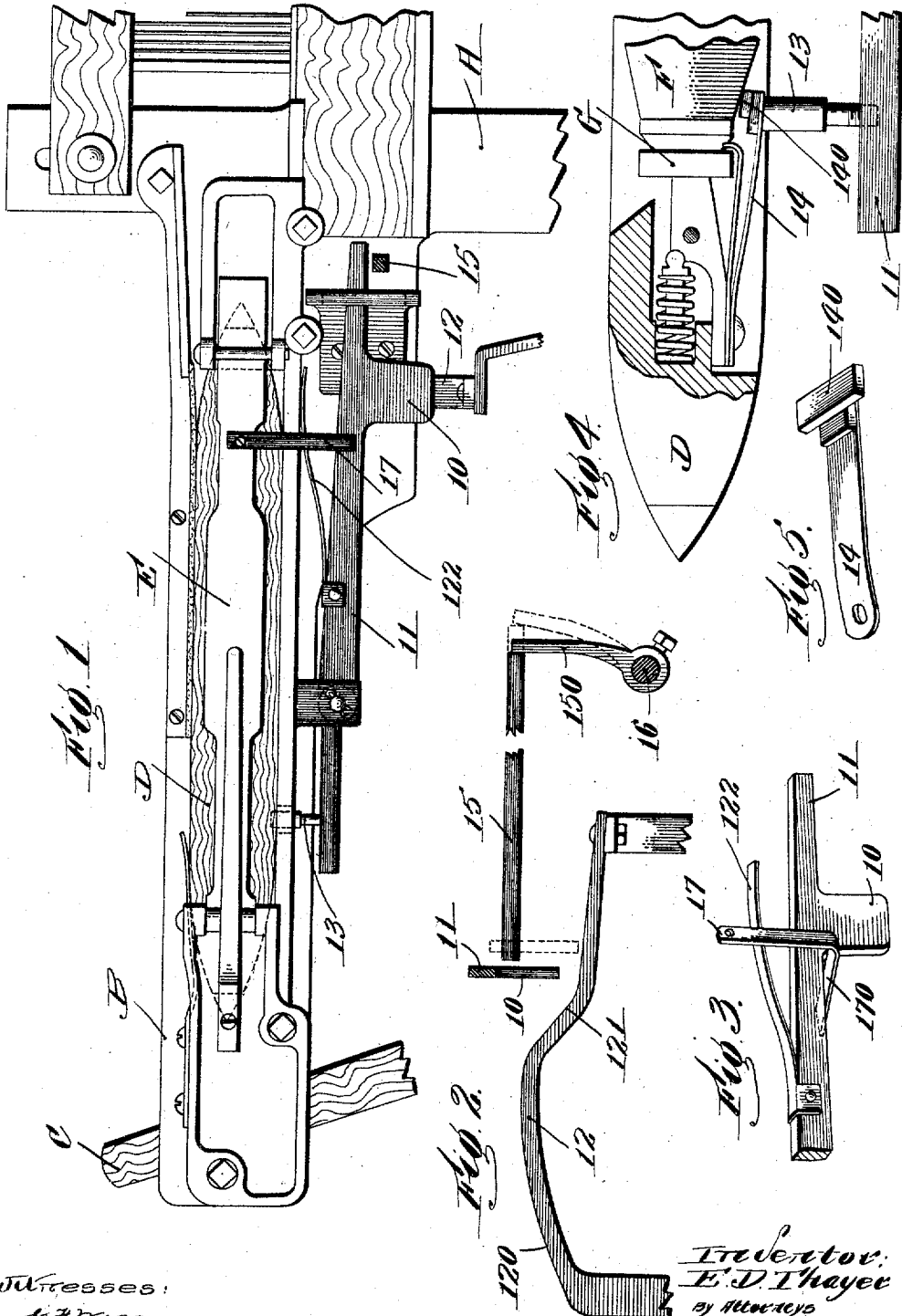


1,018,218.

Patented Feb. 20, 1912.



Witnesses:
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UNITED STATES PATENT OFFICE.

EDWARD D. THAYER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CROMPTON & KNOWLES LOOM WORKS, A CORPORATION OF MASSACHUSETTS.

FILLING-DETECTOR FOR LOOMS.

1,018,218.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed July 12, 1906. Serial No. 325,803.

To all whom it may concern:

Be it known that I, EDWARD D. THAYER, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Filling-Detector for Looms, of which the following is a specification.

This invention relates to a mechanism for measuring the filling on a bobbin in the shuttle of a loom and for calling a shuttle changing mechanism into operation upon the exhaustion of the filling.

The device consists of a detector or feeler arranged in position to press on the filling on the bobbin in the shuttle. The feeler is operated by a lever which is pivoted on the shuttle box or lay. This lever is raised and lowered by the beat or travel of the lay when a shuttle is in the shuttle box. A lock or catch is attached to the binder which holds the shuttle in the shuttle box and the lock is so arranged that it normally will hold the lever in inoperative position until a shuttle comes into the box, when it will release the operating lever and will thus allow the feeler to act. Upon the exhaustion of the filling on the bobbin in the shuttle, the lever will come into position to actuate connections which extend to a shuttle changing mechanism. In this way, a simple and accurately operating detecting mechanism is provided.

The device is illustrated in the accompanying drawing, referring to which, Figure 1 is a front elevation of the end of a lay and shuttle box with my improvement applied thereto. Fig. 2 is a partial end elevation on a reduced scale showing the operating connections. Fig. 3 is a partial detail perspective view of one end of the operating lever. Fig. 4 is a partial sectional view of the end of the shuttle showing the detector, and Fig. 5 is a detail view of the detector.

Referring to the drawing and in detail, A designates the lay, B the shuttle box, C the picker-stick, D the shuttle, and E the spring binder which holds the shuttle in the box. These parts may be of any ordinary or approved construction.

A lever 11 is pivoted to the under side of the shuttle box. This lever has a projection 10 which rides on a stationary cam 12 as the lay beats back and forth. When the lay beats up, the projection 10 will

travel on the part 120 of the cam 12, which surface is arranged substantially concentric with the travel of the lay so that there will be practically no motion of the lever, but as the lay continues its movement, the projection 10 will run down the incline 121 and this will allow the right-hand end of the lever 11, as shown in Fig. 1, to drop. A spring 122 is arranged between the shuttle box and the lever so as normally to force the projection 10 to engage the cam 12. A stud 13 is adjustably secured in the other end of the lever 11. This stud is arranged in position to engage a feeler or detector 14 arranged in the shuttle D in position to bear on the filling F, wound on the bobbin G in the shuttle. This detector consists of a spring arm 14 and face or bearing piece 140.

When the bobbin is full, the detector will hold the lever 11, as shown in Fig. 1. That is, as the projection 10 starts to run down the incline 121, the same will be prevented from dropping by the engagement of the stud 13 with the feeler or detector which, if there is yarn on the bobbin, prevents the lever 11 from dropping. When the filling becomes exhausted on the bobbin, however, the lever will drop as the lay beats up and the end of the same will engage and push on a rod 15 which engages a lever 150 secured on a rock-shaft 16 which extends into position and which controls the shuttle changing mechanism.

Attached to the binder E is a locking arm 17 which extends in position to come under the right-hand end of the lever 11. When there is no shuttle in the shuttle box, the arm 17 will hold the lever from operating, but when the shuttle comes into the box, the binder will be pushed out and the lower hooked end 170 of the locking arm 17 will be moved out clear of the operating lever 11. By this arrangement, the detecting mechanism can only act when there is a shuttle in the shuttle box.

By this arrangement, a simple and effective mechanism is provided for the purpose stated, which mechanism is very smooth and easy in action.

The details and arrangements herein shown and described may be greatly varied by a skilled mechanic without departing from the scope of my invention as expressed in the claims.

Having thus fully described my invention,

what I claim and desire to secure by Letters-Patent is:—

1. In a device of the character described, the combination of the lay carrying a shuttle box, a filling detecting mechanism arranged in connection with the shuttle box, means separate from the filling detecting mechanism for holding the filling detecting mechanism out of operation until a shuttle comes into the box, said means being located in position to be engaged by the shuttle when it comes into the box, and a shuttle adapted to render the filling detecting mechanism operative by engaging said means.

2. In a device of the character described, the combination of a shuttle box, a filling detecting mechanism arranged in connection therewith, a lock for holding the filling detecting mechanism inoperative, a shuttle, and means whereby the lock will be released when a shuttle comes into the shuttle box.

3. In a device of the character described, the combination of the lay carrying the shuttle box, a binder for holding the shuttle in the box, a filling detecting mechanism arranged in connection with the box, and a lock actuated by the binder for holding the detecting mechanism inoperative until a shuttle comes into the box.

4. In a filling detecting mechanism, the combination of a lay, a shuttle box, a lever pivoted thereto, a stationary cam which said lever engages, a feeler mechanism arranged in connection with said lever to engage the filling on the bobbin in the shuttle, operating connections arranged in the path

of said lever, and means for holding the lever out of operation until a shuttle comes into the box.

5. In a filling detecting mechanism, the combination of a lay, a shuttle box, a shuttle having a feeler arranged therein to engage the filling on the bobbin, a pivoted lever having a projection to engage said feeler, a stationary cam whereby said lever will be vibrated as the lay beats, connections arranged in the path of said lever to be operated upon the exhaustion of the filling, and means for locking the lever in inoperative position until a shuttle comes into the box.

6. In a filling detecting mechanism, the combination of a lay, a shuttle box, a binder for holding the shuttle in the box, a shuttle, a feeler arranged in the shuttle to engage the filling on the bobbin, a spring-pressed pivoted lever arranged in position to engage the feeler, a stationary cam for causing said lever to vibrate as the lay beats, connections arranged in the path of said lever to be struck by the same upon the exhaustion of the filling, and a lock extending from said binder to engage said lever and hold the same inoperative until a shuttle comes into said shuttle box.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

EDWARD D. THAYER.

Witnesses:

SAML. H. CLUNY,
BERTICE F. SAWYER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."