R. MIEHLE.

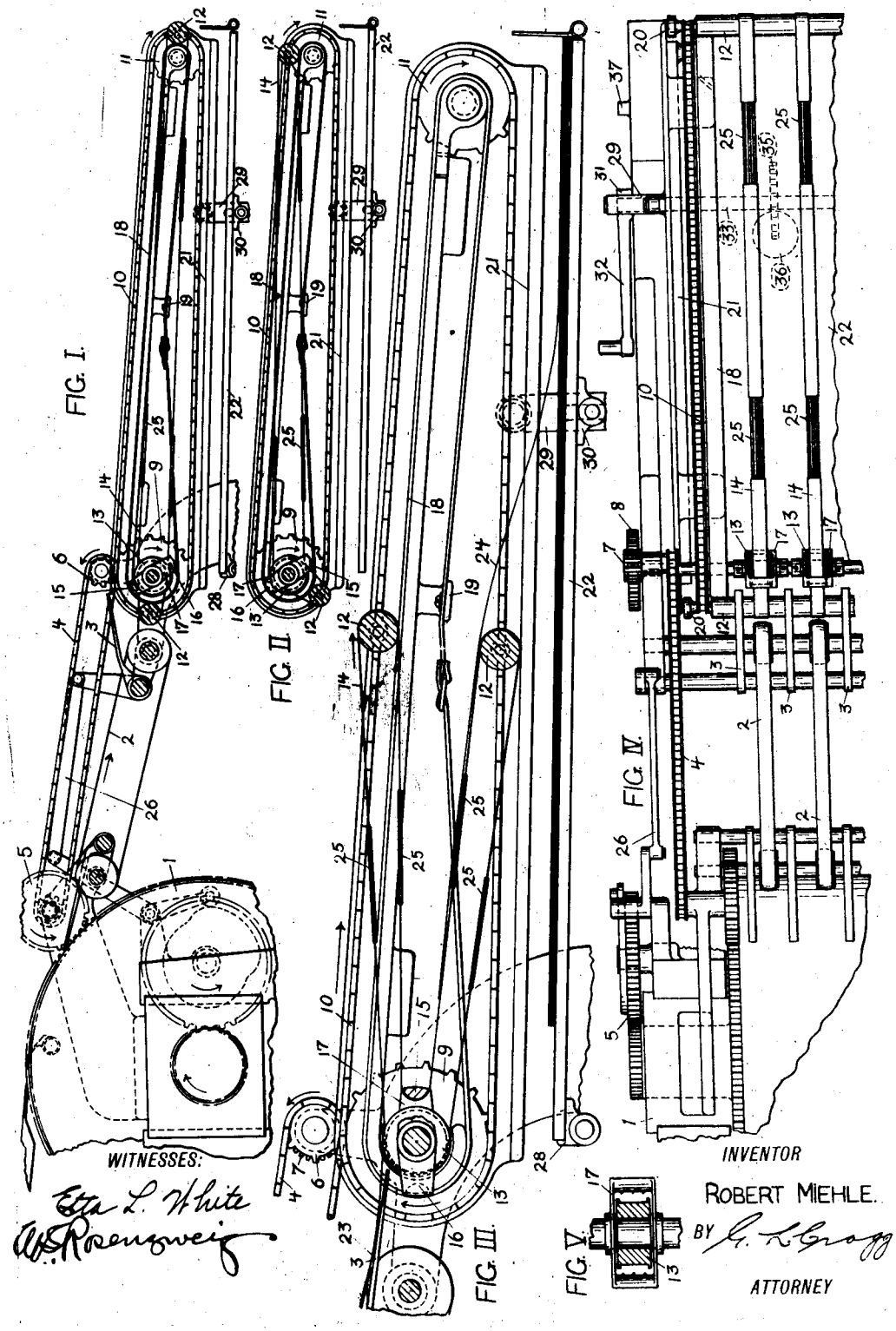
PRINTING PRESS.

APPLICATION FILED FEB. 7, 1912.

1,111,667.

Patented Sept. 22, 1914.

2 SHEETS—SHEET 1.



WITNESSES:

Etta L. White

W. Rosenzweig

INVENTOR

ROBERT MIEHLE.

BY G. L. Gregg

ATTORNEY

R. MIEHLE.

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2 SHEETS—SHEET 2.

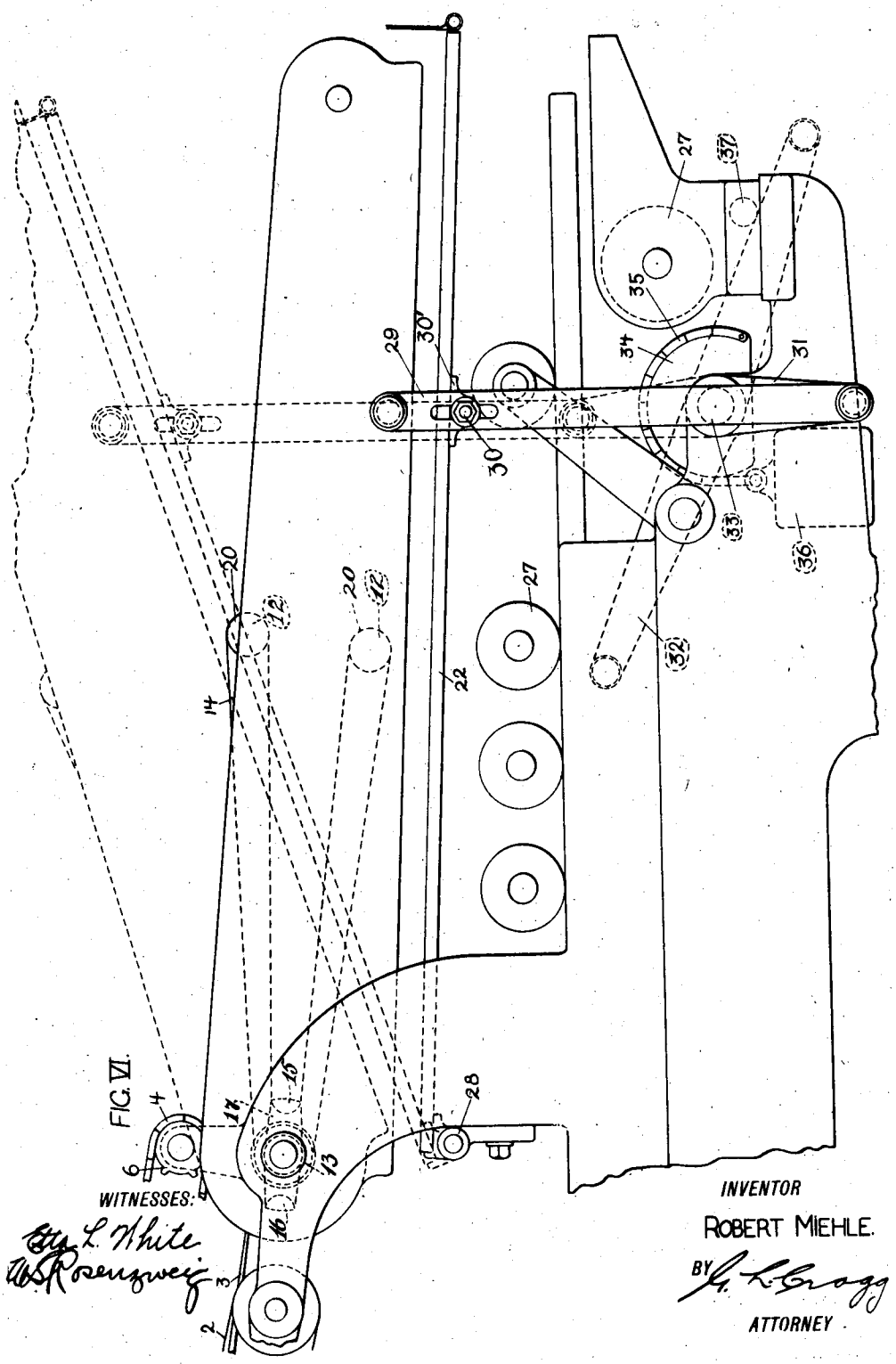


FIG. VI.

WITNESSES:

H. L. White

W. Rosenzweig

INVENTOR

ROBERT MIEHLE.

BY G. L. Grogg

ATTORNEY

UNITED STATES PATENT OFFICE.

ROBERT MIEHLE, OF CHICAGO, ILLINOIS, ASSIGNOR TO CONTINENTAL & COMMERCIAL TRUST & SAVINGS BANK, TRUSTEE, OF CHICAGO, ILLINOIS.

PRINTING-PRESS.

1,111,667. Specification of Letters Patent. Patented Sept. 22, 1914.

Application filed February 7, 1912. Serial No. 676,096.

To all whom it may concern:

Be it known that I, ROBERT MIEHLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Printing-Presses, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to printing presses and to sheet carriers which may be of service in delivering the sheets from the printing press, though the sheet carrier is not to be limited to this use.

In accordance with one feature of my invention I provide mechanism for arbitrarily adjusting either or both the sheet delivery mechanism and the tape upon which the sheets are delivered when these elements overlie the inking mechanism of the press so as to afford access to such inking mechanism. In the preferred embodiment of this feature of my invention means are desirably employed that enable sheet delivery mechanism and the table to be maintained in the various positions to which they may be elevated.

That portion of my invention which relates to sheet carrier structure has for its general object the provision of an improved construction for receiving the sheets supplied thereto for transfer and for properly discharging the same when they have been brought to their destination. In practising this feature of my invention I employ a belt element and means traveling in a substantially uniform direction and preferably in an elongated closed path which operate to perform several functions, to the performance of all of which functions in all embodiments of the invention I do not wish to be limited.

The sheet carrier of my invention has many novel features which may be broadly and specifically considered. Specifically considered, the sheet carrier of my invention may be described as one which includes an elastic endless belt element, two bight forming elements over which said belt element moves; means for causing each of said bight forming elements to travel bodily in an elongated closed path and both substantially in a uniform direction, means interposed between the sides of the belt element and engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element, and means for holding the remaining side of the belt element to form a fourth bight therein.

It should be stated that the scope of the invention is outlined in the claims, and I do not desire to limit myself to the specific embodiment of the invention above described.

I will explain my invention more fully by reference to the accompanying drawings showing portions of so much of the preferred embodiment thereof as is necessary to an understanding of the invention.

In the drawings Figure 1 is a side view of a portion of a two revolution cylinder press and sheet delivery mechanism associated therewith; Fig. 2 shows a portion of the sheet delivery mechanism illustrated in Fig. 1 with its parts in different positions from those shown in Fig. 1; Fig. 3 is a view on a scale larger than Figs. 1 and 2 of a portion of the sheet delivery mechanism, the parts shown in Fig. 3 occupying different positions from the corresponding parts of Figs. 1 and 2; Fig. 4 is a plan view of a portion of the structure as it appears in Fig. 1; Fig. 5 is a plan view of a portion of the mechanism, partially in section, and Fig. 6 is a side elevation of a part of the mechanism, a portion of which part being shown in Fig. 3.

Like parts are indicated by similar characters of reference throughout the different figures.

The printing press from which the sheets are delivered is generally indicated by the reference character 1, and inasmuch as the apparatus of my invention is not to be limited to any particular type of press, it is not essential to give a detail description of the press shown as the same is well known by those skilled in the art. The sheets are initially delivered from the press upon carrying tapes 2. The tapes 2 and the mechanism for operating the same are so well known as not to require description. The sheets are transferred from the tapes 2 to the sheet carrier of my invention over a guide finger structure 3.

As my invention is specifically embodied

in the structure shown by the drawings there is present a sprocket chain 4 driven by the gearing 5 of the press and in turn driving a sprocket pinion 6 upon whose shaft is fixedly mounted a spur pinion 7, the pinion 7 being in mesh with a spur gear 8 upon whose shaft sprocket wheels 9, one upon each side of the sheet carrier, are mounted. An endless sprocket chain 10 is disposed upon each side of the sheet carrier structure, these chains being driven by the sprocket wheels and in turn passing over idler sprocket wheels 11, the wheels 9 and 11 generally defining the orbits in which the chains 10 substantially move.

The chains 10 constitute endless belts and carry bight or loop engaging and forming elements 12 which are desirably, though not necessarily, in the form of rollers rotatably mounted upon and with respect to the chains 10 at points thereon which divide the chains into two equal parts. Additional bight forming elements are employed which are preferably in the form of loose pulleys 13 co-axial with sprocket wheels 9. I employ a conveyer belt element for finally delivering the sheets, which element is preferably in the form of endless tapes 14 that are engaged by the rollers 12 and the pulleys or rollers 13. The organization of my invention also includes conveyer belt holding or gripping devices 15 and 16 (each tape of the belt structure being associated with two such elements 15 and 16) which are preferably mounted upon a yoke 17 free to rotate, due to the action of the tapes thereupon, about the axis of the sprocket wheels 9 and pulleys 13. Each of the elements 15 and 16 is desirably provided with insetting prongs as shown in Fig. 5 so as to prevent any creepage of the tapes with respect thereto when engaged thereby. As shown in the drawings, the sprocket wheel 9 moves in a clockwise direction so as to cause the chains 10 to travel substantially in a uniform direction as indicated by the arrow in Fig. 3 whereby the rollers 12 are caused to travel substantially in a uniform direction in the orbit of the chains 10.

Let it be assumed that the cycle of operations of the sheet conveying mechanism of my invention commences with the parts in the positions shown in Fig. 1, where the pulleys 13 are located between the sides of the belt element and between the rollers 12 and in substantially the same plane therewith so that the tapes 14 have only two bights formed therein by the oppositely located bight forming elements or rollers 12, the pulleys 13 merely serving, in the construction shown, slightly to spread the upper and lower sides of the tapes apart. The left hand roller 12 will rise and the right hand roller 12 will descend as the chains 10 move them from the positions shown in Fig. 1 whereby the upper sides of the tapes 14 will engage the elements 15 then uppermost, relative motion between the elements 15 and the upper sides of the tapes being prevented by the insetting prongs shown in Fig. 5. During the initial portion of the movement of the left hand roller it will swing the elements 15 and the yoke 17 carrying the same to permit the gradual formation of a third bight in the upper side of each of the conveyer tapes and the consequent formation of a fourth bight in the lower sides of the tapes owing to the pulley 13. Fig. 3 indicates the readjustment of the parts whereby the two additional bights are formed in each of the tapes 14, the presence of the two additional bights that are formed by the elements 15 and 13 continuing until the positions of the rollers 12, as shown in Fig. 1, are interchanged, Fig. 2 illustrating the positions of the parts when such interchange is nearly accomplished. When such interchange is finally accomplished, each of the tapes 14 is relieved of the two additional bights that were previously formed therein by the elements 15 and 13 and has but two bights which are formed by the rollers 12 that are again located in the same plane with the pulleys 13. Thus the first half of the cycle of operations is accomplished. The second half of such cycle is accomplished similarly to the first excepting that the bight forming elements 16 operate upon the tapes instead of the elements 15.

The rollers 12, when uppermost, turn upon tracks 18, one upon each side of the structure, these tracks being desirably constituted of the upper stretches of fixed endless belts that are anchored to the framework at 19. The rollers 12 carry the rollers 20 which are loose with respect to the rollers 12 and which rollers 20 freely turn upon the tracks 21 provided upon opposite sides of the structure. The receiving tables 22 upon which the sheets are to be deposited is located beneath the sprocket wheels 9 and 11, the manner in which the sheets are deposited upon this table being hereinafter set forth.

A sheet as it comes from the press is indicated at 23 in Fig. 3. It is directed upon the sheet carrying stretch of the belt element when the parts are in the positions shown in Fig. 3 and is moved from the press upon the belt element at a faster lineal speed than the lineal speed of the stretch of the belt element that receives it. The chains 10 are geared so as to cause the lineal travel of the sheet supporting stretch of the belt element at a suitable speed with respect to the rate of travel of the sheet being discharged from the press. The rollers 12, in turning upon the tracks 18, are brought to the right hand limit of their travel at a time when the

lineal travel of the sheet supporting stretch of the belt element has caused the forward end of the received sheet 23 to approximate in position the position of such roller 12 at the right hand end of its travel. When the roller 12 has been placed below the axis of the sprocket wheel 11 and in vertical alinement therewith, the movement of the stretch of the belt element that supports the transferred sheet is commenced from beneath such sheet, this removal of such stretch of the belt element being accomplished, in the embodiment of the invention specifically shown, by reducing its length and decreasing its sheet supporting area as such roller 12 continues its movement in its uniform direction in its closed path. In this way the support for the sheet is gradually removed while such support is in non-sliding relation with the sheet it carries and the sheet is deposited, comparatively slowly, upon the table 22, the sheet being initially deposited at one end upon the table and gradually descending upon the table as the support is removed from beneath the same whereby no pockets of air have opportunity to form beneath the sheet as it is being deposited. It will be observed that the rate at which the sheet supporting stretch of the belt element is removed from beneath the sheet that is being deposited is substantially one-half the rate of travel of such stretch when it receives the sheet from the press so that there is ample opportunity for the air to escape from beneath the sheet as it is being deposited before the rear end of the sheet is dropped. A sheet that is being deposited in the condition of the apparatus as illustrated in Fig. 3 is indicated at 24. The rollers 12, which, together with the driving chains 10, constituting a winding means for giving movement to the belt element, in rounding the ends of their travel exert tension upon the belt element and I therefore preferably make the belt element elastic by inserting spring coil elastic elements 25 at intervals throughout the lengths of the tapes as indicated most clearly in Figs. 3 and 4. These elastic elements 25 also serve to take up slack that might otherwise arise in the belt element and while I prefer to employ the spring 25 for performing the functions just described thereto, I do not wish to be limited to the means whereby the belt element is made contractible and expansible nor to the employment of the elements 25 for the purpose of removing the slack.

When the sheet supporting stretch of the belt element is moving forwardly the guide finger structure 3 could passively ride over the rollers 12 but where the motion of the press is reversed the rollers 12 would have injurious engagement with the finger structure 3 except for the provision of the cam operated lever mechanism 26 which serves to raise the finger structure 3 when the rollers 12 have about reached the same.

It will be seen that I have provided a sheet supporting element, preferably in the form of an endless belt, whose sheet supporting surface moves in the upper stretch of a closed path in order to receive the sheet to be supported and in the lower stretch of such path in order to discharge the sheet. That is, the sheet supporting surface moves in one level when the sheet to be supported is deposited thereupon and moves in another level when the deposited sheet is to be discharged.

I provide means whereby the sheet delivery mechanism, whether made in accordance with my invention or not, may, together with the table 22, be raised and lowered with respect to the inking mechanism generally designated by the reference character 27 and which is located beneath the table 22 as is well understood by those skilled in the art. To this end the sheet delivery mechanism of my invention is mounted to be swung at its left hand end about the axis of the sprocket wheel 9 and the table is swingingly mounted at 28. The frame of the sheet delivery mechanism and the table are united by a strut 29, the table 22 having bolt and slot connection 30 with said strut whereby the relative positions of the table and sheet delivery mechanism may be adjusted and maintained as both of these elements are moved. The strut 29 is continued downwardly and is connected with the free end of one arm of a bell crank lever 31, the free end of the other arm of said bell crank lever being provided with a crank handle 32. When it is desired to raise the sheet deliver mechanism and the table 22 as far as possible, the crank 32 is moved in a counter clockwise direction through an arc of about 180° whereby the strut 29, the table 22 linked thereto at 30, and the sheet delivery mechanism also linked thereto, are raised to their upper limits of movement. The bolt 30 carries a shoe 30′ upon which the table 22 slides as the strut 29 moves.

The shaft 33 of the bell crank is fixed to the bell crank and fixedly carries a segment 34 to one end of which is secured a chain 35 that is curled about the segment. The other end of the chain carries a counterweight 36 that serves to hold the delivery mechanism and the table in an elevated position though the counterweight 36 need not take part in holding the table and delivery mechanism in their uppermost positions as will be understood by an inspection of the drawing, the stops 37 serving this purpose.

Reference may be had to my co-pending applications Serial No. 710,933, filed July 22, 1912, and Serial No. 768,604, filed May 19, 1913.

While I have herein shown and particu-

larly described the preferred embodiment of my invention, I do not wish to be limited to the precise details of construction as changes may readily be made without departing from the spirit of my invention.

Having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

1. A printing press including inking mechanism; mechanism for delivering the sheets from the press and overlying the inking mechanism; a table for receiving the printed sheets and intervening between the delivery mechanism and the inking mechanism; and unitary mechanism, operable at will, for raising the table and the delivery mechanism together, while the delivery mechanism overlies the table, to afford access to the inking mechanism.

2. A sheet carrier including an endless belt element; two bight forming elements over which said belt elements move; means for causing each of said bight forming elements to travel bodily in a closed path and both substantially in a uniform direction; means for engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element; and means for holding the remaining side of the belt element to form a fourth bight therein.

3. A sheet carrier including an endless belt element; two bight forming elements over which said belt element moves; means for causing each of said bight forming elements to travel bodily in an elongated closed path and both substantially in a uniform direction; means interposed between the sides of the belt element and engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element; and means for holding the remaining side of the belt element to form a fourth bight therein.

4. A sheet carrier including an elastic endless belt element; two bight forming elements over which said belt element moves; means for causing each of said bight forming elements to travel bodily in an elongated closed path and both substantially in a uniform direction; means interposed between the sides of the belt element and engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element; and means for holding the remaining side of the belt element to form a fourth bight therein.

5. A sheet carrier including an elastic endless belt element; two bight forming elements over which said belt element moves; means for causing each of said bight forming elements to travel bodily in an elongated closed path and both substantially in a uniform direction; means interposed between the sides of the belt element and engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element; and means for holding the remaining side of the belt element to form a fourth bight therein, there being present means for removing slack from the belt element.

6. A sheet carrier including an elastic endless belt element; two bight forming elements over which said belt element moves; means for causing each of said bight forming elements to travel bodily in an elongated closed path and both substantially in a uniform direction; means interposed between the sides of the belt element and engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element; and means for holding the remaining side of the belt element to form a fourth bight therein there being present means for maintaining the belt element substantially taut.

7. A sheet carrier including an endless belt element; two bight forming elements over which said belt element moves; means for causing each of said bight forming elements to travel bodily in an elongated closed path substantially in a uniform direction; means interposed between the sides of the belt element and engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element; and a revolving element spanning the means for forming the third bight in the belt element and successively brought into and out of action by the first aforesaid two bight forming elements and operating to hold the remaining side of the belt element to form a fourth bight therein.

8. A sheet carrier including an endless belt element; two bight forming elements over which said belt element moves; means for causing each of said bight forming elements to travel bodily in an elongated closed path substantially in a uniform direction; means interposed between the sides of the belt element and engaging that side of the belt element having the stretch that serves to carry the sheets and with respect to which said stretch travels, to form a third bight in the belt element; and an element successively brought into and out of action by the first aforesaid two bight forming elements and operating to hold the remaining side of the belt element to form a fourth bight therein.

9. A sheet transferring mechanism in-

cluding a belt element having a stretch which serves to support the sheets in travel; means traveling in a substantially uniform direction in an elongated closed path for reducing the area of the sheet supporting stretch of the belt element to discharge the transferred sheet, said means including a roller; and means for turning the roller about its axis when moving from one side of its closed path to the other.

10. A sheet transferring mechanism including a belt element having a stretch which serves to support the sheets in travel; means traveling in a substantially uniform direction in an elongated closed path for removing the supporting stretch of the belt element from supporting engagement with the transferred sheet, said means including a roller; and means for turning the roller about its axis when moving from one side of its closed path to the other.

11. A sheet transferring mechanism including a belt element for supporting the sheets; a winding means for giving movement to the said belt element and including belt element engaging portions that are caused to travel in an endless path, which path has substantially straight portions and deflecting turns for said belt element engaging portions to pass around; and means for holding said element at one point in a substantially stationary position, the said winding means having a movement around the belt element holding means.

12. A sheet carrier including a sheet supporting belt element; and means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path there to receive the sheet to be supported and to move to the lower stretch of such path while carrying the sheet there to discharge the supported sheet.

13. A sheet carrier including a sheet supporting belt element; means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path to discharge the sheet.

14. A sheet carrier including a sheet supporting belt element; means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet means for moving the sheets to be carried upon the belt element when moving in the upper stretch of the closed path and in the same direction with the sheet receiving portion of the belt element; and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path to discharge the sheet.

15. A sheet carrier including a sheet supporting belt element; means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path while in substantially non-sliding relation with the sheet to discharge the sheet.

16. A sheet carrier including a sheet supporting belt element; means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet; means for moving the sheets to be carried upon the belt element when moving in the upper stretch of the closed path and in the same direction with the sheet receiving portion of the belt element; and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path while in substantially non-sliding relation with the sheet to discharge the sheet.

17. A sheet carrier including a sheet supporting endless belt element; and means for causing the sheet supporting surface of the endless belt element to move in the upper stretch of a closed path there to receive the sheet to be supported and to move to the lower stretch of such path while carrying the sheet there to discharge the supported sheet.

18. A sheet carrier including a sheet supporting endless belt element; means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet; and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path to discharge the sheet.

19. A sheet carrier including a sheet supporting endless belt element; means for causing the sheet supporting surface of the

belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet; means for moving the sheets to be carried upon the belt element when moving in the upper stretch of the closed path and in the same direction with the sheet receiving portion of the belt element; and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path to discharge the sheet.

20. A sheet carrier including a sheet supporting endless belt element; means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet; and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path while in substantially non-sliding relation with the sheet to discharge the sheet.

21. A sheet carrier including a sheet supporting endless belt element; means for causing the sheet supporting surface of the belt element to move in the upper stretch of a closed path and to move to the lower stretch of such path while carrying the sheet; means for moving the sheets to be carried upon the belt element when moving in the upper stretch of the closed path and in the same direction with the sheet receiving portion of the element; and means for causing the sheet supporting surface of the belt element to increase while moving in the upper stretch of the closed path to receive and support the sheet to be carried and to be decreased while moving in the lower stretch of such closed path while in substantially non-sliding relation with the sheet to discharge the sheet.

22. A printing press; mechanism for delivering the sheets from the press; a table for receiving the printed sheets; and unitary mechanism operable at will, for raising the table and the delivery mechanism together, while the delivery mechanism overlies the table.

23. A printing press including inking mechanism; mechanism for delivering the sheets from the press and overlying the inking mechanism; a table for receiving the printed sheets and interposed between the inking mechanism and the sheet delivery mechanism; means for permitting adjustment of the relative positions of the table and sheet delivery mechanism, while the delivery mechanism overlies the table; and mechanism for raising the sheet delivery mechanism and the table to afford access to the inking mechanism.

24. A sheet carrier including a sheet supporting belt element; and means for causing the sheet supporting surface of the sheet supporting belt element to move in one level there to receive the sheet to be supported and in a lower level, the sheet supporting surface in being moved from one level to the other serving to transfer the sheet it carries to such lower level there to discharge the supported sheet.

25. A sheet carrier including a sheet supporting element; means for causing the sheet supporting surface of the sheet supporting element to move in one level there to receive the sheet to be supported and in a lower level, the sheet supporting surface in being moved from one level to the other serving to transfer the sheet it carries to such lower level there to discharge the supported sheet; and means for causing the sheet supporting surface of the sheet supporting element to increase while moving in the upper level to receive and support the sheet to be carried and to be decreased while moving in the lower level to discharge the sheet.

26. A sheet carrier including a sheet supporting belt element; means for causing the sheet supporting surface of the sheet supporting belt element to move in one level there to receive the sheet to be supported and in a lower level, the sheet supporting surface in being moved from one level to the other serving to transfer the sheet it carries to such lower level there to discharge the supported sheet; and means for causing the sheet supporting surface of the sheet supporting belt element to increase while moving in the upper level to receive and support the sheet to be carried and to be decreased while moving in the lower level to discharge the sheet.

27. A sheet carrier including a sheet supporting element; means for causing the sheet supporting surface of the sheet supporting element to move in one level there to receive the sheet to be supported and in a lower level, the sheet supporting surface in being moved from one level to the other serving to transfer the sheet it carries to such lower level there to discharge the supported sheet; and means for causing the sheet supporting surface of the sheet supporting element to increase while moving in the upper level to receive and support the sheet to be carried and to be decreased while moving in the lower level while in substantially non-sliding relation with the sheet to discharge the sheet.

28. A sheet carrier including a sheet supporting belt element; means for causing the sheet supporting surface of the sheet sup-

porting belt element to move in one level there to receive the sheet to be supported and in a lower level, the sheet supporting surface in being moved from one level to the other serving to transfer the sheet it carries to such lower level there to discharge the supported sheet; and means for causing the sheet supporting surface of the sheet supporting belt element to increase while moving in the upper level to receive and support the sheet to be carried and to be decreased while moving in the lower level while in substantially non-sliding relation with the sheet to discharge the sheet.

29. A sheet carrier including a sheet supporting element; and means for causing the sheet supporting surface of said element to travel in an upper level during its receipt of the sheet to be carried and for causing said surface while supporting such sheet to descend to a lower level there to discharge the carried sheet.

30. In a sheet transferring mechanism, the combination of an endless sheet carrier; and means to alternately extend such carrier its whole length and double or loop the carrier upon itself thereby providing a sheet supporting surface that receives a sheet when said surface is uppermost and then convey said sheet to a lower level there to discharge the sheet whereby the sheet supporting surface is increased when uppermost and is decreased when lowermost to receive and discharge the sheet.

31. In a sheet transferring mechanism, the combination of an endless belt; and means to double or loop such belt upon itself to constitute a portion of the belt, when uppermost, a sheet receiving stretch and, when lowermost, a sheet discharging stretch and whereby this sheet supporting portion operates to carry the sheet to its discharging position.

In witness whereof, I hereunto subscribe my name this fifth day of February A. D., 1912.

ROBERT MIEHLE.

Witnesses:
E. L. WHITE,
G. L. CRAGG.