

(No Model.)

4 Sheets—Sheet 1.

R. SIMON.
WARPING OR BEAMING MACHINE.

No. 504,791.

Patented Sept. 12, 1893.

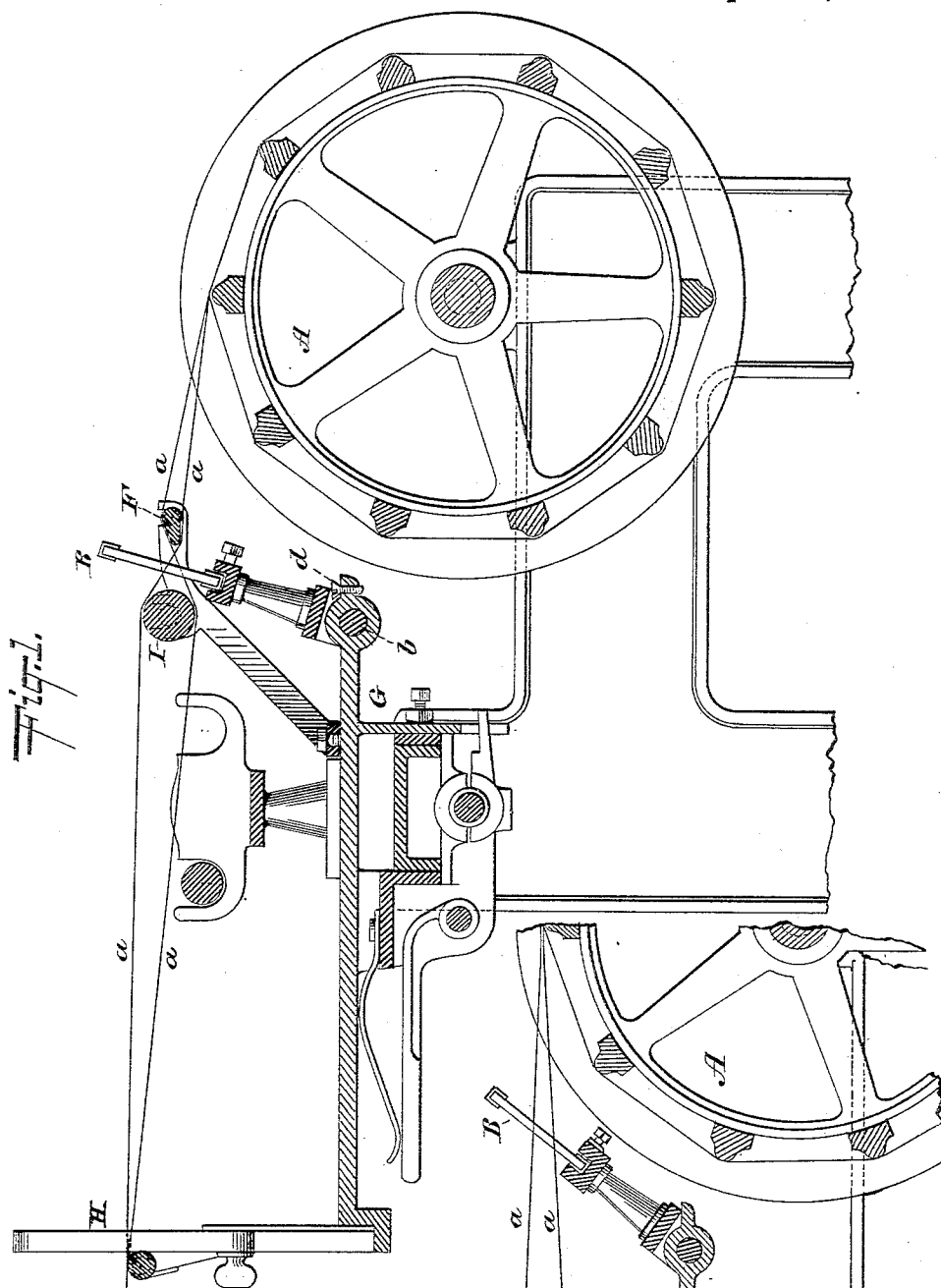


Fig. 1.

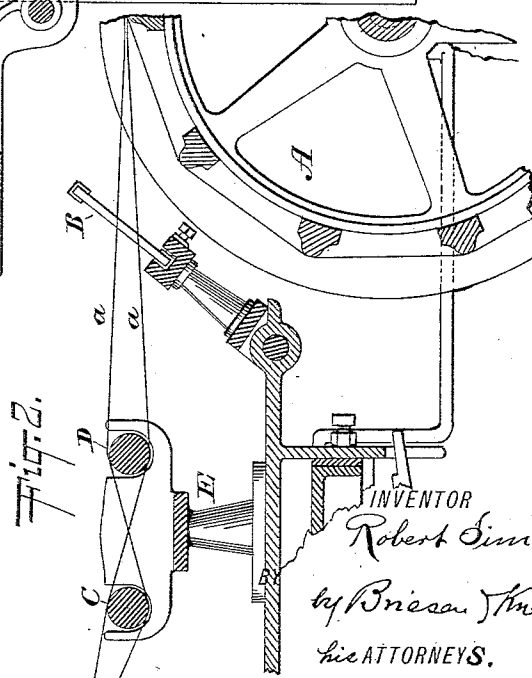


Fig. 2.

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his ATTORNEYS.

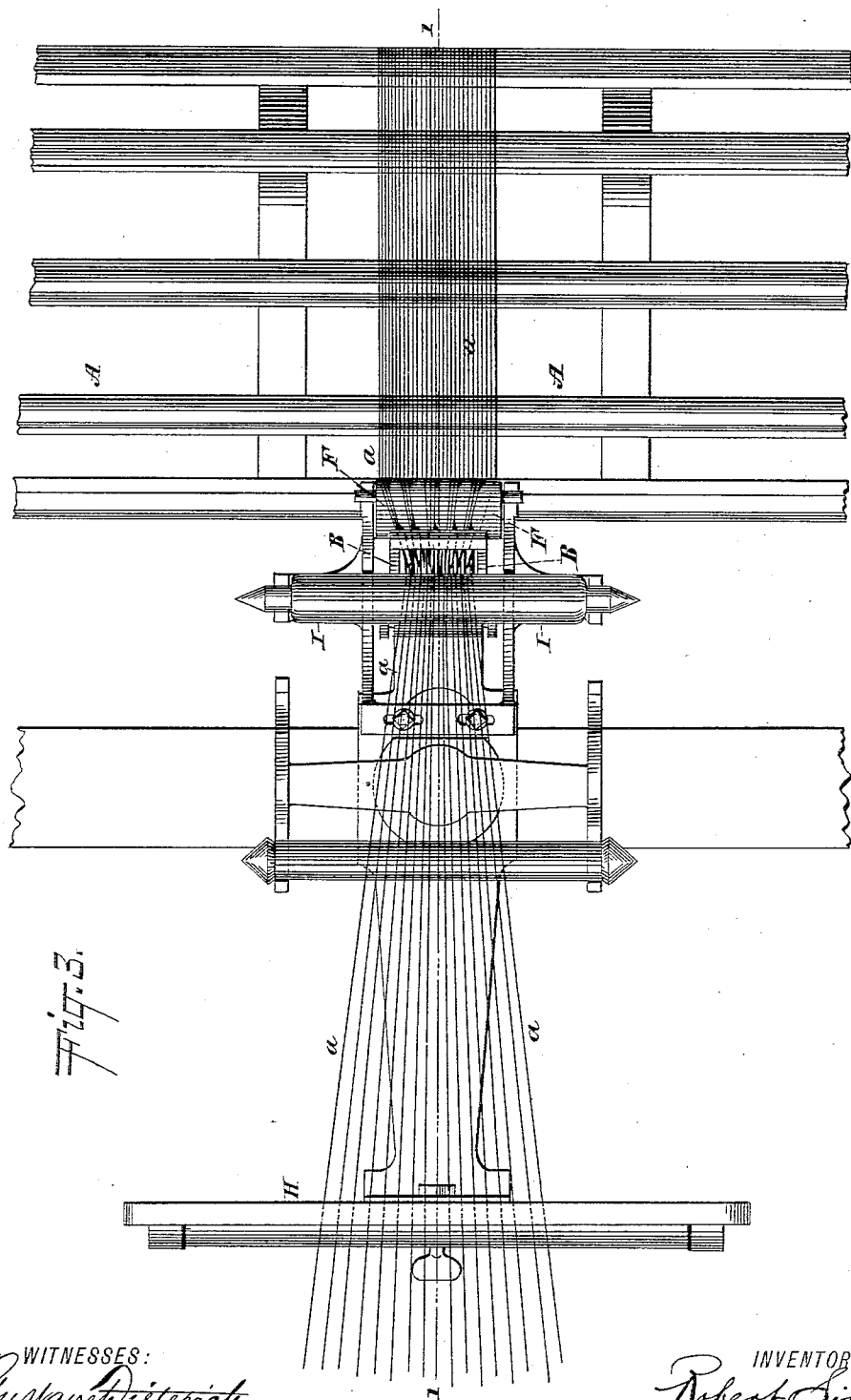
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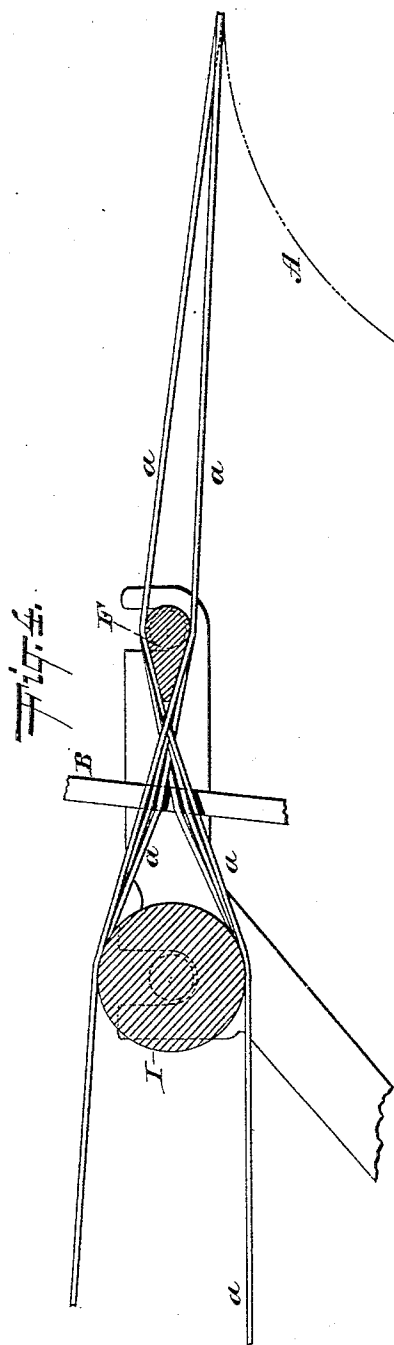
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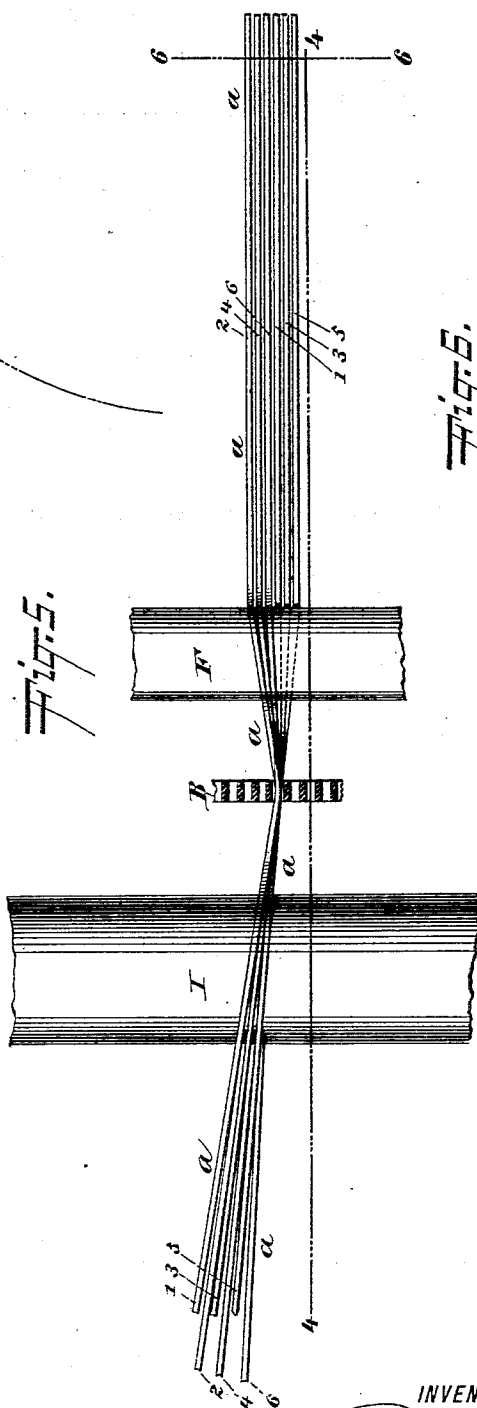


Fig. 5.
1 2 3 4 5 6
a

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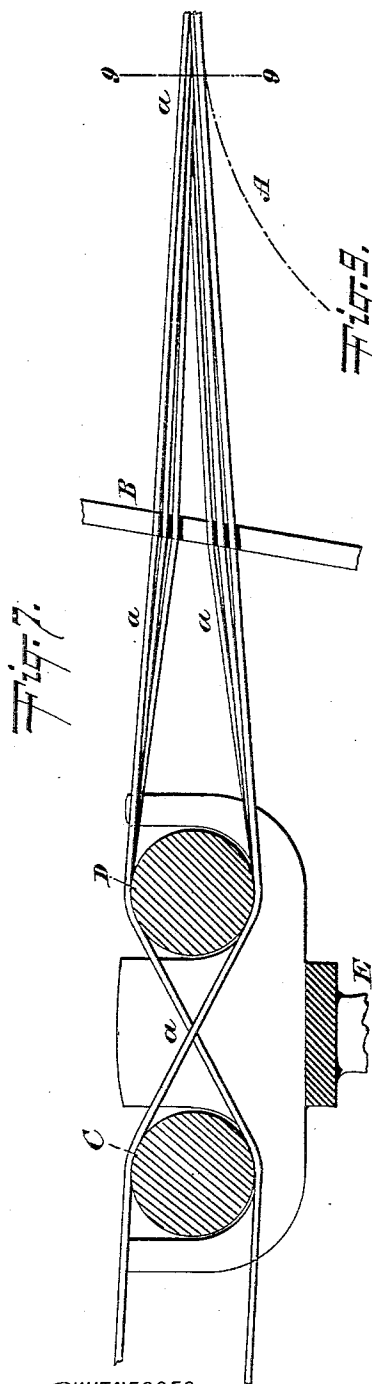
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4 Sheets—Sheet 4.

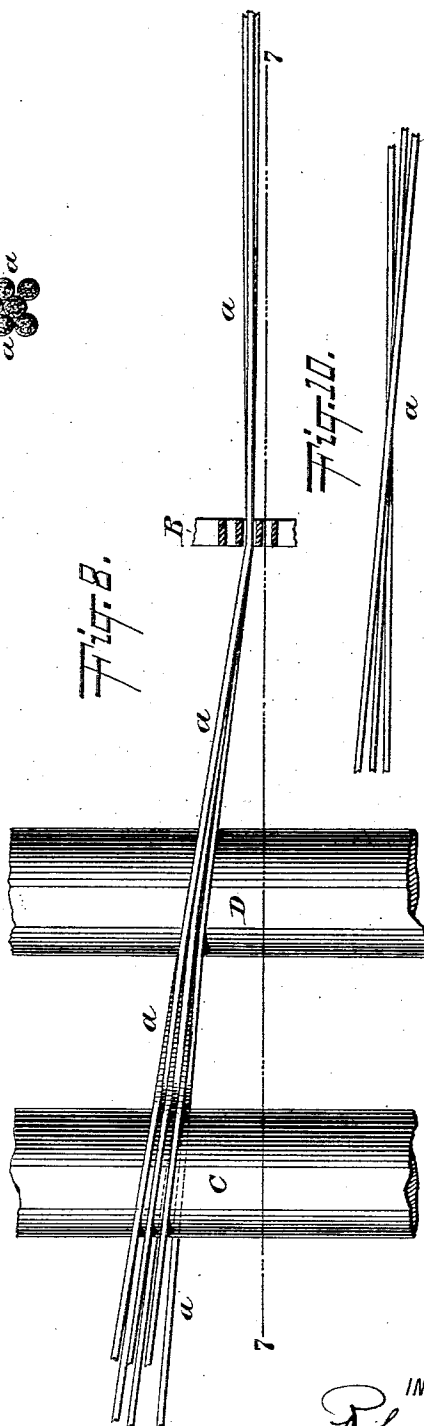
R. SIMON.
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Patented Sept. 12, 1893.



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UNITED STATES PATENT OFFICE.

ROBERT SIMON, OF UNION HILL, NEW JERSEY.

WARPING OR BEAMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 504,791, dated September 12, 1893.

Application filed December 30, 1891. Serial No. 416,548. (No model.)

To all whom it may concern:

Be it known that I, ROBERT SIMON, a resident of Union Hill, Hudson county, and State of New Jersey, have invented an Improvement in Warping or Beaming Machines, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof, in which—

Figure 1 represents a vertical section, on the line 1—1, Fig. 3 of my improvement in warping or beaming machines. Fig. 2 is a vertical section of a similar character of the warping or beaming machine as heretofore in use and over which my invention is intended to be an improvement. Fig. 3 is a plan or top view of my improved machine. Fig. 4 is a detail vertical section, on an enlarged scale, of the spreading-reed and the bars in front and behind the same, as embodied in my invention; and Fig. 5 is a top view, partly in section, thereof. Fig. 6 is a cross-section on the line 6—6, Fig. 5, of the threads as they are delivered by my machine. Fig. 7 is a vertical section, on an enlarged scale of the old arrangement of warping or beaming machines, over which my invention is intended as an improvement. Fig. 8 is a top view, partly in section, of said old arrangement. Fig. 9 is a cross section through the threads as delivered by the old warping or beaming arrangement, the line 9—9, Fig. 7, indicating the plane of section; and Fig. 10 is a detail side view, showing the warp-threads as they used to be delivered by the old construction of warping or beaming machinery heretofore in use.

This invention has for its object the spreading and separation of the warp-threads after they pass out of the dents of the spreading-reed, so that they will be laid upon the beam side by side and in proper order, instead of being bunched or twisted as in the arrangement over which my invention is intended as an improvement.

The invention consists mainly in placing the spreading-reed between two bars at varying distances or elevations over and under which bars the warp-threads pass and so that they must cross after leaving the spreading-reed.

It also consists in other details of improve-

ment that are hereinafter more fully described.

Referring more particularly to Figs. 2, 7 and 8 of the drawings, which illustrate the warping or beaming contrivances which I seek to improve,—that is to say, warping and beaming contrivances as now in use,—it will be seen that in this old arrangement, A being the beam, B the spreading-reed, and C D two bars placed behind the spreading-reed in a proper support or bracket E, the warp-threads *a*, passing alternately over and under the bar C and alternately over and under the bar D, cross between said bars, and before they are delivered to the dents of the spreading-reed B. After leaving the spreading-reed on their way to the beam A, they become bunched or heaped in a manner indicated in Fig. 7 and by cross section in Fig. 9, and in this bunched or heaped condition they are wound upon the beam A. In consequence of this bunching or heaping of the warp threads on the beam, they are delivered to the weaving mechanism irregularly, and this leads to frequent breaks and consequent stoppages of the loom,—a difficulty which has caused me great inconvenience and which I have endeavored to overcome with complete success.

My improvement, which will be best understood from an inspection of Figs. 1, 4 and 5, consists mainly in placing in the rear and in the front of the spreading-reed B, bars F and I so located as to distance of contact surfaces that the warp-threads *a a* passing over and under them cross in front of the reed B. The spreading-reed B, is preferably pivoted at *b* to the supporting frame G, so that it can be inclined to a greater or less degree, and is combined with an adjusting screw *d* (see Fig. 1) by means of which the degree of inclination and consequently the distance of the reed B from the bar F can be regulated at will. The spreading-reed B is of the ordinary construction. The threads as they come from the crossing-reed H (see Fig. 1) are passed through the spreading-reed B, and then cross, and reach the beam A in a thoroughly unbunched condition, as clearly indicated in Figs. 5 and 6, instead of reaching the beam in the bunched condition represented by Fig. 9. This is accomplished by crossing

the threads after they leave the spreading-reed. It appears from Figs. 5 and 6 that the threads 1, 3 and 5 pass over the bar I and under the bar F while the threads 2, 4 and 6 pass under the bar I and over the bar F, all said threads passing through the same dent of the spreading-reed and crossing after leaving the same, so that they reach the beam in a substantially parallel condition, the width of the mass of thread laid on beam A being determined by the reed B. The threads 1, 3, 5 may come from one source of supply, and the threads 2, 4, 6 from another, in which case the bar I could be dispensed with. It will be seen that by properly locating the bars I and F, the crossing of the threads can be made to take place after the reed has been passed but before the bar F is reached. In Fig. 4 this is accomplished by making the bar I larger than the bar F, but the same result is attained when bars of like size are placed at varying distances from the reed.

It is quite evident that when the warp-threads are regularly and evenly distributed over the beam of a loom, the resulting fabric will not be streaky, whereas if the warp-threads are delivered in bunches on the beam, the resulting fabric will be streaky, and that many breaks in the warp will be obviated by the even location of the warp-threads on the beam. The bunching of the threads represented in Fig. 9, which caused so much difficulty under the old arrangement of parts, resulted from the fact that the threads which pass in the same dent of the reed ran together in that dent of the reed and became laid one over the other, or bunched together. Threads thus bunched can not be laid flat on the drum or roller (beam), but will become intermingled or twisted, and threads that do not run straight on the beam will twist or stick together with others and will not separate properly when

the shed is opened in the loom, thus causing the breaks and streaky goods to which I have already referred.

In order to lay the threads that run together in a dent of the spreading-reed upon the drum or beam in the same order or nearly so in which they pass the crossing-reed H, I produce the cross in the threads as represented in Fig. 4, between the bars F and I, and after said threads have passed the spreading reed B and before they reach the bar F.

Having now described my invention, what I claim is—

1. In a warping or beaming apparatus the combination of the spreading-reed B with the bar F placed in front thereof, means, substantially as described, for supplying thread to opposite sides of the bar F, and with the beam or drum A placed in front of said bar, all arranged to insure the crossing of the warp-threads as they issue from the spreading-reed, substantially as herein shown and described.

2. In a warping and beaming machine, the combination of the separator bars F and I over and under which the threads are adapted to pass and a reed B placed between said bars, substantially as and for the purposes described.

3. The combination of the spreading-reed B and the drum or beam A, with the bar F interposed between said spreading-reed and said drum, and with the bar I placed behind said spreading-reed, said bars I and F being so proportioned that the threads of the warp must be crossed before they reach the bar F, and after they pass the spreading reed, substantially as herein shown and described.

ROBERT SIMON.

Witnesses:

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