

(No Model.)

C. H. SAUNDERS.
LAST.

No. 597,784.

Patented Jan. 25, 1898.

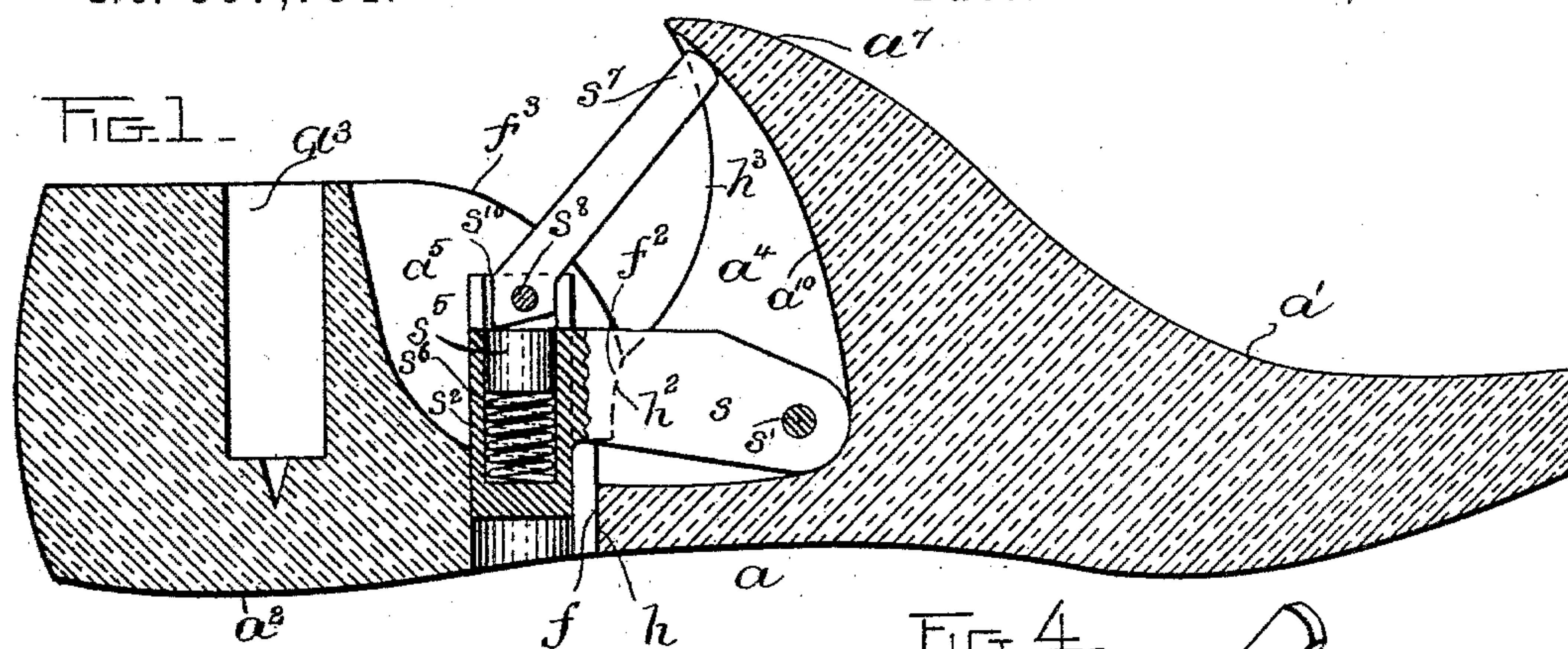


FIG. 4.

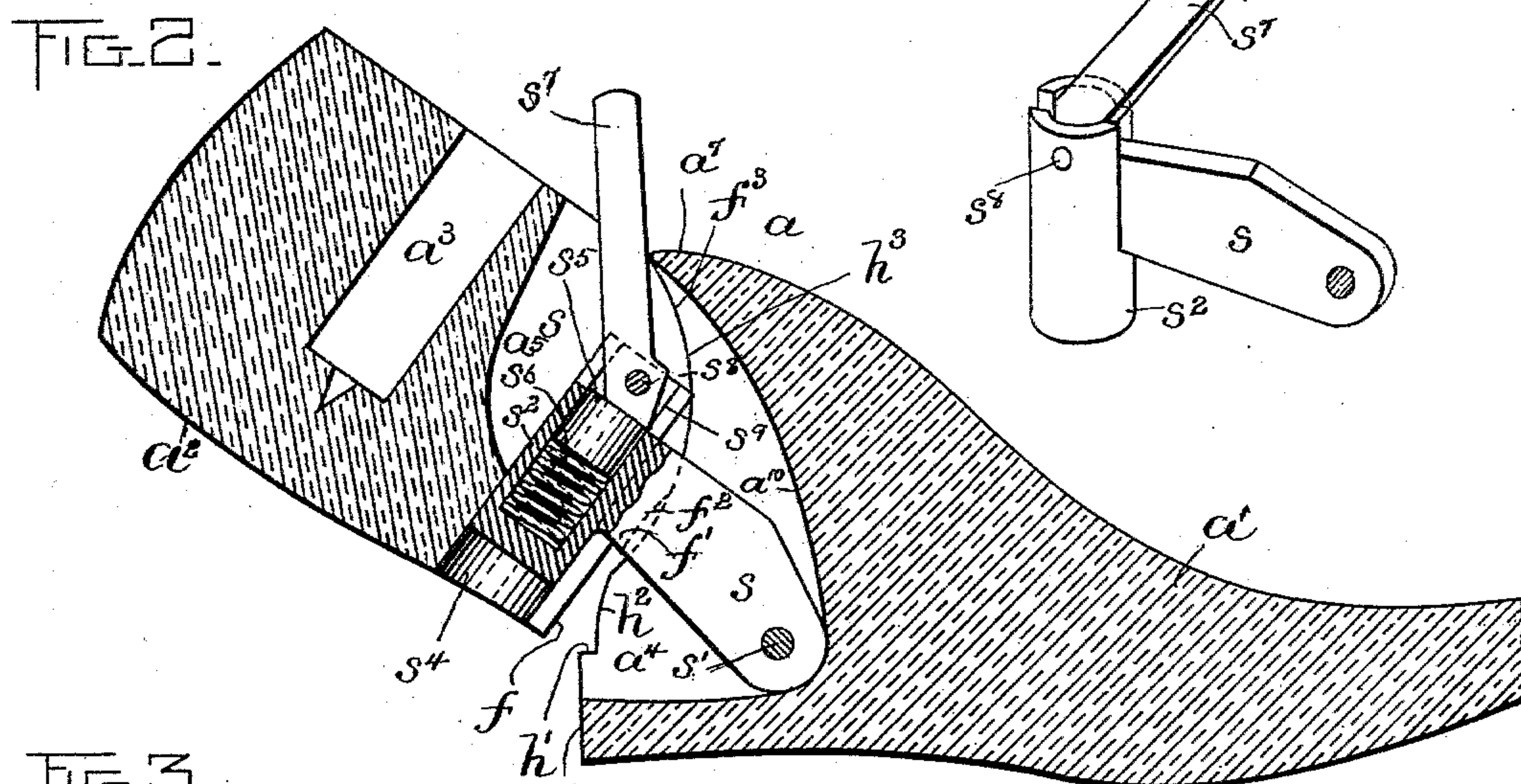
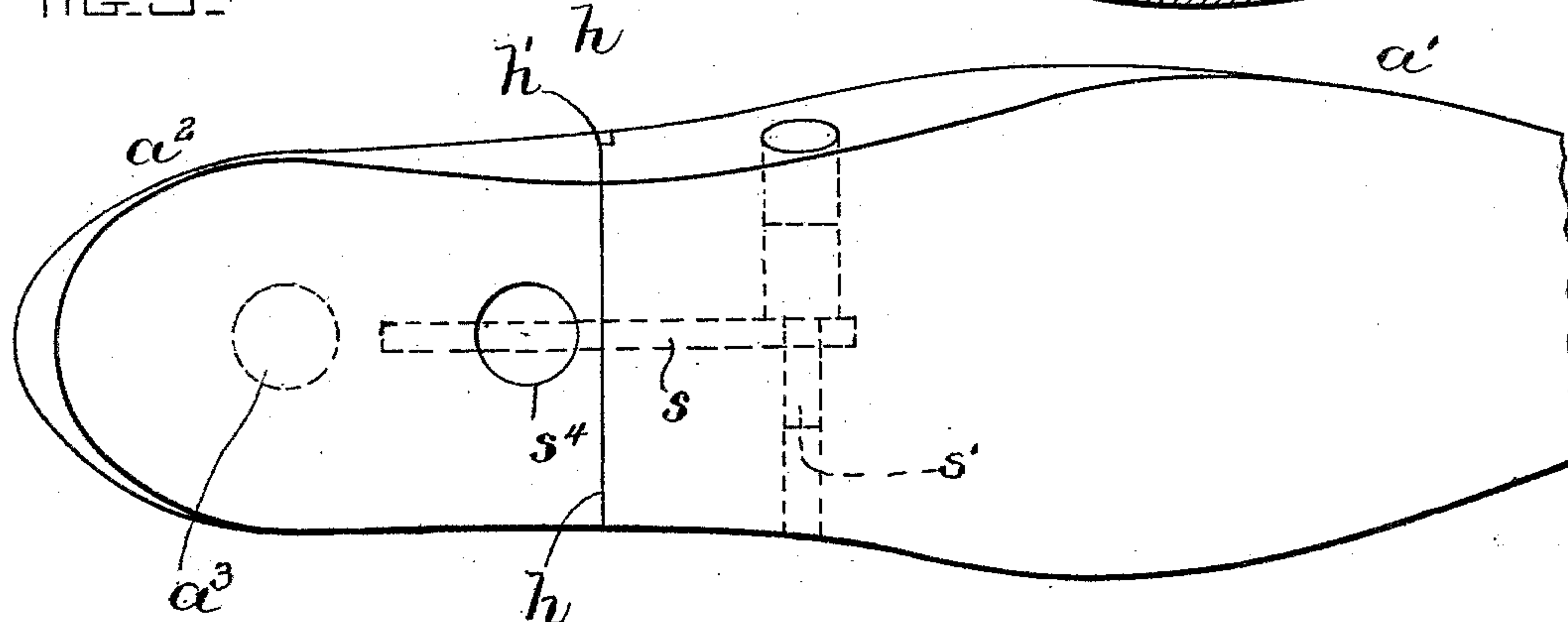


FIG. 3.



WITNESSES:
A. O. Harrison
P. W. Pezzetti.

INVENTOR:
Charles H. Saunders
By Night & Son & Darling
Attys

UNITED STATES PATENT OFFICE.

CHARLES H. SAUNDERS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO OLIVER A. MILLER, OF BROCKTON, MASSACHUSETTS.

LAST.

SPECIFICATION forming part of Letters Patent No. 597,784, dated January 25, 1898.

Application filed November 16, 1896. Serial No. 612,311. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SAUNDERS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Lasts, of which the following is a specification.

This invention relates to a transversely-divided last comprising two sections articulately bonded, so that the last can be shortened while in a shoe by swinging the heel-section out of the shoe and extended to properly fill the shoe by swinging the heel-section into the shoe after the fore-part section has been inserted therein.

The invention has for its object to provide improved means for locking the sections together when they are in their operative positions in such manner that there will be no liability of accidental movement of either section relatively to the other while the last is extended in a boot or shoe.

The invention consists in the improvements which I will now proceed to describe and claim.

Reference is to be had to the accompanying sheet of drawings, forming a part of this application, wherein like characters are used to indicate like parts wherever they occur.

Figure 1 represents in vertical sectional view a last constructed in accordance with my invention, the two parts of the last being shown in closed position and locked. Fig. 2 represents a like view showing the parts of the last in their open position and unlocked. Fig. 3 is a bottom plan view of the last, showing the position of the hinge-plate. Fig. 4 is a detail perspective view of the hinge-plate and detent.

Referring to the drawings, in the embodiment of my invention therein shown and selected by me for the purpose of illustration, a represents a last comprising a fore-part section a' and a heel-section a'' , the latter being formed with the usual jack-spindle socket a^3 . At its rear end the fore-part section is formed with a slot a^4 . A like complementary slot a^5 is formed on the front end of the heel-section and arranged to register with the slot a^4 . The heel and fore-part sections are cut with complementary straight vertical faces $f'h$, terminating in complementary shoulders $f'h'$.

Above said shoulders the sections are cut with the complementary curved faces $f^2 h^2$, extending a short distance above the shoulders $f'h'$, beyond which the material of the last-sections is cut away to form complementary faces $f^3 h^3$, representing arcs of a circle having substantially the same radius, so that when the heel-section is swung up, as in Fig. 2, said faces $f^3 h^3$ will engage throughout their length to act as stops. This construction is further valuable in that it prevents splitting off the top a^7 of the section a' , as would occur if the heel-section struck said top only instead of engaging the entire face h^3 .

s represents a hinge-plate for pivotally connecting the heel and fore-part sections. This plate is arranged in the slot a^4 and secured in place by a pin s' . The rear end of the plate carries a plug s^2 , which is inserted in a socket s^4 , intersecting the slot a^5 . The plug is formed with a chamber in which is arranged a yielding stop or keeper s^5 , which is normally pressed outward by a spring s^6 . A detent s^7 is pivotally mounted at one end upon a pin s^8 , arranged in said stud. The said detent is inherently rigid, so that it cannot yield or spring when subjected to compressive longitudinal pressure. The detent is provided with faces $s^9 s^{10}$, which are formed and arranged to operate with the keeper s^5 in holding the detent in different positions, the detent being held in its operative position (shown in Fig. 1) by the bearing of the keeper on the face s^9 and in its inoperative position by the bearing of the keeper on the face s^{10} . The free end of the detent is arranged to engage the upper part of the inner wall a^{10} of the slot a^4 and lock said sections together when the last is extended, as shown in Fig. 1.

The operation of my improved last is as follows: The parts being constructed and arranged as shown, when it is desired to remove the last from a shoe the last is shortened by the displacement of one of the sections, as shown in Fig. 2, thus permitting the shoe to be readily removed from the last. In relasting or reinserting the last into a shoe that has previously been removed from it, the fore-part section is inserted in the corresponding part of the shoe while the last is shortened, after which the heel-section is

forced into the shoe, thus lengthening the last in the shoe. The detent s^7 is then moved to engage the top a^7 of the last, the sections being thus firmly held and locked, the inherently rigid detent serving to prevent any pivotal motion of either section due to any of the various pressures or strains brought upon the last.

It will be seen that the detent s^7 is arranged to act as a rigid strut or brace which positively resists any pressure exerted upon either or both sections tending to shorten the last. Hence the detent positively locks the sections. The yielding pressure exerted on the detent by the keeper maintains it in its position as a positive lock and prevents it from being accidentally displaced, but does not allow the detent to yield in the direction of pressure tending to shorten the last. The last is therefore rigidly held in its extended adjustment without liability of being shortened by the various pressures exerted upon it in a lasting-machine where opposing pressures are exerted by the jack-spindle in one direction against the top of the last and by the heel and toe lasting devices against the bottom of the last. These pressures tend to cause shortening movements of the sections on their hinge connection and cause more or less difficulty when the sections are not positively locked.

Usually in a lasting-machine the last is held bottom up, the toe and heel lasting devices or wipers pressing downwardly on the bottom of the last at the ends thereof, while the jack-spindle presses upwardly on the top of the last between the toe and heel wipers. In hand-lasting the last is also held bottom up and is also subjected to pressure tending to shorten it. It is very important in all cases that the sections of the last be held rigidly against shortening pressure, because even a slight pivotal movement of either section during any part of the operation of manufacturing a shoe placed upon it will seriously impair the form of the shoe by throwing the bottoms of the sections out of alinement with each other. It will be seen, therefore, that my invention providing a positive lock which is held in its operative position with sufficient force to prevent its accidental displacement when the last is used in an inverted position and is adapted to be readily displaced when it is desired to shorten the last constitutes a very desirable improvement in lasts of this character.

It is obvious that the detent may be applied to the fore-part section, its free end having a bearing upon the heel-section.

I prefer to bevel the face s^9 of the detent, so that it will bear on the keeper at one end only and not along its entire length. The object of this arrangement is to compensate for wear or indentation of the fore-part section by the detent, the keeper being enabled to press the detent forward as fast as it wears or indents the fore-part section.

The hinge-plate s , its plug or enlargement s^2 , the detent or brace pivoted to said enlargement, and the spring-pressed keeper movable in the enlargement and bearing yieldingly against the detent constitute an improved article of last-makers' hardware which may be sold independently as such. I do not, however, claim the hinge-plate and its enlargement *per se*, as this, unaccompanied by the detent and spring-pressed keeper, is not my invention.

Having thus explained the nature of my invention and described a way of constructing and using the same, though without attempting to set forth all the forms in which it may be made or all the modes of its use, what I claim, and desire to secure by Letters Patent, is—

1. A two-part last comprising a heel-section, and a fore-part section, articulately bonded; an inherently rigid detent or brace pivoted to one section, and arranged to swing toward and from the other section, and to bear on the latter, to positively lock the sections; and means for yieldingly holding the detent in its operative position.

2. A two-part last, comprising a heel-section, and a fore-part section, articulately bonded; a detent pivoted to one section, and arranged to bear on the other section, to positively lock the sections; and means for yieldingly holding the detent either in its operative or its inoperative position.

3. A two-part last, comprising a heel-section, and a fore-part section; a hinge member affixed to one section, and articulated to the other section; a detent pivoted to the said hinge member, and arranged to bear on one of the sections, to positively lock the sections together, said hinge member having provisions for holding the detent yieldingly in different positions.

4. A two-part last, comprising a heel-section, and a fore-part section; a hinge member affixed to one section and articulated to the other section, said hinge member comprising a plug, such as s^2 , a detent pivoted to the plug, and a spring-pressed keeper in the plug, adapted to yieldingly hold the detent.

5. A two-part last, comprising a heel-section, and a fore-part section, articulately bonded; an inherently rigid pivoted detent carried by one of said sections and adapted to swing toward and from the other section; and a yielding stop or holder for said detent, carried by the section, to which the detent is pivoted.

6. A two-part last, comprising a heel-section, and a fore-part section, articulately bonded; an inherently rigid detent, or brace between the sections, and a spring-actuated keeper therefor, carried by one of said sections, the detent being movable toward and from the other section and arranged to positively engage the latter.

7. A two-part last, comprising a heel-section, and a fore-part section, articulately

bonded; an inherently rigid detent pivoted to one section and arranged to swing toward and from the other section and bear on the latter to positively lock the sections, said detent 5 having a beveled face, such as s^9 , adjacent to its pivot; and a spring-pressed keeper arranged to bear upon said face at or near one extremity thereof, the said beveled face compensating for wear of the portion of the last 10 on which the detent bears.

8. A combined hinge member and lock for transversely - divided lasts, comprising a hinge-plate adapted to be jointed to one of the sections of the last, and provided at one

end with a plug adapted for insertion into a 15 socket in the other section, a detent or brace pivoted to said enlargement, and a spring-pressed keeper movable in said plug and bearing yieldingly against said brace.

In testimony whereof I have signed my 20 name to this specification, in the presence of two subscribing witnesses, this 7th day of October, A. D. 1896.

CHARLES H. SAUNDERS.

Witnesses:

A. D. HARRISON,
P. W. PEZZETTI.