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LIGHTING DEVICE FOR SEWING MACHINES

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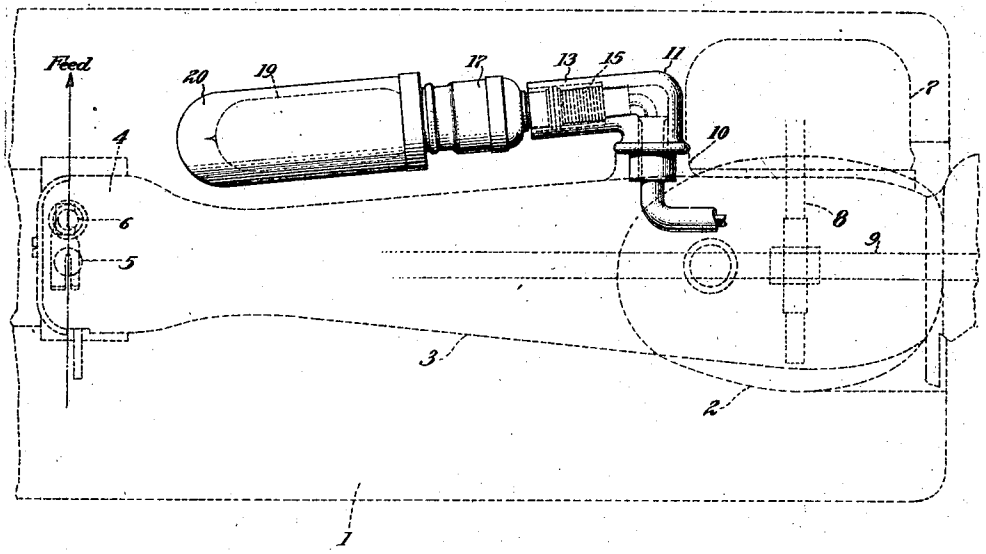

Fig. 1.

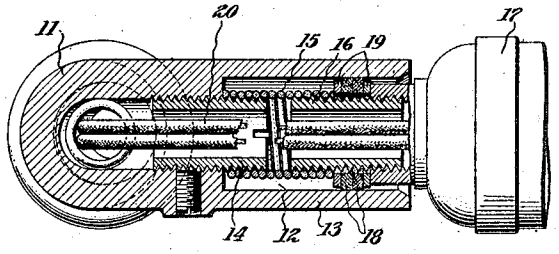

Fig. 2.

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UNITED STATES PATENT OFFICE.

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LIGHTING DEVICE FOR SEWING MACHINES.

Application filed January 23, 1922. Serial No. 531,026.

To all whom it may concern:

Be it known that I, BERNARD ELSHOFF, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Lighting Devices for Sewing Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Electric lighting devices for sewing machines, particularly when applied to machines operating at high speed, are subjected to a type of vibration which has a tendency to shorten the life of the lamp-filaments. The vibration of the machine frame is of small amplitude but is sometimes of a severe, sharp, or jarring character, in the nature of a rapid succession of hammer blows. While, by mounting the lighting device adjacent the bend of the sewing machine gooseneck, the destructive effect of this vibration on the lamp-filament is sufficiently reduced to permit the attainment of a satisfactory life by lamp-bulbs having filaments of the more rugged types, such as carbon or the metallized filaments, it is an object of the present invention to further reduce the vibration transmitted to the lamp-filament, or soften its character, in order that a satisfactory life may be attained by lamps having filaments of the more delicate types, such as tungsten filaments.

Another object of the invention is to reduce the vibration of the lamp-filament in a sewing machine lighting device retaining the advantages of the constructions disclosed in the copending applications of Frederick Diehl, Serial No. 449,968, filed March 5, 1921, and Serial No. 453,786, filed March 19, 1921, among which advantages may be mentioned the ease with which the device may be applied to the machine; its effective illumination of the work; its neat and attractive appearance; the absence of objectionable shadows on the work; the freedom from objectionable heat and glare and the freedom from interference with the dropping of the sewing machine head within the cavity of the usual drop-head cabinet, or with the placing over the machine of the cover of the usual hand-carrying case.

To the attainment of the ends in view, a cushioning device is interposed between the horizontally disposed lamp-socket, which carries the lamp-bulb and reflector, and the sewing machine gooseneck. The cushioning device should be of compact or condensed form so that the lamp-socket may be sustained closely adjacent the point of connection of the device to the gooseneck. In the specific embodiment of the invention chosen for the purposes of the present disclosure, the cushioning device is in the form of a compact spring of coiled form. The supporting element adapted for attachment to the machine frame adjacent the bend of the gooseneck is in the form of a hollow elbow within which is secured a nipple to which one end of the spring is connected. The other end of the spring is connected to a nipple threaded into the lamp-socket. In the present instance the spring of itself is not depended upon to sustain the lamp horizontally. The elbow support is preferably extended to form an outer sleeve encasing the spring element and a fulcrum support preferably in the form of a cushioning ring of soft or yielding material, such as felt, is interposed between the socket nipple and outer sleeve.

In the accompanying drawings, Fig. 1 is a plan view of a sewing machine embodying the invention and Fig. 2 is a vertical longitudinal section through the cushioning connection between the lamp and its support.

In the embodiment of the invention illustrated 1 represents the bed, 2 the standard and 3 the overhanging horizontal arm of a sewing machine of the type disclosed in the patent to Dosch et al., No. 1,311,114. The standard 2 and arm 3 constitute the gooseneck at the free end of which is the head 4 for the usual needle and presser-bars 5 and 6, respectively. The machine is preferably equipped with a built-in motor 7 having its shaft 8 disposed transversely of and geared to the sewing machine main-shaft 9.

The gooseneck is formed adjacent its bend at the juncture of the standard 2 and arm 3 with an apertured boss 10 within which is secured one leg of a horizontal hollow elbow 11 which constitutes the support for the lighting device. The other leg of the elbow is formed with an enlarged opening 12 and affords a sheath or sleeve 13 within which is disposed a nipple 14 screwed into the elbow at the bottom of the opening 12.

Screwed onto the projecting end of the nipple 14 is one end of the short coil spring 15 into the other end of which is screwed

the nipple 16 which enters and is secured to the usual lamp-socket 17. Clamped on the nipple 16 between the socket 17 and the end of the spring 15 is a fulcrum-support in the form of cushioning washers 18 of felt or the like which are interposed between the smaller metal washers 19. The fulcrum-support 18 permits a limited rocking movement of the lamp-socket and bulb; the spring 15 cushioning such movement or giving it a yielding character. The felt-washers 18 also soften and damp the rocking movement or oscillation of the socket 17 about the point of contact of such washers 18 with the sleeve 13. The conductor wires 20 pass through the sleeve 11, nipples 14, 16, spring 15 and washers 18 to the socket 17 which carries the lamp-bulb 19 and reflector 20.

It will be observed that by the means described the lamp is yieldingly supported by a compact cushioning connection with the sewing machine gooseneck adjacent the bend of the latter and is not displaced from its horizontal position closely in rear of and alongside the horizontal arm member of the gooseneck and between the needle-bar head and the vertical member of the gooseneck. Thus, the advantages flowing from the novel location of the lamp, disclosed in said copending applications, are retained and vibration is reduced to the vanishing point by retaining the supporting connection with the sewing machine frame adjacent the bend of the gooseneck and by introducing a cushioning or yielding connection between the lamp-socket and its support. The light from the lamp 19 will thus fall obliquely upon the work from the operator's right and will illuminate that edge of the presser-foot relative to which the edge of the work is customarily guided.

The described disposition of the light avoids the casting of objectionable shadows upon the work by machine parts carried by or forming a part of the sewing machine bracket-arm. The lamp will not be subjected to the pounding vibration of the sewing machine as the cushioning device interposed between the lamp-socket 17 and the sewing machine frame will absorb or soften the character of such vibration, thus permitting the attainment of a satisfactory life by lamps having filaments of the more delicate types, such as tungsten. The compact form of the cushioning device is such that it is not necessary to space the socket a material distance from the point of support of the device on the sewing machine frame. The favorable location of the lamp in permanent working relation with the bracket-arm and within the vertical planes defined by the side and end edges of the sewing machine bed may thus be retained and the lighting attachment will not interfere with the dropping of the head within the cavity of the usual drop-head cabinet or with the placing of the cover of a hand-carrying case over the sewing head.

The lighting device may, of course, be applied to sewing machines having frames of any of the usual forms.

Having thus set forth the nature of the invention, what I claim herein is—

1. A lighting device comprising a support adapted for attachment to the gooseneck of a sewing machine, a spring connected to said support, a lamp-socket and bulb connected to said spring and disposed horizontally, and a fulcrum support for said lamp-socket adjacent said spring.

2. A lighting device comprising a support adapted for attachment to the gooseneck of a sewing machine, a short horizontal spiral spring connected at one end to said support, a lamp-socket and bulb connected to the other end of said spring and disposed horizontally, and a fulcrum support for said lamp-socket adjacent said spring.

3. A lighting device comprising a support adapted for attachment to the gooseneck of a sewing machine, a short horizontal spiral spring connected at one end to said support, a lamp-socket and bulb connected to the other end of said spring and disposed horizontally, and a fulcrum support of cushioning material for said lamp-socket adjacent said spring.

4. A lighting device comprising a support adapted for attachment to the gooseneck of a sewing machine, a spring connected at one end to said support, a lamp-socket and bulb connected to the other end of said spring and disposed horizontally, and fulcrum means additional to said spring and intermediate the lamp-socket and said support for sustaining said lamp-socket and bulb horizontally.

5. A lighting device comprising a tubular elbow support adapted for attachment to a sewing machine gooseneck adjacent the bend of the latter, a lamp-socket and bulb disposed horizontally and fulcrumed to rock vertically on said elbow, and a yielding supporting connection for said lamp-socket additional to said fulcrum.

6. A lighting device comprising a tubular elbow support adapted for attachment to a sewing machine gooseneck adjacent the bend of the latter, a spiral spring housed within one leg of said elbow and anchored at one end to the latter, a lamp-socket and bulb disposed horizontally and connected to be supported by said spring within said elbow, and fulcrum means cooperating with said spring within said elbow, for sustaining said lamp-socket and bulb horizontally.

7. The combination with a sewing machine frame having a bed and gooseneck including a standard and horizontal arm ter-

minating in a head, together with the usual stitch-forming and feeding mechanisms, of a tubular elbow connected to the rear side of said gooseneck adjacent the bend of the latter, an electric lamp-socket and bulb disposed closely in rear of and substantially parallel to the horizontal arm member of the gooseneck and intermediate the standard and head, a spiral spring supporting connection between the lamp-socket and elbow, and fulcrum means cooperating with said spring and coacting with said elbow to sustain the lamp-socket and bulb horizontally.

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

BERNARD ELSHOFF.