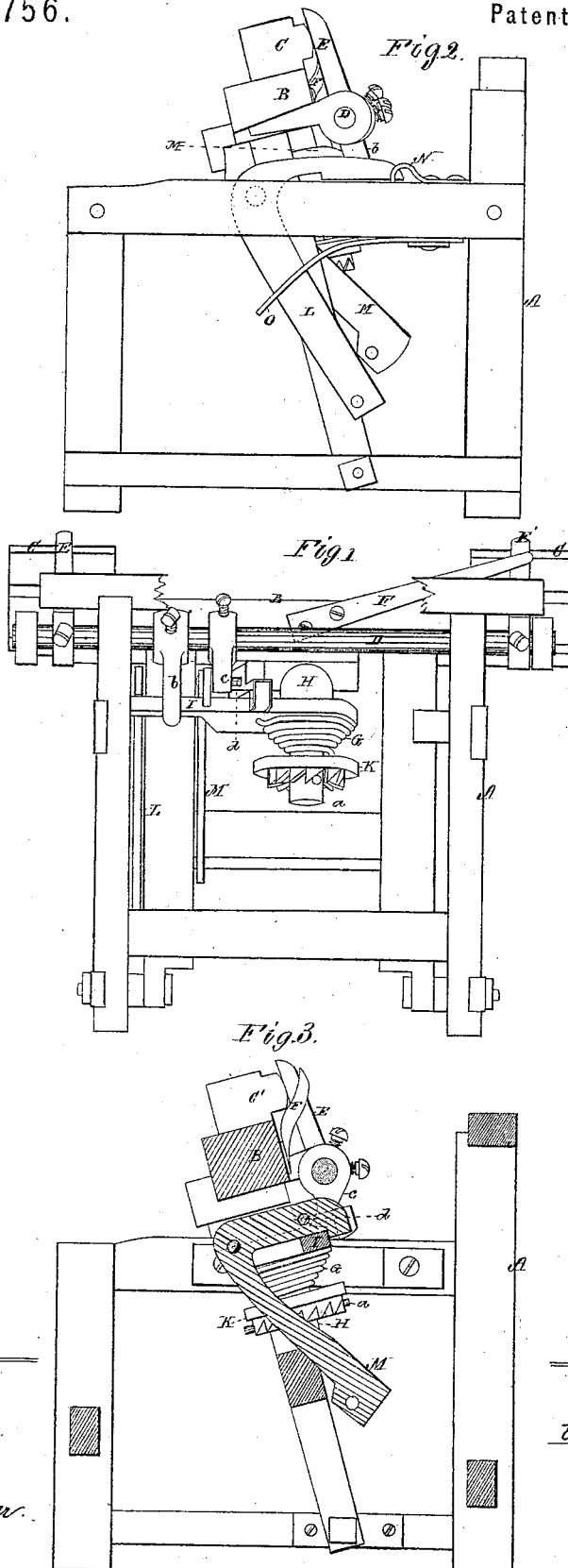


SAMUEL BOORN.
Improvement in Looms.

No. 114,756.

Patented May 16, 1871.



Witnesses

S. A. Piper.

L. N. Moeller.

S. Boorn.

by his attorney.

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United States Patent Office.

SAMUEL BOORN, OF LOWELL, MASSACHUSETTS.

Letters Patent No. 114,756, dated May 16, 1871.

IMPROVEMENT IN LOOMS.

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

To all persons to whom these presents may come :

Be it known that I, SAMUEL BOORN, of Lowell, of the county of Middlesex and State of Massachusetts, have made a new and useful Invention having reference to Looms for Weaving Cloth or Fabrics; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a front elevation,

Figure 2 a side view, and

Figure 3 a transverse section of my invention as applied to the frame and lay of a loom.

The object of my invention is to relieve the shuttle of most of the pressure of the binder preparatory to the expulsion of such shuttle from a box of the lay, and at the proper time, or when the shuttle has fully entered a box, to throw the full force of the binder upon the shuttle so as to estop it and prevent it from rebounding.

With my invention the period of application of the extra pressure on the binder to estop the shuttle is made entirely dependent on the arrival of the shuttle fully into the box.

Thus it will be seen that with my said invention I am enabled to effect a great reduction of power to produce the throwing of the shuttle, and, as a consequence, I not only run the loom at a less expense, but prevent much of the wear and tear of the mechanism that results from the casting of the shuttle under the full or stopping pressure of the binder upon it.

In carrying out my invention I have therefore combined with a loom a mechanism, to be hereinafter described, by which economical results, as hereinbefore mentioned, are attainable.

In the drawing—

A denotes the loom-frame, and

B the lay.

The said lay is to be supposed to be furnished with shuttle-boxes, arranged with or applied to it as customary in looms, and each of such boxes is to have a shuttle-binder, which in the drawing may be considered as arranged at C or C'.

The protector-rod or shaft is shown at D as pivoted to the lay, and furnished, as usual, with two arms, E E', to extend upward from it and bear against the binders.

A light spring, F, affixed to the lay presses against one of the said arms so as to force the two against the binders with the degree of power necessary to preserve the shuttle in its proper direction while being driven from either shuttle-box.

The extra spring by whose power the shuttle is to be estopped and prevented from rebounding in the box is shown at G. It is a reserved power, brought into action when necessary to stop the shuttle, and

thrown out of action afterward and prior to the next passage of the shuttle out of the box, in order that the shuttle, during its flight out of the box, may be relieved from such stopping power, and be subjected only to that pressure of the binder which may be due to the elastic force of the spring F.

The said spring G is a coiled or helical spring encompassing a journal, H, projecting down from the race-beam of the lay.

The upper end of the spring G is fixed to a lever or arm, I, which turns horizontally on the said journal.

The lower end of the spring is fixed in a ratchet-wheel or head, K, applied to the journal or spindle H so as to be capable of being revolved therein.

A pin, a, going through the journal so as to engage with the ratchet-wheel, serves to stop the said wheel. The purpose of the wheel and pin is to regulate the degree of tension of the spring.

There are pivoted to one of the swords of the lay two hooked levers, L M, they being arranged and formed as represented, their shorter and hooked arms resting on the spring arm I.

Furthermore, there extend down from the protector-rod or shaft D two fingers, b c, the longer one of which projects down in front of the arm I. The shorter finger does not reach to the said arm, this latter finger being to act against a stud or pin, d, extended from the hook of the inner of the two hooked levers L M.

There are two abutments or stops, N O, affixed to the loom-frame and arranged as represented. These abutments may be applied so as to be adjustable as occasion may require.

During each beating up or advance of the lay, and preparatory to each throw of the shuttle, the arm I will be borne against the upper abutment N, so as to press the said arm away from the longer finger b, and thereby relieve such finger from the pressure of the said spring arm I. The shuttle-binder then will be relieved of all the pressure of the spring G, and, consequently, during the next throw of the shuttle the shuttle-binder will be subjected only to the pressure of the light spring F.

While the arm I may be pressed back during advance of the lay, such arm will be caught and held in position by the hook of the outer hooked lever L. This position of the arm will be maintained during the retreat of the lay until the tail of the hooked lever may be borne against the lower abutment, when the said lever will be moved out of engagement with the arm I. The arm will next be caught by the inner hooked lever, and will be held by it until the shuttle may have entered the box sufficiently for being stopped.

When the shuttle has so entered the box to receive it, such shuttle, by being driven against the binder of such box, will force such binder outward sufficiently

to cause the arm resting against the binder to move and turn the protector-shaft in a manner to force the shorter finger *c* against the stud *d*, and effect the disengagement of the inner hooked lever with the spring arm *I*. As soon as this may take place the arm *I* will be pressed against the longer finger *b*, and thereby cause the reserved power or the force of the spring *G* to be brought into action upon the shuttle-binder to effect stoppage of the shuttle in the box, as well as to prevent the shuttle from rebounding.

I claim—

The combination of the spring *G*, the arm *I*, the two hooked levers *L M*, the abutments *N O*, the fingers *b c*, and stud *d*, or the equivalent of such mechanism, with the spring *F*, shaft *D*, and arms *E E'*, all being arranged substantially in manner and to operate as and for the object or purposes as hereinbefore specified.

SAMUEL BOORN.

Witnesses:

R. H. EDDY,
J. R. SNOW.