No. 770,048. PATENTED SEPT. 13, 1904.

H. O. DAVIS.

LAST.

APPLICATION FILED MAR. 18, 1904.

NO MODEL.

Fig. 4

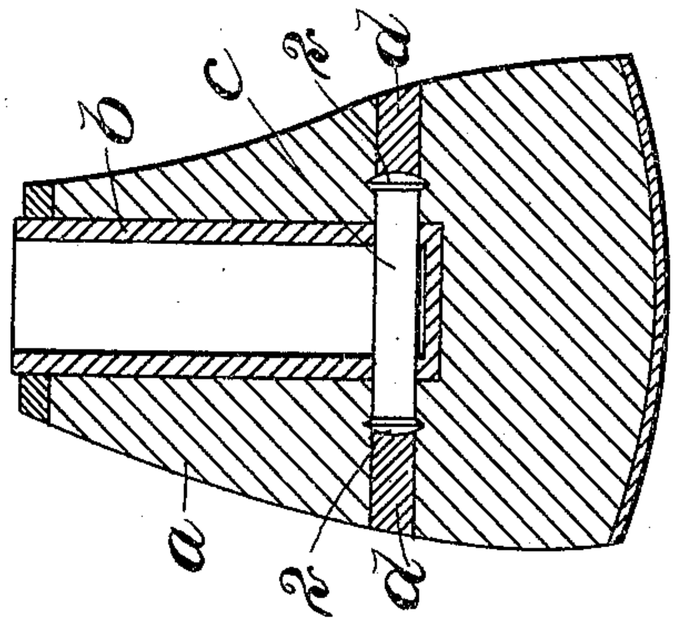


Fig. 7

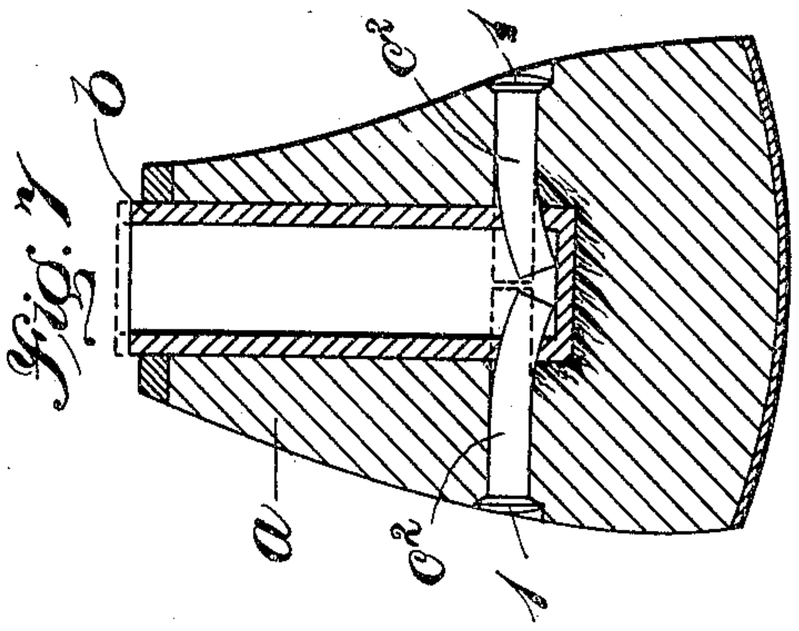


Fig. 3

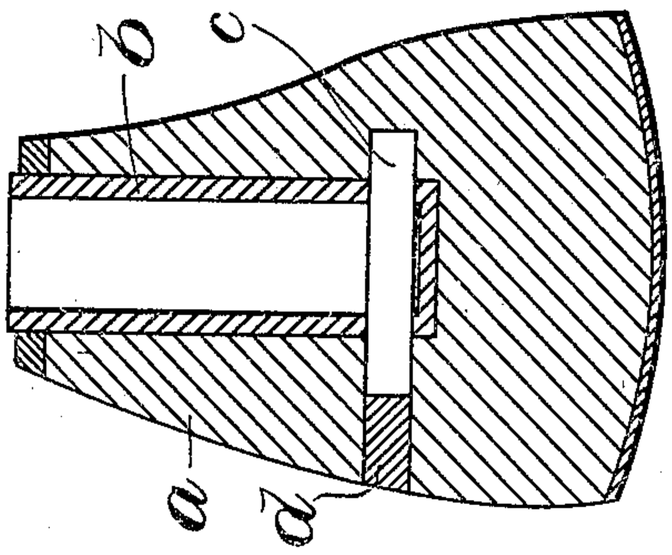


Fig. 6

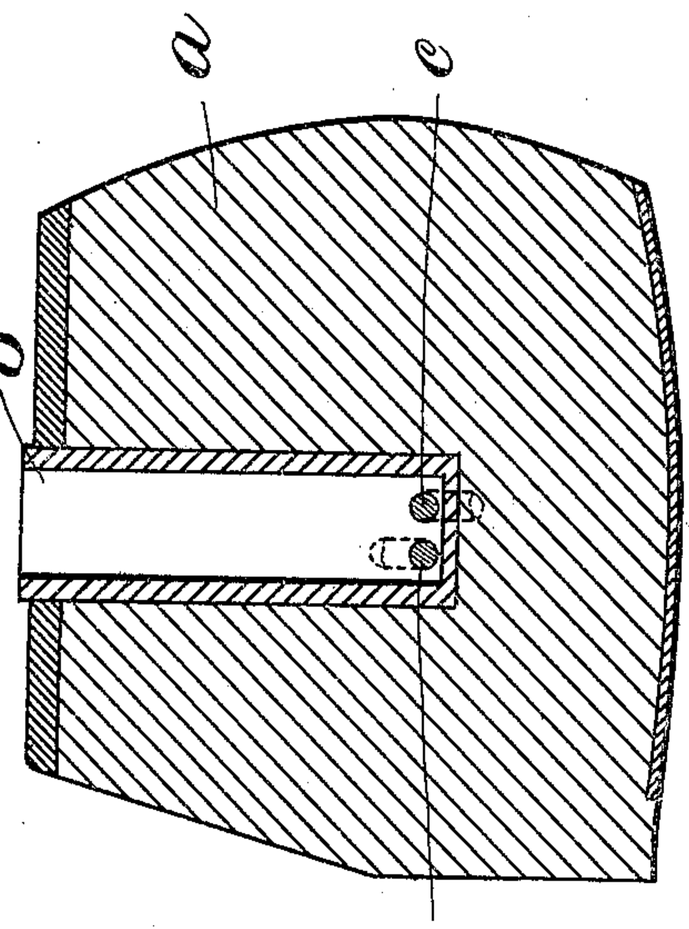


Fig. 2

Fig. 1

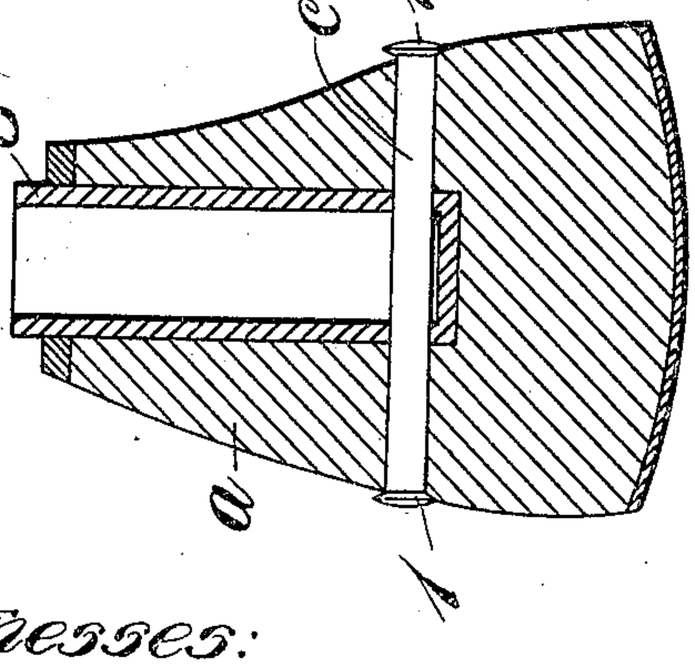
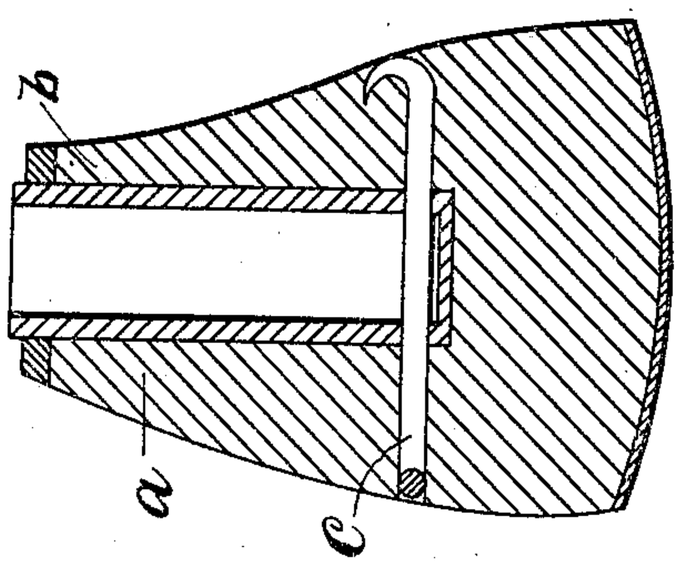


Fig. 5



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No. 770,048. Patented September 13, 1904.

UNITED STATES PATENT OFFICE.

HENRY O. DAVIS, OF BROCKTON, MASSACHUSETTS.

LAST.

SPECIFICATION forming part of Letters Patent No. 770,048, dated September 13, 1904.

Application filed March 18, 1904. Serial No. 198,707. (No model.)

To all whom it may concern:

Be it known that I, HENRY O. DAVIS, of Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Lasts, of which the following is a specification.

This invention relates to lasts, and has particular reference to the spindle socket or thimble thereof and the means for securing such thimble in the last.

The object of this invention is to provide a last with a spindle socket or thimble which is so firmly secured in place that it cannot slip out and become lost.

A further object of the invention is to provide a last having a spindle socket or thimble and having means which not only retain the thimble in place, but also strengthen the last, all as more fully hereinafter described.

Heretofore great difficulty has been frequently experienced, due to the dropping of the spindle socket or thimble out of the last after such last has been used for some little time. This is largely due to the great pressure, sometimes amounting to several hundred pounds, loosening the thimble so that the said thimble will drop out. Moreover, this pressure is liable to crush the thimble down into the last, so as to cause pieces of the wood to split from the top of the last and also sometimes from the sides thereof, so as to render the last useless.

According to my invention, I drive a rivet or supporting-pin directly through the last, preferably from one side thereof, and through the walls of the spindle socket or thimble, so that said rivet or pin not only crosses the interior of the thimble, but also projects into the material of the last outside of the thimble, so as to prevent the thimble from becoming separated from the last. Moreover, the projecting ends of the pin or rivet prevent the thimble from being crushed down into the last and avoid all splitting of the top or sides of the last, and by providing the pin or rivet with enlarged ends, such as a head at one end and a riveted-up enlargement on the other end, the material of the last is drawn inward rather than given a tendency to split outward when the last is in use, and the spindle socket or thimble is forced somewhat deeper into the last.

Of the accompanying drawings, which are sectional views representing several embodiments of my invention, Figure 1 represents a form in which the supporting and retaining pin extends through the last from side to side and through the walls of the socket. Fig. 2 is a view similar to Fig. 1, indicating the relative positions of the parts after pressure has been applied. Figs. 3, 4, and 5 are views similar to Fig. 1, but illustrating modifications hereinafter described. Fig. 6 represents a section at a right angle to the plane of the section on which Fig. 5 is drawn. Fig. 7 is a view similar to Fig. 1, but illustrating another modification hereinafter described.

The same reference characters indicate the same parts in all the figures.

In each of the figures of the drawings, *a* represents the last, *b* the spindle socket or thimble, and *c* the pin or rivet which supports and retains the spindle socket or thimble.

As shown in Fig. 1, the pin or rivet extends through the last and across the thimble and through the walls thereof, the ends of said pin or rivet being headed down, as indicated at 1. After the last has been subjected to pressure while on the spindle, the usual collar of which engages the outer end of the thimble, the thimble becomes more deeply embedded in the last, resulting in bending the pin or rivet *c* and drawing the heads 1 toward each other, tending to compress the last laterally.

As shown in Fig. 3, the hole which is drilled from one side of the last through the wood and also through the walls of the socket is formed from one side only, leaving one side of the last unperforated. Then a pin *c*, somewhat shorter than that represented in Fig. 1, is inserted in said hole through the thimble, and the orifice in the side of the last which exists after the relatively short pin has been inserted may be filled by a suitable wooden plug, as indicated at *d*, which plug may be secured in place by glue or cement. Obviously, however, the hole may be bored entirely through and a plug inserted at each end when a short pin is used.

As shown in Fig. 4, which also shows a relatively short pin or rivet *c*, the ends of said pin may be enlarged in the same way that rivet-heads are formed by a suitable tool or tools operating through the hole in the last from the side thereof. In said Fig. 4 the enlarged heads, which are necessarily embedded in the material of the last and within the side surfaces thereof, are indicated at 2. The holes in the last outside of said enlargements are then filled by suitable plugs *d*.

Of course in each form the pin or rivet is passed through the thimble very close to the bottom thereof, so as to leave but a slight distance, such as one thirty-second of an inch, between the pin and the bottom disk or end of the thimble. The pin is so located that it will not come in contact with the end of the jack-pin when the latter is of a length beyond its collar, such as usually exists.

The supporting stay or pin may be double, as indicated in Figs. 5 and 6, the two portions of said stay or pin preferably passing through the spindle socket or thimble side by side, although one might be, if desired, above the plane of the other. When formed double, as mentioned, the pin may comprise a piece of wire doubled to an enlongated-U form, the portion which connects the two legs of the U then bearing against the material of the last at one side, while the two ends of the wire may be clenched or headed down or riveted at the other side of the last.

As shown in Fig. 7, the supporting and retaining pin instead of being a continuous one extending across the spindle socket or thimble may be a divided one comprising practically two rivets c^2, the heads 1 of which may be either embedded in the wood of the last or slightly countersunk, so as to have their outer faces flush with the surface of the last. In said Fig. 7 the dotted lines indicate the positions which the parts would occupy when first assembled and the full lines represent the positions which the parts will assume after the spindle-socket has been forced inward in the same manner as above described in connection with Fig. 2.

It is to be understood that although I have shown the supporting and retaining pin or pins as being driven transversely of the last said pin or pins may be driven in from the heel end of the last.

Having thus explained the nature of my invention and described a way of constructing and using the same, although without having attempted to set forth all the forms in which it may be embodied or all the modes of its use, I declare that what I claim is—

1. A last having a spindle socket or thimble, and a supporting and retaining pin extending across the socket-space of said thimble and through the walls thereof and into the material of the last, outside of the thimble.

2. A last having a spindle socket or thimble provided with openings in its walls, and a metal pin extending across the socket-space of said thimble and through said openings and having enlarged ends engaging the material of the last.

3. A last having a spindle socket or thimble provided with openings in its walls, and a metal pin extending across the socket-space of said thimble and through said openings and having enlarged ends embedded in the material of the last within the side surfaces thereof.

4. A last having a spindle socket or thimble having orifices in its walls near the bottom thereof, and anchoring means extending transversely through the material of the last and across the space in the thimble and through the orifices of the thimble.

In testimony whereof I have affixed my signature in presence of two witnesses.

HENRY O. DAVIS.

Witnesses:

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E. BATCHELDER.