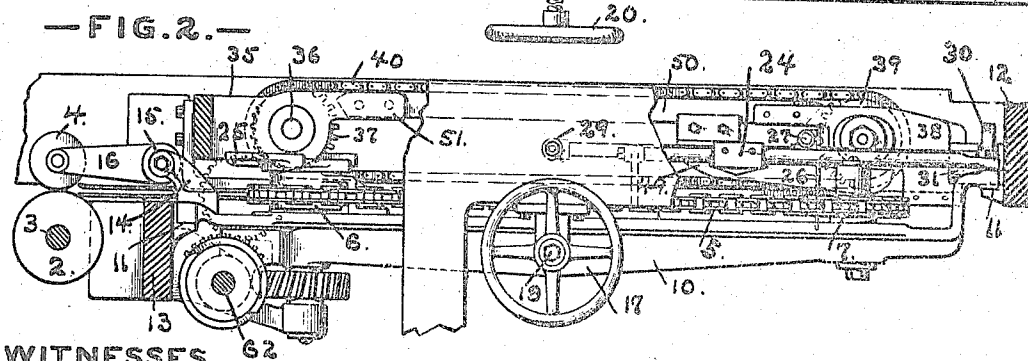
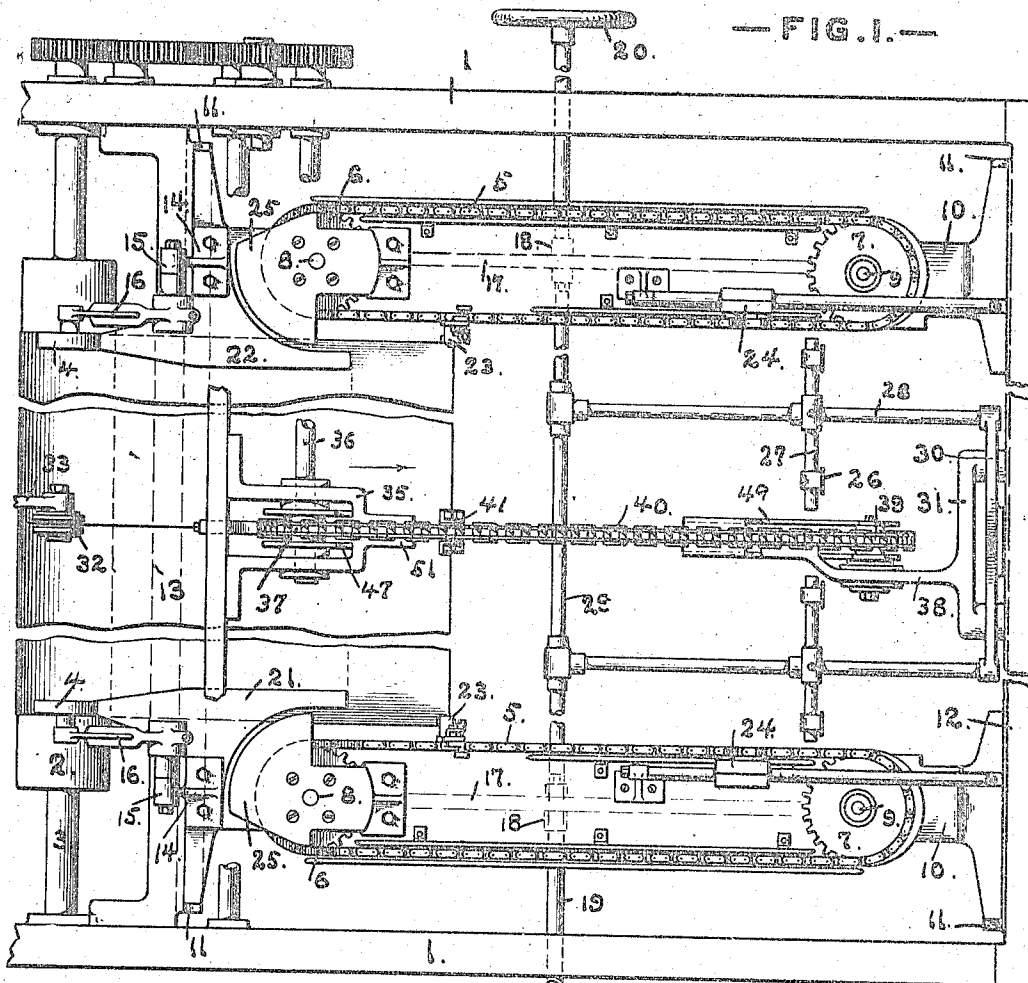


E. P. SHELDON.
SHEET DELIVERY MECHANISM.
APPLICATION FILED JULY 25, 1912.

1,133,407.

Patented Mar. 30, 1915.

4 SHEETS—SHEET 1.



WITNESSES.

A. White
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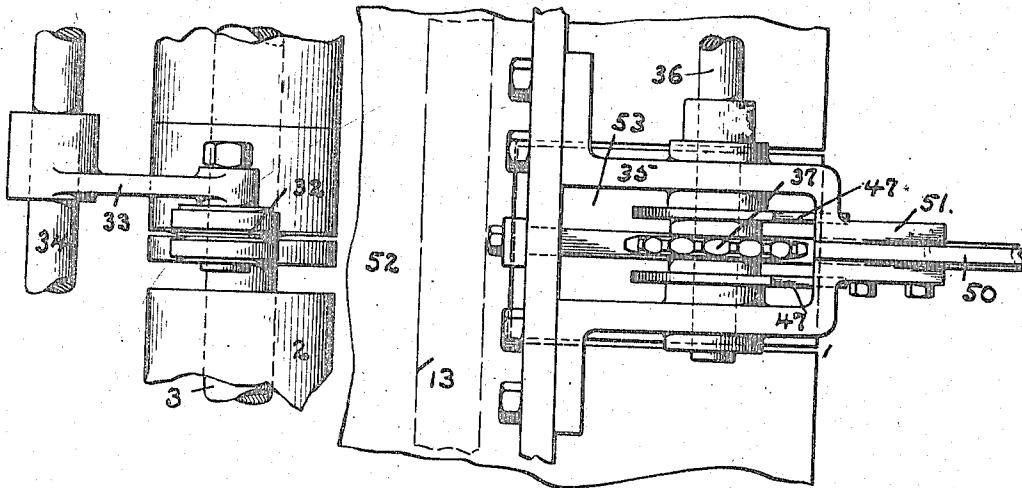
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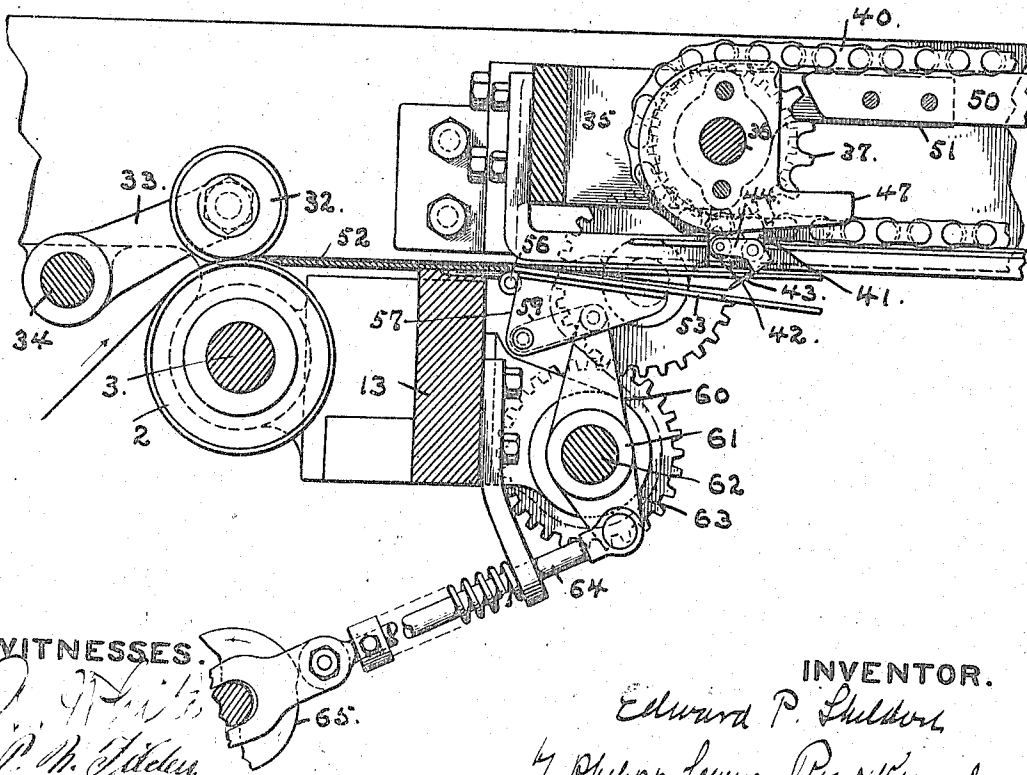
1,133,407.

Patented Mar. 30, 1915.
4 SHEETS—SHEET 2.

— FIG. 3.—



— FIG. 4.—



WITNESSES.

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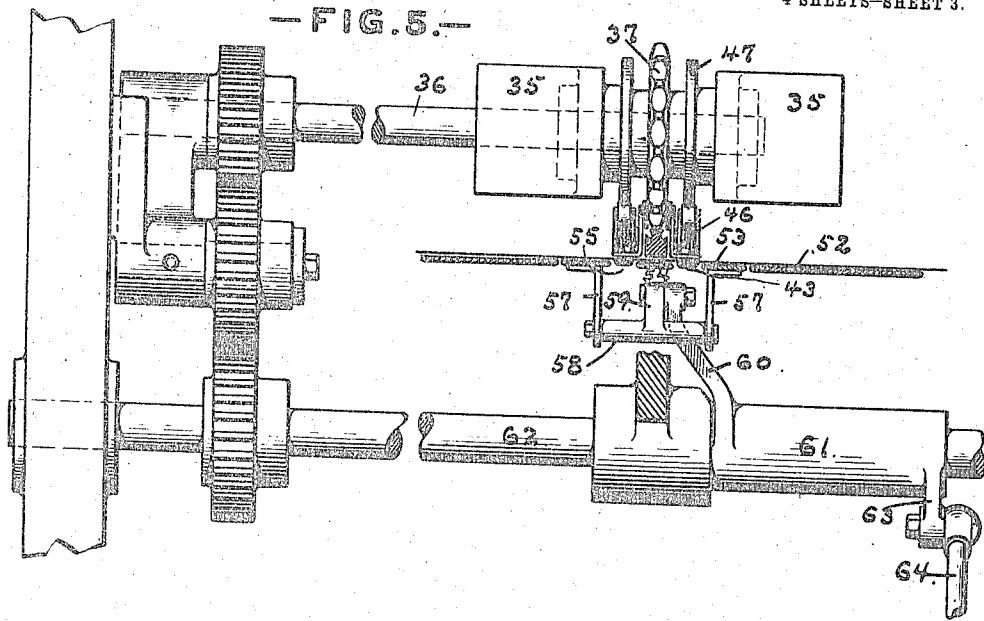
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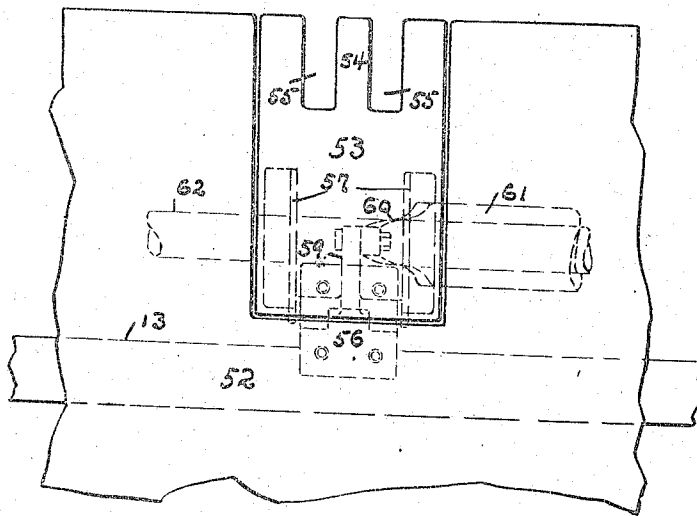
1,133,407.

Patented Mar. 30, 1915.

4 SHEETS—SHEET 3.



— FIG. 6.—



WITNESSES.

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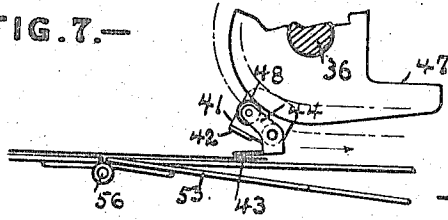
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1,133,407

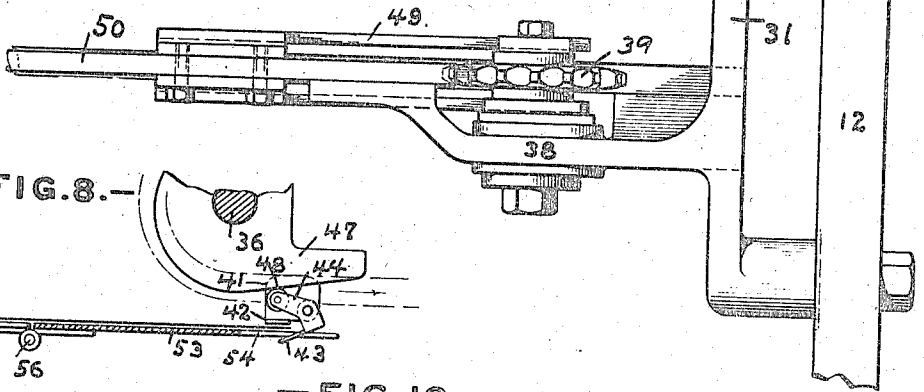
Patented Mar. 30, 1915.

4 SHEETS-SHEET 4.

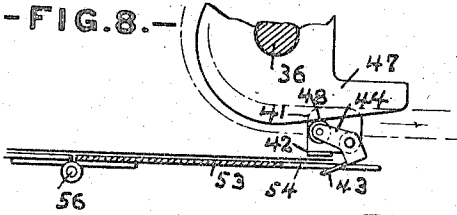
-FIG. 7.-



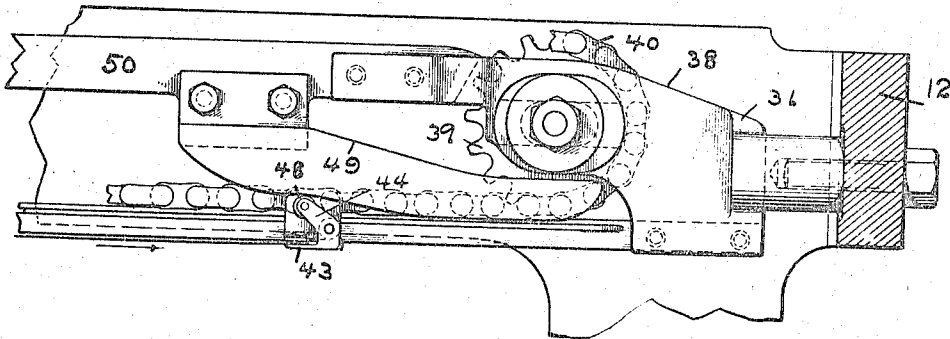
-FIG. 9.-



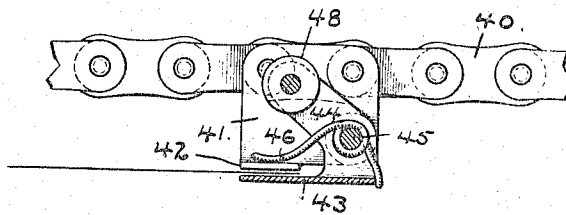
-FIG. 8.-



-FIG. 10.-



-FIG. 11.-



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ATTYS.

UNITED STATES PATENT OFFICE.

EDWARD P. SHELDON, OF NEW YORK, N. Y., ASSIGNOR TO R. HOE AND CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SHEET-DELIVERY MECHANISM.

1,133,407.

Specification of Letters Patent.

Patented Mar. 30, 1915.

Application filed July 25, 1912. Serial No. 711,493.

To all whom it may concern:

Be it known that I, EDWARD P. SHELDON, a citizen of the United States, residing at New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Sheet-Delivery Mechanism, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in sheet delivery mechanism for delivering sheets flat.

The invention has for its object to produce a simple, compact and effective sheet delivery mechanism which is adapted to handle wide sheets and to deliver the same divided into parts, the mechanism requiring but little space for its installation and being capacitated to run at high speeds.

With this and other objects not specifically referred to in view, the invention consists in certain constructions, and in certain parts, improvements and combinations as will be hereinafter fully described and then specifically pointed out.

Referring to the accompanying drawings: Figure 1 is a plan view of a sheet delivery mechanism embodying the invention. Fig. 2 is a side elevation of the construction shown in Fig. 1, certain parts being shown in section. Fig. 3 is a detail plan view illustrating the slitting mechanism and the intermediate gripper mechanism employed. Fig. 4 is a side elevation, partly in section, of the construction shown in Fig. 3. Fig. 5 is a front elevation, partly in section, of the intermediate gripper mechanism. Fig. 6 is a plan view of a lifter mechanism which may be employed. Figs. 7 and 8 are diagrammatic views illustrating the operation of the lifter mechanism. Fig. 9 is an enlarged plan view of the intermediate gripper mechanism. Fig. 10 is a side elevation of the construction shown in Fig. 9. Fig. 11 is a detail view of the gripper.

In the drawings which illustrate one embodiment of the invention, 1 indicates the side frames in which the mechanism is mounted. In the construction shown, the sheets are delivered from a printing machine or other source of supply to sheet advancing devices which include an abutment roll 2 mounted on a shaft 3 supported in the side frames. A pair of propeller rolls 4 arranged to bear

on the margins of the sheet coöperates with the abutment roll. It will be understood that mechanisms embodying the invention are intended to deliver the sheet flat and will include means for holding what may be termed the original edges of the sheet. While these means may be varied, in the particular construction illustrated they include a pair of flexible gripper carriers consisting of chains, as 5. These gripper carriers may be operated in various ways. In the particular construction illustrated, each chain passes around a driven sprocket wheel 6 and around an idle sprocket wheel 7, the wheels 6 being mounted on shafts 8, and the wheels 7 on shafts 9. These shafts 8 and 9 are normal or at right angles to the plane of the sheet path. The gripper carriers may be mounted so that they may be adjusted with respect to the sheet path, thereby capacitating them to handle sheets of varying widths. As illustrated, two carriages, 10, are provided for this purpose, these carriages moving on tracks 11 secured to cross-bars 12, 13, which connect with the side frames. These carriages 10 support the shafts 8, 9, and may also be provided with brackets 14 carrying bearings 15 which receive the shafts on which arms 16 are mounted, these arms serving to support the propeller rolls 4. The adjustment of each carriage is effected by providing it with a depending rib 17 which carries a bearing 18 receiving a horizontal shaft 19. This shaft is provided with hand wheels, 20, or any other suitable means for turning it, and is threaded through tapped openings in the side frames, as shown. The carriages 10 may also have secured to them plates 21, 22 which serve as guides for the incoming sheets.

The devices for holding the original edges of the sheet may be varied, but in the particular construction shown they consist of grippers. As shown, each flexible gripper carrier is provided with a gripper 23, these grippers being opened to release the sheet at the proper times by adjustable cams 24 and closed by cams 25. Stops 26 may be employed to check the movement of the sheet after it has been released by the gripper. In the construction shown, these stops are mounted on cross-bars 27 supported by and adjustable along rods 28. These rods are mounted at one end on rods 29, and at

the other end on a cross bar 30 resting against a bracket 31 secured to the end of the frame. This construction enables the stops to be lifted above the sheet when desired, so that the sheet may be pulled out.

Mechanism constructed in accordance with the invention will include means for dividing the sheet, so that it may be delivered in parts. In the particular construction shown, it comprises a slitter 32 mounted on an arm 33 carried on a shaft 34 extending across the machine. The slitter is located over and coöperates with the abutment roll 2.

Constructions embodying the invention will include means for forwarding the sheet, said means acting on each side of the cut formed by the dividing means and coöperating with the means which hold the original edges of the sheet in forwarding the same. While these means may be varied, and while the operating means may be varied, in the particular construction shown, a bracket 35 is provided which serves to support one end of a shaft 36 having a sprocket wheel 37. The bracket 31 is provided with an extension 38 which serves, through a suitable stud, to support a coöperating sprocket wheel 39. A flexible gripper carrying chain 40 runs over the sprocket wheels 37, 39, the wheel 37 being the driving wheel. The chain 40 (see Figs. 1, 4, and 11) is provided with two blocks 41 each of which has a horizontal extension 42 which serves as one jaw of a gripper mechanism. The corresponding jaw 43 of each gripper is carried on a rock-arm 44. These arms 44 are pivoted on studs 45 extending from the blocks 41. The grippers are normally held closed by springs 46 and are opened to seize the sheets by cams 47 fixed inside the arms of the brackets 35. The arms 44 carry rolls 48 which contact with these cams. The grippers are opened to release the sheets by cams 49 secured to a chain guide 50, this chain guide being supported at one end by the bracket 38 and at the other end by extensions 51 from the bracket 35. It will be understood that the under run of the chain 40 is above the sheet path and that the gripper jaws in opening, therefore, cross the sheet path.

In order to prevent the jaws 43 from pressing upon and possibly tearing the sheet, means may be provided for permitting the sheet to bend away from the grippers and for lifting the sheet so that its seizure by the grippers is insured. While these means may be varied, in the particular construction illustrated, the sheet, after leaving the abutment roll, is received on a table or platform 52 (see Fig. 3) which is cut away about midway of its forward edge. The cut-away place in this table is filled

by a leaf 53 the front end of which is

formed by a tongue 54 flanked by recesses 55 which are in the path of the gripper jaws 43 as they swing downward. This leaf is hinged at 56 to the table 52, and suitable means is provided for rocking the leaf downward as the sheet comes out over the table, and then raising it to insure that the edge of the sheet is properly positioned to be seized by the grippers. While these means may be varied, in the particular construction illustrated, the leaf has secured to its under side (see Figs. 4 and 5) two brackets 57 to support a short shaft 58. This shaft is provided with an arm 59 to which is secured an arm 60 extending from a hub 61 loosely mounted on a cross-shaft 62. This hub 61 has extending from it an arm 63 to which is secured a spring rod construction 64 of ordinary type which is operated from a cam 65, suitably mounted in the machine. In the operation of this part of the mechanism (see Figs. 4, 7 and 8) as the sheet advances across the table 52 and as the gripper is opening, the leaf 53 is rocked downward. At the time the gripper is fully opened, the parts occupy the position shown in Fig. 4. As soon as the grippers are beyond the edge of the sheet, the leaf is lifted, as shown in Fig. 8, thus bringing the edge of the sheet into position where its seizure by the gripper is insured.

Certain novel features of construction herein disclosed are not claimed as the same are disclosed and claimed in an application Ser. No. 632,118, filed June 9, 1911.

It will be understood that the invention claimed is not to be confined to the particular construction herein shown and described, as changes and variations may be made therein without departing from the claimed invention.

What is claimed is:—

1. A sheet delivery mechanism including in combination means for advancing a sheet flat, said means including devices for holding the original edges of the sheet, means for dividing the sheet, and sheet forwarding means acting to positively seize the sheet and operating on the sheet on each side next the cut formed by the dividing means.

2. A sheet delivery mechanism including in combination means for advancing a sheet flat, said means including grippers operating on the original edges of the sheet, a slitter for dividing the sheet, and sheet forwarding grippers operating on the sheet on each side of the cut formed by the slitter.

3. A sheet delivery mechanism including in combination a pair of travelling flexible gripper carriers one on each side of the sheet path, grippers on the carriers, a slitting mechanism for dividing the sheet, and grippers operating on the sheet on each side of the cut formed by the slitting mechanism.

4. In a sheet delivery mechanism, the com-

5 bination with a pair of traveling flexible gripper carriers one on each side of the sheet path, of actuating wheels for the carriers rotating on axes which are normal to the plane of the sheet path, a slitting mechanism, intermediate grippers operating on the sheet on each side of the cut formed by the slitting mechanism, and gripper actuating devices.

10 5. In a sheet delivery mechanism, the combination with sheet advancing means including a pair of propelling rolls and an abutment roll cooperating therewith, of a slit-
15 ter operating on the abutment roll, a pair of flexible gripper carriers one on each side of the sheet path, actuating wheels for the carriers rotating on axes which are normal to the plane of the sheet path, grippers on the carriers, and intermediate grippers operating
20 on the sheets on each side of the cut formed by the slitter.

25 6. A sheet delivery mechanism including in combination means for advancing the sheet flat, said means including a device for holding the original edges of the sheet, means for dividing the sheet, and a gripper mechanism located over the sheet path, the grippers of said mechanism operating on

the sheet on each side of the cut formed by the dividing means.

7. A sheet delivery mechanism including in combination means for advancing a sheet flat, said means including a device for holding the original edges of the sheet, means for dividing the sheet, a flexible carrier located over the sheet path, and a gripper mechanism operating on the sheet at the side formed by the cut of the dividing means.

8. A sheet delivery mechanism including in combination means for advancing a sheet flat, said means including a device for holding the original edges of the sheet, means for dividing the sheet, a gripper carrier located over the sheet path, grippers on the carrier arranged to operate at the side of the cut formed by the dividing means, a sheet support, and means for permitting the sheet to bend away so that it will not be torn by the grippers in opening.

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

EDWARD P. SHELDON.

Witnesses:

RICHARD KELLY,
HAROLD M. TILLINGHAST.