

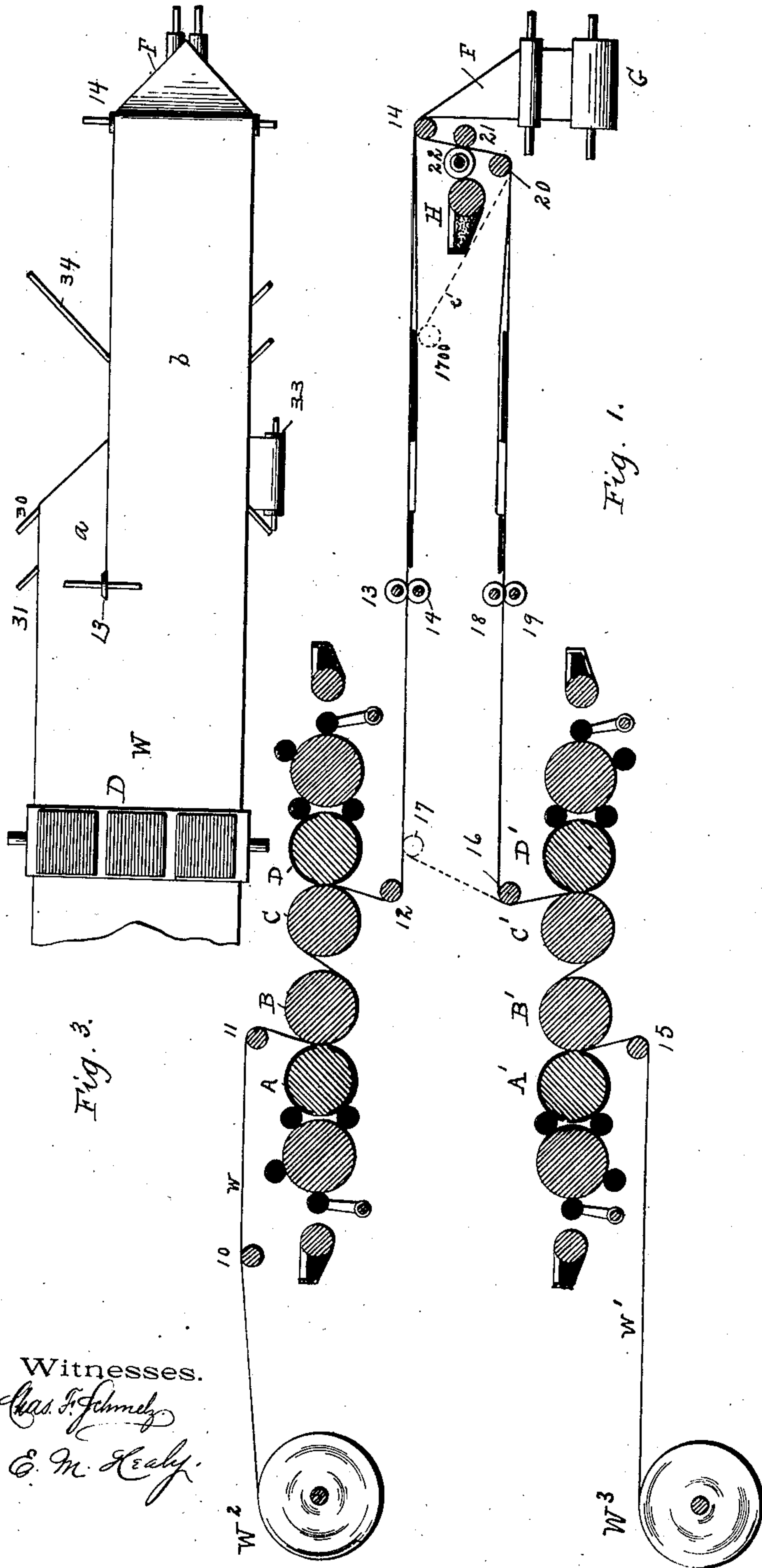
No. 890,720.

L. W. SOUTHGATE.
PRINTING PRESS.

PATENTED JUNE 16, 1908.

APPLICATION FILED MAY 31, 1895. RENEWED OCT. 14, 1907.

2 SHEETS—SHEET 1.



No. 890,720.

L. W. SOUTHGATE.
PRINTING PRESS.

PATENTED JUNE 16, 1908.

APPLICATION FILED MAY 31, 1895. RENEWED OCT. 14, 1907.

2 SHEETS—SHEET 2.

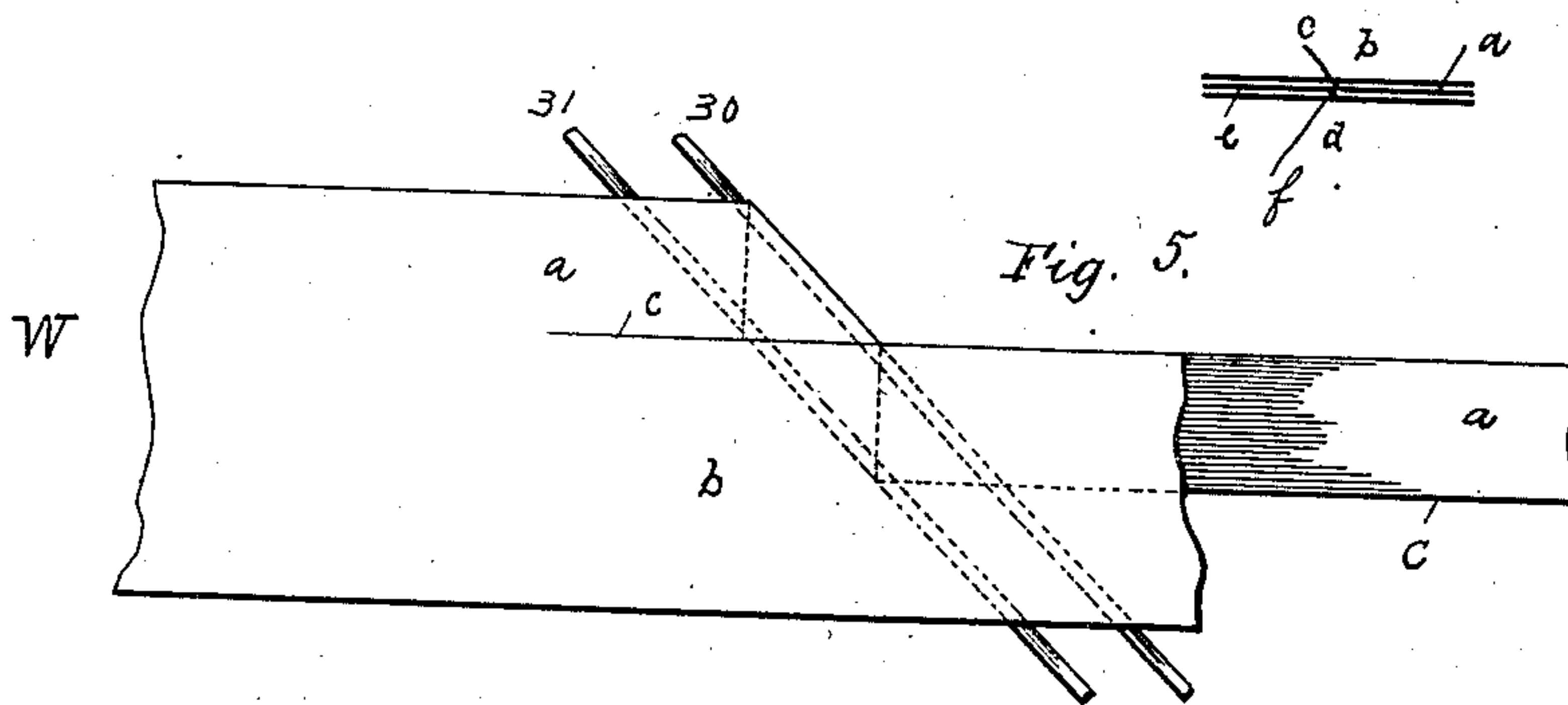


Fig. 5.

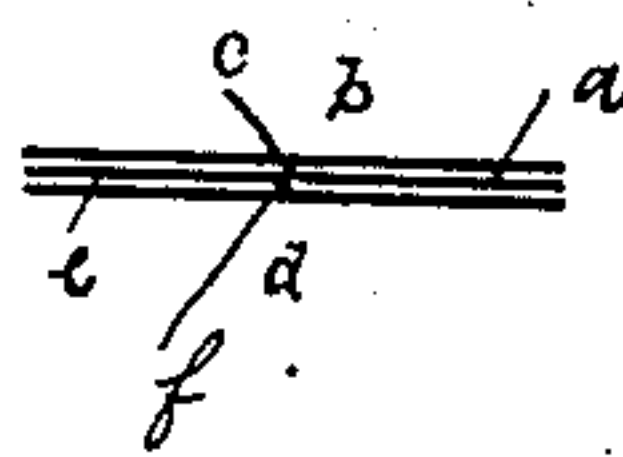


Fig. 9.

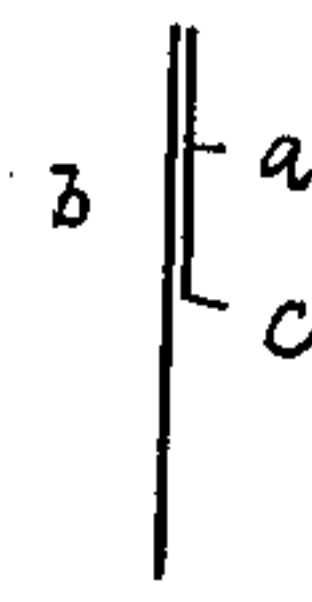


Fig. 6.

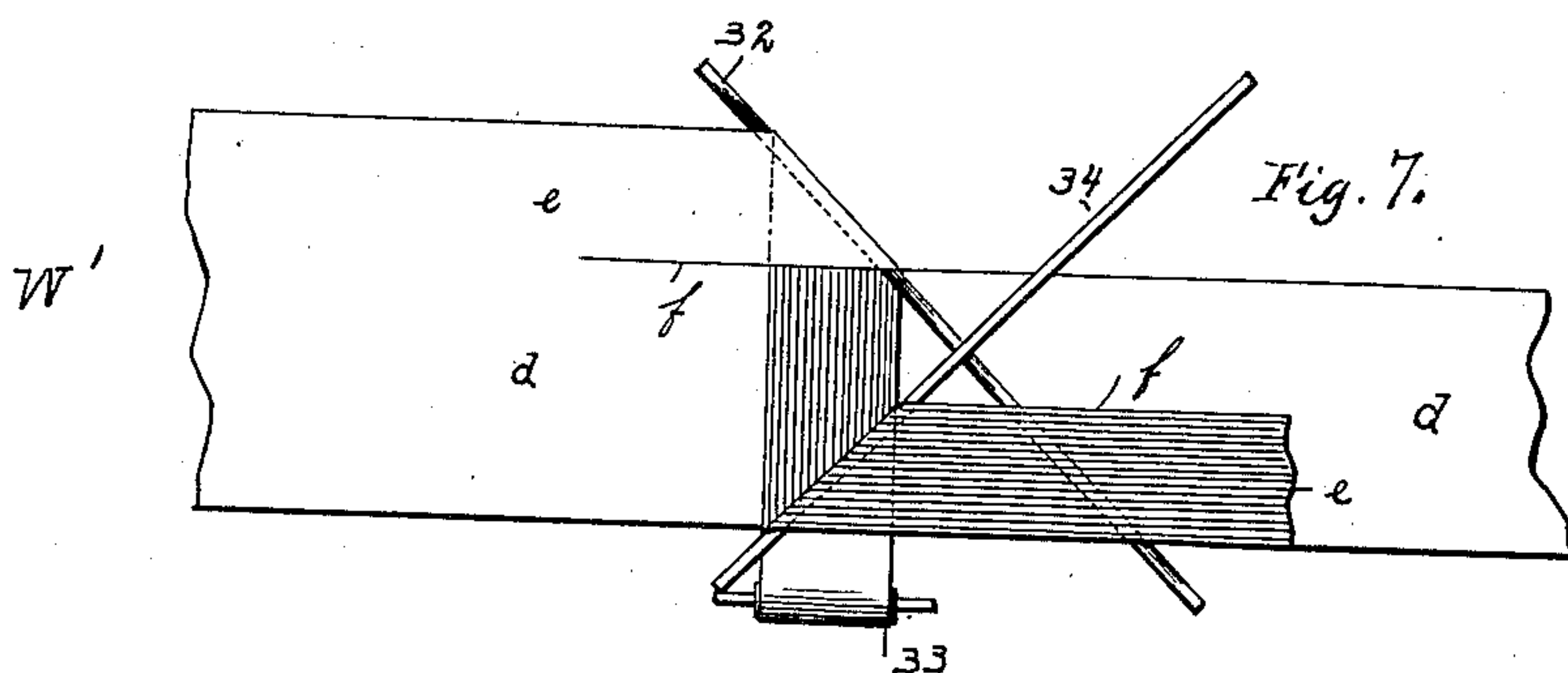


Fig. 7.

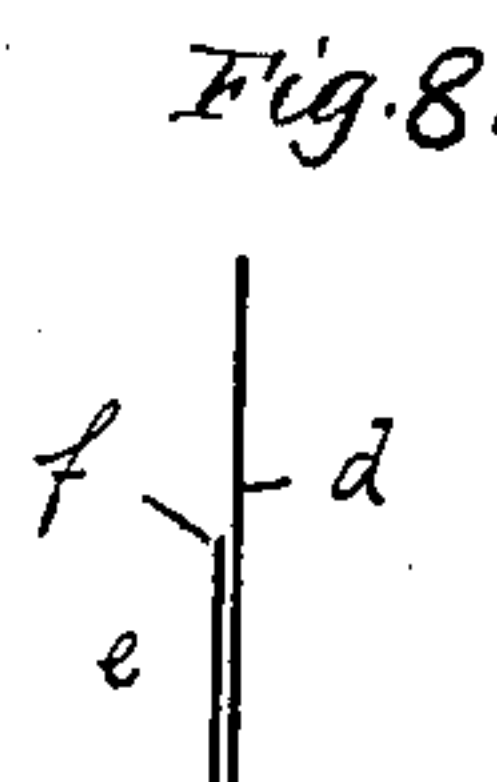


Fig. 8.

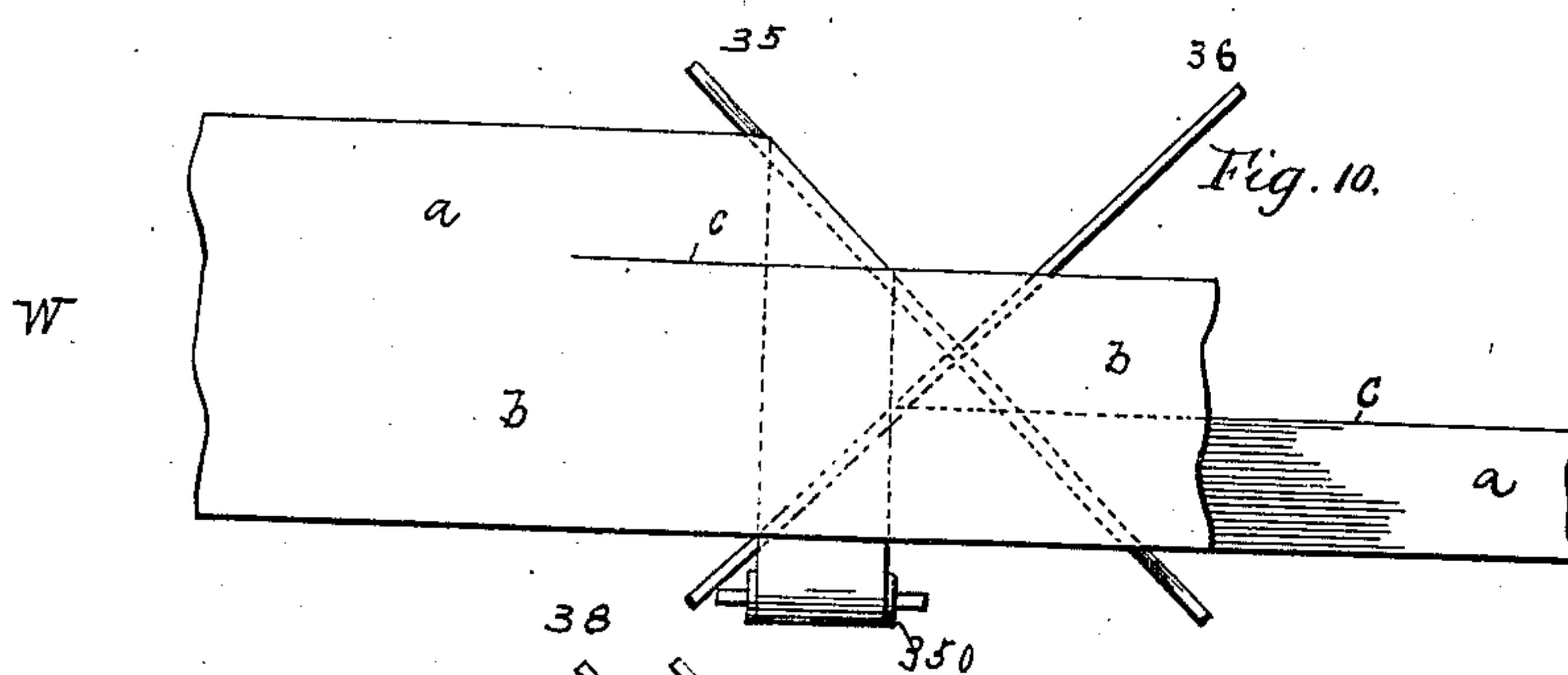


Fig. 10.

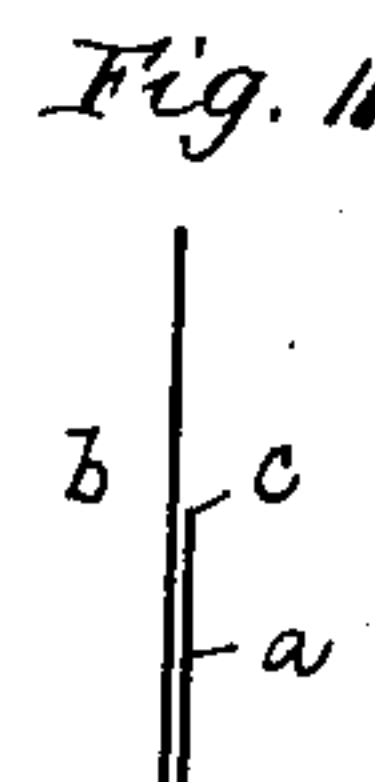


Fig. 11.

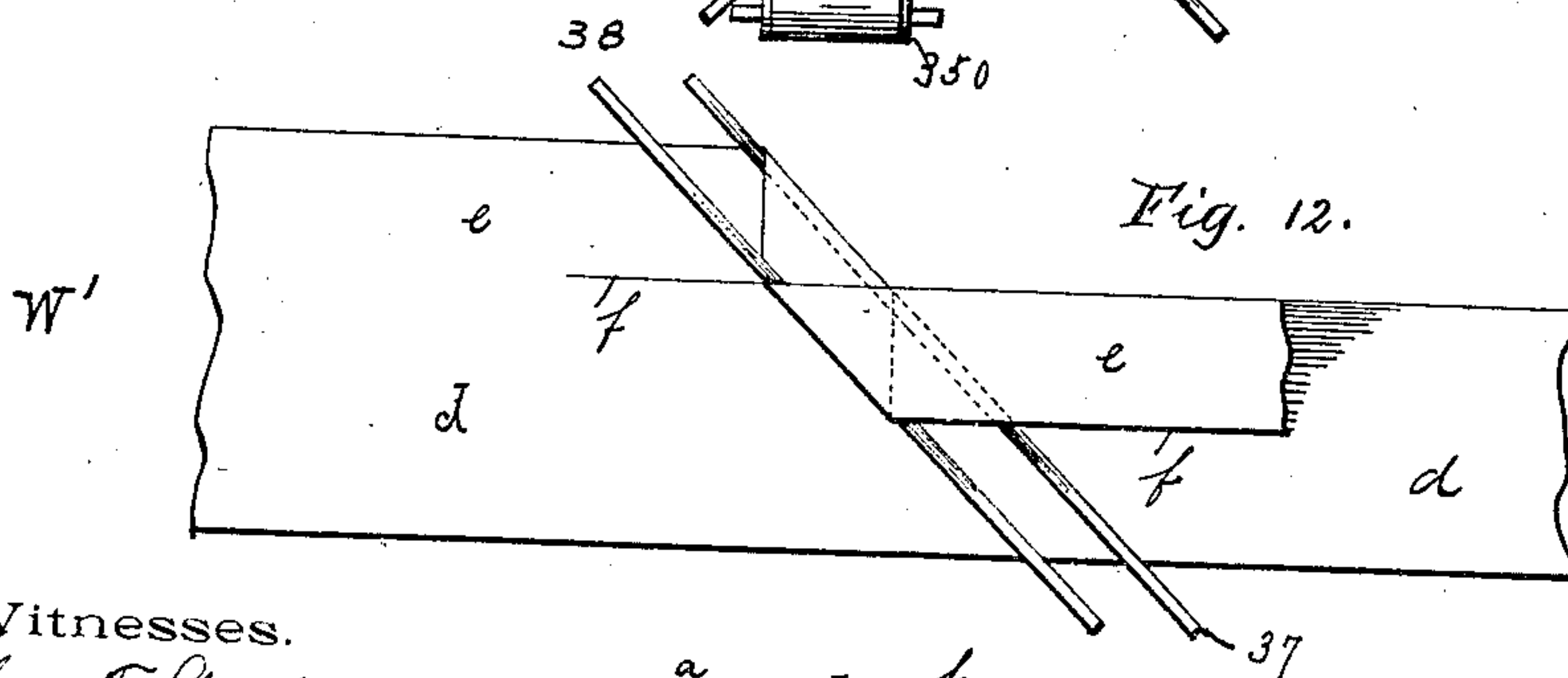


Fig. 12.

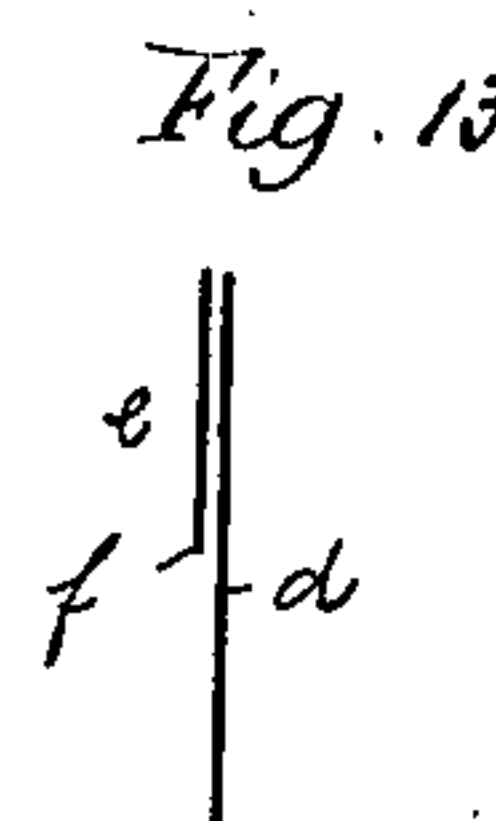


Fig. 13.

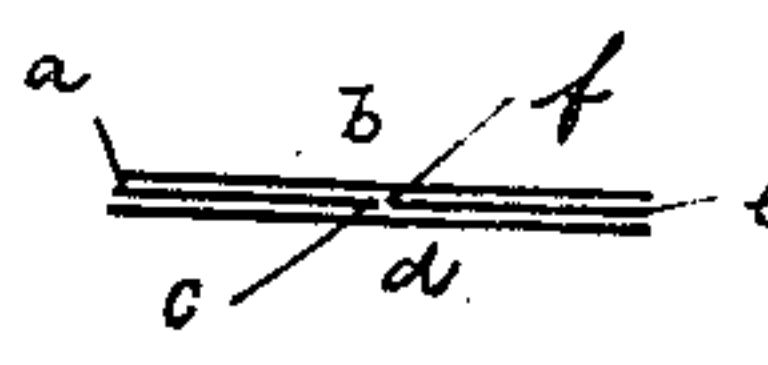


Fig. 14.

Witnesses.

Chas. F. Shively
E. M. Healy.

Inventor.

L. W. Southgate,

By

Southgate & Southgate

Attorneys

UNITED STATES PATENT OFFICE.

LOUIS W. SOUTHGATE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO CAMPBELL PRINTING PRESS & MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

PRINTING-PRESS.

No. 890,720.

Specification of Letters Patent.

Patented June 16, 1908.

Application filed May 31, 1895, Serial No. 551,281. Renewed October 14, 1907. Serial No. 397,369.

To all whom it may concern:

Be it known that I, LOUIS W. SOUTHGATE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements Relating to Printing-Presses, of which the following is a specification.

This invention has for its object to provide a simple and compact web-printing press whereby a great variety of products may be printed and delivered.

To this end, the invention consists of the apparatus described and claimed in this specification, and illustrated in the accompanying two sheets of drawings, in which,

Figure 1 is a diagrammatic sectional elevation of a printing mechanism arranged according to my invention, Fig. 2 is a detail of the pasting mechanism that I preferably use, Fig. 3 is a sectional plan view of the principal parts of the delivery mechanism, Fig. 4 is a diagrammatic view illustrating the way the two sections of the web are assembled, Figs. 5 and 6 are diagrammatic views illustrating the way the sections of one of the webs are associated. Figs. 7 and 8 are similar views illustrating the way the sections of the other web are associated, Fig. 9 is a view illustrating the product when the two sets of associated webs are assembled, and Figs. 10 to 14 inclusive are views similar to Figs. 5 to 9 inclusive, and show a modified form of apparatus for producing the same result.

A web printing press, such as is used in a newspaper office to-day has to produce a large variety of products, especially in view of the large Sunday editions which are now published by many papers.

To supply a simple, compact and convenient web printing mechanism that will print and deliver a great variety of products is the principal end of this invention.

The preferred form of my invention in detail, consists of two rotary web presses three pages wide, arranged preferably one over or in vertical line with the other, a slitting mechanism arranged to slit each web into a wide section and a narrow section, turning or associating mechanisms arranged to bring together the sections of each web, preferably so that the cut edge of the narrow-width webs will lie in the middle of the paper, and

associating collecting and folding mechanisms so arranged that the two sets of associated webs will be brought together, and further manipulated and delivered in the ordinary manner.

Referring to the drawings and in detail, A B and C D designate the two ordinary printing couples of a rotary web printing press, and A¹ B¹ and C¹ D¹ designate the printing couples of a second rotary web printing press. These two printing mechanisms are preferably arranged in the same frame, and one directly over the other, although so far as the scope of some of my claims is concerned, other relative arrangements of the two presses may be used.

Each printing mechanism is preferably made three pages wide, that is, the widest web that can be run through each press is a three-page wide web.

The web W for the upper press may be drawn from the web-roll W², then carried over the rolls or guides 10 and 11, then around the two impression cylinders B and C, and then around a guide-roll 12. The web is then slit by the slitters 13 and 14 into a two-page or wide section b, and a narrow or single paged section a.

The single page section is directed over the turners 30 and 31, as shown in Figs. 3 and 5, and these turners are so arranged that the cut edge c of the single width section will be brought substantially to the middle of the main web b, so that this cut edge will be substantially in the middle of the completed paper.

The web W' for the lower press is drawn from a web-roll W³, is led over a guide-roll 15 around the impression cylinders B¹ and C¹, to a guide-roll 16. The web is then slit into a wide or two-page section d, and a narrow or single page section e, as shown in Fig. 7. The single-page section e is turned laterally over the turner 32, is then led around a roll 33, and then is turned over a turner 34. This will bring the cut edge f of the single width section substantially to the middle of the wide section b, and so that this cut edge will lie substantially in the middle of the completed newspaper. From this turning or deflecting device, the lower web is led up over a guide-roll 20, and then through a pasting device. This pasting device consists of a

roll 21, and three coacting paste-rolls 22, 23 and 24, which are keyed on a common shaft, and which coact with the roll of an ordinary paste-pot H. These pasting rollers 22, 23 and 24 are preferably arranged so that they may be slipped laterally of the shaft, so that any number of them may be used for a purpose hereafter described.

The two sets of associated webs are brought together or assembled on the roll 14, and are then led down to a suitable folding mechanism, as the longitudinal former F, and then sheets are cut from the associated webs, and if desired, a collecting mechanism, as G, may be arranged below the former to associate a plurality of the severed products. This folding apparatus is arranged centrally in the path of the two-page wide section of each web. By this mechanism it will be seen that all the webs are brought into a pathway two pages wide, and that the longitudinal folding mechanism is arranged centrally of this two-page wide path. Other means and arrangements can be used to carry out this result.

With this arrangement of mechanism, I can produce a great variety of products. Two four-page papers may be printed on either press for each revolution of the printing cylinders. Two six-page papers can be printed for each revolution of the printing cylinders on either press or part thereof on each press. In making the above products, I preferably run the lower press only. Two eight page papers can be printed for each revolution of the printing cylinders, a two-page wide web being used in each press. By running a three-page wide web in either press, preferably the lower press, and a two-page wide web in the other press, two ten-page papers can be produced for each revolution of the printing cylinders. By running each press to its full capacity, two twelve-page papers can be produced for each revolution of the printing cylinders. By using the collecting mechanism, and collecting the eight-page papers, one sixteen-page paper can be produced for each revolution of the printing cylinders. By using the collecting mechanism, and collecting the ten-page papers produced as before described, a twenty-page paper can be produced for each revolution of the printing cylinders. By using the collecting mechanism, and running the presses as before described to print a twelve-page paper, a twenty-four page paper can be produced for each revolution of the printing cylinders. Thus it will be seen that this simple, compact and convenient arrangement of printing mechanisms will produce a great variety of products.

In the description above given, I have supposed the printing cylinders to be arranged in

the usual manner to carry two plates circumferentially.

A roll 17 may be used, if desired, to direct the web U¹ from the lower press directly to the roll 14, which is useful when the lower press is used to make a four-page product, as in this case, the web will not have to pass through the pasting mechanism.

When a six-page product or paper is printed on the lower press, the section *e* thereof may be run through the pasting mechanism by using the roll 1700.

The drawings merely illustrate the diagrammatic arrangement, the gearing for driving the various parts being so well known and understood that it is not thought necessary to describe the same at any length.

It is a very important point to bring the cut edges of the narrow width webs to the interior of the paper, for by this arrangement, each narrow width web will be placed accurately in position, and when a product is made in which two narrow-width sections are used, the inner edges can be nicely and accurately brought together. Also, it will be seen that with this arrangement, a single pasting mechanism can be used.

A single pasting-roll is used when either a six or an eight-page product is made. Thus when a six-page paper is printed in the upper press, the paste-roll 24 is used to apply a line of paste near the cut-edge *c* thereof, and on the side thereof which comes next to the two-page section. When a six-page paper is run in the lower press, the roll 22 is used to apply a line of paste close to the cut-edge *f* of the narrow-width section *e* on the side thereof which comes next to the two-page section *d*. When an eight-page paper is to be made, the paste roll 23 is used to apply a line of paste to the two-page section printed in the lower press. By this arrangement it will be seen that the paste line will always be inside the paper, and will never come next to the former.

When a ten-page product is made, two pasting-rolls are used, one to paste the narrow-width section to one of the wide width sections, and another roll to paste the two wide-width sections together. The paste-roll 24 is used in this instance when a six-page paper is made in the upper press, and the paste-roll 22 is used when a six-page paper is made in the lower press. The paste-roll 23 is used to paste the two two-page wide sections together. The paste-rolls 22, 23, 24 can be brought in place for use by being slid on the shaft which carries the same, locking-pins or other suitable means being used to hold each paste-roll to the shaft when it is brought into operative position.

When a twelve-page paper is made, I preferably use three pasting-rolls, one to paste

each narrow-width section in place, and the third to paste the two wide-width sections together. It also will be seen that the twelve-page product, which I produce, is a new product, as I believe it is new to produce a twelve-page product made up of a three-ply newspaper, consisting of an outer and inner full-width sheet, and two supplement or half-width sheets placed oppositely and between the full width sheets. It will be further seen that the three-ply web formed in this manner will run very nicely and accurately over the former F, as there is a weak or folding line, which is formed at the line where the two narrow-width sections butt or nearly butt together. By this means, the three-ply web thus formed will run very accurately over the former.

A modified form of turning or deflecting apparatus is shown in the last five figures. In this modification, I lead the narrow width section *a* of the web *W* over a turner 35, then around a roll 350, then back over the turner 36. This will lay the narrow width section so that its cut edge *c* will lie substantially on the middle of the wide width section *b*. The narrow-width section *e* of the web *W*¹ is led over the turners 37 and 38, which will bring its cut edge *f* substantially to the middle of the full-width section *d*. Then when the two sets of associated webs are brought together, the cut edges of the narrow sections will lie in the fold of the completed paper, as shown in Fig. 14, and so that the rough edges of each narrow section will coincide with the edges of the wide sections.

I contemplate using other folding mechanism in the place of the specific longitudinal folding mechanism herein shown.

The details and arrangements herein described may be varied by a skilled mechanic without departing from the scope of my invention, as expressed in the claims.

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

1. The combination of two three-page-wide, rotary, web presses, devices arranged to bring the webs printed thereby into a path two pages wide, and to associate the same, and folding mechanism arranged centrally of this two-page-wide path.

2. The combination of two three-page-wide, rotary, web presses arranged in line, devices arranged to bring the webs printed thereby into a path two pages wide, and to associate the same, and longitudinal folding mechanism arranged centrally of this two-page-wide path.

3. The combination of two three-page-wide rotary, web presses arranged in vertical line, slitting mechanism arranged to slit each web into a wide and a narrow section, turning

or deflecting devices arranged to bring all the sections of the webs into a path two pages wide, and to associate the same, and folding mechanism arranged centrally of said two-page-wide path.

4. The combination of two rotary web presses, slitting mechanism arranged to slit each web into a wide section and a narrow section, and turning or deflecting devices arranged to turn or deflect the webs so that they will all lie in a two-page-wide path, and so that the rough or uncut edge of each narrow section will coincide with one edge of the wide sections, and so that the cut edges of the narrow sections will be between the outer edges of the wide sections.

5. The combination of two three-page-wide, rotary web presses, slitting mechanism arranged to slit each web into a wide section and a narrow section, and turning or deflecting devices arranged to turn the narrow sections over or under the wide sections so that the cut edges of the narrow sections will lie in the middle of the completed paper.

6. The combination of two three-page-wide, rotary web presses arranged one over the other, slitting mechanism arranged to slit each web into a wide section and a narrow section, and turning or deflecting devices arranged to turn or deflect the narrow sections over or under the wide sections so that the cut edges of the narrow sections will lie in the middle of the completed newspaper.

7. The combination of two rotary, web presses, slitting mechanism adapted to slit each web into a wide section and a narrow section, turning or deflecting devices arranged to turn or deflect the narrow sections so that the cut edges of the narrow sections will lie in the middle of the product, and a suitable pasting mechanism.

8. The combination with a web printing and associating mechanism arranged so that the product will consist of a three-ply web made up of two outer webs and an inner web, the inner web being formed of two separate sections, and a pasting mechanism arranged to paste the two outer layers together, and to paste the sections of the inner web in position.

9. The combination of a web printing and associating mechanism, the product of which is a three-ply web consisting of two outer webs and an inner web, said inner web being made up of two half-width sections, and a pasting mechanism having three paste-rolls arranged to deposit one line of paste to secure the two outer webs together, and a line of paste to secure each of the half-width sections in place.

10. The combination of a web printing and associating mechanism, the product of which is a three-ply web consisting of two outer

webs and an inner web, said inner web being
made up of two half-width sections, and a
pasting mechanism having three paste-rolls
arranged to deposit one line of paste to secure
5 the two outer webs together, and a line of
paste on each half-width section to secure
each of the half-width sections in place.

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

LOUIS W. SOUTHGATE.

Witnesses:

PHILIP W. SOUTHGATE,
E. M. HEALY.