

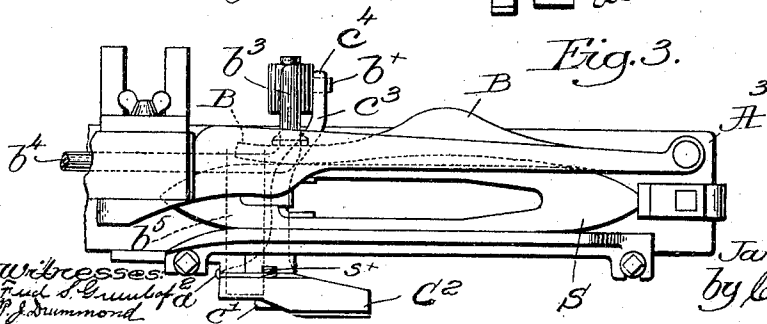
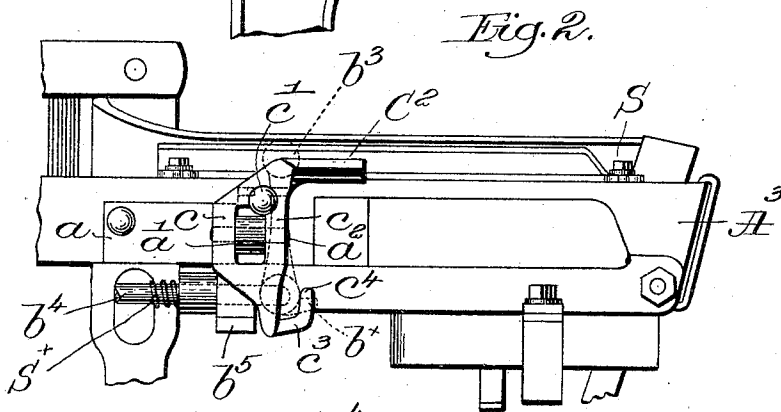
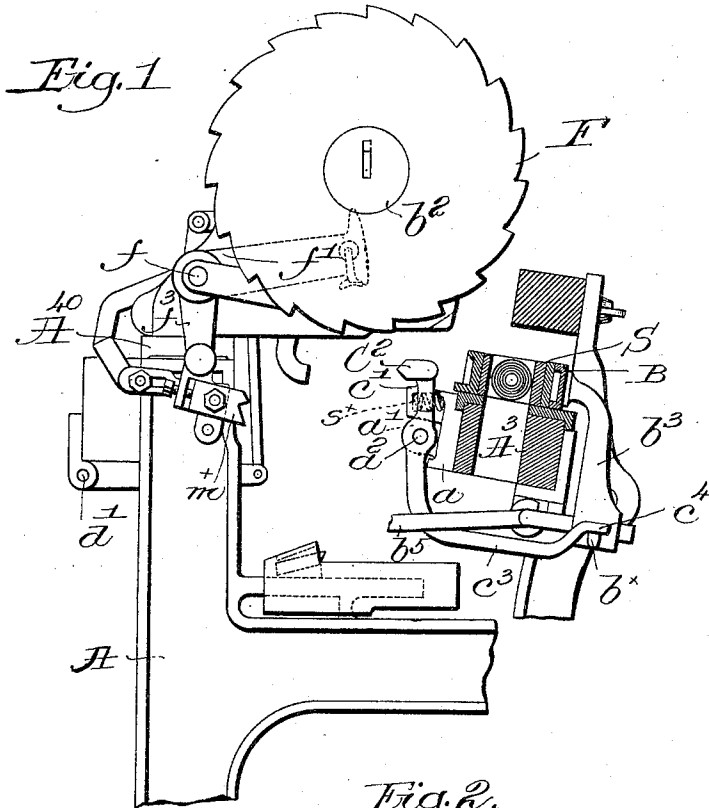
No. 643,271.

Patented Feb. 13, 1900.

J. H. NORTHROP.
LOOM.

(Application filed May 12, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

JAMES H. NORTHROP, OF TUSTIN, CALIFORNIA, ASSIGNOR TO THE DRAPER COMPANY, OF PORTLAND, MAINE, AND HOPEDALE, MASSACHUSETTS.

LOOM.

SPECIFICATION forming part of Letters Patent No. 643,271, dated February 13, 1900.

Application filed May 12, 1899. Serial No. 716,491. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. NORTHROP, of Tustin, county of Orange, and State of California, have invented an Improvement in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In looms of the "Northrop" type, one of which is shown in United States Patent No. 529,940, dated November 27, 1894, a fresh supply of filling is automatically transferred from a hopper or feeder to the shuttle when the filling fails or becomes nearly exhausted, the shuttle at such time being held firmly by the binder in the adjacent shuttle-box. Should the opening of the shuttle and the path of the filling-carrier being transferred fail to substantially coincide, undue strain will be exerted on the parts in order to insert the filling-carrier in the shuttle, lateral or longitudinal movement of the latter being resisted by the pressure of the binder on the shuttle-body.

My present invention has for its object the production of means for reducing or neutralizing the pressure due to the binder as a transfer of filling to the shuttle is effected, so that the shuttle may be free to move slightly and accommodate itself to the entrance of the filling-carrier. A longitudinal movement of the shuttle is sometimes necessary in order that the annular projections or rings on the head of the filling-carrier may enter corresponding grooves in the retaining springs or jaws of the shuttle without causing improper strain on the parts, and reduction or removal of binder-pressure in accordance with my invention permits such movement of the shuttle.

In United States Patent No. 538,507 the shuttle-body is provided with an incline between the holding-jaws for the head of the filling-carrier to at times guide the head into proper position between the jaws, such a shuttle being shown herein, and when the binder-pressure is reduced or neutralized the shuttle itself is permitted to move longitudinally if the head of the filling-carrier strikes the incline, so that there is no undue force re-

quired to properly insert the head between the jaws, the shuttle thus being free to position itself to properly receive the filling-carrier.

Figure 1 is a partial end elevation of a sufficient portion of a loom and automatic filling-supplying mechanism to be understood, viewed from the right-hand side of the loom, with this present invention embodied therein, said filling-supplying mechanism inserting fresh supplies of filling in the shuttle when necessary. Fig. 2 is a detail view, in front elevation, of the right-hand end of the lay, showing the bunter and the connection between it and the binder-finger; and Fig. 3 is a top or plan view of the parts shown in Fig. 1.

The loom-frame A, breast-beam A⁴⁰, the lay A³, having the bottom of one of its shuttle-boxes cut away below the self-threading shuttle S, the filling-supplying mechanism comprising, essentially, a feeder or hopper F, Fig. 1, the west-end holder b², the stud f, transferrer f', mounted thereon and having the depending end f³, and the shaft d', adapted to be rotated by movement of the west-fork in the absence of filling, are and may be all as represented in United States Patent No. 568,455, dated September 29, 1896. The end f³ of the transferrer has mounted thereon a spring-controlled notched dog m^x, which, as in said Patent No. 568,455, is moved into position to be engaged by a bunter C² when a filling-carrier is to be transferred from the filling-feeder to the shuttle by the transferrer f'.

The binder B of the shuttle-box at the end of the lay adjacent the filling-supplying mechanism and herein shown as the back binder is normally acted upon by the usual finger b³, connected with a rock-shaft b⁴ and controlled by a spring S^x, which normally tends to press the upper end of the binder-finger against the binder, the rock-shaft b⁴ being shown in Fig. 1 as provided with the usual dagger b⁵ of the protector mechanism.

The bunter in this invention is mounted in a peculiar manner on the lay to yield for a limited distance when initially engaged by the dog m^x, and such movement of the bunter is herein made effective to reduce or nullify

the pressure of the binder when a supply of filling is being transferred from the filling-supplying mechanism.

The lay is provided with a bracket a , secured to its front side (see Figs. 1 and 2) and having a forwardly-projecting ear a' , which receives a pivot-pin a^2 , extended through opposite openings in the two arms c of the casting of which the bunter C^2 forms a part, said castings being shown as provided with a recessed housing c' to receive one end of a spring s^x , interposed between the bunter and its supporting-bracket a , as best shown in Fig. 1. The spring is located between the bunter proper, C^2 , and the fulcrum a^2 thereof, so that the bunter has a rearward limited movement toward the lay.

The lower end of the bunter-casting is extended to form a tail c^3 , which projects rearwardly beneath the lay and is upturned at its extremity, as at c^4 , to rest upon a stud or projection d^x on the binder-finger.

Referring to Fig. 1, it will be obvious that when the bunter C^2 is moved toward the lay, rocking on its fulcrum a^2 , the extremity c^4 of the tail will be depressed to thereby swing the binder-finger rearwardly against the stress of its spring S^x , thus relieving the binder of its normal pressure. Such movement of the bunter is effected by its initial engagement with the dog m^x , so that as the transferring mechanism is operated by or through the dog and bunter as the lay reaches its forward position the shuttle then in the shuttle-box will be relieved of binder-pressure and the shuttle can then move slightly in the proper direction to accommodate itself to the entering filling-carrier should the longitudinal axes of the filling-carrier and shuttle not be in substantially exact alignment or the shuttle can move longitudinally for a slight distance. By thus permitting the shuttle to position itself to receive the incoming filling-carrier undue strain on the transferring mechanism is obviated—that is to say, if the binder bore with its usual pressure upon the shuttle as the filling-supply was being transferred the transferring mechanism would have to exert sufficient force to position the shuttle in opposition to the force of the binder-spring.

When the loom is running properly, the spring s^x maintains the bunter in normal position, (shown in Fig. 1,) with the rearward extremity of its tail uplifted, so that the binder-finger is free to operate in usual manner on the binder.

The invention is not restricted to the precise construction and arrangement of parts herein shown and described, for so far as I am aware it is broadly new to reduce the binder-pressure as a fresh supply of filling is transferred to the shuttle in a loom provided with automatic filling-supplying mechanism.

Having fully described my invention, what

I claim as new, and desire to secure by Letters Patent is—

1. In a loom, the lay having a shuttle-box, its binder, a self-threading shuttle, mechanism to insert fresh supplies of filling in the shuttle, and means controlled by the operation of said mechanism to reduce the pressure of the binder upon the shuttle when a fresh supply of filling is transferred to the shuttle.

2. In a loom, the lay having a shuttle-box, its binder, a spring-actuated binder-finger, a self-threading shuttle, filling-supplying mechanism, to insert fresh supplies of filling in the shuttle, and means controlled by the operation of said mechanism to retract the binder-finger and reduce the pressure on the binder as a fresh supply of filling is transferred to the shuttle.

3. In a loom, the lay having a shuttle-box, its binder, a shuttle, a filling-carrier feeder, a transferrer to transfer a filling-carrier therefrom to the shuttle, actuating means for the transferrer, and means to reduce the pressure of the binder, governed by said actuating means, to relieve the shuttle from pressure when a filling-carrier is transferred.

4. In a loom, the lay having a shuttle-box, its binder, a shuttle, filling-supplying mechanism, an actuating-dog therefor movable into operative position upon failure of the filling, a cooperating bunter, and means actuated by or through cooperation of the bunter and dog to reduce the binder-pressure as a supply of filling is transferred to the shuttle, whereby the shuttle may position itself to receive the supply of filling.

5. In a loom, the lay having a shuttle-box, its binder, filling-supplying mechanism, an actuating-dog therefor movable into operative position upon failure of the filling, a cooperating bunter pivotally mounted on the lay and having a limited movement when engaged by the dog, a controlling-spring for the bunter, and connections between the latter and the binder, to reduce the binder-pressure when the bunter is engaged by the dog.

6. In a loom, the lay having a shuttle-box, its binder, a spring-actuated binder-finger, filling-supplying mechanism, an actuating-dog therefor, and a cooperating bunter pivotally mounted on the lay and having a rearwardly-extended tail connected with the binder-finger, initial engagement of the dog and bunter rocking the latter and thereby retracting the binder-finger when a fresh supply of filling is transferred.

7. In a loom, the lay having a shuttle-box, means to hold the shuttle therein, a self-threading shuttle, filling-supplying mechanism, to insert fresh supplies of filling in the shuttle, and means controlled by or through said mechanism to release the shuttle when a fresh supply of filling is transferred to the shuttle.

8. In a loom, the lay having a shuttle-box,

its binder, a self-threading shuttle, mechanism to insert fresh supplies of filling in the shuttle, and means controlled by or through said mechanism to neutralize the binder-pressure when a fresh supply of filling is transferred to the shuttle.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

JAMES H. NORTHROP.

Witnesses:

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BEN E. TURNER.