

July 7, 1953

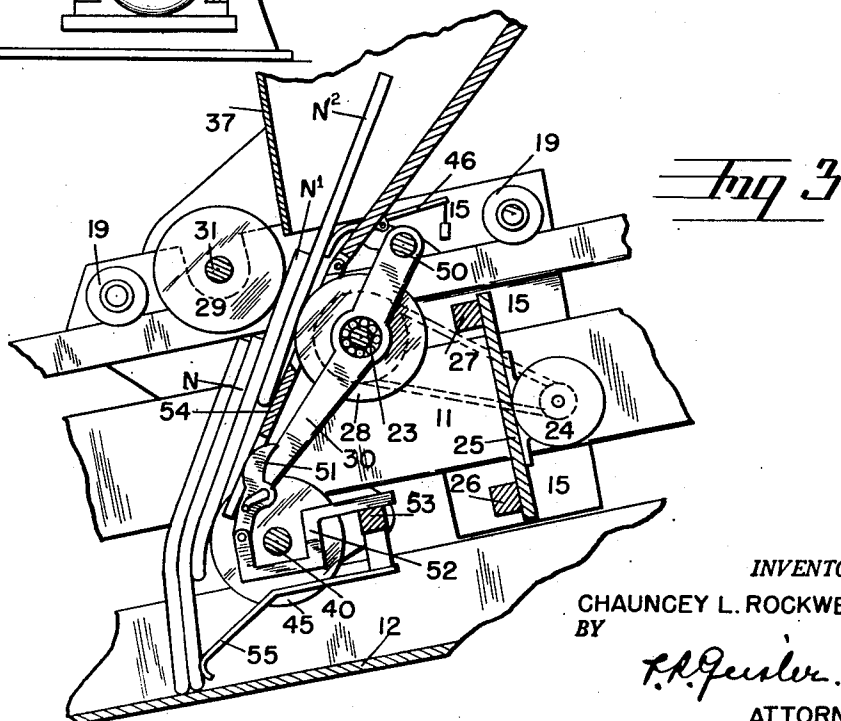
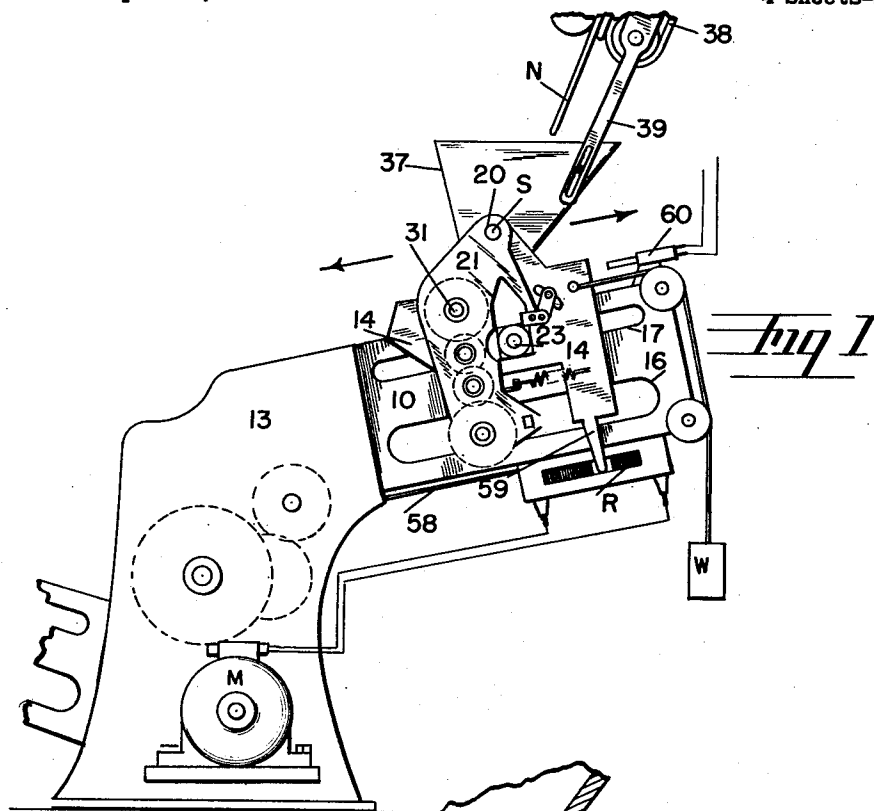
C. L. ROCKWELL

2,644,685

FEED DELIVERY DEVICE FOR NEWSPAPER SECTIONS AND THE LIKE

Filed Sept. 23, 1950

4 Sheets-Sheet 1



INVENTOR.
CHAUNCEY L. ROCKWELL
BY

F. R. Gessler.
ATTORNEY

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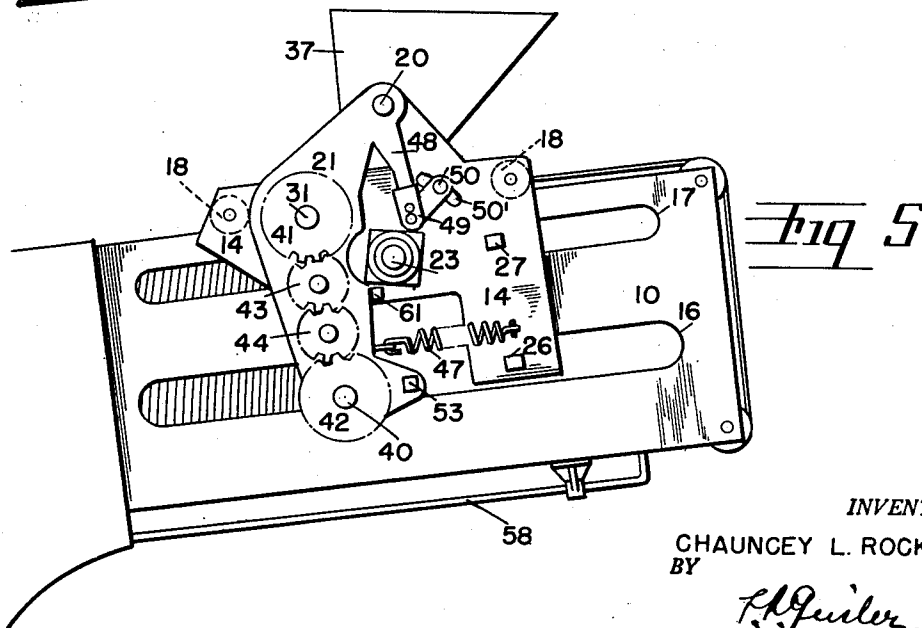
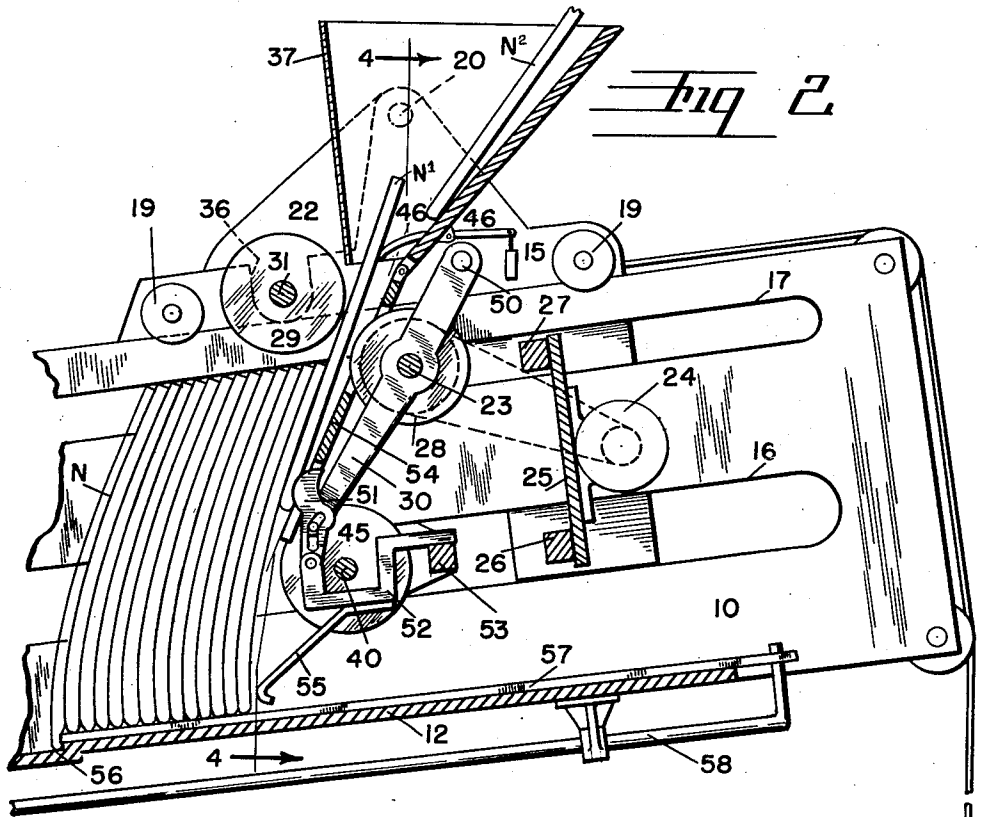
C. L. ROCKWELL

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FEED DELIVERY DEVICE FOR NEWSPAPER SECTIONS AND THE LIKE

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4 Sheets-Sheet 2



INVENTOR.

CHAUNCEY L. ROCKWELL

BY

R. H. Quiler.

ATTORNEY

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C. L. ROCKWELL

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FEED DELIVERY DEVICE FOR NEWSPAPER SECTIONS AND THE LIKE

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4 Sheets-Sheet 3

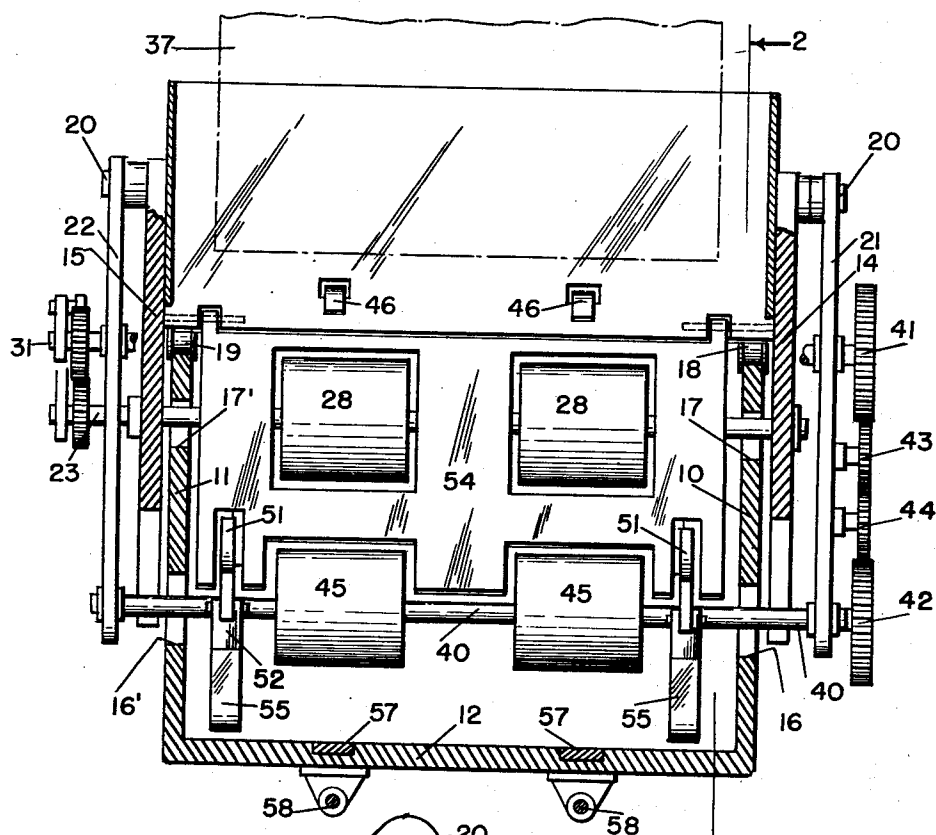


Fig. 4

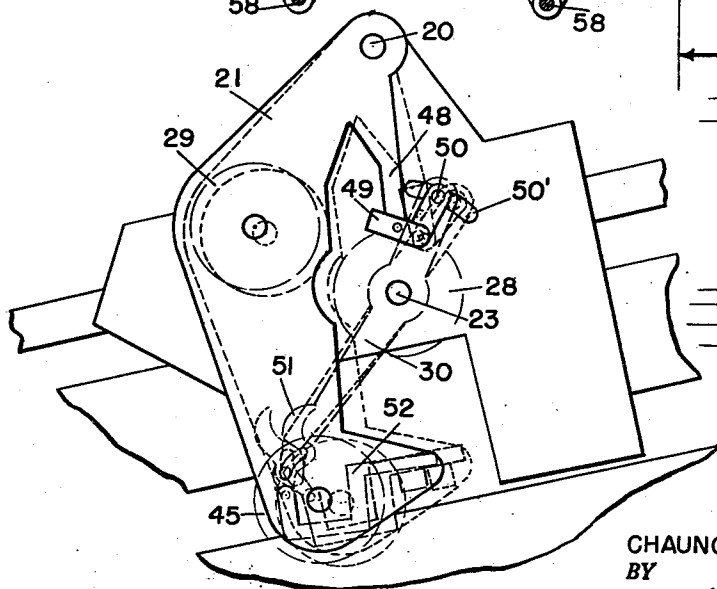


Fig. 5

INVENTOR.
CHAUNCEY L. ROCKWELL
BY

F. H. Givler.
ATTORNEY

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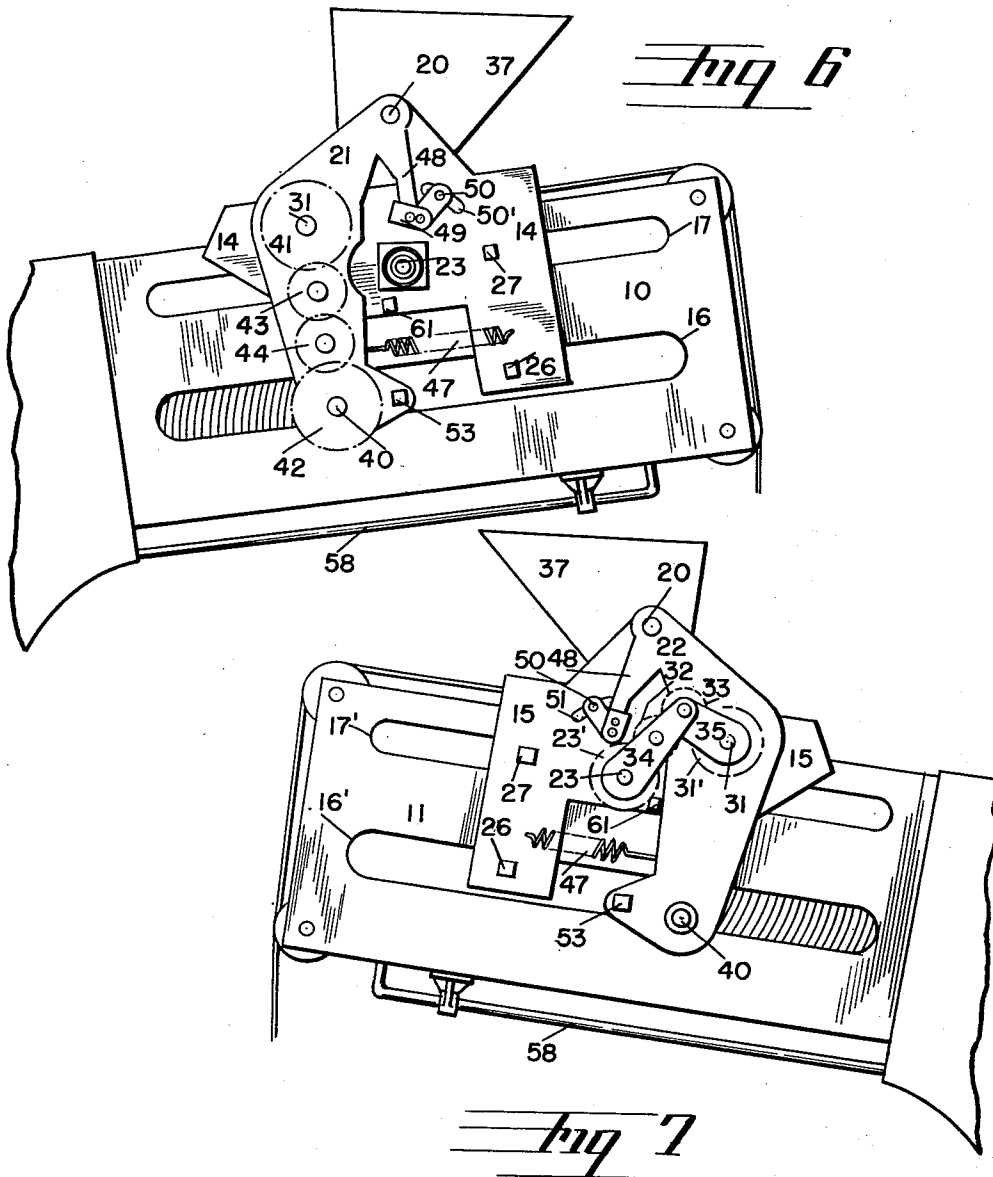
C. L. ROCKWELL

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FEED DELIVERY DEVICE FOR NEWSPAPER SECTIONS AND THE LIKE

Filed Sept. 23, 1950

4 Sheets-Sheet 4



INVENTOR.
CHAUNCEY L. ROCKWELL
BY
F. L. Geiler
ATTORNEY

UNITED STATES PATENT OFFICE

2,644,685

FEED DELIVERY DEVICE FOR NEWSPAPER
SECTIONS AND THE LIKE

Chauncey L. Rockwell, Portland, Oreg., assignor,
by mesne assignments, of one-half to Robert
P. Gantenbein, Georgianna G. Aston, and
Rhoda Adams

Application September 23, 1950, Serial No. 186,444

8 Claims. (Cl. 270—55)

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This invention is concerned with the feed delivery of such articles as newspapers, and, more particularly, with the delivering and feeding of newspaper sections preparatory to the final step of assembling the complete newspaper by inserting one section inside another.

More specifically, this invention relates to feeding of newspaper sections into a newspaper inserting machine in order that two groups of sections may be combined by having the members of one group respectively inserted into members of the other group, as for example, in the customary inserting of comic, rotogravure, or magazine sections of a newspapers into the folded regular news sections.

The device of the present invention is intended especially for use in conjunction with the newspaper inserting machine described in my co-pending application for Letters Patent filed under date of October 8, 1949, Serial No. 120,242, and entitled "Newspaper Inserting Machine," subsequently issued as U. S. Patent No. 2,569,692 to which reference should be made. In my said patent I have described a machine in which two groups of newspaper sections are automatically combined by having the sections from one group inserted into the sections from the other group. In order that this may be accomplished, however, it is necessary that the sections from each group be fed into the inserting machine at a rate consistent with the speed at which the inserting machine operates.

The particular object of the present invention is to provide a device to be used in conjunction with such inserting machine which will enable newspaper sections to be delivered to and fed into the machine as required.

More generally, the object of the present invention is to provide a device through which such articles as folded newspaper sections, conveyed from the presses, will be fed successively at a predetermined rate and under predetermined pressure into an inserting machine or into other assembling or collecting means.

A further object of the invention is to provide a practical feed delivery device in which folded papers or newspaper sections, as received, will be added to the supply in the device while the supply in the device is kept under constant and necessary feeding pressure and feeding at a continuous rate is permitted.

While my invention might be employed in other connections, as well as in conjunction with a newspaper inserting machine, nevertheless, since I consider the latter as the most important use

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for my invention, I shall refer to such use in the following description of my feed delivery device.

In the newspaper inserting machine described in my above mentioned patent, two groups of newspaper sections are required to be fed into the machine, namely, the outside folded sections, as for example the regular news sections, which are fed to the machine at a lower level, and the inside sections, for example the magazine sections, which are fed to the machine at an upper level. My device is intended to be used for either group and thus two such devices will be required for the newspaper inserting machine in question.

In the accompanying drawings, particularly in Fig. 1 thereof, my device is illustrated in use in delivering and feeding the inside newspaper sections to the inserting machine at the upper level, but my device is employed and operated in the same manner when used for delivering and feeding the outside newspaper sections into the inserting machine at the lower level.

In the accompanying drawings:

Fig. 1 is a side elevation of my device showing the same mounted on the upper portion of a newspaper inserting machine, as above mentioned, a more or less diagrammatic side elevation of the inserting machine being included in the figure;

Fig. 2 is a sectional elevation of my device drawn to a larger scale, the section being taken approximately on the line indicated at 2—2 in Fig. 4, and this sectional elevation illustrating the relative position of certain members in the device during one stage of its operation;

Fig. 3 is a sectional elevation similar in part to Fig. 2 but showing the device in a slightly later stage of its operation;

Fig. 4 is a transverse section corresponding to line 4—4 of Fig. 2;

Fig. 5 and Fig. 6 are side elevations showing the relative positions of certain members at the two stages of operation illustrated in Figs. 2 and 3 respectively;

Fig. 7 is a side elevation taken from the opposite side of the device but otherwise corresponding to Fig. 5; and

Fig. 8 is a fragmentary drawing illustrating the manner in which one of a pair of lever pressure members operates.

My feed delivery device, as illustrated in the drawings, includes a stationary housing frame, shown most clearly in Fig. 4 which comprises a bottom 12 and integral side walls 10 and 11. This stationary frame is mounted firmly in position by being secured to the frame of the newspaper in-

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serting machine by suitable bolts or other means and thus is illustrated in Fig. 1 as secured to the upper portion of the inserting machine, the inserting machine being indicated in general by the reference character 13. In the particular form illustrated, my device is designed to be so mounted in position on the inserting machine that the housing frame of the device will slope downwardly to the inserting machine, the reason for which will be apparent later.

A carriage comprising a pair of side plates 14 and 15, positioned a slight distance outside of the walls 10 and 11 respectively of the stationary housing and connected by transversely extending spacer bars, is mounted on the housing. The side walls 10 and 11 of the stationary housing are each provided with lower and upper longitudinal slots 16 and 17 and 16' and 17' respectively, through which the spacer bars for the carriage, and various horizontal shafts mounted on the carriage, pass and thus these slots enable the carriage to move longitudinally along the stationary housing. The carriage has a pair of wheels 18, 18 and 19, 19 on each side, which roll on the top edges of the side walls of the stationary housing and thus provide the necessary rolling support for the carriage. The perimeters of the wheels are formed with extending flanges so that the wheels and the carriage will be prevented from any lateral sliding on the tracks formed by the top edges of the side walls 10 and 11 of the stationary housing.

Each side plate of the carriage is formed with an upward extension so as to provide a mounting for a transverse shaft 20 at a spaced distance above the stationary housing. The ends of this shaft 20 extend beyond the respective side plates of the carriage and pivotally support a pair of suspension brackets 21 and 22 on opposite sides of the carriage. The shape of the pivotally supported suspension brackets will be seen in Figs. 1, 5, 6, 7 and 8.

A second transverse shaft 23 is supported directly on the carriage and passes through the slots 17 and 17' in the side walls of the stationary housing. This shaft 23 is rotatably mounted in suitable bearings and is rotated by pulleys and belt connection with a motor 24 (Figs. 2 and 3). The motor 24 is attached to a supporting plate 25 which in turn is supported by a pair of transverse bars 26 and 27 which have their ends secured to the side plates of the carriage.

A pair of feeding rolls 28 are secured on the rotated shaft 23 (Figs. 2, 3 and 4), and are rotated in counterclockwise direction as viewed in Figs. 2 and 3. A pair of pressure levers 30, located at opposite sides within the stationary housing, only one of which is shown in Figs. 2 and 3, are pivotally mounted or fulcrumed on the shaft 23. Their function will be explained later.

A shaft 31 is rotatably mounted in the suspension brackets 21 and 22 which are pivotally supported on opposite sides of the carriage. This shaft 31 is connected with the driven shaft 23 by means of a gear chain, shown in Fig. 7, so that the shaft 31 will be rotated at the same speed as shaft 23 but in the opposite direction. The gear chain connecting these two shafts 23 and 31 includes a gear 23', secured on shaft 23, a gear 31' secured on shaft 31, and two meshing intermediate gears 32 and 33 carried in a double pair of articulated arms 34 and 35. Thus the intermediate gear 32 is supported between a pair of arms 34 which are pivotally mounted on the shaft 23 on opposite sides of the driving gear 23'. The

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other pair of arms 35 are pivotally supported on the shaft 31 on opposite sides of the driven gear 31', and are pivotally connected with the pair of arms 34 by a stub shaft on which the intermediate gear 33 is mounted. From this construction as illustrated in Fig. 7, it will be apparent that the shaft 31 will continue to be rotated from connection with the shaft 23 even though the direct distance between the two shafts is caused to vary somewhat as the two suspension brackets 21 and 22, in which the shaft 31 is supported, are swung slightly on the carriage from their suspension points 20 as a center. A portion of the top sides of the carriage is cut out on each side, as indicated by the broken line 36 in Fig. 2, to provide space for such change in position of the shaft 31.

A pair of feeding rolls 29, one of which is shown in Figs. 2 and 3 are secured on the shaft 31. These rolls are the same size as the rolls 28 on the shaft 23 and are correspondingly positioned on the shaft 31 so as to cooperate respectively with the rolls 28 on the shaft 23. Thus, as illustrated in Figs. 2, and 3, the two pairs of feeding rolls 28 and 29, rotated in opposite directions (thus rolls 28 being rotated counterclockwise as viewed in these figures and rolls 29 being rotated clockwise), and being driven at the same rate of speed, will act to draw newspaper sections downwardly between them.

A hopper 37 is mounted on the carriage and the discharging mouth of the hopper is so positioned that the newspaper sections, when dropped into the hopper, will pass down from the hopper into the space between the opposed pairs of feeding rolls 28 and 29, as illustrated in Figs. 2 and 3, the newspaper sections being indicated by the reference characters N, N' and N². Any means, for example an endless conveyor belt, may be used for delivering the newspaper sections into the hopper 37 from the printing presses. In Fig. 1 the discharging portion of an endless conveyor belt system 38 is shown above the receiving hopper 37. A pair of slotted bars 39 or a similar self-adjusting connecting means, join the hopper and the mounting for the end roller for the conveyor belt so that movement of the hopper, as the carriage moves on the stationary housing, will not result in the newspaper sections, when dropped from the conveyor belt failing to fall into the hopper 37.

A shaft 40 is rotatably mounted in the lower portion of the suspension brackets 21 and 22 and is driven from the rotating shaft 31 by a gear chain (Figs. 4, 5 and 6) comprising a gear 41, secured on the end of shaft 31, a gear 42, secured on the end of shaft 40, and a pair of intermediate gears 43 and 44 mounted on the suspension bracket 21. A pair of feed rolls 45 are secured on the shaft 40 (Figs. 2 and 4).

As apparent from Fig. 2, it is necessary that each newspaper section N, received into the hopper 37, be in turn placed at the back of the stack of such sections in the stationary housing and then gradually moved forward towards the inserting machine. In order to feed the sections into the inserting machine a certain amount of thrust or pressure must be constantly exerted against all the newspaper sections in the housing so as to cause them to be pushed forward in order that they can be delivered one by one to the inserting machine. A difficulty encountered was to deposit each section, as received from the presses, at the back of the stack in the housing while maintaining the forward thrust on the stack. I have, however, succeeded in doing this

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by temporarily holding each newspaper section in the half-way position illustrated by the newspaper section N' in Fig. 2 until the next subsequent section, illustrated by N², has had time to drop in behind it, then causing the two sections N' and N² to move downwardly together, as illustrated in Fig. 3, until the section N' is deposited in position at the rear of the stack and the section N² occupies the position formerly occupied by N'.

The distance between the pair of feeding rolls 28 and the pair of rolls 29 is normally less than the thickness of two separate newspaper sections but greater than the thickness of one section. Consequently it is possible for one section alone to remain temporarily in the position shown by N' in Fig. 2 without being engaged by the feeding rolls 28 and 29.

In order to hold the newspaper section N' of Fig. 2 temporarily from being contacted by the feeding rolls 28, I provide a pair of hinged fingers 46, Figs. 2 and 4, the forward ends of which extend through slots in the rear wall of the hopper and are curved downwardly, and the rear ends of which either carry light weights or have light springs attached so that the fingers will push the paper section N' away from the rolls 28 slightly but will not offer sufficient resistance to prevent the next section N² from moving down past them. When the two sections N' and N² then come between the two sets of feed rolls 28 and 29, as shown in Fig. 3, they will then be moved downwardly until the first section N' has passed entirely below the rolls 29. When the two sections N' and N² are between the two sets of feeding rolls 28 and 29 the rolls 29 are pushed a slightly greater distance away from the rolls 28. This changing of the relative position of the rolls 29 is made possible by the fact that shaft 31 for these rolls is supported in the suspension brackets 21 and 22 which in turn are pivotally supported on the carriage through the intermediary of the hinge shaft 20, as previously explained.

When the rolls 29 are pushed forward slightly relatively by the passage of two newspaper sections N' and N² together between the rolls 29 and the rolls 28, as shown in Fig. 3, the suspension brackets 21 and 22 will be swung slightly forward as a result. At the same time the lower rolls 45, mounted on the shaft 40 which is supported in the lower ends of the suspension brackets 21 and 22, will also be pushed forward slightly temporarily and engage the downwardly moving section N' and bring this section down to the bottom of the housing and in position at the back of the stack of newspaper sections in the housing. However, when a newspaper section is brought down to this final position, further contact of the rolls 45 with the newspaper section must then be prevented or otherwise the rotating rolls 45 would damage the paper. When the newspaper section N', for example, has been brought down into position at the bottom of the stationary housing, it will no longer be in contact with the upper rolls 29 and consequently they will no longer be pressed forwardly with respect to the rolls 28 and suspension brackets 21 and 22 will return to their normal positions against the stops 61 (Figs. 6 and 7) by the pull of the springs 47. This return to normal position of the suspension brackets 21 and 22 results in the lower rolls 45 being moved back a slight distance.

Each of the suspension brackets 21 and 22 has a downwardly extending integral arm 48 near the top which is connected by toggle linkage 49 to a

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pin 50 (Figs. 5, 6 and 7) mounted in the upper end of a pressure lever 30 (previously mentioned), (Figs. 2 and 3), carried on the shaft 23, and pins 50 extend through slots 50' in the side plates of the carriage. The lower end of each pressure lever 30 carries a pin which engages a slot in a pusher arm 51 (Figs. 2, 3 and 4) pivotally mounted on a bracket 52 secured to a cross bar 53 supported on the suspension brackets 21 and 22. As a result of this multiple connection between the suspension brackets 21 and 22 and the adjacent pressure levers 30, a forward swing of the suspension brackets 21 and 22, against the force of their springs 47 (which forward swing is produced by the presence of two newspaper sections in the space between the rolls 29 and 28), causes the pusher arms 51 to move rearwardly. Similarly when the suspension brackets 21 and 22 return to their normal position on the carriage, the pusher arms 51 will be moved forward while the rolls 45 are moved in the opposite direction. In other words, when the suspension brackets 21 and 22 are in their normal position the pusher arms 51 will be pressed against the newspaper section at the rear of the stack in the housing and the rolls 45 will be held out of contact with the paper. Thus in Fig. 2 the newspaper section N' is shown temporarily at rest and momentarily not contacted by any of the three pairs of feeding rolls 28, 29 or 45. At the next stage, shown in Fig. 3, the newspaper section N' is being engaged by the two pairs of feeding rolls 29 and 45 and will continue to be so engaged until brought down to the bottom of the housing whereupon it will be below the feeding rolls 29 and will be held out of contact with the rolls 28 and 45.

This operation of the pressure levers 30 and pusher arms 51 is illustrated in Fig. 8, in which the full line position of the bracket 21 indicates the bracket in its forward position (thus when two newspaper sections are between the rolls 28 and 29), and the short broken lines indicate the bracket 21 in its rear or normal position. Thus, due to the resulting movement of the pressure levers 30, the pusher arms 51 are moved to their forward (short broken line) position when the bracket 21 and the bottom rolls are returned to their rear or normal position.

A plate 54 (shown most clearly in Fig. 4), hinged to the bottom of the rear wall of the hopper 37, has openings for the pairs of feed rolls 28 and 45 and for the pusher arms 51, and also acts as a guide for the newspaper sections. The bottom portion of the plate 54 rests against the bottom ends of the pressure levers 30. A pair of spring pressure bars 55 (Figs. 2, 3 and 4) secured to the brackets 52 respectively extend downwardly and forwardly at a spaced distance below the bottom of the plate 54 and bear against the bottom of the rearmost newspaper section in the stack of sections in the bottom of the stationary housing.

Since the top edges of the side walls 10 and 11 of the stationary housing, on which the carriage wheels 18, 18 and 19, 19 ride, slope downwardly towards the newspaper inserting machine 13, in the arrangement of my device which I have illustrated (Fig. 1), the carriage will have a constant tendency to move towards the inserting machine and thus will constantly exert forward pressure on the stack of newspaper sections in the stationary housing through the medium of the pressure bars 55, rolls 45 or pusher arms 51, plate 54, and rolls 28 or fingers 46, so as to feed the newspaper sections to the inserting machine as required.

Depending upon the downward slope of the housing, the weight of the carriage would ordinarily result in too great a thrust or feeding pressure being exerted on the stack of newspaper sections in the housing, but this is modified and controlled in the arrangement illustrated by having partial counterweights W (Figs. 1 and 2) connected to the rear of the carriage. Obviously of course, other means could be employed for causing the carriage to exert the desired feeding thrust against the stack of newspaper sections in the housing. For example, the housing could be positioned with the tracks for the carriage wheels horizontal and weights and pulleys could be used for pulling the carriage towards the inserting machine.

It may be desirable, with the feeding of inside newspaper sections into the upper portion of the particular newspaper inserting machine described in my previously mentioned patent, to have an additional feeding thrust given to a newspaper section along the bottom fold thereof as it is delivered into the inserting machine. For this purpose I make the bottom 12 of the housing in my device with a lowered step portion 56 (Fig. 2), and I have also formed the bottom 12 with a pair of longitudinal channels to accommodate a pair of sliding push bars 57 (see also Fig. 4). The rear ends of these push bars 57 are connected to operating rods 58, slidable in supports mounted on the underside of the housing bottom 12. The forward ends of these operating rods 58 are connected by suitable linkage (not shown) to cranks operated by the mechanism of the newspaper inserting machine so that, as will be apparent from Fig. 2, the desired additional feeding thrust will be given to the foremost newspaper section at each operating cycle of the inserting machine and in time with the operation of the engaging elements by which the newspaper section is thereupon drawn into the inserting machine.

Under normal operation of my device in conjunction with the newspaper inserting machine there will always be a small stack of newspaper sections on the bottom of the stationary housing (as illustrated in Fig. 2) and the rate at which newspaper sections are added to the rear of the stack and the rate at which the newspaper sections are fed to the inserting machine from the forward end of the stack will be approximately equal. The fact that the carriage can move back and forth in the stationary housing of course permits the device to accommodate itself to moderate fluctuations in the size of the stack.

A rheostat R (Fig. 1), mounted on the stationary housing, is connected to the motor of the inserting machine and the rheostat is operated by an arm 59 attached to the carriage of my device. This rheostat is so arranged that as the arm 59 moves to the right (as viewed in Fig. 1) the rheostat will act to speed up the motor of the inserting machine. In other words, if the stack of newspaper sections in the housing of my device starts to build up, the newspaper inserting machine will not be operating rapidly enough to take care of the rate at which the newspaper sections momentarily are being received by my feeding device. The resulting movement of the carriage and of the arm 59 to the right, as viewed in Fig. 1, will then operate the rheostat so as to cause the action of the inserting machine to be speeded up temporarily until the stack of newspaper sections in the stationary housing has been reduced to more normal proportions. In the event that even the speeding up of the inserting machine

does not suffice to keep pace with the rate at which the newspaper sections are being conveyed by the conveyor 38 to my device, an automatic shut-off switch 60 (Fig. 1), connected by means (not shown) to the operating mechanism for the conveyor 38, is mounted on the stationary housing at the right so as to be engaged by the carriage in the event the accumulation of newspaper sections in the housing reaches such proportions as to cause the carriage to be moved to its extreme right position in the housing. When this occurs the carriage will engage the shut-off switch 60 to operate the switch so as to cause the conveyor 38 to be stopped temporarily until the switch is disengaged and thus until the size of the stack of newspaper sections in the housing is reduced.

It would be possible, without departing from the principle of my invention to make numerous modifications in the various parts of my device, and my invention is not to be considered as restricted to the exact construction as illustrated, but confined only to the limitations as set forth in the claims.

I claim:

1. In a newspaper section feed delivery device of the character described, a housing, the forward end of said housing constituting a delivery trough, a carriage movable on said housing, a main feed roll on said carriage, a cooperating feed roll ahead of said main feed roll, a movable mounting support on said carriage for said cooperating feed roll, a third feed roll in said housing below said main and said cooperating rolls, said third roll mounted in said movable mounting support, guiding means directing newspaper sections between said main feed and cooperating feed rolls and thence down in front of said third feed roll into said delivery trough end of said housing, driving means on said carriage for rotating said main feed roll, said cooperating roll and said third feed roll at the same peripheral speed, said cooperating feed roll and therewith said movable mounting support and said third feed roll adapted to be moved forward on said carriage by the engagement of newspaper sections between said main feed and said cooperating feed rolls, means for causing said carriage to move forwardly on said housing and means regulating the forward pressure exerted by said carriage.

2. In a newspaper section feed delivery device of the character described, a housing adapted to be mounted in stationary position, a carriage movable on said housing, a main feed roll on said carriage, a cooperating feed roll ahead of said main feed roll, a pair of brackets pivoted on said carriage, said cooperating roll mounted in said brackets, a third feed roll in said housing below said main and said cooperating rolls, said third roll mounted in said brackets, guiding means directing newspaper sections between said main feed and cooperating feed rolls and thence down in front of said third feed roll into said housing, driving means for rotating said main feed roll, means connected with said main feed roll for driving said cooperating and said third feed rolls at uniform peripheral speed with said main feed roll, said cooperating feed roll, and therewith said brackets and said third feed roll, adapted to be moved forward on said carriage by the engagement of newspaper sections between said main feed and said cooperating feed rolls, a pair of pusher arms on said carriage normally bearing against the newspaper sections in said hous-

ing to keep said sections from being contacted by said third feed roll, and means on said carriage operated by the movement of said brackets for actuating said pusher arms to cause said pusher arms to move back when said brackets and therewith said third feed roll are moved forward on said carriage.

3. In a newspaper section feed delivery device of the character described, a housing adapted to be mounted in stationary position, the forward end of said housing constituting a delivery trough, a carriage movable on said housing, a pair of main feed rolls on said carriage, a pair of cooperating feed rolls ahead of said main feed rolls, a movable mounting support on said carriage for said cooperating feed rolls, a third pair of feed rolls in said housing below said main and said cooperating pairs of rolls, said third pair of rolls mounted in said movable mounting support, guiding means directing newspaper sections between said pairs of main feed and cooperating feed rolls and thence down in front of said third feed rolls into delivery trough end of said housing, driving means for rotating said main feed rolls, means connected with said main feed rolls for driving said cooperating and said third feed rolls at uniform peripheral speed with said main feed rolls, said cooperating feed rolls, and therewith said movable mounting support and said third feed rolls, adapted to be moved forward on said carriage by the engagement of newspaper sections between said main feed and said cooperating feed rolls, a pair of pusher arms on said carriage normally bearing against the newspaper sections in said delivery trough end of said housing to keep said sections from being contacted by said third feed rolls, and means on said carriage operated by the movement of said movable mounting support for actuating said pusher arms to cause said pusher arms to move back when said movable mounting support and therewith said third feed rolls are moved forward on said carriage.

4. A newspaper section feed delivery device for use with a newspaper inserting machine including a housing adapted to be mounted on the inserting machine, a carriage movable on said housing, a main feed roll on said carriage, a cooperating feed roll ahead of said main feed roll, a movable mounting support on said carriage for said cooperating feed roll, a third feed roll in said housing below said main and said cooperating rolls, said third roll mounted in said movable mounting support, guiding means directing newspaper sections between said main feed and cooperating feed rolls and thence down in front of said third feed roll into said housing, driving means on said carriage for rotating said main feed roll, means connected with said main feed roll for driving said cooperating and said third feed rolls at uniform peripheral speed with said main feed roll, said cooperating feed roll, and therewith said movable mounting support and said third feed roll, adapted to be moved forward on said carriage by the engagement of newspaper sections between said main feed and said cooperating feed rolls, means for holding a newspaper section out of contact with said main feed roll when only a single newspaper section is between said cooperating and main feed rolls, a pair of pusher arms on said carriage normally bearing against the newspaper sections in said housing to keep said sections from being contacted by said third feed roll, a pair of pressure bars on said carriage operated by the movement

of said movable mounting support for actuating said pusher arms to cause said pusher arms to move back when said movable mounting support and therewith said third feed roll are moved forward on said carriage, a pair of tracks on said housing for said carriage inclined forwardly towards the inserting machine, and electric control means operated by the movement of said carriage on said housing preventing excessive accumulation of newspaper sections in the forward end of said housing.

5. A newspaper section feed delivery device for use with a newspaper inserting machine including a housing adapted to be mounted on the inserting machine, the forward end of said housing constituting a delivery trough, a carriage movable on said housing, a main feed roll on said carriage, a cooperating feed roll ahead of said main feed roll, a pair of brackets pivoted on said carriage, said cooperating roll mounted in said brackets, a third feed roll in said housing below said main and said cooperating rolls, said third roll mounted in said brackets, guiding means directing newspaper sections between said main feed and cooperating feed rolls and thence down in front of said third feed roll into said delivery trough end of said housing, driving means on said carriage for rotating said main feed roll, means connected with said main feed roll for driving said cooperating and said third feed rolls at uniform peripheral speed with said main feed roll, said cooperating feed roll normally spaced from said main feed roll a distance greater than the thickness of one newspaper section but less than the thickness of two newspaper sections, whereby a single newspaper section may be held in said space between said main and cooperating feed rolls without being contacted by said main and cooperating feed rolls but the arrival of a second newspaper section will cause said cooperating feed roll and therewith said brackets to be moved forward, a pair of pusher arms on said carriage normally bearing against the newspaper sections in said delivery trough end of said housing to keep said sections from being contacted by said third feed roll, a pair of pressure bars on said carriage operated by the movement of said brackets for actuating said pusher arms to cause said pusher arms to move back when said brackets and therewith said third feed roll are moved forward on said carriage, means for causing said carriage to move forwardly on said housing towards the inserting machine with predetermined pressure, and means regulating the forward pressure exerted by said carriage.

6. A newspaper section feed delivery device of the character described for use with a newspaper inserting machine comprising a housing adapted to be mounted in stationary position on the stuffing machine, the forward end of said housing constituting a delivery trough, a carriage movable on said housing, a pair of main feed rolls on said carriage, a pair of cooperating feed rolls ahead of said main feed rolls, a pair of brackets pivoted on said carriage, said cooperating rolls mounted in said brackets, a third pair of feed rolls in said housing below said main and said cooperating pairs of rolls, said third pair of rolls mounted in said brackets, guiding means directing newspaper sections between said pairs of main feed and cooperating feed rolls and thence down in front of said third feed rolls into said delivery trough end of said housing, driving means for rotating said main feed rolls, said cooperating rolls and said third feed rolls at the

same peripheral speed, said cooperating feed rolls normally spaced from said main feed rolls a distance greater than the thickness of one newspaper section but less than the thickness of two newspaper sections, whereby a single newspaper section may be held in said space between said pairs of main and cooperating feed rolls without being contacted by said pairs of main and cooperating feed rolls but the arrival of a second newspaper section will cause said cooperating feed rolls and therewith said movable mounting support to be moved forward, a pair of fingers for holding a newspaper section out of contact with said main feed rolls when only a single newspaper section is between said cooperating and main feed rolls, a pair of pusher arms on said carriage normally bearing against the newspaper sections in said delivery trough end of said housing to keep said sections from being contacted by said third feed rolls, means on said carriage operated by the movement of said brackets for actuating said pusher arms to cause said pusher arms to move back when said brackets and therewith said third feed rolls are moved forward on said carriage, means for causing said carriage to move forwardly on said housing towards the inserting machine, thrusting members in the bottom of said housing adapted for operation by the inserting machine to push newspaper sections forward from said delivery trough end of said housing, and electric control means operated by the movement of said carriage on said housing preventing excessive accumulation of newspaper sections in said delivery trough end of said housing.

7. In a feed delivery device of the character described, a frame, a main feed roll mounted on said frame, a cooperating feed roll positioned slightly forwardly of said main feed roll, a movable mounting support on said frame for said cooperating feed roll, a third feed roll below said main and said cooperating rolls, said third roll mounted in said movable mounting support, driving means on said frame for rotating said main feed roll, means connected with said main feed roll for driving said cooperating and said third feed rolls at uniform peripheral speed with said main feed roll, means for directing such articles as newspaper sections and the like down between said main feed roll and said cooperating feed roll and down in front of said third feed roll, said cooperating feed roll and therewith said movable support and said third feed roll adapted to be moved forward from normal position on said frame by the engagement of such article

between said main feed roll and said cooperating feed roll, pusher elements on said frame movable forwardly and back near said third feed roll, and means on said frame operated by the movement of said support for actuating said pusher elements to cause said elements to move back when said support is moved to forward position and to move forwardly when said support is returned to normal position, whereby to push such article forwardly out of contact with said third feed roll after said article has been moved down to lowered position by said third roll.

8. In a feed delivery device of the character described, a frame, a pair of main feed rolls mounted on said frame, a pair of cooperating feed rolls positioned slightly forwardly of said main feed rolls, a pair of brackets pivoted on said frame, said cooperating rolls mounted in said brackets, a third pair of feed rolls below said main and said cooperating pairs of rolls said third pair of rolls mounted in said brackets, driving means for rotating said main feed rolls and said cooperating rolls and said third feed rolls at the same peripheral speed, means for directing such articles as newspaper sections and the like down between said main feed rolls and said cooperating feed rolls and down in front of said third feed rolls, said cooperating feed rolls and therewith said pair of brackets and said third feed rolls adapted to be moved forward from normal position on said frame by the engagement of such article between said main feed rolls and said cooperating feed rolls, pusher elements on said frame movable forwardly and back near said third feed rolls, and means on said frame operated by the movement of said pair of brackets for actuating said pusher elements to cause said elements to move back when said pair of brackets are moved to forward position and to move forwardly when said pair of brackets are returned to normal position, whereby to push such article forwardly out of contact with said third feed rolls after said article has been moved down to lowered position by said third rolls.

CHAUNCEY L. ROCKWELL.

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