(No Model.) 2 Sheets—Sheet 1.

R. BEAUMONT & G. WASHINGTON.

LOOM PATTERN MECHANISM.

No. 524,372. Patented Aug. 14, 1894.

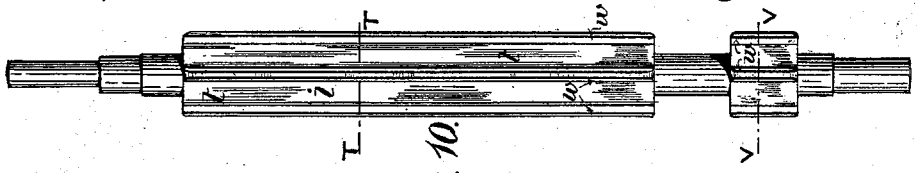

Fig. 10.

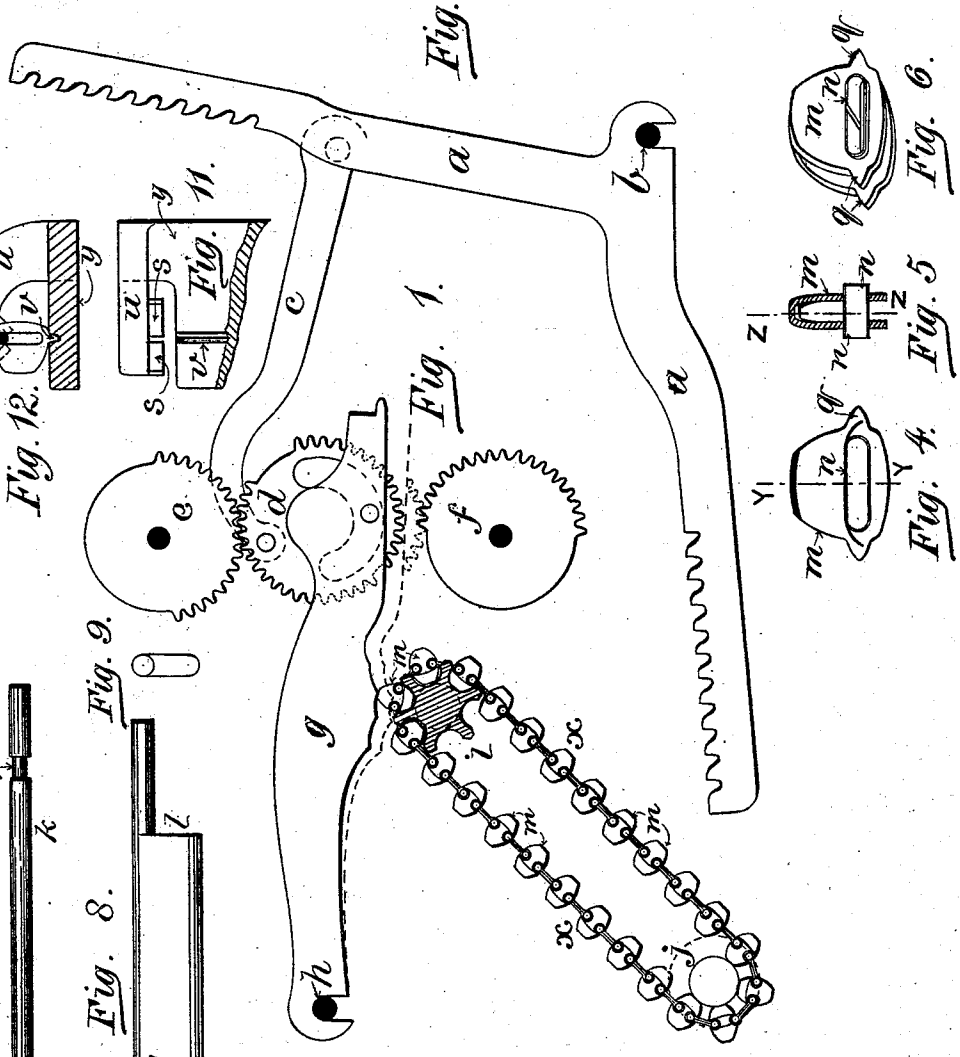

Fig. 1.

Fig. 6.

Fig. 5.

Fig. 4.

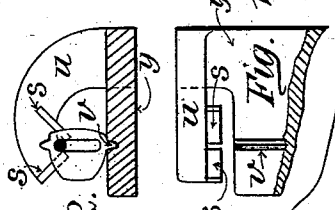

Fig. 12.

Fig. 11.

Fig. 9.

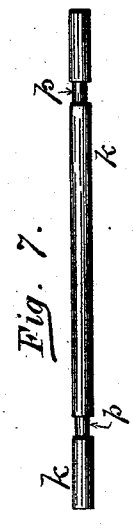

Fig. 7.

Fig. 8.

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(No Model.) 2 Sheets—Sheet 2.

R. BEAUMONT & G. WASHINGTON.

LOOM PATTERN MECHANISM.

No. 524,372. Patented Aug. 14, 1894.

Fig. 2.

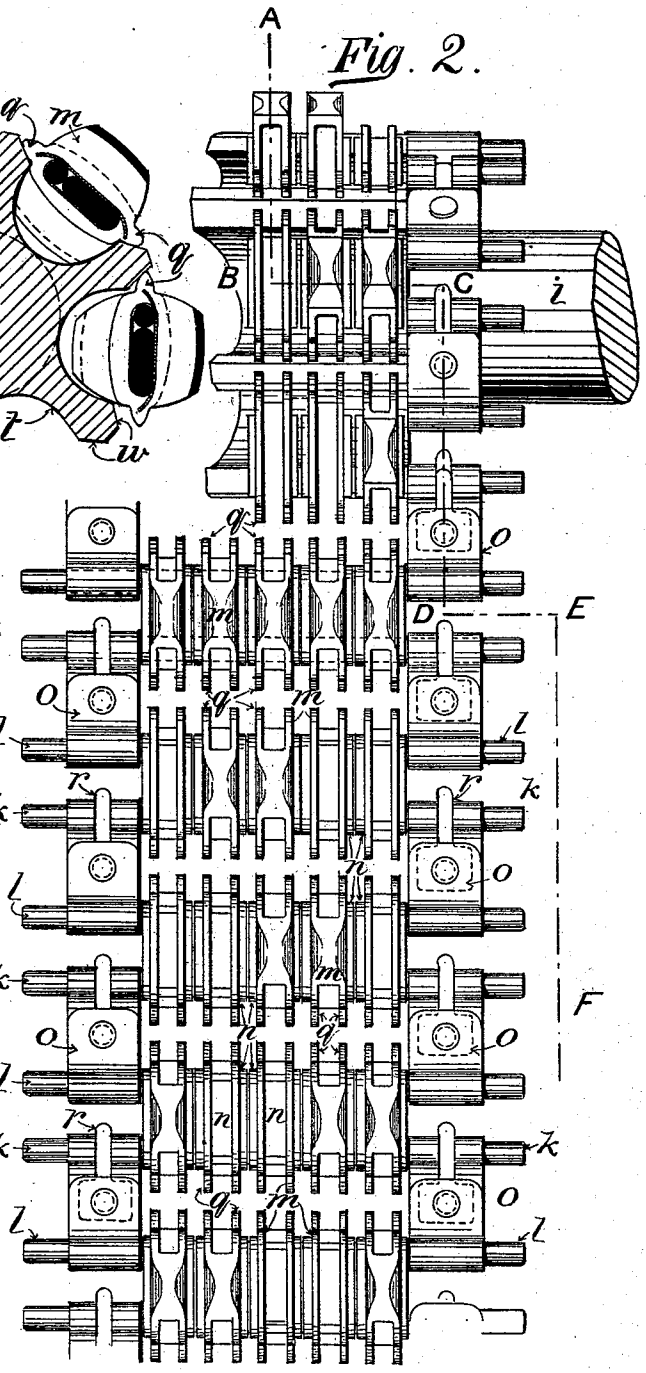

Fig. 3.

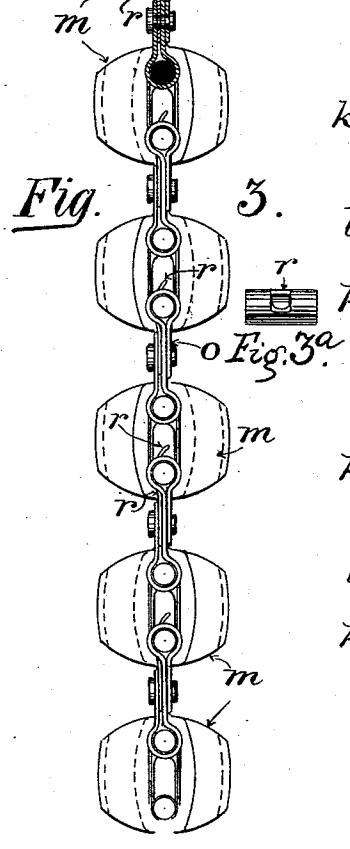

Fig. 3a.

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UNITED STATES PATENT OFFICE.

ROBERTS BEAUMONT AND GEORGE WASHINGTON, OF LEEDS, ENGLAND.

LOOM PATTERN MECHANISM.

SPECIFICATION forming part of Letters Patent No. 524,372, dated August 14, 1894.

Application filed November 16, 1893. Serial No. 491,173. (No model.) Patented in England November 17, 1891, No. 19,906, and June 26, 1893, No. 12,502.

To all whom it may concern:

Be it known that we, ROBERTS BEAUMONT, professor of textile industries, and GEORGE WASHINGTON, assistant lecturer, both of the Yorkshire college of the Victoria University, subjects of the Queen of Great Britain and Ireland, residing at Leeds, in the county of York, England, have invented new and useful Improvements in Loom Pattern Mechanism, (for which we have obtained Letters Patent in Great Britain and Ireland, No. 19,906, bearing date November 17, 1891, and No. 12,502, bearing date June 26, 1893,) of which the following is a specification.

Our invention relates to improvements in the mechanism for regulating or controlling the movement of the levers for actuating the warp and for controlling the motion of the shuttle boxes and picking arms, whereby the pattern in the woven cloth is produced; and is equally applicable for operating dobbies or engines in which bowls and bushes, or lags and pegs, are at present employed.

The object of our invention generally is the construction of the said mechanism in such a manner, that the necessary alterations for producing a fresh design can be readily and rapidly performed, or more particularly, so that any one or more of the lifting pieces or strikers, (hereinafter for the sake of brevity referred to as strikers,) can be readily moved round from an operative to an inoperative position without disturbing the adjacent pieces or strikers. We attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a diagrammatic side view of one arrangement of loom pattern mechanism to which our invention is applied. Fig. 2 is a detailed plan or face view to a larger scale of a portion of our improved pattern chain. Fig. 3 is a side view of the chain with parts in section along the dotted line A B C D E F of Fig. 1. Fig. 3ª is a detail view of one of the connecting links. Fig. 4 is a longitudinal section on line Z Z, Fig. 5, and Fig. 5 is a cross section on line Y Y Fig. 4 of a striker, while Fig. 6 is a perspective view. Fig. 7 is a separate view of one of the cross rods *k k*. Fig. 8 is a plan, and Fig. 9 an end view of one of the cross rods *l l*. Fig. 10 is a view of the chain driving cylinder, the section of which along the line V V or T T is shown more clearly in Fig. 3. Fig. 11 is a plan view and Fig. 12 a side elevation of an end of the frame *y* showing the cantalever upright *u* formed with a V recess or supports *s s* to receive and carry the ends of the fixed rods.

In the said drawings *a a* designate one pair of levers connected with the healds for moving the warp. These levers are hinged on the fixed center *b*, and are moved in one direction or the other by means of the connecting link *c* from the toothed disk crank *d*, according as the toothed disk *d* is in gear with the toothed wheel (or cylinder) *e*, or *f*. The toothed disk *d* carried at the free end of the vibrating lever *g* (hinged on the fixed center *h*), is thrown into gear with wheel *e* by riding the top of one of the strikers *m* of the pattern chain *x x*; or with wheel *f* when the striker is reversed, allowing the lever *g* to drop into the position indicated by the dotted line. The pattern chain is actuated by passing over the rotating fluted cylinder *i*.

j is a stretching or weight cylinder.

Our invention refers to the construction of the pattern chain *x x* and the chain driving cylinder *i*, and may be applied to other arrangements of mechanism than that above described, which has been added merely for the sake of general illustration and reference.

The strikers *m m* consist of small castings, or sheet metal (punched and bent to shape), of approximately triangular or other shape to suit the particular loom, having oblong holes with semi-circular ends. The strikers for the sake of likeness are formed hollow and the oblong holes are preferably lined with a thin strip of sheet metal *n n*, which extends therefrom to regulate the distance apart sidewise of the strikers and to provide bearing surface for the rods *k* and *l*. The rods *l* may be plain cylindrical, but are preferably made oblong in section as illustrated for the sake of strength.

If the removable rod is withdrawn from any row of strikers, the corresponding ends of the strikers will all hang down from the other, fixed, rod, and any one of the strikers may

be lifted up until the fixed rod is at the opposite end of the oblong hole, and the striker is then reversed and allowed to hang down. (Or the striker may be first reversed about the fixed rod, and then allowed to drop until the fixed rod is at the opposite end of the oblong hole.) In this manner any one or more of the strikers may be reversed without detaching the rest. When the reversal is completed, the removable rod is reinserted, and the ends of the same coupled up to the adjacent rod of the chain by the links *o*.

The links *o* may be kept in place on the fixed rods by means of holes and split pins. To lessen the trouble and time required for connecting and disconnecting the links, our invention comprises the improved link connection shown in the accompanying drawings. This consists in turning or forming a recess *p*, Fig. 7, on the fixed rod about the middle of the link end, slitting the upper side of the corresponding (cylindrical) end of the link, see Figs. 2, 3, and 3ª, and fixing a short spring *r* to the link, so as to fit in the slit and the aforesaid recess *p*. The end of the spring *r* is allowed to project slightly, so that the spring can be readily lifted out of the recess when it is desired to remove one of the side links preparatory to withdrawing one of the removable rods.

In order to take the strain between the vibrating levers *g* and the strikers *m* off the rods *k* and *l*, we form the strikers with projections *q*, and the chain driving cylinder *i* with shoulders or ridges *t*, having corresponding beveled edges or resting faces *w*, on which the projections *q* rest.

To facilitate the alteration of the pattern chain, we provide a flat rectangular bar or frame *y*, the length of the same being suited to the width of the chain. The frame *y* is provided at each end (see Fig. 11 plan and Fig. 12 side elevation) with a cantalever upright *u* formed with a V recess or supports *s s* to receive and carry the ends of the fixed rods. The bed or frame *y* is also provided with a groove *v*, running its whole length, in which groove the projections *q* of the strikers fit. On detaching the link *o* the row of strikers with the fixed and removable rods is transferred to the frame, the ends of the fixed rod resting on the V supports *s s* and the projections *q* of the strikers in the groove *v*. The removable rod *l* is then withdrawn, and any one or other of the strikers can be lifted and reversed in the manner above described, without disturbing any of the other strikers. The removable rod is then replaced, and the row of strikers can be returned to the chain.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of lifting pieces or strikers *m*, having oblong holes, with two rods *k* and *l*, the latter of which is removable, passing through each hole which is adapted by its oblong shape to allow the reversal of one or more of the strikers, when rod *l* is removed, without detaching the rest, and side links *o* connecting the ends of the said rods with the ends of the adjacent rods of the next adjacent rows of strikers respectively, the whole combination forming a pattern chain substantially as set forth.

2. The combination of lifting pieces or strikers *m*, having oblong holes, with two rods *k* and *l*, the latter being removable, passing through said holes, which are adapted by their oblong shape to allow the reversal of one or more of the strikers, when rod *l* is removed in the manner and for the purpose set forth.

3. The connecting links *o* provided with slits and with springs *r* adapted to be fixed in the slits, in combination with rods *k*, which are recessed near the ends to be engaged by said springs, said links being adapted to fit on the said rods, substantially as and for the purposes set forth.

4. The lifting pieces or strikers *m*, having oblong holes and projections *q* and distance pieces *n*, lining the oblong holes of the said strikers and extending laterally therefrom, substantially as set forth or shown, for the purposes specified.

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Witnesses:
J. CLARK JEFFERSON,
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