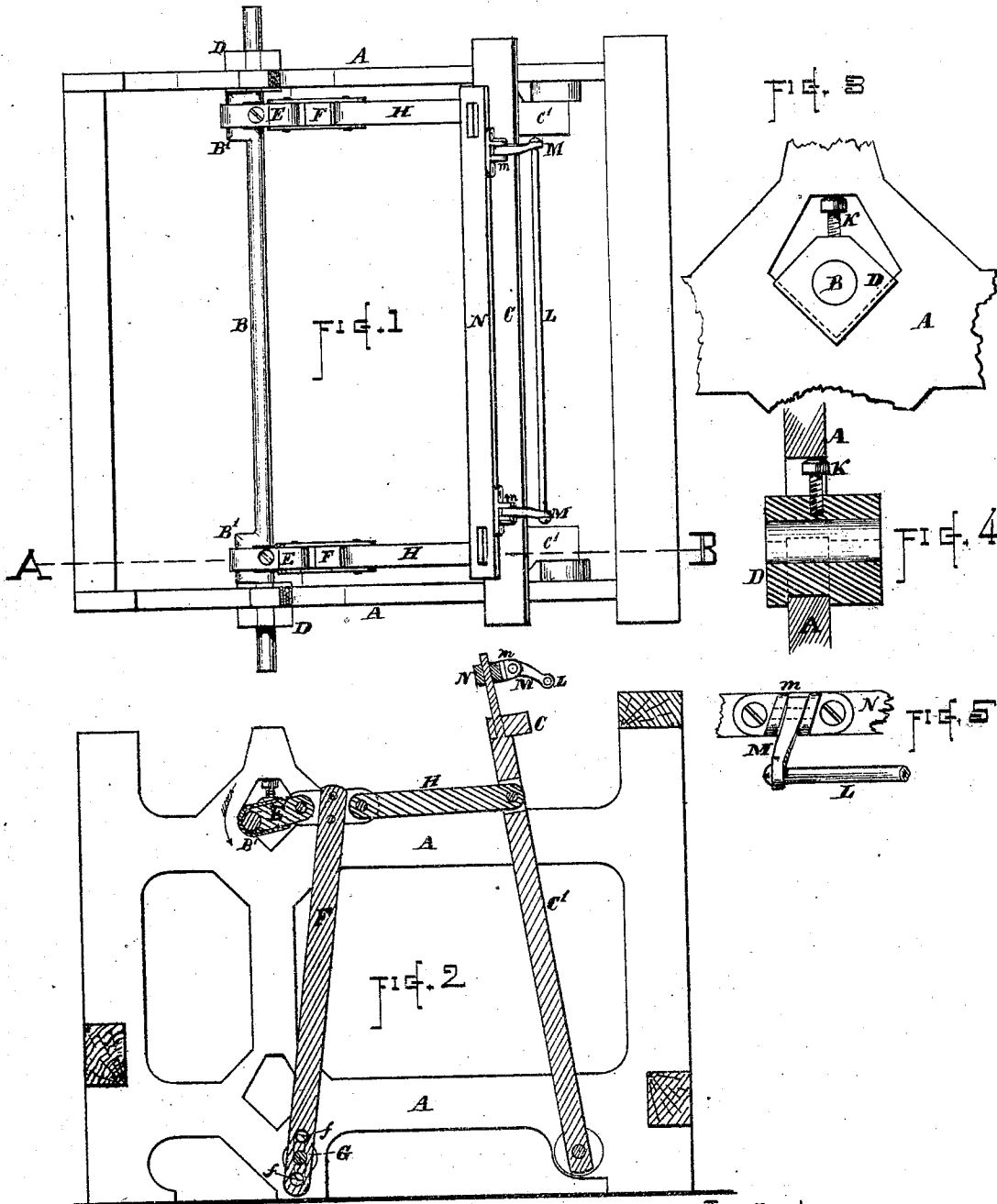


HENRY G. DAVIS.

Improvement in Looms.

No. 121,161.

Patented Nov. 21, 1871.



Witnesses.

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HENRY G. DAVIS, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN LOOMS.

Specification forming part of Letters Patent No. 121,161, dated November 21, 1871.

To all whom it may concern:

Be it known that I, HENRY G. DAVIS, of the city and county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Looms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing which forms a part of this specification, and in which—

Figure 1 represents a plan view of so much of a loom as is necessary to illustrate my present invention. Fig. 2 represents a vertical section of the same at line A B, Fig. 1. Fig. 3 represents, on a larger scale, an end view of one of the shaft-bearings, showing its connection with the main frame of the loom. Fig. 4 represents a vertical central section of the shaft-bearing, and Fig. 5 represents, on a larger scale, a front view of one end of the shuttle-guard.

The nature of my invention consists: First, in certain improved devices for connecting the lay or batten of the loom to its operating cranks, whereby an easy motion of the lay is obtained and a "dwell" is produced, as hereafter described. Second, in a peculiarly-constructed shaft-bearing or box, and the combination of the same with the main frame of the loom, as hereinafter set forth. Third, in a peculiarly-constructed shuttle-guard, as hereafter described.

In the drawing, the parts marked A represent the main frame of the loom. B indicates the crank-shaft. C indicates the lay or batten, and D the shaft-supporting bearings. E E indicate short connecting pieces or arms, one end of which are arranged to work on the cranks B' of the shaft B, while their other ends are pivoted between backward-projecting ear-pieces at the upper ends of swinging staffs F, which staffs stand in upright positions beneath the arms E, and are pivoted, near their lower ends, upon adjustable studs G secured in vertical slots formed in the lower portion of the frame A. H H indicate connecting-rods or arms, which join the upper ends of the staffs F to the standards C' of the lay C. The connections H are pivoted at their rear ends between forward-projecting ear-pieces on the staffs F, and their forward ends are pivoted to the standards C'. The heads or eared portion of the staff F may be cast in one piece with the upright portion thereof, or be otherwise rigidly secured thereto, and said heads form links to connect the

arms E and H to each other, so that all of the parts will be moved by the action of the cranks B', the staffs F swinging forward and backward upon their studs G, and supporting the ends of the arms E H in such a manner that the upward and downward motion of the cranks as they revolve will not be communicated to the arms H, while the forward and backward motion will be transmitted to said arms and thus operate the lay C. The result of this construction and arrangement of the parts is that an easy and desirable motion of the lay is obtained for beating up the filling-threads, and also a dwell is produced during the time the shuttle is passing across the loom. This dwell is not an entire suspension of the motion of the lay, but the movement is so slight that, practically, the same beneficial result is produced as though the lay came to a full stop, while the transition from the backward to the forward movement of the lay is so gradual and easy that the loom can be run at a very high speed without occasioning any injurious jarring or vibration. The dwell and gradual change in the direction of motion is produced by the swinging downward of the rear end of the connecting-arms E during the backward and downward sweep of the cranks. A series of holes, *f*, are formed in the lower part of the staffs F, and the staffs can be adjusted to greater or less length by arranging the studs G in different holes *f*. The studs G can also be adjusted up or down in the vertical slots, wherein they are secured, by means of clamping-nuts upon their shanks, which nuts screw up against the frame at the side of the slots. By raising or lowering the staffs F, and by lengthening or shortening their sweep, the duration of the dwell is increased or diminished, and the movement and force of the lay in beating up the filling is regulated to suit the requirements of different varieties of goods. The boxes or bearings D, in which the shaft B is supported and turns, are made in rectangular form, and are secured in similar-shaped openings in the frame A, as shown, the sides of the box being arranged obliquely to the horizontal plane. Grooves are formed upon the two sides of the box D, which fit onto the edge of the frame at the two lower sides of the openings and thus retain the box in place, where it is firmly secured in position by a screw or bolt, K, fitted in the upper angle of the box and arranged to turn up against the frame

at the top of the opening, as illustrated in Figs. 3 and 4. A check-nut may be arranged upon the screw, if desired, to turn down against the top of the bearing, and thus prevent the screw from working loose with the jar of the machine. With this form and arrangement the boxes or bearings D can be very conveniently and cheaply constructed and attached to or removed from the frame A. They are simple and durable, and are not liable to derangement or to become loose upon the frame when running the loom. This form of box is applicable to all the shaft-bearings. L indicates the shuttle-guard, consisting of a leather cord extended across the loom above the shed, with its ends secured by screws or otherwise to hinged arms or standards M, fastened to and projecting forward from the hand-rail N, as shown. The arms M are hinged between oblique ear-pieces, *m*, in such a manner that they can swing diagonally upward, and the inclination of the joint may be such that one of the arms M can be swung upward while the other remains down, the cord L being drawn taut, but not strained more than it is when both ends are down. With this arrangement of the guard the loom can be started with one end of the guard raised without danger of the cord interfering with the web, and the guard can be swung down into position while the loom is running, so that no time is lost in adjusting the guard. When both of the arms M are turned up the guard-cord L is slackened and

raised, and the operator is allowed free access to the warp-threads throughout the full width of the loom. The cord may be made of leather or other material; but I prefer a rolled-leather tube-cord so constructed as to present the grain of the leather upon the whole outer surface, as it is smoother and more durable than a rough leather cord.

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

1. The combination, with the crank-shaft B B' and lay C C', of the double connecting-arms E H and swinging staffs F, substantially as and for the purposes set forth.

2. The combination, with the connecting-arms E and H, of the adjustable staffs F and adjustable studs G, substantially as and for the purposes set forth.

3. The combination, with the crank-shaft B and frame A, of the rectangular bearing-box D and set-screw K, substantially as and for the purposes set forth.

4. The combination, with the hand-rail N, of the shuttle-guard, composed of the obliquely-hinged arms M and cord L, substantially as shown and described.

HENRY G. DAVIS.

Witnesses:

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