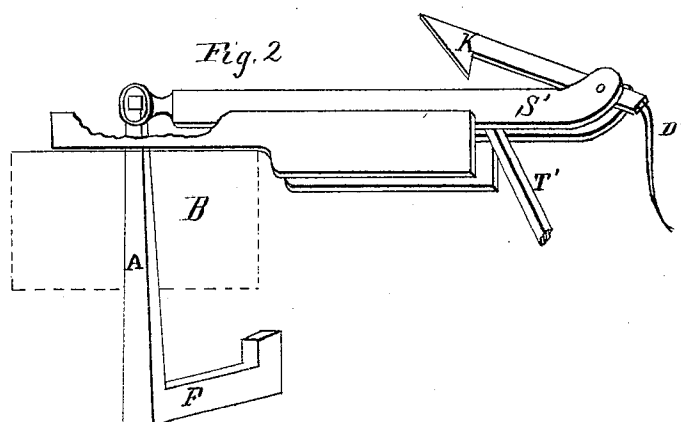
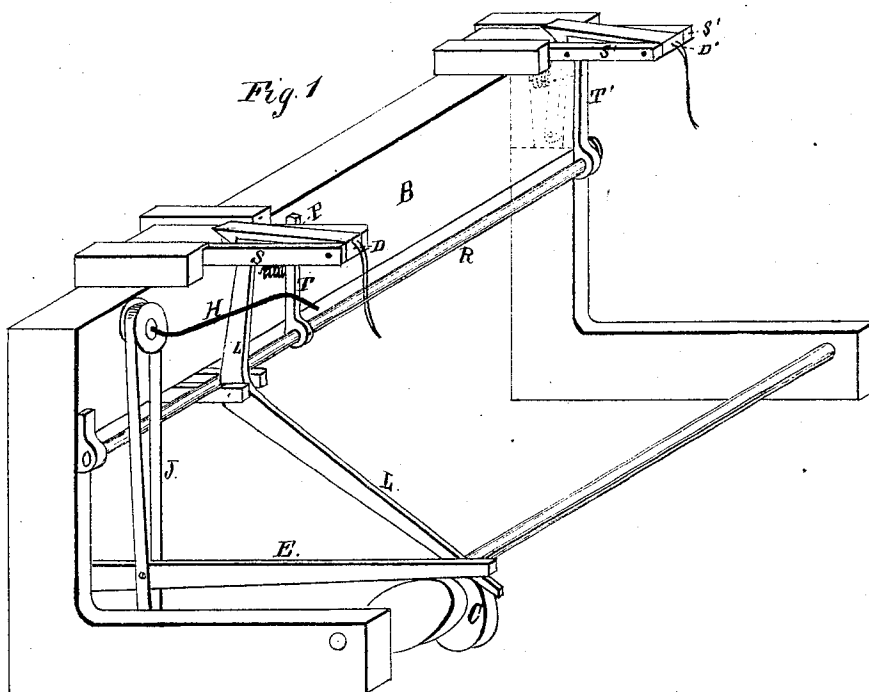


C. E. BARNES.

Stop Mechanisms for Looms.

No. 138,987.

Patented May 20, 1873.



Witnesses.

Joseph R. Simonds
George Cooke

Inventor.

Charles Barnes

UNITED STATES PATENT OFFICE.

CHARLES E. BARNES, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN STOP MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **138,987**, dated May 20, 1873; application filed March 3, 1873.

To all whom it may concern:

Be it known that I, CHARLES E. BARNES, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Stop Mechanism for such looms as employ more shuttles than one at the same time; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention consists in devices and their arrangement by which the stop mechanism is actuated immediately on the failure of the weft-thread, the weft-forks being placed on both sides of the loom and operated independently of each other, yet so connected that one lever and cam actuate or operate both the slides which carry the weft-forks. In combination with the stopping mechanism an oscillating hook is arranged to remove the threads of the idle shuttles from the lay, which threads might otherwise interfere with the proper action of the weft-forks. These "slides," each bearing "detecting-forks," are like those commonly placed upon one side of looms which employ but a single shuttle, but in my device they are connected by a rod or shaft furnished with suitable arms to operate the slides, as hereinafter shown.

Description of Accompanying Drawing.

Figure 1. B designates the breast-beam of a loom; S and S', the slides; D and D', the detecting-forks; T and T', the arms connecting the slides with the shaft R; C, the cam; L, the cam-lever; H, the oscillating hook; E, the lever; and J, the belt, which causes the hook to rise and fall at the edge of the web.

Fig. 2 represents the slide S' in common use upon looms employing but a single shuttle, with the detecting-fork D', the arm T', and the upright A connecting the slide with the "shipper-dog" F.

Construction and Operation of my Invention.

The slides which I use are common, and the slide at one end of the beam is operated by cam and levers in the ordinary manner. The parts C L and S, Fig. 1, are in common use upon looms employing the single shuttle; but,

by means of a pin, P, in the side of the slide S, the motion of this slide is communicated to the arm T on the rock-shaft R parallel to and supported by the breast-beam B, and thence to the arm T', at the other end of the shaft, and through this arm to the slide S', which latter slide is connected with the shipper-dog F, shown in Fig. 2, which stops the loom in the ordinary manner.

It will readily be understood by those familiar with looms that by this mechanism the stopping of the loom is effected by the failure of the weft-thread to press upon the detecting-fork in either slide.

In practice, when the shuttle is passing from left to right, leaving the weft-thread upon the race to come in contact with the detecting-fork in the slide S', the pressure of the thread upon the fork raises the "catch" K above the end of the arm T', and consequently the slide remains at rest, and the motion of the loom is not arrested; but should the weft-thread break or run out of the shuttle before reaching the detecting-fork of this slide, and fail to raise the catch, the slide is moved so as to stop the loom; and when the shuttle returns or passes from right to left, the catch of the detecting-fork in the slide S' is left at rest upon the arm T' in readiness for the stopping of the loom if the weft-thread fails to press upon the detecting-fork in the slide S at the left side of the loom. Yet, if the weft-thread is unbroken and acts properly upon the last-named fork, the motion of the lever T will not affect the slide S or stop the loom.

By thus employing a detecting device on each side of the loom the loom is effectually stopped by the passage of any shuttle which fails to leave a thread upon the part of the race nearest either detecting-fork, each detecting-fork having mechanical connections for immediate "stop-motion."

As in weaving with several shuttles it will occur that several shuttles in succession will be thrown in the same direction—*e. g.*, from right to left—before any shuttle shall have been thrown in the opposite direction, my device for connecting the slides S and S' by means of a rod, R, and its connections, as described, has its advantage over ordinary weft-detectors in the fact of its stopping the

loom without waiting for the return motion of a shuttle, and thus effectually securing the figure of the web from injury, as the lay can be thrown back and the breakage repaired the instant it has occurred. Again, as the slack weft-threads accumulate at the edges of the web, it is necessary to prevent their contact with the detecting-forks, and the oscillating hooks, at each end of the breast-beam, are employed to remove the weft-threads from the race and to hold them down, so as to leave only the one thread from the last passing shuttle to act upon the detecting-fork at either side of the loom. This oscillating hook H is caused to rise and fall upon the weft-threads near the edge of the web by means of the lever E and belt J, or equivalent mechanism, regulating its motion in concurrence with that of the tappet-lever L.

Claim.

What I claim as my invention is—

1. The slides and their weft-detectors placed on the breast-beam, when connected and operated substantially as herein described, so that each detector acts independently of the other, as set forth.

2. The slides and their weft-detectors, placed on the breast-beam and connected and operated as described, in combination with the oscillating hook H, the latter being arranged to fall on the weft-threads already beaten up when it is necessary to prevent their contact with the detectors.

CHAS. E. BARNES.

Witnesses:

JOSEPH R. SIMONDS,
GEORGE COOKE.