

Patented Jan. 18, 1870.

Fig. 3.

Witnesses.

J. W. Thurman

This diagram illustrates a differential gear mechanism. A horizontal shaft at the top is supported by bearings and carries two gears, labeled B and E . Below this shaft, two vertical frames support two sets of gears. The left set consists of a large gear F' and a smaller gear I' , both mounted on a common horizontal axle. The right set consists of a large gear F and a smaller gear I , also mounted on a common horizontal axle. The shafts of gears F' and F are connected to a central vertical shaft that carries the differential gears B and E . Arrows indicate the direction of rotation for each component.

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Letters Patent No. 99,024, dated January 18, 1870.

IMPROVEMENT IN SHUTTLE-DRIVING MECHANISM FOR LOOMS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, JEREMIAH STEVER, of Bristol, in the county of Hartford, and State of Connecticut, have invented a new Improvement in Power-Looms; and I do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a front view;

Figure 2, a side view;

Figure 3, a top view; and in

Figure 4, a section on line *x x*, looking toward the front.

This invention relates to an improvement in power-loom, especially in the operation of the picker for throwing the shuttle, the object being to throw the shuttle with the same velocity, whether the loom be working slow or fast; and

The invention consists in the arrangement of a pair of "barrel-springs," so as to be wound respectively at alternate beats of the lay, and each let off at the proper time to drive the pickers from one side to the other, as the case may be.

A is the frame of the loom, of any known construction.

B, the lay, also of common construction, and actuated in the usual manner, here represented as by eccentrics C on the shaft D.

E and E' are pickers, arranged so as to work in the lay at their respective ends.

F and F' are two "barrel-springs," arranged in bearings *f*, the said spring being constructed in the usual manner of barrel-springs for other purposes, and so that the spring is first wound by turning the shaft, while the barrel remains stationary, by means of square stems *a*, extending through the ratchets *d*, which have pawls *e*, to confine them when the springs are wound to the proper tension.

The pickers are attached, by cords or chains L, to the barrel.

The said "barrel-springs," having been wound up by the stems, and properly set to give them a certain

degree of strength, are respectively operated on, and alternately further wound, by cams I and I', fixed upon the shafts N and N'. Therefore, suppose the shuttle to have been thrown from one end of the lay by the picker E, and that in the passage it has moved the picker E' to the outer end of the lay, and rests against it. At this stage, the cams and pickers will be as represented in fig. 4, and the cam I', in its further rotation, in the direction of the arrow marked near it, will bear against the stud *i* on the barrel, turn it, and thereby wind up and tighten the spring, and hold it tightened, until the point of the cam escapes from the stud, when the barrel, being free, will be suddenly returned to the position shown in fig. 4, at the left, and will draw with it the picker, which will throw the shuttle through the shed to the opposite picker, which will be operated on by that picker and its connection or barrel. The barrel and cam are represented at the right, in fig. 4, in the positions they occupy with each other when the barrel has been wound up by the cam, and the barrel remains in that position until the point of the cam passes its pin, when it is suddenly turned, and throws the shuttle. By this operation, the shuttle is thrown with equal velocity, however slow or fast the other portions of the loom may be moving, hence insuring the throwing of the shuttle entirely through to the opposite picker.

The force with which the shuttle is thrown may be regulated by turning the ratchets *a* to the shafts, of which the inner ends of the springs are attached.

I do not wish to be understood as broadly claiming the throwing of the shuttle by the reaction of a spring, as such, I am aware, is not new; but

I do claim, as my invention—

1. In combination with the respective pickers E and E', the barrel-springs F and F', operated by the cams I and I', when arranged in the manner described, so as to throw the shuttle, as set forth.

2. In combination with the above, the adjusting-ratchets *d d* and pawls *e*, for the purpose specified.

JEREMIAH STEVER.

Witnesses:

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