

Jan. 2, 1923.

H. A. ALLEN.  
WRENCH.  
FILED OCT. 20, 1919.

1,440,950.

2 SHEETS—SHEET 1.

Fig. 1.

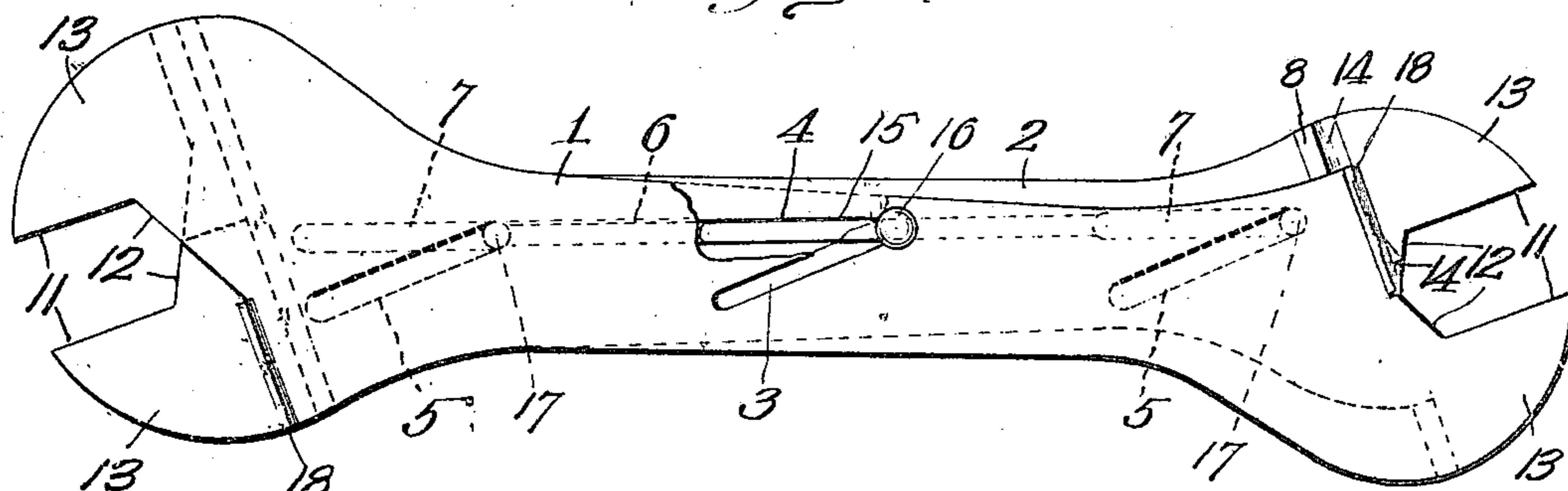


Fig. 2.

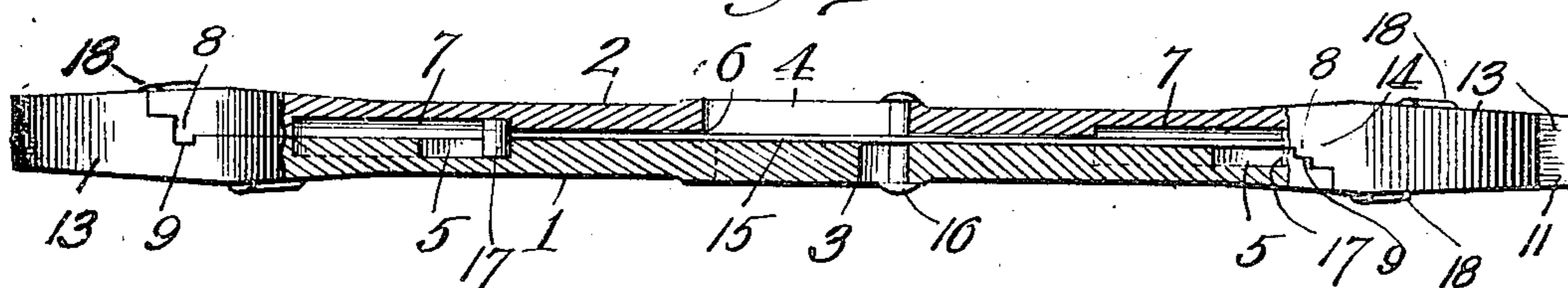


Fig. 3.

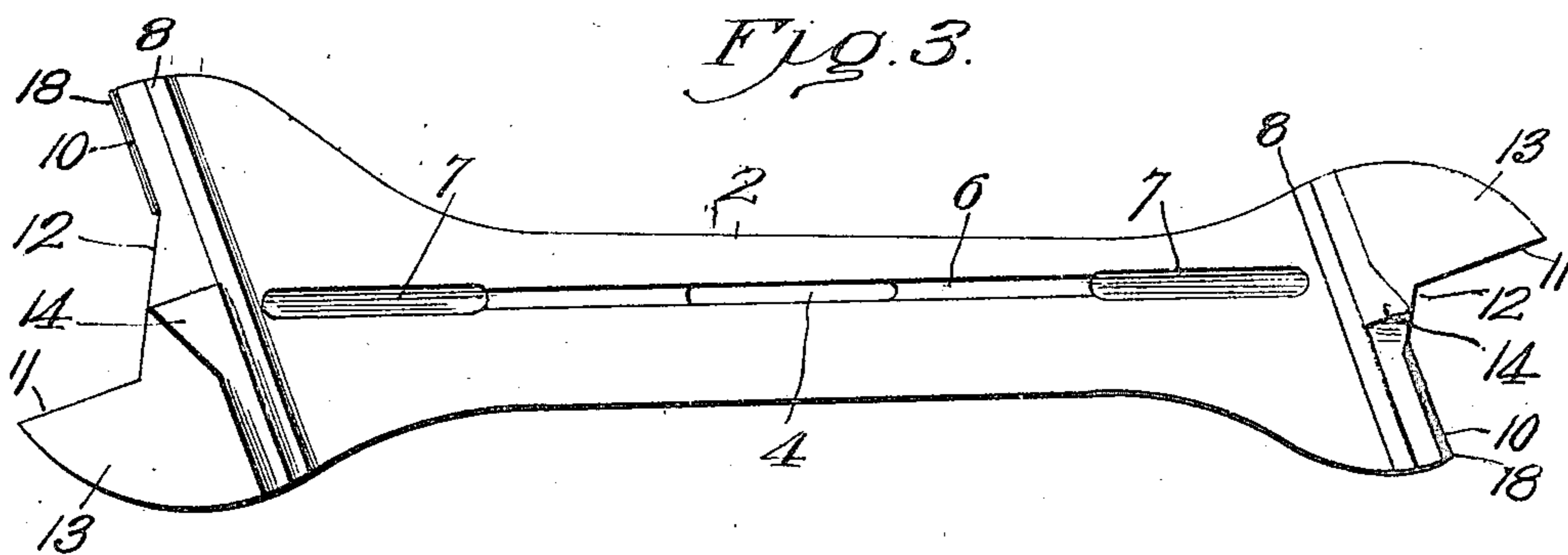
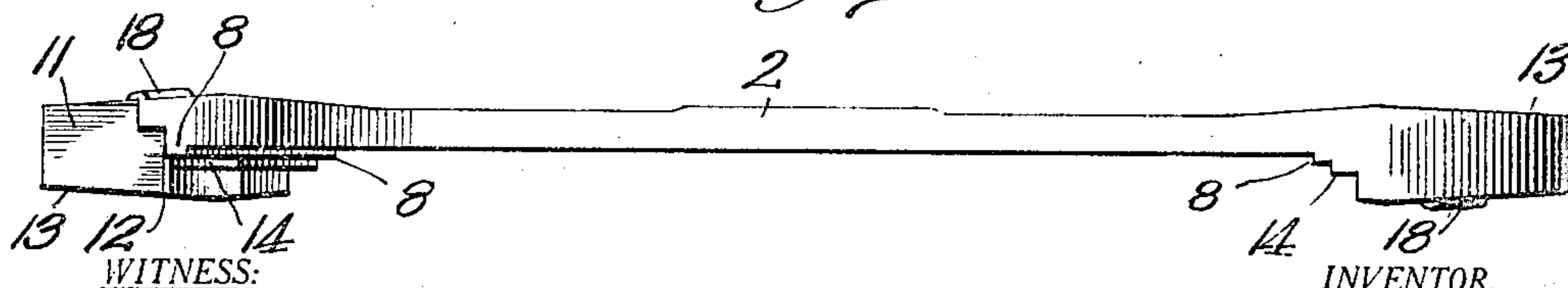


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

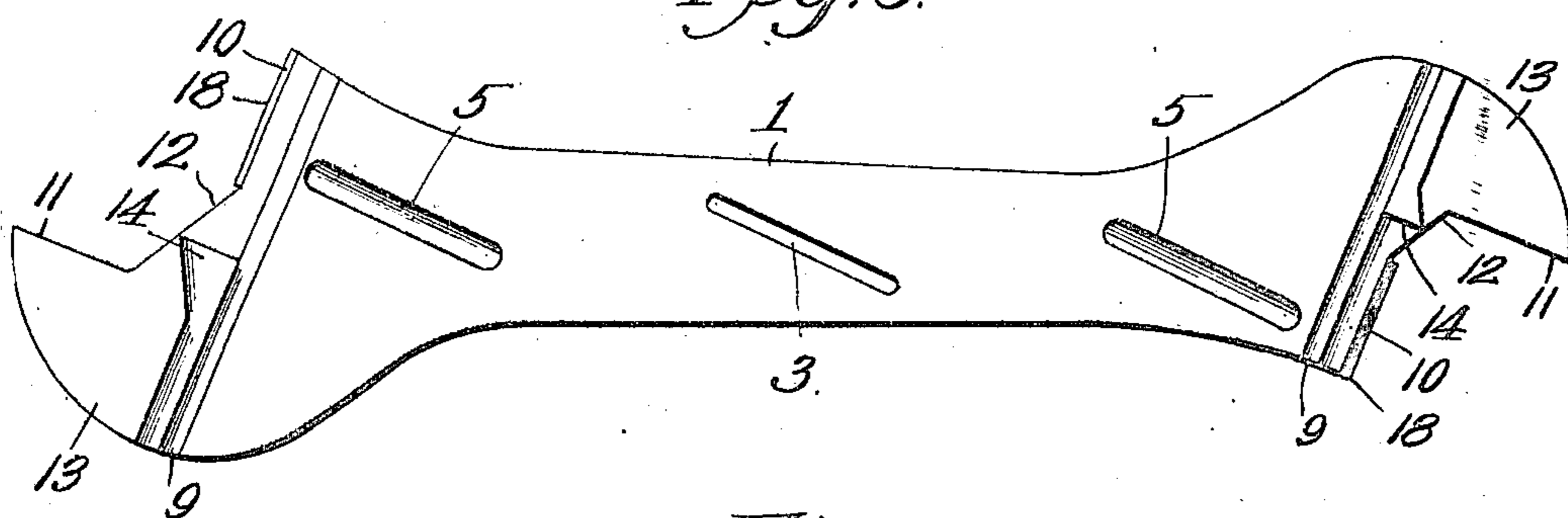


Fig. 6.

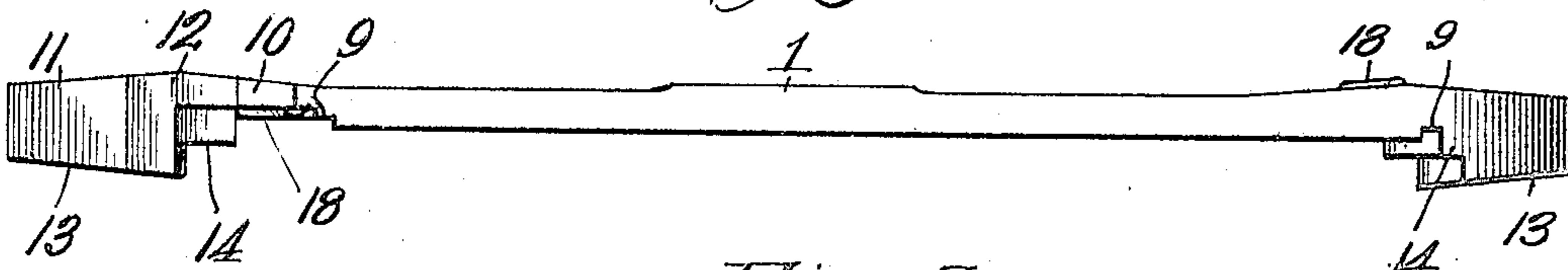


Fig. 7.

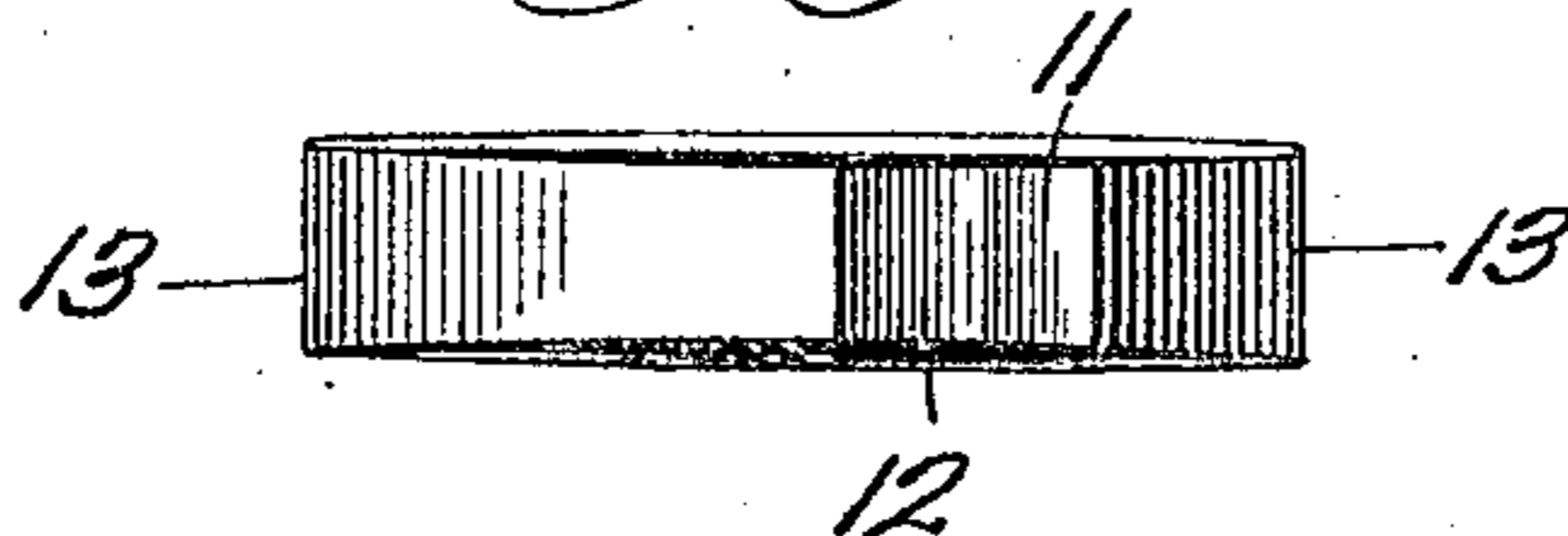
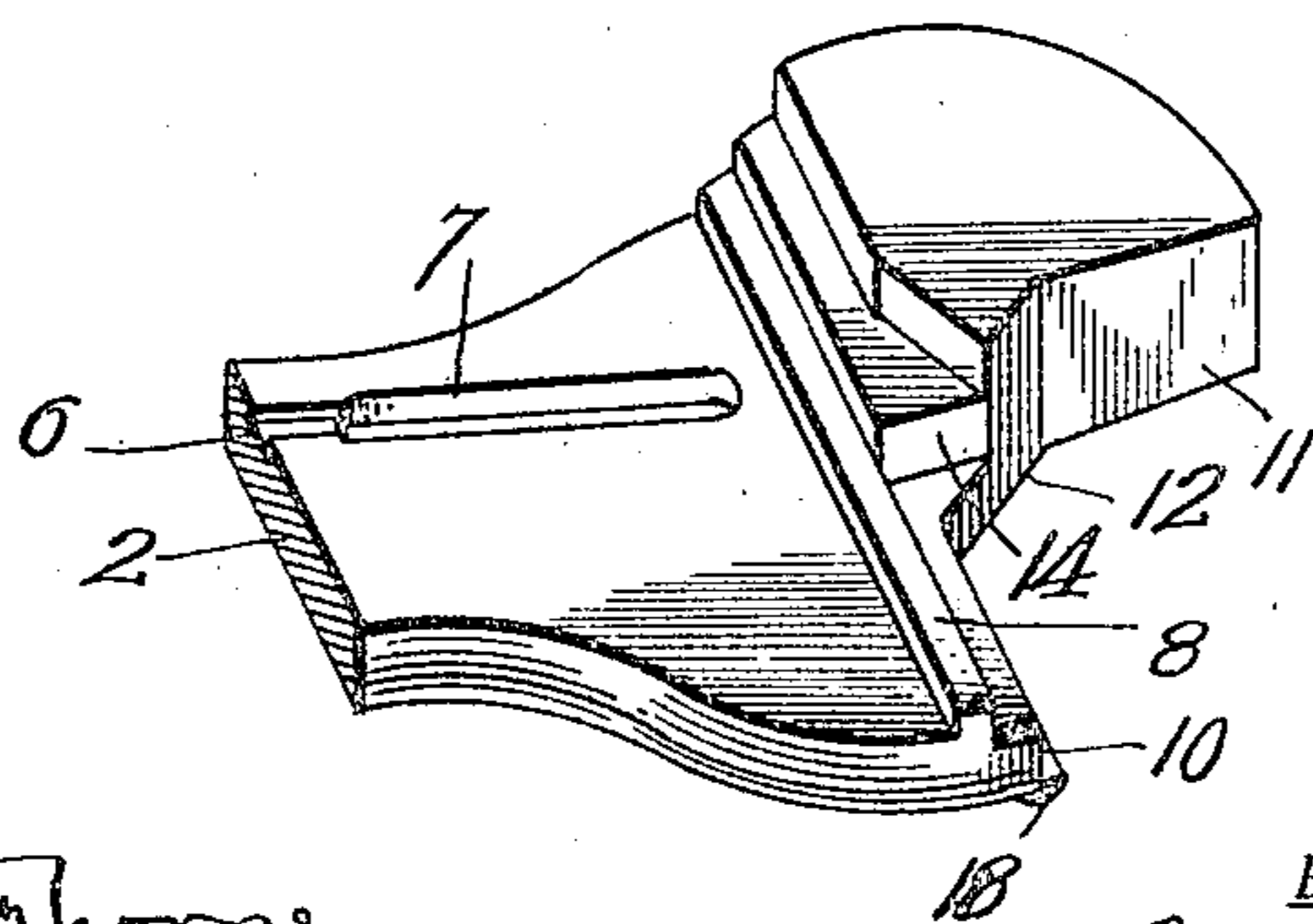


Fig. 8.



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## UNITED STATES PATENT OFFICE.

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## WRENCH.

Application filed October 20, 1919. Serial No. 331,916.

*To all whom it may concern:*

Be it known that I, HERBERT A. ALLEN, a citizen of the United States, residing at Jefferson Island, in the county of Gallatin and State of Montana, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to adjustable wrenches and my object is to produce a device of this character provided with jaws at each end and comprising essentially two members slidable transversely of their length and adapted in such adjustment to impart closing movement to the jaws at one end and opening movement to the jaws at the other end, and the object is to produce a wrench of the type outlined which is efficient, strong and inexpensive to manufacture.

With this general object in view the invention consists in certain novel and useful features of construction and organization of parts as hereinafter described and claimed; and in order that it may be fully understood, reference is to be had to the accompanying drawings, in which:

Figure 1, is a side elevation of a wrench embodying the invention.

Figure 2, is a view of the same showing the ends of the wrench in elevation and the intermediate portion in longitudinal section.

Figure 3, is an inner face view of one of the jaw members of the wrench and also discloses the wrench adjusting device.

Figure 4, is an edge view of the same.

Figure 5, is an inner face view of the other jaw member of the wrench.

Figure 6, is an edge view of the member of the wrench shown by Figure 5.

Figure 7, is an end view of the wrench.

Figure 8, is a fragmental perspective view of one member of the wrench.

Referring to the drawings in detail, it will be noted that the wrench comprises two flat or jaw-equipped members and an adjusting rod fitting slidably between said members and adapted to effect lateral adjustment thereof, it being also noted that each of the jaw-equipped members has the jaws at opposite ends and facing in opposite directions so that adjustment which effects approaching movement of the jaws at one end of the wrench at the same time effects receding or opening movement at the opposite end of the wrench.

Referring now to the drawings in detail, 1 and 2 indicate two bar members which are smooth at their inner sides and are respectively provided midway their length with slots 3 and 4. The slot 3 of member 1 extends obliquely with respect to the longitudinal axis of said member, whereas the slot 4 of member 2 extends longitudinally, hence said slots always intersect at some point in their length. Parallel with and at equal distances from and at opposite ends of slot 3, member 1 is provided in its inner faces with a pair of grooves 5. Member 2 on the contrary is provided with a longitudinal groove 6 in its inner face into which the slot 4 opens, and said groove is preferably enlarged and deepened at its ends to produce grooves 7 matching grooves 5 of member 1. It will thus be seen that grooves 5 and 7, like slots 3 and 4, always intersect at some point in their length.

The member 2 is widened at each end and across said ends beyond the grooves 7, is provided with parallel guide ribs 8. The member 1 is also widened at its ends and is provided in its inner side at each end with parallel grooves 9 receiving the ribs 8 of member 2, this arrangement guarding against twisting and binding of the members when adjusted. Each member outward of its respective ribs 8 and grooves 9 terminates in a head, and each head is formed with an angular recess indicated by the edges 10 extending parallel with the ribs and grooves, 11 extending at right angles to edges 10, and 12 extending obliquely and connecting the inner ends of the edges 10 and 11, the last-named edges constituting the engaging faces of the main jaws of the member and it will be noted, facing in opposite directions. The jaws 13 of which edges 11 form the engaging faces, are of substantially twice the thickness of a member, that is to say each jaw 13 is of such thickness that it projects beyond the inner face of its respective member to the plane of the outer face of the abutting member, and between each jaw 13 and the adjacent rib 8 or groove 9, as the case may be, jaws 14 are formed, these jaws being of greater thickness than their respective members but of less thickness than the jaws 13 of such members. The jaws 14 are disposed between the jaws 13 and the adjacent ribs or grooves 8 or 9 as the case may be, and the inner or abrupt faces of jaws 14 intersect the oblique edges 12 of the re-

cessed ends of the jaws and parallel the engaging faces or edges 11 of jaws 13. When the members are assembled and jaws 13 at corresponding ends of the wrench are fully closed, they are directly opposed but spaced apart, and the adjacent smaller jaws 14 are likewise directly opposed but are in abutting relation, it being noted by reference to Figure 1, that when the small jaws at one end abut together, the adjacent main jaws are closed to their fullest extent, and that at the opposite end of the wrench the two sets of jaws are opened to their widest extent. To give the greatest range of use the members are so proportioned that the main jaws at one end are susceptible of being brought closer together than the main jaws at the opposite end, and likewise the small jaws at one end may be so positioned relative to their adjacent main jaws as to permit of engagement with nuts of larger size than the corresponding jaws at the opposite end.

A jaw-adjusting member is in the form of a bar 15 fitting in groove 6 for endwise adjustment therein, and said bar member is equipped with a cross rivet 16 extending through the slots 3 and 4 of the members and upset or headed at its ends to hold the two members together, that is with their smooth or inner faces engaging and with the ribs 8 of one member engaging the grooves 9 of the other. The bar 15 is also provided with lateral projections or studs 17 respectively engaging the adjacent grooves 5 and 6 of the members 1 and 2. When the jaws at the left hand end of the wrench as disclosed by Figure 1, are closed to their fullest extent, and the jaws at the other end are opened to their greatest extent, the rivet 16 is at the right hand end of the slots 3 and 4 and the studs 17 are engaging the right hand ends of their respective slots 5 and 7. To effect adjustment tending to open the jaws at the left hand end and close the jaws at the right hand end of the wrench, the rivet is slid to the left, and this imparts reverse movements to members 1 and 2, tending to bring the outer ends of the slot 3 and grooves 5 into register with the corresponding ends of slot 4 and grooves 7. This action, because each bar member has its jaws at opposite ends facing in opposite directions, results in closing movements of the jaws at one end and opening movements of the jaws at the other. Reverse movement of the rivet effects reverse movement of the rods and the studs 17 and hence reverse movement of the jaws to that above-traced.

To cooperate with the heads of the rivet 16 in holding the bar members flatly together, the heads of each of said bar members along the recessed edges 10, are provided with fins or flanges 18 adapted to be bent down over the abutting edges 10 of the other member. It is obvious of course that

as a further means of holding the bar members flatly together, the grooves 5 and 7 could be in the form of slots extending clear through said members and be engaged by correspondingly longer studs 17, and the outer ends of the studs could be offset or riveted against the outer faces of the bar members, or the outer ends of said studs could be equipped with removable head or nuts, and this statement also applies with respect to the heads of the rivet 16.

From the above description it will be apparent that I have produced a simple, strong, durable and efficient wrench which embodies the features of advantage set forth as desirable in the statement of the object of the invention, and which can be modified in various particulars without departing from the principle of construction involved or from the spirit and scope of the appended claims.

I claim:

1. A wrench comprising two members fitting flatly together and formed at one end with opposing jaws, one of said members having ribs extending obliquely across from one edge to the other, to the other member having corresponding grooves receiving said ribs; said members also having a plurality of intersecting slots, and flanges extending parallel to the said grooves and ribs, the flanges of one member overlapping the adjacent member, and a bar slidable longitudinally of and between said members and provided with pins engaging intersecting slots thereof.

2. A wrench comprising two members fitting flatly together and terminating in jaws facing in opposite directions, the adjacent jaws of the members standing in opposed relation, the inner side of one of said members having a longitudinal groove and slots at the end and middle of said groove, and the other member having parallel oblique slots registering with and intersecting the first-named slots, a bar fitting slidably in said groove and provided with cross pins engaging the intersecting slots respectively, one of said cross pins having exterior grips for adjustment of the bar, and flanges projecting from the members where each abuts a jaw of the other overlapping the joints between said members at such abutting points for holding the latter flatly together at their ends.

3. A wrench including companion jaw members providing a pair of coacting jaws at opposite ends thereof, and an adjusting element slidably connecting the members and slidable longitudinally thereof for shifting the members transversely and spreading one pair of jaws while shifting the other pair of jaws toward each other.

In testimony whereof I affix my signature.  
HERBERT A. ALLEN.