(No Model.) 2 Sheets—Sheet 1.

W. ORR.

LOOM FOR WEAVING WIRE FABRIC.

No. 563,613. Patented July 7, 1896.

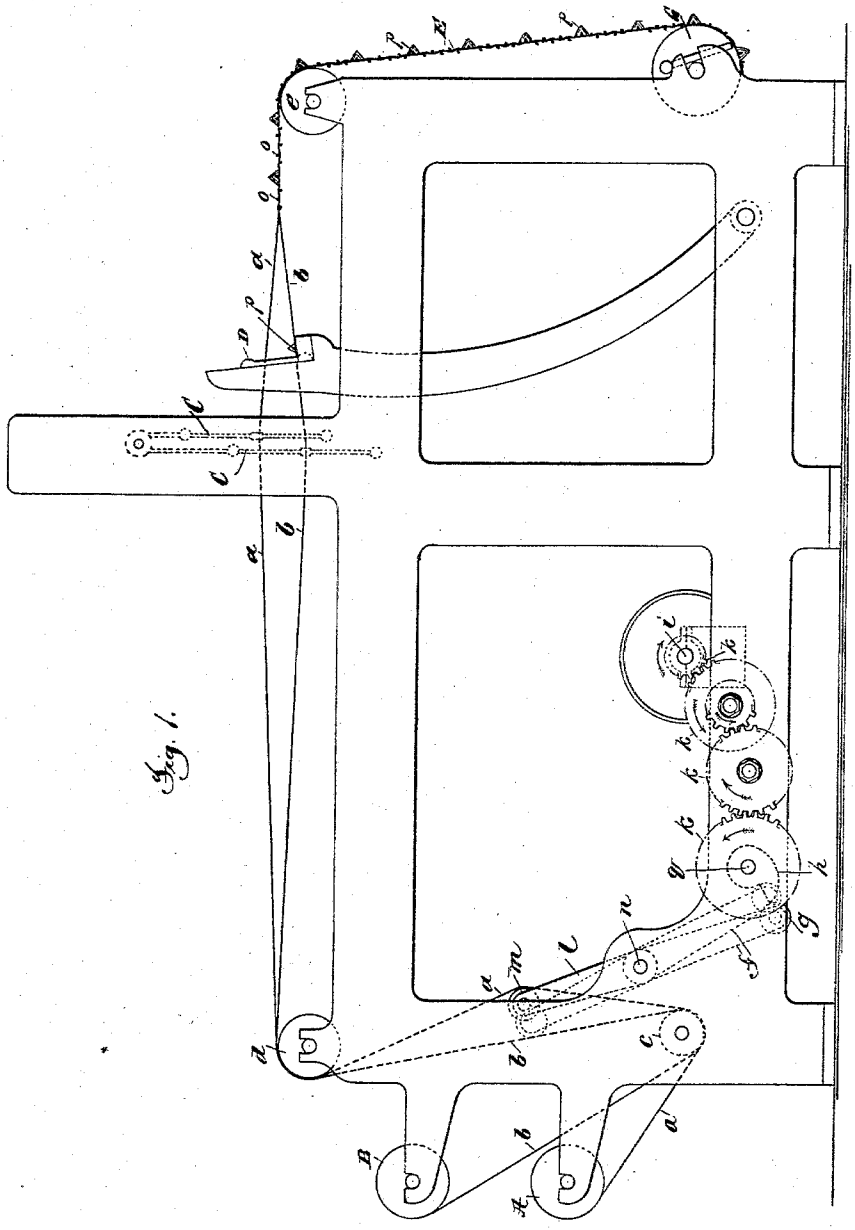

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

W. ORR.

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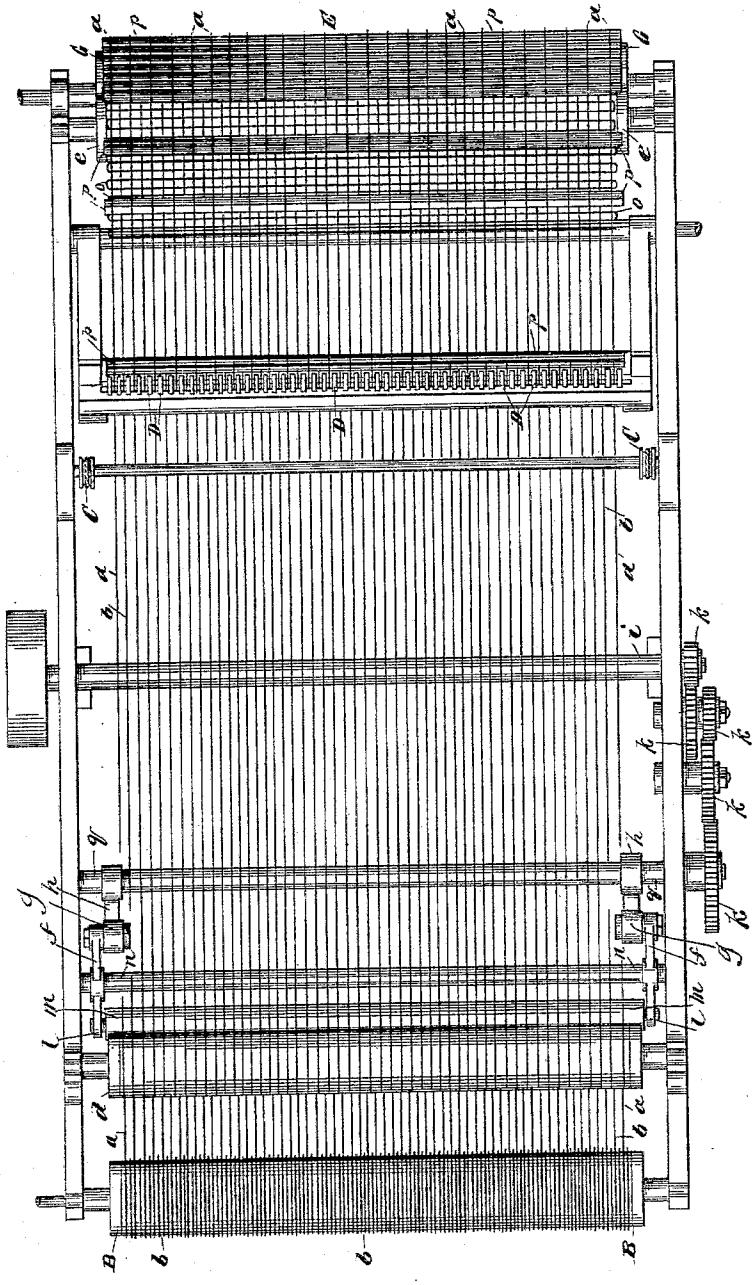
Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM ORR, OF TRENTON, NEW JERSEY, ASSIGNOR TO THE NEW JERSEY WIRE CLOTH COMPANY, OF SAME PLACE.

LOOM FOR WEAVING WIRE FABRIC.

SPECIFICATION forming part of Letters Patent No. 563,613, dated July 7, 1896.

Application filed September 28, 1887. Serial No. 250,927. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ORR, a citizen of the United States, residing at Trenton, county of Mercer, and State of New Jersey, have invented certain new and useful Improvements in Looms for Weaving Wire Fabric, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to an improvement in looms for weaving wire fabric for lathing of the kind shown and described in the United States Letters Patent No. 320,163 heretofore granted to me. In using this fabric in many situations it is desirable that the metal bars which are introduced between the meshes of the fabric should be caused to project wholly upon one side of the fabric, leaving the other side smooth and flat. To accomplish this result it is necessary that in weaving the fabric the warp-wires, which, at the time the bars are introduced into the shed, are upon that side of the fabric from which the bars are to project, should, as each bar is introduced, be let off sufficiently to accommodate that bar, while at the same time the warp-wires upon the opposite side of the bar are held rigid.

The present invention relates particularly to a mechanism for effecting this periodical letting off of one part of the warp-wires, and as a full understanding of the invention can be best given by an illustration and a detailed description of the improvements as embodied in a loom, such description will be given, reference being had to the accompanying drawings, in which—

Figure 1 is a side view, and Fig. 2 a plan view, of the parts of an ordinary loom, showing the improvements constituting the present invention applied thereto.

Referring to said figures, it is to be understood that A B represent two ordinary warp-beams, upon which the warp-wires *a b* are wound in the usual manner, one-half the wires being wound upon each beam. From the beams A B the warps *a b* pass beneath a guide-roll *c*, thence upward over a second roll *d*, and forward through the heddles C and and reed D, which are of the usual construction and are operated in any of the usual ways. The shuttle carrying the weft-wire *o*, which is not shown, is also operated in the usual manner. The fabric E passes over a roll *e* and downward to the take-up roll G. The take-up roll G is provided with any suitable form of take-up mechanism, by which it is operated to take up the fabric at the proper speed, and the beams A B are provided with suitable frictional let-off mechanisms, which permit the warps to be let off as the fabric is taken up by the roll G, but maintains the warps at the proper tension. These mechanisms are not shown herein, as they are well known in the art.

Located between the rolls *c d* and extending across the loom is a roll *m*, which is mounted in the ends of a pair of levers *l*, which are fulcrumed upon a shaft *n* with their lower arms *f* in position to be engaged by a pair of cams *h*, mounted upon a shaft *q*, which is connected by a train of gears *k* with the main driving-shaft *i* or with any other suitably-driven part. The cams *h* are formed abrupt on one side and inclined on the other, so that for a portion of their revolution they operate to gradually rock the levers *l* and move the roll *m* inward and then allow the levers and roll to quickly resume their normal position.

The warp-wires from one of the beams— the warps *b*, in the case shown—pass directly from the roll *c* to the roll *d*, while the warps *a*, from the other beam, pass inside of the roll *m*. From this it results that as the roll *m* is moved inward by the rocking of the levers *l* a certain amount of the warps *a* is drawn off the beam A in excess of what is taken up by the take-up roll D, so that when the roll *m* is allowed to resume its normal position the warps *a* are left slack to the extent of the extra amount thus drawn off.

The gearing *k* is so timed that the roll *m* is moved inward and outward once for each one of the bars *p* which are introduced into the fabric, and the heddles C are so timed in their movements that the warps *a*, which pass around the roll *m*, are carried to that side of the fabric from which the bars *p* are to project just before or at the time that the cams *h* allow the roll *m* to return to its normal position, so as to leave the wires *a* slack.

The operation of the mechanism thus or-

ganized is as follows: The loom being set in motion, the weaving will proceed in the usual manner, and as it proceeds the cams *h* will gradually rock the levers *l* and move the roll *m* inward, so that by the time the point is reached at which one of the bars *p* should be introduced into the fabric the roll will be in its innermost position, as shown by full lines in Fig. 1, and the bowls *g* at the ends of the levers *l* will be just ready to pass over the abrupt portions of the cams *h*. When the roll *m* arrives in this position, the warps *a* will be in their raised position, as also shown in said figure. When the parts are in this position, one of the bars *p* is inserted in the shed in front of the reed, as shown, and as the reed moves forward the heddles reverse the position of the warps *a b*, and at the same time the bowls *g* pass over the abrupt portions of the cams *h*, thus allowing the roll *m* to return to its normal position, as shown by the dotted lines in Fig. 1, so as to slacken the warps *a*. The slack thus given to the warps *a* will be sufficient to accommodate the bar *p*, and the warps *b* being at the same time held taut, the bar will project wholly from one side of the fabric, leaving the other side smooth and flat, as shown. The weaving will then proceed in the usual manner, and the operation will be repeated as each bar *p* is introduced.

The warp-wires *a b*, instead of being wound upon beams, as in the case shown, may of course be wound upon bobbins.

What I claim is—

1. In a loom for weaving wire fabric having bars inserted between the warp-strands at intervals, the combination with the heddles, reed and warp-beams, of means for drawing off and slackening up an extra amount of the warp-strands on one side of the shed when a bar is to be inserted, whereby the bars project wholly on one side of the fabric, substantially as described.

2. In a loom for weaving wire fabric having bars inserted between the warp-strands at intervals, the combination with the heddles, reed and warp-beams, of means for gradually drawing off an extra amount of the warp-strands on one side of the shed and quickly giving out said extra amount so drawn off to produce slack when a bar is to be inserted, whereby the bars project wholly on one side of the fabric, substantially as described.

3. In a loom for weaving wire fabric having bars inserted between the warp-strands at intervals, the combination with the heddles, reed and warp-beams, of the fabric roll *m* over which one set of the warp-strands pass, and a cam or cams and connections for operating said roll to draw off an extra amount of the warp-strands on one side of the shed when a bar is to be inserted, whereby the bars project wholly on one side of the fabric, substantially as described.

4. In a loom for weaving wire fabric having bars inserted between the warp-strands at intervals, the combination with the heddles, reed D, warp-beams A, B, and take-up roll G, of the roll *m* about which one set of warp-strands are carried, levers *l* carrying said roll, and a cam or cams *h* engaging and actuating said levers to draw off an extra amount of the warp-strands passing around said roll, said cams being formed abrupt on one side and inclined on the other so as to gradually draw off the warp and quickly give up the same when a bar is to be inserted, whereby the bars project wholly on one side of the fabric, substantially as described.

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

WILLIAM ORR.

Witnesses:
A. D. CARNAGY,
J. A. COREY.