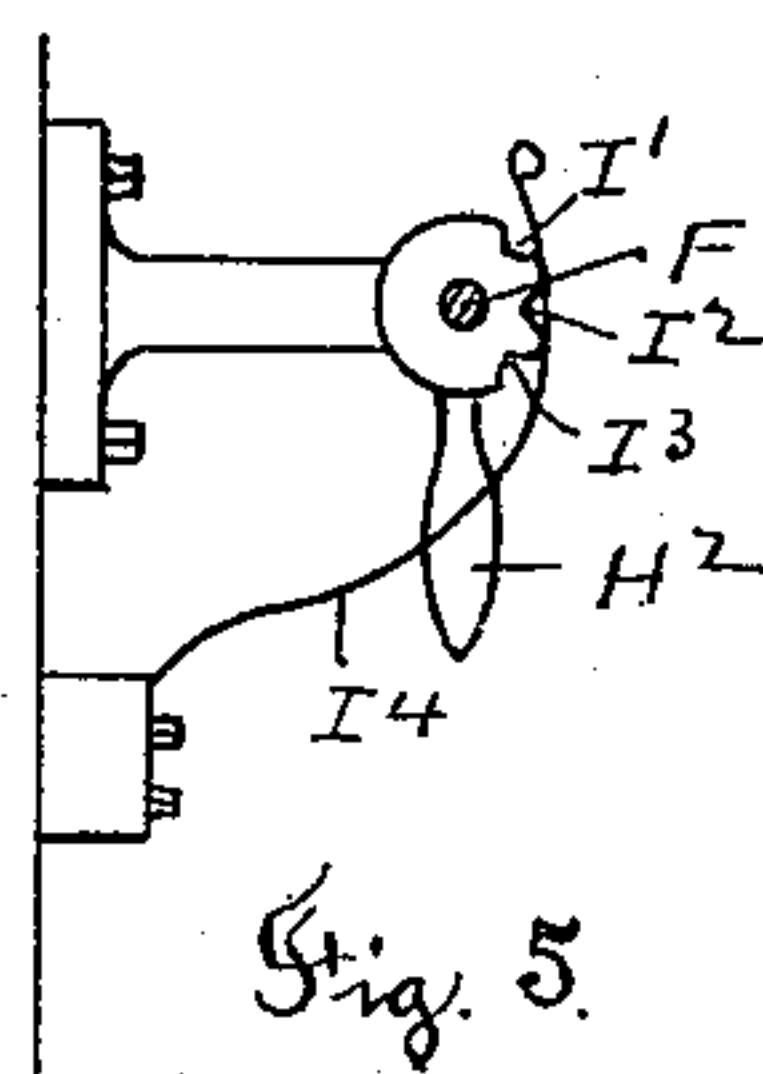
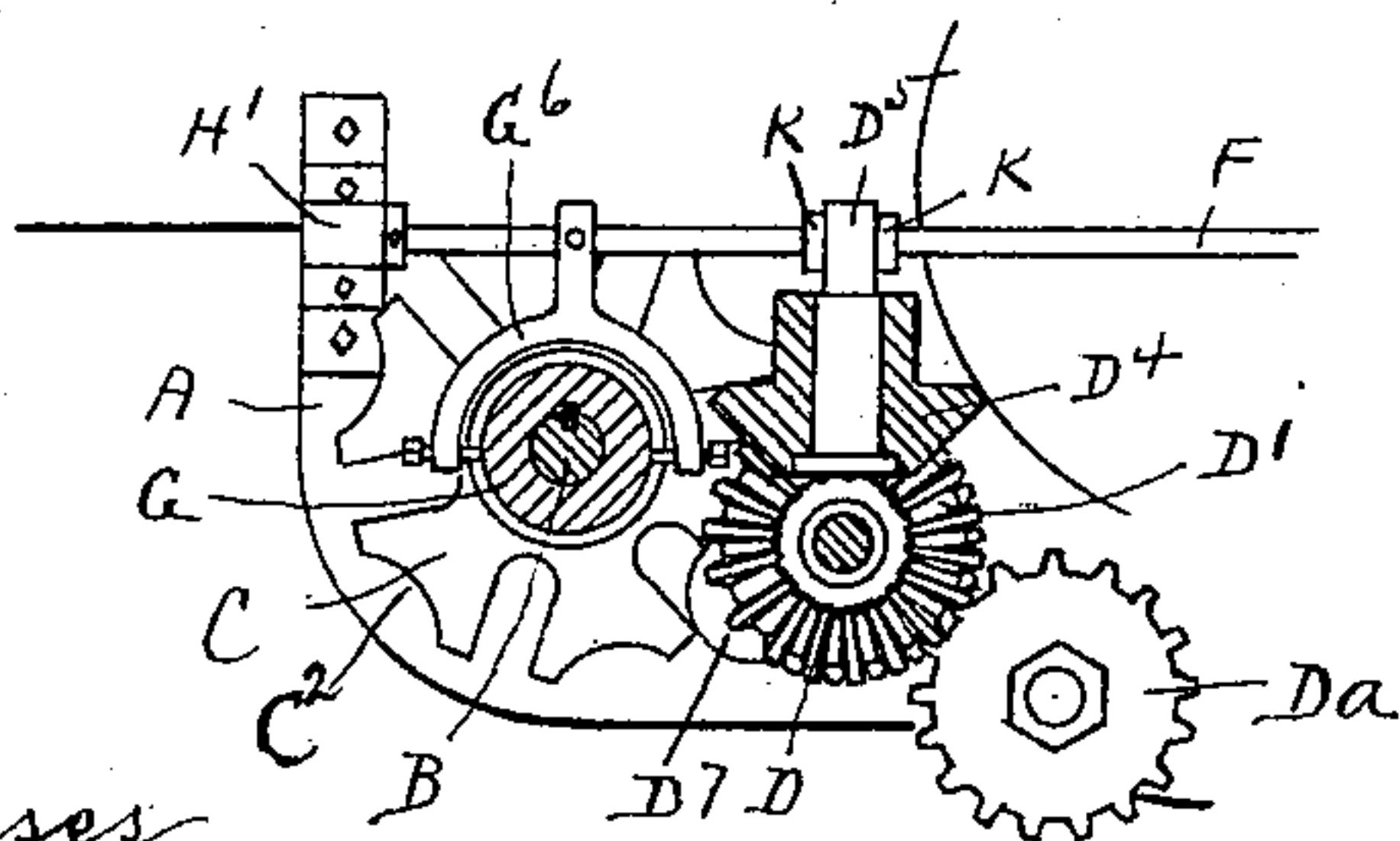
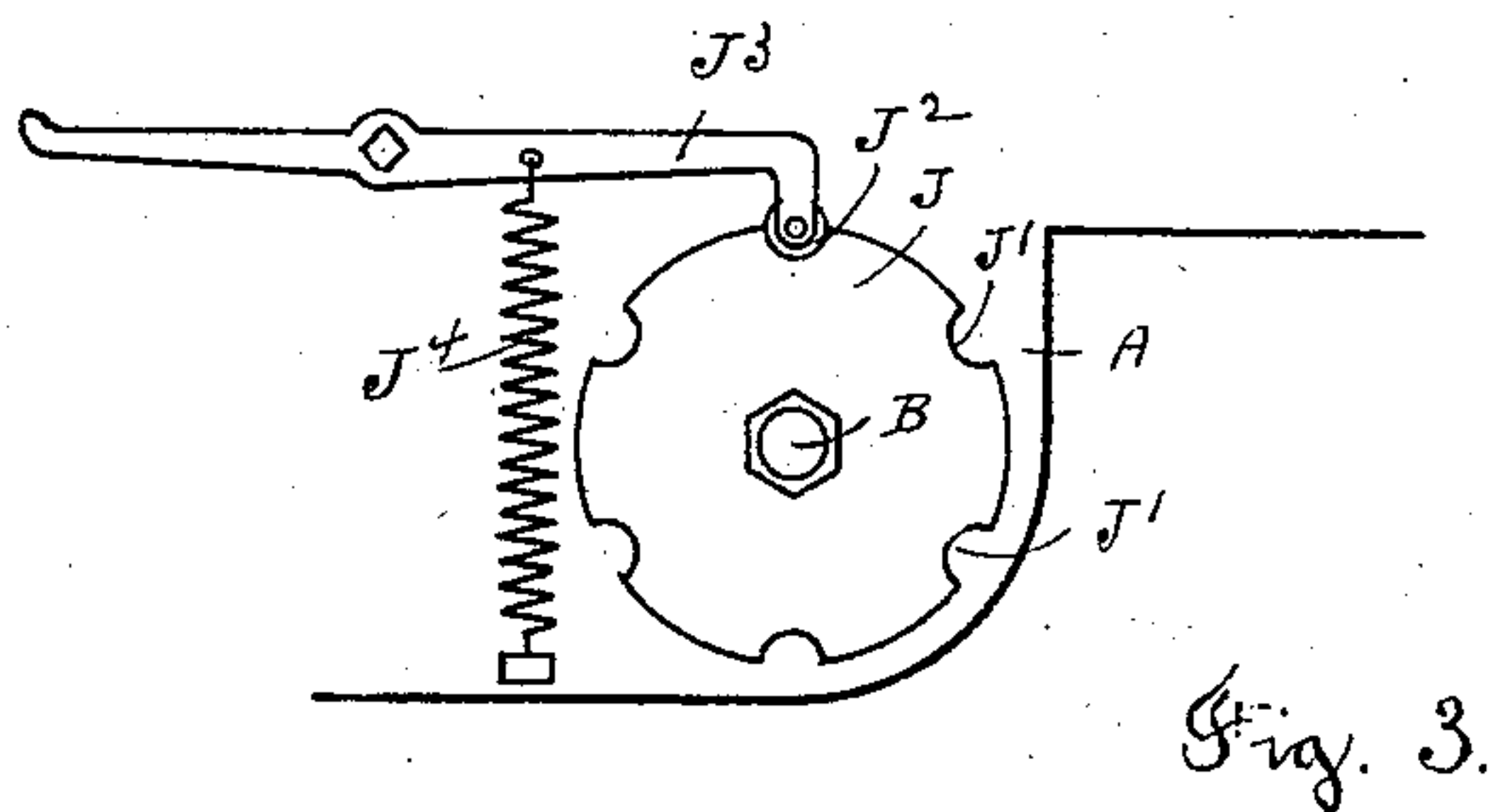
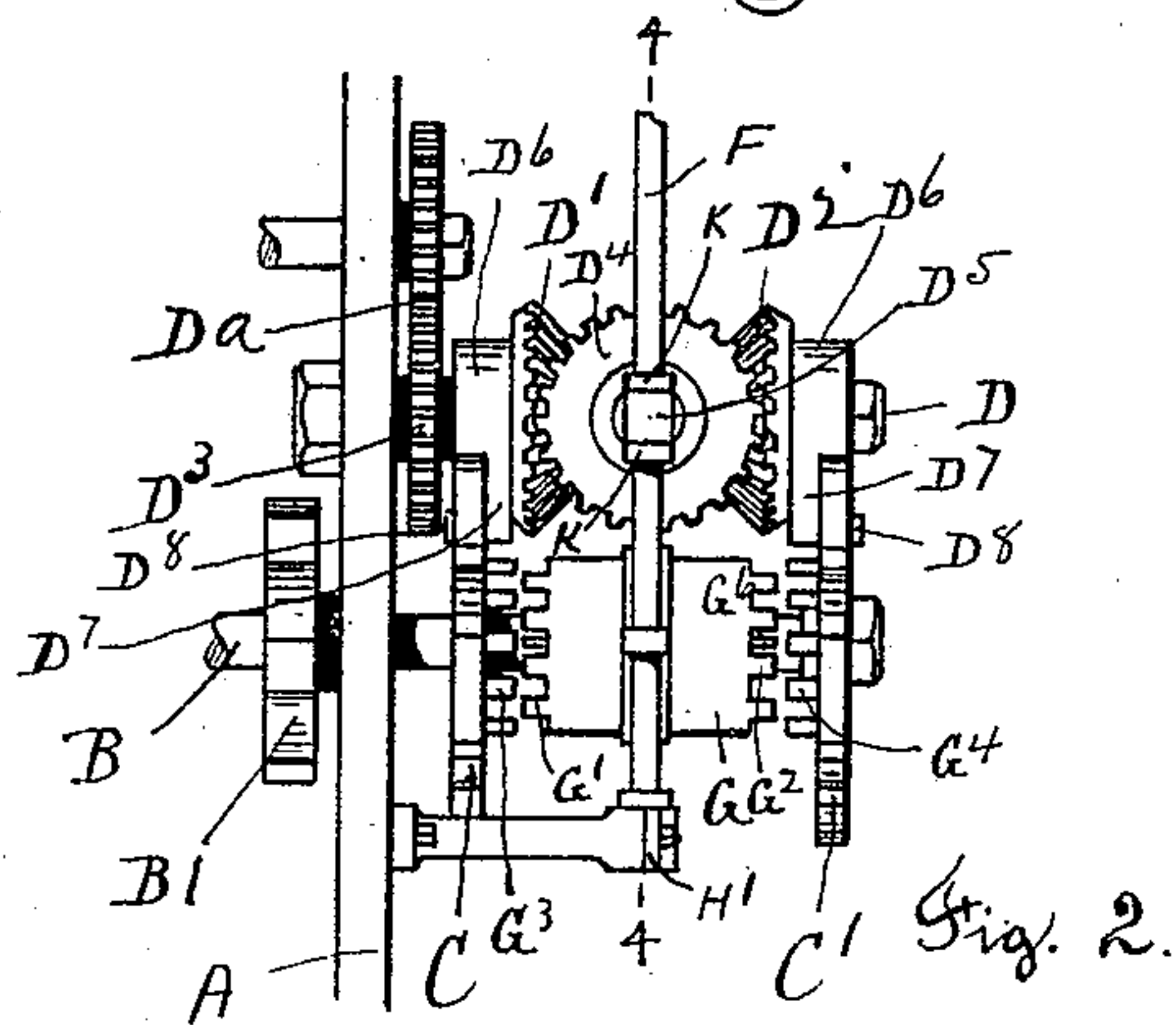
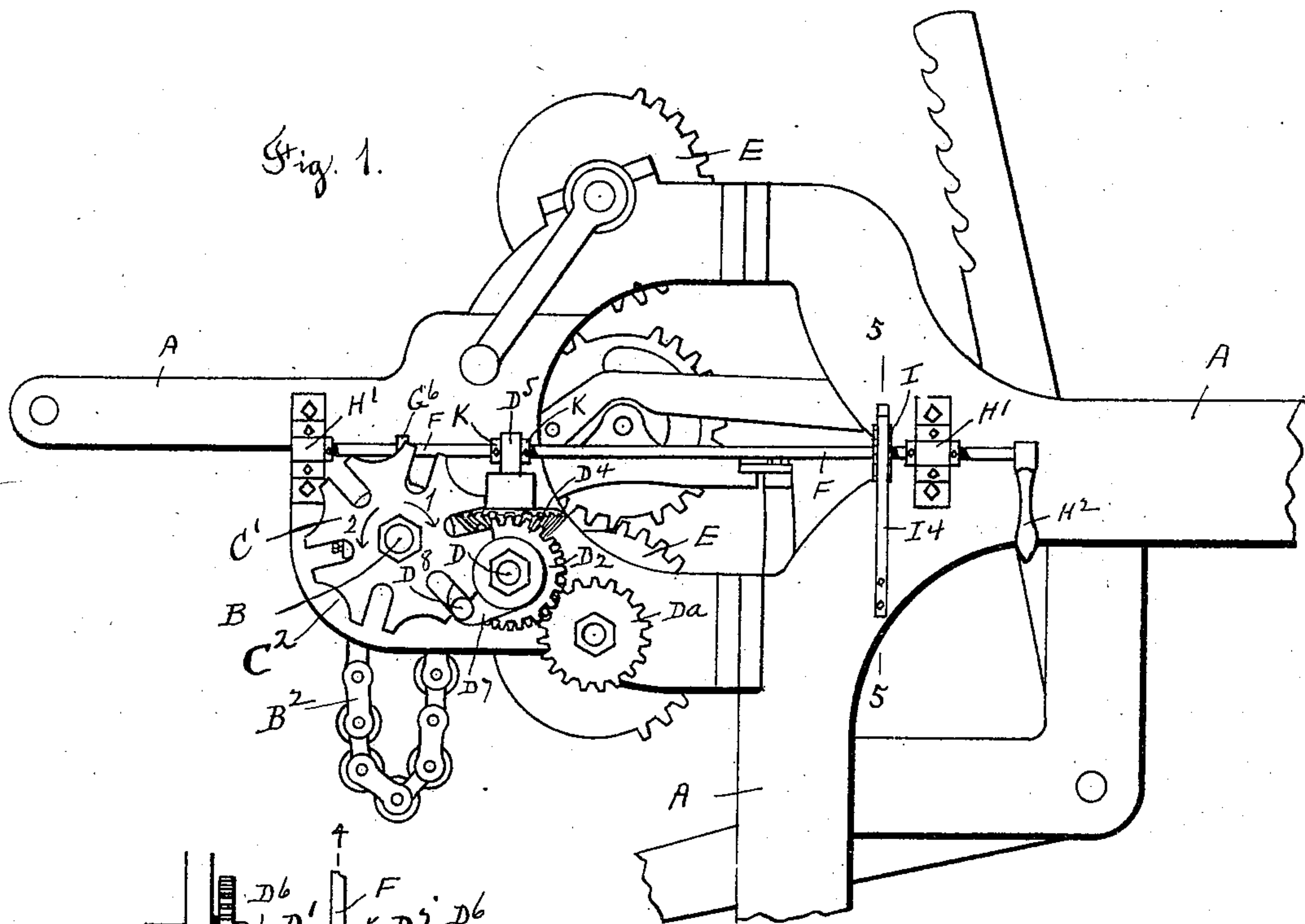


(No Model.)

J. F. WICKS & B. S. ROY.  
PATTERN MECHANISM FOR LOOMS.

No. 557,295.

Patented Mar. 31, 1896.



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# UNITED STATES PATENT OFFICE.

JOSEPH F. WICKS AND BOZIL S. ROY, OF WORCESTER, MASSACHUSETTS.

## PATTERN MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 557,295, dated March 31, 1896.

Application filed July 7, 1894. Serial No. 516,838. (No model.)

*To all whom it may concern:*

Be it known that we, JOSEPH F. WICKS and BOZIL S. ROY, citizens of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in a Pattern Mechanism for Looms, of which the following is a full, clear, and exact description, accompanied by drawings, forming a part of the specification, in which—

Figure 1 is a side elevation of a portion of a loom-frame supporting a pattern mechanism embodying our invention. Fig. 2 is a top view of the connected actuating mechanism by which the pattern-chain cylinder is rotated. Fig. 3 represents the opposite end of the pattern-shaft from that shown in Fig. 1. Fig. 4 is a sectional view of the pattern-shaft-actuating mechanism on line 4 4, Fig. 2; and Fig. 5 is a cross-section of the rocking shaft H on line 5 5, Fig. 1.

Similar letters refer to similar parts in the different figures.

Our present invention relates to the actuating mechanism by which the shaft supporting the pattern-chain of a loom is rotated; and it has for its object to provide means for rotating the pattern-shaft in opposite directions and for reversing the motion of the same without requiring the loom to be stopped.

In the accompanying drawings, A is a portion of the framework, within which is supported the shaft B, carrying the pattern-chain and its connected actuating mechanism. The shaft B is provided with a pair of sprocket-wheels, one of which is shown at B', Fig. 2, upon which is carried a pattern-chain B<sup>2</sup>, in the usual and well-known manner.

The pattern-shaft B extends outside the frame A, and upon the projecting end are placed two star-wheels C and C', turning loosely upon the shaft B. Projecting from the side of the frame A and parallel with the pattern-shaft B is a stud D, and turning loosely upon the stud D are the bevel-gears D' and D<sup>2</sup>, the gear D' having a spur-gear D<sup>3</sup> attached to its hub and engaging a spur-gear D<sup>3</sup> carried on the shaft of one of the barrel-gears E E. The bevel-gears D' and D<sup>2</sup> are connected by a bevel-gear D<sup>4</sup>, which turns loosely upon a stud D<sup>5</sup> suspended from the rod F so the bevel-gears D' and D<sup>2</sup> will turn

in opposite directions. The bevel-gears D' and D<sup>2</sup> are provided with hubs D<sup>6</sup> D<sup>6</sup>, adapted to engage during a part of their rotation the concave surfaces C<sup>2</sup> of the star-wheels C and C'. Projecting from the hubs D<sup>6</sup> and D<sup>6</sup> are radial arms D<sup>7</sup> D<sup>7</sup>, carrying crank-pins D<sup>8</sup> D<sup>8</sup>, which engage the radial slots C<sup>3</sup> of the star-wheels C and C', whereby the rotation of the bevel-gears D' and D<sup>2</sup> produce an intermittent rotary motion of the star-wheels C and C'. As the two bevel-gears D' and D<sup>2</sup> are rotated in the opposite direction, the star-wheels C C' will have an intermittent rotary motion in opposite directions around the shaft B. Between the star-wheels C and C' is placed a sliding clutch G having a spline connection with the shaft B and provided with clutch-teeth G' G<sup>2</sup> on its opposite ends which can be moved into engagement with either the clutch-teeth G<sup>3</sup> on the star-wheel C or the clutch-teeth G<sup>4</sup> on the star-wheel C', or be disengaged from both star-wheels when in its middle position, as represented in Fig. 2.

A fork G<sup>6</sup> is attached to the end of the rocking shaft F journaled in bearings H' H' attached to the framework of the loom and provided with a handle H<sup>2</sup> by which the shaft F is rocked by the operator in order to slide the clutch G along the pattern-shaft B and carry it into one of three positions, either midway between the star-wheels C and C', as represented in Fig. 2, when the star-wheels will rotate loosely on the shaft B and shaft be entirely disconnected from its actuating mechanism or into engagement with the star-wheel C, causing the shaft B to be rotated in the direction of the arrow 1, Fig. 1, or into engagement with the star-wheel C', causing the pattern-shaft to be rotated in the direction of the arrow 2, Fig. 1. Upon the rocking shaft F is placed a small notched wheel I containing three notches I' I<sup>2</sup> I<sup>3</sup>, which are engaged by an elastic latch I<sup>4</sup> attached to the frame of the loom for the purpose of holding the rocking shaft in either one of the three positions described against accidental displacement. Upon the end of the pattern-shaft B, opposite the star-wheels C C', is attached a notch-wheel J provided with notches J' to receive a roll J<sup>2</sup> held upon a stud carried by the end of a pivoted lever J<sup>3</sup> and held in place by a spring J<sup>4</sup>



for the purpose of locking the pattern-shaft against rotation in the manner common in looms of this class.

5 The rocking shaft F holds the stud D<sup>5</sup> suspended between the collars K K, which prevent the stud from moving longitudinally on the shaft, allowing the shaft F to turn freely in the upper end of the stud.

10 We do not confine ourselves to the special form of locking mechanism shown for holding the rocking shaft F from rotation, as other forms of locking devices can be employed for the purpose.

15 What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a loom, the combination with a shaft and a pattern-chain carried on said shaft, of a pair of star-wheels turning loosely on said pattern-shaft, a clutching mechanism by 20 which either of said rotating star-wheels may be connected to said pattern-shaft, a stud held by the framework of the loom and parallel with said pattern-shaft, a bevel-gear D' turning loosely on said stud and means for 25 rotating said bevel-gear, a bevel-gear D<sup>2</sup> turning loosely on said stud and an intermediate bevel-gear D<sup>4</sup> connecting the bevel-gear D<sup>2</sup> with the bevel-gear D', whereby said bevel-gear D<sup>2</sup> is rotated in the opposite direction

30 from the bevel-gear D', and crank-arms carried by said bevel-gears and engaging said star-wheels, substantially as described.

2. In a loom, the combination with a shaft and a pattern-chain carried by said shaft, of star-wheels C, C', turning loosely on said shaft 35 and provided with clutch-teeth, a sliding clutch having a spline connection with said shaft and provided with clutch-teeth adapted to engage the clutch on said star-wheels, a rocking shaft F journaled on the framework 40 of the loom, a fork G<sup>6</sup> carried by said rocking shaft and engaging said clutch, a fixed stud D with its axis parallel with the axis of said shaft, bevel-gears D', D<sup>2</sup>, rotating on said stud, collars K, K attached to the rocking-shaft F, 45 stud D<sup>5</sup> pivoted on said rocking shaft and held between said collars, bevel-gear D<sup>4</sup> connecting the bevel-gears on said stud and means for imparting a rotary motion to one of the bevel-gears on said stud, substantially 50 as described.

Dated this 24th day of June, 1894.

JOSEPH F. WICKS.  
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Witnesses:

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