May 29, 1928. 1,671,267

F. P. ATKINS

CANDLE WICK

Filed Jan. 7, 1927

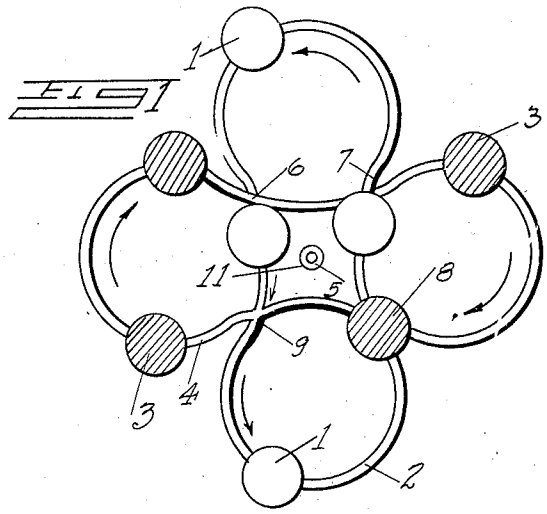


FIG 1

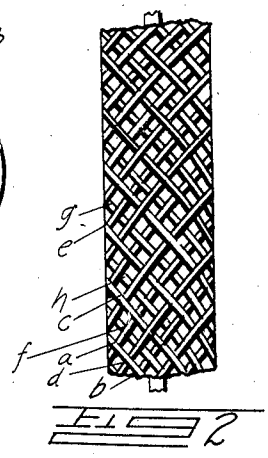


FIG 2

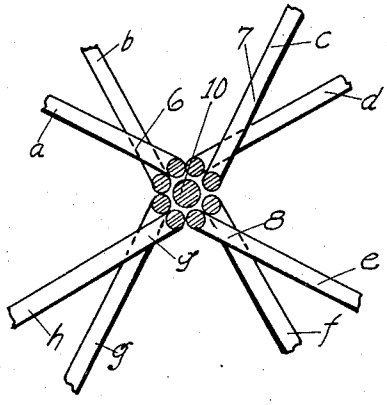


FIG 3

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CANDLEWICK.

Application filed January 7, 1927. Serial No. 159,695.

My invention relates to candle wicks in general, and more particularly to the type of candle wick shown and described in my Letters Patent No. 1,496,837, granted June 10, 1924, which concerns a wick for sacramental paraffin candles.

As in my said patent, it is my object to provide a wick which is self-supporting, due to the fact that the paraffin melts easily, and which will burn evenly and without flaring and flickering for a predetermined length of time.

My present improvement consists essentially in providing a novel core for the wick of my patent, although the core may be used in other types of wicks for like purposes.

The filament or core which I employ in my improvement is formed of a single thread preferably of linen, although other fibrous strands may be employed. While threads or twists of threads, stiffened with glue, have been proposed as cores for wicks previous to my invention, I have found that twisted linen or fibrous threads, or a glue stiffened thread will not serve the purposes required in sacramental paraffin candle wicks.

I find that a core formed of single fibrous strand, such as number twenty-five linen thread, will be the best to employ instead of a twisted cord or a glue stiffened thread.

The single thread burns or is expended more readily than a metal wire, such as lead wire, but without some retarding of its burning and some slight stiffening, the operation is not satisfactory.

The thread, according to my improvement, is preferably treated with a weak solution of a "fire-proofing" substance, or retarder of combustion, such as a weak solution of sal-ammoniac and acetic acid, or a weak solution of commercial alum.

Other similar solutions will serve, and I do not wish to assert that the ones given are the only practical ones.

The thread may be treated with the solution and dried, which results in stiffening it slightly as well as rendering it less combustible than in its untreated condition.

In the drawings I have illustrated the wick of my former patent, although other modes of braiding the body of the wick around the core might serve.

Figure 1 is a diagrammatic view showing the braiding operation.

Figure 2 is a much enlarged view of the braided wick.

Figure 3 is a diagrammatic view illustrating the square nature of the braid, the threads or twine being much enlarged.

I have not attempted to show a complete braiding machine, nor the method of drawing the wick material through the former plate over tension rolls and onto the shipping spool. It will be understood that driven rolls draw the various threads of the wick including the linen thread core which has preferably been treated and dried, through a plate having a single hole therein, of approximately the desired diameter of the wick, whence the wick passes onto the driven rolls, which are faced with emery cloth to prevent slipping. Several turns around the rolls are made in the wick, after which it is guided to a winding shaft which rolls it up on a removable fibre spool, upon which the wick is shipped.

These operations, with the exception of the emery cloth on the rolls and the removable fibre spools or cores, are used in twine braiding machines as a familiar practice, and need not be detailed to those skilled in the art.

I have merely illustrated the nature of the braid by showing in Figure 1 eight spools of which the spools 1 move around a Figure 8 path as at 2, and the spools 3 move around a like path 4.

Single ply twine is mounted on these spools so that eight pieces of single ply twine are used in the wick as distinguished from, say four pieces of double ply twine, which would give a wick of equal diameter, but in which there would not be any guaranty of uniformity, due to unevenness in the double ply and the difficulty of handling double ply twine in a perfectly uniform manner in a braiding machine.

As was noted, the threads of twine are passed through a hole 5 as they are drawn from the spools during the spool movement, said spools passing each other and each spool 1 acting to lay its thread across each spool 3 during the operation.

The result of moving the spools in the manner described and withdrawing the

twine through the former plate at the same time is to form a square braid, in which the threads cross each other at 6, 7, 8 and 9, at the points where the spools pass each other.

By referring to the threads of single ply twine as *a*, *b*, *c*, *d*, *e*, *f*, *g* and *h*, it will be noted that thread *a* passes under thread *b*, and at the same time thread *c* passes over thread *d*, and so on, as per the diagram in Figure 3. At the next braiding step the thread 2 will have taken the place of thread *c* and will pass over its companion thread which will be the case all the way around the pattern.

During this braiding operation the thread which ordinarily is treated, 10, is drawn straight up from the intermediate space 11 between the spools, forming an unbent core or center for the braid with the braid formed closely about it. After the completed braid with the thread-core comes to the emery faced rolls it naturally is bent, but no kinks or breakage occurs.

In making up the candle a hole is left in the paraffin stick, and the wick thrust up through the hole, after being paraffin-coated itself. The entire product is placed in a glass container, which will hold the paraffin when it is melted, the wick usually having some kind of a plate on its lower end to hold it upright.

The act of burning of the candle will result in melting the body of paraffin so that it is liquefied, and the wick in the absence of the core would not stay erect or burn evenly. With the specific type of thread which I employ or with a thread treated as hereinbefore described, the wick stays upright and burns evenly and without flaring, at a rate which can be very accurately calculated.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:—

A candle wick for the purpose described formed of a braided body of suitable fibrous strands about a straight core formed of a single fibrous thread of linen thread of a thickness substantially that of number twenty-five thread, treated with a substance to reduce its combustibility and increase its stiffness.

FRANK P. ATKINS.