F. FARMER.

PILE WIRE LUBRICATING DEVICE.

APPLICATION FILED APR. 26, 1909.

1,019,032.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

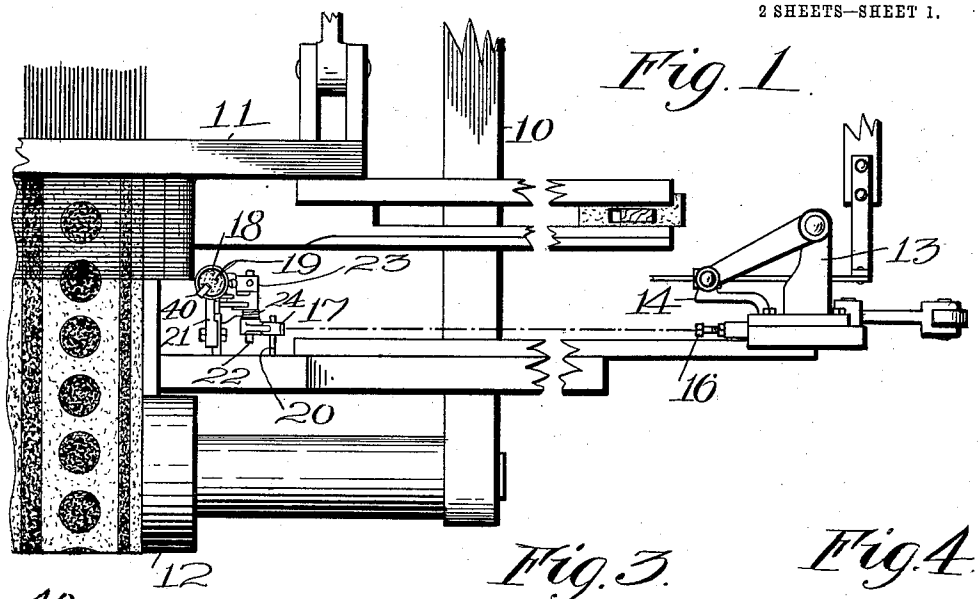


Fig. 2.

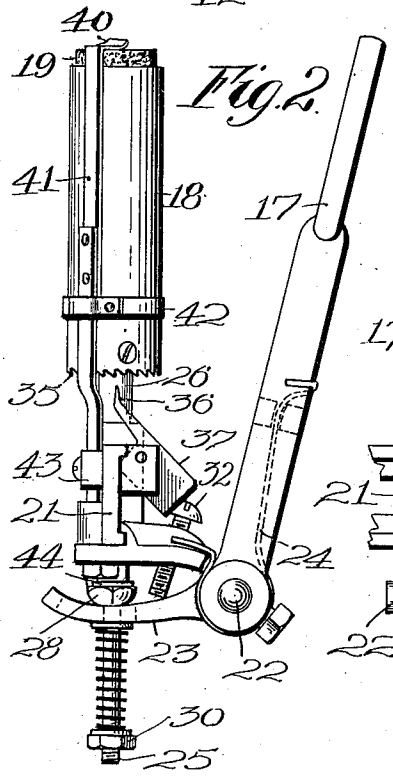


Fig. 3.

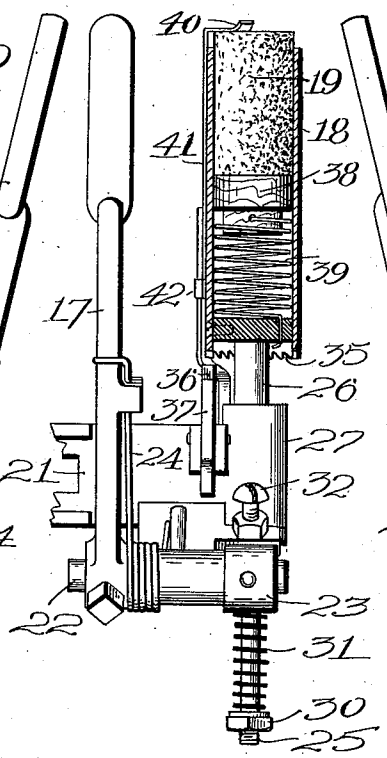
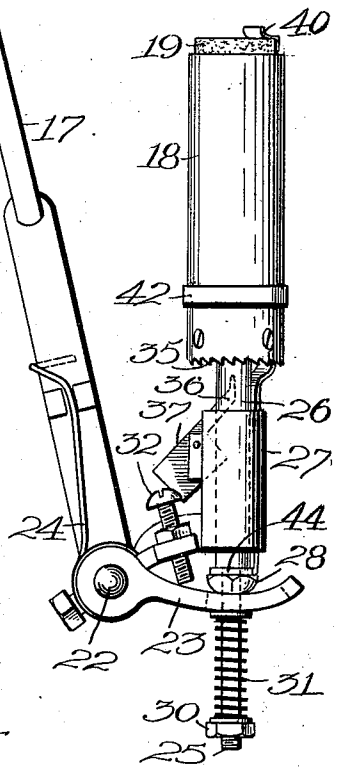


Fig. 4.



Witnesses:

C. F. Wesson

E. M. Allen.

Inventor

F. Farmer

By Attorneys

Southgate & Southgate.

F. FARMER.

PILE WIRE LUBRICATING DEVICE.

APPLICATION FILED APR. 26, 1909.

1,019,032.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 2.

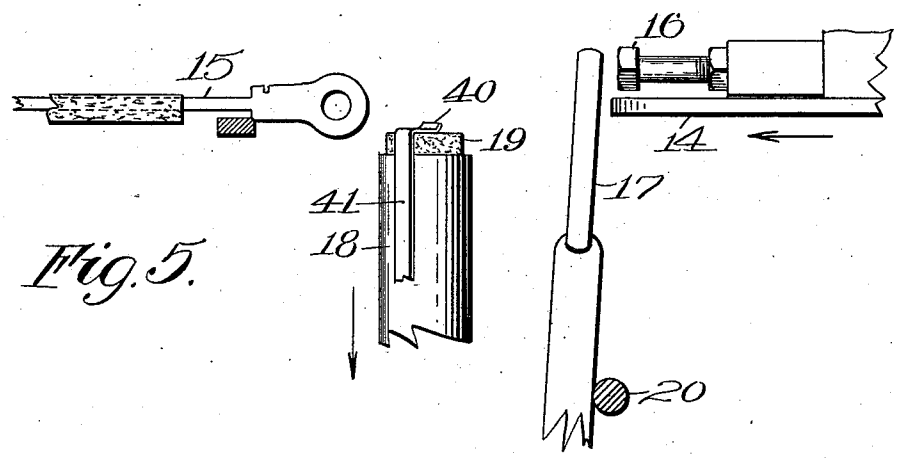


Fig. 5.

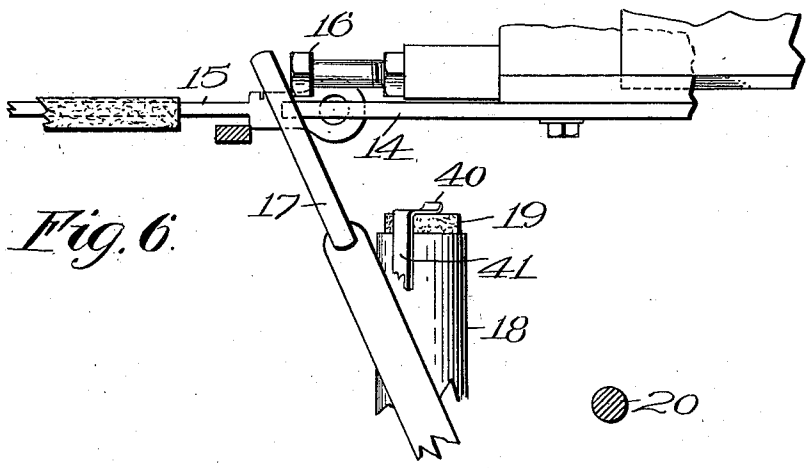


Fig. 6.

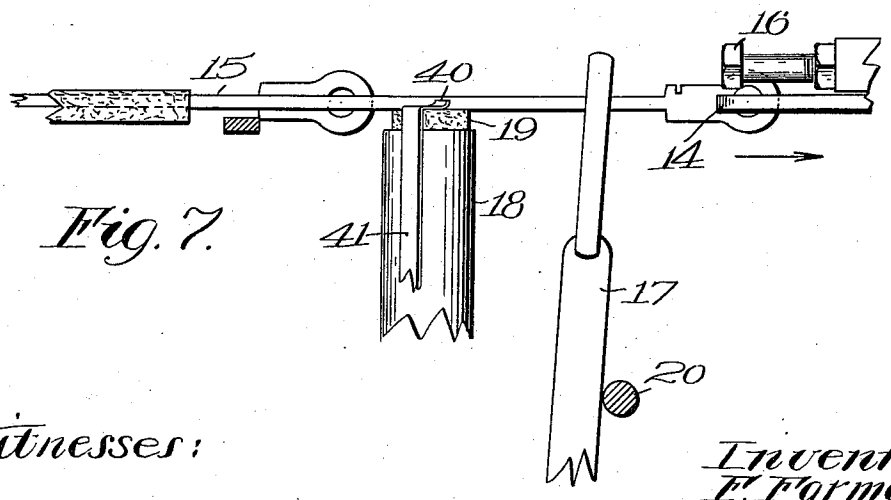


Fig. 7.

Witnesses:

C. F. Mesou

E. M. Allen.

Inventor:
F. Farmer.
By Attorneys
Southgate & Southgate.

UNITED STATES PATENT OFFICE.

FREDERICK FARMER, OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO MATTHEW J. WHITTALL AND MATTHEW P. WHITTALL, OF WORCESTER, MASSACHUSETTS, AND JAMES E. WHITIN, OF UXBRIDGE, MASSACHUSETTS, TRUSTEES FOR THE WHITTALL ASSOCIATION.

PILE-WIRE-LUBRICATING DEVICE.

1,019,032. Specification of Letters Patent. **Patented Mar. 5, 1912.**

Application filed April 26, 1909. Serial No. 492,101.

To all whom it may concern:

Be it known that I, FREDERICK FARMER, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Pile-Wire-Lubricating Device, of which the following is a specification.

This invention relates to the lubrication of the pile wires of looms for weaving carpets and the like, and is applicable to all forms of looms in which a pile is raised whether the pile wire is provided with a knife for cutting the pile or not.

The principal objects of the present invention are to provide a simple and effective means whereby the pile wires can be lubricated without depositing a liquid lubricant thereon in which a solid form of lubricant called a "candle" is pressed endwise against the surfaces of the wire; to provide simple and efficient means for operating the candle so as to prevent its touching the hook; to provide a very simple means for rotating the candle holder so as constantly to present different surfaces of the candle to the pile wires; and to provide means whereby as the candle holder is rotated the spring for holding the candle will bear on the candle with an increasing upward pressure.

Further objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a plan of a portion of a carpet loom showing how this invention can be applied thereto; Fig. 2 is an elevation of the mechanism for operating the lubricating means on enlarged scale; Fig. 3 is an elevation of the same at right angles to Fig. 2 showing parts in section; Fig. 4 is an elevation of the side opposite that shown in Fig. 2 showing the candle holding means separated from its support; Fig. 5 is a side elevation partially diagrammatic in form showing the relative positions of certain parts as the hook comes up to engage a wire; Fig. 6 is a similar view showing the position of the parts as the hook engages the wires; and Fig. 7 is a similar view showing the positions as the wire is being drawn out and lubricated.

The invention is shown as applied to a well-known type of carpet loom and for the purpose of illustrating the invention, the frame 10, lathe 11, spike roll 12, and portion of the hook operating mechanism 13 are illustrated. The hook operating mechanism actuates a hook 14 to withdraw the pile wire 15 in a way that is well understood.

In order to provide for lubricating the pile wires as they are withdrawn the hook operating mechanism is provided with a stop 16 which, as the hook approaches the pile wire, engages a lever 17 for the purpose of lowering a cylinder 18 in which is located a solid lubricating "candle" 19 as is indicated in Figs. 5 and 6. This prevents the candle from engaging the hook. After the hook engages the wire and is withdrawn the lever comes back to a stop 20 and the candle comes up into engagement with the wire to lubricate it as is indicated in Fig. 7. In order to accomplish this result and certain additional results which will be explained hereinafter, the following mechanism is shown: Mounted on the frame of the loom is a bracket or support 21 having a bearing for a rock shaft 22 to which the arm or lever 17 is secured. On this rock shaft is another arm 23 at an angle to the arm 17. These two arms and shaft thus virtually constitute a bell-crank. A spring 24 is connected with the arm 17 and bears on the bracket to hold the arm back against the stop 20. The arm 23 is curved and provided with an elongated slot through which projects a rod 25 which projects down from a slide 26 that reciprocates in a hub 27 on the bracket having a vertical passage therethrough. This slide is provided with a freely slidable nut 28 between its bottom and arm 23, this nut being rounded off to permit an easy motion of these parts. On the bottom of the rod 25 is a nut 30 and a spring 31 is supported above it to take up any excess motion of the lever or arm 17. A screw 32 is employed to engage the lever 23 when it rises and thus adjustably limit the vertical motion of the lever and slide. On the top of the slide is located the candle holder 18 which has been referred to before.

In order to utilize the downward motion of the candle holder, which has been described, for the purpose of turning the candle holder so as to prevent the pile wires wearing a groove in the candle, the following very simple mechanism is shown: On

the bottom of the candle holder are located downwardly extending teeth 35 constituting a rack or ratchet wheel. Pivotally mounted on the bracket below these teeth is a pawl 36, normally held up in position to engage the teeth 35 as the candle holder comes down. This pawl may be held in this position or in any desired way as for example by a counter-weight 37. As the candle holder comes down one of the teeth will engage the pawl and as the pawl can swing only on its own pivot the result will be that the pawl will be forced to swing and its end will go forward so as to turn the ratchet wheel 35, and consequently the candle holder, through a part of a revolution for every reciprocation thereof.

The candle 19 is shown as supported on a plate 38 to which is secured the end of a spring 39 in the candle holder. The other end of this spring is shown as passing through a perforation in the bottom of the candle holder so that it is fixed to the latter so far as rotary motion is concerned. Now as the rotation of the candle is resisted to some extent by a clip 40 engaging its top, which becomes furrowed and roughened in use, the rotation of the candle holder results in winding up the spring, it being understood that a spring is employed which is wound in the opposite direction to that in which the candle holder rotates. Consequently as the candle is gradually worn away the spring is gradually uncoiled and its normal length increases to partially compensate for the wearing away of the candle.

The clip 40 is shown as mounted on a rod 41 which extends down the side of the candle holder and is connected therewith by a band 42 passing loosely around the same. This rod is also guided by a guide 43 on the bracket, and at its bottom it is turned in at right angles to form a plate 44 which is perforated, and through which the rod 25 passes. From this description it will be seen that an exceedingly simple arrangement is provided for accomplishing the above mentioned results, and that the device can be constructed of very few parts.

While I have illustrated and described a preferred embodiment of the invention I am aware that many modifications can be made therein by any person skilled in the art without departing from the scope thereof as expressed in the claims. Therefore I do not wish to be limited to all the details of construction shown and described, but

What I do claim is:—

1. In a lubricating device for the pile wires of the loom, the combination of a frame, a lever mounted thereon having a slot therethrough, a slide vertically movable on the frame and resting on the lever and having a rod extending through said slot, a spring on said rod for resisting excess downward motion of said lever, a spring for normally holding said slide in elevated position, a holder carried by said slide, and a lubricating candle located in the holder.

2. In a lubricating device for the pile wires of a loom, the combination of a frame, a bell-crank mounted thereon, a slide vertically movable on the frame and resting on one arm of the bell crank, a spring for normally holding said slide in elevated position, an adjustable stop for limiting the uppermost position of the slide, a holder carried by said slide, and a lubricating candle located in the holder.

3. In a lubricating device for the pile wires of the loom, the combination of a frame, a lever mounted thereon, a slide vertically movable on the frame and resting on the lever, a spring for normally holding said slide in elevated position, an adjustable stop for limiting the uppermost position of the slide, a holder carried by said slide, and a lubricating candle located in the holder.

4. In a lubricating device for the pile wires of the loom, the combination of a frame, a lever mounted thereon having a curved upper surface and an elongated slot therethrough, a slide vertically movable on the frame and resting on the lever and having a rod extending through said slot, a spring on said rod for resisting excess downward motion of said lever, a spring for normally holding said slide in elevated position, an adjustable stop for limiting the uppermost position of the slide, a holder carried by said slide, and a lubricating candle located in the holder.

5. In a lubricating device for the pile wires of the loom, the combination of a frame, a lever mounted thereon having a curved upper surface and an elongated slot therethrough, a slide vertically movable on the frame and resting on the lever and having a rod extending through said slot, a spring on said rod for resisting excess downward motion of said lever, a holder carried by said slide, and a lubricating candle located in the holder.

6. In a device for lubricating the pile wires of a loom, the combination of a frame or bracket having a hub thereon provided with a vertical passage, a slide movable in said vertical passage, a holder on said slide, a lubricating candle in the holder, resilient means for raising said slide, a lever for lowering the slide, said slide having a rod thereon projecting downwardly therefrom through the lever, a rod mounted along said hub and holder and movable with the slide and provided to retain the candle therein, said rod having a perforated plate on the end through which said rod passes, and means on the bracket and holder for guiding said rod.

7. In a device of the character described,

the combination of a bracket, a slide movable up and down thereon, a lever for moving the slide down, a spring for normally holding it in elevated position, a cylinder mounted on said slide for holding a lubricant, said cylinder having downwardly projecting teeth on the bottom thereof, and a pawl pivoted on said bracket and engaging the teeth, whereby as the slide is lowered the pawl will cause the cylinder to be turned through a portion of a revolution.

8. In a device of the character described, the combination of a bracket or support, of a candle holder movable up and down thereon and provided with downwardly projecting teeth on the bottom thereof, and a pawl pivoted on said bracket or support and adapted to engage said teeth, whereby as the candle holder is lowered it will also be rotated by the pawl.

9. In a device of the character described, the combination of a vertically reciprocating and rotary candle holder, a plate in the candle holder for supporting the candle, means for engaging a candle in the holder and retarding its rotation and a spring fixed to the plate and candle holder and coiled in the direction opposite to that in which the candle holder rotates whereby as the candle holder is rotated the spring will be unwound.

10. In a device of the character described, the combination of a rotary candle holder, a spring therein for holding a candle and forcing it to the top of the holder, one end of the spring being fixed with respect to the candle holder, a clip for engaging the top of the candle, and means whereby as the candle holder is rotated the spring will be partially uncoiled until the tension of the spring serves to rotate the candle against the breaking action of said clip.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

FREDERICK FARMER.

Witnesses:
CHARLES HUGO,
THOMAS WM. TAYLOR.