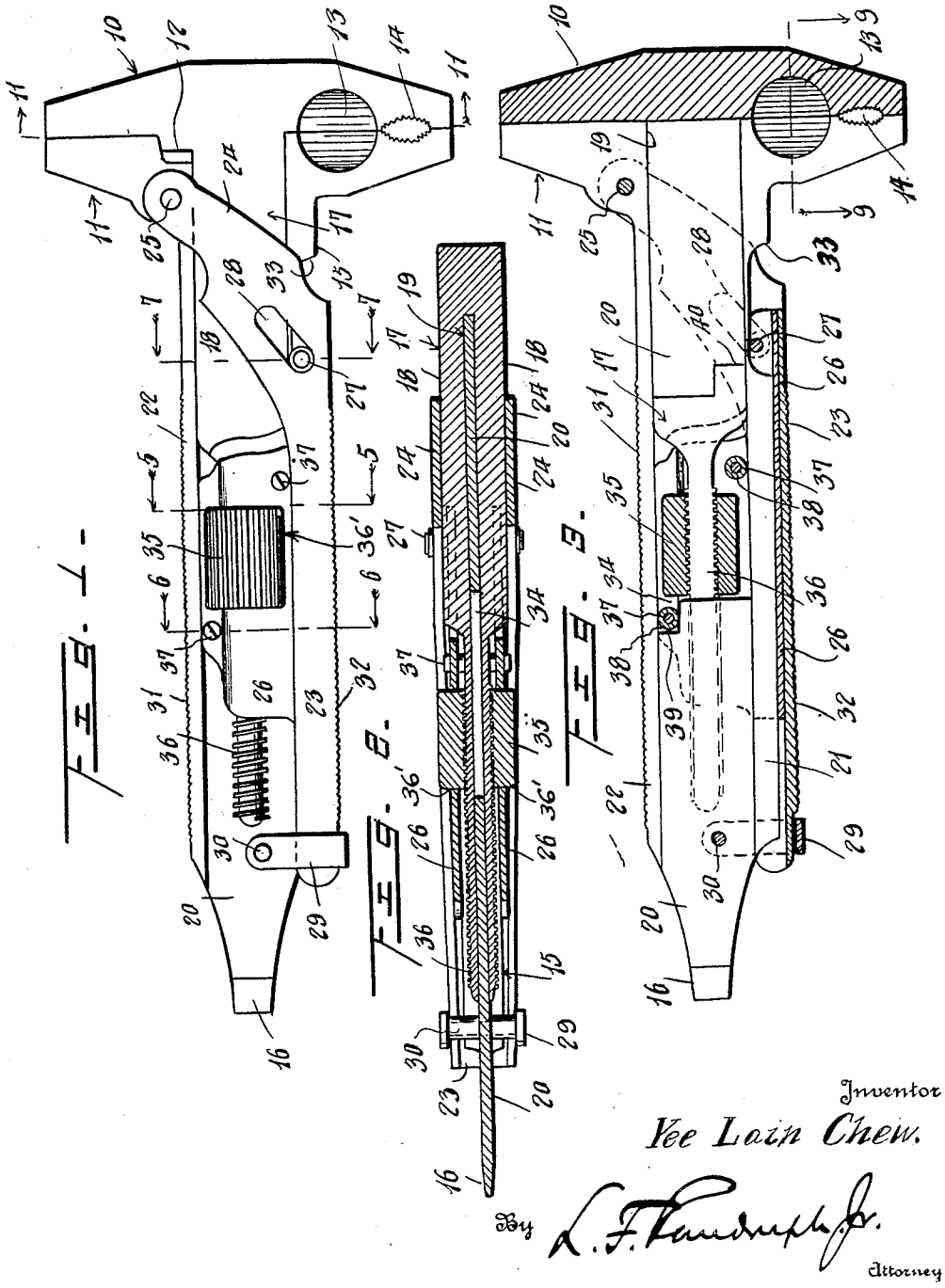
Oct. 27, 1931. Y. L. CHEW 1,829,473

WRENCH

Filed July 25, 1929 2 Sheets-Sheet 1

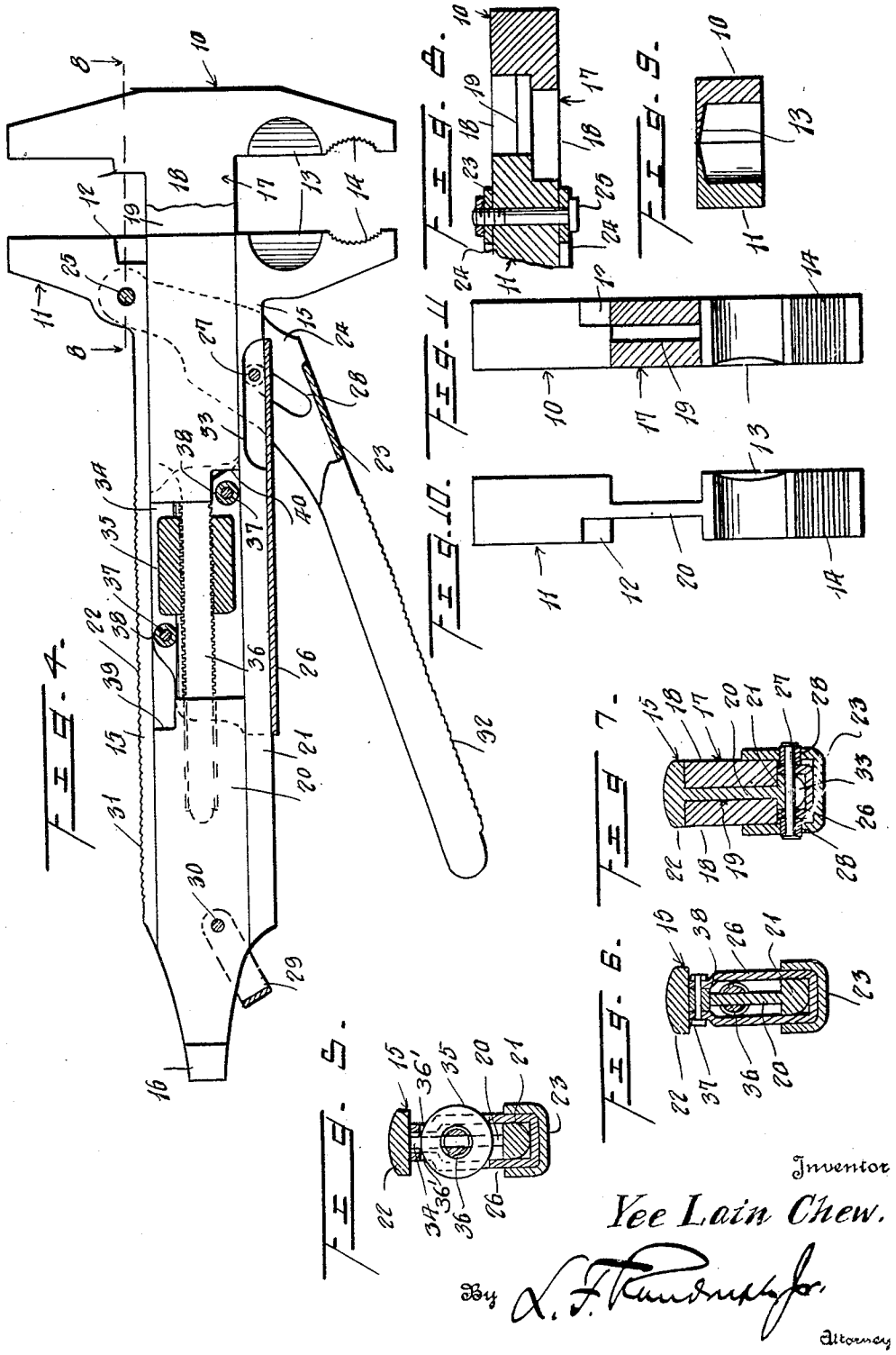


Inventor
Yee Lain Chew.
By L. F. Randolph Jr.
Attorney

Oct. 27, 1931. Y. L. CHEW 1,829,473

WRENCH

Filed July 25, 1929 2 Sheets-Sheet 2



Inventor
Yee Lain Chew.
By L. F. Randolph Jr.
Attorney

Patented Oct. 27, 1931

1,829,473

UNITED STATES PATENT OFFICE

YEE LAIN CHEW, OF GOPENG, PERAK, FEDERATED MALAY STATES

WRENCH

Application filed July 25, 1929. Serial No. 381,020.

This invention relates to a combination tool and it aims to provide an improved article wherein a plurality of tools of various kinds are embodied in an exceedingly compact form and in coacting relationship, enabling manufacture at moderate cost so as to provide a durable, handy convenient tool for mechanics generally and particularly those working in factories, on electric apparatus and on automobiles.

It is particularly aimed to provide a construction which may be used as a spanner or wrench, as pliers, and as a screwdriver.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating an operative embodiment.

In said drawings:—

Figure 1 is a view of the tool in side elevation,

Figure 2 is a longitudinal sectional view taken on the line 2—2 of Figure 1,

Figure 3 is a substantially central vertical sectional view through the tool, that is taken at a right angle to Figure 2,

Figure 4 is a view in elevation, partly broken away, showing the tool in position for use as pliers,

Figure 5 is a sectional view taken on the line 5—5 of Figure 1,

Figure 6 is a sectional view taken on the line 6—6 of Figure 1,

Figure 7 is a sectional view taken on the line 7—7 of Figure 1,

Figure 8 is a cross sectional view taken on the line 8—8 of Figure 4,

Figure 9 is a cross sectional view taken on the line 9—9 of Figure 3,

Figure 10 is an end elevation of one of the jaws, and

Figure 11 is a sectional view taken on the line 11—11 of Figure 1.

Referring specifically to the drawings, 10 generally designates a jaw or head and 11 generally designates another jaw or head. Such jaws coact to the end that the tool may serve as a spanner or wrench and also as pliers. Such jaws may have coacting wire cutting means as at 12 and 13 as in pliers and also have a cut away portion 14, the walls of which are serrated as shown, to facilitate gripping small articles.

The jaw 11 has an elongated handle portion at 15 which is generally of I-shape in cross section and whose free end is formed into a screw driver blade as at 16.

The jaw 10 has a split or bifurcated shank generally designated 17 providing side portions 18 and a slot 19 between them which receives a web 20 of the jaw 11, whereby the latter is slidably mounted on the shank 17. The I-shape of the jaw 11 provides ribs 21 and 22 at top and bottom of the web which overlap side portions 18.

Associated with the jaw 11 is a lever 23 which is generally of channel form, having spaced side portions 24 embracing opposite sides of the tool and being pivotally connected together and to the jaw by means of a pin 25. Carried by bracket 26 to be later specifically referred to, is a pin or stud 27 about which the lever 23 fulcrums in order to slide the jaw 11, the side portions 24 of the lever having inclined or elongated slots 28 through which said pin 27 passes.

Normally the lever 23 is fixed and inactive, its channel enabling the same to snugly engage the adjacent part of the jaw 11, the same being fastened in the latter position by means of a bail 29 of U-form pivoted at 30 to the web 20. It will be noted that the outer surface of the handle 15 and outer surface of lever 23 are knurled or roughened as at 31 and 32 to facilitate gripping.

The pin 27 is capable of traveling the length of the slot or cut away portion 33 provided in the handle 15 to permit movement to the same extent, of the bracket 26 which carries such pin. This feature enables downward swinging of lever 23 to tend to draw the jaw 10 toward the jaw 11 or toward the work and at the same time causing the bracket 26 to slide downwardly. The web 20 has a cut away portion 34 in which an exteriorly knurled adjusting nut 35 is disposed, such nut being screw threaded on a shank 36 extending rearwardly from the shank of the jaw 10, the shank being bifurcated as shown in Figure 2 at the side portions 18 to enable

sliding movement with respect to the web 20. The bracket 26 is generally of U-shape, embracing opposite sides of the jaws and having openings or cut away portions 36' through its sides so that the nut 35 is exposed for finger manipulation. The sides of the bracket 26 are also connected by means of bolts 37 which are surrounded by spacing sleeves 38 located in the cut away portion 34, the cut away portion 34 having extensions at 39 and 40 at obliquely opposite corners to accommodate the sleeves 38 at the opposite limits of movement of the bracket. As a result of this construction, when the lever 23 is fixed as shown in Figures 1 and 3, the nut 35 may be manipulated to move the jaws 10 and 11 relatively to each other, such movement being permitted by the clearance afforded by space 34 and space 33.

In operating the device, it will be realized that the pin 27 and nut 35 slide as a single unit with the bracket 26 and that the jaw 10 when actuated by the nut 35 slides with respect to the bracket 26 so that the jaw 11 and its web 20 being fixed or non-movable, the rotating of the nut 35 will cause the jaw 10 to slide towards or away from the jaw 11 and the bracket 26 to give the approximate or initial distance between the jaws, of the distance across the article to be turned, the bracket 26 being temporarily fixed to the jaw 11 by means of the position of the pin 27 in the slot 28. Then to get the final tightening of the jaws on the said article, the lever 23 which pivots on pin 25 can be tilted so that the sides of the slot 28 bearing upon the pin 27 as a fulcrum will cause the pin 27, the nut 35 and the slide 26 to move downwardly as a unit within the limits of the extensions 39 and 40 and inasmuch as the jaw 10 is locked to the nut 35 by means of the threads on the nut and the shank 36, the jaw 10 will also move downwardly with the said unit.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

I claim as my invention:

1. A tool of the class described comprising a first jaw member, a second jaw member, said second jaw member telescoping into the first jaw member and having a screw, a nut threaded on said screw, a bracket slidable on the first jaw member, a lever pivoted to the first jaw member, said lever having a slot, a pin on said bracket disposed in said slot, said nut and pin being slidable as a unit with said bracket, said second jaw member being movable relatively to the first jaw member by the nut, the bracket during the latter operation being temporarily fixed to the first mentioned jaw by means of said pin and slot, and said lever being tiltable so that the pin and slot connection will cause said pin, nut and bracket to move downwardly as a unit.

2. The subject-matter of claim 1 including a bail carried by one of the jaws and engageable with said lever to maintain the same in compact relation to the jaws.

In testimony whereof I affix my signature.

YEE LAIN CHEW.