L. J. KNOWLES.

Belt-Shipping Mechanism for Looms.

No. 198,203. Patented Dec. 18, 1877.

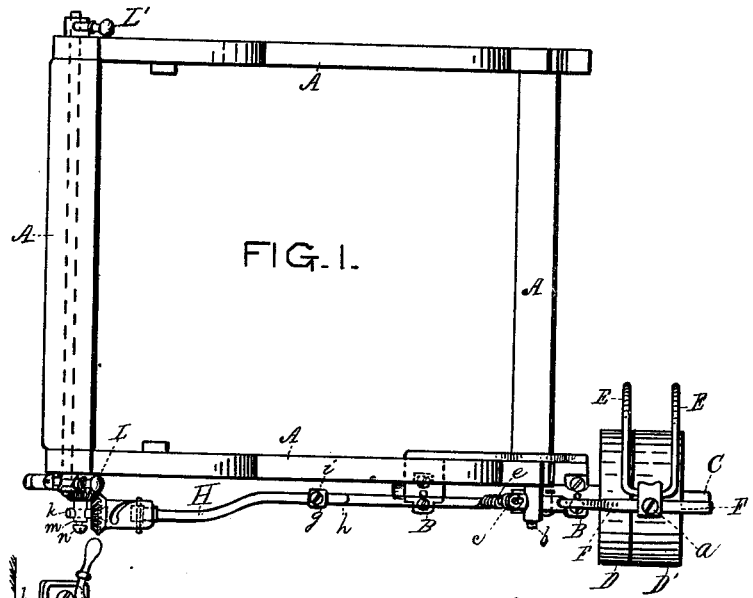

FIG. 1.

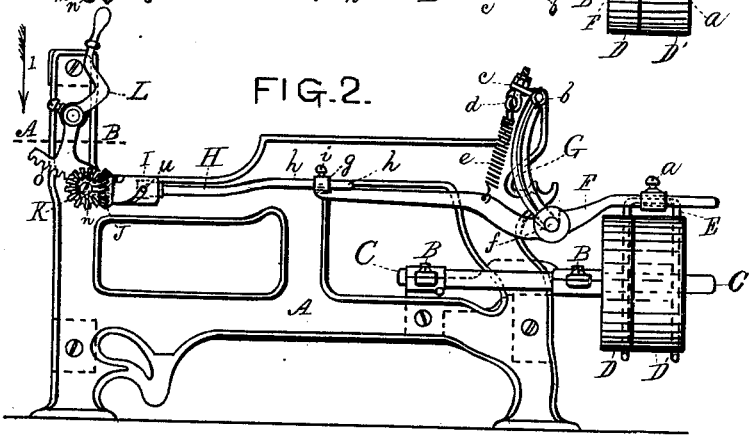

FIG. 2.

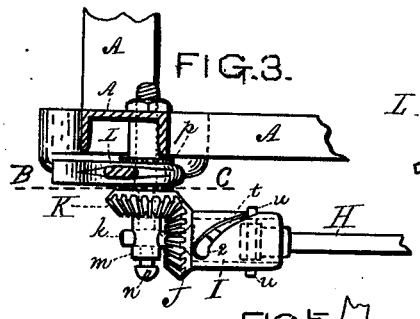

FIG. 3.

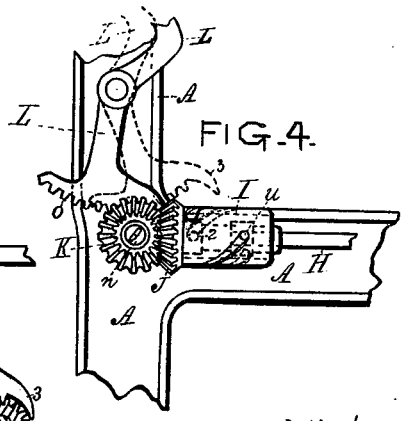

FIG. 4.

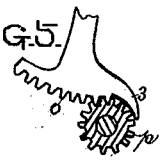

FIG. 5.

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## IMPROVEMENT IN BELT-SHIPPING MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **198,203**, dated December 18, 1877; application filed October 10, 1877.

*To all whom it may concern:*

Be it known that I, LUCIUS J. KNOWLES, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Shippers for Power-Looms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of so much of a loom-frame as is necessary to illustrate my present improvements, which are shown applied thereto. Fig. 2 represents a side view of the parts shown in Fig. 1. Fig. 3 represents, upon an enlarged scale, a top or plan view of a portion of the parts shown in Fig. 1, some of the parts being shown in section on line A B, Fig. 2. Fig. 4 represents, upon an enlarged scale, a side view of a portion of the parts shown in Fig. 2; and Fig. 5 represents, upon an enlarged scale, a section on line B C, Fig. 3, as will be hereinafter more fully described.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, the part marked A represents the framing of the loom, to which are secured the bearings B B of the main driving-shaft C, upon the end of which are the pulleys D D′—the latter the loose pulley. The shipper-fork E is fastened to the shipper-rod F by the adjusting-screw *a*. Rod F is suspended from the stud *b*, projecting from the loom-frame, by means of a hinged connection, G, the latter being provided with a projection or stem, *c*, in which is arranged an adjusting-hook, *d*, into which is hooked or looped the upper end of a spiral spring, *e*, the lower end of said spring being hooked into the shipper-rod F forward of the pivot or joint *f* of the lower end of the hinged connection G with the shipper-rod F. The front end of rod F is provided with an enlarged part, *g*, having a hole, through which passes the rounded end *h* of the secondary shipper-rod H. A set-screw, *i*, holds these rods together, and enables their united length to be adjusted as desired. The front end of the secondary rod H is provided with a round head, which is fitted to work loosely in the socket-hub I on the bevel-gear J, which turns on a stud-bearing, *k*, which passes through a hole in the end of the rigid bearing *m*, the former stud-bearing *k* being held in place by a set-nut, *n*, while the stud-bearing *m* is fastened to the side of the loom-frame. The stud-bearing *k* has a head, which fits into a concave in the back of gear J. (See dotted lines, Fig. 3.) Bevel-gear J takes into gear K, which turns upon the stud-bearing *m*, while the rack-teeth *o* on the lower end of the shipper-handle L take into the teeth of a spur-gear, *p*, fastened to the inner face of gear K.

A shipper-handle rod (indicated in dotted lines, Fig. 1) connects shipper-handle L with shipper-handle L′.

The socket-hub I is provided with two spiral slots, *t*, having holding-shoulders 2, arranged opposite to each other, so that the ends of a pin, *u*, which passes through the head on the end of secondary rod H, will pass through and rest in said spiral slots *t*.

With this arrangement, when the shipper-handles are drawn forward, as indicated in dotted lines, Fig. 4, the action of rack-teeth *o* rotates gears *p* and K, thereby imparting a rotary motion to gear J and its slotted hub I, up and over toward the loom-frame, and by which motion pin *u*, together with shipper-rods H and F, are drawn forward toward the front of the loom, and when pin *u* has been drawn by the action of the spirally-slotted hub I so that its ends reach the front ends of the slots *t*, the belt is drawn upon the tight pulley D, and as said slots are formed with holding-shoulders 2 for the ends of pin *u* to rest against, the shipping parts are held in such position against both the action of spring *e* and any tendency of the belt to run back upon the loose pulley.

When, however, the operative wishes to throw the belt upon the loose pulley, all that is required is simply to take hold of either shipper-handle and push it back so as to rotate slotted hub I just sufficient to withdraw or move shoulders 2 away from the ends of pin *u*, after which the action of the spring *e* will complete the back motion of the shipper-rods, and throw the belt upon the loose pulley D′.

In Fig. 4 the position of the slots in the slotted hub I are shown in full and dotted lines—in full lines when the belt is shipped to the loose pulley, and in dotted lines when thrown upon the tight pulley.

To prevent the shipper-rods being thrown too far back when the belt is shipped to the loose pulley, a curved finger or projection, 3, is combined with the rack end of shipper-handle L, and which curved finger comes in contact with and rests upon gear *p*, as fully indicated in Fig. 5 of the drawings.

In some cases, slotted hub I may be substituted for gear K, gear *p* taking the place of gear J on the end of slotted hub I. In this instance the shipper-rod will simply stand at right angles with its present position, and the stud *k* will be dispensed with, and slotted hub I be supported by and revolved upon the stud *m*, the two parts being made to properly fit each other.

This last arrangement becomes convenient and useful upon looms in which the driving and loose pulley are arranged upon the main crank-shaft, instead of upon a secondary shaft, as shown in the drawings.

Having described my improvement in shippers for power-looms, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the shipper-rods H and F, of pin *u* and slotted geared hub I, substantially as and for the purposes set forth.

2. The combination, with rack shipper-handle L and secondary shipper-rod H, of pin *u*, gear J, slotted hub I, and gears K and *p*, substantially as and for the purposes set forth.

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