

(No Model.)

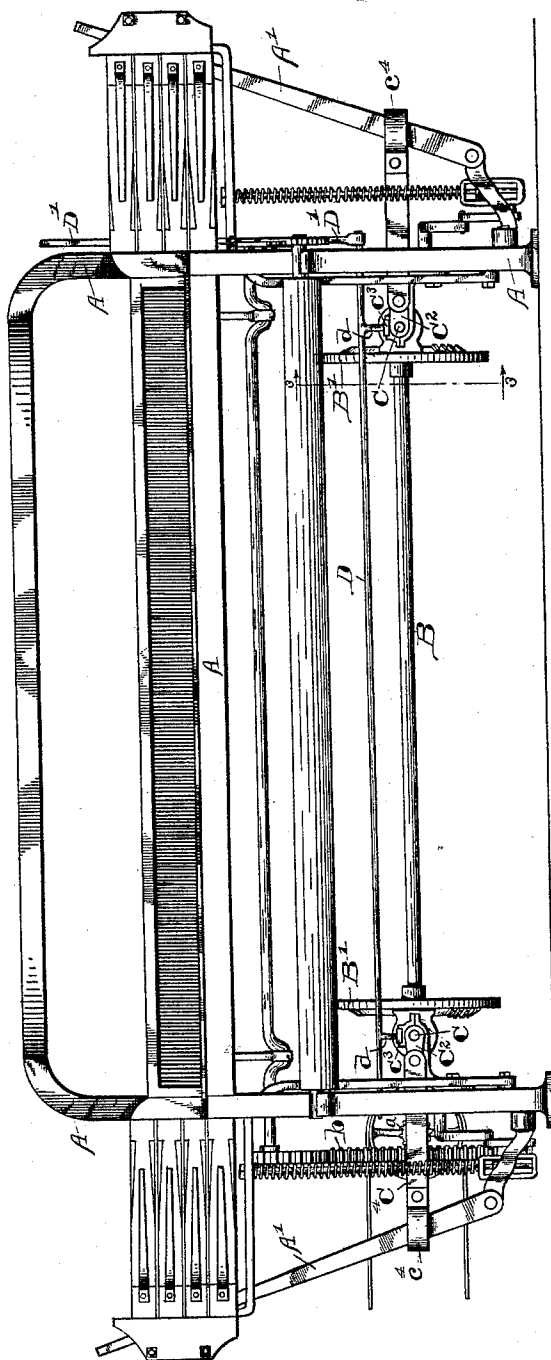
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T. J. CORCORAN.
LOOM.

No. 476,918.

Patented June 14, 1892.

Fig. 1.



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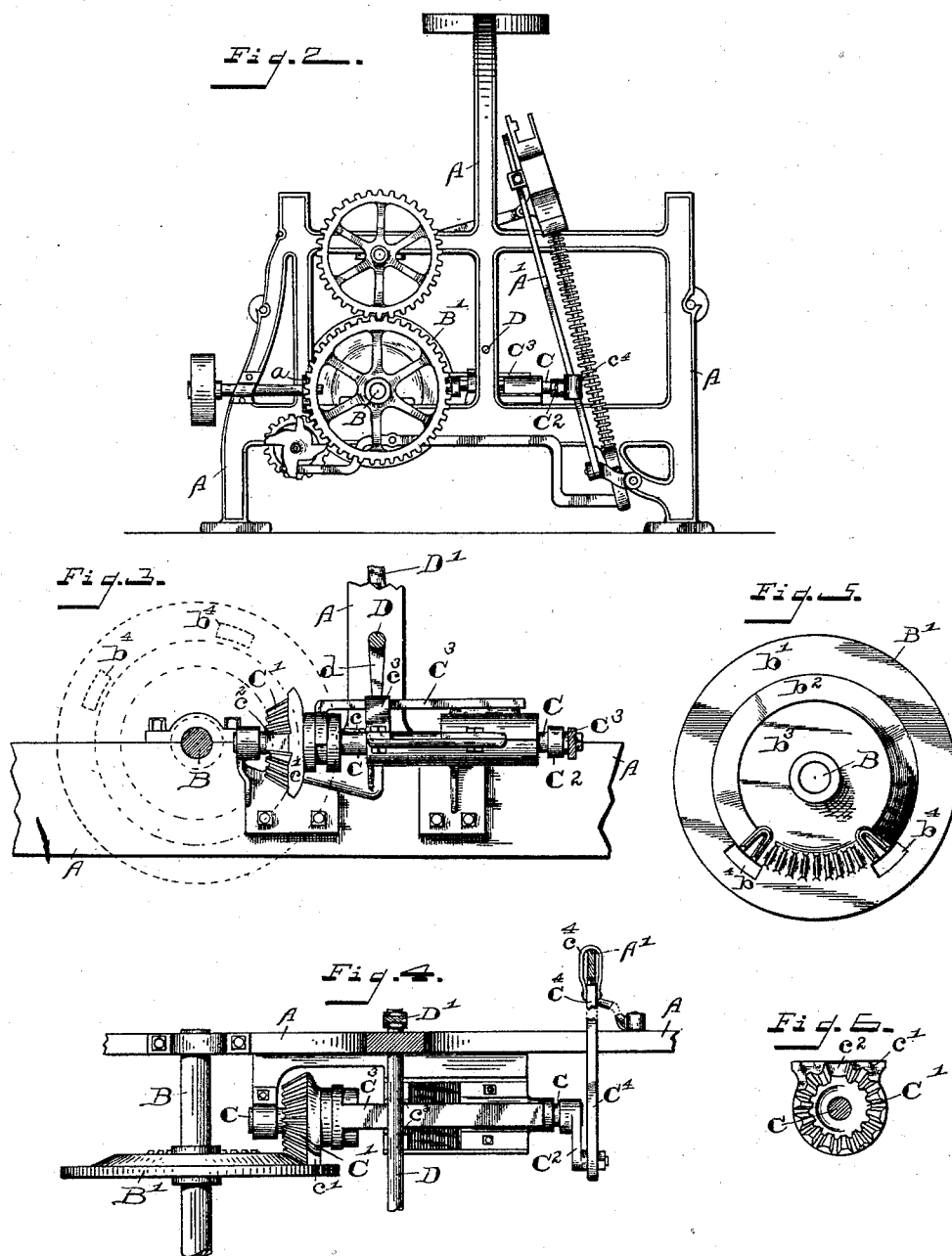
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UNITED STATES PATENT OFFICE.

THOMAS J. CORCORAN, OF PERU, INDIANA.

LOOM.

SPECIFICATION forming part of Letters Patent No. 476,918, dated June 14, 1892.

Application filed February 27, 1892. Serial No. 422,997. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. CORCORAN, a citizen of the United States, residing at Peru, in the county of Miami and State of Indiana, have invented certain new and useful Improvements in Looms, of which the following is a specification.

My said invention consists in an improved construction and arrangement of mechanism for operating the lever which throws the shuttles of looms, whereby the construction is simplified and rendered more positive and perfect in operation, all as will be hereinafter more particularly described and claimed.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters of reference indicate similar parts, Figure 1 represents a front elevation of a loom embodying my said invention; Fig. 2, an elevation of the left-hand end thereof; Fig. 3, a detail vertical section, on an enlarged scale, as seen when looking in the direction indicated by the arrows from the dotted line 3 3 in Fig. 1, the large gear-wheel adjacent to said dotted line being indicated by dotted lines to permit the parts beyond it to be seen more clearly; Fig. 4, a top or plan view of the portions shown in Fig. 3; Fig. 5, a plan view of the face of the gear-wheel B', and Fig. 6 a similar view of the gear-wheel C'.

In said drawings, the portions marked A represent the frame of the loom; B, the shaft carrying the gear-wheels for operating the shuttle-throwing mechanisms; C, the crank-shafts with which the shuttle-throwing levers are connected and by which they are operated, and D a rock-shaft connected with shifting mechanism for throwing the gear-wheels into and out of engagement with each other.

The frame A and all the portions of the loom other than those used to throw the shuttles are or may be of any well-known or desired construction and arrangement, and needs no special description herein.

The shaft B is journaled longitudinally of the frame in suitable bearings, and is driven by a gear-wheel a on the power-shaft through a gear-wheel b , which is secured upon one of its ends and meshes therewith. Near each end it carries a gear-wheel B' of the form shown in Figs. 4 and 5, the inner face of each of which is divided into three surfaces b^1 , b^2 ,

and b^3 . The outer portion b^1 has a straight smooth surface, the middle portion b^2 has a beveled surface provided with a segment of cog-gearing, and the inner portion b^3 is a straight plain surface, or may be in the form of a spider, if preferred, the hub for securing it to the shaft being formed in the center thereof. Just at the ends of the cogged segment and at the inner edge of the surface b^1 a slot b^4 is formed, for a purpose which will be presently described.

The crank-shafts C are journaled in suitable bearings transversely of the frame, one near each end, in proximity to the wheels B', and each has a gear-wheel C' upon one end and a crank C² upon the other. Each of said gear-wheels C' is mounted upon its said shaft by means of a spline c , (see Fig. 3,) and has an elongated hub with a circumferential groove, with which a shifting-fork C³ engages. Each is arranged so as to mesh with the geared segment of the adjacent wheel B', being formed with the same number of cogs as said segment contains, which extend nearly around said wheel. Upon one side is formed a flange c' with a straight edge and projecting corners, and on the same side for a short space the cogs are omitted, leaving a smooth beveled surface c^2 . A pitman-rod C⁴ is journaled at one end to the crank-pin of the crank C² on the outer end of said shaft C, and upon its other end is provided with a loop c^4 , of rawhide or other suitable material, which surrounds the shuttle-throwing lever A', said loop being preferably formed of flexible material such as described, for the purpose of permitting it to better accommodate itself to the various motions of said lever, while at the same time holding it in a substantially tight embrace.

The rock-shaft D is journaled in suitable bearings longitudinally of the frame and back of the gear-wheel C', and substantially above each shaft c it is provided with a downwardly-extended finger d , which engages loosely in a suitable seat or slot formed in the stem of each shifting-fork C³, said connection being preferably made with said fork directly above the seat c^3 , in which the stem of said fork slides. A lever D' is mounted on one end of said rock-shaft, by which it is operated, to throw the gear-wheel C' into or out of engagement with the gear-wheel B', as desired.

The operation of my said invention is as follows: The several parts being in the position shown in the several figures, which is the position they occupy just after the cogged segment of one of the wheels B' has left its engagement with its adjacent wheel C', and the shaft B, carrying said wheels B', being in continuous motion, the straight edge of the flange c' of said wheel C' slides around upon the inner edge of the portion b' of the inner face of said wheel B', the smooth beveled portion c² resting upon the beveled portion b². In this position the wheel B' turns around, holding the wheel C' and the shaft C from turning until the front corner of the flange c' reaches the slot b⁴ in the wheel B', which is adjacent thereto, which corner, engaging with said slot, starts the wheel C' in motion, the cogs of which then mesh with the cogged segment of the portion b², giving said wheel C' a complete revolution and throwing the shuttle-throwing lever back and forth once. At the other end of the segment the other corner of said flange c' drops into the other slot b⁴ and turns the straight edge of said flange and the smooth portion c² into a position where they will rest firmly upon the portion b' and the smooth part of the portion b² of the wheel B' and support said wheel C' from turning until said wheel B' has again revolved to bring the segment around into position to engage with said wheel C', as before. At every revolution of said wheel C', as will be readily understood, the crank C², through the pitman-rod C⁴, operates to throw the shuttle-operating lever A' forward and then back again, which throws the shuttle in the usual manner and returns the lever to the position ready for another operation. By this means a positive motion of said lever A' is at all times secured and a very simple device provided.

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

1. Mechanism for operating the shuttle-throwing lever of looms, which consists of a shaft geared to suitable power, a wheel mounted thereon, having a beveled surface in its face provided with a geared segment, a transverse shaft having a gear-wheel with a straight or widened portion upon one side, which gear-wheel is arranged to mesh with the geared

segment of the other wheel and be operated thereby and then be held by said straight side from turning during the rest of the revolution of said other wheel, a crank on said shaft, and a pitman-rod running from said shaft to said shuttle-throwing lever, substantially as set forth.

2. In a device for operating the shuttle-throwing levers of a loom, the combination, with the shaft B, geared to suitable power and carrying the wheels B', each of which is formed with a beveled surface b² in its face, having a geared segment therein, and a slot b⁴, formed at each end of said segment, of the shafts C, journaled in suitable bearings, one adjacent to each of said wheels B', the wheels C', mounted on said shafts C and each formed with a flange c upon one side, the edge of which is straight, and a beveled smooth portion c² upon the same side, said wheels C' being arranged to mesh with the segments of said wheels B' and be operated thereby, substantially as described, the cranks C², also mounted on said shafts C, and the pitman-rods C⁴, each connected at one end to the crank-pin of one of said cranks and at the other end to one of the shuttle-throwing levers, substantially as set forth.

3. In a device for operating the shuttle-throwing levers of looms, the combination of the shaft B, geared to suitable power, a wheel B', formed substantially as described, mounted thereon, a shaft C, a wheel C', formed substantially as described and mounted thereon to engage and be operated by said wheel B', a crank C² on said shaft C, the pitman-rod C⁴, connected to said crank at one end and to the shuttle-throwing lever at the other, the rock-shaft D with a downwardly-extending finger d, which engages with a suitable seat in the stem of a shifting-fork C³, and said shifting-fork engaging with a circumferential groove in the hub of the wheel C', all substantially as set forth.

In witness whereof I have hereunto set my hand and seal, at Peru, Indiana, this 22d day of February, A. D. 1892.

THOMAS J. CORCORAN. [L. s.]

Witnesses:

EDWARD E. REILLY,
JOHN W. O'HARA.