

(No Model.)

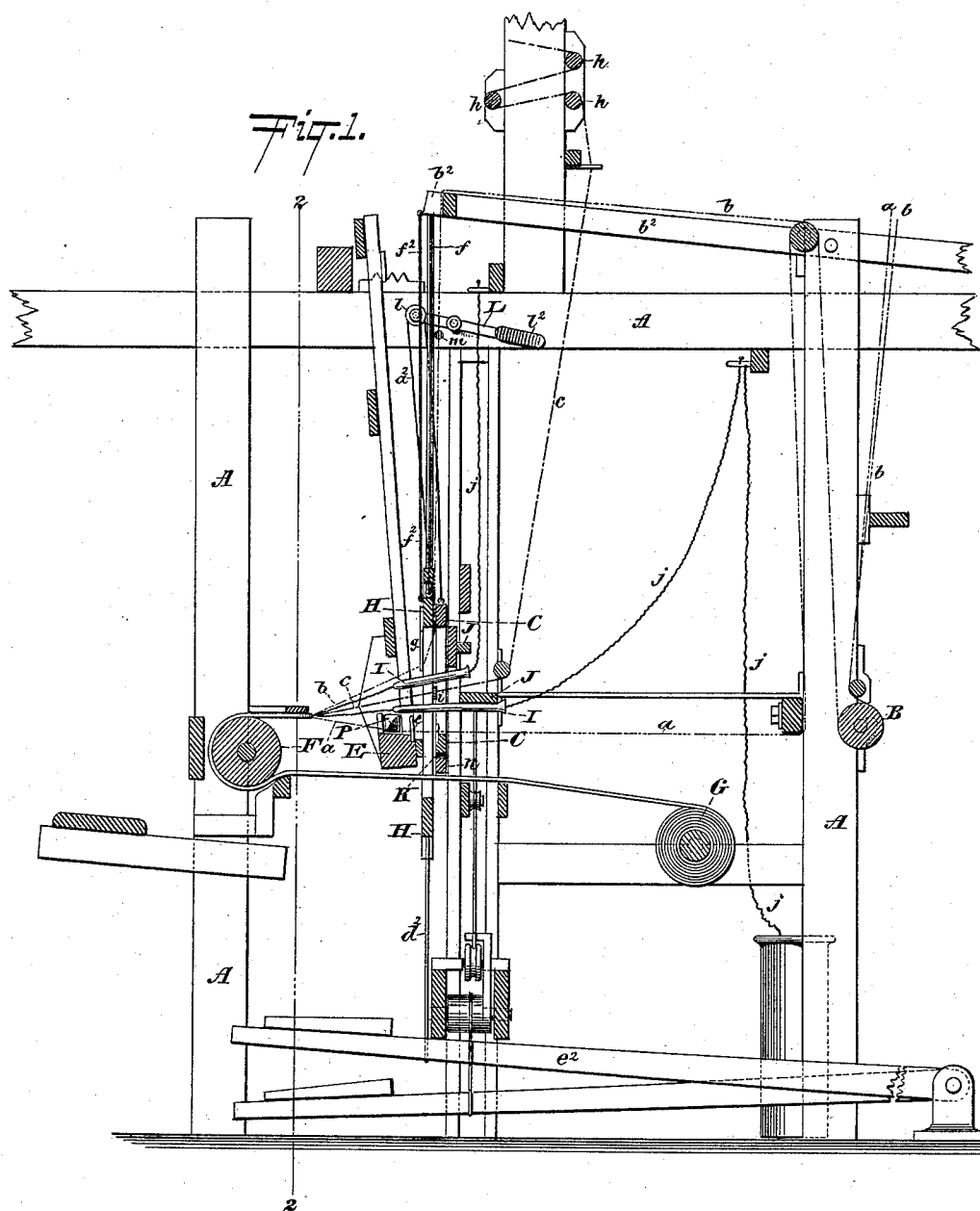
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A. URBACH.

LOOM FOR WEAVING ORNAMENTAL FABRICS.

No. 474,882.

Patented May 17, 1892.



WITNESSES:

WITNESSES:
Gustave Dietrich.
L. M. Wachschlager.

L. M. Wachschlager.

INVENTOR

Alvill Urbahn

BY

Brier & Trench
his ATTORNEYS.

his ATTORNEYS.

(No Model.)

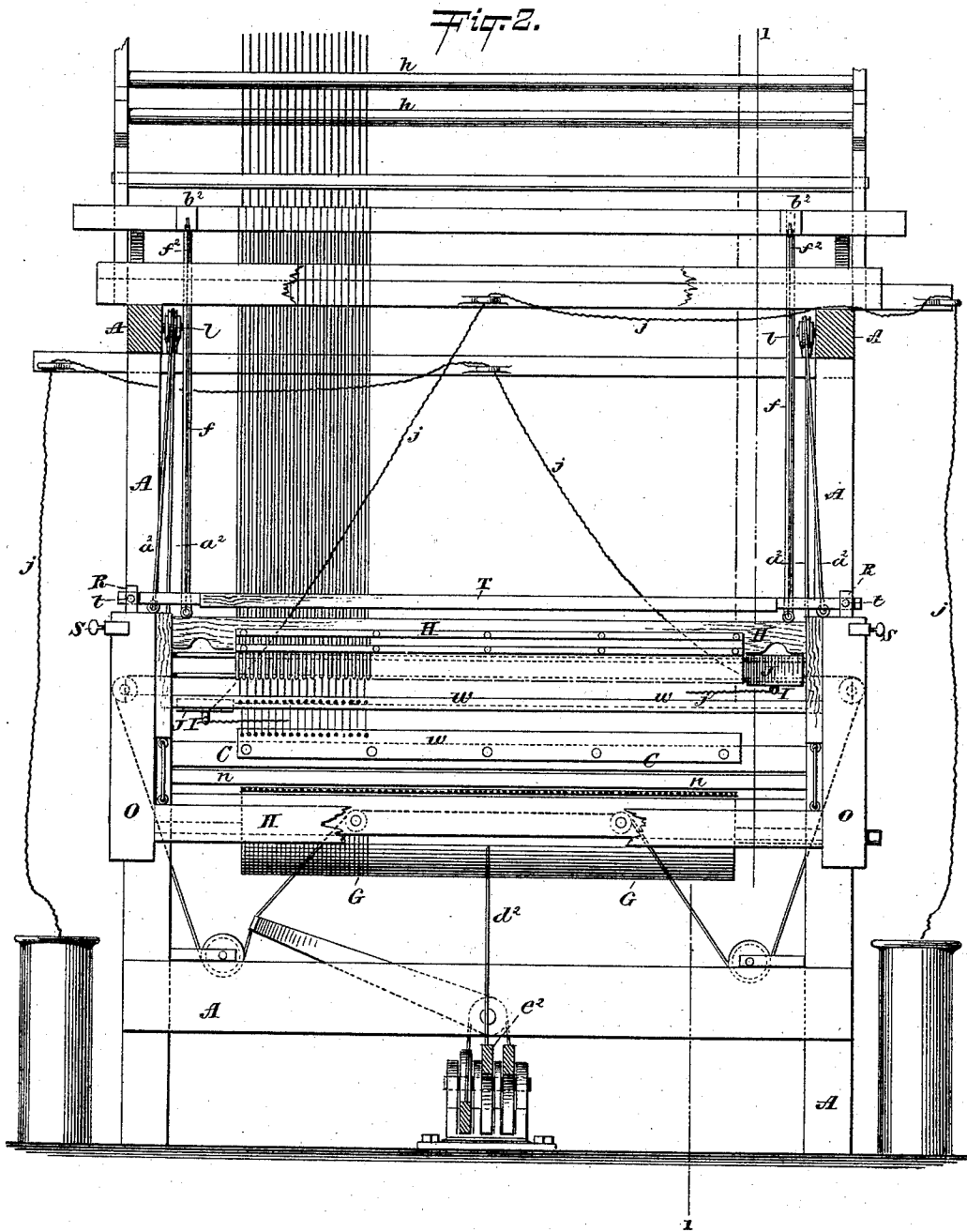
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A. URBAHN.

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Patented May 17, 1892.



WITNESSES:
Gustave Dietrich
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(No Model.)

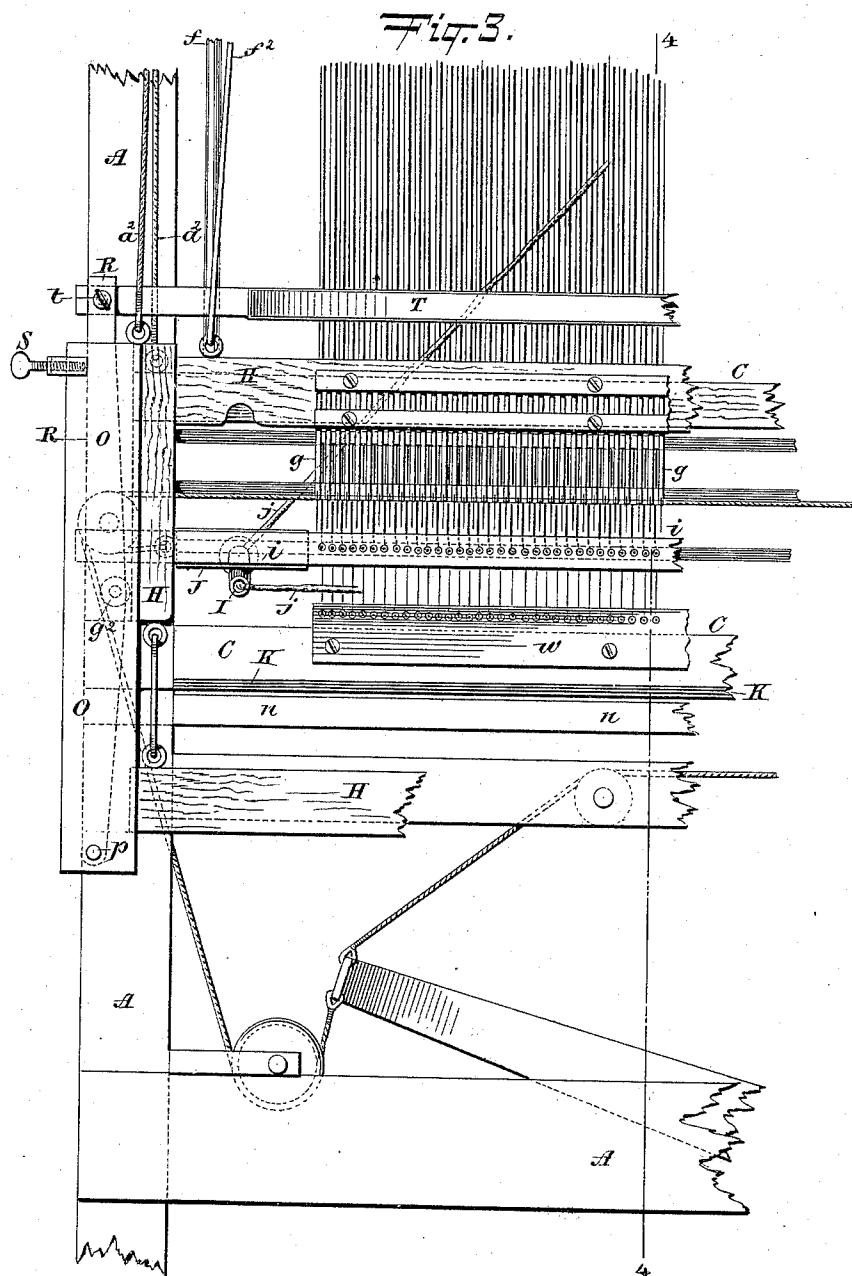
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A. URBACHN.

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WITNESSES:

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A. URBANH.

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Fig. 4.

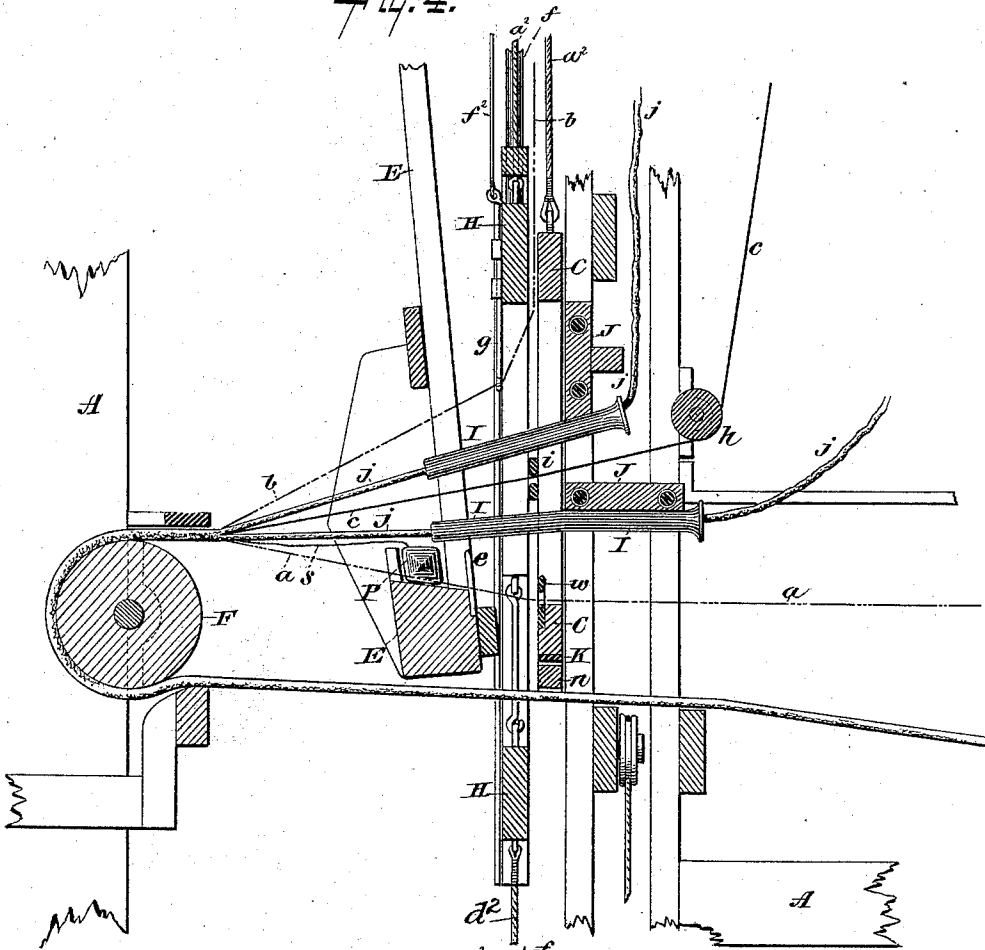
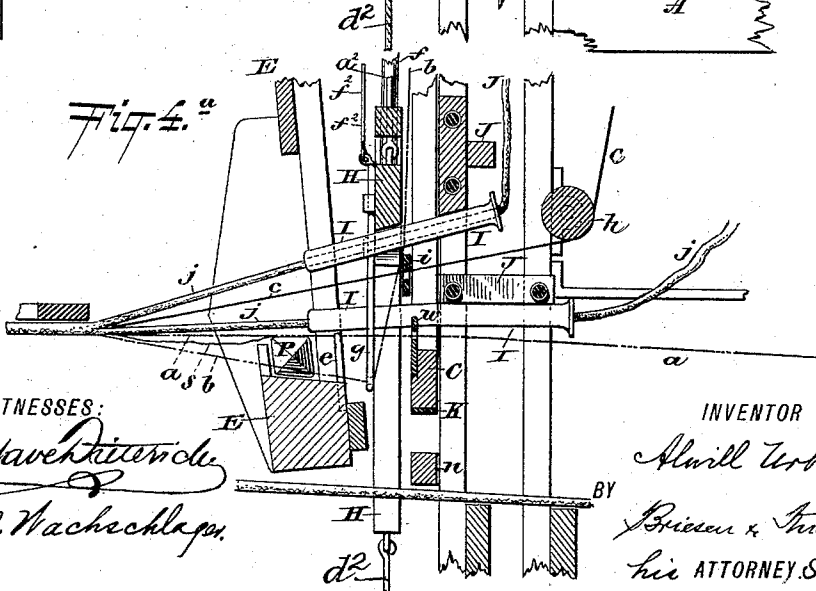


Fig. 4.^a



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(No Model.)

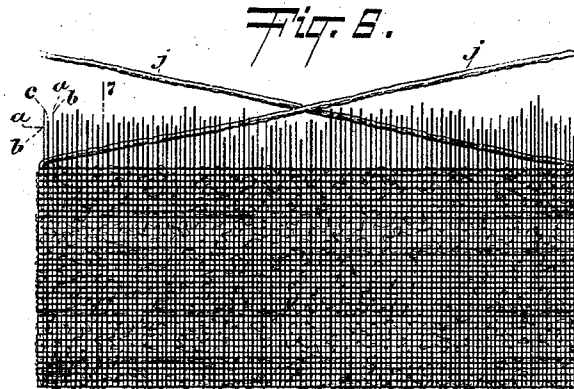
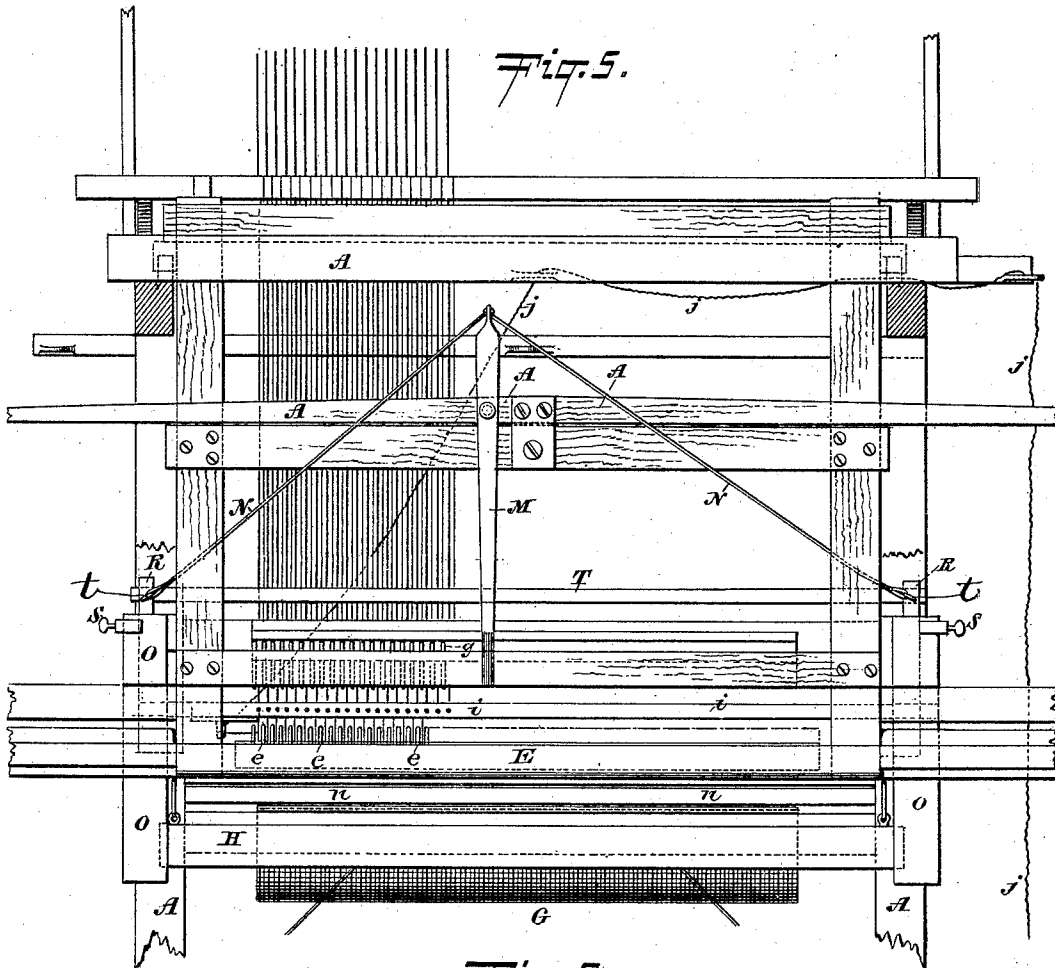
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A. URBAHN.

LOOM FOR WEAVING ORNAMENTAL FABRICS.

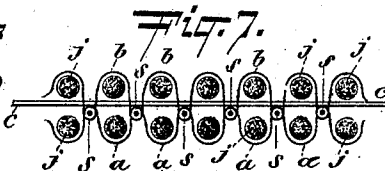
No. 474,882.

Patented May 17, 1892.



WITNESSES:

Gustav Reichel
L. M. Hachschlager



INVENTOR

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his ATTORNEYS.

(No Model.)

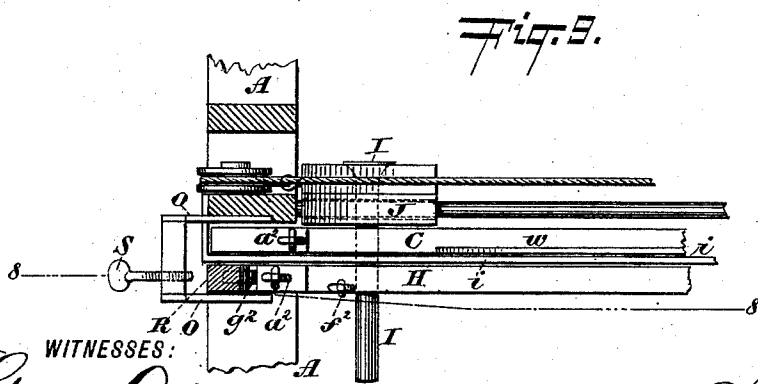
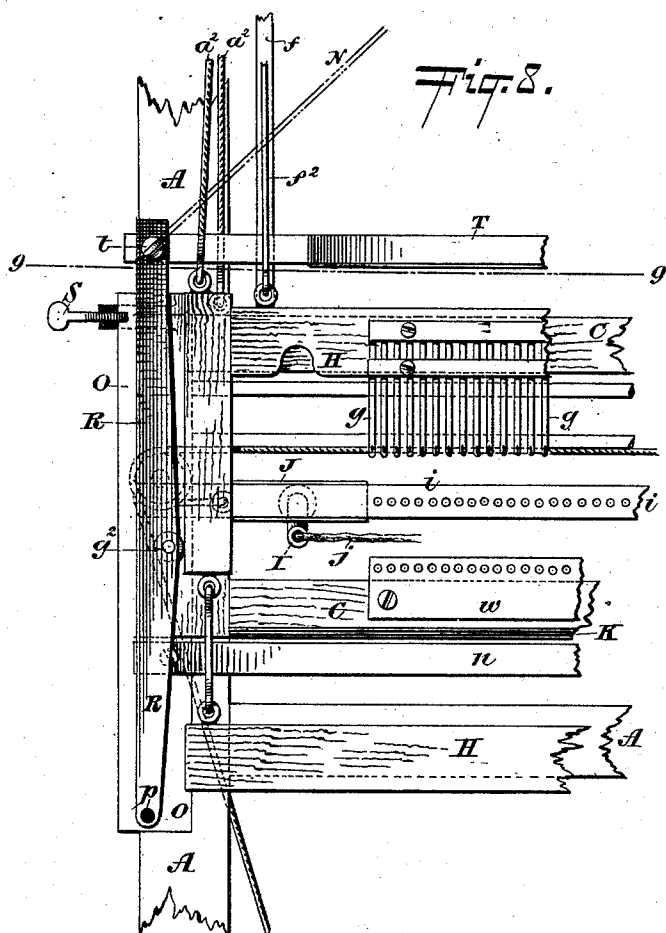
6 Sheets—Sheet 6.

A. URBACH.

LOOM FOR WEAVING ORNAMENTAL FABRICS.

No. 474,882.

Patented May 17, 1892.



WITNESSES:

WITNESSES:  A
Gustav Dietrich.
L. M. Hachickläger.

INVENTOR

Merrill Torkelson,
 BY
 Briesen & Thaworth
 his ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALWILL URBAHN, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE AMERICAN
LOOP FABRIC COMPANY, OF SAME PLACE.

LOOM FOR WEAVING ORNAMENTAL FABRICS.

SPECIFICATION forming part of Letters Patent No. 474,882, dated May 17, 1892.

Application filed May 20, 1891. Serial No. 393,383. (No model.)

To all whom it may concern:

Be it known that I, ALWILL URBAHN, a resident of Brooklyn, county of Kings, and State of New York, have invented an Improvement in Looms for Weaving Ornamental Fabrics, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a vertical section of my improved loom, taken on the line 1 1, Fig. 2. Fig. 2 is a front elevation, partly in section, of the loom, the line 2 2 of Fig. 1 indicating the plane of section. Fig. 3 is a front view, on an enlarged scale, of a portion of the parts shown in Fig. 2. Fig. 4 is an enlarged vertical section on the line 4 4, Fig. 3. Fig. 4^a is a similar view showing part of the mechanism in a different position. Fig. 5 is an enlarged front view of a modification of certain parts. Fig. 6 is a plan view of the fabric produced on the loom. Fig. 7 is an enlarged longitudinal sectional view of said fabric on the line 7 7, Fig. 6. Fig. 8 is an enlarged detail front view of part of the modification; and Fig. 9 is a horizontal sectional view on the line 9 9, Fig. 8.

This invention relates to improvements on looms for weaving fabrics that carry on their faces ornamental cords thoroughly interwoven with other warp and with shuttle-threads.

The invention is an improvement on the loom shown in my patent, No. 289,731, of December 4, 1883, and in my patent, No. 397,156, of February 5, 1889.

The invention consists in the new arrangements and combinations of parts that will be hereinafter more fully described.

In the accompanying drawings, the letter A represents the frame of the loom.

B is a beam or roller, over which the ground-warp or main warp *a b* passes on its way from spools (not shown) to the heddles; but said warp may be taken direct from ordinary warp-beams. The main warp-threads *a* and *b* pass through heddles C H. An intermediate warp-thread *c*, the use of which is hereinafter described, leads from spools (not shown) or from a beam or beams over anti-friction rollers or rods *h* through a perforated guide-bar *i*, which is secured to the loom-frame A. This warp-thread *c* is by preference stouter than the

warp-threads *a b* and is fed into the fabric through the perforations in the guide-bar *i*. The finished fabric produced on this loom passes over a roller F and is finally received on a cloth-beam G.

The heddle C may have a weight K, Figs. 4 4^a, at its lower end, or may be made of sufficient thickness or weight of material to overcome the tension of the warp-thread *a*. In its normal position the heddle C rests (see Fig. 4) on a fixed cross-bar *n* or analogous stop. Cords *a*² lead from the top shaft of heddle C up over pulleys *l*, hung at one end of weighted levers L, (see Fig. 1,) said levers being pivoted to the frame A and having at their other ends the counterpoise *l*². After passing over the pulleys *l*² the cords *a*² lead down and are attached to the top shaft of heddle H. The levers L produce yielding supports *l* for the two heddles, avoiding rigidity and consequent injury to warp-threads.

The heddle H may be balanced by the weighted overhead levers *b*², (weight not shown,) which are connected to heddle H by the cords *f*², Fig. 1. The lower part of the heddle H is connected by the cord *d*² to the treadle *e*², Fig. 2. When this treadle is depressed, it will draw down the heddle H. The cord *a*², instead of now lifting the heddle C, will cause the lever L to tilt until it strikes a check or stop *m*, after which the heddle C will be lifted by the cord *a*², so that when the treadle *e*² is fully depressed the heddles will be in the position shown in Fig. 4^a, and when the pressure on the treadle *e*² is released the heddle C descends and the heddle H ascends, so that the heddles assume the position shown in Fig. 4. Distance-bars *f* are fitted in any well-known manner between the weighted levers *b*² and the top of heddle H to prevent said heddle H and its connected heddle C from making any jump-like motions. The ends of the heddles C and H are guided in suitable boxes or grooved rails O. (See Fig. 9.) The weighted levers *b*² serve by their cords *f*² to properly lift the heddle H and the weighted levers L to keep the cords *a*² from slacking. The warp-threads *a* pass through a perforated plate *w* on heddle C, and thence through the looped teeth *e e* of the reed, which is fastened to the batten E. These looped teeth *e*

are substantially like the open warp-guiding loops *e* of my Patent No. 289,731. The warp-threads *b* pass through the eyes of needles *g* on heddle *H*, and thence between the loops *e* of the reed.

The needle-heddle *H* consists of a heddle-frame having downwardly-projecting pins *g*, which are perforated near their points, and through which perforations the threads *b* are passed.

The warp-threads *c* are always fed into the fabric from the same direction through the bar or guide *i*, while the warp-threads *a b*—one set above and the other set below the intermediate thread *c*—are caused at the proper time to partially change places by depressing treadle *e*², which is connected with heddle *H* by cord *d*². In the normal position the warp-threads are one *b* above the thread *c* and one *a* below the thread *c* and form two sheds, one on each side of warp *c*. (See Fig. 4.)

Through these sheds from the rear, by means of inlay-thread guides *I I*, lengths of looped cord or other ornamental cord *j* are carried. These guides *I I* are attached to reciprocating traversing carriages *J* of the kind shown and described by me in United States Patent No. 397,156, of February 5, 1889, and said guides and carriages move backward and forward, as described in the aforesaid patent. These inlay-thread guides, by preference, starting from opposite sides of the loom after the threads *a* and *b* are in the position shown in Fig. 4 and the sheds are wide open, feed an ornamental or other cord *j* through each of said sheds. These cords *j* form the inlay or faces of the fabric. A shuttle *P*, carrying the weft or shuttle thread *s*, is thrown backward and forward intermittently in the shuttle-box by any usual suitable picker-sticks, laying the shuttle or locking thread *s* at each stroke of the shuttle in the usual manner.

In operation the main warp-threads are first in the position shown in Fig. 4. The cords *j* are then carried through the sheds by the guides *I I*. The batten is then brought up, beating the cords *j* into the fabric. The position of the heddles *H C* is then changed, as shown in Fig. 4^a, so that the threads *a* are above the threads *b* far enough to allow the shuttle *P* to pass under the said threads *a*, while at the same time the threads *b* have been pressed down between the loops *e* in the reed until they rest on the bottom of the shuttle-box in the batten, so as to allow the shuttle to pass over said threads *b*. The shuttle *P* is then thrown through between the threads *a b*, laying the thread *s*. The batten is then brought up, driving the shuttle-thread into the fabric. The threads *a b* are now again allowed to return to their original positions, Fig. 4. Again the cords *j j* are fed through the upper and the lower sheds. The batten brought up, the position of the threads *a b* is then again changed, as above described, the shuttle-thread *s* again thrown through, and so on.

It will be seen from the above that every length of cord *j j* is securely locked between the threads *a*, *b*, and *c* and the shuttle-thread *s* and that the threads *c* are fed straight into the fabric. The longitudinal section of the fabric thus made is shown in Fig. 7, showing the straight warp-thread *c* always above the shuttle-threads *s s* and these shuttle-threads grasped from above by the thread *a* and from below by the thread *b*, the thread *a* running beneath the lower and the thread *b* running above the upper series of ornamental cords *j j*.

The loom, it will be seen, is adapted to weave two similar or dissimilar ornamental cords *j* into the fabric, which may then have different colors on opposite sides. By this method the fabric constructed is of double thickness. In order to make the fabric of single thickness, I make use of only one inlay-thread guide and so feed only one cord *j* into the fabric.

In order to more securely lock said threads or thread into the fabric, I make use of the modification shown in Figs. 5, 8, and 9. The needle-heddle *H* in this modification is set in between the pivoted levers *R R* and adapted to be shifted laterally thereby, so that at every depression of the heddle *H* the threads carried by the needles *g* will be shifted, so as to alternately enter the space between one set of reed-loops *e e* and the next adjoining set of reed-loops, thus causing a zigzag arrangement of the warp-threads *b*. The shuttle-thread is thrown through, in the manner previously stated, to hold the warp-threads and to securely lock in the ornamental cord. In each of the guide-boxes *O* for the heddle *H* are the rollers *g*², carried on upright levers *R*, said levers being pivoted at their lower ends within the guide-boxes *O* by the pivots *p*. Near the upper part of the guide-box *O* is a regulating-screw *S*, bearing against the lever *R* and limiting the play thereof. Fastened to the upper end of the two levers *R* is the shift or distance bar *T*, which serves to keep said levers in uniform position. The end of the distance-bar may be held by a pin *t*, said pin having an eye. To these eyes, or to the top of these levers *R*, are fastened two cords *N*, which lead up to a hand-lever *M*, which is pivoted, as shown in Fig. 5, to the frame *A*. By pushing this lever *M* to one side or the other the rocking levers *R* and bar *T* will be pulled to one side or the other, this lateral displacement of said levers being permitted and regulated by the regulating-screws *S*. Now by pushing in one direction or the other the said rocking levers *R* the heddle *H* will be shifted laterally and will still be allowed to rise and fall by the action of the treadle *e*², since each outer edge of the heddle-frame bears against and slides vertically upon the rollers *g*², Figs. 3, 5, and 8. Thus the threads *b* are laid in zigzag fashion to produce a firmer fabric. It will thus be seen that the lateral movement of the heddle *H* is accomplished by placing it in a frame consisting of the two rocking levers

R R, separated by the shift or distance bar T, and that when the levers R are rocked upon their pivots their heddle H follows their motion. The vertical movement of the heddle H is upon the rollers g^2 upon these rocking levers.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a loom, the combination of the heddle C, having perforated plate w , heddle H, having perforated needles g , and cords a^2 , connecting the upper ends of said heddles with the weighted levers L and pulleys l , over which said cords a^2 pass, the weighted levers b^2 , and cords f^2 , connecting said lever b^2 with the heddle H, treadle connection to the lower end of heddle H, and with the reed-loops e , substantially as herein shown and described.

2. In a loom, the combination of the reed-loops e with the heddle H, having perforated needles g , with the heddle C, having perforated plate w , with means, substantially as described, for changing the position of said heddles, and with ornamental cord-guides I, substantially as specified.

3. In a loom, the combination of the reed-loops e with the heddle H, having perforated

needles g , with the heddle C, having perforated plate w , with means, substantially as described, for changing the position of said heddles, and with the stationary warp-thread guide i , and ornamental cord-guides I, substantially as specified.

4. The combination, in a loom, of vertically-movable heddles C and H, with reed-loops e , the heddle H, having perforated needles g and the heddle C, having perforated thread-guide w , with means, substantially as described, for moving the heddle H laterally, and also with means, substantially as described, for moving both heddles vertically, as specified.

5. The combination, in a loom, of the heddles C H, connected together by cord a^2 , and means, substantially as described, for raising and lowering the same alternately, with the levers R bearing against the ends of the heddle H, cords N, and lever M, said cords connecting said lever M with the levers R, all as and for the purpose specified.

ALWILL URBAHN.

Witnesses:

HARRY M. TURK,
HENRY E. EVERDING.