

No. 810,593.

PATENTED JAN. 23, 1906.

H. A. W. WOOD.

COMBINED ROTARY WEB PRINTING AND FOLDING MACHINE.

APPLICATION FILED MAR. 20, 1897, RENEWED APR. 14, 1905.

3 SHEETS—SHEET 1.

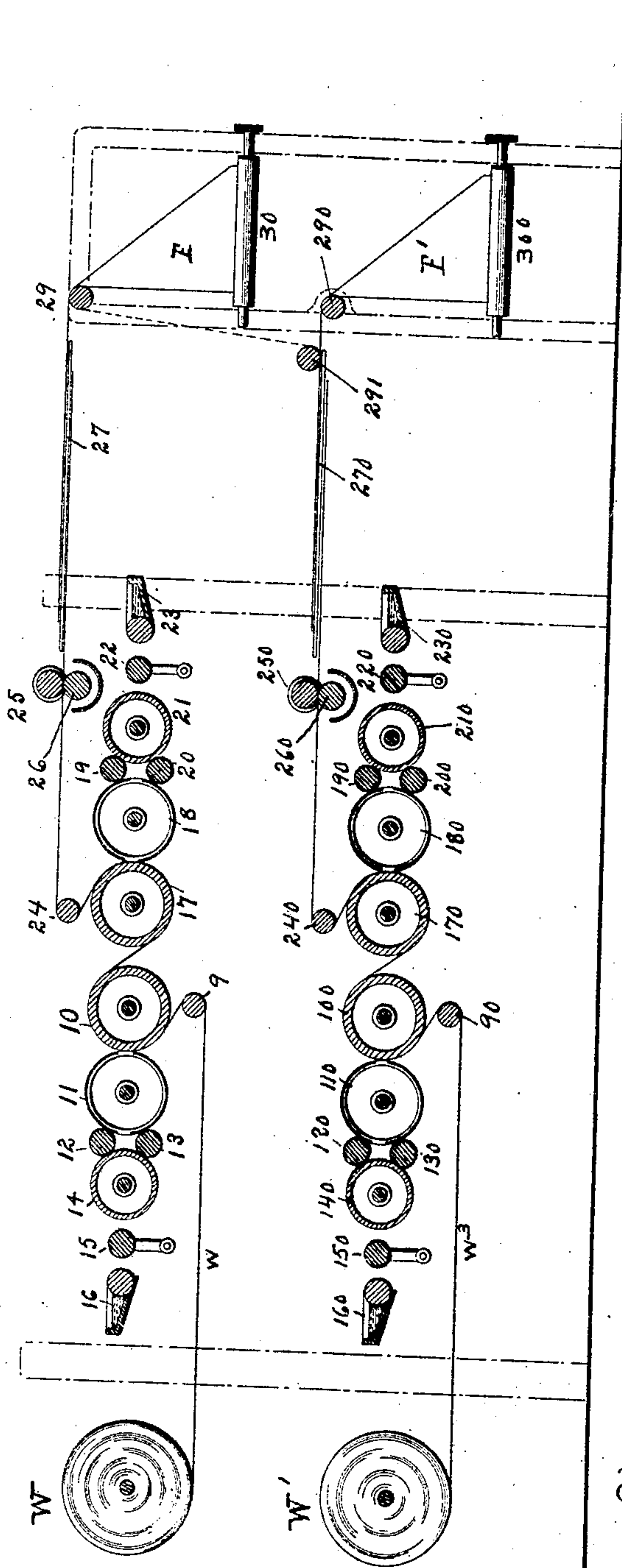


Fig. 1.

Witnesses.

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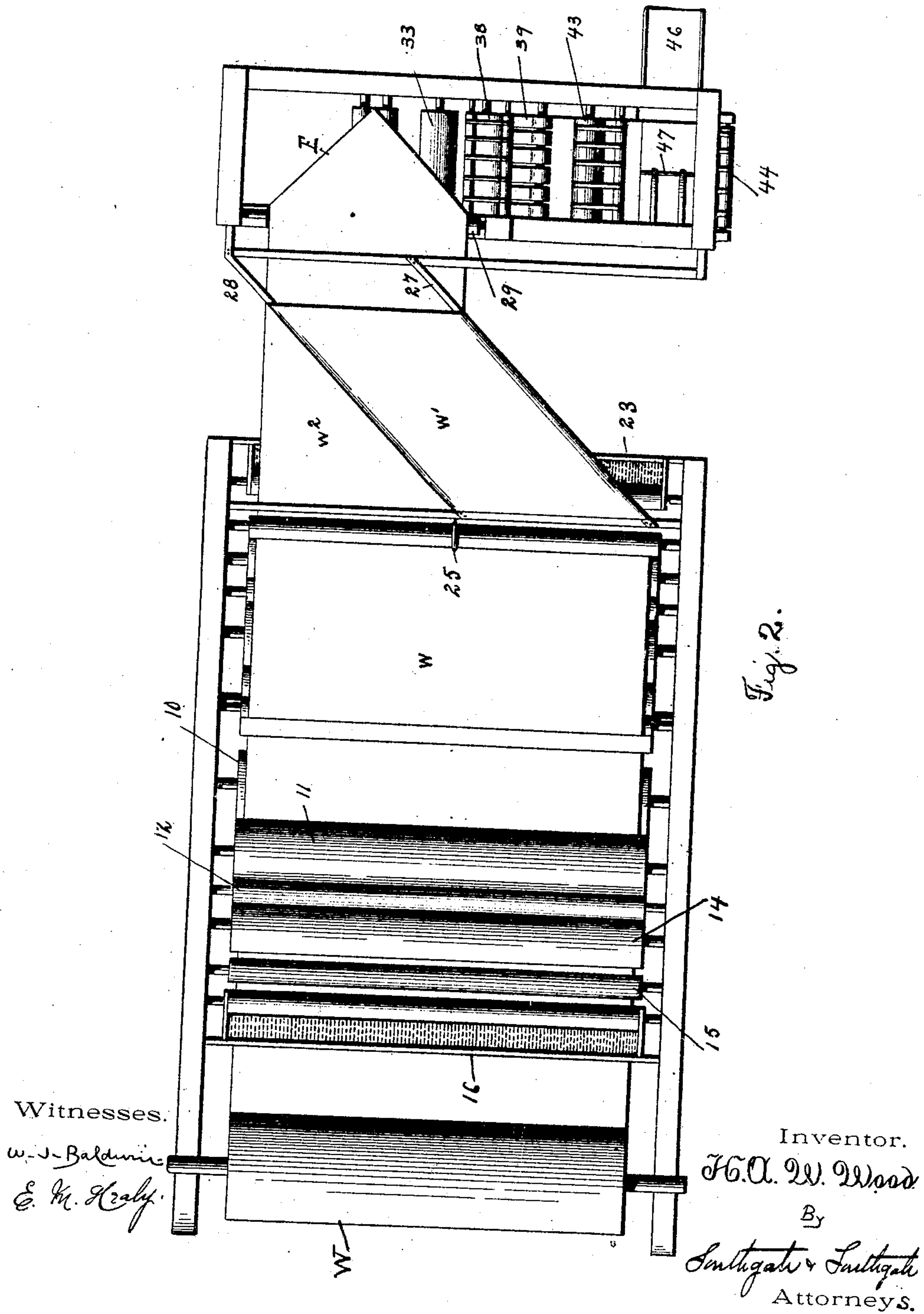
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3 SHEETS—SHEET 3.

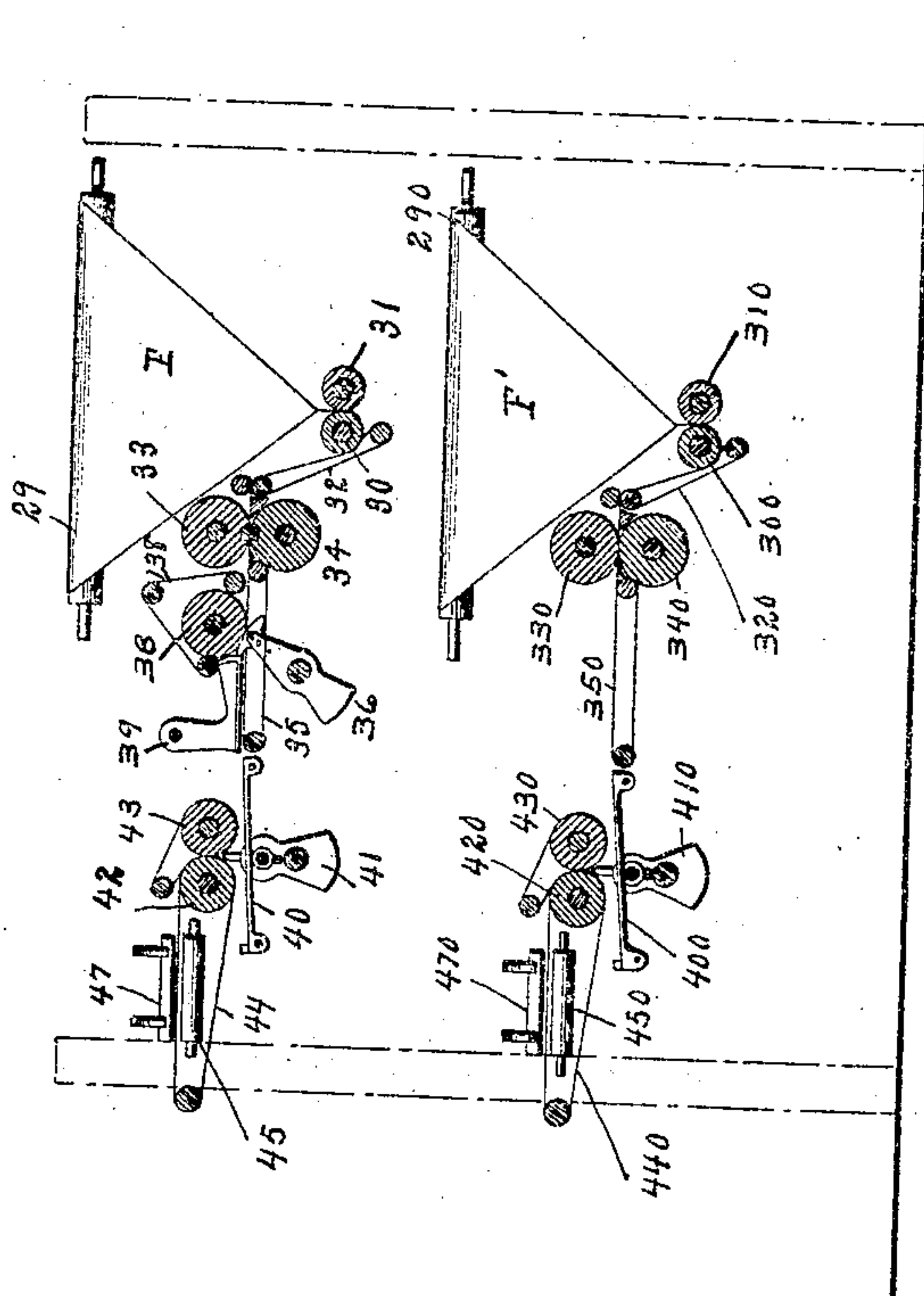


Fig. 3.

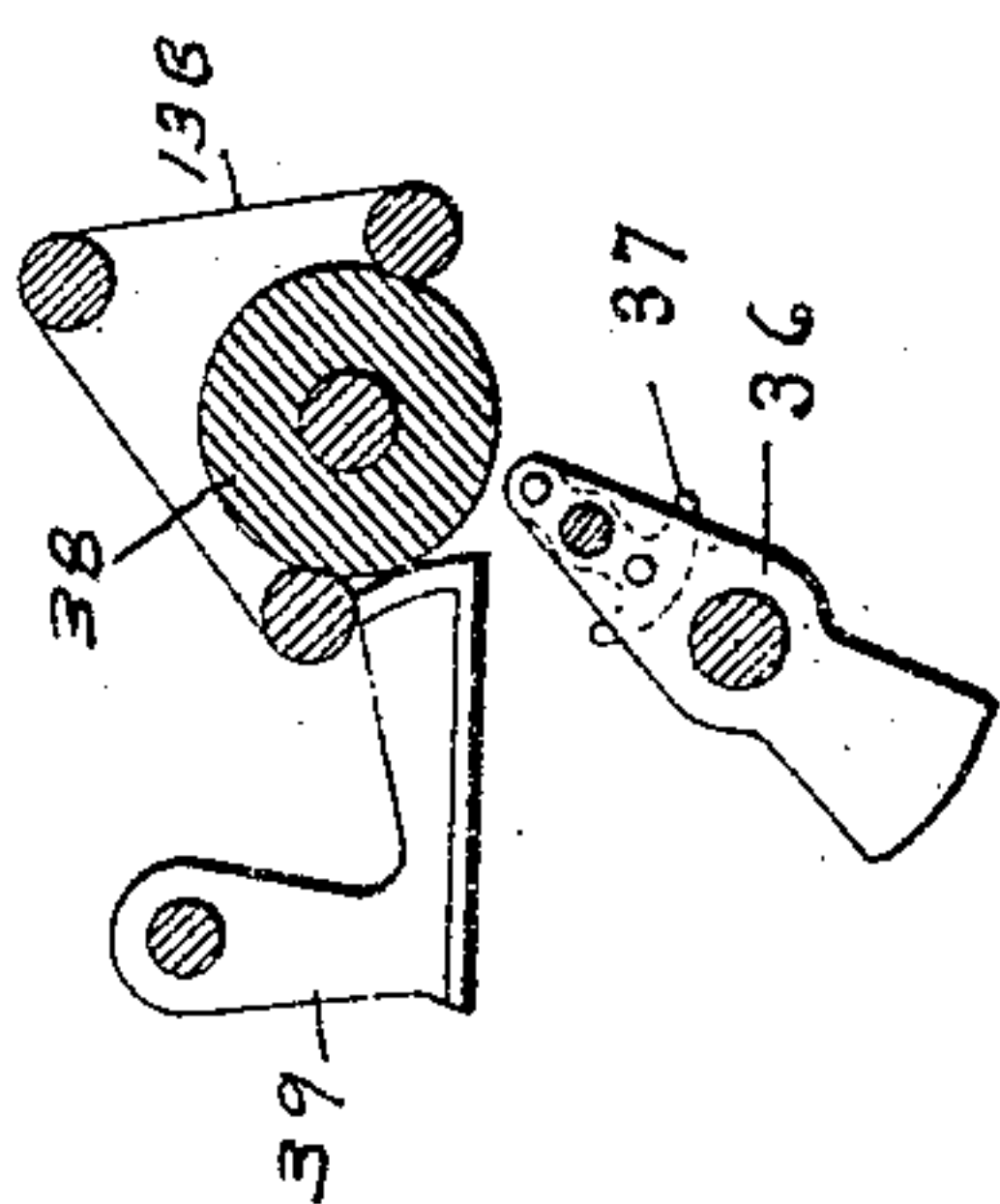


Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY A. WISE WOOD, OF NEW YORK, N. Y., ASSIGNOR TO CAMPBELL
PRINTING PRESS & MANUFACTURING COMPANY, OF NEW YORK, N. Y.,
A CORPORATION OF NEW YORK.

COMBINED ROTARY WEB PRINTING AND FOLDING MACHINE.

No. 810,593.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed March 20, 1897. Renewed April 14, 1905. Serial No. 255,652.

To all whom it may concern:

Be it known that I, HENRY A. WISE WOOD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improvement in a Combined Rotary Web Printing and Folding Machine, of which the following is a specification.

The aim of this invention is to provide an improved combined rotary web printing and folding mechanism which shall be adapted to the use of modern newspapers, so that the same will occupy very little height and floor-space and so that the same will produce a great variety of products.

To this end my invention consists in arranging two double-width rotary web-printing machines—that is, each machine is capacitated to print four pages abreast on the web, preferably one over the other; in providing associating mechanism so that one-half of each double-width web or a single-width web can be led or caused to run in the same path as its corresponding single-width web; in providing two longitudinal formers, one over the other, arranged with their backs to the printing-machines, and in providing transverse cutting and folding mechanisms to the side of each of said longitudinal formers and at right angles to the cylinders of the printing-machines.

By this new arrangement I can provide a very compact machine which will produce a great variety of products and which will have the necessary parts thereof very accessible.

Referring to the drawings, I have shown enough of the parts of the rotary web-printing machines and folding-machines to illustrate my invention, the gearing and small details being omitted to avoid complication of description and drawings.

Referring to the accompanying three sheets of drawings and in detail, Figure 1 is a sectional elevation of my improved combined printing and folding machine. Fig. 2 is a plan view thereof. Fig. 3 is an end sectional view looking toward the printing-machine, and Fig. 4 is a detail view, hereinafter referred to.

Referring to the drawings and in detail, W and W' represent two web-rolls, which may be four or any less number of pages in width. From the upper web-roll W the web w is

drawn into the press, led around a roller 9, around the first impression-cylinder 10, 55 around the second impression-cylinder 17, then around a guide-roller 24 out through the slitters 25 and 26, which are preferably arranged centrally of the press. Engaging the first impression-cylinder 10 is the first printing-cylinder 11, which receives ink from form-rollers 12 and 13, which bear on the drum-cylinder 14, to which ink is supplied by the vibrating ductor-roll 15, which takes its ink from the fountain 16. 60 Cooperating with the second impression-cylinder 17 is the second printing-cylinder 18, cooperating with which are form-inking rollers 19 and 20, which also bear on the ink-drum 21, cooperating with which is the vibrating ductor-roller 22, which takes its ink from the fountain 23. 65 These parts are of the ordinary or approved construction and are so arranged and adapted as to print and perfect a double-width web—that is, a web having four pages 75 abreast—each of the printing or type cylinders 11 and 18 being capacitated to receive four plates abreast and two plates circumferentially, a total of eight plates to each cylinder. Also arranged below this printing 80 mechanism above described is another printing mechanism, which preferably is precisely the same as the first. The same reference-numerals are used in referring to the corresponding parts of this second printing-machine and a cipher added thereto. 85 Thus the first printing-cylinder of the lower printing mechanism being referred to as 110 corresponding to the first printing-cylinder 11 of the upper printing-press, &c. The web w, 90 printed and perfected in the upper printing-press, may be slit into two sections w' and w'' , and if a double-width web is used in the upper machine, each section will be a single-width web or a web two pages wide. One of 95 these single-width webs is led over the angle-bars 27 and 28, so as to be brought into the single-width path of web w'' . The two single-width webs thus formed and thus brought into a single path are carried over roller 29 100 down over a longitudinal former F. The two webs are drawn over the former by means of the usual drawing-rolls 30 and 31, and thus receive a longitudinal fold in the direction of their travel. The webs are then carried up 105 by tapes 32 between the transverse cutting-

cylinders 33 and 34, and the sheets thus formed are carried out on tapes 35.

36 designates a rotary switch which consists of two arms mounted on a rotary shaft, 5 which arms carry a shaft on which are mounted a number of switch-fingers 37.

38 designates a collecting-cylinder, with which cooperate a set of tapes 138.

39 designates a number of guide-fingers, 10 which are arranged over the tapes 35.

By using the rotary switch a sheet once folded can be guided up around the collecting-cylinder 38 and associated with the succeeding sheet, so that the products of both 15 sides of the printing-cylinders can be collected in the ordinary manner. By turning the switch-fingers 37 to the position shown in Fig. 4 the sheets can be led directly past the collecting-cylinder 38 without being col- 20 lected.

From the tapes 35 and the fingers 39 the sheets pass out on guide-fingers 40 until they strike a stop at the end thereof. A rotary folder or tucker 41 imparts to the sheets 25 a transverse fold by tucking the sheets into the bite of the transverse folding-rollers 42 and 43. The sheets thus longitudinally and transversely folded are then carried out by tapes 44 and delivered in this condition, any 30 of the usual receiving devices or packing-boxes being arranged beyond the ends of the tapes 44. If desired, the sheets may be given a second longitudinal fold by being passed through folding-rollers 45 45 by being struck 35 by a tucker-blade 47, which is actuated at the proper time. If the sheets are passed through the folding-rollers 45 45 they are led out to any of the ordinary packing-boxes or delivery devices 46.

40 The web w^3 , printed in the lower press, is slit in the same manner as the upper web. The double-width web w^3 is slit and brought into the single-width path by the use of the turner-bars corresponding to and arranged 45 under the turner-bars 27 and 28 of the upper press, the front turner-bar 270 only showing in the drawings.

Arranged under the longitudinal folder F is a folder F', and at the sides thereof a trans- 50 verse cutting, folding, and subsequent-folding mechanism is arranged exactly as described in connection with the upper press, except that I preferably omit the collecting mechanism in the lower folding mechanism. 55 The parts of this lower folding-machine are similar to the parts of the upper folding-machine, and the corresponding parts in the two folding-machines are referred to by similar numerals, a cipher being added on to each 60 of the numerals referring to the parts of the lower folding-machine.

In some cases it is necessary to bring the products of both the upper and lower presses together. This can be nicely done by lead- 65 ing the web or webs printed in the lower

press around a roller 291 up to the roller 29 of the upper folder, so that the webs printed in both the upper and lower printing-machines will be led over the upper longitudinal former F.

By this arrangement I provide a machine that is very compact. It will be seen that the operator can easily get at the turner-bars to properly lead the webs thereto and can get to the folding-machine at practically all 75 sides thereof. It also will be seen that the combined machines occupy but very little floor-space.

For one revolution of the printing-cylinders by using either one-half the upper and 80 one-half the lower press or by using one press alone I can print four four-page papers. By using both the upper and lower presses and by making one web double width and the other web single width or each web three 85 pages wide I can print four six-page papers. By running double-width webs in both presses I can print four eight-page papers.

In these three operations I use both formers and folding-machines. By running a double- 90 width web in one machine and a web one page wide in the other machine and leading all the products over the upper former I can print two ten-page papers. By running a double-width web in one press and a single- 95 width web in the other press I can print two twelve-page papers. By running a double-width web in one press and a web three pages wide in the other press I can print two four- 100 teen-page papers. By running a double-width web in both presses I can print two sixteen-page papers. In these last three operations of course all the products are carried down over the upper former F. In all the 105 above operations the collecting mechanism is not used. By carrying out the same operation and using the collecting-cylinder 38 I can still further increase the products and print one twenty-page paper, one twenty- 110 four-page paper, one twenty-eight-page paper, or one thirty-two-page paper. It also will be seen that I can deliver any of these products with their last fold transverse or longitudinal by not using or by using the last fold- 115 ing mechanisms 45 47 or 450 470.

The machine as thus described is especially adapted for newspaper offices in which one press has to be used to print various editions and many different products.

The details and gearing of the machine 120 may be differently arranged, and the construction herein shown and described may be varied from, as desired, by a skilled mechanic without departing from the scope of my invention as expressed in the claims. 125

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of two double-width, rotary web-printing machines, web-turners 130

capacitated to bring one half the product of each press over the other half, and two longitudinal formers arranged one over the other with their backs to the printing-machines.

5 2. The combination of two double-width, rotary web-printing machines arranged one over the other, web-turners arranged to bring the product thereof into a single-width path, and two longitudinal formers arranged
10 one over the other in said single-width path with their backs to the printing-machines.

3. The combination of two double-width, rotary web-printing machines, arranged one over the other, web-turners arranged to
15 bring the products thereof into a single-width path, two longitudinal formers arranged one over the other in said single-width path, and transverse cutting and folding mechanism arranged to the side of each of said longitudinal
20 formers and at right angles to the cylinders of the printing-machines.

4. The combination of two double-width, rotary web-printing machines, web-turners arranged to bring the products thereof into a
25 single-width path, two longitudinal formers arranged one over the other in said single-width path, and guides whereby the products of each press may be led independently to said formers or associated, or the product of
30 both presses led over one of said formers.

5. The combination of two double-width rotary web-printing machines, web-turners arranged to bring the product thereof into a single-width path, two longitudinal formers
35 arranged one over the other in said single-width path, transverse cutting and folding mechanism arranged to the side of each of said longitudinal formers, and at right angles to the cylinders of the printing-machines,
40 one of said transverse cutting and folding

mechanisms having combined therewith a collecting mechanism.

6. The combination of two double-width rotary web-printing machines, web-turners arranged to bring the product thereof into a
45 single-width path, two longitudinal formers arranged one over the other in said single-width path, transverse cutting and folding mechanism arranged to the side of each of said longitudinal formers and at right angles
50 to the cylinders of the printing-machines, one of said transverse cutting and folding mechanisms having combined therewith a collecting mechanism, and web-guides arranged so that the products of the two presses may be
55 led separately to the two longitudinal formers, or together to the longitudinal former which has combined therewith the collecting mechanism.

7. The combination of two double-width
60 rotary web-presses arranged one directly over the other, so that the two web-rolls are placed at the same end of the machine, slitters arranged on the center line of the machine, turners arranged to bring the products of the
65 presses into a single-width pathway at one side of the center line of the press, two longitudinal folders or formers arranged one over the other in this single-width pathway, and transverse cutting and folding mechanism ar-
70 ranged on the other side of the center line of the press from the longitudinal folders or formers.

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

H A. WISE WOOD.

Witnesses:

H. W. COZZENS, Jr.,
LOUISE PECKHAM.