

1,274,352.

Fig.1.

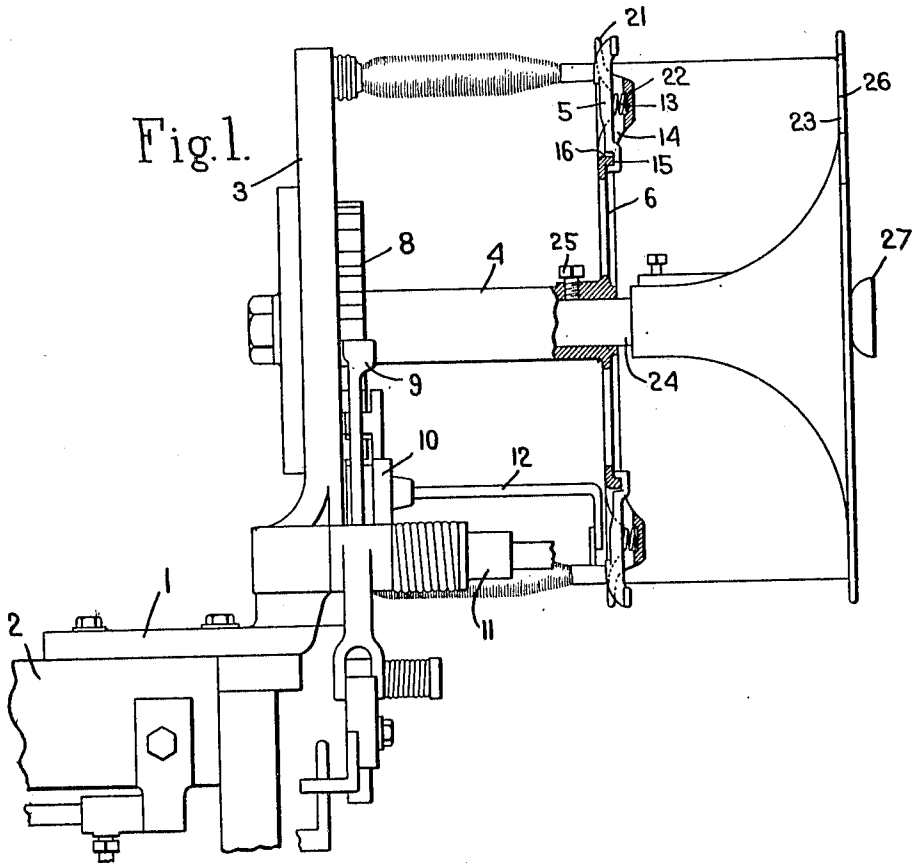
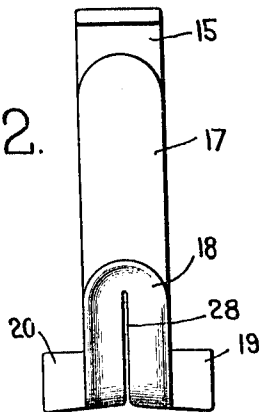


Fig.2.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC FILLING-REPLENISHING LOOM.

1,274,352.

Specification of Letters Patent.

Patented July 30, 1918.

Application filed June 18, 1917. Serial No. 175,288.

To all whom it may concern:

Be it known that I, JOHN MILLS, a citizen of the United States, and resident of Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Automatic Filling-Replenishing Looms, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to improvements in filling feeders for automatic filling replenishing looms and the object thereof is to provide an improved instrumentality for retaining the tip of the filling carrier in the filling feeder or hopper which will permit the filling end to be drawn off substantially axially of the filling carrier and properly anchored so that any rotation of the filling carrier which may take place during the rotation of the feeder or hopper will not break the filling and which will further so support the filling carrier that upon transfer of the filling carrier to the shuttle the filling will be drawn from the filling carrier in an axial direction and presented properly to the threading instrumentality of the shuttle so that upon first pick the introduction of the filling into the shuttle eye will be insured.

The present invention contemplates certain improvements upon the filling feeders disclosed in the patents to Edward S. Stimpson No. 755,252, granted March 22, 1904, and No. 769,573 granted Sept. 6, 1904, in which the filling carriers are supported in a suitable rotating filling feeder or hopper, the tips of the filling carriers being retained in grooves formed in spring actuated plates secured in radial slots at the periphery of a disk which forms a part of a rotatable hopper.

In the construction disclosed in Patent No. 755,252, the filling ends are carried from the filling carriers across depressions in the ends of the webs of the disk between the slots in which the spring supporting members for the tips of the carriers are located so that each of the filling ends of the filling carriers diverge sharply from the line of the axis of the filling carrier.

In the later Patent No. 769,573, special guideways are formed in lateral extensions

of the yielding tip retaining members, the purpose of this construction being to guide the filling end so that at the time of transfer the movement of the filling carrier from the feeder will cause a partial unwinding of the filling so that a small amount of slack is provided which will obviate the breakage of the filling.

The purpose of the present invention is to provide a construction in which the normal position of the filling end will be substantially axial of the filling carrier so that if the filling carrier rotates in its socket in the feeder before reaching transferring position, filling will be unwound sufficiently to avoid a breaking tension upon it and during transfer the filling will unwind in the usual manner without imposing a breaking strain. Other objects of the invention and the nature thereof will more fully appear from the following description and the accompanying drawings, and will be pointed out in the annexed claims.

The drawing illustrates a preferred embodiment of my invention as applied to the usual feeder or hopper of the well known Northrop type of filling replenishing looms.

Figure 1 is a front elevation of the filling feeder or hopper mounted upon the end of the breast beam, a portion of the hopper being shown in section, and,

Fig. 2 is an elevation of a tip holder embodying a preferred form of my invention.

As illustrated in the drawing the hopper stand 1 is mounted upon the end of the usual breast beam 2 and comprises an upwardly extending flanged circular plate 3 having a central stud which carries the hub 4 of the rotating disks or plates which support a circular series of filling carriers.

The bases of said carriers are supported in sockets in one of the plates which is inclosed within the flange of the disk 3 and therefore not shown, while the tips of the filling carriers are supported by tip holders 5 yieldably mounted in the outer disk or plate 6 which is secured to or integral with the hub 4. A ratchet wheel 8 which is securely fastened to or made integral with the hub 4 provides means for rotating the hopper intermittently to present the filling carriers successively to transferring position,

Rotation is imparted to the ratchet wheel 8 by a pawl 9 which is actuated from the usual transfer mechanism which comprises a transfer arm or head 10 pivotally mounted upon a stud 11 and actuated in the usual manner, said transfer head desirably having a tip depressing arm 12. An annular portion 13 of the disk 6 is bent outwardly and is provided with radial recesses 14 at intervals to receive the tip holders 5. The tip holders are provided with hook shaped inner ends 15 which engage an annular flange 16 upon the outer face of the plate 6, and the body portions 17 of the tip holders are substantially rectangular in form and are provided toward their outer ends with a thickened portion 18 presenting a concaved groove which when in position in the feeder extends radially thereof. The outer end of the tip holder is provided with laterally extending flanges or ears 19, 20 which are adapted to engage the ends 21 of the webs of the disk 6 which are intermediate of the recesses 14. Springs 22 seated upon the offset portions 13 of the disks and bearing upon the bodies of the holders, normally tend to force the flanges 19, 20 into engagement with the webs 21.

When a filling carrier is inserted in the filling feeder its base is thrust into a recess in the disk or plate which is inclosed within the circular plate 3 while its outer end or tip is engaged by the yieldable tip holder with sufficient force to retain the filling carrier in proper position.

The usual filling end holder 23 is secured to the hub 4 of the rotating filling feeder or hopper. As illustrated herein this disk has a central stud 24 which is secured within an axial recess in the hub 4 by a set screw 25. The periphery of the filling end holder is provided with a series of notches 26 or recesses in substantial alinement with the axis of the filling carriers when the latter are placed in the hopper.

The filling end holder is also provided with a central stud or post 27 around which the ends of the filling are wound.

In the construction illustrated in the Stimpson patents above referred to the filling end is led from the filling carrier either over depressions in the periphery of the disk or plate 6 intermediate of the tip holders or over a guide in one of the flanges 19, 20 of the tip holder. In either instance the filling end is led at an abrupt angle to the axis of the filling carriers.

The present invention contemplates broadly providing means for leading the filling directly from the filling carrier in the axial direction of said filling carrier to a suitable anchoring instrumentality and to accomplish this purpose a guideway or recess 28 is formed in the tip holder, it preferably being a slot disposed longitudinally of the central

portion of the grooved tip retaining portion 18 of said tip holder.

By thus placing a guideway or slot at the bottom of the groove which holds the tip of the filling carrier the filling may be led directly from the filling carrier through the slot to the recesses in the periphery of the filling end holder 23 and thence to the snubbing post 27 to which the filling end is attached. By reason of this construction any rotation of the filling carrier about its axis which may occur during the intermittent revolution of the filling feeder will not impose a sufficient tension upon the filling end to break it.

Furthermore when the filling carrier reaches transferring position the filling end will lie almost exactly in the direction of the threading slot in the shuttle so that when transfer is effected the filling will be presented to the shuttle in such a manner as to insure the threading of the shuttle upon the first pick.

By reason of the fact that the slot 28 is at the bottom of the groove in the end of the tip holder its walls will be a sufficient distance beyond the end of the filling carrier which engages the walls of the groove to prevent shearing of the filling as the filling carrier is forced out of the tip holder into the shuttle during the transferring operation.

It will be understood that the particular embodiment of the invention disclosed herein is illustrative and that various changes in construction or arrangement of parts may be made within the spirit and scope of the following claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A filling feeder for automatic filling replenishing looms comprising a rotatable hopper having a circular series of supports for the heads of filling carriers, a complementary series of yieldable tip holders having tip receiving grooves, slots within said grooves for guiding the filling ends axially of said filling carriers and means for anchoring the filling ends.

2. A filling feeder for automatic filling replenishing looms comprising a rotary hopper having a circular series of supports for the heads of filling carriers, a complementary series of tip holders having radial grooves, the bottoms of said grooves being slotted radially of said hopper to provide means for guiding the filling ends in a direction substantially axial of the filling carriers, means for retaining said ends in said position whereby rotation of the filling carriers about their axes during the rotation of the hopper will not cause breakage of the filling.

3. A tip holder for filling carriers for au-

5 tomatic filling replenishing looms comprising a rectangular member having at one end a flange adapted when positioned in a filling feeder to form a pivot for said tip holder and at its opposite end laterally extending arms to limit the movement of said tip holder, the said tip holder being pro-

vided with a groove adapted to receive and guide the tip of a filling carrier, the bottom of said groove being slotted longitudinally to form a guide for the filling end.

In testimony whereof, I have signed my name to this specification.

JOHN MILLS.

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