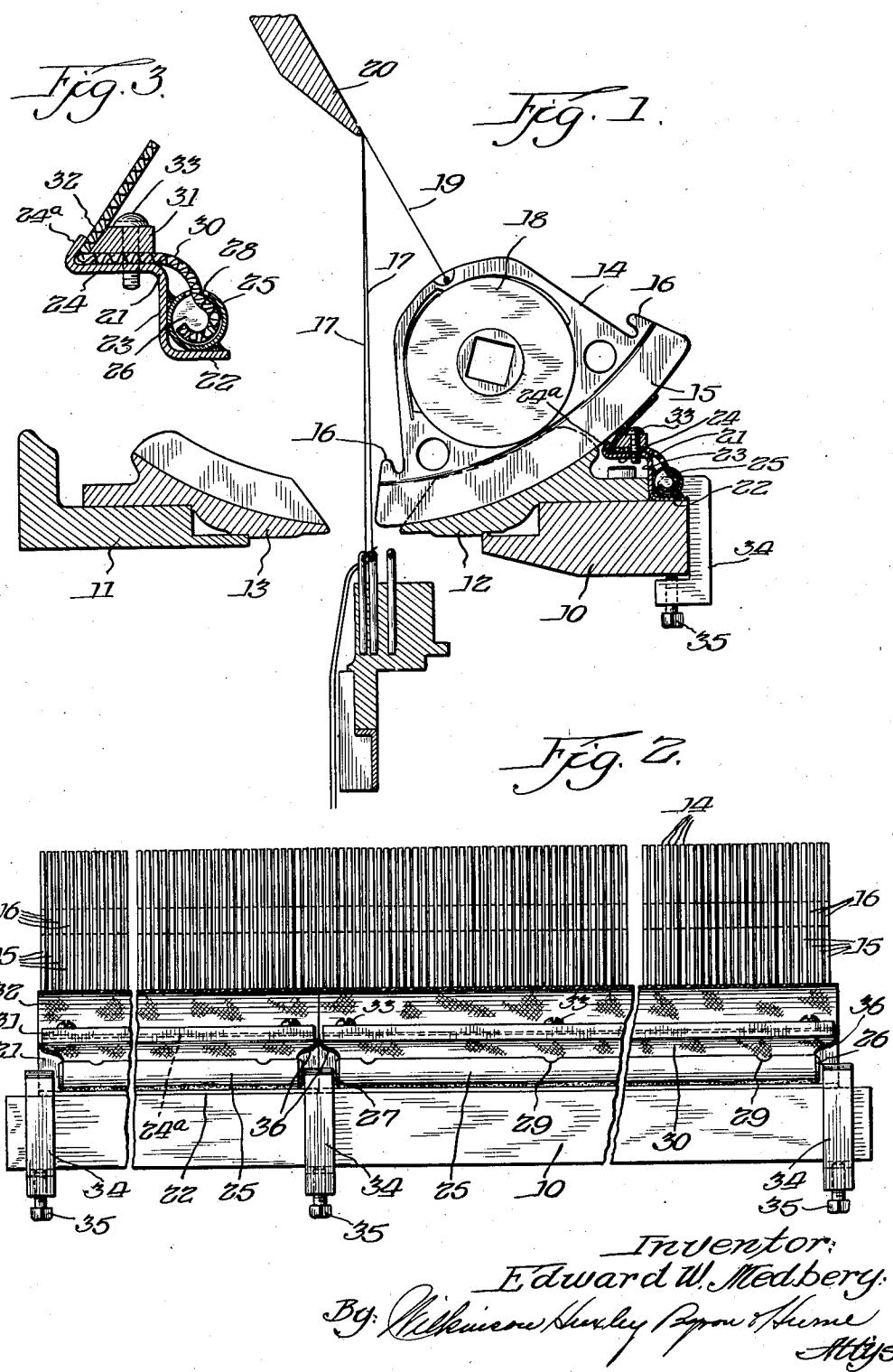


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LUBRICATING MEANS FOR COMB BARS AND
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LUBRICATING MEANS FOR COMB BARS AND BOBBIN SHUTTLES FOR LACE LOOMS

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My invention relates to lubricating means for comb bars and bobbin shuttles for lace looms and has particular reference to means whereby lubricating oil is deposited along the bases of the bobbin shuttles. By capillary attraction the oil spreads onto the base of the bobbin shuttles and is transmitted from these shuttles to both sets of comb bars commonly used in lace looms thereby providing lubrication for these shuttles necessary for their satisfactory operation and for the purpose of reducing the wear to these operating parts.

Another and further object of my invention is the provision of lubricating means, including an oil reservoir for the reception of oil, having a wick therein which is so mounted that a substantial part of the wick is held in engagement with the bobbin shuttle so that oil will be conveyed from the reservoir onto the bobbin shuttle in the somewhat small quantity desired and necessary for the lubrication of these parts.

Heretofore in the lubrication of these particular parts of a lace loom, manufacturers have depended upon graphite, preferably in powdered form, which is distributed lightly over the comb bars or directly onto the bases of the bobbin shuttles. When the operation of the loom is started, usually in the morning, the operator prior to starting the loom or in the initial stages of its operation applies the powdered graphite to these operating parts with one application usually being sufficient to keep the parts lubricated throughout the day. A great deal of difficulty has been experienced in the use of powdered graphite because it is very light and is easily carried from one part of the loom to another and to the material being loomed, as well as in the air around the looms, where it lodges oftentimes in the workmen's clothes, on the floor of the weaving room where it becomes attached to the soles of the shoes of the operators and is carried about the premises to such an extent that constant cleaning operations are necessary, both with respect to the premises themselves and the looms on which the graphite is used and the premises where the looms are located.

Another and further object of my invention is the provision of lubricating means for bobbin shuttles in which a very light oil somewhat of the penetrating type is used and the oil film spreads over the base of the shuttle, a small quantity will pass to the edge of the shuttle opening within which the bobbin is mounted so that not only is the base of the shuttle lubricated, but the bobbin mounted therein lubricated as well.

These and other objects of my invention will be more fully and better understood by reference to the accompanying sheet of drawings in which:

Figure 1 is a sectional elevational view through a lace loom showing my lubricating means attached thereto;

Figure 2 is a side elevational view showing the lubricating means and the sides of the shuttles commonly employed in a lace loom;

Figure 3 is a sectional view through the lubricating device itself.

Referring now specifically to the drawings and in which like reference characters refer to like parts throughout, frame members 10 and 11, which form a part of the loom, are provided upon which the usual comb bars 12 and 13 are mounted within which the shuttles such as 14, 14 are positioned, the base 15 of which is shown in engagement with the comb bar 12 and has the usual hooks 16, 16 at each end thereof by means of which the bobbin shuttles are actuated through the warps 17, 17 and between the bars 12 and 13 in the usual fashion of the operation of these parts, which is well understood in this art.

25 A bobbin 18 of circular form is mounted on the shuttle 14 having a thread 19 extending upward therefrom to a nose piece 20, also of the usual form, all of these parts being common to looms of this type and well known in the art.

30 The lubricating device comprises a Z bar 21 having a base flange 22, a web 23 and an upper flange 24 having an edge flange 24a therealong which is disposed at an angle to the upper flange 24 with the outer face of the edge flange 24a extending generally parallel to the base 15 of the shuttle 14. An oil reservoir 25 preferably of tubular form, and of any desirable or convenient length is provided having plugs 26, 27 in each of its ends and having a continuous slot 28 in the upper side thereof with spaced oil holes 29, 29 therein also being positioned toward the upper side of the reservoir 26, but in slightly offset relation with respect to the continuous slot 28. The reservoir 25 is brazed or otherwise attached to the base flange 22 along its lower side and to the web 23 along its side adjacent the web 23, so that the reservoir 25 is firmly secured to the Z bar 21.

35 The base 22 and web 23 are therefore held together as a unit but the upper flange 24 is flexible due to the thin character of the metal of which the Z bar is made so the oil wick herein-after described is kept in close contact with the bobbin shuttle.

40 An elongated wick 30 is provided which at one of its sides extends through the slot 28 and into

the oil reservoir 26, and extends upward therefrom across the face of the upper flange 24 and against the inner face of the edge flange 25 and thence at an angle substantially parallel to the base 15 of the shuttle 14 and has a substantial portion in contact with the outer edge of the base 15.

A bar 31 is provided having an angularly disposed inner edge 32 extending at substantially the same angle as the inner face of the edge flange 24a and against which the wick 30 is positioned, this bar 31 being held in place by screws 33, 33 extending into the upper flange portion 24 of the Z bar 21 thereby holding the wick 30 firmly in position on the Z bar 21 and also holding the free upper edge portion in proper angular position for engagement with the base 15 of the bobbin shuttle 14. The reservoir 25 is slightly less in length than the Z bar 21, so the base flange 22 of the Z bar extends beyond the ends of the oil reservoir 25, which is engaged by clamps 34, 34 with screws 35 therein by means of which the Z bars including the reservoir 26 are clamped to the upper face of the frame members 10, as is shown, particularly in Figure 1, where a plurality of oiling devices is shown mounted on the front of the loom. One of the clamps 34 overlaps the adjacent ends of the lower flanges 22 of the abutting Z bars, so that the oil devices are firmly held in position on the upper face of the frame member 10. If it is desired to remove or replace these devices for any purpose whatsoever for the replacement of the wicks or the like, the members can be easily removed by loosening the screws 35 and removing the clamps, thereby loosening the Z bars 31 so they can be easily removed and replaced, if desired, or the Z bars may be moved toward or away from the bases of the shuttles 14, 14 in order that the wick be held in engagement therewith.

As will be noted, particularly with reference to Figure 2, the upper portions of the wick are somewhat wider than their lower portions with the edges 36, 36 of the wicks being carved slightly to accommodate them in the reservoir 25 and provides sufficient width to the wicks so that each of the bobbin shuttles is in contact with the upper free edge of the wick 30 when the device is in position on the loom.

In operation the oil device is attached to the loom as heretofore described and at proper intervals the operator fills the reservoir 26 with oil, preferably of a light, clear semi-penetrating variety and by capillary attraction the wick becomes saturated with oil and is brought into contact with the base of the bobbin shuttles with each movement of the bobbin shuttles into contact with the wick 30 because of the elasticity of the upper flange 24 of the Z member so the oil passes to the bases of the bobbin shuttles and thence to the comb bars, so that but the shuttle bars and combs are kept sufficiently and adequately lubricated without an excessive amount of oil being applied to the parts which would be absorbed by the goods being woven or which would drip onto other parts of the machine. In this manner these parts are adequately lubricated, insuring their proper operation and lengthening their life without the disadvantages attendant on the use of graphite as hereinabove described.

Also a small amount of oil will travel across the base of the bobbin shuttles to the edge of the bobbins so the bobbins will also be lubricated without oil coming in contact with either woven

material or the various threads from which it is woven.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit or scope of my invention.

What is claimed is:

1. Lubricating means for traveling bobbin shuttles for lace looms comprising in combination a base member, means whereby the base member is secured to the loom, an oil reservoir on said base member, a capillary oil conveyor extending into the oil reservoir and into the path of travel of the bobbin shuttles whereby intermittent engagement of the said oil conveyor and bobbin shuttles is obtained by the oscillating of the bobbin shuttle and means intermediate its ends whereby the said capillary oil conveyor is held onto the said base member.

2. Lubricating means for traveling bobbin shuttles for lace looms comprising a base member of substantially Z form in cross-section one of the flanges having an edge flange at an angle to the depending flange of the base member and substantially parallel to the bases of the bobbin shuttles, an oil reservoir on said base member, a wick extending into the oil reservoir and into the path of travel of the bobbin shuttles, whereby intermittent engagement of the said wick and the bobbin shuttles is obtained by the oscillation of the bobbin shuttles and a bar having an angular disposed face over said wick and secured to said base member, the said wick being positioned between the said base member and the said bar.

3. Lubricating means for traveling bobbin shuttles for lace looms comprising in combination a base member of substantially Z shape in cross-section, an oil reservoir having a slot therein mounted on said base member, a wick extending into the oil reservoir and into the path of travel of the bobbin shuttles whereby intermittent engagement of the said wick and the bobbin shuttles is obtained by oscillation of the bobbin shuttles and a holding member for the oil wick secured to said base member whereby the oil wick is held against the base member and the bobbin shuttles with each movement of the shuttles against the wick.

4. Lubricating means for traveling bobbin shuttles for lace looms comprising in combination a base member of substantially Z shape in cross-section, an oil reservoir having a slot therein mounted on one of the flanges and to the web of the said base member, a wick extending into the oil reservoir at one of its ends and into the path of travel of the bobbin shuttles at its other end whereby intermittent engagement of the said wick and the bobbin shuttles is obtained by the oscillation of the bobbin shuttles and a holding member for the oil wick secured to said base member whereby the oil wick is held against the base member and the bobbin shuttles as the shuttles move into engagement with the wick.

5. Lubricating means for traveling bobbin shuttles for lace looms comprising in combination combs within which the bobbin shuttles are mounted a base member of substantially Z shape in cross-section, an oil reservoir having a slot therein mounted on one of the flanges and to the web of the said base member, a wick having one

end extending into the oil reservoir and the other end into the path of travel of the bobbin shuttles and a holding member having an angular edge adjacent the bobbin shuttles for the oil wick secured to said base member whereby the oil wick is held against the base member and the bobbin shuttles when one end of the shuttles pass through the comb adjacent which the lubricating means is mounted.

6. Lubricating means for traveling bobbin shuttles for lace looms comprising in combination a base member of substantially Z shape in cross-section, an oil reservoir having a slot therein mounted on said base member, a wick extending into the oil reservoir at one of its ends and into the path of travel of the bobbin shuttles at its other end whereby intermittent engagement of the wick and the bobbin shuttles is secured by the oscillation of the bobbin shuttles and a holding member for the oil wick secured to said base member whereby the oil wick is held against the base member and intermittently against the bobbin shuttles and means whereby the said base member is secured to the loom.

7. Lubricating means for oscillating bobbin shuttles for lace looms comprising in combination a base member of substantially Z shape in cross-section, an oil reservoir having a slot therein mounted on said base member, a wick extending into the oil reservoir and into the path of travel of the bobbin shuttles whereby intermittent engagement of the wick and the bobbin shuttles is secured by the oscillation of the bobbin shuttles and a holding member for the oil wick secured to said base member having an angular edge over which the oil wick passes whereby the oil wick is held onto the base member and into engagement with the bases of the bobbin shuttles as the ends of the bobbin shuttles intermittently pass over the said wick, and a plurality of clamps

whereby the base member is secured to the loom.

8. Lubricating means for oscillating bobbin shuttles for lace looms comprising combs within which the shuttles are mounted an oil reservoir, a wick extending into the oil reservoir and into the path of travel of the bobbin shuttles whereby intermittent engagement of the wick and the bobbin shuttles is secured by oscillation of the bobbin shuttles and holding means for the said wick whereby the said wick is held in position with respect to the oil reservoir and in position to engage the bases of the bobbin shuttles when moved through the comb adjacent which the lubricating means is mounted.

9. In combination with a lace loom, of oscillating bobbin shuttles on said loom, an oil reservoir, means whereby the oil reservoir is mounted on the said loom, a capillary oil conveyor having one end extending into the said oil reservoir and the other end into the paths of travel of the bobbin shuttles whereby intermittent engagement of the oil conveyor and the bobbin shuttles is secured by oscillation of the bobbin shuttles and means whereby the said capillary oil conveyor is held between its ends onto the said loom.

10. In combination with a lace loom of oscillating shuttles on said loom, a base member secured to said loom, an oil reservoir, a capillary oil conveyor and a mounting member whereby the said oil conveyor is secured on said base member intermediate the ends of the said capillary oil conveyor, one end of the said capillary oil conveyor extending into the said oil reservoir and the other being held in the path of travel of the bobbin shuttles by said mounting member whereby intermittent engagement of the bobbin shuttles and oil conveyor is obtained by the oscillation of the bobbin shuttles.

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