

(No Model.)

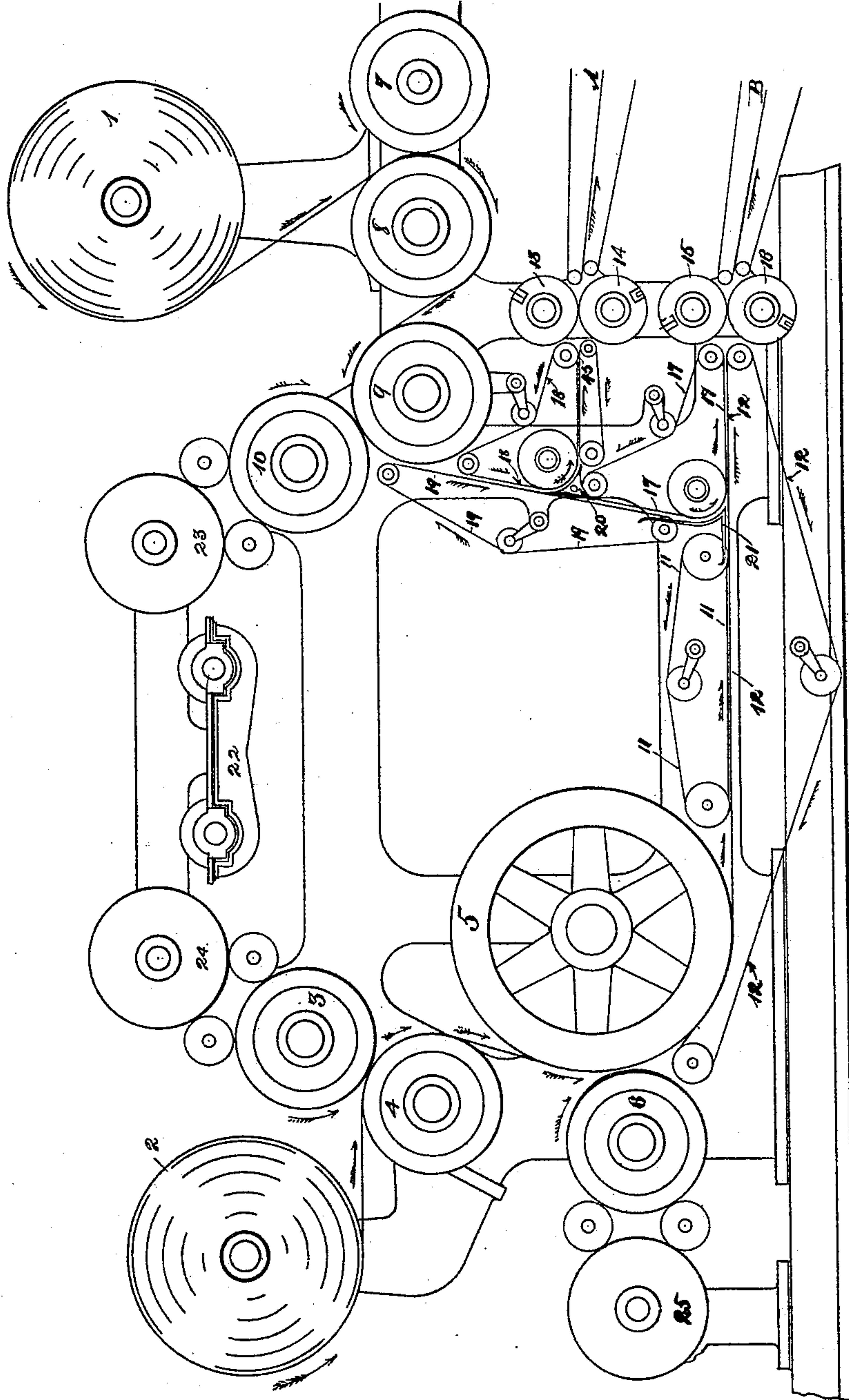
4 Sheets—Sheet 1.

R. C. SEYMOUR.
PRINTING PRESS.

No. 434,730.

Patented Aug. 19, 1890.

Fig. 1.



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Geo. T. Smallwood

INVENTOR

Ralph C. Seymour
BY *A. Pollok*
his ATTORNEY.

(No Model.)

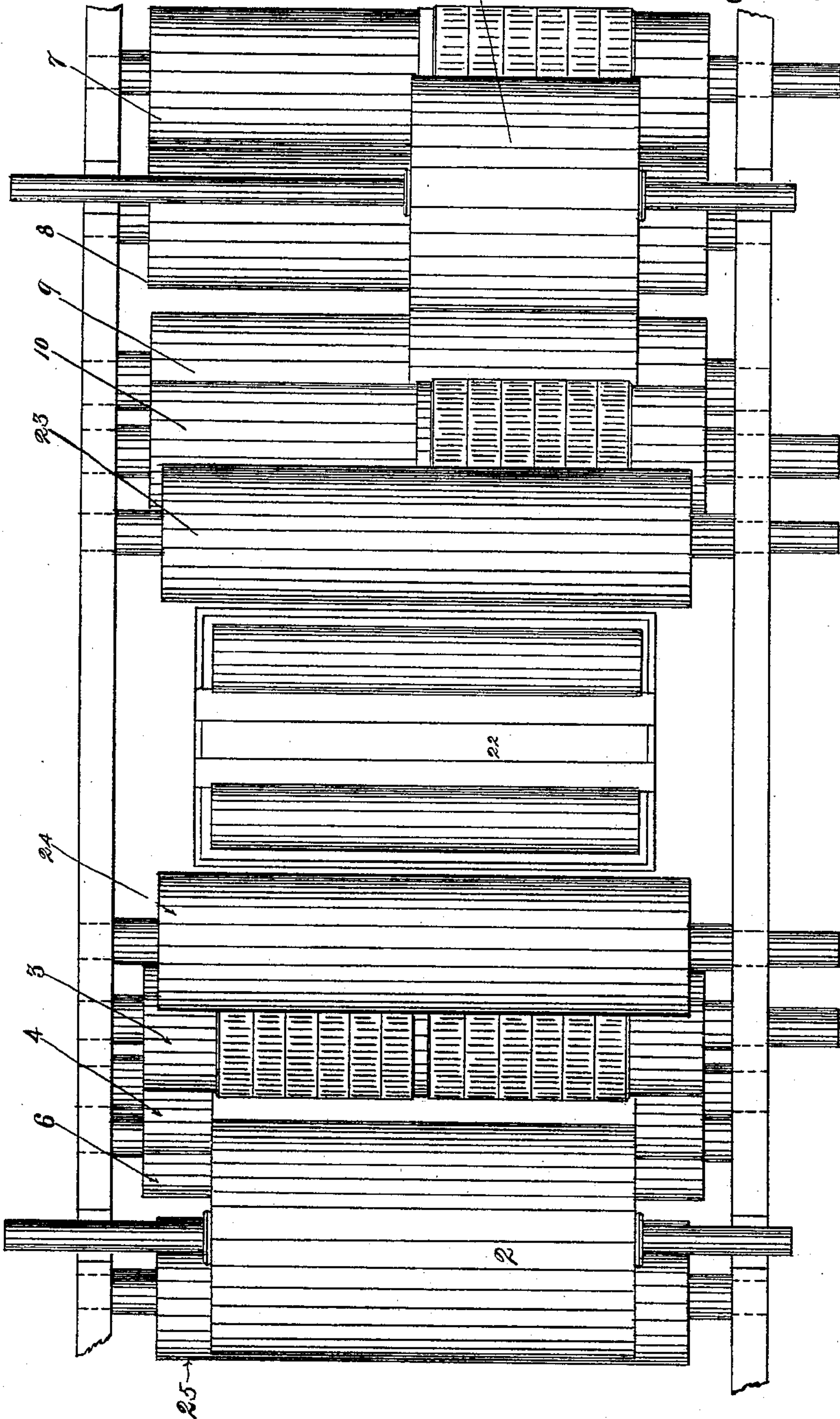
4 Sheets—Sheet 2.

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Fig. 2.



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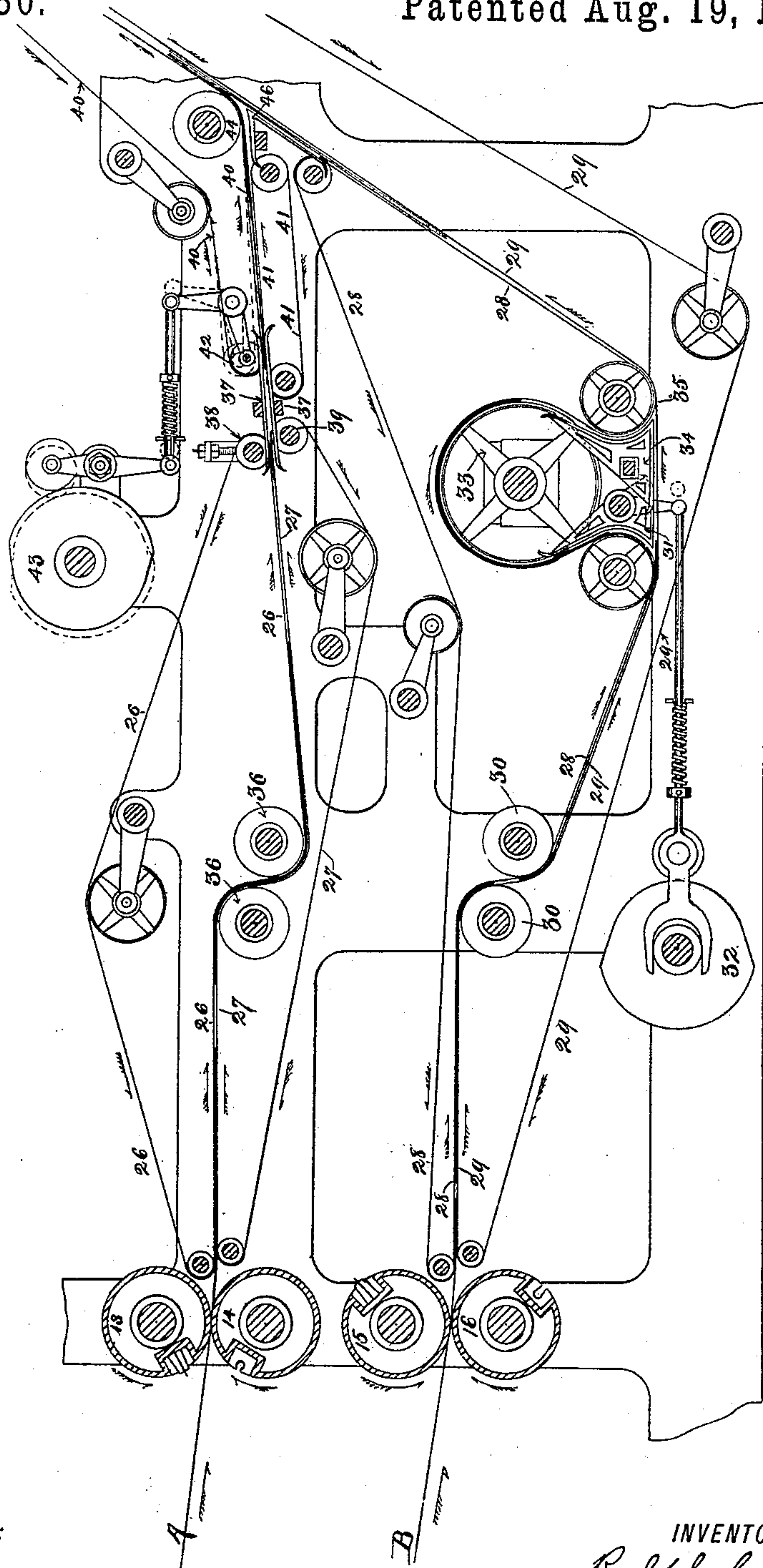
4 Sheets—Sheet 3.

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Fig. 3.



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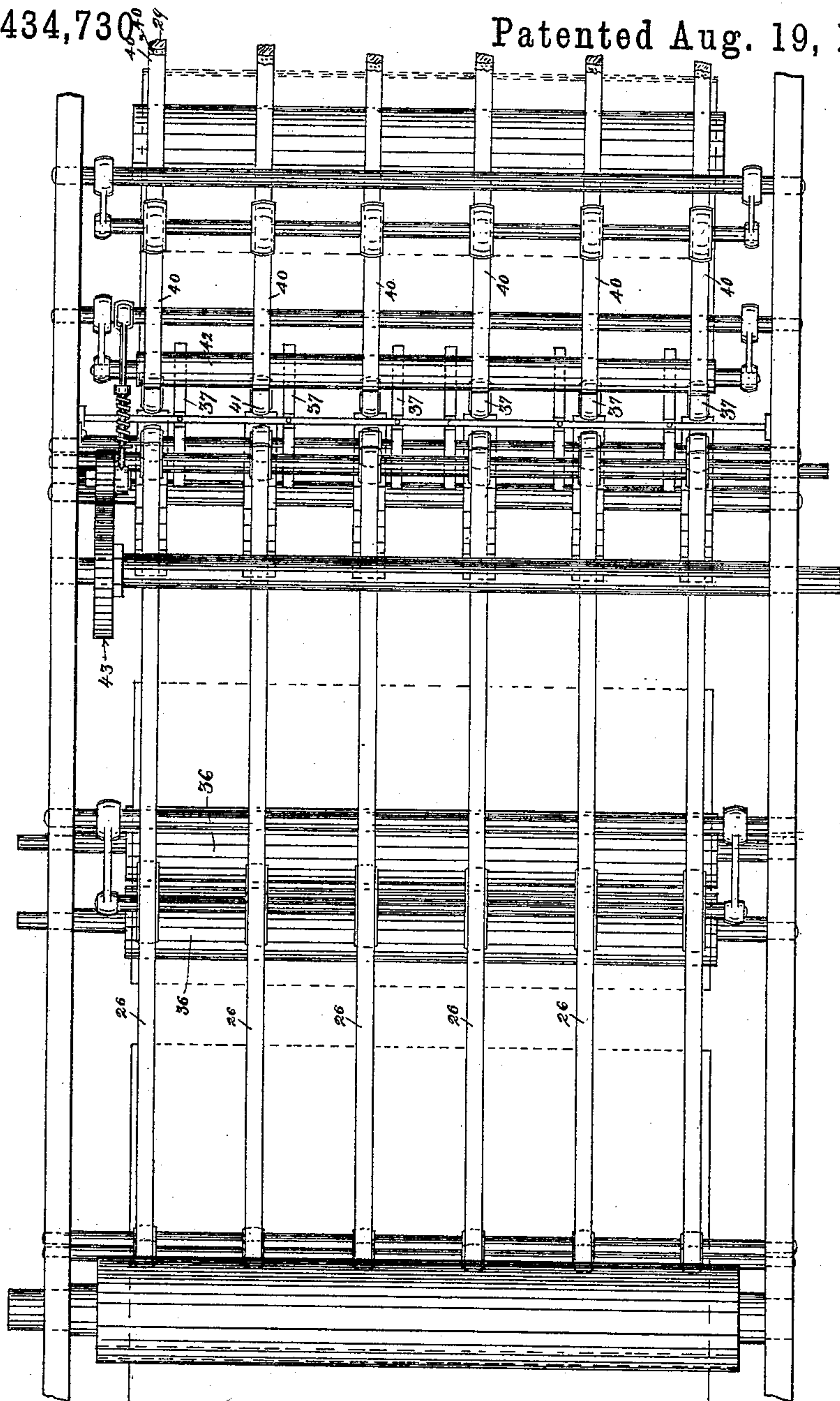
4 Sheets—Sheet 4.

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Fig 4.



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UNITED STATES PATENT OFFICE.

RALPH C. SEYMOUR, OF CHICAGO, ILLINOIS.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 434,730, dated August 19, 1890.

Application filed July 24, 1889. Serial No. 318,534. (No model.)

To all whom it may concern:

Be it known that I, RALPH C. SEYMOUR, of the city of Chicago, county of Cook, and State of Illinois, have invented a new and useful
5 Improvement in Printing-Presses, which invention is fully set forth in the following specification.

My invention consists of certain novel combinations and arrangements of parts to be
10 more fully described hereinafter, which have for their object the making of a twelve-page newspaper in book form printed on both sides, or a ten-page newspaper in book form printed on both sides.

15 Figure 1 is a side elevation of a part of my improved printing-machine from and including the two paper-rolls to and including the two pairs of cutting-cylinders, the path of the paper beyond the cutting-cylinders being
20 also represented in Fig. 1. Fig. 2 is a top view of the same parts of the machine, showing a modification in the width of one of the paper-rolls and in the number of the stereotyped plates on the type-cylinders from which
25 said roll is printed, in order to adapt the machines for the production of a ten-page newspaper. Fig. 3 is a vertical longitudinal section of all that part of my improved printing-machine from and including the two pairs of
30 cutting-cylinders to and including the part of the machine where the several sheets of paper are superposed, so as to form a twelve-page newspaper or a ten-page paper, as the case may be, in book form. Fig. 4 is a top
35 view of the parts embraced in Fig. 3. Figs. 3 and 4 are on a larger scale than Figs. 1 and 2, in order more perfectly to represent the mechanism.

For the purposes of this description it will
40 be convenient to consider a newspaper as normally consisting of eight pages, and to designate the four additional pages that go to make up a twelve-page newspaper or the two additional pages that go to make up a ten-page
45 newspaper by the term "supplement."

1 represents the spool of the supplement roll or web of blank paper on which is to be printed the supplement.

2 represents the spool of the roll or web of
50 blank paper on which is to be printed the newspaper proper of eight pages.

3 represents the first type-cylinder for printing on one side the main sheet. 4 represents the first impression-cylinder corresponding to said type-cylinder.

5 represents the second impression-cylinder.

6 represents the second type-cylinder whereby the newspaper proper is printed on its other side.

7 represents the first type-cylinder for printing the supplement in duplicate on one side.

8 represents the first impression-cylinder corresponding to the same.

9 represents the second impression-cylinder and 10 represents the second type-cylinder
65 for printing the supplement in duplicate on the other side.

11 and 12 represent carrying-tapes.

13 and 14 represent a pair of cutting-cylinders that cut or perforate the web so as to
70 define the sheets which form the supplement.

15 and 16 represent a pair of cutting-cylinders that cut or perforate the web so as to define the sheets, each of which forms the four
75 pages of the eight-page newspaper proper.

17, 18, 19, and 45 represent carrying-tapes.

20 represents a guide whereby the web from the paper-roll 1 is guided into the tapes 18
45 toward the upper cutting-cylinders.

21 is a guide for deflecting the sheet.

22 is a double ink-fountain.

23, 24, and 25 are ink-cylinders.

A represents the upper web in carrying-tapes, and B represents the lower web in carrying-tapes. (See Figs. 3 and 1.)
85

In Fig. 2 the various parts are represented by the same numbers as in Fig. 1. The supplement-roll 1, however, in Fig. 2, is represented to be of only half-width in order to adapt it to the printing of a two-page supplement, which, with the eight-page newspaper
90 proper, will go to make up a ten-page newspaper, and the stereotyped plates from which the half-width or two-page supplement is printed are indicated on cylinders 7 and 10, 95
Fig. 2, the first printing it in duplicate on one side and the second on the other.

In Fig. 3, 26 and 27 represent carrying-tapes for carrying along the supplement. 28 and 29 represent carrying-tapes for carrying along
100 the paper proper. 30 represents breaking-rollers, whereby the perforated or partly di-

vided sheets are broken apart and separated. 31 represents a switch, whereby alternate sheets are deflected upward between the tapes 28 and switch 31 and around the cylinder 33. 32 is a cam for operating the switch 31. 33 is a cylinder around which the alternate sheet passes, being held thereon by the tapes 28. 34 is a guide for guiding the next succeeding sheet along its normal path under the switch 31. 35 is the point of meeting of the sheet that has passed around the cylinder 33 with the succeeding sheet which has passed along under the guide 34. 36 represents breaking-rollers, whereby the perforated or partly-divided supplement-sheets are broken apart and separated. 37 represents guides for carrying the supplement-sheets past the opening between the tape-pathways formed by the tapes 26 27 and 40 41. 38 and 39 are rollers or tape-pulleys carrying, respectively, the tapes 26 and 27. 40 and 41 are tapes forming a tape-path moving at twice the speed of the tape-path formed by tapes 26 and 27. 42 is a pinching-roller, whereby the head of each sheet is caught into the tape-path 40 41, and its speed instantly accelerated to correspond to that of said swift tape-path. 43 is a cam for actuating the pinching-roller 42. 44 is a roller, on the circumference of which the sheets carried by the tapes 28 and 29 meet the sheet carried by the tapes 40 41, so that the supplement-sheet is laid on top of the two sheets composing the eight-page newspaper.

In Fig. 4 the similar parts are represented by corresponding numbers respectively.

The operation of the mechanism is as follows: The stereotyped plates upon the type-cylinders are so arranged that the column-lines are in the direction of the path of the web. The supplement paper roll or web is unwound at comparatively a low rate of speed as compared with the paper-roll from which the main newspaper is to be printed. We will first follow the course of the supplement web. It passes from the roll 1 between the first type-cylinder 7 and the first impression-cylinder 8, thence between the second impression-cylinder 9 and the second type-cylinder 10, thence between the carrying-tapes 18 and 19 past the upperside of the guide 20, and between the tapes 18 and 45 (the same forming the tape-path marked A in Fig. 3) to and between the cutting-cylinders 13 and 14 and into the tape-path marked A in Fig. 1. The sheets are thus partially severed or perforated so as to be divided into sheets of the size of the proposed supplement. They then pass on between the tapes 26 27, Fig. 3, to and between the breaking-rollers 36 36, whereby the sheets are wholly separated and an interval made between each succeeding sheet in a manner well known. The sheets pass on, still between the tapes 26 27, and past the rollers or tape-pulleys 38 and 39, which are slightly separated to allow the free passage of the sheet between their tapes and into the guides 37 37. The head of each sheet then reaches the tape system 40 41, when

it is pressed upon by the pressure roller or pinching-roller 42, which is actuated by the cam 43, and the paper thus pressed upon is caused at once to accelerate its speed so as to correspond to that of the tape system 40 41, which moves at exactly the same speed as the tapes 28 29, which form the tape-path that carries the normal newspaper-sheet comprising eight pages, as will be hereinafter more specifically described. The eight-page newspaper and the supplement meet together on the circumference of the roller 44. We will now trace the course of the paper designed to make the normal eight-page newspaper. The web passes from the roll 2 between the type-cylinder 3 and the impression-cylinder 4, whereby it is printed upon one side, and thence between the second type-cylinder 6 and the second impression-cylinder 5, whereby it is printed on the other side, and thence along the tape-path 11 12 and into the tape system 17 12 (which is the same as is marked B in Fig. 3) until it reaches the cutting-cylinders 15 and 16, where it is perforated or partially severed so as to be divided into half-sheets or sheets of four pages each, and it is thence carried into the tape-path marked B in Fig. 1, said tape-path being that formed by tapes 28 and 29, Fig. 3. The partially-severed sheet then passes on around the breaking-rollers 30 30, where its speed is accelerated and it is wholly severed from the web and an interval made between the sheets in a manner well understood. The sheets then pass along through the tape-path 28 29 until they reach the switch 31. When the head of the first sheet meets the switch 31, it is depressed by the cam 32, so that the sheet will be deflected upward and around the cylinder 33. When the head of the second sheet arrives at the switch, its edge is raised so as to allow the second sheet to pass under it and along the normal tape-path above the tapes 29 and under the guide 34. The path around the cylinder 33 is of such a length that the heads of the first and second sheets come together at the point 35, and pass along, one superposed upon the other, between the tapes 28 29 and tapes 29 and guide 46 until they arrive at the point of contact of the roller 44, when the heads of the two sheets passing along the tape-path 28 29 meet the head of the supplement-sheet passing along the path 40 41, and all three are superposed, thus forming a twelve-page paper. The three sheets thus aggregated can then be taken to a fly or folder. A pasting device may be used to paste together the two sheets that are brought together at the point of meeting 35, and another pasting device may be used to attach the supplement-sheet to the sheet upon which it is overlaid at 44, and thus the twelve-page paper may all be fastened together in book form, and thus attached carried on to a folder or fly, as before.

In order to make a ten-page paper all that is necessary is to omit one-half the pages from

each of the type-cylinders used for printing the supplement-web and to use a supplement-web of about one-half the width, as indicated in Fig. 2, where the stereotyped plates of the first and second type-cylinders are shown in part. In this manner a two-page supplement will meet the eight pages at the point of meeting 44, and be pasted to and pass along with them, the operation of the mechanism being the same as already described.

In my claims, hereinafter made, I have used language more particularly applicable to the twelve-page newspaper; but the means that I have described for making a ten-page newspaper are so precisely similar in their mechanical details that their use for the purpose of making a ten-page newspaper would be the obvious equivalent of what I have distinctly claimed.

What I claim, and desire to secure by Letters Patent, is—

1. In a newspaper-printing machine, a paper-roll spool 1, feeding the web along the path A, Fig. 3, a type-cylinder having the column-lines in the direction of the path of the web, an impression-cylinder, a second type-cylinder, and a second impression-cylinder, cutting-cylinders, sheet-breaking rollers, guide-tapes to carry the paper from the cutting-cylinder to the guide, and a pressure-roller moved by a cam to catch the head of the sheet in the tapes 40 41, which move at twice the velocity of the tapes 26 27, in combination with a paper-roll 2, feeding the web along the path B, Fig. 3, a four-page cylinder having the column-lines in the direction of the path of the web, an impression-cylinder, a second type-cylinder and a second impression cylinder, cutting-cylinders, sheet-breaking rollers, a switch for directing alternate sheets out of the normal or short path into a long path, so that each alternate sheet shall be superposed upon the next succeeding sheet, the long and short paths, the tapes 28 29 for carrying superposed sheets so that they shall meet the sheet carried by the tapes 40 41 and it shall be superposed upon the pair of superposed sheets, and means for carrying on the sheets thus assembled to a fly or to a folder, all arranged and operating substantially as described.

2. In a newspaper-printing machine, a type-cylinder having the column-lines in the direction of the path of the paper, an impression-cylinder, a second type-cylinder, and a second impression-cylinder, means for carrying on the printed sheets to a speeding device that doubles the rate of the travel of the sheet, and means for carrying it on at its in-

creased speed, in combination with a four-page type-cylinder having the column-lines in the direction of the path of its paper, an impression-cylinder, a second type-cylinder and a second impression-cylinder, devices for cutting and separating the sheets, means for carrying on the printed sheets, a superposing device, whereby the following sheets are assembled in pairs, means for carrying on the superposed pairs of sheets so that each pair of sheets shall meet one of the sheets from the first-mentioned type-cylinders, thus forming a twelve-page printed paper, and means for delivering such twelve-page printed paper, all arranged and operating substantially as described.

3. In a newspaper-printing machine, a paper-roll spool feeding the web along the path A, Fig. 3, a type-cylinder having the column-lines in the direction of the path of the paper, an impression-cylinder, a second type-cylinder and a second impression-cylinder, a cutting device, a sheet-breaking device, means for carrying on the printed sheet to a speeding device that doubles the rate of the travel of the sheet, and means for carrying it on at its increased speed, in combination with a paper-roll feeding the web along the path B, Fig. 3, a four-page type-cylinder having the column-lines in the direction of the path of the paper, an impression-cylinder, a second type-cylinder and a second impression-cylinder, a cutting device, a sheet-separating device, means for carrying on the printed sheets, a superposing device, whereby the following sheets are assembled in pairs, and means for carrying on the superposed pairs of sheets so that each pair of sheets shall meet one of the sheets from the first-mentioned type-cylinders, thus forming a twelve-page printed paper, all arranged and operating substantially as described.

4. In a printing-machine printing two webs of paper, the combination of the accelerating device for increasing the speed of the sheet from one of the webs, with superposing mechanism whereby the sheets from the other web are assembled in pairs, and means for bringing the three sheets together, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

RALPH C. SEYMOUR.

Witnesses:

V. T. BREWER,
A. H. DOWNS.