Feb. 9, 1926. 1,572,650

L. HAFT

ART OF MAKING LIGHTING OUTFIT FESTOONS

Filed May 14, 1925

Fig. 1.

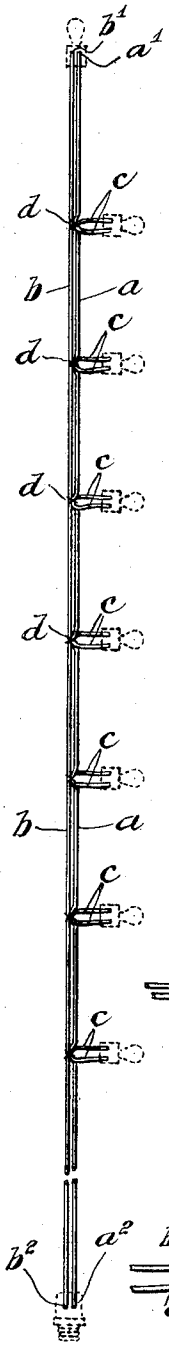


Fig. 2.

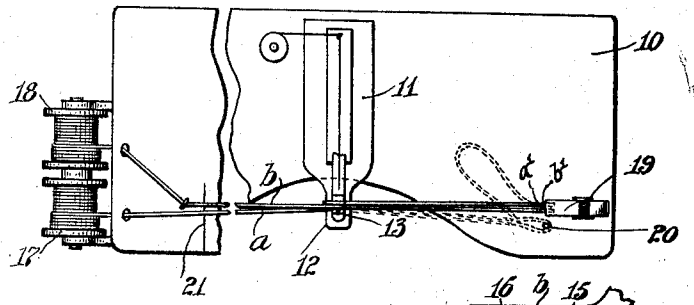


Fig. 3.

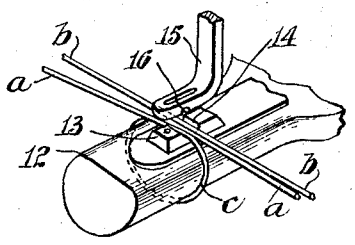


Fig. 4.

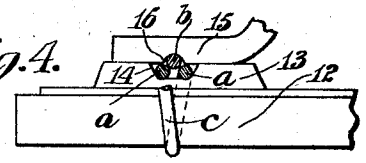


Fig. 5.

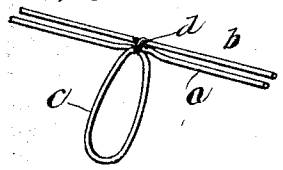


Fig. 6.

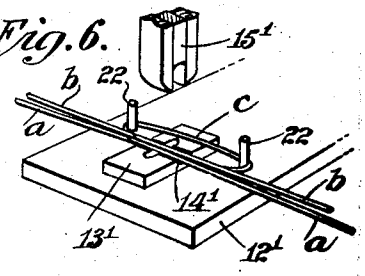


Fig. 7.

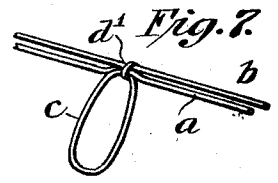


Fig. 8.

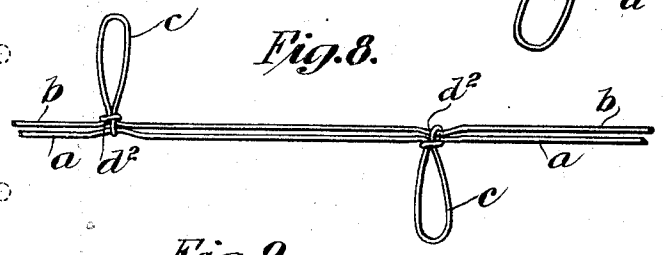
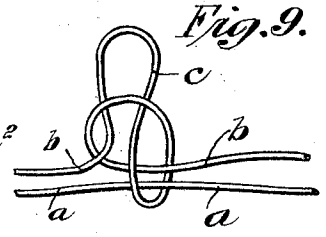


Fig. 9.



Lester Haft

INVENTOR

BY Wm. B. Whitney

ATTORNEY

Patented Feb. 9, 1926. 1,572,650

UNITED STATES PATENT OFFICE.

LESTER HAFT, OF NEW YORK, N. Y., ASSIGNOR TO HAFT, WOOD & CO., INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ART OF MAKING LIGHTING-OUTFIT FESTOONS.

Application filed May 14, 1925. Serial No. 30,201.

To all whom it may concern:

Be it known that I, LESTER HAFT, a citizen of the United States, and a resident of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in the Art of Making Lighting-Outfit Festoons, of which the following is a specification.

The invention relates to lighting outfits of the type which have become known to the trade as Christmas tree, or decorative, outfits.

Such an outfit, as these outfits have long since become standardized, consists of eight miniature electric lamps which are wired in series to lead wires connected at one end to a standard attachment plug or other connector by which the outfit is attached to a lamp socket or other outlet in a standard lighting circuit; and when provided, in conformance with an earlier invention of mine, with a complementary socket or connector which is connected in multiple with the lead wires and is adapted to receive the attachment plug of a second outfit, whereby a number of outfits may be connected up one to another, is known as an extension lighting outfit. The lamps are set into sockets which are mounted, the outer socket at the looped outer end of the two leads and the other seven on short lateral loops formed at intervals in one of the leads, by cutting the wire at the end of a loop and attaching it to the terminals of a socket, and since the loop of the inner lamp is located about three feet distant from the attachment plug and the loops are usually spaced about twelve inches apart each outfit will have a total length of somewhat over ten feet.

For a long period the festoons of the outfits—that is, the looped leads to which the attachment plug and the lamp sockets are connected—were formed by looping a length of the usual sheathed insulated wire and running it through a braiding machine to thereby wrap and bind together the parallel leads within a braided covering which, straddling the lateral loops at their base, serve to definitely fix these loops.

Recently, however, these covered festoons have been largely replaced by a so-called "twisted" festoon, of lower grade and less cost, in which the two leads have been bonded together only at the loops by a cord tied around the overlapped wires at the base of each loop and the other lead; and, as heretofore constructed, such twisted festoon has been made up upon a bench by taking the sheathed insulated wire from a reel or spool, tying its end to an end pin set in the bench, then carrying it along the bench and looping it around one after another of seven pairs of pins set transversely in the bench at the desired spaced intervals and finally around an outer end pin, carrying the wire straight back and cutting it at and tying it to the first or inner end pin, and then, commencing at the outer end, wrapping and tying the overlapped sides of each loop together and to the other wire, after which the festoon is removed from the pins and its loops are gathered together and cut. Thus, as seen, this bench method requires the operator to travel the full length of the bench four times in looping, measuring and tying each festoon and twice more in folding and gathering together the loops. Moreover, the twisted festoon not only does not have the neat finished appearance of the covered festoon but its hand-tied loops are apt to be loose and to slip or even to become untied altogether.

The object of my present invention is to simplify and otherwise improve the method of making the twisted festoons, thereby conserving factory space and otherwise cheapening the cost of production, while at the same time improving the festoons themselves.

To this end the invention consists, essentially, in forming and bonding the loops in one of the lead wires of the festoon at a given bonding point and as each loop is completed moving the lead wires a measured distance and in so doing folding the leads between and gathering together the finished loops.

In practice the festoons are formed upon a suitable table, preferably from a plurality of sheathed insulated wires instead of from the folded lengths of a single wire as formerly. The ends of the wires, which ends provide the cut outer end loop of the festoon, are drawn from reels or spools and carried

along the table a measured distance, say fifteen inches, beyond a bonding point or machine, such for example as a suitable sewing or stapling machine, and there temporarily secured, by a clamp for instance. A loop is then formed in one of the wires at the bonding point and the overlapping length of wire at its base are bonded together and to the other wire or wires by a thread, a staple, or otherwise. The loop and bonded wires are now moved along the table a measured distance from the bonding point and temporarily secured, as by slipping the loop over a measuring and gathering pin. A second loop is then formed in one of the wires and bonded together and to the other wire or wires at the same place and in the same way as before, and is in turn moved along and slipped over the measuring pin. These operations are repeated until the required number of loops have been formed and bonded. After the last loop has been moved along and placed over the measuring pin, the wires are cut at the required distance, say three feet, therefrom, and the loops, which are all now gathered together upon the single measuring pin, are removed and cut.

The lateral loops of the festoon may be formed at the bonding point, either all in the same wire or alternately in each of two wires, in any suitable manner, with or without the aid of pins. For bonding the overlapped loop wires together and to the other wire or wires, I prefer, and recommend, the use of a sewing machine such, for example, as the so-called "tacking" machine commonly used for sewing buttons which with the slight modifications hereinafter described is entirely suitable for the purpose. A machine of this type, in which the needle jumps forward and back and so carries the thread over and locks it around the wires, will form not only a secure but a neat-looking bond. A power or manually-operated stapling machine may, however, be used instead of the sewing machine, if desired; or the loops may be bonded by hand, either by a cord wrapped and tied as heretofore or, for instance, by passing the end of each loop around the other wire or wires and back between its own two sides and drawing it tight.

My new method, by which the festoons can be turned out by an operator seated in front of a table not over three to four feet in length, not only effects a great saving in the floor space of the factory but also in the movements and effort required on the part of the operator. Moreover, with an electrically-driven sewing machine, an experienced operator is able, without leaving his seat and consequently with less fatigue, to turn out from 500 to 600 festoons in an eight-hour day, whereas, by the old bench method, the most skillful operator can not make up in the same time more than 350 of the less pleasing and less satisfactory festoons.

The invention will be more fully described by reference to the accompanying drawings, in which—

Figure 1 is a side or plan view of a lighting outfit festoon made by my new method; Fig. 2 is a plan view, more or less diagrammatic, of the top of a table on which is mounted a sewing machine, showing two wires in process of being formed into a festoon thereon in the practice of my invention; Fig. 3 is an enlarged detail, showing in perspective parts of the sewing machine and of the wires shown in Fig. 2; Fig. 4 is a view of the same parts, in side elevation and section respectively; Fig. 5 is a view, similar to Fig. 3, showing the wires after the lateral loop has been bonded and they have been removed from the machine; Fig. 6 is a view, similar to Fig. 3, showing parts of a stapling machine and of two wires, illustrating a modification of the invention; Fig. 7 is a view of the wires shown in Fig. 6 after the lateral loop has been bonded and they have been removed from the machine; Fig. 8 is a side view of a portion of a festoon, illustrating a further modification in the formation and bonding of the lateral loops; and Fig. 9 is a detail of the knot by which the loops of the festoon of Fig. 8 are bonded.

As here illustrated, 10 (Fig. 2) indicates the top of a suitable table upon which is mounted a union single thread tacking machine, indicated at 11. This standard sewing machine, electrically driven, has a base with a tapered or contracted forward end or horn 12, of a size adapted to form a loop of suitable length in a wire passed around it, and for its use here is equipped with a special anvil block 13 provided with a transverse groove 14 adapted to receive two wires side by side and with a presser foot 15 having in the bottom face thereof a transverse groove 16 centered over the groove in the anvil below and adapted to receive a single wire. At one end of the table, the left for convenience, are mounted spools 17 and 18 which hold the wires *a* and *b* and, upon the other end of the tabletop, at the required distance from the needle of the machine, usually about fifteen inches, are mounted a spring clamp 19 and a measuring and gathering pin 20.

In the formation of a festoon upon this table the ends a^1 b^1 of the wires, drawn from the spools, are carried past the sewing machine and secured beneath the clamp 19. One of the wires, the wire *a* as shown, is then placed in the slot in the anvil and looped at *c* around the horn 12 of the machine and again placed in the slot in the anvil, and the wire *b* is positioned above and between the overlapping lengths of the wire

a. The wires being thus positioned and held taut, the machine is started, usually by pressing a foot-lever operating a clutch, and after the very brief interval taken to form the stitches required for a satisfactory bond *d* is stopped, by removing the pressure on the foot-lever, and in stopping raises the presser foot and automatically severs the thread. The loop *c* is now withdrawn from the horn of the machine and, with the wire *b* bonded thereto, is moved to the right and slipped over the measuring pin 20. The wire *a* is again looped around the machine, the wire *b* positioned thereover, and the machine started and stopped as before, and the newly formed and bonded loop *c* is in turn removed from the machine and moved to and slipped over the pin 20. These operations are repeated until the desired number of lateral loops have been formed. After the last loop *c* has been removed from the machine and slipped upon the pin 20, the two wires, held taut, are cut at the measuring line 21, say two feet from the needle of the sewing machine, thus providing ends a^2 b^2 for connection with an attachment plug and three-foot leads therefrom to the last formed inner end loop *c*. The wire ends a^1 b^1 and the loops gathered upon the pin 20, usually wrapped together, are now drawn from the clamp and pin and are cut in the usual manner, thus completing the festoon.

In the modification illustrated in Figs. 6 and 7, 12^1 indicates the forward end of a bracket or base plate, and 15^1 the lower portion of the stitching head (arranged at right angles to the line of feed of the wires), of any suitable stapling machine of standard make, which here replaces the sewing machine. The usual clincher plate 13^1 of the machine is provided with a shallow transverse groove 14^1, and on each side of this plate are mounted two special pins 22. The operations for measuring, looping and bonding the wires into a festoon and folding and gathering up the loops as completed are substantially the same as those hereinabove described in connection with the sewing machine, each lateral loop *c* being formed by looping one of the wires around the pins 22 and bonded by a staple clinched around its overlapping sides and the second wire.

In its further modification form illustrated in Figs. 8 and 9, the festoon is or may be made upon a table similar to that described, but the lateral loops *c*, here shown as formed alternately in each of the two wires *a* and *b*, are bonded by knots d^2 without the aid of any machine. The wires are drawn from the reels and their ends are carried across the table and clamped as before; and each lateral loop in turn is formed by looping a wire around suitable pins, similar to those shown in Fig. 6 or set at right angles thereto, or by measuring the loop with the hand or otherwise, and is bonded by passing its outer end around the other wire and back between its own two sides, as shown in Fig. 9, and then drawing the knot tight.

It is to be understood that the invention may be still further modified in its various details without departing from the spirit or sacrificing the substantial advantages thereof.

What I claim as new, and desire to secure by Letters Patent, is—

1. The method of making lighting outfit festoons which comprises forming and bonding the loops in one of its lead wires at a given point and as each loop is completed moving the lead wires along a measured distance and in so doing folding the leads between and gathering together the finished loops.

2. The method of making lighting outfit festoons which comprises feeding a plurality of wires intermittently in measured lengths past a given bonding point and between such feeding operations thereat forming a loop in one of the wires and bonding the overlapping portions of the wire at the base of the loop together and to the other wire or wires.

3. The method of making lighting outfit festoons which comprises carrying two wires a measured distance beyond a bonding point upon a table and temporarily securing their ends, forming at the bonding point a loop in one of the wires and there bonding its overlapped sides to each other and to the other wire, carrying the loop and bonded wires a measured distance beyond the bonding point and temporarily securing them, forming at the bonding point a second loop in one of the wires and there again bonding together the loop and the other wire, then repeating said operations until the required number of loops have been formed and bonded, and finally cutting the wires at a measured distance back from the last bonded loop.

4. The method of making lighting outfit festoons which comprises carrying two wires a measured distance beyond a bonding point upon a table and temporarily securing their ends, forming at the bonding point a loop in one of the wires and there bonding the overlapping sides of the loop to each other and to the second wire, carrying the looped and bonded wires a measured distance beyond the bonding point and temporarily securing them, forming at the bonding point a loop in the second wire and there bonding together the loop and the first wire, and then repeating said operations with the loops formed alternately first in one wire and then in the other until the required number of loops have been formed and bonded.

5. The method of making lighting outfit

festoons which comprises feeding a plurality of wires intermittently in measured lengths past a bonding machine and at each interval of rest in such feeding operation forming at the bonding machine a loop in one of the wires and operating the machine to bond the overlapped lengths of wire at the base of the loop to each other and to the other wire.

6. The method of making lighting outfit festoons which comprises carrying two wires a measured distance past a sewing machine mounted upon a table and temporarily securing their ends, forming at the sewing machine a loop in one of the wires and stitching together upon the machine the overlapped lengths of wire at the base of the loop and the other wire, then moving the bonded loop and wires along and slipping the loop over a pin set at a measured distance from the machine, forming a second loop in one of the wires and bonding it and the other wire together upon the machine as before, and repeating said operations until the required number of loops have been formed and bonded.

LESTER HAFT.