(No Model.) 5 Sheets—Sheet 1.

L. C. CROWELL.

DELIVERY APPARATUS FOR WEB PRINTING MACHINES.

No. 259,979. Patented June 20, 1882.

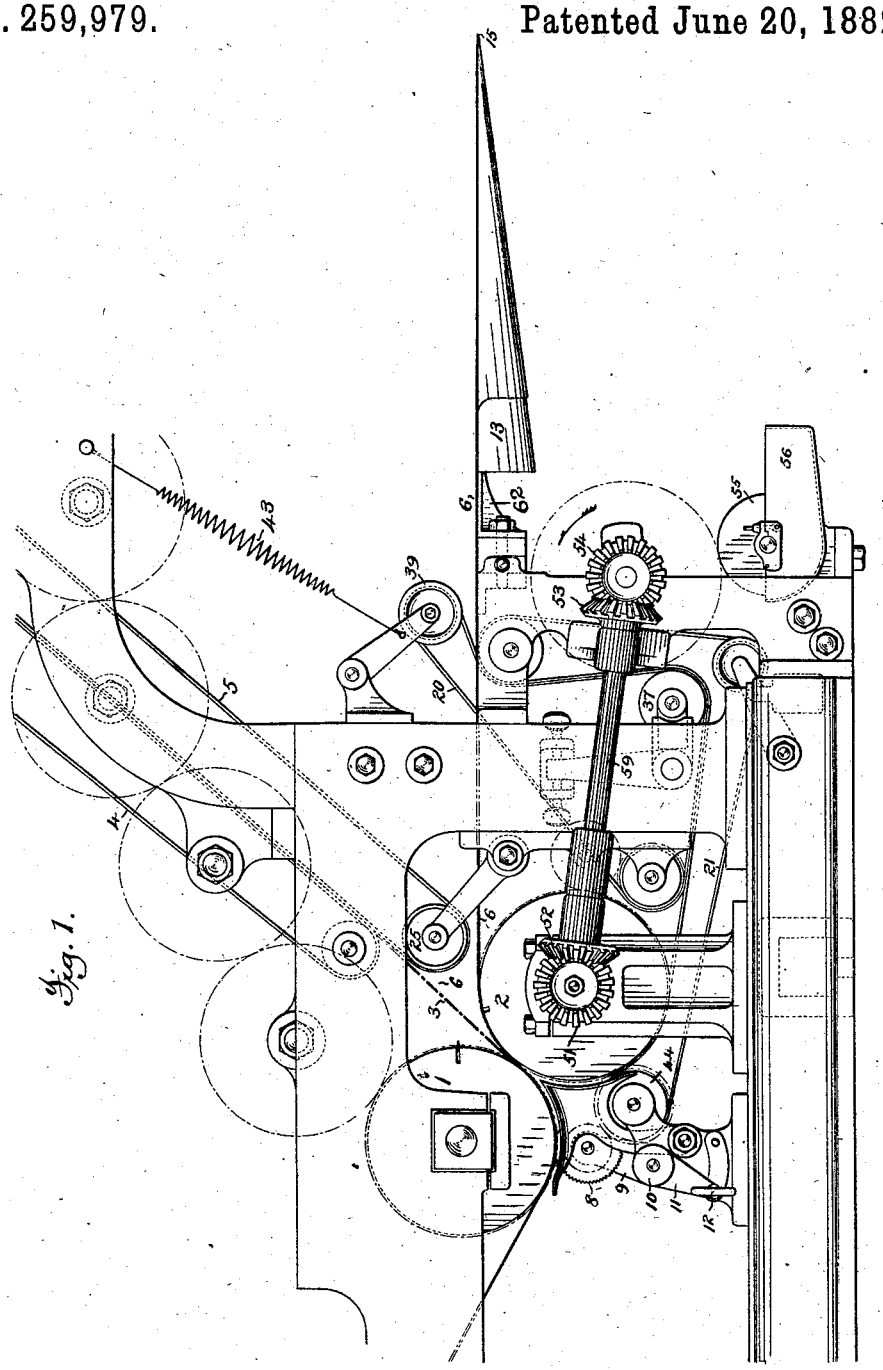

Fig. 1.

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A. N. Jasbera

Inventor;
Luther C. Crowell,
by Munson & Philipp
Attys.

(No Model.) 5 Sheets—Sheet 2.

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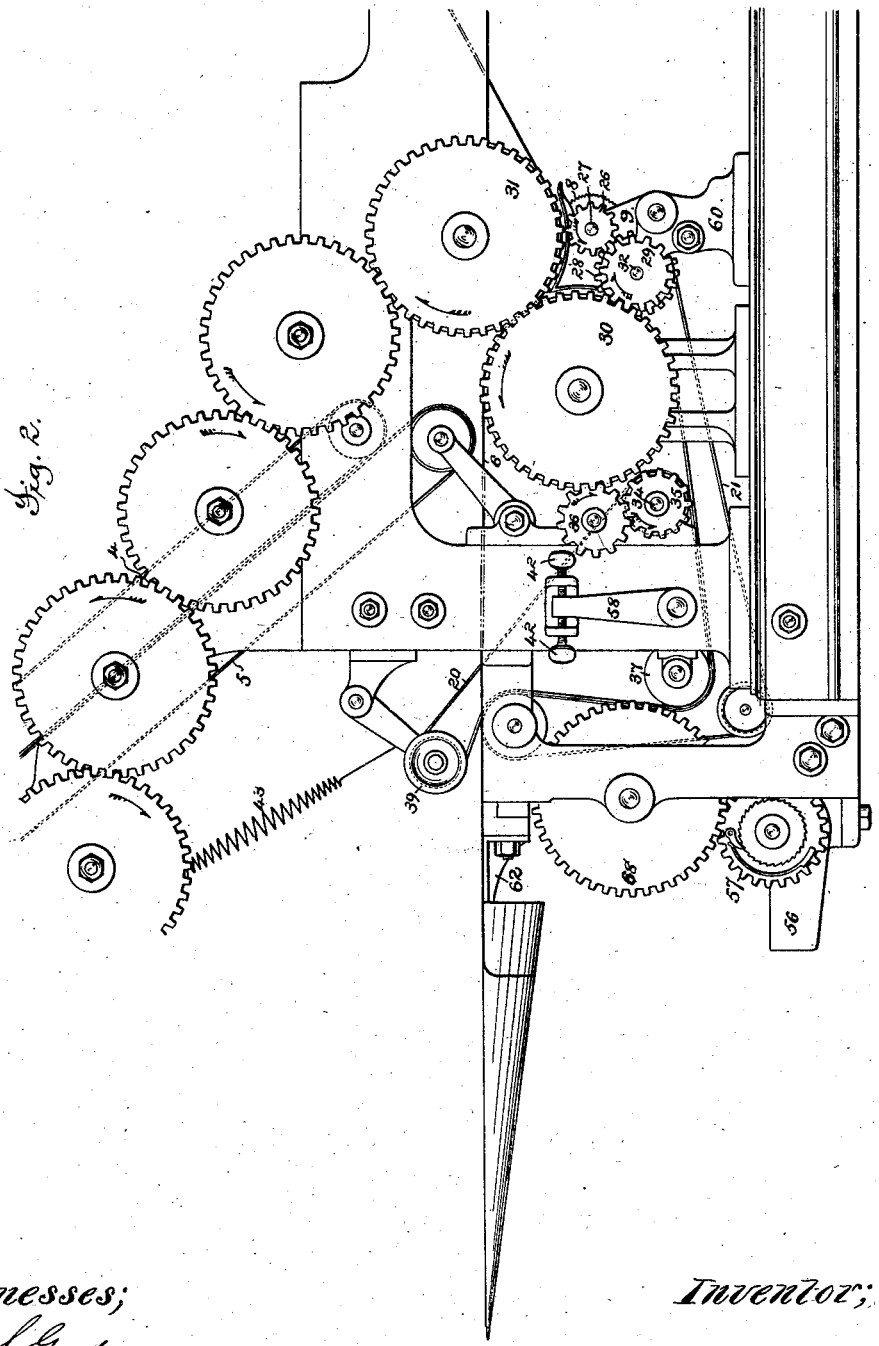
Fig. 2.



Witnesses;
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(No Model.) 5 Sheets—Sheet 3.

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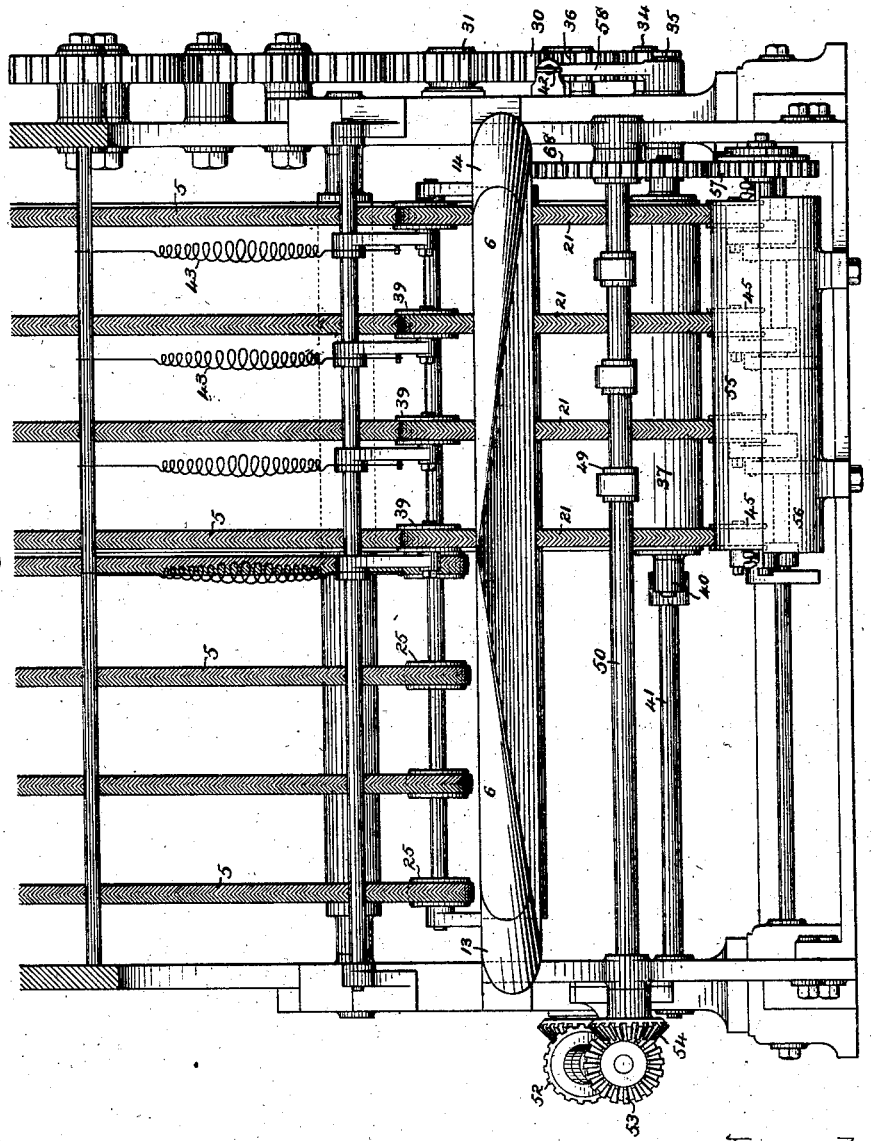

Fig. 3.

Witnesses;

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(No Model.) 5 Sheets—Sheet 4.

L. C. CROWELL.

DELIVERY APPARATUS FOR WEB PRINTING MACHINES.

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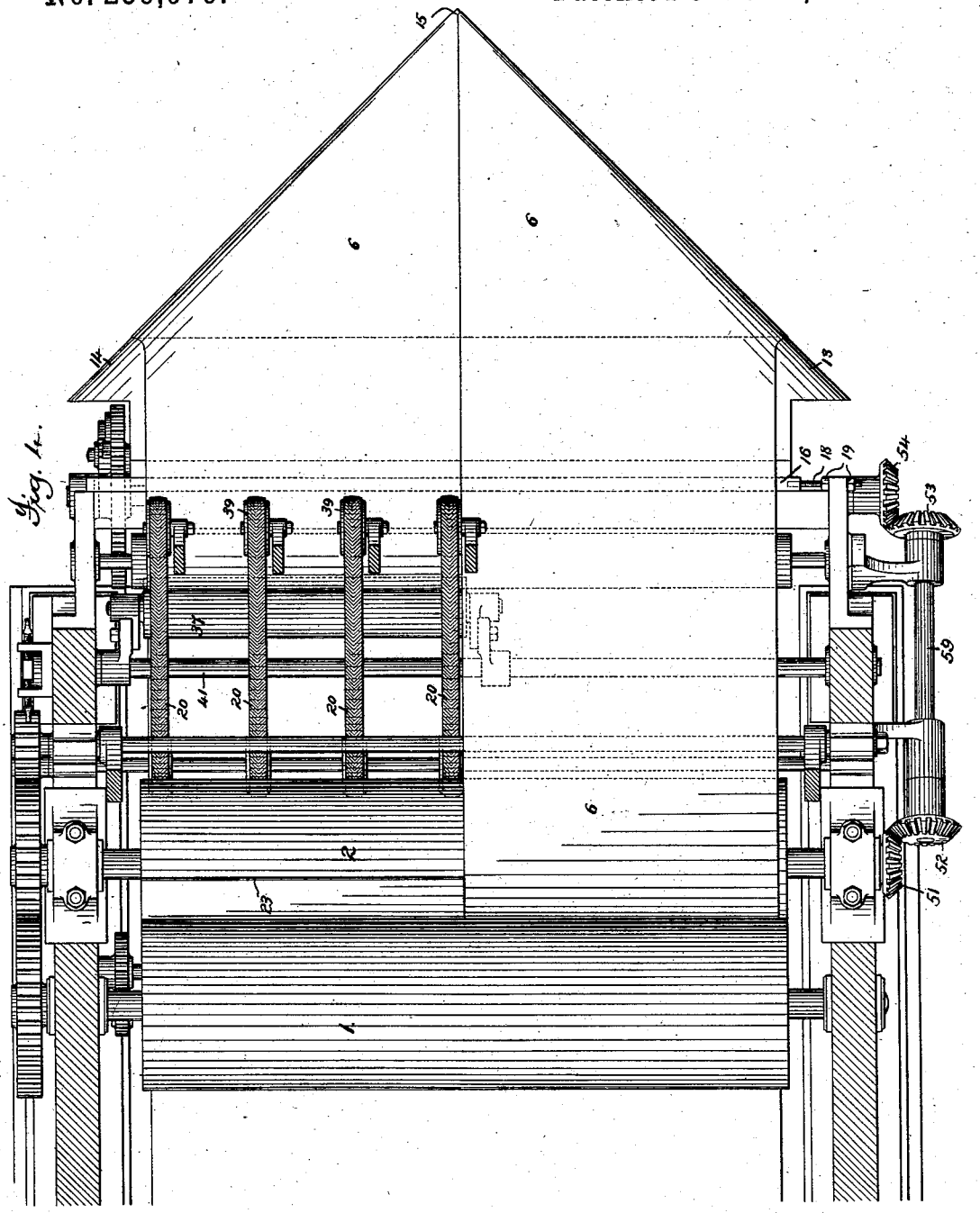
Fig. 1.



Witnesses;

Geo. H. Graham

A. N. Jasbera

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(No Model.) 5 Sheets—Sheet 5.

L. C. CROWELL.

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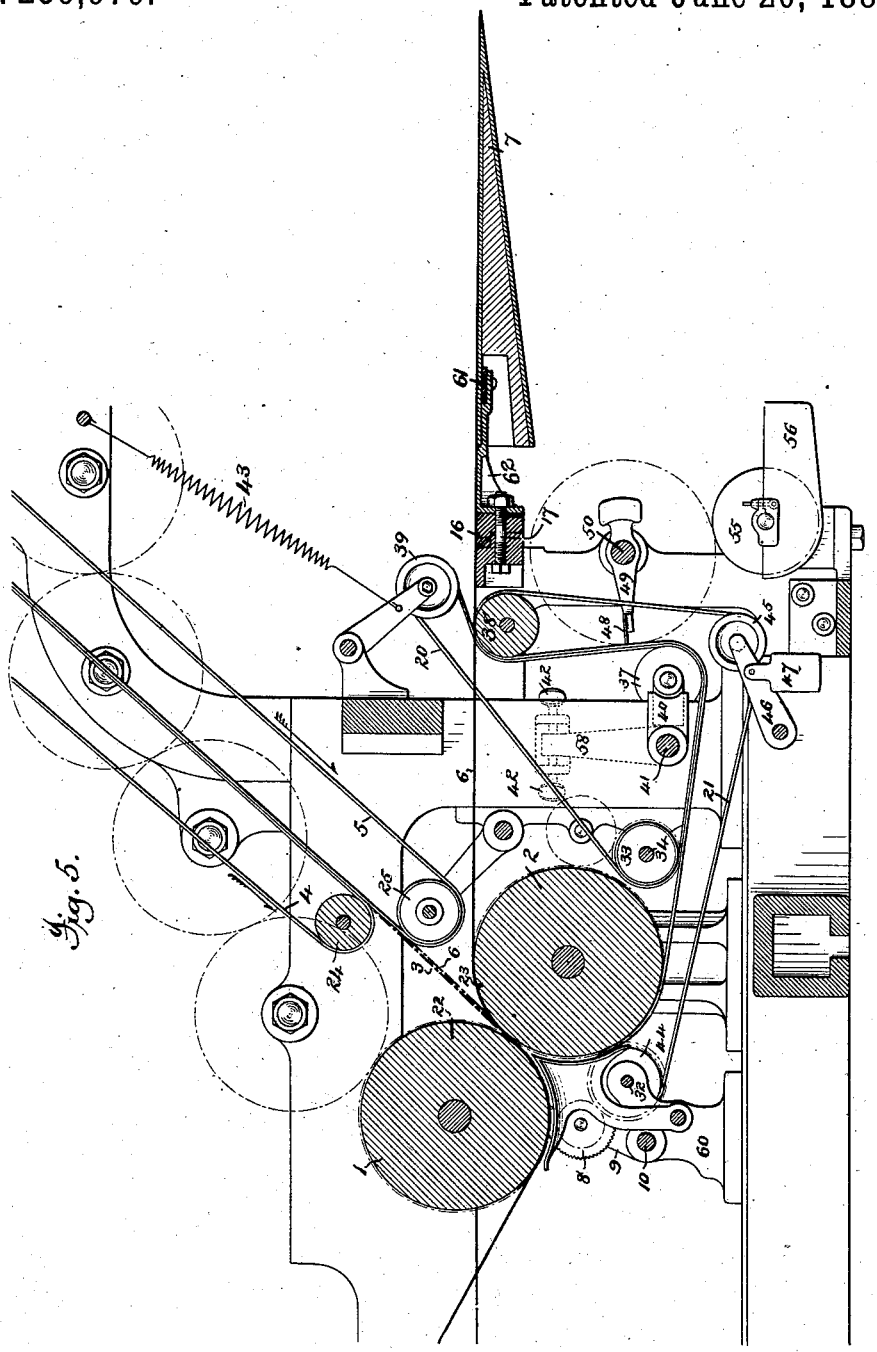

Fig. 5.

Witnesses;
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A. T. Jasbera

Inventor;
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by Munson & Philipp
Attys.

UNITED STATES PATENT OFFICE.

LUTHER C. CROWELL, OF BROOKLYN, ASSIGNOR TO R. HOE & CO., OF NEW YORK, N. Y.

DELIVERY APPARATUS FOR WEB-PRINTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 259,979, dated June 20, 1882.

Application filed February 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, LUTHER C. CROWELL, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Delivery Apparatus for Web-Printing Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to a mechanism of the general character of those shown and described in United States Letters Patent No. 181,250, and is designed and adapted to associate, by imposing one upon the other, two webs of paper or other material as they are led side by side from a printing or other mechanism. This association is effected in the present invention, as in the machine shown in the patent referred to, by transferring one of the webs and laying it upon or beneath the other, the result being equivalent to that obtained by longitudinally folding a single web and then severing it upon the fold-line.

The present invention has for its object the improvement in certain details of construction of the mechanisms shown in the patent referred to; and to that end it consists in certain novel features and combinations of parts, all of which will be hereinafter fully explained and pointed out.

In said drawings, Figure 1 is a side elevation of a mechanism embodying the present invention. Fig. 2 is also a side elevation of the same mechanism, but showing the side opposite to that shown in Fig. 1. Fig. 3 is an end elevation, Fig. 4 a plan view, and Fig. 5 a longitudinal vertical section, of the same.

The webs of paper to be associated, being led side by side from the printing or other mechanism, are passed between the cutting-cylinders 1 2, one web, 3, as shown by the dotted line, Figs. 1 and 5, passing into the bite of the tapes 4 5, which may lead to a folding or other delivering apparatus, while the other web, 6, as shown by the solid line, (same figures,) passes forward onto the face of the web-turner 7. When this mechanism is to operate in connection with a printing mechanism it will usually be found most advantageous to lead the material to the cylinders 1 2 in the form of a single web of double width, in which case a slitter, 8, will be arranged, as shown in Figs. 1, 2, and 5, to split the web, so that as the material passes from cylinders 1 2 it will be in the same form as if led to the mechanism as two independent webs. The slitter 8 is mounted upon a short shaft, 27, journaled in the end of the arms 9, fast to the rock-shaft 10, which shaft is carried by the supports 60, secured to the bed of the machine. This slitter is driven by the pinion 26, mounted upon the end of said shaft 27, through gears 28 and 29 upon shaft 32, connecting it with gear 30 upon the shaft of cylinder 2.

The rock-shaft 10 is provided with an outside arm, 11, carrying the set-screw 12, by means of which the shaft can be rocked and secured, so as to throw the slitter into or out of operative position, as may be desired.

The web-turner 7 consists of the two turning edges or surfaces, 13 14, arranged so that each one turns the web into a course at right angles to that previously taken, and so that both together transfer the web laterally. These surfaces, as shown, are substantially in the form of the halves of a longitudinally-divided cone, their points uniting at the apex 15 and their bases being connected by a suitable bar or plate, 61.

The base of the web-turner is secured in any appropriate manner to the bar 16—as, for instance, by brackets 62—as shown, and the whole is then bolted to the frame of the machine by bolts, as 17. (See Fig. 5.) The holes in the bar 16 and the brackets 62 of the turner, through which the bolts 17 pass, are oblong, so as to permit of the lateral adjustment of the turner to secure the proper registration between the edges of the webs when associated. This adjustment is effected by the screw 18, secured to the end of the bar 16, which screw passes through an ear on the side frame of the machine, and has set-nuts at either side, by which it can be moved to and secured in any desired position.

The turner, instead of being constructed as shown, may consist of a single bar, as also shown in the patent referred to, or in any of the positions with relation to each other in which it is common to place turners for this purpose. The web 6 is led downward around

the edge 13 of the turner, laterally across its under side, and then upward and around its edge 14, as clearly shown in Figs. 3 and 4. It then passes backward and downward between the tapes 20 21, under and around cylinder 2, and is associated with web 3, together with which it passes between cylinders 1 and 2 into the bite of tapes 4 5, as shown in dotted lines in Fig. 5. As the associated webs 3 6 pass between cylinders 1 2 they are partially severed at suitable points by the perforating-blade 22, carried by the cylinder 1, coacting with the groove 23 of the cylinder 2, and the sheets thus partially severed are then separated from the web by the tapes 4 5, which are accelerated for this purpose in the well-known manner.

It is of course to be understood that when the webs are associated as just described the blade 22 extends but one-half the length of the cylinder 1. The associated sheets, after being parted from the webs by the tapes 4 5, are delivered by these tapes to any approved form of folding or delivery apparatus, to be delivered or further manipulated as may be desired.

The associated webs, instead of being partially severed by the blade 22 and parted by the tapes, may be entirely severed by the cutting mechanism and pass directly to a delivery apparatus.

The cutting-cylinders 1 2, which are connected by gears 31 30 upon their respective shafts, receive motion by connection with a printing-machine, or any convenient source of power, and, besides communicating motion to the slitter 8, as just explained, communicate motion to the tapes 20 21 and to a pasting mechanism, to be hereinafter described. The tapes 20 pass around and are driven by pulleys 33, mounted upon shaft 34, provided with gear 35, and connected through intermediate 36 with gear 30 upon the shaft of cylinder 2, thence around roll 39, over roll 38, and return around the adjustable roll 37. The shaft of roll 37 is journaled in arms 40, secured to the rock-shaft 41, which shaft 41 is provided with an arm, 58, the end of which is controlled by adjusting-screws 42. By means of these devices, as will readily be seen, the roll 37 can be adjusted to different positions, so as to vary the distance traveled by the web 6 in going from and returning to the cylinders 1 2, and that by varying the distance so traveled the proper registration of the printed matter upon the webs 3 and 6 can be secured. The springs 43, which support the pulleys 39, will readily yield to allow the roll 37 to be lowered, and will retract to take up the slack in the tapes when the roll is raised. The tapes 21 pass around and are driven by the pulleys 44 upon shaft 32, provided with the gear 29, which, as before stated, engages with gear 30 upon the shaft of cylinder 2, thence around pulleys 45 and 38, and return around adjustable roll 37. The pulleys 45 turn upon studs in the ends of swinging arms 46, and are provided with weights 47, which hold the pulleys down, so as to keep the tapes taut and hold them snugly against roll 37, no matter to what position said roll is adjusted.

It is of course obvious that cords running over pulleys and provided with weights may be substituted for the springs 43, and that springs may be used instead of the weights.

In order that the sheets severed from the webs 3 6 may be secured to each other, a pasting mechanism is provided, which applies transverse lines of paste to the web 6 at proper points, so that when the webs come together between cylinders 1 2 they will be united upon such transverse lines in the same manner as shown in the Letters Patent referred to. This pasting mechanism consists of the rotating pasting-blade 48, carried upon arms 49, mounted upon shaft 50, and driven from bevel-gear 51 on the shaft of cylinder 2 through bevel-gears 52, 53, and 54 and shaft 59.

The shaft 50 is so positioned that as it revolves it carries the blade 48 (portions of which are cut away, so that the blade will not come into contact with the tapes 21) into contact with the web 6 as it passes from roll 38 to roll 37, and the blade is so timed that it makes one revolution to each revolution of the cutting-cylinders.

The blade 48 is supplied with paste from the roller 55, which revolves in the paste-vat 56, and with which the blade comes in contact in its revolutions. The paste-roll 55 is positively rotated by means of the gear 57 upon its shaft, which engages with the gear 68 upon the shaft 50.

When it is desired to deliver a product consisting of single sheets instead of double sheets, the severing-blade 22 is made to extend the full length of the cylinder 1, and the web 6, instead of passing around the turner 7, is led directly into the bite of the tapes 4 5.

It is to be remembered that the position of the register-governing device may be greatly varied without departing from the present invention. Such device may be placed so as to operate upon the web 6 before instead of after it passes around the turner; or it may be placed so as to operate upon that web after it has passed between the cylinders 1 2, and before it reaches the tapes 4 5; or the same result may be accomplished by a similar adjustable device arranged to operate upon the web 3 between the cylinders 1 2 and the tapes 4 5.

If a product consisting of sections of the full-width web is desired, the slitter 8 will be removed from operative position and the web will pass directly to the tapes 4 5 or other delivery mechanism without being split.

The cylinders 1 2, instead of being provided with cutting mechanism, may be simply leading-rolls, and the associated or single webs may pass uncut to other cutting and delivery mechanism of any approved form.

What I claim is—

1. The combination, with a web-turner adapted to transfer a web laterally and place it either over or under another web, of means for varying the distance traveled by the web, so that said webs shall register together properly, all substantially as described.

2. The combination, with a web-turner, as 7, of the adjustable roll, as 37, for varying the travel of one of the webs, substantially as described.

3. The combination, with the web-turner, as 7, of the leading-roll, as 37, rock-shaft, as 41, arm, as 58, and adjusting-screws, as 42, substantially as described.

4. The combination, with the web-turner, as 7, of the adjustable roll, as 37, and the series of tapes, as 20 21, provided with automatic devices, as 39 45, for keeping them taut, substantially as described.

5. The combination, with a web-turner adapted to transfer a web laterally, of web-severing mechanism, and mechanism for varying the distance traveled by the web to bring it into proper register with said severing mechanism, all substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LUTHER C. CROWELL.

Witnesses:
J. A. HOVEY,
T. H. PALMER.