

No. 724,292.

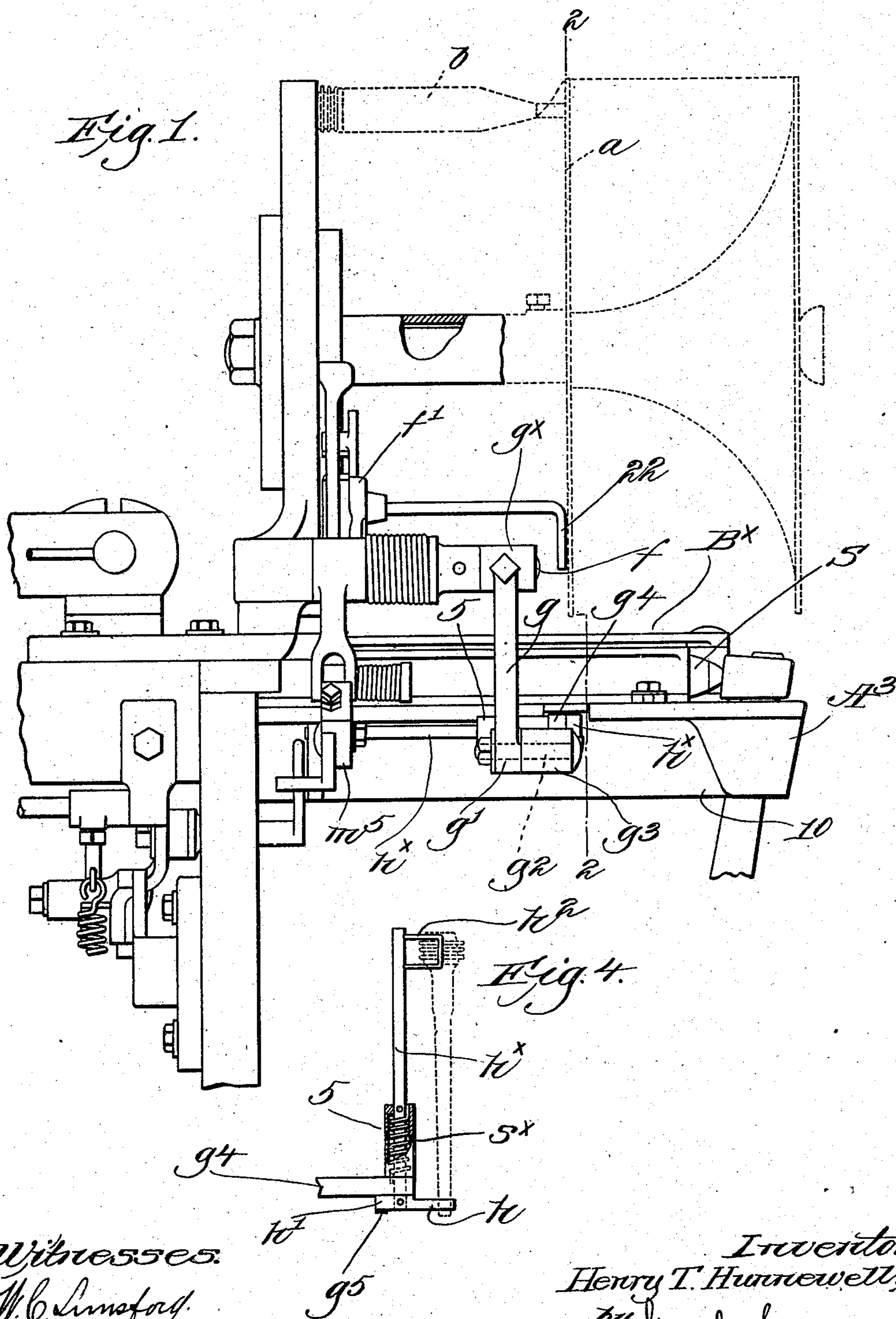
PATENTED MAR. 31, 1903.

H. T. HUNNEWELL.
FILLING REPLENISHING LOOM.

APPLICATION FILED JAN. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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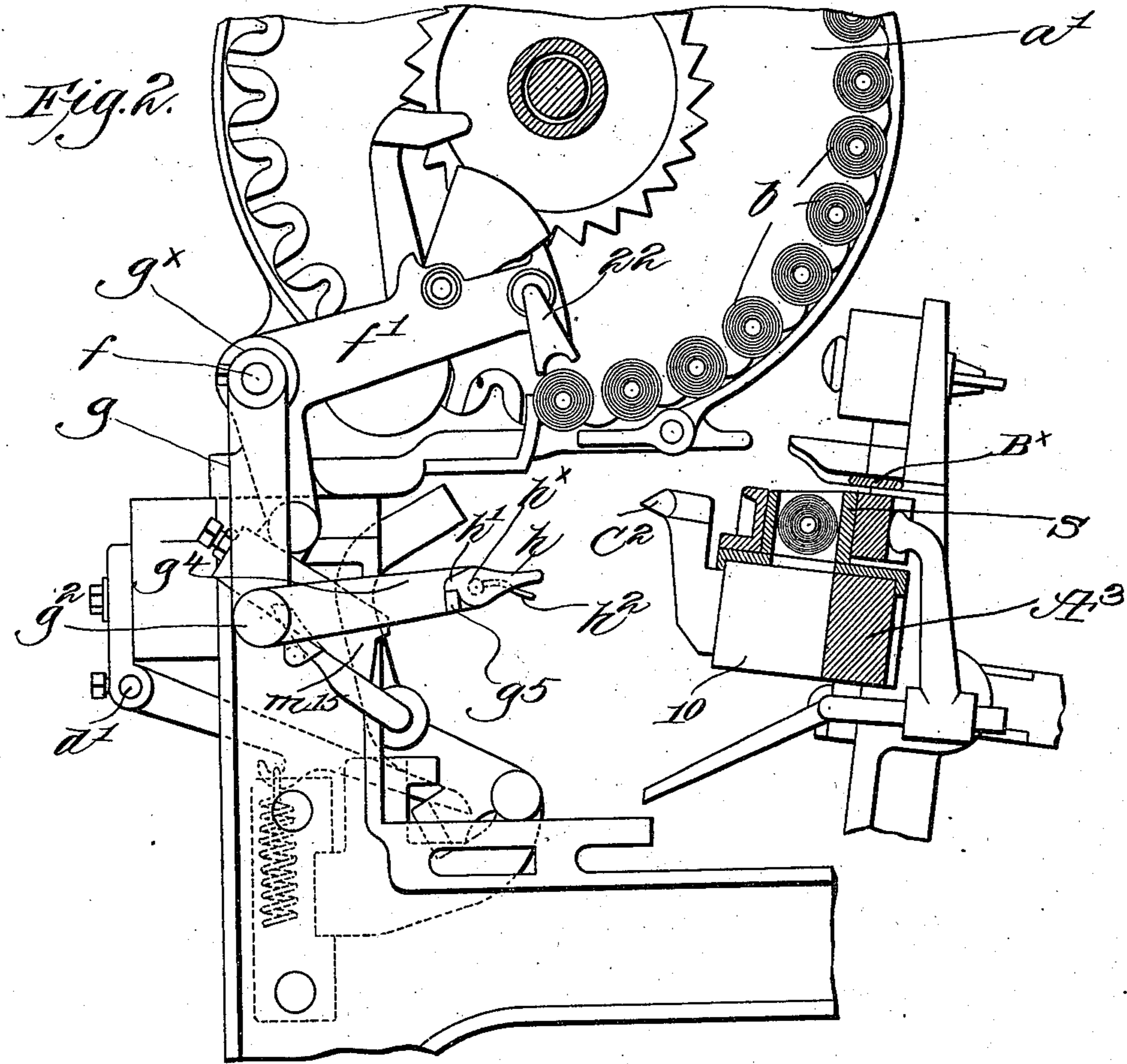
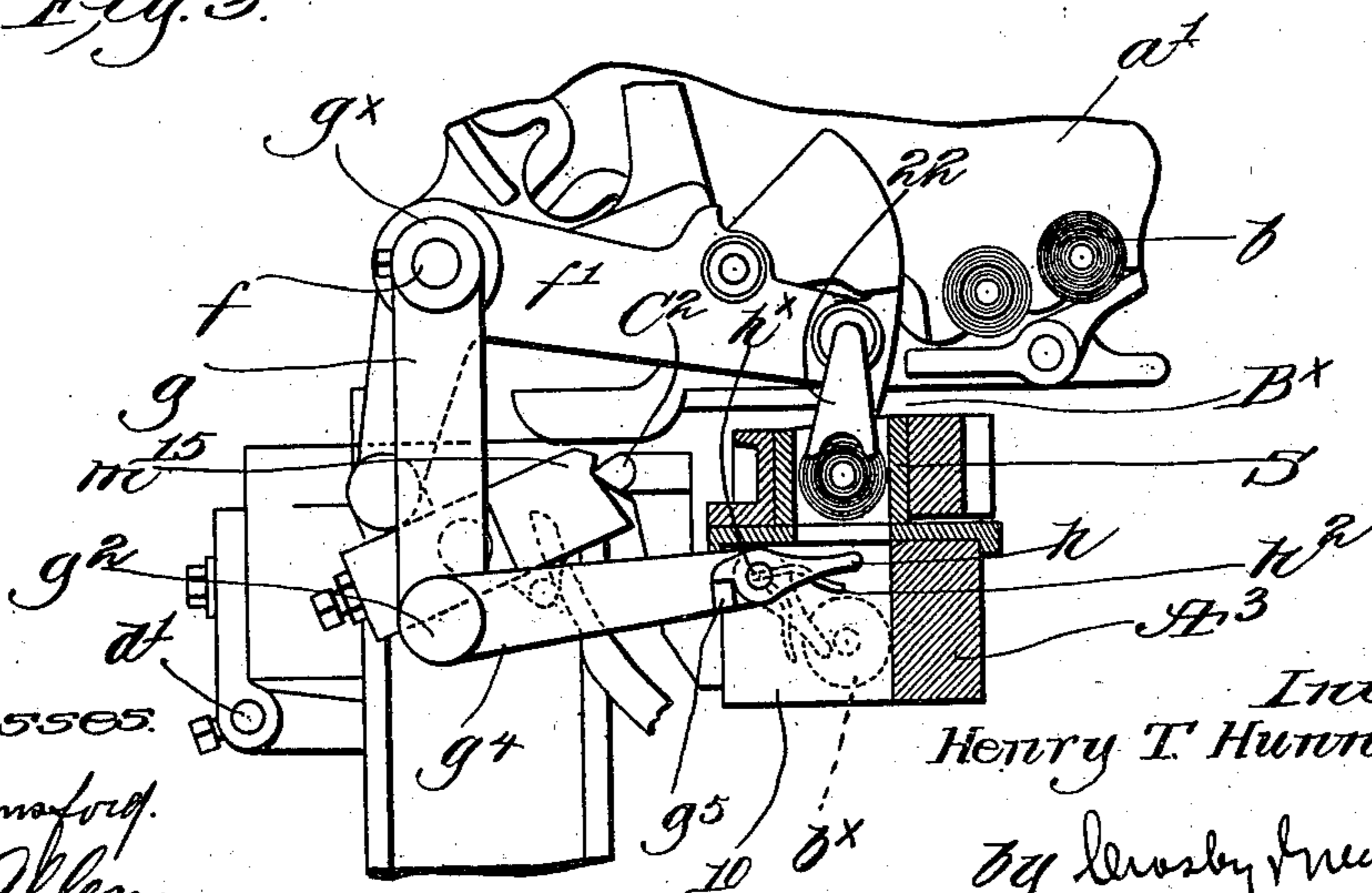


Fig. 3.



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UNITED STATES PATENT OFFICE.

HENRY T. HUNNEWELL, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO
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FILLING-REPLENISHING LOOM.

SPECIFICATION forming part of Letters Patent No. 724,292, dated March 31, 1903.

Application filed January 23, 1903. Serial No. 140,296. (No model.)

To all whom it may concern:

Be it known that I, HENRY T. HUNNEWELL, a citizen of the United States, and a resident of Lowell, county of Middlesex, State of Massachusetts, have invented an Improvement in Automatic Filling-Replenishing Looms, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to automatic looms of the Northrop type—such, for instance, as shown in United States Patent No. 529,940—wherein the running-shuttle is provided automatically with fresh filling-supply when necessary. In looms of this general character the filling-carrier is engaged at its tip and base or head and transferred from a hopper or filling-feeder to the shuttle, and in order to prevent the tip from being unduly depressed or dropping below the shuttle-bottom a “tip-holder,” so called, has been employed. This tip-holder projects beneath the tip of the filling-carrier and yields as the latter is inserted in the shuttle, holding the tip up in proper position. Should the tip drop, it is very apt to break the filling-thread or to be caught in the slot of the lay, and the tip-holder is designed to prevent these faults. In actual practice, however, the tip-holder will sometimes break the thread or otherwise injure the filling, and if it is improperly set it is apt to mar the shuttle by striking it on the side. There is also a tendency to tilt the filling-carrier up out of the shuttle as the lay moves back after a transfer of filling.

My present invention has for its object the production of novel means for preventing the dropping or displacement of the tip of the filling-carrier which is inserted in the shuttle at the time of transfer without any of the objectionable features hereinbefore referred to.

Instead of acting directly upon the incoming filling-carrier I provide means for acting indirectly thereupon by or through the medium of the outgoing or ejected filling-carrier, and not only is the tip of the incoming filling-carrier properly guided and supported as it is inserted in the shuttle, but the ejected filling-carrier is prevented from falling with its tip

upward. Thereby the thread will not tend to unwind and leave a long trailing end, which is apt to be carried back into the cloth, but the smart blow with which the ejected filling-carrier is pushed out of the shuttle acts to draw the thread end out of the shuttle-eye, it being usual to sever automatically the thread between the cloth and the shuttle-box in looms of this type.

The various novel features of my invention will be fully described hereinafter and particularly pointed out in the following claims.

Figure 1 is a front elevation of a portion of the right-hand side of a loom provided with automatic filling-replenishing mechanism with one embodiment of my invention applied thereto. Fig. 2 is a transverse section thereof on the line 2 2, Fig. 1, looking toward the left. Fig. 3 is a similar view, but showing the parts in different position, the incoming filling-carrier having just been inserted in the shuttle and the ejected filling-carrier being shown as just about to drop from the lay beneath the shuttle-box; and Fig. 4 is a top or plan view of the device for effecting the control of the tip of the incoming filling-carrier and governing the position of the one ejected.

Of the various parts shown in the drawings the lay A^3 , cut away at 10 below the replenishing shuttle-box B^x , the filling feeder or hopper comprising connected rotatable disks a' and a to support between them the filling-carriers b , the transferrer f' , having a lateral arm provided with a downturned end 22 to engage the tip of the filling-carrier to be transferred, the bunter C^2 on the lay, and the dog m^{15} , moved into position to be engaged by the bunter when the operating or controlling rock-shaft d' is turned, may be and are all substantially as in United States Patent No. 664,790, dated December 25, 1900, and operate in a manner well known to those skilled in the art to which this invention pertains. At the time of transfer the transferrer f' engages the base or head of the filling-carrier and the part 22 engages the tip, the filling-carrier being thereby conveyed from the feeder or hopper into the shuttle S , which is open from top to bottom to receive the incoming filling-carrier and to permit the discharge of

the spent or exhausted filling-carrier. The latter is ejected by the smart blow with which it is struck by the incoming or fresh filling-carrier, and heretofore the tip of the latter has been supported at time of transfer by a yielding-mounted tip-holder extended beneath it, as in the patent last referred to, the ejected filling-carrier dropping freely through the cut-away part 10 of the lay into a box or other receptacle.

In accordance with my present invention the hub g^x of a depending arm g is fixedly secured to the outer end of the fulcrum-stud f , on which the transferrer rocks, said arm at its lower end having a boss g' , through which a bolt g^2 is extended laterally. This bolt passes through the hub g^3 of a second arm g^4 , extended toward the back of the loom, and by means of the bolt the free end of the arm can be adjusted vertically relatively to the lay. By adjusting the depending arm g on the stud f the free end of the arm g^4 can be regulated toward or away from the front of the loom, as will be obvious. A rocking rod or shaft h^x is extended through the arm g^4 near its free end in parallelism with the lay, and a sleeve 5, Fig. 4, is pinned to the shaft adjacent the inner face of the arm, enclosing a spring s^x , one end of which is attached to the sleeve and its other end is secured to the arm. The shaft projects through the arm g^4 and has secured to it adjacent the outer face of the latter a tip-support or finger h , having a lug h' , which is normally held against a stop projection g^5 on the arm by the action of the spring s^x . The sleeve and tip-support prevent longitudinal movement of the rock-shaft h^x in the arm g^4 . At its inner end the rock-shaft has secured to it a support h^2 for and to momentarily engage the base or head of the ejected filling-carrier, said support being shown herein as a loop of stout wire and slightly concaved at its rear end, as shown in Figs. 2 and 3.

It will be seen that the tip and base supporting members h and h^2 extend into the cut-away part 10 of the lay and beneath and just below the open bottom of the replenishing shuttle-box B^x when the lay beats up and is in position for a transfer of filling to the shuttle S , the adjustments of the arms g and g^4 permitting very accurate positioning of the parts. Now when the incoming filling-carrier enters the shuttle it engages the filling-carrier therein to be ejected and pushes it down out of the shuttle and through the bottom of the shuttle-box, and as the ejected filling-carrier descends it is engaged at its tip and base by the supports h and h^2 , respectively. These act to momentarily retard or arrest the movement of the ejected filling-carrier, but enough to prevent any dropping of the tip of the incoming one, and then the shaft h^x turns to move the supports from full to dotted line position, Fig. 3, due to the impact upon them of the ejected filling-carrier, and the latter drops from said supports. In

Fig. 3 the ejected filling-carrier is indicated by dotted lines at b^x just at the instant it leaves the supports h and h^2 , and it falls in a substantially horizontal position to the box or other receptacle provided for it. As soon as the supports have performed their work the spring s^x returns them to normal position. Thus not only is the tip of the incoming filling-carrier supported indirectly by or through the medium of the outgoing filling-carrier, but the latter is so discharged or ejected that it will not descend tip uppermost, and thereby permit a long trailing piece of filling to unwind therefrom.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a loom, automatic mechanism, including a transferrer, to insert a filling-carrier in the shuttle and to eject therefrom the spent filling-carrier, and means acting through the medium of the latter to position properly the tip of the incoming filling-carrier when inserted in the shuttle.

2. In a loom, automatic mechanism, including a transferrer, to insert a filling-carrier in the shuttle and to eject therefrom the spent filling-carrier, and means to momentarily engage the spent filling-carrier as it is ejected from the shuttle and cause it to support the tip of the incoming filling-carrier when inserted in the shuttle.

3. In a loom, automatic mechanism, including a transferrer, to insert a filling-carrier in the shuttle and to eject therefrom the spent filling-carrier, and yielding means to engage the ejected filling-carrier at its base and tip when ejected and cause it to drop substantially horizontally.

4. In a loom, automatic mechanism, including a transferrer, to insert a filling-carrier in the shuttle and to eject therefrom the spent filling-carrier, and yielding means to momentarily support the latter and act there-through to prevent dropping of the tip of the incoming filling-carrier when inserted in the shuttle.

5. In a loom, a filling-feeder, a transferrer to convey a filling-carrier therefrom to the shuttle, a shuttle having an opening there-through to receive the incoming and discharge the outgoing filling-carrier, and a rocking, yieldingly-controlled device to act through the medium of the outgoing filling-carrier and position properly the tip of the incoming one when inserted in the shuttle.

6. In a loom, a filling-feeder, a transferrer to convey a filling-carrier therefrom to the shuttle, a shuttle having an opening there-through to receive the incoming and discharge the outgoing filling-carrier, a spring-controlled rocker, and means thereon to project into the path of and temporarily engage the tip and base of the outgoing filling-carrier when ejected from the shuttle.

7. In a loom, a filling-feeder, a transferrer to convey a filling-carrier therefrom to the

shuttle, a shuttle having an opening there-
through to receive the incoming and discharge
the outgoing filling-carrier, and means to en-
gage and momentarily retard the outgoing
5 filling-carrier and therethrough prevent de-
pression of the tip of the incoming filling-car-
rier.

8. In a loom, a filling-feeder, a transferrer
to convey a filling-carrier therefrom to the
10 shuttle, a shuttle having an opening there-
through to receive the incoming and discharge
the outgoing filling-carrier, and yielding
means to engage and direct the descent of
the outgoing filling-carrier in substantially
15 horizontal position.

9. In a loom, automatic mechanism, includ-

ing a transferrer, to insert a filling-carrier in
the shuttle and to eject therefrom the spent
filling-carrier, means to extend beneath the
latter as it is ejected and to act therethrough 20
to position properly the tip of the incoming
filling-carrier when inserted in the shuttle,
and devices to adjust said means vertically
and horizontally.

In testimony whereof I have signed my 25
name to this specification in the presence of
two subscribing witnesses.

HENRY T. HUNNEWELL.

Witnesses:

GEORGE W. POORE,
LUCY T. POORE.