

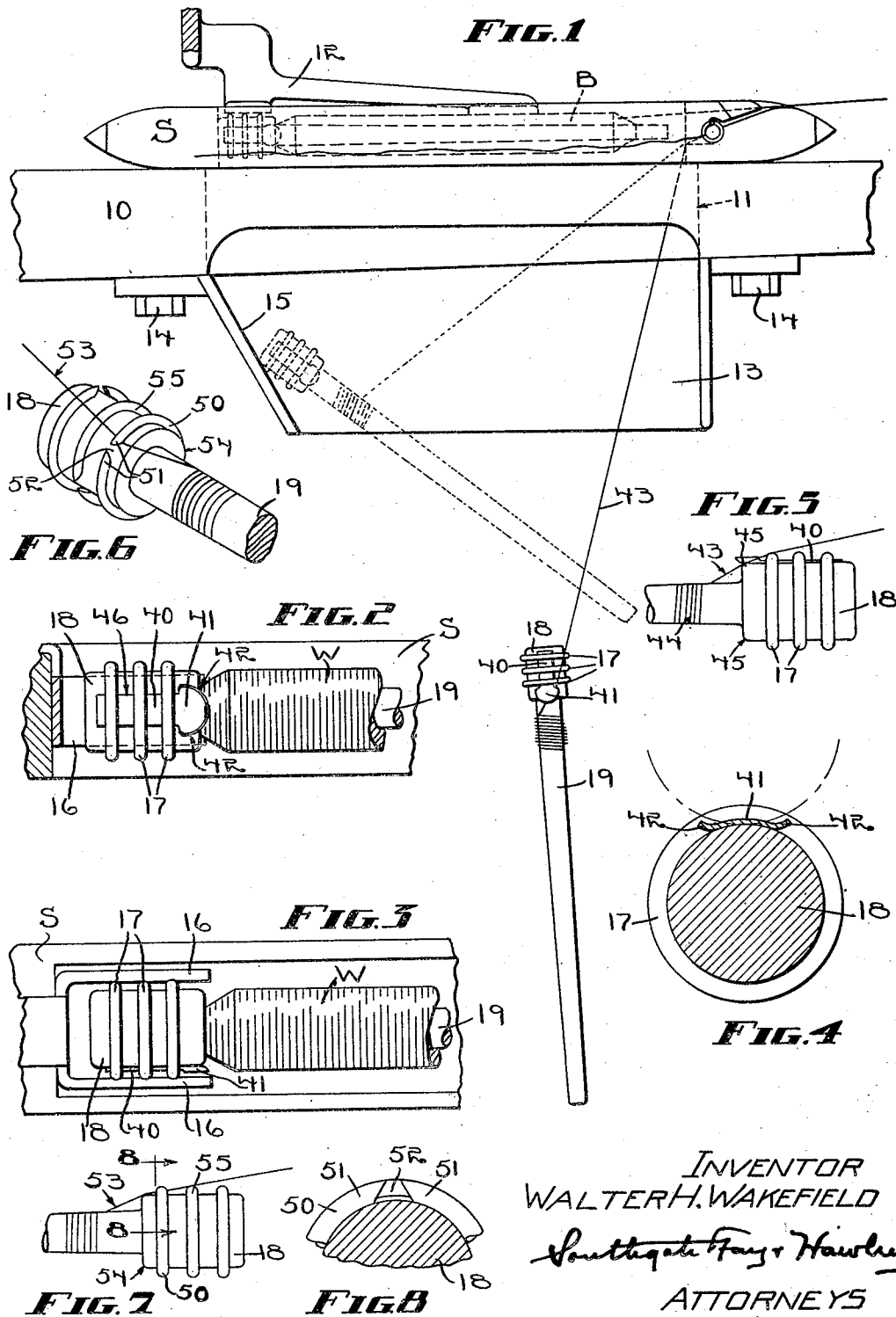
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WEFT END CONTROLLER FOR AUTOMATIC LOOMS AND BOBBINS THEREFOR

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WEFT END CONTROLLER FOR AUTOMATIC LOOMS AND BOBBINS THEREFOR

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This invention has as its general object to improve and simplify means for extracting the weft end which trails from an expelled bobbin at the time of transfer in a weft replenishing loom.

In usual bobbin changing looms it is customary to expel the depleted bobbin and in its place insert a full bobbin by means of transfer mechanism which drives the depleted bobbin downwardly through a slot in the lay, the bobbin ultimately coming to rest in a bobbin can. At the instant of transfer there is a weft end extending from the selvage or shuttle feeler cutter to a shuttle eye and through the latter to the outgoing bobbin. This length of thread should be entirely withdrawn from the shuttle and the shuttle box prior to subsequent picking of the shuttle to prevent the latter from whipping a short end of weft into the shed to produce a blemish in the cloth. Where a cutter is used on the shuttle feeler the length of the thread to be withdrawn is somewhat shorter, but even under these conditions it has been found with certain types of yarn that extraction of the thread end does not always occur. Heretofore an inclined wall on the bobbin chute of the lay has been used to engage the bobbin butt and retard its downward movement so that the tip could advance ahead of the butt. It is an important object of my present invention to use the inclined wall or its equivalent and provide the butt of the bobbin with a projection or similar device which will engage the weft to prevent the latter from unwinding over the butt when the tip is advancing.

It is a specific object of the invention in this connection to provide a bobbin the retaining rings of which may be so formed as to present a snare to trap filling should the latter attempt to unwind over the butt end of the bobbin. As a variation of this latter construction I may employ a clip held under

the rings on the bobbin butt and so shaped as to catch the thread.

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 drawing, wherein a convenient embodiment of my invention is set forth,

Fig. 1 is a detail front elevation of a portion of a lay with shuttle and transferrer mechanism showing the preferred form of my invention,

Fig. 2 is a vertical section through a portion of a shuttle showing part of a bobbin made according to my invention in its preferred form,

Fig. 3 is a top plan view of a structure shown in Fig. 2,

Fig. 4 shows the relation which two bobbins may assume with respect to each other when the clip is uppermost or turned 90° from the position shown in Fig. 2.

Fig. 5 is a diagrammatic view showing the relation of the clip and weft when the latter attempts to unwind over the butt,

Fig. 6 is a detail perspective view of the butt of the bobbin having the modified form of my invention applied thereto,

Fig. 7 is a view similar to Fig. 5 but illustrating the modified form, and

Fig. 8 is an enlarged vertical section on line 8—8 of Fig. 7.

Referring to Fig. 1, I have shown a loom lay 10 on which is mounted a shuttle S having a bobbin B which ordinarily is located above a slot 11 in the lay when the shuttle is properly boxed. A transferrer mechanism 12 may be controlled by magazine parts not herein disclosed but well understood and operative at the time of transfer to push a full bobbin into the shuttle and at the same time expel the depleted bobbin. As shown in Fig. 1 the transferrer mechanism has just

completed an insertion of the full bobbin and the expelled bobbin is shown in two positions, the dotted position being that which the outgoing bobbin assumes shortly after transfer, and the full line position that which the bobbin assumes a little later. A bobbin chute 13 extends downwardly from the lay and is secured to the latter by bolts 14, and preferably has an inclined wall 15 which is oblique with respect to the initial downward movement of the bobbin.

The shuttle may be equipped with springs designated generally at 16 in Figs. 2 and 3 the purpose of which is to grip the rings 17 formed on the butt 18 of the bobbin. The barrel 19 of the bobbin is ordinarily made of less diameter than the butt and has the wound mass of weft W thereon.

The matter thus far described has been in common use for many years in weft replenishing looms of the bobbin changing type, and of itself forms no part of this invention.

My improved bobbin may be made in two forms, the preferred form as illustrated in Figs. 1 to 4 comprising a clip 40 having a snare head 41 shaped particularly as shown in Figs. 2 and 4 and located between the weft of the bobbin barrel and the ring nearest the latter. The clip may be provided with projecting edges 42 projecting upwardly from the adjacent cylindrical portion of the bobbin butt sufficiently to trap a weft thread. The head is made with an edge 42 on each side so as to operate with weft which is wound either in the usual or reverse manner. Fig. 5 illustrates the course of the weft thread 43 as it extends from the bunch 44 on the bobbin over the rounded shoulder 45 of the butt and then over and in tangential contact with the first ring 17. The projections 42 are so designed as to extend above a line tangent to the ring 17 nearest the bunch and the rounded shoulder 45.

The clip is provided with a straight shank 46 held frictionally by one or more of the rings 17 and permits the clip to be adjusted longitudinally of the bobbin so as to place the projections 42 in their correct positions. This adjustment is facilitated by having the shank 46 project under all three rings and beyond the one which is nearest the butt end of the bobbin.

A modified form of the bobbin is shown in Figs. 6, 7 and 8. In this form I eliminate the clip and form the open ring 50 nearest the barrel with opposing free ends 51 which slant downwardly in such a manner as to define small notches 52 with the wooden part of the bobbin butt, as seen in Fig. 8. The space between the ends 51 is sufficient to permit entry of the thread and the manner in which this last action takes place will be understood by reference to Fig. 7, where the weft 53 is shown as lying tangent to the rounded shoulder 54 of the butt and the sec-

ond ring 55. The points 51 project above a line tangent to the shoulder 54 and ring 55 and thus cause entry of the weft between the free ends of the ring 50.

In operation, when either form of bobbin is employed the butt will move downwardly from the lay and probably somewhat ahead of the tip until it strikes the wall 15, at which time movement of the butt will be temporarily retarded to allow the bobbin to assume the dotted line position shown in Fig. 1. The bobbin will continue to move downwardly so that in its course it will pass through the position shown in full lines in Fig. 1. When the bobbin approaches this position the thread will endeavor to unwind over the butt but will be caught by one or another of the devices described, so that further unwinding of the bobbin will be prevented as the bobbin moves downwardly to its ultimate position of rest. In this way the weft end is withdrawn from the shuttle and is not whipped by the latter in the shed.

From the foregoing it will be seen that I have provided a simple means for extracting the weft end of a bobbin in a weft replenishing loom which consists essentially in providing the butt of the bobbin with some form of snare the effect of which is to prevent unwinding of the weft over the butt during the descent of the bobbin subsequent to transfer. It will further be seen that in both forms of the invention the butt is provided with means which forms a notch into which the unwinding weft is directed.

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. A bobbin having a weft carrying part and a supporting butt part, and means on the butt part defining with the latter a tapering notch opening transversely of the path of unwinding weft extending along the butt to engage the weft and prevent unwinding over the butt part.

2. A bobbin having a tip and supporting butt, the tip being free from weft obstructions to enable weft to unwind during weaving and the butt having a projection defining a notch with the butt to engage the weft and prevent unwinding over the butt.

3. A weft bobbin with tip and butt so formed that weft is capable of unwinding over the tip, and means to define a thread receiving notch, part of said means to direct an unwinding weft thread into the notch to prevent the weft unwinding over the butt.

4. A weft bobbin having a weft carrying barrel part and a larger supporting butt part, and a projecting edge extending into

the path of the weft when the latter starts to unwind over the butt to define with the latter a notch into which the weft enters to prevent further unwinding of the weft.

5 5. A weft bobbin having a weft carrying
barrel part and a larger supporting butt
part having rings at different distances from
the barrel, the ring nearest the barrel having
the ends thereof projecting above a line
10 tangent to the butt near the barrel and the
next ring to engage a weft and prevent un-
winding over the butt.

6. A weft bobbin having a weft carrying
barrel part and a larger supporting butt part,
15 and an open ring projecting above the butt
part of the bobbin and having a part to ex-
tend into the path of and opposite to the di-
rection of unwinding of the weft to engage
and prevent unwinding of a weft over the
20 butt.

7. A weft bobbin having a weft carrying
barrel part and a larger supporting butt part,
a bunch of reserve weft on the barrel near
the butt, and a ring on the butt adjacent the
25 barrel and having a projection defining with
the butt a notch, the projection to engage and
direct the unwinding weft into the notch
and prevent unwinding of the weft from the
bunch over the butt.

8. A weft bobbin having a butt and a yarn
30 carrying barrel, the butt having supporting
rings, and a clip passing between one of the
rings and the butt of the bobbin and having
a projecting edge to engage a weft and pre-
vent unwinding of the latter over the butt
55 end of the bobbin.

9. A weft bobbin having a butt and a weft
carrying barrel, and a supporting ring on the
butt adjacent the barrel, said ring being open
40 and having an end thereof provided with a
surface inclined toward the axis of the
bobbin and away from the other end to define
a notch to receive the thread and prevent un-
winding of the weft over the butt of the
45 bobbin.

In testimony whereof I have hereunto af-
fixed my signature.

WALTER H. WAKEFIELD.

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