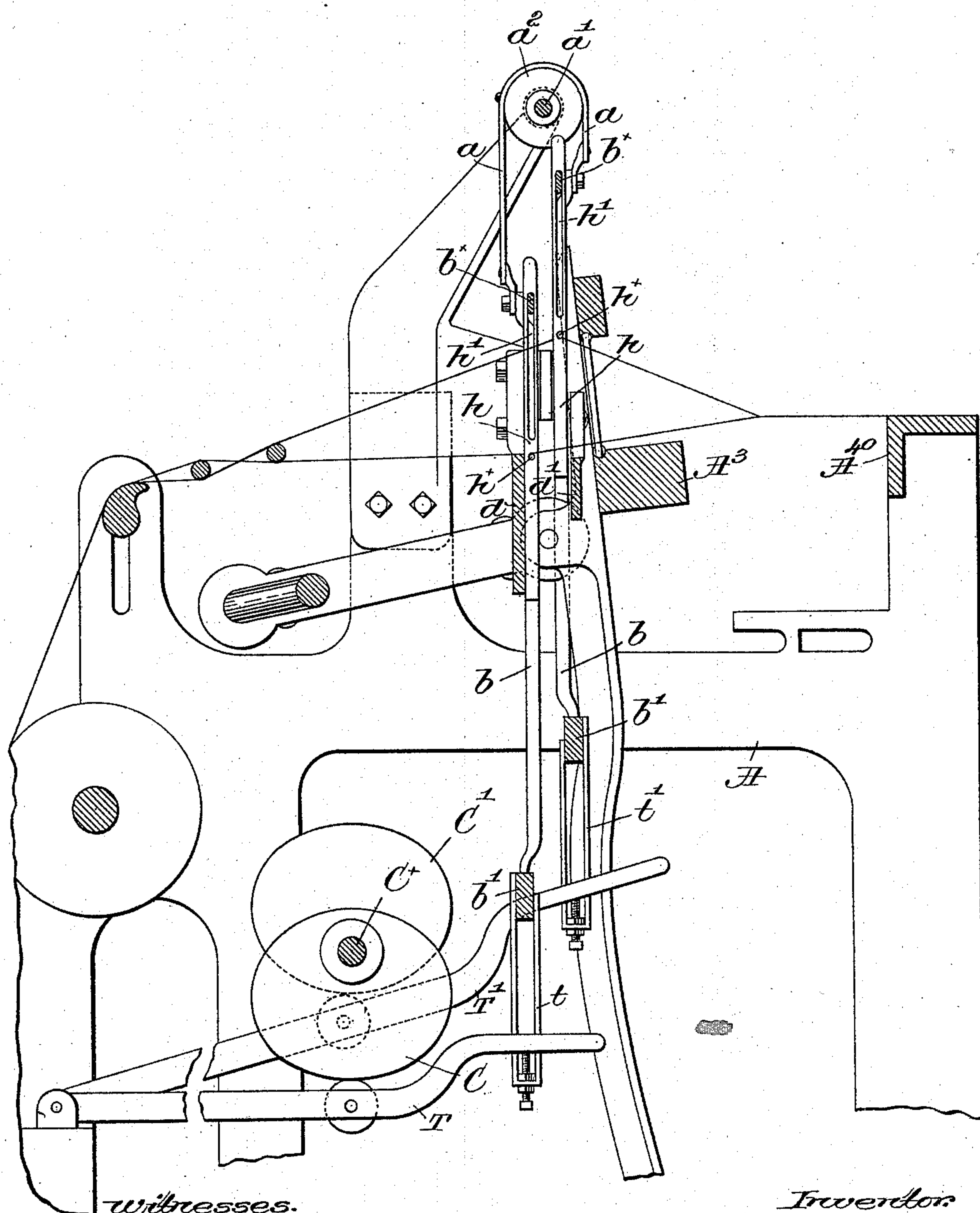


(No Model.)

G. A. DRAPER.
LOOM.

No. 573,264.

Patented Dec. 15, 1896.



Witnesses.
Fred S. Grumbaf.
Edward F. Allen.

Invention
George A. Draper
by Leroy Gregory. *clays.*

UNITED STATES PATENT OFFICE.

GEORGE A. DRAPER, OF HOPEDALE, MASSACHUSETTS, ASSIGNOR TO THE
NORTHROP LOOM COMPANY, OF SACO, MAINE.

LOOM.

SPECIFICATION forming part of Letters Patent No. 573,264, dated December 15, 1896.

Application filed August 24, 1896. Serial No. 603,678. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. DRAPER, of Hopedale, county of Worcester, State of Massachusetts, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to looms, and more particularly to that class of loom wherein a series of longitudinally-slotted heddles are mounted upon a transverse bar of the harness-frame; and it has for its object the production of a heddle or harness mechanism wherein the heddles are positively raised by the ascent of the heddle-frame, but descend by gravity, the heddle-frame in its descent having no effect upon the heddles.

The figure is a transverse sectional view of a sufficient portion of a loom to be understood with my invention applied thereto.

The loom-frame A, breast-beam A⁴⁰, lay A³, the treadles T and T', actuated by cams C and C' on the lower or cam shaft C^x for reciprocating the heddle-frames, the latter being connected by means of the flexible straps a, shaft a', and sheaves a² thereon, are and may be all as usual or well known in looms.

Each harness or heddle frame comprises side bars b, bottom bars b', connected by suitable links t t' to the treadles, and transverse top bars b^x (herein shown as of greater depth than thickness) to enter elongated slots h' in the upper ends of the heddles h.

The heddles, as shown, are preferably made of flat thin strips of metal, provided each with a warp-receiving eye h^x, substantially of the general character of the heddles shown and described in United States Patent No. 536,968; but the slots h' herein shown are made longer than the length of traverse of the heddle-frame or its transverse bar b^x. When the said frame is raised, the transverse supporting-bar engages the upper ends of the heddle-slots h', positively raising the heddles and lifting their warp-threads into the upper plane of the shed, but when the frame descends the heddles will descend by gravity, inasmuch as the slots h' are longer than the traverse of the cross-bar b^x, so that it will not strike the bottom of the heddle-slots. This

obviates all harmful action on the yarn sometimes caused by positive depression of the heddles and permits the lower plane of the shed to assume such tension as is automatically adapted to each individual warp-thread, instead of subjecting them all to the same amount of depression in a rigid, unyielding manner.

Transverse guides d d', arranged in front and rear of the series of heddles and extending from one to the other side of the loom, control the heddles and prevent undue movement laterally, the upper edge of the rear guide d also serving to support the warps in the lower plane of the shed.

I have not herein shown any stop-motion mechanism to be governed in its operation by a dropped heddle, as, for instance, in the United States patent referred to; but it will be obvious that my invention may be used equally well in conjunction with such mechanism.

My invention is not restricted to the precise form of heddle herein shown, as the shape or form thereof is not essential so long as the heddles are raised positively and descend solely by gravity and the tension of the warps.

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

1. A heddle-frame provided with a transverse supporting-bar, and a series of longitudinally-slotted metallic heddles through which the bar is extended, the slots in the heddles being longer than the traverse of the frame, whereby the heddles will be positively raised by said bar and will be lowered by gravity, substantially as described.

2. A heddle-frame provided with a transverse supporting-bar, and a series of longitudinally-slotted, flat metallic heddles each having an eye for the reception of a warp-thread, the slot in each heddle through which the supporting-bar is extended being longer than the traverse of the frame, whereby the heddles will descend by gravity to move the warps into the plane of the shed, substantially as described.

3. In a loom, a heddle-frame having a transverse supporting-bar, a series of one-piece, stiff metallic heddles having each a thread-

eye and a slot near its upper end, to receive
said bar, said slots being longer than the
traverse of the frame, whereby the heddles
will be positively raised by said bar and will
5 descend by gravity, and means to positively
reciprocate the frame, substantially as de-
scribed.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

GEORGE A. DRAPER.

Witnesses:

GEORGE OTIS DRAPER,
H. F. SEARLES.