

No. 628,893.

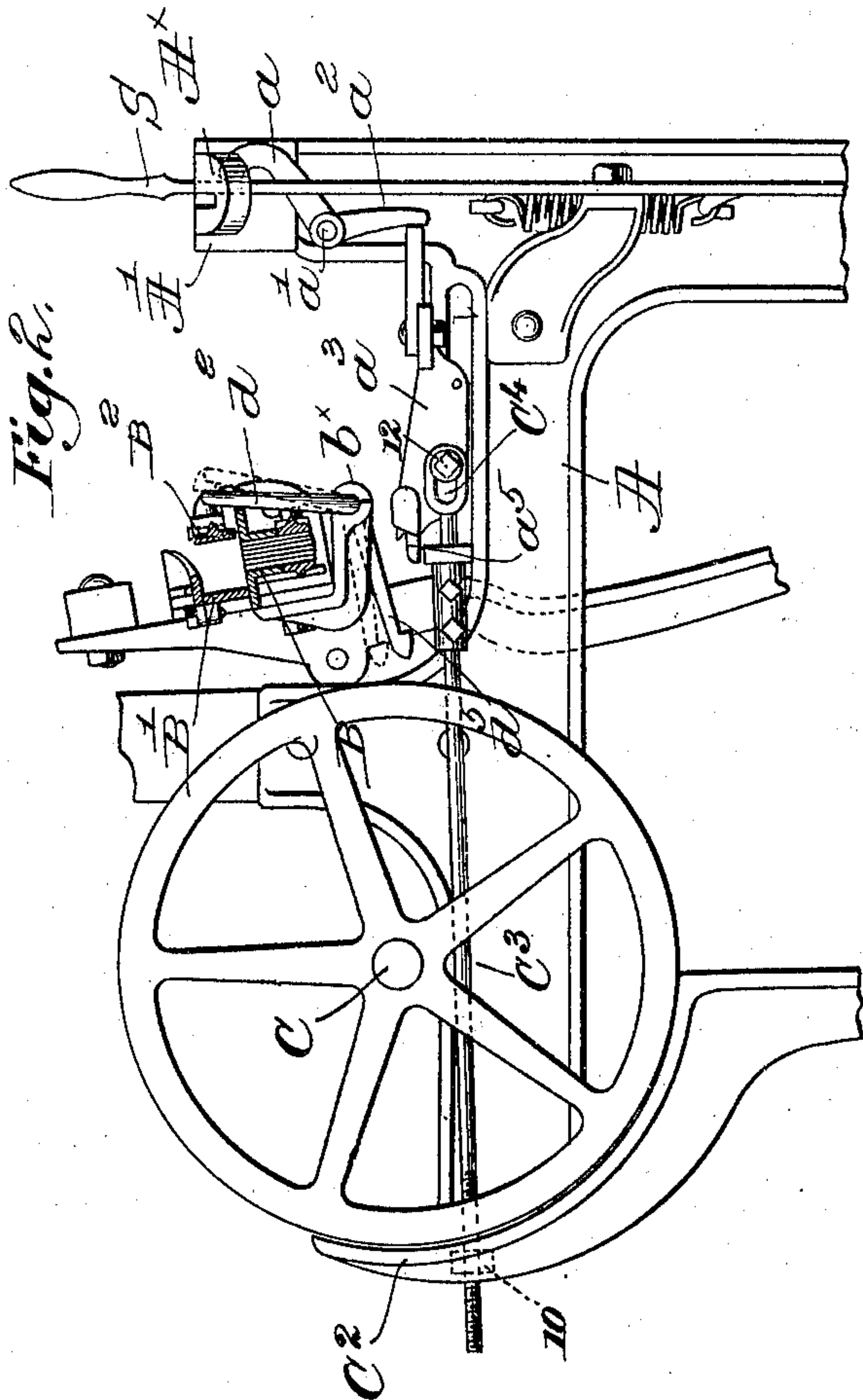
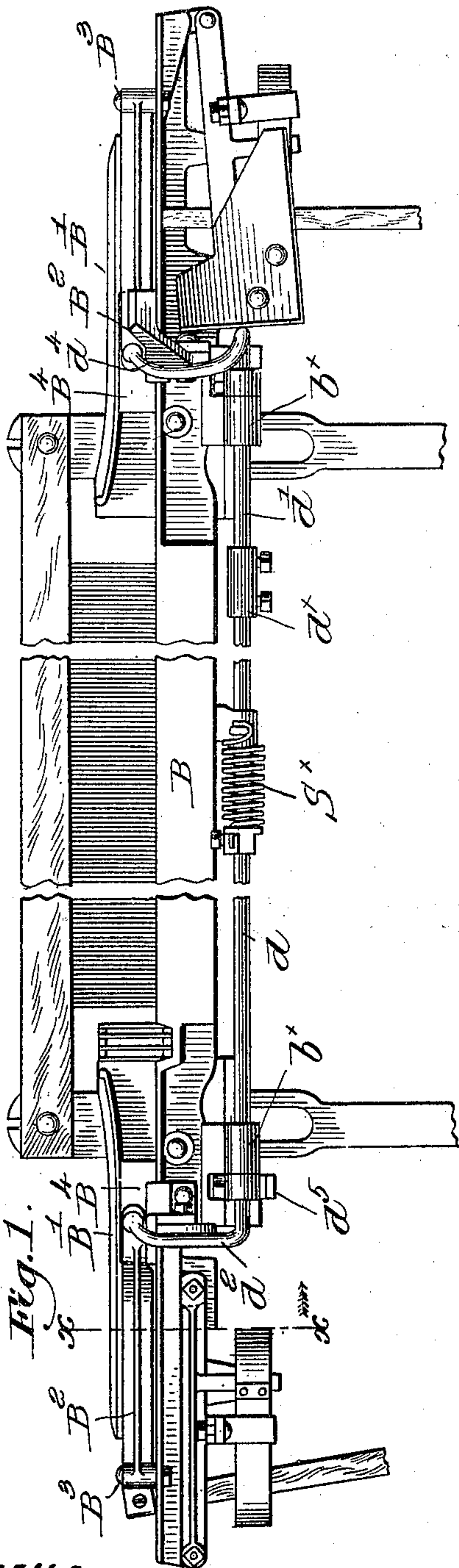
Patented July 11, 1899.

J. H. NORTHROP.

LOOM.

(Application filed Apr. 9, 1898.)

(No Model.)



Witnesses:

A. C. Harmon  
Fred S. Greenleaf.

Inventor:

James H. Northrop  
by Crosby Gregory  
attys.



# UNITED STATES PATENT OFFICE.

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## LOOM.

SPECIFICATION forming part of Letters Patent No. 628,893, dated July 11, 1899.

Application filed April 9, 1898. Serial No. 676,980. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES H. NORTHROP, of Hopedale, county of Worcester, and State of Massachusetts, have invented an Improve-  
5 ment in Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 This invention has for its object the production of novel means for automatically effecting the stoppage of a loom when the shuttle is not properly boxed in the shuttle-box, the shuttle-box being provided with any suitable  
15 form of front binder, which is constructed and arranged to operate with the usual frog device of the protector mechanism.

Figure 1 is a front elevation, centrally broken out, of a lay and the parts carried  
20 thereby to illustrate my invention; and Fig. 2 is a transverse sectional view thereof on the line  $x x$ , the breast-beam, protector mechanism, and a portion of the loom-frame being shown.

25 The loop side A, the breast-beam A', having the usual notched holding-plate A<sup>x</sup> for the shipper-handle S, and the knock-off arm  $a$ , fulcrumed at  $a'$  and having a depending finger  $a^2$ , actuated by the slide-block or frog-carrier  $a^3$ , as shown in Fig. 2, may be of usual  
30 construction, the said slide-block being located at the side of the loom adjacent the shipper-lever S.

The main crank-shaft C has fast thereon a  
35 fly-wheel C', adjacent to which is mounted a brake-shoe C<sup>2</sup>, suitably pivoted on the loom side, the shoe having a projection 10, to which is secured a brake-rod C<sup>3</sup>, slotted at its front end at C<sup>4</sup> to embrace a stud 12 on the slide-  
40 block  $a^3$ .

I have herein shown a cast-iron lay B, having shuttle-box backs B', and provided with front binders B<sup>2</sup>, pivotally mounted on the  
45 lay at B<sup>3</sup>, stops B<sup>4</sup>, attached to the lay at the entrance of the shuttle-boxes, limiting the inward movement of the binders. Bearings  $b^x$  are secured to the lay to receive a two-part rock-shaft  $d d'$ , connected by a coupling  $d^x$ , the outer ends of the parts being bent  
50 up to form binder-fingers  $d^2 d^4$ , which are held

against the binders B<sup>2</sup> by a spring S<sup>x</sup>, attached at one end to the rock-shaft and at its other end to the lay. Near one end of the lay, at the side of the loom adjacent the shipper-lever, I have attached to the rock-shaft a  
55 hook-like dagger  $d^5$ , extended rearwardly below the lay and adapted at times to engage the notched part or frog  $a^5$  of the slide-block  $a^3$ , to thereby move the latter forward as the lay beats up and effect the release of the ship-  
60 per-lever from its holding-notch, bringing the protector mechanism into operation. Such movement of the slide-block acts through the rod C<sup>3</sup> to move the brake-shoe C<sup>2</sup> into engagement with the fly-wheel to effect the stoppage  
65 of the crank-shaft, the momentum of the lay being thus utilized to apply the brake whenever the protector mechanism operates. So far as I am aware, this is new in front binder-  
70 looms. The spring S<sup>x</sup> presses the front binders inward, and the hook  $d^5$  is then in position to engage and move the block  $a^3$  as the lay beats up; but if the shuttle is properly boxed the binder will be pressed outward, rocking  
75 the shaft  $d d'$  and lifting the hook into the dotted-line inoperative position shown in Fig. 2. If the shuttle is improperly boxed, the binder will not be moved outward and the hook  $d^5$  will operate the protector mechanism  
80 and stop the loom.

Any suitable form of front binder may be employed, and it will be seen that the hook is located close to the protector mechanism, obviating the use of intervening connections.

Heretofore, so far as I am aware, front  
85 binder-looms have been provided with a dagger located at the center of the lay and projecting forward therefrom to effect the operation of a knock-off device located substantially at the center of the breast-beam, and  
90 this construction practically prohibits the use of a metallic breast-beam, as the shock is very apt to break it. For this reason front binders have heretofore been limited in their use to looms provided with wooden breast-beams.  
95 By utilizing the usual frog device, as in my present invention, the strain comes upon the loom side on which the frog-carrier travels, the loom side being a heavy metal casting adapted to withstand any amount of compres-  
100



sive strain. With front binders the rock-shaft is turned forward and downwardly when the shuttle is properly boxed, so that a dagger or other device could not be attached to  
5 such shaft to extend forward, for the dagger would be depressed into position to engage the frog when the shuttle is properly boxed. It is necessary, therefore, in my invention to extend the dagger or hook rearwardly from  
10 the rock-shaft in order that it may be depressed into operative position when the shuttle is not properly in the box. By such construction the dagger is subjected to tensile rather than compressive strain, which is also  
15 desirable. The operation of such a device does not admit of the utilization of the momentum of the lay to aid in bringing pressure upon the brake mechanism, while in my present invention this operation is effected as  
20 with the usual back binder-loom.

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  
25 provided with a front binder, normally inoperative protector mechanism, including a slid-

ing member movable on the loom side, and means, including a hook extended rearwardly below the lay, and controlled by the binder to engage and move the said sliding member  
30 and thereby effect operation of said mechanism when the shuttle is improperly boxed, the hook at such time being subjected to tensile strain, substantially as described.

2. In a loom, the lay having a shuttle-box,  
35 a front binder therefor, protector mechanism for the loom, including a frog, an operating tension-hook for and to engage the frog of said mechanism, said hook being carried by  
40 and extended rearwardly below the lay, and connections between said hook and binder, to render said hook operative to engage the frog when the shuttle is improperly boxed, substantially as described.

In testimony whereof I have signed my  
45 name to this specification in the presence of two subscribing witnesses.

JAMES H. NORTHROP.

Witnesses:

HERBERT S. MANLEY,  
GEO. OTIS DRAPER.