

(No Model.)

2 Sheets—Sheet 1.

L. C. CROWELL.

WEB ASSOCIATING APPARATUS.

No. 316,120.

Patented Apr. 21, 1885.

Fig. 1.

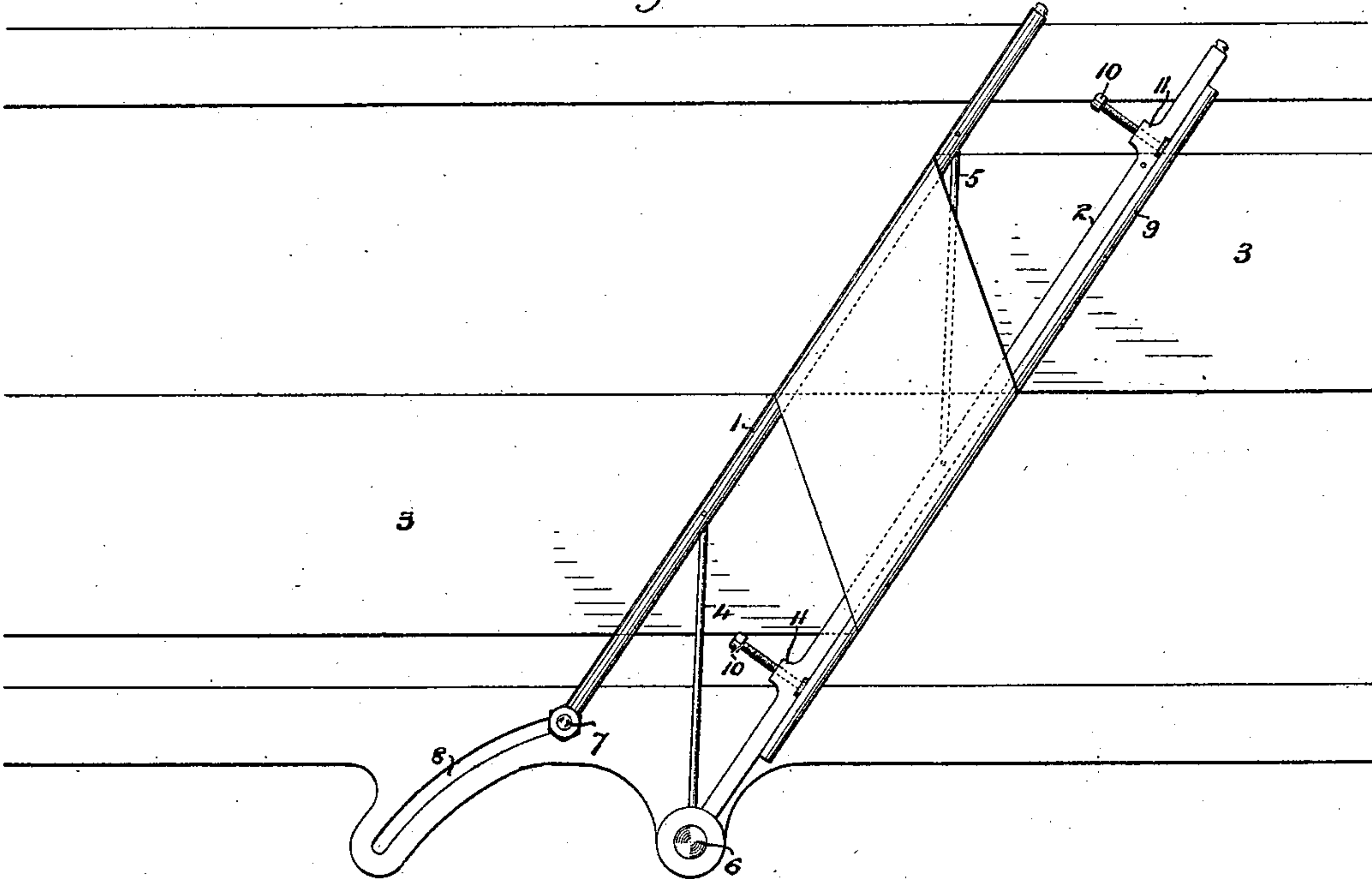
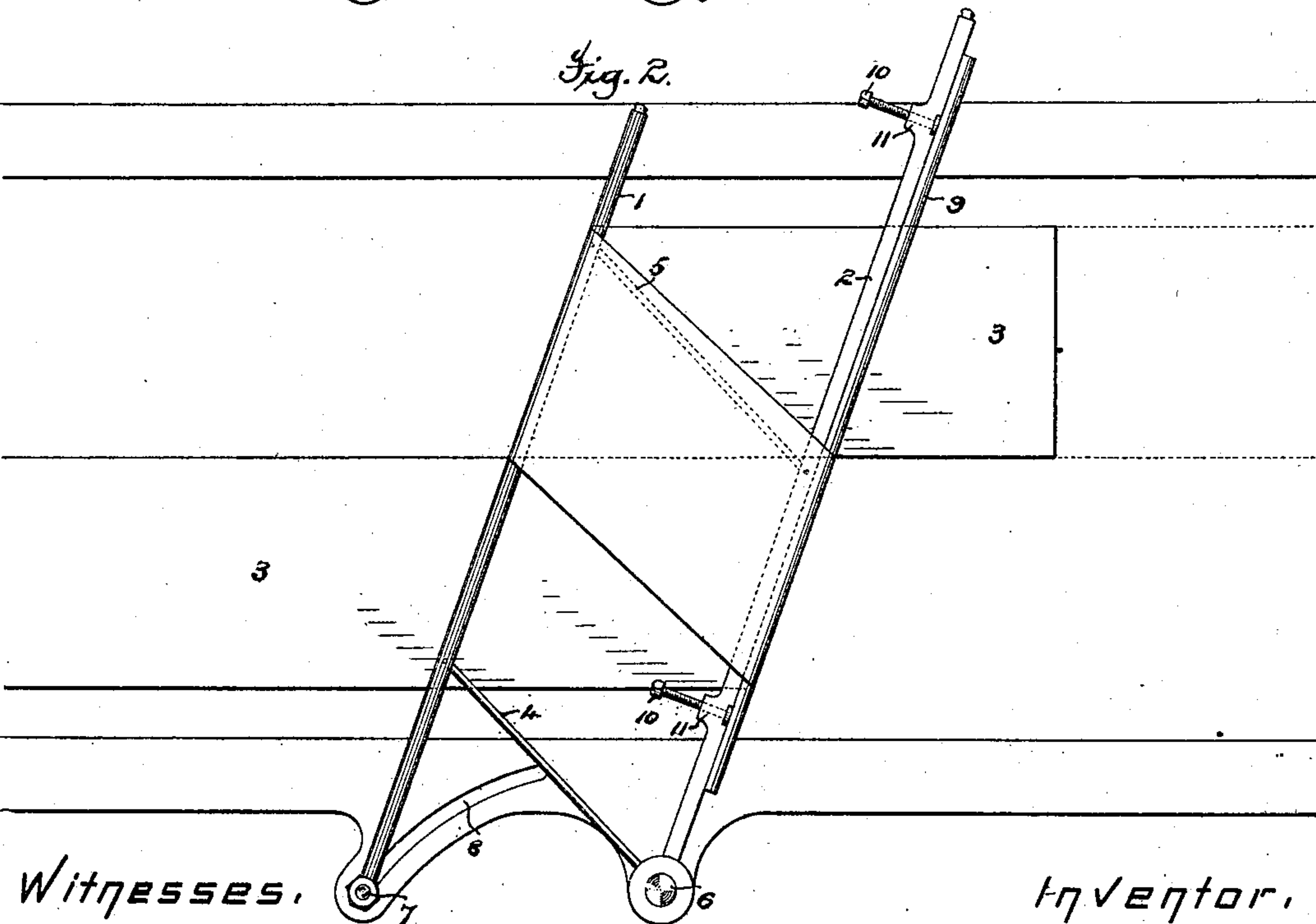


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

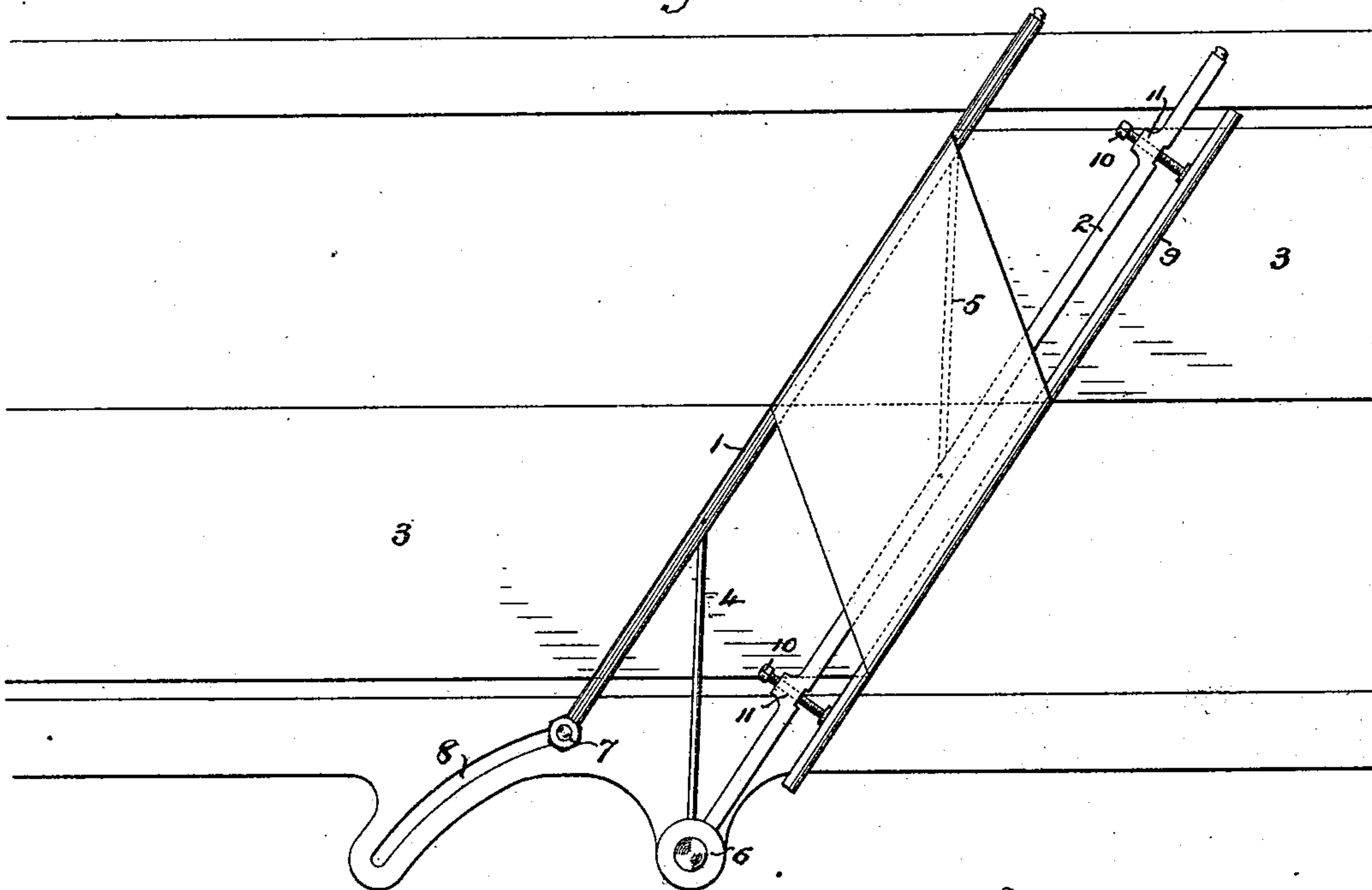
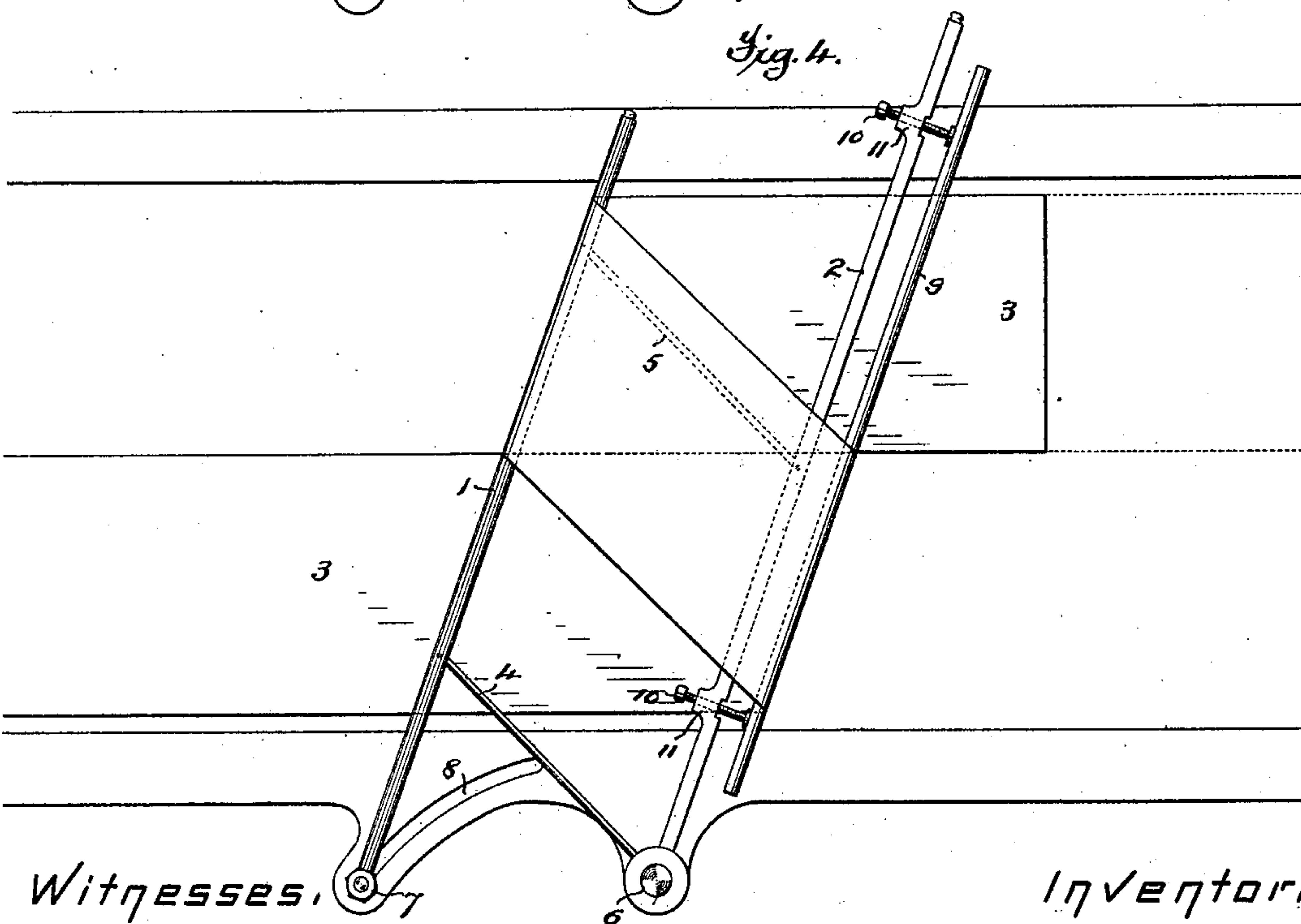


Fig. 4.



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UNITED STATES PATENT OFFICE.

LUTHER C. CROWELL, OF BROOKLYN, ASSIGNOR TO R. HOE & CO., OF
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WEB-ASSOCIATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 316,120, dated April 21, 1885.

Application filed December 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, LUTHER C. CROWELL, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Web-Associating Apparatus, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

In the production of those newspapers and other periodicals which contain more than four pages of printed matter it is frequently desirable to print upon a web of sufficient width to receive two or more printed pages abreast, and then, instead of folding the web or the sheets severed therefrom longitudinally, (*i. e.* in the direction of their travel through the machine,) split the same into two or more divisions and afterward associate the several divisions by transferring one or more of them laterally, so that thereafter the whole can be manipulated as a single web.

The present invention relates to an apparatus for effecting this association of the severed web, which is in its general construction substantially the same as that shown in United States Letters Patent No. 265,556.

In order to make it possible to manipulate the several narrow webs or divisions as a single web it is of course necessary that they should be so brought together that their printed pages will be in perfect register. In order to accomplish this, it is necessary either to lead the web, which is not transferred laterally, around a register roll or rolls, so as to make its travel equal to that of the transferred web or webs, or to make the travel of the transferred web or webs greater than that of the other web by exactly the length of one or more of the printed pages. This latter can be accomplished either by the use of a register roll or rolls or by a proper adjustment of the transferring-bars.

For the sake of economy in construction it is of course desirable to dispense with the register roll or rolls, and therefore it is most desirable that the travel of the transferred web or webs should be regulated by the latter plan.

In constructing a full-sized machine it has been found that even with the most careful calculation it is impossible to so locate the various parts that an exact register of the

pages upon the associated webs can be secured in the first instance, and therefore it is necessary in using either register-rolls or the transferring-bars to effect the proper register to make those parts adjustable, so that after the machine is ready for operation they can be slightly changed in position to vary the travel of the web or webs. When the transferring-bars are used for this purpose it is necessary that they should be made adjustable, both as to their position with relation to each other and as to their angular relation with the webs, because any change of their position with relation to each other, so as to cause the web or webs to travel a greater or less distance, necessitates a corresponding change in their angular relation to the webs in order to effect the proper lateral transfer.

In most web-perfecting machines in which several webs are associated in this manner it is desirable to be able to produce at different times papers having pages of varying sizes. This is effected either by adding an extra column to the pages or by adding to the length of the columns forming the pages, according as the columns of the form are placed circumferentially or longitudinally of the form cylinder or cylinders. In either case it is necessary to vary the width of the webs to be associated, and any change in the width of the webs of course necessitates a corresponding change in the position of the transferring-bars, either with relation to each other or in their angular relation to the webs, or both.

It is the object of the present invention to provide a simple and convenient means by which the transferring-bars can be adjusted both with relation to each other and as to their angular relation to the webs, so as to capacitate the same set of bars to effect the association of webs of varying widths, and also to regulate the distance traveled by the web or webs to secure the proper register of the printed matter after association.

To that end the invention consists in providing the transferring-bars with connecting devices, by which the movement of one bar effects the adjustment of all, and in providing one or more of the bars with an adjustable turning-edge, whereby, without changing the position of the bars with relation to each

other, the distance traveled by a web or webs in passing around them is varied.

In the accompanying drawings, Figure 1 shows the transferring-bars adjusted to operate upon a narrow web and to give the same a comparatively small amount of extra travel in passing around them. Fig. 2 shows the bars adjusted to operate upon a web of the same width, but to give it an increased amount of travel in passing around them. Fig. 3 shows the bars adjusted so as to operate upon a web of increased width, but give the same a comparatively small amount of extra travel in passing around them; and Fig. 4 shows the bars adjusted to operate upon a web of the same width as in Fig. 3, but to give the same an increased amount of travel.

The transferring apparatus consists, as in the Letters Patent referred to, of two parallel bars, 1 2, arranged at such a distance from each other and at such an angle to the path of travel of the web 3 that said web, being led upward around the bar 2 and thence downward around the bar 1, or vice versa, will be transferred laterally a distance equal to its own width, so as to pass forward above or below a second web running by its side in the same plane. The bars 1 2 are connected by a pair of pivotally-attached tie-rods, 4 5, and the bar 2 has one of its ends pivotally attached to the frame of the machine at 6, the bar 1 having its corresponding end adjustably secured to the frame by a bolt, 7, passing through a curved slot, 8.

It will be observed that in Fig. 1 the bars 1 2 are adjusted in such relation to each other that the web 3 in passing around them is given a comparatively small amount of extra travel. If, therefore, when they are adjusted in this position, it is found upon carrying the web around the transferring-bars that its pages of printed matter do not register perfectly with the pages upon the web with which it is associated, the bars may, by loosening the bolt 7, be adjusted to the position shown in Fig. 2, or to some intermediate position, thereby carrying them to a greater distance from each other, so that the distance traveled by the web in passing around them is increased and its pages of printed matter consequently brought farther to the rear, and at the same time changing their angular relation to the web, so that its lateral transfer is not affected. The range of adjustment of the bars will be such that the extra travel which may thus be given to the transferred web will be sufficient to throw its printed pages far enough backward in the line of travel to bring them into proper register with the pages upon the other web.

From the adjustment just explained it will readily be seen that a perfect register can thus be effected between the pages of printed matter upon the two webs. If, however, the webs are increased in width it will be seen that the bars arranged as in Figs. 1 and 2 will not be capacitated to transfer laterally

such increased web a distance equal to its own width, and consequently cannot effect the association of the two webs. To provide for this the turning-edge 9 of the bar 2 is made adjustable with relation to the bar, it being provided for this purpose with set-screws 10, passing through bearings 11, and having their ends pivotally secured in suitable seats in the turning-edge. It will be readily seen that by moving the edge 9 to a greater distance from its bar 2 the lateral transfer of the web passing around the bars will be increased so as to capacitate the bars to operate upon a web of increased width. The turning-edge 9 having been adjusted to the proper distance from its bar to capacitate the apparatus to operate upon a web of the required width, the travel of the transferred web will be regulated by the adjustment of the bolt 7 in the slot 8, as before explained, so as to bring its printed pages into proper register with those of the web with which it is to be associated.

The apparatus, as illustrated in the present case, is provided with but two transferring-bars, and is consequently capacitated to associate but two webs.

It is, of course, to be understood that an apparatus adapted to associate three or even more webs, as shown in Letters Patent No. 255,723 may be constructed upon this principle, the three or more transferring-bars being connected in the same manner as herein shown, and two or more of them being provided with adjustable turning-edges, as 9, and bolts, as 7, for adjusting them to different positions upon the frame of the machine.

What I claim is—

1. The herein-described web-transferring apparatus, consisting of a plurality of bars, as 1 2, pivotally connected to each other by rods, as 4 5, and to their supporting-frame, substantially as described.

2. The combination, with the bar, as 2, pivotally connected to the supporting-frame, of the bar, as 1, pivotally connected thereto by rods, as 4 5, and adjustably connected to the supporting-frame, substantially as described.

3. A web-transferring apparatus consisting of a plurality of bars, as 1 2, one of which is provided with an adjustable turning-edge, as 9, substantially as described.

4. The combination, with the bar, as 2, provided with the adjustable turning-edge, as 9, and pivotally secured to its supporting-frame, of the bar, as 1, connected to the former by rods, as 4 5, and adjustably secured to its supporting-frame, substantially as described.

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

LUTHER C. CROWELL.

Witnesses:

JAS. A. HOVEY,
T. H. PALMER.