Nov. 13, 1934. F. HASSEL 1,980,271

EXCHANGEABLE HEEL TAP

Filed March 16, 1932

Fig.1

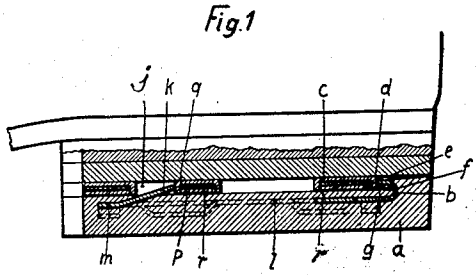


Fig.2

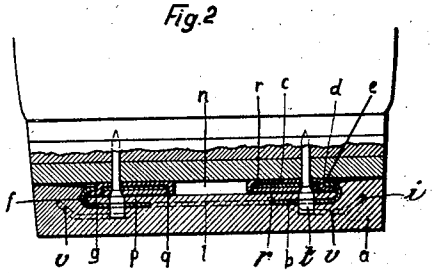


Fig.3

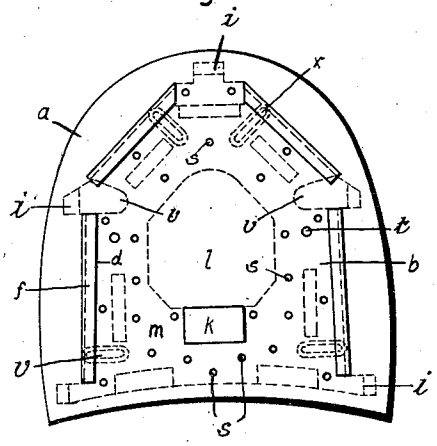


Fig.4

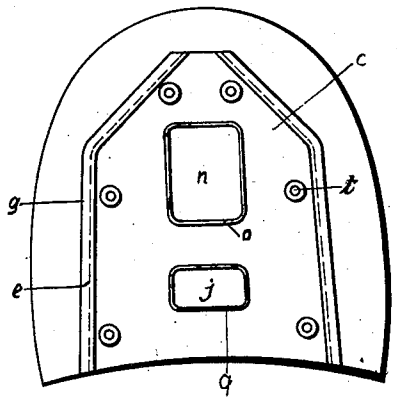


Fig.5

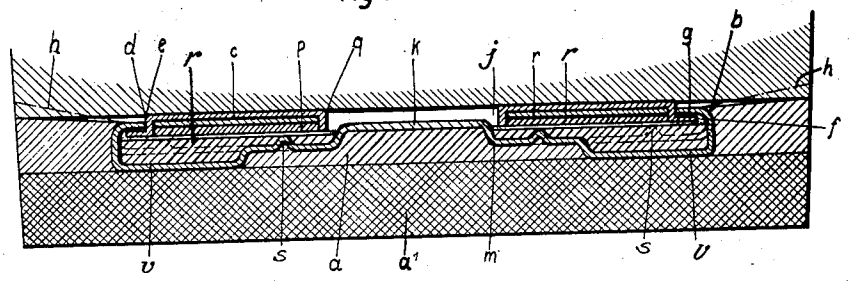


Fig.6

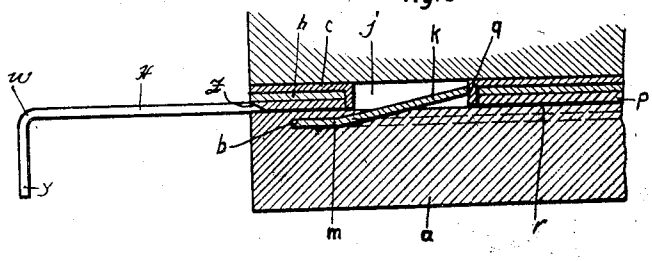
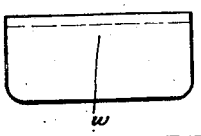


Fig.7



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Patented Nov. 13, 1934

1,980,271

UNITED STATES PATENT OFFICE

1,980,271

EXCHANGEABLE HEEL TAP

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Application March 16, 1932, Serial No. 599,240
In Germany February 25, 1931

7 Claims. (Cl. 36—36)

This invention relates to an exchangeable and interchangeable heel tap for boots and shoes, with a slide-like fitting seat to connect it with the shoe heel.

Slides made of sheet metal for connecting heel taps with shoe heels by means of a tongue and groove are known, in which the fitting seat is provided between the outer margin of the tongue and the groove, but an accurate fitting, that does not become loose and rattle in use, and that gives reliable protection against sticking or jamming as a result of corrosion and of dirt penetrating into the fitting, has not yet been successfully attained in this way. The heel taps hitherto known also lacked a sufficiently firm bearing on the margins of the heel, were not capable of being put on or exchanged and interchanged easily enough, and were exposed to a constant risk, owing to the numerous metal contacts of the fastening members with one another, in the event of defective sealing of these metal parts, of sticking fast in the contacting surfaces owing to dirt getting in, particularly in rainy and snowy weather, in conjunction with corrosion, so that the heel tap that had been put on could not then be released again. Furthermore the strength of the parts was insufficiently ensured in view of the heavy stresses occurring, since it is necessary to keep the heel taps light in weight.

The object of this invention is to remedy these defects and to provide a heel tap with a slide-like fitting seat for boot and shoe heels, this heel tap, notwithstanding its light weight, being capable of standing high stresses, being securely closed against external moisture and thereby protected against corrosion in the interior, and also being capable of being easily put on or exchanged and interchanged.

As regards the fitting it is first of all to be stated that according to the invention the slide-like fitting seat, interengaging on the tongue and groove principle, is merely provided between the margin of the free wall of the groove and a shoulder at the base of the tongue, while the other parts of the tongue, namely the outer edges and the lateral surfaces, are loosely guided in the groove and are free to move up and down slightly, as the thickness of the tongue is less than the breadth of the groove and the tongue does not reach to the bottom of the groove.

The exchangeable and interchangeable tap for boot and shoe heels according to the invention may furthermore comprise, in addition to the known fixing lug of the slide, which snaps into an aperture in the holding plate when being put on, a second aperture for the reception of the fixing lug when the slide is being introduced. This additional aperture renders it possible for the slide to be pressed, at its introduction level, upon the heel, and thus slid on to the holder. The guiding edges of the slide and of the holding plate are moreover preferably so arranged, more particularly by being inclined at the sides, that these edges, upon the fixing lug entering this second or supplementary aperture, do not engage one another at first, this engagement only occurring just before the fixing lug runs on to the inner edge of this supplementary aperture.

To prevent the metallic contacts jamming, by preventing the fastening members from sticking as a result of dirt penetrating between the contacting surfaces, in conjunction with corrosion, the metal parts, which only come into contact with one another at the fitting edges, are preferably isolated from one another by a small non-metallic plate recessed into the holding plate, and metallic edges on the metallic holding plate, which serve, in the aperture into which the fixing lug snaps as a fitting seat for this lug, project right to the free surface of the little isolating filling plate.

Particular strengthening of the parts, with light weight, is attained by providing the holder, which is made of thin material, underneath the little non-metallic filling plate, with an insertion of hard metal, which in its turn stiffens all the edges of the fitting seat. This purpose may moreover also be served by stiffening ribs embossed in the slide.

The releasing of the heel tap is effected in a known manner by means of a releasing angle. This angle is according to the invention so shaped that the arm thereof by which the fixing lug, for the purpose of releasing the heel tap from the aperture or recess, known in itself, into which this lug is snapped when the heel tap is fastened, is to be lifted out, is broader than the said aperture, and is so long that when the second arm of the angle is pushed up against the heel, after introducing the first arm, the said aperture can be covered by the arm introduced, and the tongue thereby removed.

One example of construction of the exchangeable and interchangeable heel tap for boot and shoe heels according to the invention is illustrated in the accompanying drawing, in which

Figure 1 is a longitudinal section, and

Figure 2 is a cross section through the heel, with the heel tap.

Figure 3 shows a plan of the heel tap with the

slide, and Figure 4 a plan of the shoe heel with only the holding plate for the heel tap;

Figure 5 shows on a larger scale a cross section through the fixing lug part of the slide and of the holding plate.

Figures 6 and 7 show in side elevation and end elevation, likewise on an enlarged scale, the releasing device for the heel tap.

In an indiarubber heel tap *a* is vulcanized a slide *b*. To the shoe heel on the other hand is fitted a holding plate *c*. The members *b* and *c* fit one into the other on the tongue and groove principle.

In order to obtain a reliable and accurate fitting seat which will not be liable to jam or stick as a result of dirt, corrosion and rust, and to ensure ready releasability of its parts, the fitting in the case of this constructional example only takes place in the inner joint edge *d*, *e* between the slide *b* and the holder *c*, while elsewhere the tongue *g* that enters the groove *f* has free play in this groove.

In order to obtain effectual sealing of the heel tap *a* in relation to the outer margins of the heel, the edges of the indiarubber heel tap *a*, which is firmly connected with the slide *b*, project to a suitable extent above the horizontal plane of the slide *b*, as indicated at *h* in dot and dash lines in Figure 5, for the position of the heel tap *a* released from the heel, and are only pressed firmly on to the heel when the slide *b* is slipped on in its guiding groove and meets these edges. These margins are also held down and stiffened by claw-like prongs *i*, which in their turn give the margins a secure hold both in a horizontal and in a vertical direction. Furthermore the fitting edges, to which of course a different form may be given, are preferably inclined at the sides and are bevelled to a wedge shape towards the rear, so that in releasing the heel tap *a*, in consequence of the smallest movement in a rearward direction of the slide *b*, which is only mounted upon the straight edges, its complete release from the holding plate *c* is effected.

The fixing of the slide *b* is effected by means of its metallic lug *k* snapping into a recess *j* in the holding plate *c* when mounting the fitting edges. This lug is not resilient in itself, in order that it may not become relaxed when deflected in use, notwithstanding its necessary smallness and the stresses resulting therefrom, but the slide *b* is resilient throughout its breadth. In order however that the resilient yielding may not be too great, in the case of sufficiently thick material, the latter is preferably formed with an aperture *l*, or, transversely to the lug *k*, a corresponding notch, so that the resilient yielding is then only effected by a bridgepiece *m*, or in other words by the front portion of the slide *b*.

In order that the guiding edges, when the heel tap *a* is put on, may be capable of being slid into one another easily by the aid of the projecting fixing lug *k*, without tedious trying and feeling about, the holding plate *c* is provided not only with the aperture *j* for the fixing lug *k* to snap into, but also with a second aperture *n*, into which the fixing lug *k* is first sunk, and to which the guiding edges or the inclinations of the lateral fitting edges are so related that the groove *f* and the tongue *g* do not at first engage one another when the lug *k* is introduced into this additional aperture. This in fact only occurs upon it being pushed further forward, before the lug *k* runs on to the edge *o* of the holding plate *c*, so that in this manner the slide *b* and the holding plate *c* fit positively into one another.

The holding plate *c* in its turn may of course be solid.

In order however to obviate injurious corrosive actions and therefore a sticking of the parts, the metal parts of the slide *b* and of the holding plate *c* are preferably isolated from one another by a little non-metallic filling plate *p* sunk into a narrow fitting margin in the holding plate *c* (Fig. 4), and only touch one another in the fitting. In order however that the fixing lug *k* may be mounted on metal in the aperture *j*, a metallic rim *q* on the holding plate *c* projects through this aperture right to the outer surface of the insulating plate *p*.

The same object can be attained by means of an indiarubber covering *r* (Fig. 5) covering the slide *b* and acting in its turn as a sealing means. The heel tap *a* is however not narrowed thereby in its total height in the wearing thickness of the indiarubber, for this rubber coating is kept as thin as possible. Now in order to guard against any risk of the coating *r* flaking off or being rucked up, when the heel tap *a* is being slipped on, little spikes or other projections *s* pass through this coating and constitute its outer boundary.

Holes *t* serve for the provisional fastening of the holding plate *c*, after the straightening of the edges of the heel tap with those of the heel by first introducing two headless nails, or for the punching of those holes upon the heel. In order that the holes *t* may not act, like the known holes that go right through, as injurious passages for dirt towards the internal parts of the slide *b* and the holding plate *c*, they are only carried through as far as the wear of the indiarubber heel may extend. The remaining part is merely pierced with an awl when the fastening is effected, so that it recloses automatically afterwards in consequence of the elasticity of the indiarubber.

When the holding plate *c* is made with a little insulating filling plate *p*, this plate *c*, embossed out of thin metal, preferably receives under the plate *p* for the purpose of stiffening the fitting edges to take up shocks when the heels are in use, an additional thin insertion *u* of hard metal, which bears firmly on all the fitting margins.

For the stiffening of the outer fitting edges there also serve ribs *v* embossed in the slide *b*.

In order to enable the heel tap *a* to be easily and quickly released, a releasing angle *w* is associated with it.

The method of operation of this releasing angle is as follows:—

The releasing angle *w* is broader than the recess *j* for the fixing lug *k*, and one flange *x* of the angle *w* is so long that when this flange is forced in between the holder *c* and the slide *b*, by pushing the other flange *y* of the angle right up to the heel itself, the fixing lug *k* is lifted out of its associated recess *j*, and the release of the heel tap can therefore be effected. The releasing angle *w* is preferably provided in its turn with a phase or bevelled edge *z* to enable it to be more easily forced into the gap. A special admission passage would involve a risk of admitting dirt, and is therefore avoided.

For heavy shoes the combination of the heel tap *a* with a leather tap a_1 (Fig. 5) is advisable. The heel tap *a* here serves merely for connecting the leather heel a_1 with the slide *b*, and is kept very thin. The projecting edges *h*, the claw-like prongs *i*, the additional aperture *n* for the fix-

ing lug *k*, this lug itself, the little non-metallic filling plate *p*, the indiarubber coating *r* of the slide *b*, the holes *t* not going right through, the metallic insertion *u* of the holder *c*, the stiffening ribs *v* and the releasing angle *w*, hereinbefore individually described, might of course be connected with any slide-like fitting seat other than that described either altogether or only in part.

I claim:

1. An exchangeable and interchangeable heel tap and means for detachably securing it to the heels of boots and shoes, comprising a grooved slide and a holding plate, one secured permanently to the heel tap and the other to the boot or shoe heel, a tongue on the holding plate adapted to engage freely in the groove of the slide, and a fixing lug on the slide, the holding plate being formed with an aperture adapted to engage with the fixing lug when the heel tap is attached to the heel, and with a second aperture adapted to accommodate the fixing lug while the heel tap is being put on to the heel, to enable the slide to be pressed flat against the holding plate before being slid into its final position.

2. An exchangeable and interchangeable heel tap and means for detachably securing it to the heels of boots and shoes, comprising a grooved slide and a holding plate, one secured permanently to the heel tap and the other to the boot or shoe heel, a tongue on the holding plate adapted to engage freely in the groove of the slide and a fixing lug on the slide, the holding plate being formed with an aperture adapted to engage with the fixing lug when the heel tap is attached to the heel, and with a second aperture adapted to accommodate the fixing lug while the heel tap is being put on to the heel, to enable the slide to be pressed flat against the holding plate before being slid into its final position, and the tongue and groove of the holding plate and slide being so arranged as not to interengage when the fixing lug enters the second aperture but only when it is leaving the second aperture to enter the first.

3. An exchangeable and interchangeable heel tap and means for detachably securing it to the heels of boots and shoes, comprising a grooved slide secured permanently to the heel tap, a holding plate secured permanently to the boot or shoe heel, a tongue on the holding plate adapted to engage freely in the groove of the slide, the slide being formed with a relatively large central aperture, a transverse bridge-piece between the aperture and the front edge of the slide, and a rigid fixing lug on the bridge-piece, the holding plate being formed with an aperture adapted to engage with the fixing lug when the heel tap is attached to the heel.

4. An exchangeable and interchangeable heel tap and means for detachably securing it to the heels of boots and shoes, comprising a grooved slide and a holding plate, one secured permanently to the heel tap and the other to the boot or shoe heel, a tongue on the holding plate adapted to engage freely in the groove of the slide and a non-metallic plate recessed into the holding plate and adapted to insulate the holding plate from the slide except at the edges.

5. An exchangeable and interchangeable heel tap and means for detachably securing it to the heels of boots and shoes, comprising a grooved slide and a holding plate embossed out of thin metal, one secured permanently to the heel tap and the other to the boot or shoe heel, a non-metallic plate recessed into the holding plate and adapted to insulate the holding plate from the slide except at the edges, and a plate of hard metal interposed between the holding plate and the non-metallic plate, and bearing firmly against the edges of the recess in which the non-metallic plate is lodged.

6. An exchangeable and interchangeable heel tap and means for detachably securing it to the heels of boots and shoes, comprising a grooved slide and a holding plate, one secured permanently to the heel tap and the other to the boot or shoe heel, embossed ribs formed on the slide, and a tongue on the holding plate adapted to engage freely in the groove of the slide, the inner margin of the groove being adapted to fit tightly against the margin of the holding plate when the tongue is engaged in the groove.

7. An exchangeable and interchangeable heel tap and means for detachably securing it to the heels of boots and shoes, comprising a grooved slide and a holding plate, one secured permanently to the heel tap and the other to the boot or shoe heel, a tongue on the holding plate adapted to engage freely in the groove of the slide, a fixing lug on the slide, the holding plate being formed with an aperture adapted to engage with the fixing lug when the heel tap is attached to the heel, said aperture opening exteriorly of the shoe and shoe heel and adapted to receive a tool to release the lug whereby to permit a quick removal of the heel.

FRANZ HASSEL.