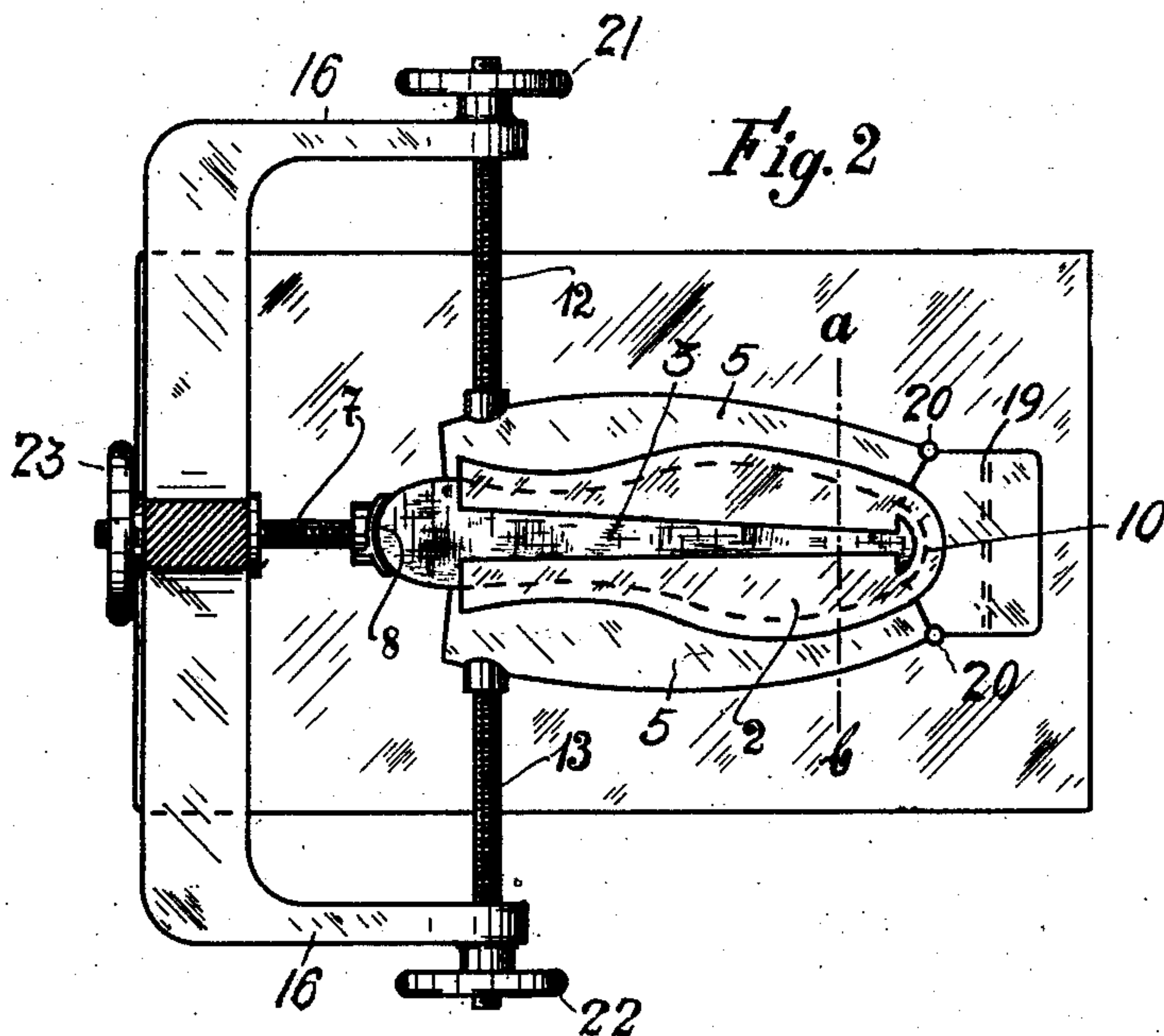


973,521.

2 SHEETS—SHEET 1.



Inventor:-

Erwald Langenohl
by B. Singer

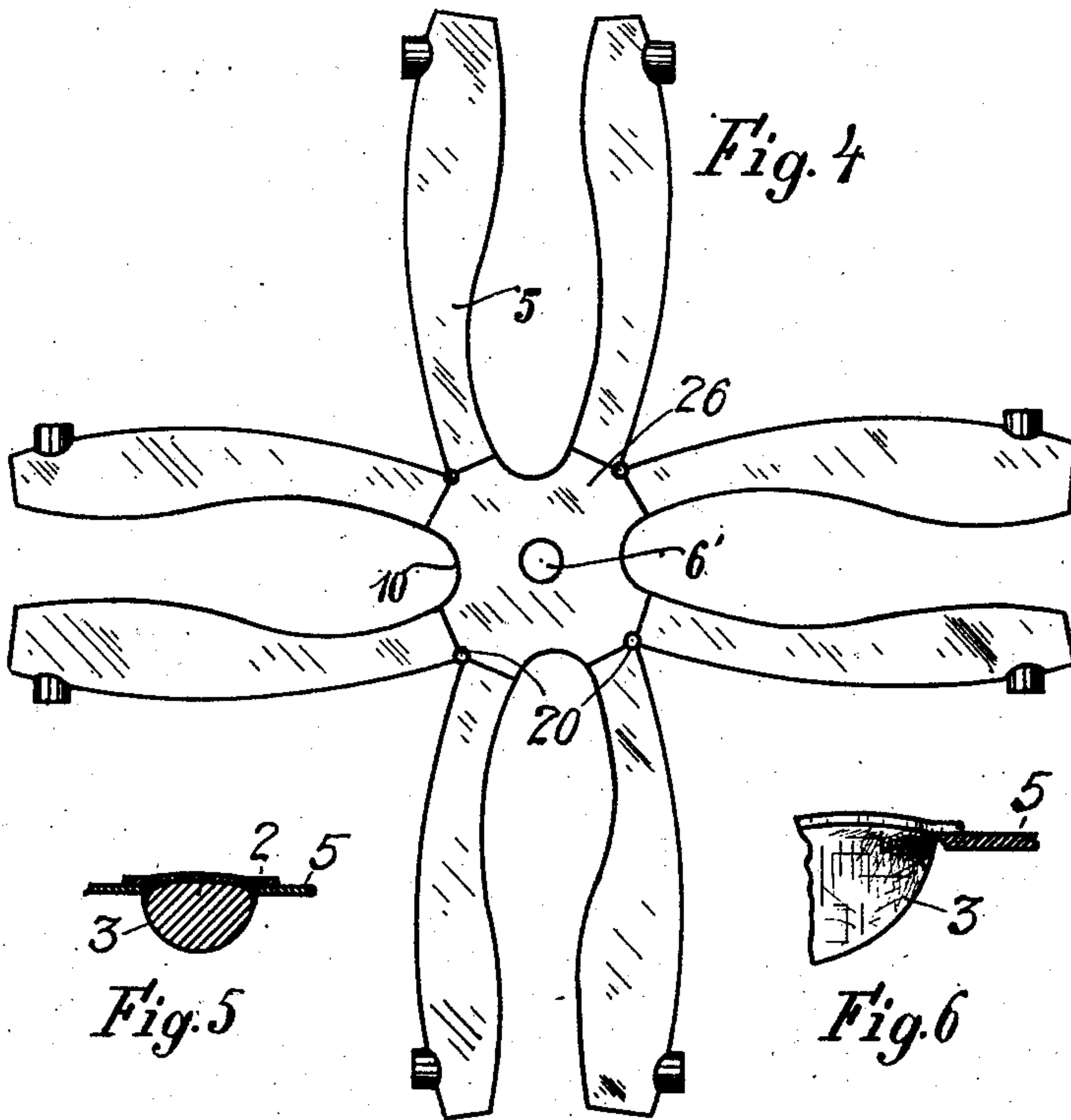
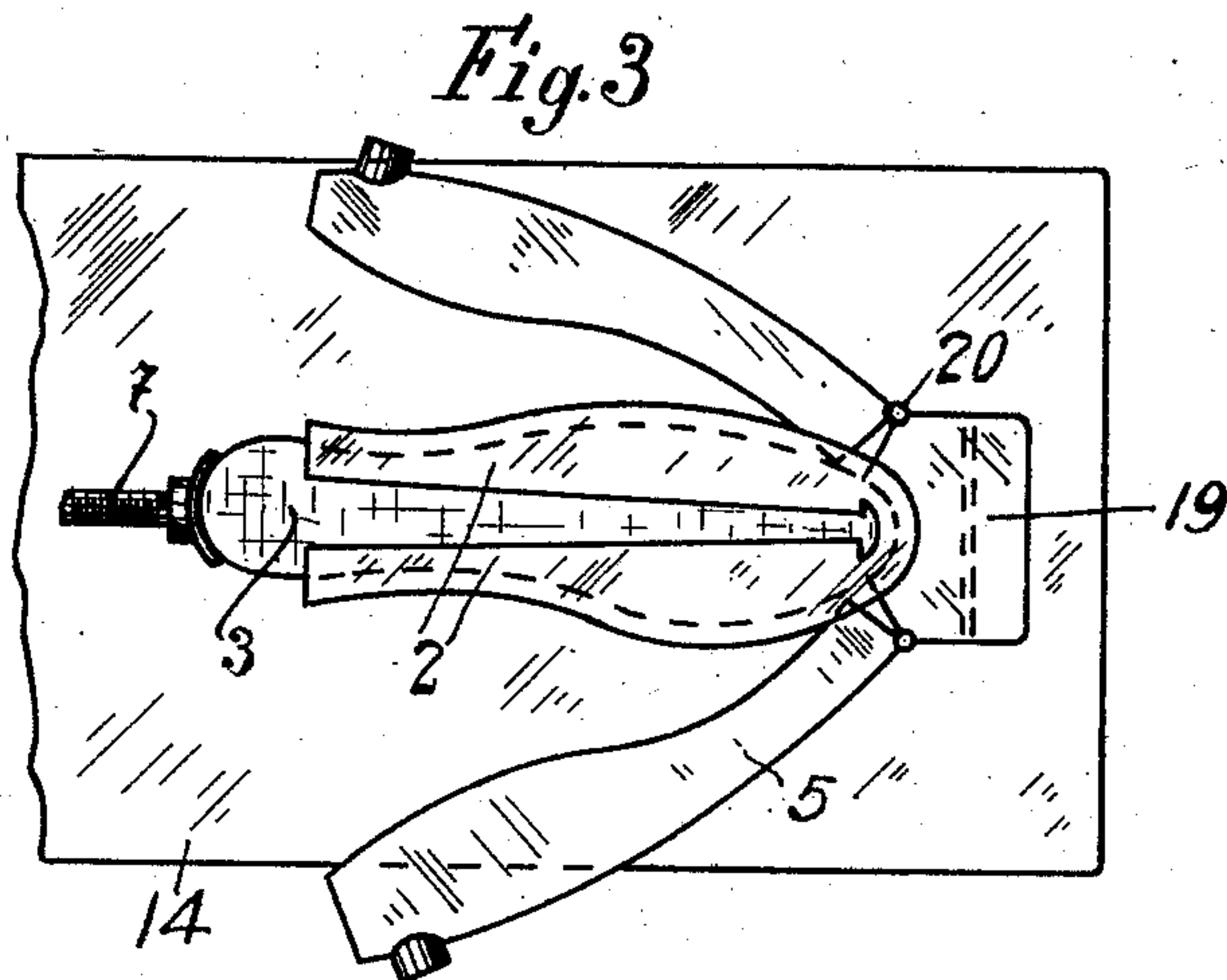
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 APPARATUS FOR LASTING BOOTS AND SHOES.
 APPLICATION FILED OCT. 29, 1906.

973,521.

Patented Oct. 25, 1910.

2 SHEETS—SHEET 2.



Witnesses:-

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UNITED STATES PATENT OFFICE.

EWALD LANGENHOHL, OF WERMELSKIRCHEN, GERMANY.

APPARATUS FOR LASTING BOOTS AND SHOES.

973,521.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed October 29, 1906. Serial No. 341,092.

To all whom it may concern:

Be it known that I, EWALD LANGENHOHL, a subject of the King of Prussia, residing at Wustbachstrasse 2, Wermelskirchen, in the Rheinland, Germany, have invented certain new and useful Improvements in Apparatus for Lasting Boots and Shoes, of which the following is a specification.

This invention relates to improvements in lasting apparatuses for stretching the upper upon the last.

The invention has for its object the provision of an apparatus of this character wherein the toe portion is rigidly held in engagement with a forming mechanism and wherein the latter is provided with movable parts extending along the sides of the upper and adapted to be independently operated to stretch the upper upon the last so that different pressures can be imparted to remote portions of the upper to vary the stretching action in accordance with requirements.

The invention also contemplates a multiple forming mechanism, of the general character referred to, so constructed that a plurality of forming devices may be successively thrown into operative relation with the upper to be lasted.

The invention will be more fully described in connection with the accompanying drawings and will be more particularly pointed out and ascertained in and by the appended claims.

In the drawings;—Figure 1 is a view in side elevation of a lasting apparatus embodying the main features of my invention. Fig. 2 is a plan view thereof. Fig. 3 is a plan view showing the forming mechanism in an open position. Fig. 4 is a plan view of a multiple forming mechanism illustrating one embodiment of my invention. Fig. 5 is a sectional view on line *a—b* of Fig. 2. Fig. 6 is a fragmentary sectional view, on an enlarged scale, of one side of the parts shown in Fig. 5.

Like numerals of reference designate similar parts throughout the different figures of the drawings.

Referring to the specific embodiment shown 14 indicates as a whole a supporting frame which is provided with a rearwardly

disposed upright 15 having laterally and forwardly extending arms 16. A forwardly disposed upright 17 is provided which conveniently supports the forming mechanism hereinafter described. A last indicated at 3 is shown supported upon a threaded rod 4 which may be adjusted by means of a hand wheel 18.

The forming mechanism as shown consists of a toe member 19 mounted on a rod 6 extending upwardly from the upright 17. Said toe member is suitably recessed at 10 to engage the toe portion of the upper, designated at 1, and lateral members 5 are hinged or movably connected with the toe member 19 and extend rearwardly therefrom, to a point adjacent the heel portion of the last. The toe and lateral members are so constructed that when the latter are forced inwardly said lateral member and toe member will form a continuous and unbroken engaging surface for uniformly stretching the upper upon the last. As shown the lateral members 5 are hingedly connected with the toe member 19 at 20. Independent devices are provided for advancing the lateral members 5 toward the last so that when one portion of the upper requires a greater stretching action than another portion such variable stretching action may be effected by imparting a greater pressure to one member 5 than is imparted to the other. It will also be seen that the same pressure may be imparted to both members 5 as will now be described in detail.

As shown threaded rods 12 and 13 are mounted in arms 16 and may be operated by hand wheels 21 and 22. Preferably the rods 12 and 13 engage the members 5 near the rear ends thereof and the latter are provided with suitable enlargements, as clearly shown in Fig. 2, against which said rods may operate. It will be readily seen that by turning the wheels 21 and 22 independently a different pressure may be exerted upon the members 5 so that one side of the upper may be subjected to a different pressure, either greater or less, from that imparted to the other side, thereby enabling the operator to last the upper in a most perfect and effective manner.

Means are provided for engaging the heel portion of the last to move the toe portion of the upper into engagement with the toe member 19 and rigidly hold the last in position. As shown said means consists of a rod 7 having threaded engagement with the upright 15 provided with engaging portion 8 and a hand-wheel 23 as clearly shown in Fig. 2.

Where it is necessary to depress the forward portion of the last to bring the upper into horizontal alinement with the forming mechanism threaded rods 11 may be provided which as shown are operated by hand wheels 24 and supported by an arm 25.

As shown in Fig. 4 the toe member 26 is provided with a plurality of recessed portions 10 and a plurality of pairs of engaging members 5, and said toe member is apertured at 6' so that it can be mounted upon the part 6 and rotated thereabout. The pairs of members 5 can be successively brought into operative relation with the last to be operated upon.

Before the upper 1 is placed upon the last it is sewed or otherwise secured to the welt 2 and the latter is preferably made in one piece and slit longitudinally so that during the lasting operation the lower margins of the upper may be advanced toward each other about the last without bringing the slit portions of the welt 2 into engagement with each other. An insole may be placed upon the last before the upper is disposed thereon. When the upper is in place upon the last and the latter is adjusted as shown in Figs. 1 and 2 the continuous engaging inner margin of the toe member 19 and the lateral members 5 will engage the upper between the same and the welt as shown in Fig. 5. As hereinbefore stated the hand wheel 23 may be operated to force the last forwardly until the toe portion of the upper is properly lasted and the hand wheels 21 and 22 may be operated to bring the members 5 toward each other and against the upper so as to last the side portions thereof, said side portions being forced inwardly to last the side of the shoe in accordance with the requirement.

It will be seen from the foregoing that the operator can readily inspect the upper, during the lasting operation, and can readily determine the pressure necessary on both sides and at the rear of the last thereby insuring a product of a formation exactly in accordance with the last.

I claim:—

1. An apparatus for lasting uppers comprising in combination, a revolubly mounted toe member provided with a plurality of toe engaging recesses adapted to engage the upper and points between the same and a welt

secured thereto, a plurality of pairs of lateral members hinged to said toe member and adapted to engage side portions of the upper between the same and the welt and each pair forming with its companion a toe recess, a continuous line or margin extending rearwardly from said toe engaging portion, said toe member being adapted for rotation to successively bring pairs of lateral members into and out of operative relation with respect to the upper to be lasted, means for forcing the last forwardly against said toe member to stretch the toe portion of the upper, and independently operable means for compressing the lateral portions to stretch the side portions of the upper upon said last.

2. An apparatus for lasting uppers comprising in combination, a revolubly mounted toe member provided with a plurality of toe engaging recesses adapted to engage the upper and points between the same and a welt secured thereto, a plurality of pairs of lateral members hinged to said toe member and adapted to engage side portions of the upper between the same and the welt and each pair forming with its companion toe recess a continuous line or margin extending rearwardly from said toe engaging portion, said toe member being adapted for rotation to successively bring pairs of lateral members into and out of operative relation with respect to the upper to be lasted, means for forcing the last forwardly against said toe member to stretch the toe portion of the upper, and means for compressing the lateral members to stretch the side portions of the upper upon said last.

3. An apparatus for lasting uppers comprising in combination, a multiple former mechanism composed of a rotatable central plate provided with a plurality of toe engaging recesses, a plurality of pairs of lateral members connected to said central members or plates and adapted for engagement with side portions of the upper, means for forcing the last forwardly to engage the toe portion of said upper with said central plate, and means for engaging said lateral plate to stretch the side portions of the upper upon said last.

4. An apparatus for lasting uppers comprising in combination, a former mechanism composed of an integral toe member, a support for the toe member, integral lateral or side members hinged to lateral portions of said toe member, said toe and side members having continuous integral inner edges adapted to enter between the welt and the upper, said lateral or side members extending rearwardly from the toe member to points slightly in advance of the heel portion of the upper, means for supporting the last, means for forcing the last and upper

against the toe member to last the toe portion of the upper, means engaging one of said side members near the end thereof for lasting one side of the upper, and means for
5 engaging the other side member near the end thereof for lasting the other side of the upper.

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

EWALD LANGENOHL.

Witnesses:

BESSIE F. DUNLAP,
LOUIS VANDORN.