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W. A. KRENTLER

COMBINED LINK AND HINGE LAST

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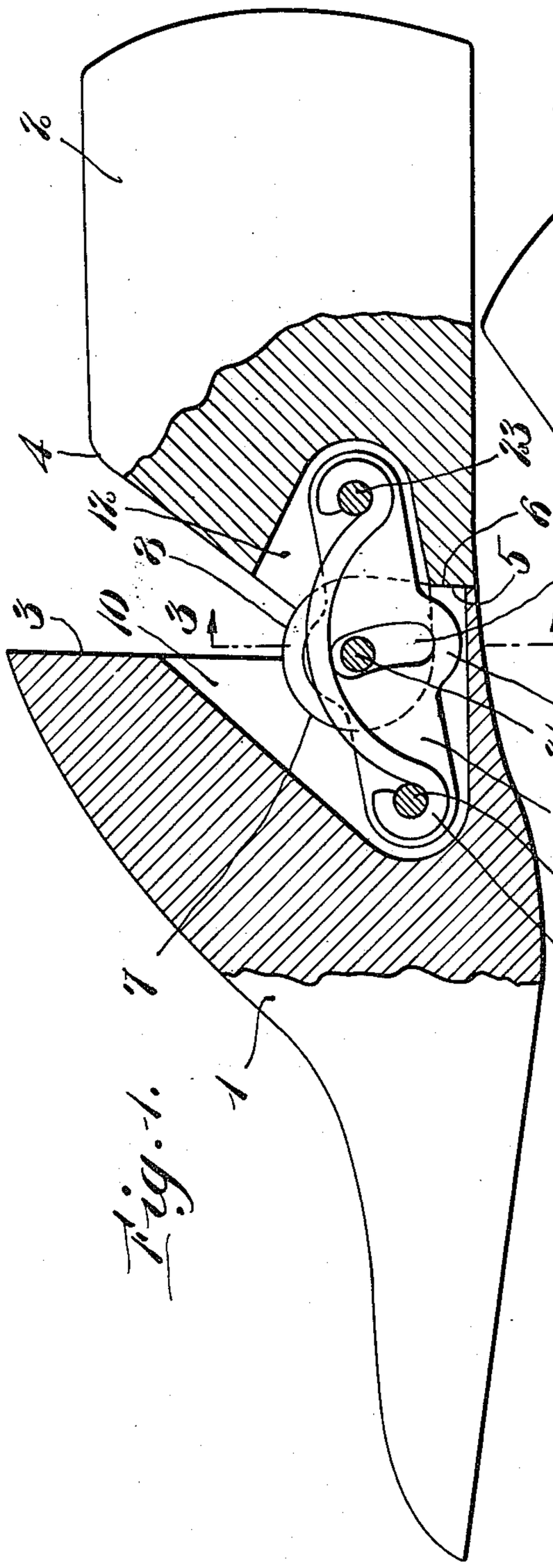

Fig. 1.

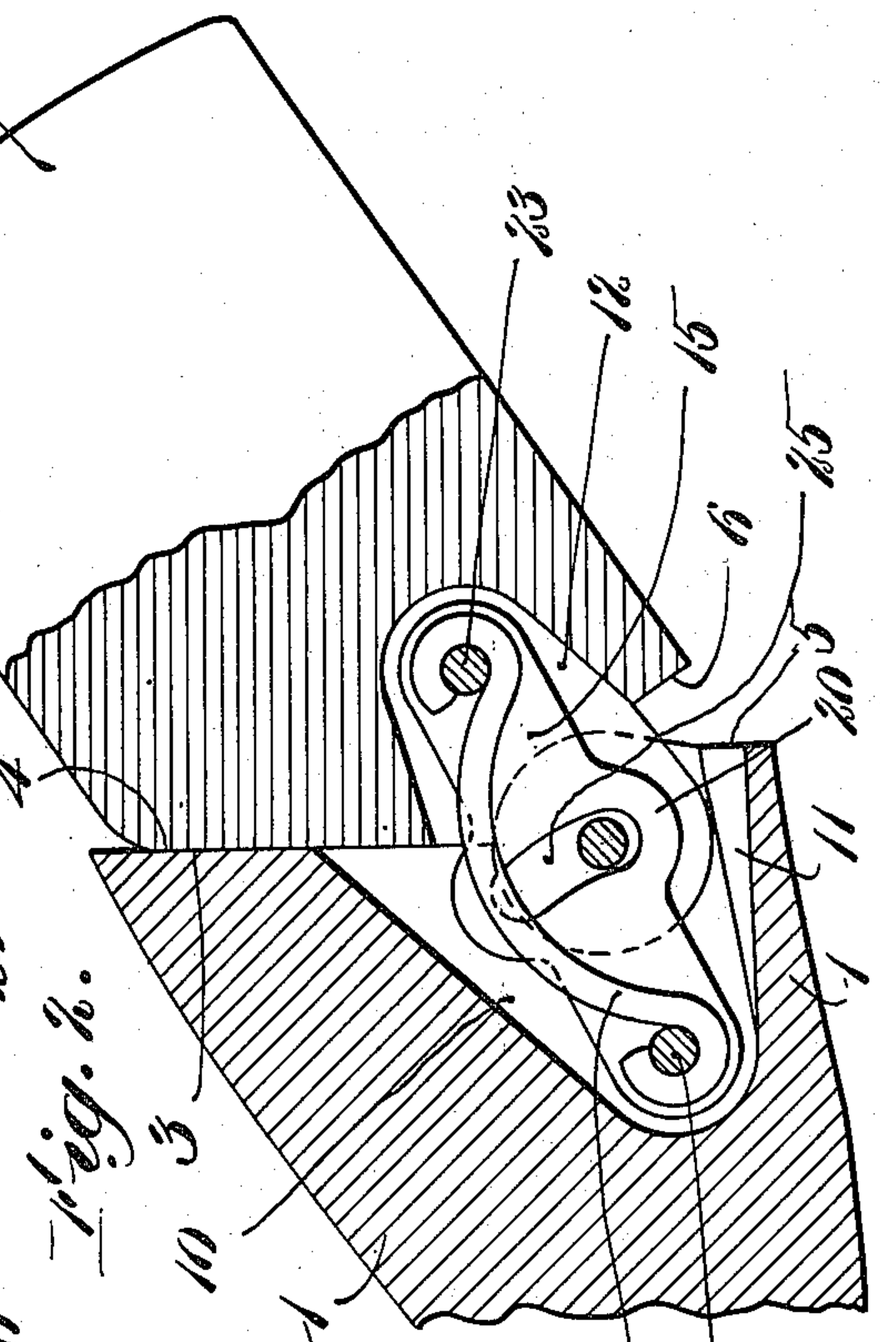

Fig. 2.

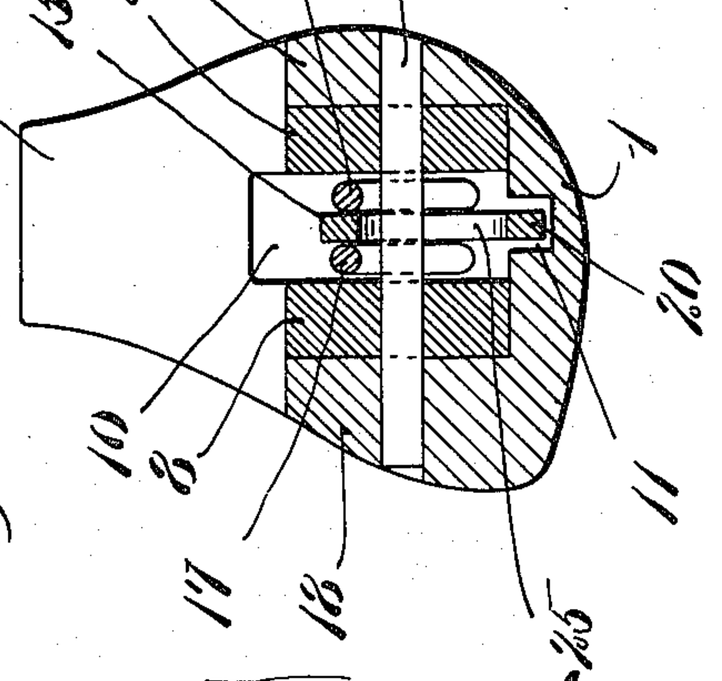

Fig. 3.

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UNITED STATES PATENT OFFICE

WALTER A. KRENTLER, OF DETROIT, MICHIGAN, ASSIGNOR TO KRENTLER-ARNOLD HINGE LAST COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN.

COMBINED LINK AND HINGE LAST.

Application filed June 21, 1922. Serial No. 569,983.

To all whom it may concern:

Be it known that I, WALTER A. KRENTLER, a citizen of the United States, and resident of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Combined Link and Hinge Lasts, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

In my present invention I have produced a two-part last having for its object to provide a combined hinge or pivotal last construction, together with a connecting link construction, as well as to simplify such two-part lasts and improve and perfect their manufacture.

The present invention is largely an adaptation and modification of the last constructions shown and illustrated in the prior application, Ser. No. 565,302, filed June 2, 1922, illustrating a two-part last with a link connection.

Broadly considered, my present invention consists in the provision of a novel, simple, efficient, strong and serviceable construction wherein both the pivot or hinge type of last and the link type of last are combined, uniting in the present invention certain of the advantages of both said prior types of last construction. I believe that the combination of a pivot or hinge arrangement, whereby the two parts of the last are compelled to move relatively with each other, on a fixed pivot or hinge, in combination with a solid plate or link uniting both parts of the last, and aiding in holding the same in assembled position—as well as in locked position—either shortened or extended, is distinctly new, and I wish to claim the same herein broadly. Preferably I so construct and arrange the last parts of the hinge and link members, that the same will operate to permit and produce a springing or snapping of the last parts from lengthened position to shortened position, and vice versa, and preferably also I utilize this combination of pivot and link connections in conjunction with the "knuckle joint" type of last. In addition to these features I may and preferably will utilize a spring or springs, cooperating with the combined pivot and link members to accelerate the springing or snapping of the last parts from shortened to lengthened position, and vice versa, as well as to give tension to the holding of the last in said lengthened and shortened position, as well also as to produce a constant tightening tension on the last parts and thus compensate for looseness or wear.

Further features, advantages and combinations of parts will be hereinafter more fully pointed out and claimed.

Referring to the drawings, illustrating a preferred embodiment of the invention,

Fig. 1 is a side view of a last, partly in cross-section, showing the last parts in extended position;

Fig. 2 is a fragmentary and partly cross-sectional view showing the last parts in shortened position; and

Fig. 3 is a view on the line 3—3 of Fig. 1.

The last as shown in the drawings, comprises a forepart 1 and heel part 2 divided on a line of cut which will produce the faces 3 and 4 on the fore and heel parts respectively, at the upper side, the contacting faces 5 and 6 on the lower or bottom surface of the last, and the "knuckle joint," consisting in the concave face 7 on the forepart 1 and the convex or knuckle 8 on the heel part. In the forepart 1 and opening from the line of dividing cut is formed a recess 10 and in the heel part is a corresponding recess 12 of sufficient width and appropriate depth to receive the connecting link 15 and the hinges 16 and 17. In the forepart 1 also is an additional groove 11, see Fig. 3, to receive the depending portion 20 of the link 15 when the last is in lengthened position as illustrated in Fig. 1. The knuckle joint faces 7 and 8 are in the form of an arc, and the knuckle joint portion 8 on the heel part is of sufficiently greater width than the recesses 10 and 12 to span the same and to permit corresponding extensions 18 on the forepart, thus overlapping each other and being bored to receive the pivot or hinge 21 which extends through both sections 8 and 18 (see Fig. 3), thus giving the pivot or hinge therefor and uniting the last parts. This insures the movement of the forepart and heel part on the pivot pin 21, but if this were the only connection, the holding of the two last parts together would depend on the strength of the wood in the knuckle joint or overlapping portions 8 and 18. In order to pro-

vide a firm, strong, rigid and powerful connection, I utilize the link 15 and have the same secured at points remote from the line of cut on the rivets 22 and 23 respectively. Furthermore, by having the securing points 22 and 23 disalined with the central pivot 21 and fastening of these parts rigidly and firmly together, I secure the advantages incident to "springing" or "snapping" the heel parts from lengthened to shortened position or the reverse, as above noted. Bearing at each side of the plate 15 and with the ends engaging the rivets 22 and 23, I further provide the springs 16 and 17, which still further increases the resistance and tension incident to holding the last parts in either shortened or lengthened position, as well as to facilitate the snapping or springing of these parts from one position to another. With the centers 22, 23 and 21 disalined, and with the link construction as above explained, in combination with the constant tension of the springs 16 and 17, I have provided a smooth and efficient last locking construction to hold the last parts firmly in their desired connection.

In order to effect this combination of the pivot or hinge construction utilizing a central pivot pin 21, together with the link connection 15, I have provided this link member with a central slot 25, the same being of appropriate width to span the pivot pin 21, and being formed in the arc of relative movement between the forepart and heel part. This arc being of substantial width I prefer to form the plate 15 with a depending portion or projection 20, as heretofore noted, and for this purpose form the groove 11 in the lower part of the wood of the last, which, however, does not materially weaken the last nor does it weaken the bearing faces 5 and 6 in their function.

It will be appreciated that I have thus combined a pivot hinge and a link construction, accomplishing this result with but slight cutting away of the wood of the last, keeping the last parts substantially closed and protected, giving a strong pivot hinge member, insuring the movement of the last parts on said pivot, and reinforcing and strengthening the same by a single connecting plate or link, which latter is secured to the wood of the last parts in the firm solid portions remote from the dividing line of cut. Thus I have united the advantages of both a simple single link and a pivotal hinge construction, preferably disalining the link connections with the pivot hinge connection and by adding the spring tension members, I have produced a combined hinge and link last, with means to compensate automatically for looseness and wear, and which will stay effectually locked in either shortened or lengthened position, with ample bearing faces to resist breaking strains or torsional displacement, and all in a simple, cheap, efficient and easily assembled and operated structure.

My invention is further described and defined in the form of claims as follows:

1. A two-part last having said parts constructed and arranged for relative movement, and means for uniting said parts, comprising a pivotal uniting member and a rigid link member, said link having a slot therein through which the pivot extends.

2. A two-part last having said parts constructed and arranged for relative movement, plural means for uniting said parts, comprising a uniting pivotal member and a uniting rigid link member, in combination with constant acting tension means to hold said last parts in assembled position and compensate for looseness and wear.

3. A two-part last having said parts constructed and arranged for relative movement, and means for uniting said parts, comprising a uniting pivotal member and a uniting link member, the link member being united to the last parts at points disalined from the said pivot, in combination with a spring positioned each side of the link and extending in a line free of said pivot during the operation of flexing the last.

4. A hinge last of the kind described, having a forepart, a heel part, interlocking portions therebetween united by a pivot pin, recesses formed in both forepart and heel part, a link member in said recesses, and having its opposite ends secured respectively in the forepart and heel part, said link having a slot formed therein through which the pivot passes, and spring means extending within said recesses and secured to the link securing means whereby said last will be held in assembled position in a manner to automatically compensate for wear.

5. A hinge last of the kind described, having a forepart, a heel part, interlocking portions therebetween united by a pivot pin, recesses formed in both forepart and heel part, a link member in said recesses, and having its opposite ends secured respectively in the forepart and heel part, said link having a slot formed therein through which the pivot passes, and spring means extending within said recesses and secured to the link securing means, said link securing means being disalined from said pivot, whereby said last will be yieldingly locked in extended or shortened position, and will afford increasing resistance against dislodgment.

In testimony whereof, I have signed my name to this specification.

WALTER A. KRENTLER.