other parts so as to make a single unit fit for delivery.

One of the objects of the invention is to provide a practical and advantageous machine of this kind.

Another object of the invention is to provide improved means for automatically opening the outside or cover section for the insertion of the other section.

Another object of the invention is to provide improved means for automatically advancing the open cover section so as to receive the other sections.

Another object of the invention is to provide improved means for automatically feeding the insert sections to the open cover section.

Another object of the invention is to arrange for the effective insertion of the insert sections and to avoid interference by such sections with the cover section or with previously inserted sections.

Another object of the invention is to provide improved means for controlling the insert sections within the cover section.

Another object of the invention is to arrange for the automatic stopping of the machine upon the occurrence of any one of a number of abnormal conditions;—such for example, as the improper feeding of the various paper sections, the improper operation of the opening mechanism or improper delivery of the complete units.

Another object of the invention is to arrange for the indication of the place or general nature where abnormal operation has occurred.

Another object of the invention is to facilitate the movement of the cover section and the delivery of the same to the various insert sections.

Another object of the invention is to arrange for the stoppage of the entire machine in case of interference with its operation in such a way that breakage would occur if the machine kept running.

Another object of the machine is to ensure delivery of complete papers.

In the accompanying drawings Fig. 1 is a front elevation of a newspaper stuffing machine embodying my present invention;

Fig. 2 is a vertical section taken on line 2—2 in Fig. 7;

Fig. 2ª is a plan view of a portion of the trough;

Fig. 3 is a plan view of electrical detail taken on line 3—3 in Fig. 2;

Fig. 4 is a plan view of a portion of the machine to the right of the mechanism shown in Fig. 2;

Fig. 5 is a plan view of a portion of the machine to the right of the mechanism shown in Fig. 4;

Fig. 6 is a plan view of a part of the machine to the right of the part shown in Fig. 5;

Fig. 7 is a cross section taken on the line 7—7 in Figs. 1 and 2;

Fig. 8 is a cross section taken on line 8—8 in Fig. 2;

Fig. 9 is a cross section taken on the line 9—9 in Fig. 1;

Fig. 10 is a cross section taken on line 10—10 in Fig. 4;

Fig. 10ª is a cross section taken on line 10ª—10ª in Fig. 5;

Fig. 11 is a cross section taken on line 11—11 in Fig. 6;

Fig. 12 is a cross section taken on line 12—12 in Fig. 1;

Fig. 13 is a cross section taken on line 13—13 in Fig. 1;

Fig. 13ª is a view of a detail of the mechanism of Fig. 13;

Figs. 14, 15 and 16 are views of details of construction involved in the mechanism of the aforesaid figures;

Fig. 17 is a view of a portion of a main driving shaft and an automatic safety stopping arrangement for the same;

Fig. 18 is a similar view, partially in cross section;

Fig. 19 is a cross section taken on line 19—19 in Fig. 17;

Fig. 20 is a diagrammatic view of the electrical arrangements for operating the automatic stopping and indicating mechanism;

Fig. 21 is an end elevation, looking at the left hand or cover opening end;

Fig. 22 is a plan view of the same part of the machine;

Fig. 23 is a view similar to Fig. 7 showing a modified construction;

Fig. 24 is a cross section taken on line 24—24 in Fig. 22;

Fig. 24ª is a side view of parts shown in Fig. 24;

Figs. 25 and 26 are plan and side views,

respectively, of a paper section supporting shelf or table arranged at the rear of the machine;

Figs. 27 and 28 are cross sectional views of the opening mechanism in process of operation;

Fig. 29 is a perspective view of part of said mechanism;

Figs. 30 and 31 are views of the paper feeding mechanism;

Fig. 31ª is a cross section taken on line 31ª—31ª in Fig. 31;

Fig. 32 is a view of a detail of construction of same;

Fig. 33 is a diagrammatic view of the machine, showing the driving shafts; and

Figs. 34 and 35 are views of the mechanism for actuating certain feed tapes.

Referring to the drawings, and particularly to Fig. 1, I show a machine of the class specified in which there are five heads or magazines A, B, C, D, and E, each one containing a pile or stack of newspaper sections, which are to be assembled to form complete newspapers. Head or magazine A contains a pile of papers which are to be outside or cover sections of the complete paper. Heads or magazines B, C, D and E contain papers which are to be inserted into the outside or cover section, one from each of said heads B, C, D and E into each outside or cover section. At F is a delivery mechanism by which the complete newspapers are delivered from the machine. As this delivery mechanism forms the subject matter of a separate application for patent executed by me of even date herewith, the same will not be described in detail herein.

Extending along the heads A to E, inclusive, is a support G, which is preferably in the form of a V-shaped trough adapted to receive cover sections from the head A and to support the same in an open condition as they are moved along from head to head to receive insert sections from the heads B to E, inclusive.

At each of the heads A to E, inclusive, there is a feeding mechanism by which paper sections are fed one by one from said heads to the receiving and supporting trough G. At the head A there is an opening mechanism by which the cover sections are opened. Advancing mechanism is provided for moving the open cover sections along the support G to receive the insert sections from heads B—E, inclusive, and to deliver the complete newspapers to delivery mechanism F. Along the support G there are various instrumentalities for holding the cover sections open and also for moving each insert to one side of the open cover section so as to make room for and prevent interference with the next insert section. Other instrumentalities are provided for automatically stopping the machine when there is improper or imperfect operation, as for example, at one of the feed mechanisms. When the machine is automatically stopped in this way the point where the trouble is is automatically indicated.

In Fig. 1 I show an electric motor 1 mounted on the floor at the left hand end of the machine for driving the same. This is understood to be suitably connected with some source of electrical energy. This motor is provided with a pinion 2 meshing with a gear 3 on a shaft 4 on a pedestal 4ª (Figs. 21 and 22). Certain driving shafts are run by this gearing, as will be pointed out more fully hereafter.

The mechanism for feeding the cover sections from head A to support G and opening them in said support is shown best in Figs. 2, 7, 8, 22, 27 and 28. In this arrangement the head A is provided with front uprights 5 for holding the front edges of the papers. Strips 6 support the pile of cover sections *a* arranged in this head A.

The cover sections *a* are fed from the head A by feeding apparatus adapted to engage the bottom cover section *a* and push same out of the bottom of head A. The preferred form of mechanism, best shown in Figs. 7, 22, 30 and 31, is the general type of mechanism illustrated, described and claimed in my United States Patent, No. 1,441,278, January 9, 1923, newspaper stuffing machine, with certain improvements therein. It comprises a series (four are shown) of reciprocating sliding shoes or carriages 7—7 arranged between the supporting members 6—6, said shoes 7—7 being provided with means for first engaging a bottom paper section and pulling it backwardly to release its front end, and for then pushing it forwardly to eject it from the head. These paper engaging means comprise pivoted dogs 8—8 and 9—9, one dog 8 and three dogs 9 (Figs. 30 and 31) being associated and connected together to form a set. These dogs 8 and 9 are pivotally connected by pins 10—10 with the shoe 7, and are provided with needles 11—11. The dogs 8 are at the inner end of the shoe 7 and needles 11 at the inner end of dogs 8. Dogs 9—9 are in front of dog 8, and needles 11—11 at front end of dogs 9. Dogs 8 are for engaging bottom paper section to withdraw or retract same a short distance to release front end of paper section from abutment 12 (Fig. 7), as shown in Fig. 30. Dogs 9—9 are for engaging paper section to then move it forward to eject it from head or holder. A spring 8ª tends to press dog 8 gently upward to engage paper. When once engaged, further backward movement will push pins 11 further into paper. Springs 9ª tend to press dogs 9 gently upward to engage their needles with paper, and forward movement of dogs pushes pins

further in. Dog 8 has a roller 8^b sliding in groove 13 in member 6 so as to hold dog 8 down (Fig. 31) during forward movement of feeding device. Shoe 7 has side projections 7^a sliding in grooves 6^a in members 6, holding shoes 7 in proper position and permitting their back and forth sliding movement. Dogs 8 and 9 are made with removable members 9^b held in position by screws 9^c, whereby needles 11 may be removed and replaced or adjusted by loosening screws 9^c, small springs 9^d pushing blocks 9^b out when screws 9^c are loosened.

The sliding shoes 7—7 are reciprocated by links 7^a—7^a (Fig. 21), pivotally connected with swinging arms 7^b—7^b on a rock shaft 7^c, which is actuated by an arm 7^d pivotally connected with a link 7^e which is in turn driven by a crank 7^f on shaft 7^g, driven by gears 7^h, 7^i and 7^j from drive shaft 4, gear 7^i being on main drive shaft 7^k. The feed devices for head A, feeding cover sections, are driven by shaft 7^c actuated by feed drive shaft 7^g. The feed devices of the other heads, B, C, etc. feeding insert sections, are driven by shaft $7^{c'}$, in alinement with shaft 7^c, but disconnected with same (Fig. 33), said shaft $7^{c'}$ being also driven from shaft 7^g, as by link $7^{e'}$, similarly connected and arranged to link 7^e. These separate shafts 7^c and $7^{c'}$ are provided because of the need of feeding paper sections from the cover section head A at times different from insert section heads B, C, etc., each cover section being fed prior to the feeding of an insert section, to permit opening of the cover section and movement to an insert head before an insert section is fed to it.

The outward movement of the paper sections from head A is aided by a belt 14^a (Fig. 7) traveling over wheels 15 and 16 mounted on shafts 17 and 18, respectively. The shaft 17 is driven intermittently by a ratchet arrangement consisting of a ratchet wheel 17^a on shaft 17, (Figs. 34 and 35) and a swinging arm 17^b carrying a dog 17^c, the arm 17^b being actuated by link 19 pivoted to crank arm 20 on shaft 7^c, above referred to, (Fig. 8).

The cover sections after leaving the head A pass between feed rolls 20^a and 21 (Fig. 7), the former of which is mounted on shaft 22 and the latter on a drive shaft 23, which is geared to front drive shaft 23^a driven by gear 3 on shaft 4 (Fig. 21), and extending clear across the front of the machine so as to drive feed rolls 20^a and 21 for all the heads A, B, etc. The cover section being fed upon passing between the feed rolls 20^a and 21 strikes against a baffle or abutment plate 24 by which it is turned downwardly so as to direct it into the support or trough G, in which as previously explained the assembling of the paper sections takes place.

The cover sections move downwardly to the bottom of the trough or support G and when they reach the bottom of the same are instantly and automatically engaged so as to prevent them from rebounding upwardly. The preferred form of mechanism for this purpose is generally similar to mechanism for the same purpose disclosed and claimed in my pending application Serial No. 406,578, filed August 28, 1920, newspaper stuffing machine. The mechanism shown comprises cooperating rollers 25 and 26 (Fig. 7), arranged near the bottom of the trough G and adapted to engage the sides of the cover sheet when the same comes in position between them. The roller 25 is driven by sprocket chain 27 which is in turn driven by shaft 28 which latter is driven by sprocket chain 29 running over sprocket wheel 30 on rotary shaft 23. Another feed roll 31 is arranged below the feed roll 21 and driven by a sprocket wheel 32 meshing with the chain 29, the roll 31 further assisting the cover section in its downward movement into the trough G. An idle sprocket 33 is arranged above the shaft 28 and mounted for adjustment to take up the slack in said chain 29. The roll 26 which cooperates with the driven roll 25 is mounted for swinging movement toward and away from the roll 25, as for example, by mounting said roll 26 on a swinging arm 35 (Fig. 8), pivoted at 36 and having a lever arm 37 which is pivotally connected with a reciprocating link 38. The link or rod 38 is reciprocated by a cam 39 engaging a roller 40 on said 38, the cam 39 driving the rod 38 positively in a forward manner so as to swing the roll 26 toward the roll 25 and a spring 41 being employed to swing or retract the arm 35 in the opposite direction. The movements of the rod 38 and arm 35 are so timed that the roll 26 is separated from the roll 25 when the cover sheet is descending into the trough G, but is moved into close proximity to roll 25 as the cover sheet approaches the bottom of the trough, so that when the lower edge of the cover sheet has nearly or quite reached the bottom of the trough, the rolls 25 and 26 are sufficiently close together to firmly grip and hold it, the movement of roll 25 being downward adjacent the cover section, so as to press same downwardly.

Further feeding devices, preferably in the form of feeding tapes 45, are arranged to assist in feeding the cover sheets *a* into and down the trough. These tapes are extended over one side of the feed rolls 20^a and also over idle rolls 46 and 47 on shafts 48 and 49, respectively, and also extended downwardly and around feed rolls 50 on a shaft 51. The shaft 49 is secured to the framework of the machine by bolts 52 (Fig. 2) and the shafts 51 carrying rolls 50 are carried by arms 53 pivotally mounted on shaft 49. This permits rolls 50 to be swung up-

wardly by swinging arms 53, which arms however, are normally held downwardly by springs 54 on shaft 49. As rolls 50 are opposite rolls 31, said rolls 50 are normally pressed toward rolls 31, and thereby normally pressed against the cover sheet and consequently assist in moving the same downwardly.

When the cover section is in the trough G it is opened so that the insert sections may be inserted. Various forms of opening mechanisms could be employed but as a preferred arrangement I employ an opening mechanism having the general features of construction and operation of the opening mechanism illustrated and described in my aforesaid Patent No. 1,441,278. By this mechanism the outer or far side of the cover section is buckled or crumbled downwardly, as shown in Figs. 27 and 28, and then allowed to rise and upon rising passes on the outer side of an opening blade which thus occupies a place between the two sides of the cover section. The sides are then spread or separated by the action of this inserted blade and by further opening or separating mechanism.

This opening mechanism is shown in Figs. 7 and 8, as well as in Figs. 27 and 28. It comprises oppositely disposed heads 55 and 56, the former adapted to engage the inner side of the cover section and hold it in position and the latter adapted to engage the outer side of the same and push it down so as to buckle or crumple said outer side and then pull it up to original position, as a result of which operation an opening blade or insert member 57 will be located in position between the inner and outer sides of said cover section. The head 55 is carried by a reciprocating member 58 which latter is reciprocated by a cam 60 on a driving shaft 61, said cam 60 cooperating with a roller 62 on the reciprocating member 58. A bearing 63 is provided for head 55 and another bearing 64 for enlargement 65 on the member 58. The member 58 is jointed at 58^a and has a rear section or extension 58^b connected with the section 58 by sleeve 58^c which encloses spring 58^d. Bolts 66 regulate distance between members 58 and 58^b. Shaft 61 is driven by main drive shaft 7^k by means of gears 67 and 68, (Fig. 33).

In Fig. 23 a modified form of construction is shown for operating head 55. A double cam action is used, similar to that for operating the opener head 56. Such cam action comprises cams 60 and 60^a mounted on shaft 61.

Cam 60 cooperates with roll 62 and cam 60^a cooperates with roll 62^a. These rolls are carried by a cross head 62^b fixedly mounted on arm 58^b, fixedly operating on a block 62^c carried by shaft 61, insuring a smooth forward and reverse movement of head 55.

The head 55 is provided with a device for engaging the adjacent ply of a cover section, said device comprising pins 69 set in a block-like member 70, Figs. 27 and 28, which latter is provided with a threaded bolt 71 engaged by a nut 72 to hold said member 70 in position in the head 55. A collar 73 surrounds the outer end of the member 70 and fits loosely over the same so that it may be slid back and forth to cover and uncover the ends of the pins 69. Said collar 73 has a flange 74 adapted to fit in a recess 75, so that when pressed inwardly the flange 74 will fit into the recess 28, whereas when in an outward position the flange 74 covers said pins, as shown in Fig. 27. A spring 76 is arranged in a recess surrounding the member 70 and acts against collar 73, tending to push the same normally in an outward direction. Thus as the head 55 is reciprocated, the flange 74 will be pushed against the adjacent hold of the cover section and will be slipped back on the member 70 so as to expose the pin 69 and thereby cause the latter to penetrate the cover section fold, as shown in Fig. 28. The other head 56 is also provided with paper engaging pins 77 on a member 78 which latter is surrounded by a collar 79 having a flange 80, said collar being subject to a spring 81 tending to push the collar 79 normally out.

This head 56 is carried by mechanism by which it may be reciprocated in a more or less vertical manner so that after it has engaged the outer fold of the cover section, that is the fold nearest the head 56, said head may push said fold downwardly and buckle the same, as shown in Fig. 28. To such end said head 56 is carried by a reciprocating rod 83, by means of a connecting pin 84. The pin 84 slides in a slot 85 in a plate 86, which latter is mounted on an arm 87 (Figs. 1, 7 and 22) pivoted at 88 so that the plate 86 and with it the head 56 may be swung in and out to bring the head 56 into cooperative relation with the head 55, and also to separate the head 56 from the head 55 by a substantial distance to permit access to the trough or support G at this point. The reciprocating rod 83 is connected at its upper end to a pivoted lever 89 pivoted on a shaft 90 (Fig. 24), which shaft 90 is rocked by suitable cam action so as to give the head 56 the necessary up and down reciprocation. Such cam arrangement comprises cams 91 and 92 on main drive shaft 7^k (Fig. 24). Cam 91 cooperates with roll 93 and cam 92 cooperates with roll 94. These rolls 93 and 94 are carried by a rod or arm 95 having a pivotal connection 96 with a short rotary arm 97 on the shaft 90 (Fig. 24^a). Thus the reciprocation of the arm 95 in one direction and the other by cams 91 and 92 acting on rolls 93 and 94, respectively, causes a rocking of shaft 90 and the consequent swinging of arm 83 and reciprocation of head 56 to buckle the outer

ply of cover section, as shown in Fig. 28. In Fig. 9 is shown a modified construction for operating head 56.

The outer ply or fold of the cover section being thus buckled, the head 56 thereupon moves upwardly and when so moved its upper end will pass outside of the plate 57, whereby the two plies are separated with the plate 57 between them. Plate 57 is mounted so that it hangs in a substantially vertical position, as shown in Fig. 29, its lower end being loose and its upper end being suspended upon a shaft 48 so that said plate may be swung into a substantially horizontal position if desired. A spring 57^b normally holds the plate in vertical position.

The cover section being thus permanently opened, it is further opened by means of a nose or supplemental opening member 99 arranged in position in the trough G and located so that its end fits against the end or projection 57^c of the insert member 57. This member 99 is adapted to further spread or separate and open the cover section as it is moved along the trough, said member 99 extending lengthwise of the supporting trough G, but being inclined toward the front of the machine, as shown in Fig. 4, whereby the front or outer fold of the cover section will be moved or swung outwardly or forwardly as it moves lengthwise of the trough. Another member 100 forms a continuation of the nose member 99 and is similarly inclined, said member 100 extending well toward the forward side of the trough where it is secured upon a supporting member 101 (Fig. 10). The nose member 99 and the extension member 100 are preferably adapted to be swung out of the way so that access may be had to the interior of the trough if desired. To such end the nose member 99 is hinged at 102 (Fig. 2) so that it can swing crosswise of the trough. Also the member 100 is mounted so that it can swing by mounting the supporting arm 101 on a pivotal shaft 103 (Fig. 10), the latter being supported on a bracket 104 on the machine frame. Preferably the front wall of the through G is made so that it can swing in sections forwardly so as to open or partially open the trough. To such end the outer section 105 of the trough (Fig. 2) is mounted on a shaft 106 so that it can be swung backward and forward. Also the front wall section 107 is mounted so that it can be swung forwardly as by mounting it on bracket 108 supported on pivotal shaft 109, Figs. 9 and 10. Also other front wall trough sections 110, 111 and 112, (Fig. 1) are mounted for forward swinging opening motion in the same manner as section 107, as will be referred to more fully hereinafter.

Referring again now to the opening of the cover section by the members 99 and 100 and the movement of said section along the trough G, said movement occurs continually so as to bring said section in front of heads B, C, D and E in succession. When opposite head B another section of the paper which will be called the first insert section *b*, is inserted from said head B.

The insertion of such an insert *b* will be accomplished by feeding mechansim such as previously described in connection with head A. Such an insertion is shown in Figs. 4 and 10, the outer or cover section *a* being shown at the bottom of the supporting trough G and the first insert section *b* being shown in process of dropping into the trough G and into the open cover section *a*.

As a preferred arrangement the first insert *b* is shifted to the inner side of the trough after it has been deposited therein, so that said first insert will be well at the inner side of the cover section when the latter is advanced sufficiently along the trough to come opposite the third head C. This permits another insert to be readily introduced into the outer or cover section without any interference with the first insert *b*.

For this purpose, I show in Figs. 4 and 5 a longitudinally extending guide or plate member 115 which inclines or extends inwardly toward the inner side of the trough G so as to move the first insert in that direction. At a point opposite the head C the first insert *b* is well in toward the inner edge of the trough so that a second insert *c* may readily be deposited in the interior of the outer section *a*. Such an insert *c* is shown being deposited in the trough in Figs. 5 and 10^a. This insert *c* it will be understood, is fed down from the head C at an appropriate time when the cover section *a* containing the first insert *b* has been moved opposite or substantially opposite to said head.

It is also preferably arranged that this second insert *c* may be shifted to the other or outer side of the trough G to permit the ready introduction of a third insert *d* from head D. To such end guide or plate member 116 extends along trough G and inclines forwardly or outwardly as shown at right of Fig. 5. Insert *c* strikes this and is pushed forwardly. This permits a third insert *d* from head D to be fed down. This will occur just as shown for insert *c*, the trough section in front of head D being constructed just as trough section in front of head C, as shown in Fig. 5, whereby insert *d* is fed into cover section *a* in same place as *c* is shown in said figure, insert *c* at such time being between guide member 100^a and wall section 111 (similar to 110), having been pushed there by guide member 116 in trough in front of head C.

The insert *d* is pushed to the front by guide member 116 in trough section in front of head D, (Fig. 5), so that insert *d* comes into position between 116^a (Fig. 6) and front wall section 112, thereby making room for in-

sertion of the final insert *e* from head E. Such an insert is made as shown in Figs. 6 and 12.

Thus the cover section *a* will contain the four inserts, *b*, *c*, *d* and *e*, whereof the first insert *b* is at the inner side of the cover section, and the other inserts *c*, *d* and *e* are at the front or outer side of the cover section.

The cover section containing these four inserts is now closed, preparatory to delivery to the delivery mechanism of the machine. To such end another guide member 117 (Figs. 6 and 12) is provided, the same having its left hand end (Fig. 6) secured to the inner wall of the trough and being then extended or inclined forwardly. Thus the inner fold or ply of the cover section *a* will strike against the member 117 and with the first insert *b* will be pushed forwardly toward the other or front cover section and the three inserts *c*, *d* and *e*. The guide member 116ª terminates before the member 117 terminates, thereby providing a relatively small space 118 between the end of member 117 and the end of front wall section 112. The complete paper, the cover section with all the inserts, is thus closed at said space 118 and then delivered to the delivery mechanism, which will be referred to more fully hereinafter.

In connection with the trough and guides therein, it may be noted that as a preferred arrangement the front wall sections 107, 110, 111, and 112 are as a preferred arrangement located respectively in front of the heads B, C, D and E, the joints being preferably about midway between the successive heads, and as previously pointed out these front wall sections are independently adjustable to permit any one or more of them to be swung forwardly so as to gain access to the interior of the trough. Also the various guide members such as 100, 100ª, 116 and 116ª, are mounted on arms 101 supported by a shaft 103 so that they may be independently swung forwardly and upwardly to permit access to the interior of the trough. Thus any one of the several trough sections may be either partially opened by the forward or outward swinging of the corresponding wall section, or may be fully opened by swinging such wall section and also swinging the corresponding guide member. This permits ready access to either the front of the trough or the front and rear of the same at any desired point.

For advancing the cover section and inserts along the trough, I show a pair of chains 120 arranged on opposite sides of the trough as shown in Fig. 12 and mounted on sprocket wheels 121 and 122 at the opposite ends of the machine. These chains are provided with inwardly extending projections or fingers 123 located at intervals and adapted to engage the rear edges of the cover sections and push the same along the trough. These sprocket wheels 122 are driven by sprocket chains 125 through the medium of a drive shaft 126 connected by sprocket and chain with shaft 126ª, which is connected by mitre gears 127 and 128 with another drive shaft 129 which is in turn gear connected with the main drive shaft 7ᴷ. The sprocket chains 120 advance continuously at such a speed as to move the cover sections forwardly to receive the various inserts and finally deliver the whole to the delivery mechanism.

Certain provisions are made for automatically stopping the machine in case there is improper operation in certain respects. For example, provision is made to automatically stop the machine if there is improper feeding from the first head so that two papers instead of one are fed from the same. This arrangement is shown in Figs. 7 and 14. The drive roller 20ª is mounted so that it may have a certain amount of vertical adjustment, and when a paper goes through between rollers 20ª and 21, 20ª moves up a determined distance. A screw 135 is mounted above shaft 22 so that when the latter is raised higher than the determined distance it will contact with the lower end of screw 135. Screw 135 is mounted in a block or strip of insulation 136, preferably pivoted at 137 on a bracket 138, whereby screw 135 may be elevated slightly by an extent of movement on the part of shaft 22 greater than is necessary merely to contact with end of screw 135. A conductor 139 runs to binding post 140 on insulation strip 136, and thence to another binding post 140 which also serves as a set screw for screw 135 to hold the latter in adjustment, said screw 135 being provided with a knurled head 141 permitting it to be turned so as to adjust it in insulation strip or support 136. Conductor 139 runs to certain switching or annunciator mechanism as will be explained more fully hereafter. Suffice it here to say that undue elevation of roller 20ª causes contact of the shaft 22 with screw 135, thereby closing electrical circuit through ground of the machine to conductor 138 running to switching and annunciator mechanism as will be described hereafter. This mechanism automatically opens the motor circuit and thereby stops the machine from running and the annunciator mechanism indicates the point where the trouble is so that it may be at once found when the machine is stopped. Two or more papers passing out of the first stack A will cause this elevation of shaft 22 and roller 20ª, and thereby cause this electrical stoppage and indication. To prevent breakage and allow plenty of play on the part of shaft 22, screw 135 is pivotally or other-

wise adjustably mounted as described. To permit adjustment of machine to different sized paper sections in stack A, screw 135 may be turned so that its end will be raised or lowered to permit more or less play on the part of roll 20^a before contact is made with the end of said screw 135. This point of trouble is, as noted, at the first stack A, which may be called for convenience trouble point G.

Another automatic stoppage of the machine and indication of point of trouble takes place when a paper from the first stack A feeds into the trough in a crumpled condition, so that it will not feed properly to the opening mechanism. This arrangement is best shown in Figs. 2 and 3. The swinging panel or trough wall member 105 is provided with a contact 147 conveniently formed by the outer end of a bracket 148 secured to bracket 149 on said wall member 105 by screw 150. A spring 151 on insulated end piece 152 is in position to be made contact with by contact 147 when wall member 105 is swung outwardly and this would take place when a paper in a crumpled or thickened condition was fed into the trough. When contact is made between 147 and 151 the end 153 of spring 151 makes contact with screw 154 secured to but insulated from end piece 152, thereby closing the circuit between the machine or ground and contact 154 to which is connected wire 155 running to the aforesaid switching and anunciator mechanism, as will be presently described. This closure of the circuit between contacts 153 and 154 will automatically stop the machine and indicate where the trouble occurs, that is at this beginning end of the trough which we will call trouble point H.

Provision is made for stopping the machine when trouble occurs at the opening head, where the cover section is open to receive the insert sections. This is best shown in Figs. 2, 2^a and 9. In this arrangement the opening member 99 is mounted for longitudinal movement in the trough when a cover section jams or is not properly opened. As a simple arrangement said member 99 is mounted upon a bracket member 157 which is pivoted at 102 to another bracket member 158 which is in turn pivoted at 159. Thus the forward movement of the jammed or thickened paper section, or an improper opening of the same will move the member 99 lengthwise of the trough and this movement will cause an upright 160 (Fig. 2) on said member 99 to strike against a contact 161 arranged below and secured to an insulation strip 162. Actuation of the contact 161 will cause the same to strike against a contact screw 163 to which a conductor 164 is connected. Spring 165 tends to hold the member 99 in normal position but to allow the same to move by the jamming of an improperly operating paper section. The actuation of contact strip 161 so as to make contact with 163 will cause closing of circuit through conductor 164 to the switching and annunciator mechanism, automatically stop the machine and also indicate the point where this trouble occurs which we will call trouble point I, opener mechanism trouble.

Another provision for stopping the machine in case of trouble is in case of proper feed at the stacks B, C, and E. In case there is improper action at any one of these stacks, so that no paper section is fed from any one of the same, stoppage of the machine and indication of trouble takes place. The mechanism shown for this purpose is best shown in Fig. 13 and comprises a swinging arm member 168 having a finger 169 which is arranged underneath a paper section in process of passing through feed rolls 20^a and 21. The member 168 is pivoted at 169^a and provided with a bracket member 170 to which a swinging arm or link 171 is pivotally connected at 172. Spring 173 is connected to arm 171 tending normally to hold said arm 171 and also bracket 170 in a downward position, thereby tending to force finger 169 upwardly against the feeding paper section. A bracket 174 of insulating material serves as a pivotal support for arm 171 and a contact 175 is arranged in position to be struck by end of arm 171 if said arm is pulled down sufficiently by spring 173. Contact 175 is held in position by insulating block or strip 177, member 174 being also made of insulating material. Conductor 178 is connected with contact 175. Thus when a paper section as *d*, Fig. 13, is being fed between rolls 20^a and 21, member 168 will be held down by said paper section so that arm 171 will not touch contact 175. When however no paper section is above upper end of finger 169, said finger is free to rise in response to action of spring 173 and arm 171 will make contact with contact 175, thus closing the circuit through the machine and conductor 178. This conductor runs to the switching and annunciator mechanism previously referred to which will cause the automatic stoppage of the machine and the indication of the present trouble. There are four mechanisms of the kind just referred to for automatically stopping the machine, said mechanisms being located at the stacks B, C, D and E, each one as well as stopping the machine will indicate where the trouble is. These trouble points will be called J, J', J^2 and J^3.

Provision is made for stopping the machine automatically in case of trouble at the delivery end, where delivery of the papers is made to the delivery mechanism F.

This arrangement comprises a contact strip 180 on an end bracket 181, and a contact screw 182 adapted to be contacted with by the end of strip 180. This contact will take

place when trough wall section 112ª is swung outwardly by a jammed or crumpled paper in the trough, and when so swung bracket 183 supporting wall section 112 will strike against the bow-shaped metal portion of strip 180 and swing the same so as to cause the end of said strip to strike contact screw 182. This will close circuit to conductor 184 connected with screw 182 and cause the stoppage of the machine as will be described hereinafter, and the automatic indication of the point of trouble which will be called trouble point K, delivery end of the trough.

There is one further arrangement for automatically stopping the machine, and this is in case there is some interference with the machine bringing a heavy strain on the main driving shaft so that unless relieved the shaft itself or some gear connected with it might be broken. This arrangement permits the main body of the drive shaft 3 to be in effect separated from the motor and electrical connection to be made to stop the motor when such separation is made.

This arrangement is best shown in Figs. 17, 18 and 19. In this arrangement the drive shaft 7^k is jointed, as shown in Figs. 17 and 18, the main body part which is connected with the motor carrying a gear 185 in mesh with another gear 186 on shaft 129 which latter extends down through bevel gears 128 and 127 which drive the chains 120 for advancing the cover section and inserts along the trough. The supplemental bar or extension 3^a of the drive shaft 7^k is connected with the main part 7^k by a pin 188 which is strong enough to impart movement from 7^k to 3^a ordinarily, but is weak enough to break in case an excessive strain is put on 3^a. In case of breakage of pin 188 of course shaft 7^k will turn relatively to 3^a. Electrical connection is provided to automatically stop the motor and indicate the place of trouble, which in this instance will be called trouble point L, main drive shaft.

As a convenient form of electrical connection, I show a pin 189 in a slot in a head 190 on shaft 3^a, said pin 189 having a conducting portion and being subject to spring 191 tending to push it out of said slot or recess but not contacting with head 190. Gear hub 185 is provided with a block or piece 192 of insulating material against which pin 189 normally presses. During normal conditions no connection is made with 189 because of the latter being of insulation, but when pin 188 breaks and permits 3^a to turn relatively to 7^k, piece 192 will move away from end of pin 189, thereby permitting the latter to come into contact with bar of metal of gear 185, thereby establishing electrical connection. This connection extends through spring 191 to metal plate 194 having an annular surface 195 on which commutator the brush 196 rests. Thus connection made with pin 189 is communicated through wire 191, plate 195 and brush 196 to the automatic switching and annunciator apparatus which will be presently described. Plate 194 is fitted on sleeve member 197 which is made of insulation so as to insulate plate 194 and an insulating disk 198 is fitted adjacent plate 194 to insulate the other side of same, whereby pin 189 and connections are properly insulated from the machine. Brush 196 is mounted on bracket 199 by means of screw 200 and conductor 201 is connected to binding screw 200 and led thence to the switch and annuncitator apparatus previously referred to.

Referring now to the arrangement by which these various electrical circuit controlling mechanisms control the operation of the machine, reference is made to Fig. 20. In this figure I show the electric driving motor 1 diagrammatically and show it connected with a rheostat 202 by which its resistance and speed are controlled and varied. There is also shown an automatic cut-out switch 203, one side of which is connected by wire 204 with the motor and the other side of which is connected by wire 205 with the rheostat 202, which in turn is connected by wire 206 with the other side of the motor. From automatic switch 203 wires 207 and 208 run to a main switch 209 which is in turn connected by wires 210 and 211 with the outside circuit for supplying energy to the motor 1.

The automatic switch 203 is understood to be normally closed but automatically operable to open the motor circuit 204–205 on passage of current through said switch 203, for which purpose a main wire 212 is shown running to one side of the switch mechanism and a ground wire 213 running to the other side of the same. Wire 212 runs to a main battery 214 having ample power to operate switch 203. In place of battery 214 of course some other source of electrical energy could be used.

The various circuit controlling devices previously referred to are connected with the automatic switch 203 so that each one will open the same and thereby stop the driving motor 1, when trouble occurs. Also annunciator mechanism M is present to indicate the place of trouble. Considering first trouble point G, the feeding of two or more cover sections from stack A, Figs. 7 and 14, conductor 139 running to contact screw 135 is connected to annunciator magnet 215, whence conductor 216 runs to fuse 217 and thence to battery lead 218 and battery 214 and thence to automatic switch 203 and thence to ground by conductor 213, the circuit being completed through ground and to the other side of the machine 219, so that connection is made through annunciator magnet 215 and automatic cut-out switch 203, there-

by actuating said annunciator magnet and indicating that there is trouble at point G and also automatically opening the motor circuit and stopping the motor. The trouble may be located at G and remedied and automatic switch again closed and the operation of the machine resumed.

In a similar manner circuit control mechanism at point H, the left hand or cover section receiving end of the trough, has its conductor 155 running to contact 147 connected to annunciator magnet 220, whence connection is made by conductor 221 to fuse 222, and thence to battery 214, automatic cut-out switch 203 and ground, the other side of the circuit at the machine being indicated at 223. In a similar manner trouble at this point will be indicated by annunciator magnet 220 and the motor circuit switch automatically opened to stop the machine. The trouble being located and remedied the machine is again started.

Similarly the circuit controlling mechanism at trouble point I has its conductor 164 running from contact 163 connected with annunciator magnet 228, whence circuit wire 229 runs to fuse 230 and thence to battery 24 and automatic switch 203 as in the case of other connections. Similarly the mechanism at point K, the delivery end of the trough, has its conductor 184 running from contact 182 connected with annunciator magnet 232 which latter is connected by conductor 233 with fuse 234, whence connection is made through battery to automatic cut-out switch and to ground as in other circuits. Also circuit connection at point L, the main drive shaft connection, has its conductor 201 connected with annunciator magnet 235 and thence by conductor 236 to fuse 237, and thence to battery cut-out switch and ground as in other arrangements. The four circuit closing arrangements at the stacks B, C, D and E, namely at points J, J′, J^2 and J^3, have their conductors 178, connected respectively with electro-magnets 240, 241, 242, and 243, and thence by conductor 244 through timer 245 and fuse 246, to battery and automatic cut-out 203 and ground. Timer 245 is included in circuit with these devices in order that the circuit may be closed through these circuit connections only when paper sections are being fed from the respective stacks D, C, etc. At other times the circuits are open, so that there will be no operation in these mechanisms when no paper sections are normally passing out of said stacks. To such end this timer 245 comprises a rotary contact 246 adapted to make contact with a stationary contact 247, the period of contact being the period when paper sections are passing out of said stacks.

In Fig. 16 is shown an arrangement for preventing improper starting of the machine. This comprises a switch having contacts 255 and a contact blade 256 adapted to contact with contacts 255 and having a projection or pin 257 passing through switch box 258 and controlled by springs 259 tending to push projection 257 out of box. When bar 260 is down, projection is depressed, contacting 255 with 256 and closing circuit, permitting the machine to run. When bar 260 is withdrawn, circuit is opened, thereby preventing machine from running. Bar 260 is used to turn machine by hand, being inserted in apertures in wheel on driving shaft to give levereage to turn shaft and move machine little by little for inspection purposes. If bar 260 were left in aperture in small wheel and machine were accidentally started, bar 260 might fly out and do damage. Hence it is necessary for said bar to be withdrawn from small wheel and inserted in socket in Fig. 16 before machine can be started.

In Figs. 25 and 26 I show a table adapted for attachment to the back of the machine, to support the newspaper sections in convenient position where they may be piled into the various stacks A, B, C, D and E. The table shown has a flat top 250 secured to and mounted upon brackets 251, which latter are provided with side brackets 252, which are arranged alongside of upright supports 253, and are provided with inwardly projecting lugs 254 adapted to fit into recesses 255 on said upright supports 253. The supports 253 are secured to the rear of the machine so that one or more tables 250 may be supported in position at the back of the stacks and may be raised and lowered by adjustment of brackets 252 in connection with supports 253.

It will be understood that changes and modifications may be made without departing from the spirit of the invention.

What I claim is:

1. In a machine of the class specified, the combination with a trough for receiving a paper section to be opened, of an opening device comprising a reciprocating head supported and arranged in one of the side walls of the trough, means for reciprocating said head and a second opening member located opposite said head and mounted for movement toward and away from said head and means for moving said second mentioned member toward and away from said head and also toward and away from the folded edge of the paper section, said last mentioned means comprising a reciprocating link connected with said member, a swinging arm for actuating said link and a pair of cams for actuating said arm, one of said cams being arranged to move the arm in one direction and the other cam to move it in the other direction.

2. The combination with a trough to receive a paper section to be opened, of a re-

ciprocating head forming part of an opening device, said head being mounted in one of the side walls of the trough and arranged to reciprocate relatively to the same.

3. The combination with a trough to receive a paper section to be opened, of a reciprocating head forming part of an opening device, said head being mounted in one of the side walls of the trough and arranged to reciprocate relatively to the same, and said head being provided with needle devices for engaging a ply of a paper section in the trough.

4. The combination with a trough to receive a paper section to be opened, of a reciprocating head forming part of an opening device, said head being mounted in one of the side walls of the trough and arranged to reciprocate relatively to the same, said trough wall being provided with a bearing portion in which said head may fit and work, a reciprocating link secured to the rear of said head and means for reciprocating said link.

5. The combination with a trough to receive a paper section to be opened, of a reciprocating head forming part of an opening device, said head being mounted in one of the side walls of the trough and arranged to reciprocate relatively to the same, said trough wall being provided with a bearing portion in which said head may fit and work, a reciprocating link secured to the rear of said head and means for reciprocating said link, said reciprocating means comprising a pair of cams one for actuating said link in one direction and the other for actuating said link in the other direction.

6. The combination with a trough to receive a paper section to be opened, of a reciprocating head forming part of an opening device, said head being mounted in one of the side walls of the trough and arranged to reciprocate relatively to the same, a link connected with said head for reciprocating the same and arranged in alinement with said head.

7. The combination with a trough to receive a paper section to be opened, of a reciprocating head forming part of an opening device, said head being mounted in one of the side walls of the trough and arranged to reciprocate relatively to the same, a link connected with said head for reciprocating the same and arranged in alinement with said head, said trough being provided with bearings in which said head may reciprocate and said link being provided with an enlargement in the rear of said head and a bearing for said enlargement.

8. The combination with a trough to receive a paper section to be opened, of a reciprocating head forming part of an opening device, said head being mounted in one of the side walls of the trough and arranged to reciprocate relatively to the same, a link connected with said head for reciprocating the same and arranged in alinement with said head, and feed rolls for feeding a paper section into the trough located above said head.

9. The combination of a trough to receive a paper section to be opened, an opener for opening the section in said trough and means for engaging the folded end of the paper section to hold it in position while being opened.

10. The combination of a trough to receive a paper section to be opened, an opener for opening the section in said trough and means for engaging the folded end of the paper section to hold it in position while being opened, said engaging means comprising a pair of rollers between which said folded end portion of the paper section may pass.

11. The combination of a trough to receive a paper section to be opened, an opener for opening the section in said trough and means for engaging the folded end of the paper section to hold it in position while being opened, said engaging means comprising a pair of rollers between which said folded end portion of the paper section may pass, means for driving one of said rollers and means for moving the other roller toward the driven one.

12. The combination of a trough to receive a paper section to be opened, an opener for opening the section in said trough and means for engaging the folded end of the paper section to hold it in position while being opened, said engaging means comprising a pair of rollers between which said folded end portion of the paper section may pass, means for driving one of said rollers and means for moving the other roller toward the driven one, said last mentioned means comprising a swinging arm carrying the roller and pivoted between its ends, a link pivotally connected with said swinging arm and cam mechanism for actuating said link.

13. A machine of the class specified having a trough provided with outwardly movable wall sections and also having guide sections arranged within the trough for guiding paper sections or plies thereof, said guide sections being movable independently of said wall sections.

14. A machine of the class specified having a trough provided with outwardly movable wall sections and also having guide sections arranged within the trough for guiding paper sections or plies thereof, said guide sections being movable independently of said wall sections, said wall sections and guide sections corresponding with one another along the length of the trough.

15. A machine of the class specified having a trough provided with outwardly movable wall sections and also having guide sec-

tions arranged within the trough for guiding paper sections or plies thereof, said guide sections being movable independently of said wall sections, said wall sections being mounted to swing outwardly about pivotal supports and said guide sections being mounted to swing outwardly and upwardly about overhead pivotal supports.

16. A machine of the class specified having a trough provided with means for swinging certain insert sections to one side and certain other insert sections to the other side.

17. In a machine of the class specified, a trough provided at one end with opening means and also provided along its length with guide strips adapted to hold the cover section in open condition and also to move insert sections one after another to one side or the other of the cover section.

18. A machine of the class specified having a trough provided with means for moving certain insert sections to one side and certain other insert sections to the other side.

19. A machine of the class specified having a trough provided with means for moving insert sections in a sidewise manner, one after another, in order to make room for the insertion of additional insert sections.

20. In a machine of the class specified, the combination of a trough to receive a paper section to be opened, and means for stopping the machine upon the development of an improper condition of the paper in said trough, said means comprising a contact supported by the trough and a movable wall for one side of the trough, said wall carrying a contact adapted to connect with said first mentioned contact and a circuit including said contacts and containing means for automatically stopping the machine when said contacts close said circuit.

21. In a machine of the class specified, the combination with a trough to receive a paper section to be opened, of opening means and means for automatically controlling the operation of the machine upon the development of abnormal conditions in connection with said opening means.

22. In a machine of the class specified, the combination of a trough to receive a paper section to be opened, opening means and means for automatically stopping the machine upon the development of an abnormal condition in the opening means, said stopping means comprising a member movable by an abnormally conditioned paper section, means for mounting said member to permit its movement, electrical contact devices adapted to be actuated by said member and a circuit including said contact devices and also including means for stopping the machine when the circuit is closed by said contact devices.

23. In a machine of the class specified, the combination of a trough to receive a cover section and also to receive insert sections and means at the delivery end of the trough for automatically controlling the machine upon the development of abnormal conditions at said delivery end.

24. In a machine of the class specified, the combination of a trough to receive a cover section and also to receive insert sections and means at the delivery end of the trough for automatically controlling the machine upon the development of abnormal conditions at said delivery end, said means comprising a movable wall section carrying an electrical contact device and a second contact device adapted to cooperate with the first mentioned one and a circuit including said contact devices and also including means for stopping the machine when said circuit is closed at said contact device.

25. A machine of the class specified having a series of insert heads and a trough extending along said insert heads and adapted to receive insert sections from the same and means in said trough for moving each insert section sidewise after it has been inserted in the trough to make room for another section.

26. A machine of the class specified having a trough and a plurality of insert heads arranged at intervals along said trough, and guide strips extending along the trough and bent sidewise therein so as to deflect the insert sections sidewise after they are inserted in the trough.

27. A machine of the class specified having a trough and a plurality of insert heads arranged at intervals along said trough, and guide strips extending along the trough and bent sidewise therein so as to deflect the insert sections sidewise after they are inserted in the trough and other guide strips for holding a cover section open as it moves along the trough.

28. A machine of the class specified having a trough and a plurality of insert heads arranged at intervals along said trough, and guide strips extending along the trough and bent sidewise therein so as to deflect the insert sections sidewise after they are inserted in the trough and other guide strips for holding a cover section open as it moves along the trough, said trough and guide strips being made of laterally movable sections.

29. A machine of the class specified having a trough and a plurality of insert heads arranged at intervals along said trough, and guide strips extending along the trough and bent sidewise therein so as to deflect the insert sections sidewise after they are inserted in the trough and other guide strips for holding a cover section open as it moves along the trough, said trough and guide

strips being made of laterally movable sections, said guide sections being movable independently of the wall sections.

30. A machine of the class specified having a trough for receiving and conveying paper sections and also having guide strips located in said trough, said guide strips being formed of separate sections which are movable independently of one another.

31. A machine of the class specified having a chute along which paper sections may be moved, said chute being provided with guide strips formed of a plurality of hinged sections.

32. A machine of the class specified having a chute along which paper sections may be moved, said chute being provided with guide strips for guiding inserted paper sections and moving the same crosswise of the chute, said guide strips being formed of independently movable parts or sections.

In witness whereof, I hereunto subscribe my name this 28th day of April, A. D., 1922.

SEVERIN HALVORSEN.