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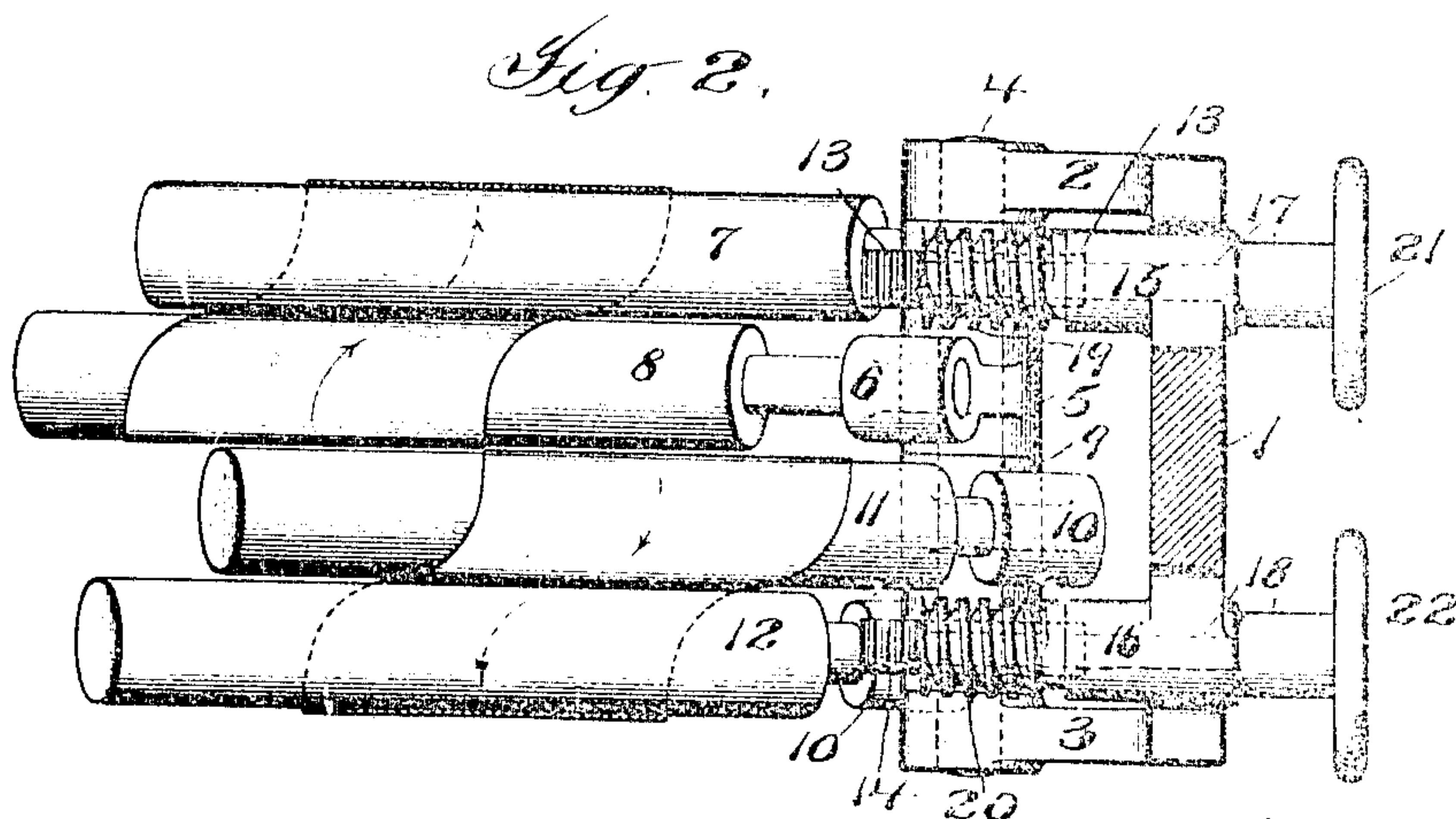
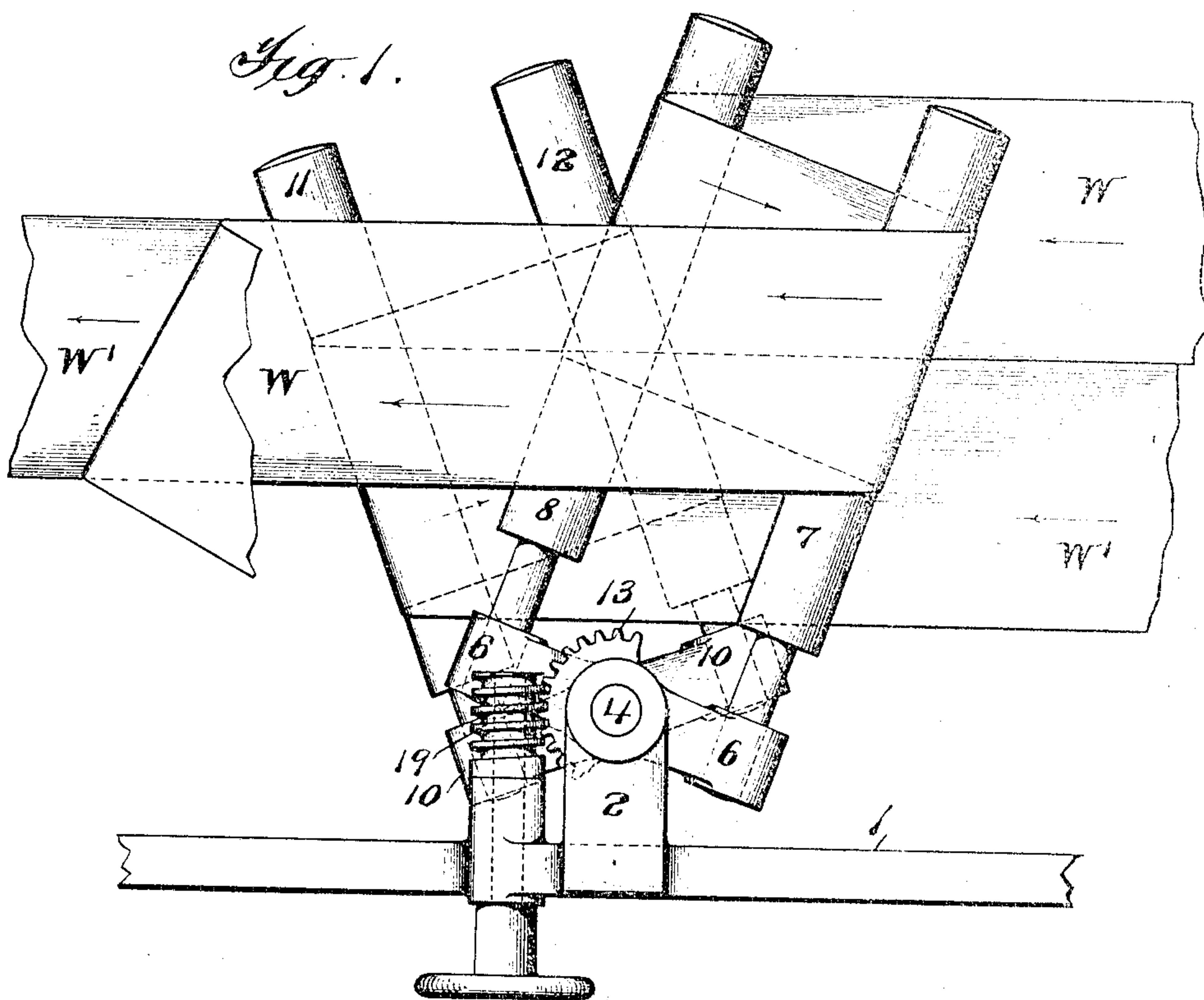
PATENTED APR. 24, 1906.

J. C. F. BALZE.

WEB GUIDE.

APPLICATION FILED MAY 9, 1903.

2 SHEETS—SHEET 1.



Attest:  
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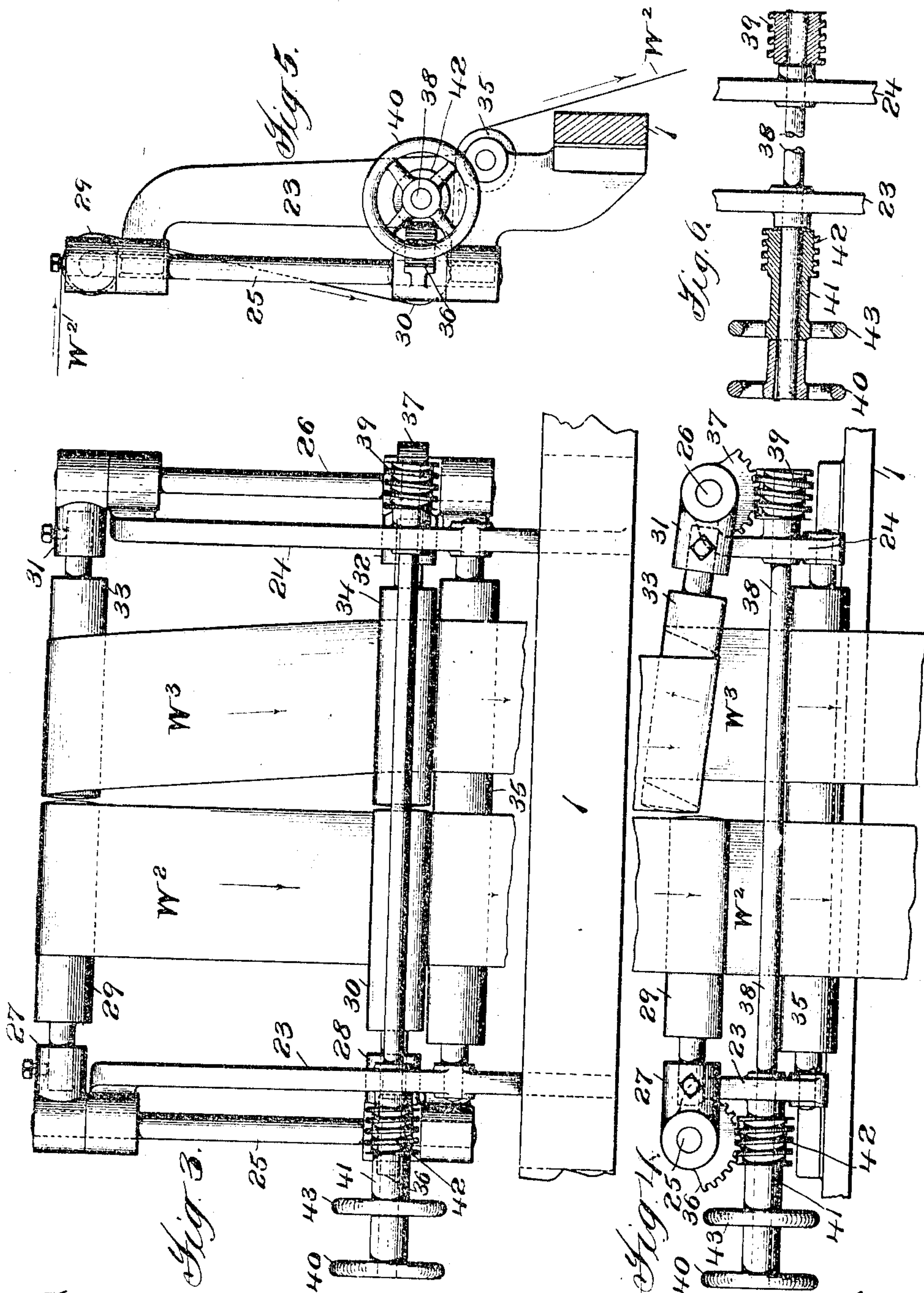
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# UNITED STATES PATENT OFFICE.

JOHN C. F. BALZE, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE,  
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## WEB-GUIDE.

No. 818,655.

Specification of Letters Patent.

Patented April 24, 1906.

Application filed May 9, 1903. Serial No. 156,398.

*To all whom it may concern:*

Be it known that I, JOHN C. F. BALZE, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Web-Guides, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to certain improvements in web-guides.

In machines in which running webs are employed it is customary to interpose in the path of the web guides the purpose of which is to change the path of the web.

15 One form of such guides is what is known as the "angle-bar," which is ordinarily set at an angle of about forty-five degrees to the path of the web and the purpose of which is to give the web a right-angle turn.

20 Another form of guide consists of two parallel bars, the web being passed first around one bar and then around the other bar, the bars being also set at an angle of about forty-five degrees to the path of the web, the purpose of this guide being to shift the web laterally without changing its general direction of movement. In this construction the amount of lateral shift is varied by shifting one of the bars with relation to the other, the parallelism of the bars and their degree of angularity with respect to the path of the web being maintained unchanged. With this construction the minimum of lateral transfer is equal to the sum of half the diameters of the bars, and the lateral transfer is necessarily always an increase in the same direction. In other words, when the bars are as close together as is possible the web is given the smallest amount of lateral transfer possible, the entire web being then shifted laterally a distance equal to the sum of half the diameters of the two bars, and the amount of lateral shift as the distance between the bars is varied will increase as the bars are separated.

45 A third form of guide which is sometimes employed consists of a large tubular guide, around which the web is given a complete wrap. This form of guide must always shift the web laterally an amount equal to the width of the web, and with this form of guide any further transfer of the web is effected by increasing the size of the bar.

These forms of guides have usually had both ends mounted in the machine, the only adjustment of them being effected by moving them into different positions, each position of the guide, however, being parallel to every other position.

The object of this invention is to produce an improved web-guide which may be given an angular adjustment for the purpose of controlling the movement of a web.

With this and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, as will be hereinafter fully described, and then specifically pointed out in the claims hereunto appended.

Referring to the accompanying drawings, 70 Figure 1 is a plan view of a construction embodying the improved form of guide. Fig. 2 is an elevation, partly in section, of the construction shown in Fig. 1. Fig. 3 is an elevation of another construction of guide embodying the invention. Fig. 4 is a plan view of the construction shown in Fig. 3. Fig. 5 is a side view, and Fig. 6 is a detail sectional view.

The form of guide in which the invention is embodied may be widely varied; but in the preferred construction the guide will consist of two members, as bars, the web being passed first around one of the members and then around the other, and this is the form of guide which has been selected to illustrate the invention. The construction by which the guide, whatever be its form, is mounted so that it may be given an angular adjustment to change the widthwise position of the traveling web after it leaves the guide may be varied within wide limits; but preferably the members of the guide will be mounted at one end, the other end being left free, and preferably it will be such, where a guide comprising two members is employed, that these members may receive a simultaneous adjustment.

Referring more particularly to Figs. 1 and 2, a form of guide is shown which is adapted to control the movement of two running webs running in different planes, these guides being arranged so as to associate the webs. In these figures, 1 indicates a portion of the frame in which the guides are mounted, the frame being provided with inwardly-extending brackets 2 3, which serve to support a



vertical rod 4. Mounted on this rod is a hub or collar 5, said collar being provided with bearings 6, said bearings, as shown, extending from each side of the hub and one of them being arranged above the other. In one of the bearings 6 is mounted a guide member 7, and in the other bearing 6 is mounted another guide member 8, these members, as shown, consisting of cylindrical bars. In the preferred construction and as shown these members will be so arranged that the surface of the bar with which the web first comes in contact lies nearer the path of the incoming web than the corresponding surface of the other bar. This construction will be clear from an inspection of Figs. 1 and 2, in which it will be seen that the upper surface of the bar 7, around which the incoming web first passes, is nearer to the path of the incoming web than the upper surface of the bar 8. Below the hub 5 is mounted another hub 9, said hub being provided with bearings 10, which extend from each side thereof, one of the bearings being located above the other, and in these bearings are mounted guide members 11 and 12, which are also shown as consisting of cylindrical bars. These members preferably also are arranged that the surface of the bar with which the web first comes in contact is nearer to the path of the incoming web than the surface of the other bar. The two webs which are controlled by these guides are marked W and W', the web W running over the upper member and the web W' over the lower guide member, and the guides being set so as to superpose the web W upon the web W'.

Inasmuch as the members of each guide are so arranged that the surface of the member with which the web first comes in contact is nearer the path of the incoming web than the surface of the other member, the web can be passed around the upper and lower surface of the upper member of each guide and then around the upper and lower surface of the lower member of each guide, as is shown, for instance, in Figs. 1 and 2.

The angular movement by which the guides control the position of the webs may be effected by any suitable means. As shown, the hub 5 is provided with a segment 13 and the hub 9 with a similar segment 14. Mounted in suitable bearings 15 and 16 in the frame are two short shafts 17 and 18, these shafts being provided on their inner ends with worms 19 and 20, and on their outer ends with hand-wheels 21 and 22. With this construction it is obvious that the position of either guide may be shifted in either direction and that this may be accomplished without interrupting the operation of the machine in which the guides are employed. Furthermore, the position of either web may be adjusted with extreme nicety. For instance, should it be found that either web is running

slightly out of register with the other or if the webs are being delivered to a folder and it be found that the webs are not running with respect to the folder so as to be accurately folded the error may at once be corrected without stopping the operation of the machine. Furthermore, the guide members may be brought into a position where they stand at right angles to the path of the web and may be given a wide range of adjustment either way from this position, which is particularly important in the management of webs, particularly in printing-machines.

Referring to the construction shown in Figs. 3, 4, 5, and 6, a guide is shown which is adapted for use where two webs are running side by side in substantially the same plane and where the position of each web is to be shifted in its plane, the webs not being associated. In this construction the frame 1 is provided with vertical brackets 23 and 24, each of these brackets being provided with bearings which serve to support vertical shafts 25 26. The shaft 25 is provided with two bearings 27 28, which are secured to the shaft, the bearing 27 carrying a guide member 29 and the bearing 28 carrying a guide member 30. Similarly the shaft 26 has secured to it two bearings 31 32, the bearing 31 supporting a guide member 33 and the bearing 32 supporting a guide member 34. Webs W<sup>2</sup> W<sup>3</sup> are shown as running in a horizontal plane, the web W<sup>2</sup> taking a downward turn over the guide member 29 and then a turn over the guide member 30, after which it passes down over a roll-guide 35, suitably supported in the frame. The web W<sup>3</sup> is also shown as running in a horizontal plane and as taking a downward turn over the member 33 and around the member 34, after which it also passes down over the guide 35.

As in the construction previously described, the guide members are capacitated to receive a simultaneous swinging adjustment, which may be effected by any suitable means. In the construction shown the shaft 25 is provided with a segment 36 and the shaft 26 is provided with a segment 37, these segments being secured to the shafts. Supported in the brackets 23 and 24 is a long shaft 38, having a worm 39 on its end, which meshes with the segment 37. The shaft 38 is provided on its other end with a hand-wheel 40, and mounted on it in the construction shown is a short tubular shaft 41, provided with a worm 42 and a hand-wheel 43. This worm 42 is in mesh with the segment 36. It will be readily understood that by turning either of the hand-wheels the vertical shaft, which the hand-wheel shaft controls by means of its worm, is given an axial movement, thus swinging the guides.

In the construction shown the guide which controls the web W<sup>2</sup> is shown as at right angles to the web, so that the web runs over it



without having its lateral position changed thereby. The guide which controls the web  $W^3$ , however, is swung at an angle to the path of travel of the web, so that the position of the web is shifted, the web being caused to travel slightly nearer to the supporting bracket 24 after it leaves the guide than it would were the guide not shifted.

While any of the well-known guides may, under certain conditions, be advantageously mounted to receive a swinging adjustment, the form of guide illustrated is especially adapted for the purpose of the invention, and such swinging guides will be found especially valuable where it is desired to shift the position of the web laterally slightly without changing the general direction of its run, in order, for instance, to bring it truly into register with another web or to cause it to run truly to a folding mechanism or to any other mechanism by which it is to be operated upon. While, as before indicated, the construction by which the swinging adjustment is effected may be widely varied in its character, it is particularly desirable that the guide be so mounted that the desired adjustment may be given without interfering with the operation of the machine as a whole.

While the constructions illustrated embody the invention in preferred forms, it is to be understood that changes and variations may be made therein without departing from the invention. The invention is not, therefore, to be limited to the specific constructions hereinbefore shown and described.

What is claimed is—

1. The combination with a web - guide around which the web may be passed, of means whereby the guide may be given a swinging adjustment to change the widthwise position of the traveling web after said web leaves the guide, substantially as described.
2. The combination with a web-guide comprising a plurality of members about which the web may be passed, of means whereby the guide may be given a swinging adjustment to change the widthwise position of the traveling web after said web leaves the guide, substantially as described.
3. The combination with a web-guide comprising a plurality of members around which the web passes, the surface of the member with which the web first comes in contact lying nearer the path of the incoming web than the corresponding surface of the other member, of means whereby said members may be given a swinging adjustment to change the widthwise position of the traveling web after the web leaves the guide, substantially as described.
4. The combination with a web-guide comprising a plurality of members about which the web may be passed, of means whereby said members may be given a simultaneous swinging adjustment to change the width-

wise position of the traveling web after the web leaves the guide, substantially as described.

5. The combination with a web-guide comprising a plurality of members about which the web may be passed, the surface of the member with which the web first comes in contact lying nearer the path of the incoming web than the corresponding surface of the other member, of means whereby said members may be given a simultaneous swinging adjustment to change widthwise position of the traveling web after the web leaves the guide, substantially as described.

6. The combination with a web-guide comprising a plurality of substantially horizontally arranged members around which the web passes, the surface of the member with which the web first comes in contact lying nearer the path of the incoming web than the corresponding surface of the other member, of means whereby said members may be given a swinging adjustment to change the widthwise position of the traveling web after the web leaves the guide, substantially as described.

7. The combination with a web-guide comprising a plurality of substantially horizontally arranged members around which the web may be passed, of means whereby said members may be given a simultaneous swinging adjustment to change the widthwise position of the traveling web after the web leaves the guide, substantially as described.

8. The combination with a web-guide comprising a plurality of substantially horizontally arranged members about which the web may be passed, the surface of the member with which the web first comes in contact lying nearer the path of the incoming web than the corresponding surface of the other member, of means whereby said members may be given a simultaneous swinging adjustment to change the widthwise position of the traveling web after the web leaves the guide, substantially as described.

9. In a web-guide, the combination with a pivotally-mounted support, of a pair of guiding members carried by the support, whereby the guiding members may be given a swinging adjustment, substantially as described.

10. In a web-guide, the combination with a pivotally-mounted support, of a pair of guiding members carried by the support, said members being parallel to each other, of means for giving said support an adjusting swinging movement about its center and for holding it in adjusted position, substantially as described.

11. The combination with a frame, of a support mounted therein, a pair of guiding members carried by the support, and means including a worm - gearing for giving the guiding members a swinging adjustment



with respect to the path of travel of a web, whereby said path of travel is changed, substantially as described.

12. The combination with a frame, of a support mounted therein, a guide consisting of a pair of bars carried by the support, the surface of the bar with which the web first comes in contact lying nearer the path of the incoming web than the corresponding surface of the other bar, and means for giving said guide a swinging adjustment to change the widthwise position of the traveling web after it leaves the guide, substantially as described.

13. The combination with a frame, of a support mounted therein, a guide comprising a pair of bars, the surface of the bar with which the web first comes in contact lying nearer the path of travel of the incoming web than the corresponding surface of the other member, each of said bars having one end carried by the support the other end being free, and means for giving the guide a swinging adjustment to change the widthwise position of the traveling web after leaving the guide, substantially as described.

14. The combination with a frame, of a support mounted therein, a guide comprising

a pair of substantially horizontally ranged bars, the surface of the bar with which the web first comes in contact lying nearer the path of travel of the incoming web than the corresponding surface of the other member, each of said bars having one end carried by the support the other end being free, and means for giving the guide a swinging adjustment to change the widthwise position of the traveling web after leaving the guide, substantially as described.

15. The combination with a frame, of a support mounted therein, a guide comprising a pair of bars each of said bars having one end carried by the support, the other end being free, and means including worm-gearing for giving the guiding members a swinging adjustment with respect to the path of travel of the web, substantially as described.

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

JOHN C. F. BALZE.

Witnesses:

F. W. H. CRANE,  
GEO. M. BROWN.