Dec. 30, 1930. A. F. MORRELL 1,786,671

THREAD HOLDER FOR WEFT REPLENISHING LOOMS

Filed Aug. 27, 1929

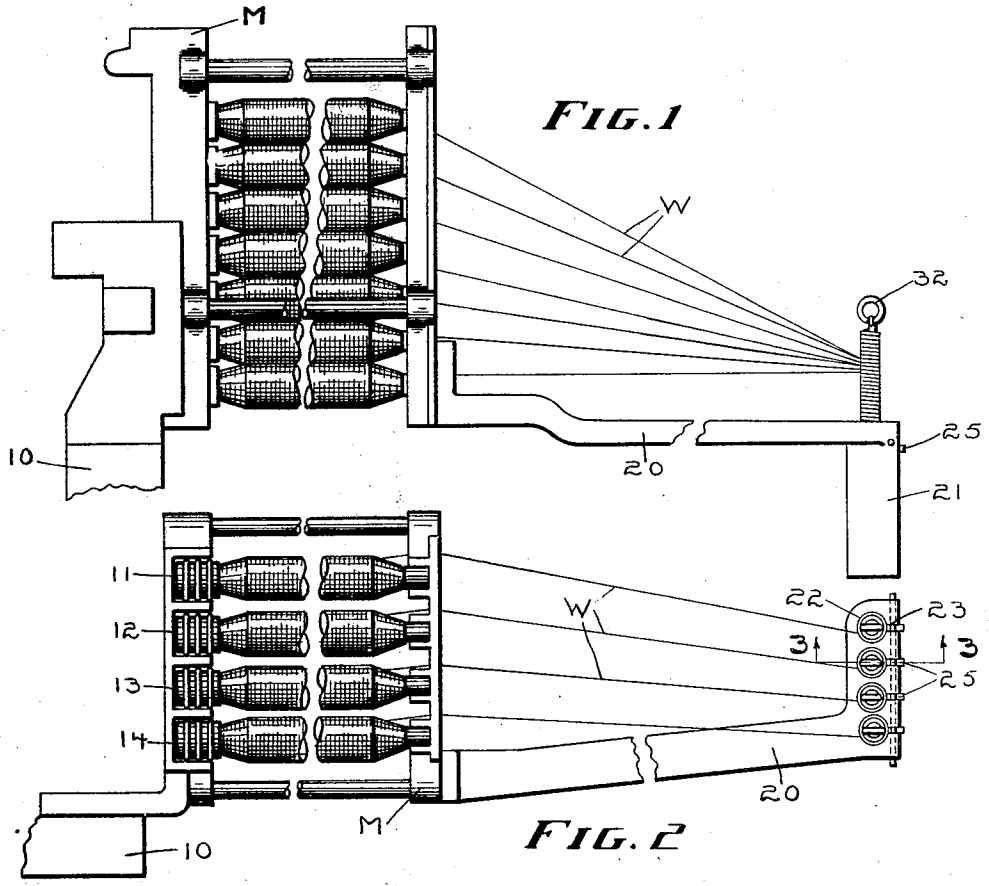


FIG. 1

FIG. 2

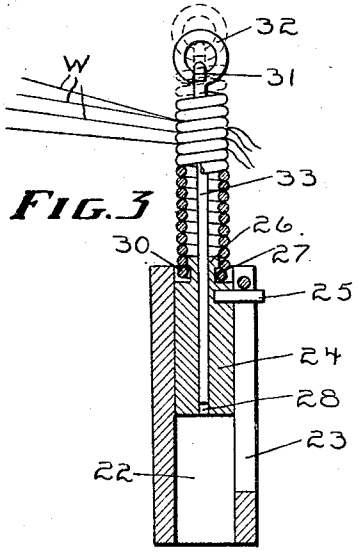


FIG. 3

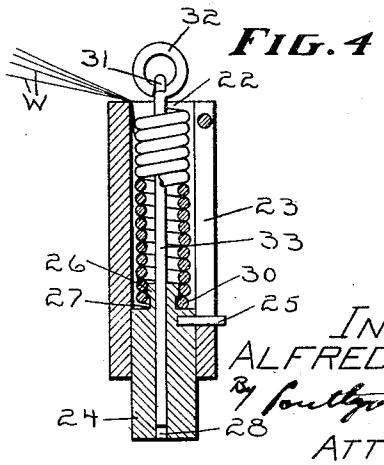


FIG. 4

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THREAD HOLDER FOR WEFT-REPLENISHING LOOMS

Application filed August 27, 1929. Serial No. 388,845.

This invention relates to improvements in thread holders for weft replenishing looms and it is the general object of the invention to provide a device which may readily grip the weft ends from the reserve bobbins and also act by its weight to take up any slack which occurs in said ends.

In weft replenishing mechanism the bobbins which await transfer usually have extending therefrom filling threads which must be held to some form of retainer in order that the shuttle may be properly threaded after transfer. In the case of gravity fed replenishing mechanism it is found that slackness occurs in the thread ends, and it is desirable that this slackness be taken up so that the ends will be held taut at all times. It is an important object of my present invention to provide a weighted spring which can be expanded to receive between its coils the several weft ends and also move downwardly by gravity to take-up slack in the threads.

It is a further object of my present invention to provide a spring and weight attached thereto having a rod which serves to guide the spring and at the same time afford means whereby the latter may be expanded to receive the weft ends.

With these and other objects in view which will appear as the description proceeds, my invention resides in the combination and arrangement of parts hereinafter described and set forth in the claims.

In the accompanying drawings, wherein a convenient embodiment of my invention is set forth,

Fig. 1 is a front elevation of a weft replenishing mechanism of the multicolor type having my invention applied thereto,

Fig. 2 is a top plan view of the structure shown in Fig. 1,

Fig. 3 is a vertical section on an enlarged scale taken on line 3—3 of Fig. 2, the thread holder being in elevated position, and

Fig. 4 is a view similar to Fig. 3 but with the thread holder in lowered position.

The loom frame 10 has secured thereto a multicolor weft replenishing mechanism designated generally at M and having a plurality of bobbin compartments 11, 12, 13 and 14, respectively, which house the several bobbins awaiting transfer. The bobbins are arranged in vertical groups and having extending therefrom weft ends W. I have not illustrated transfer or bobbin controlling mechanisms herein, as the same are well understood in the art, but it is to be understood that during the operation of the loom the bobbins will move downwardly and that their weft ends will tend to become slack because of this downward motion.

In carrying my invention into effect I provide a stand 20 secured to the magazine M and having at the outer end thereof a support 21. The latter is provided with a plurality of vertically extending substantially cylindrical holes or bores 22 and has a vertical slot 23 for each of the holes 22. There is located in each hole a weight 24 of slightly less diameter than the bore in which it moves vertically. Each weight has a stop and guide pin 25 which extends through the slot 23 adjacent thereto and is positioned for engagement with the upper end of said slot to limit movement of the weight. Each weight is further provided with a reduced head 26 below which is located a small peripheral groove 27 and has also a vertically extending hole 28.

A closed coil spring 29 has the lower coil 30 thereof located in the groove 27, and the upper coil 31 thereof extending through eye 32 of a guide rod 33. The latter extends through the bore 28 and serves to position the upper end of the spring and prevent the same from moving toward the magazine under strain of the weft ends attached thereto.

When a new set of bobbins is being placed in the magazine the weft ends W therefrom will be led in a group toward the spring, the rod being lifted by means of eye 32 so as to expand the spring coils. The weft ends are then inserted between the coils and the eye 32 thereafter released, whereupon the spring will grip the ends, being raised as in Fig. 3. It is to be understood that before the spring can be expanded the pin 25 must be in its uppermost position. The spring will also be in its highest location at this time, thereby making use of the maximum downward movement of the weight to take up slack. As trans-

fers take place from time to time the lowest thread held by the spring will become slack, the holder moving toward the position shown in Fig. 4, but this slackness is taken up by the downward movement of weight 24 in the bore 23.

From the foregoing it will be seen that I have provided a simple form of thread holder which is weighted to move downwardly upon occurrence of slack in threads held thereby. It will further be seen that the single upward motion of the eye 32 will suffice not only to move the thread holder to its highest position but will also expand the spring coils. Furthermore, it is in this high position that the spring grips the threads, thus making use of the whole down motion of the spring and weight to tighten the weft ends. It will further be seen that the rod 33 prevents undue deflection of the upper part of the spring under strain of the weft ends attached thereto.

Having thus described my invention it will be seen that changes and modifications may be made therein by those skilled in the art without departing from the spirit and scope of the invention and I do not wish to be limited to the details herein disclosed, but what I claim is:

1. In a weft replenishing loom having reserve bobbins from which extend weft ends, a support, a weighted closed coil spring movable vertically in the support, means for elevating said spring above the support and separating the coils thereof to receive the weft ends of the bobbins between the coils, and means for limiting the vertical movement of said spring, the spring tending to move down under the action of gravity to keep the weft ends taut.

2. In a weft replenishing loom having reserve bobbins from which extend weft ends, a support, a normally closed coil spring, means for elevating the spring above the support and separating the coils thereof to receive the weft ends, means to limit upward movement of the spring with respect to the support, whereby the coils of said spring are expanded as the upper end of the spring is raised to receive between them the weft ends of the bobbins, said weight tending to move down under the action of gravity to keep the weft ends taut.

3. In a weft replenishing loom having reserve bobbins from which extend weft ends, a support, a weighted element movable in the support under the action of gravity, a normally closed coil spring secured to the element, means for elevating the spring above the support and separating the coils thereof to receive the weft ends, means to limit upward movement of the weighted element, the coils of said spring being expansible by an upward pull when the weight is in its highest position to separate the coils so that the latter may receive between them the weft ends of the reserve bobbins, said coils normally gripping the weft ends and being drawn down by the action of the weighted element to hold said weft ends taut.

4. In a weft replenishing loom having reserve bobbins from which extend weft ends, a support, a weighted element movable vertically under action of gravity in the support and having a peripheral groove therein, a normally closed coil spring having a coil located in the groove to establish connection between the weighted element and the spring, and a stop to limit upward movement of the weighted element, the coils of the spring being expansible by an upward pull when the weighted element is in its highest position to separate the coils so that the latter may receive between them the weft ends of the bobbins, said weighted element and coil spring tending to move downwardly under action of gravity to hold the weft ends taut.

5. In a weft replenishing loom having reserve bobbins from which extend weft ends, a support, a weighted element movable vertically in the support under action of gravity and having a peripheral groove therein, and a normally closed coil spring having a coil located in the groove to establish connection between the weighted element and the spring, the coils of the spring being expansible by an upward pull when the weighted element is in its highest position to separate the coils so that the latter may receive between them the weft ends of the bobbins, said weighted element and coil spring tending to move downwardly under action of gravity to hold the weft ends taut.

6. In a weft replenishing loom having reserve bobbins from which extend weft ends, a support, a weighted element movable vertically under action of gravity in the support, a normally closed coil spring secured to the weighted element and extending upwardly therefrom, a pull rod extending freely through the weighted element and being attached to the upper end of the spring, and means to limit upward movement of the weighted element, said rod being movable upwardly when the weighted element is in its highest position to effect expansion of the spring so that the coils of the latter may receive between them the weft ends of the bobbins, said coils normally gripping the ends and being movable downwardly with the element under action of gravity to keep said ends taut.

In testimony whereof I have hereunto affixed my signature.

ALFRED F. MORRELL.