(No Model.)

S. S. ALLEN.

BELT SHIFTING DEVICE AND STOP MOTION FOR LOOMS.

No. 305,775. Patented Sept. 30, 1884.

Fig. 4

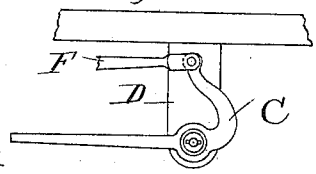
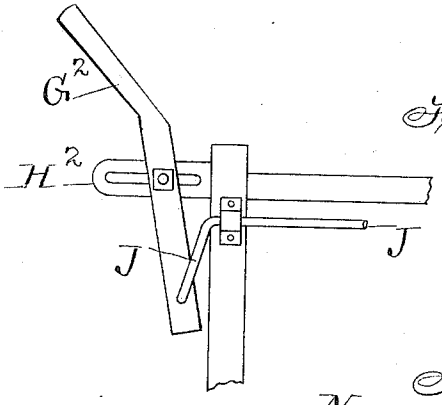


Fig. 1

Fig. 2



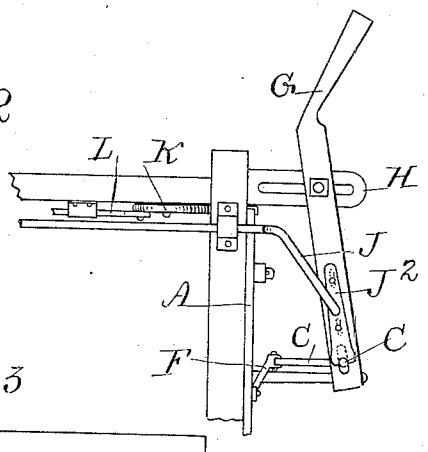
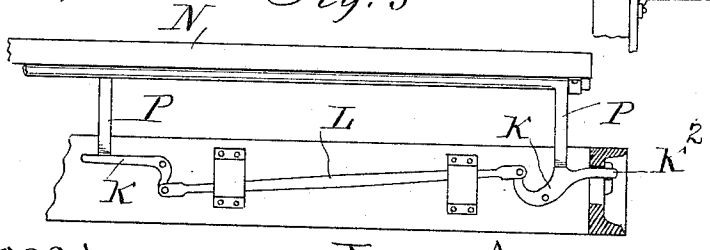


Fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL S. ALLEN, OF DES MOINES, IOWA.

BELT-SHIFTING DEVICE AND STOP-MOTION FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 305,775, dated September 30, 1884.

Application filed July 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL S. ALLEN, a citizen of the United States, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented an Improved Belt-Shifting Device for Looms, of which the following is a specification.

My object is to construct and apply a belt-shifting device in such a manner that an attendant at either side of the loom can readily and instantly shift a belt as required, to start or stop a power-loom, by simply pulling a hand-lever, and also in such a manner that when the movement of a shuttle is accidentally arrested and the shuttle retained in the race and prevented from carrying the woof through the shed of the warp-threads the action of my attachment will be automatic and positive, as required, to knock off or shift the belt and stop the loom.

My invention consists in the construction and combination of a series of levers and rods with the frame of a loom, the vibrating lay, and a belt-moving device, as hereinafter fully set forth.

Figure 1 of the accompanying drawings is an end view of a loom-frame, showing my device attached. Fig. 2 represents the side of the same frame. Fig. 3 is a bottom view of part of my mechanism, and a transverse section of the corner-post of the frame through the line *x x* of Fig. 1. Fig. 4 is a top view of a bracket and a bell-crank lever attached to the frame.

Jointly considered, these figures clearly illustrate the construction and operation of my complete invention.

A is a lever of the first order, pivoted to the frame, and combined with the lay of the loom in such a manner that power can be applied to its long or short arm for the purpose of shifting the belt from one pulley to another by means of a rod, B, connected therewith, as clearly shown in Fig. 1.

C is a bell-crank lever pivoted to a bracket, D, that is fixed to the frame by means of screw-bolts. The short arm of this lever C is connected with the long arm of the lever A by means of a rod, F, and its long arm is connected with a hand-lever, G. The lever G is adjustably connected with the frame by means of a fixed bracket, H, as shown in Figs. 1 and 2. A compound lever is thus provided for moving the rod B, as required, to shift the belt from one pulley to another by simply operating the hand-lever G.

G^2 is a hand-lever connected with the opposite end of the frame by means of a bracket, H^2, and flexibly connected with the lever G by means of a rod, J, and slide J^2, in such a manner that the lever G can be operated by means of the lever G^2, as required, to transmit motion to the rod B.

K K are bell-crank levers pivoted to the under side of the breast-beam, and connected by a rod, L, as clearly shown in Fig. 3, in such a manner that they will operate jointly to transmit power from the lay of the loom to the lever A, as required, to actuate that lever and the belt-shifting mechanism connected therewith.

K^2 is a projection on the end of one of the levers K, that extends through the slot M in the frame to enter a notch in the top end of the lever A, so that when the levers K are vibrated a corresponding motion will be imparted to the lever A.

N represents the vibrating lay of a loom, and P are pins or daggers projecting at right angles therefrom in such a manner that they will engage the bell-crank levers K, and automatically operate the belt-shifting mechanism whenever the shuttle is accidentally arrested and retained in the shuttle-race, and it is important to instantly knock off the belt and stop the motion of the loom. The slide J^2 will, by force of gravity, engage the end of the long arm of the lever C and retain it stationary, as required, to hold the belt either on or off either one of the pulleys.

From the foregoing detailed description of the construction and function of each element the unitary action of all the parts and the practical operation of my complete device are obvious.

I claim as my invention—

1. The combination of the lever A, the rod B, carrying a belt-shifting device, the lever C, and the bracket D, substantially as described, to operate in the manner set forth, for the purposes specified.

2. The bell-crank levers K and K K^2, connected by a rod, L, the vibrating lay N, having daggers P, and the lever A, arranged and

combined in a loom, substantially as shown and described, for the purposes stated.

3. The belt-shifting attachment for looms, consisting of the levers A and C and their connecting-rods B and F, the levers G and G^2 and their connecting-rod J, and the levers K and K K^2 and their connecting-rod L, substantially as shown and described, to operate in the manner set forth, for the purposes specified.

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Witnesses:
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