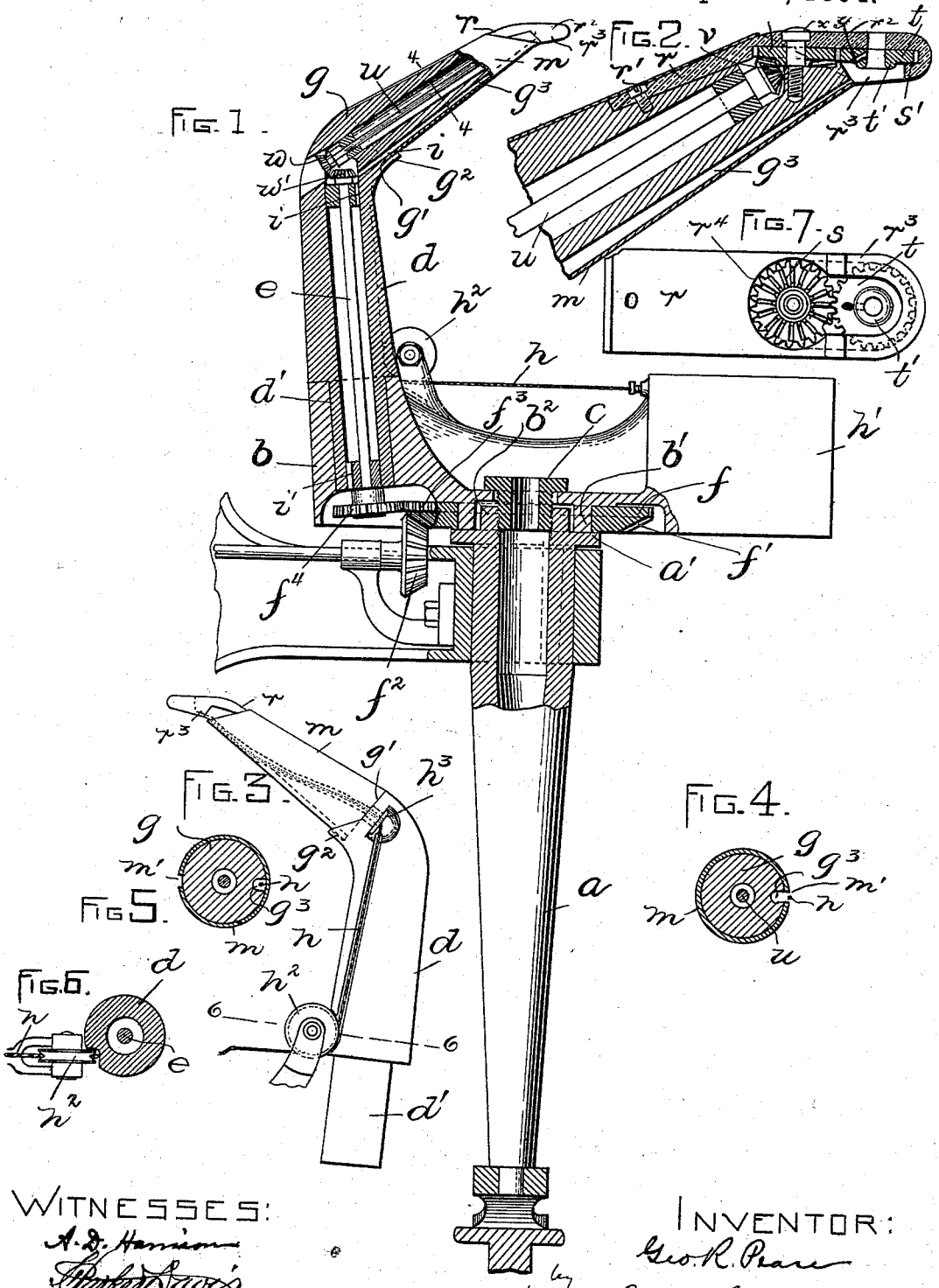
(No Model.)

G. R. PEARE.

SHOE SEWING MACHINE.

No. 526,325. Patented Sept. 18, 1894.



WITNESSES:

A. D. Harrison

Baker Davis,

INVENTOR:

Geo. R. Peare

by Wright Brown Quinby & Otis

Attys.

UNITED STATES PATENT OFFICE.

GEORGE R. PEARE, OF LYNN, MASSACHUSETTS.

SHOE-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 526,325, dated September 18, 1894.

Application filed June 6, 1893. Serial No. 476,733. (No model.)

To all whom it may concern:

Be it known that I, GEORGE R. PEARE, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Shoe-Sewing Machines, of which the following is a specification.

This invention relates to certain improvements in shoe-sewing machines of the class employing a rotary horn on which the shoe is supported, and the horn having a whirl in its end.

One object of the invention is to provide improved means for driving the whirl which will be entirely without the horn-shank, and by which power can be more directly applied to the whirl than heretofore.

Another object of the invention is to provide an improved construction of the horn whereby the thread-groove may be more readily cleaned out, and at the same time the thread covered and protected during the operation of the machine.

A still further object is to provide an improved construction at the end of the horn, whereby what is known as a "tip" may be dispensed with, and the horn made thinner at this part without weakening it, thus adapting it for finer work.

The accompanying drawings illustrate the invention.

Figure 1 shows a part section and part elevation of a horn and accessories, embodying my invention. Fig. 2 shows an enlarged section of the cap-end, showing the whirl. Fig. 3 shows an elevation of the side of the horn opposite that toward which the view is in Fig. 1. Fig. 4 shows a section on the line 4—4 of Fig. 1, illustrating one adjustment of the cylindrical casing on the horn. Fig. 5 shows a cross-section on the same line, illustrating another adjustment of the said cylindrical casing. Fig. 6 shows a cross-section on line 6—6 of Fig. 3. Fig. 7 shows a bottom plan of the improved form of cap, with whirl and gear therein.

The same letters of reference indicate the same parts in all the figures.

In the drawings: The letter a designates the spindle or shank of the horn, which is suitably supported in bearings on the frame of the machine, and is made hollow to accommodate heating-pipes which may be carried through it. The upper end of the spindle is formed with an annular ledge a', on which the base-casting b of the horn rests. The said casting is formed with a circular flange b' where it rests upon the ledge, and the shank has a portion b^2 extending into said flange. The casting may be moved to a limited extent in all directions on the ledge a' to properly adjust the horn, and suitable means will be provided to lock it at the desired adjustment. The means here shown consists in a hollow nut c, screwing into the shank, and having a head to bear on the upper side of the casting. I prefer to make the horn proper d separate from the base-casting, so that metal capable of bearing a greater strain, as steel, may be employed, and the strength of the horn greatly increased and its life prolonged. This horn proper has a shank d', which fits a socket in the casting, and it is made hollow to accommodate a spindle e supported in bearings at the upper and lower ends, and said spindle is connected with the whirl so as to impart motion thereto, as hereinafter described. A gear f is supported on the ledge a' of the shank a, and fits loosely on the flange b' of the base-casting b. This gear has a beveled under section f', which is engaged by a driving-pinion f^2 suitably connected with the source of power, and said gear also has a straight or spur section f^3, which meshes with a spur f^4 on the lower end of the spindle e. It will be seen that, when motion is imparted to the pinion f, the spindle e will be driven through the loose gear f and the spur f^4. In this manner a more direct application of power to the whirl-spindle is secured than with any arrangement heretofore known.

The laterally-extending portion g of the horn is reduced and a shoulder g' formed at its base, and on the under side a curved lip g^2 projects beyond said shoulder. The thread h is carried from the wax-pot h' to the horn, and under a pulley h^2 which extends into a groove in the side of the horn, and is thence carried to a guide h^3 at the base of the lateral portion g of the horn, and through a groove or channel g^3 in said lateral portion to the whirl. A cylindrical sleeve or casing m is fitted on the lateral part g and against the shoulder g', and said sleeve has a longitudi-

nal slot m' in one side, adapted to register with the groove g^3. The sleeve may be turned so as to cover said groove and protect and confine the thread, and is so adjusted during the operation of the machine. When it is desired to clean out the groove, the sleeve is turned to a position where its slot registers with the groove, and access may then be had to the latter. The groove in the lower portion d of the horn may be covered in the same manner, or in any other suitable way.

I provide for escape of wax or oil that may drip, by making a passage i in the horn, which connects the groove g^3 with the interior of the lower portion of the horn, part of said passage being through the bushing which forms a bearing for the upper end of the spindle e. Such matter may escape from the horn through a passage in the lower bearing i'.

At the end of the horn, instead of using a tip to support the whirl, and a cap to cover the same, as is usual, I dispense with the tip, and employ the following construction, which also does away with the bevel crown commonly found on the whirl. A cap of novel construction is used, and consists of a tongue r, which is let into the upper side of the horn and secured thereto by a screw r'; a thin, flat portion r^2, which projects beyond the horn and receives the direct strain of the stitching operation; and a downward-extending portion r^3, beveled to abut the beveled end of the horn. The under side of the cap is bored out circularly, as at r^4, to receive a gear s; and, by introducing a circular milling-tool into said concavity r^4 and feeding it toward the end of the cap, an annular chamber s' is formed to receive the whirl t, the under side of the cap below the center of the whirl being cut out. The whirl is simply a flat spur-gear, having an angular opening y for the thread, and a rounded bead t' around the lower end of its central opening for the thread to pass over when the whirl carries it around to the side opposite that represented in the drawings, so as to avoid a sharp corner or edge which might injure the thread. The upper portion of the gear s is a flat spur-gear, which meshes with the whirl and imparts motion thereto, and said gear has bevel-teeth on its under side. A spindle u is supported in the lateral portion g of the horn, and carries at its upper end a bevel-gear v, in mesh with the beveled under section of the gear s. The lower end of said spindle carries a bevel-gear w, meshing with a similar gear w' on the upper end of the spindle e. The pin x, which forms the axis of the gear s, extends through the cap and screws into the horn, and thus also serves as a means for securing the cap.

By the above-described construction, I am enabled to use a much thinner end on the horn, for, by dispensing with the beveled crown on the whirl, the cap may be brought down flat on the whirl; and another advantage resulting from this change in the construction of the whirl is that the trouble and expense heretofore experienced by tacks being driven by the needle into the bevel-gear of the whirl and ruining the latter, are wholly obviated. Moreover, the bevel-gear of the spindle, which in the former construction, meshed with the crown of the whirl and necessitated thickening the stock of the cap at that part, is now placed underneath the intermediate s, and this permits a reduction in the thickness of the cap. Where before two additional pieces, viz., the cap and tip were found necessary, only one, a cap, is now used.

It will be observed that the thread-hole y in the whirl extends from the under side thereof to the central opening, and the sides of this opening are flush with those of the registering opening in the cap, so that there is no place for tacks or other matter to lodge.

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

1. A shoe-sewing machine comprising in its construction the horn shank a having an annular ledge a', the base b of the horn and a gear f resting on said ledge, said gear having a beveled under section f' and a spur section f^3, the spindle e having spur pinion f^4 meshing with said section f^3, and a driving pinion f^2 meshing with the section f', substantially as described.

2. A horn for shoe-sewing machines, comprising in its construction a body-portion having an external groove in one side for the thread, and a cylindrical casing fitting over said body-portion and rotatable thereon and having a slot adapted to register with the groove therein, whereby said casing may be rotated to a position where it covers said groove.

3. A horn for shoe-sewing machines, comprising in its construction a body-portion, a cap thereon, a whirl, an intermediate gear connecting the whirl with driving mechanism, and a pivot-pin for said intermediate extending through the cap and entering the body-portion, said pin forming a means of connection between the cap and body-portion.

4. A whirl for horns of shoe-sewing machines, the same having a rounded bead about the lower end of its central opening, for the purpose described.

5. A horn for shoe-sewing machines, whose whirl-containing portion comprises an integral part extending beyond both the upper and under surfaces of the whirl proper, and flanges projecting from the extended portions of said integral part and over the upper and below the under surface of the whirl proper.

6. A horn for shoe-sewing machines, having a whirl-containing recess, and a flange which extends under and supports the whirl, the said recess extending laterally beyond the whirl-supporting flange.

7. A horn for shoe sewing machines, having a cap formed in one piece and with a whirl containing recess and a flange which extends

under and supports the whirl, the said recess extending beyond the whirl-supporting flange for admitting the whirl into the cap.

8. A horn for shoe-sewing machines, comprising in its construction a body-portion, a cap fastened thereto and projecting therefrom and having a downward-extending portion abutting the end of the body-portion, a whirl in the form of a flat spur-gear supported in said cap, an intermediate gear having a spur section in mesh with the whirl and a beveled under section, and a spindle supported in the body-portion and carrying a bevel-gear meshing with the bevel section of said intermediate gear and in gear with the driving mechanism.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of May, A. D. 1893.

GEO. R. PEARE.

Witnesses:
C. F. BROWN,
F. PARKER DAVIS.