No. 871,690. PATENTED NOV. 19, 1907.

F. GEHNER.

WRENCH.

APPLICATION FILED AUG. 6, 1907.

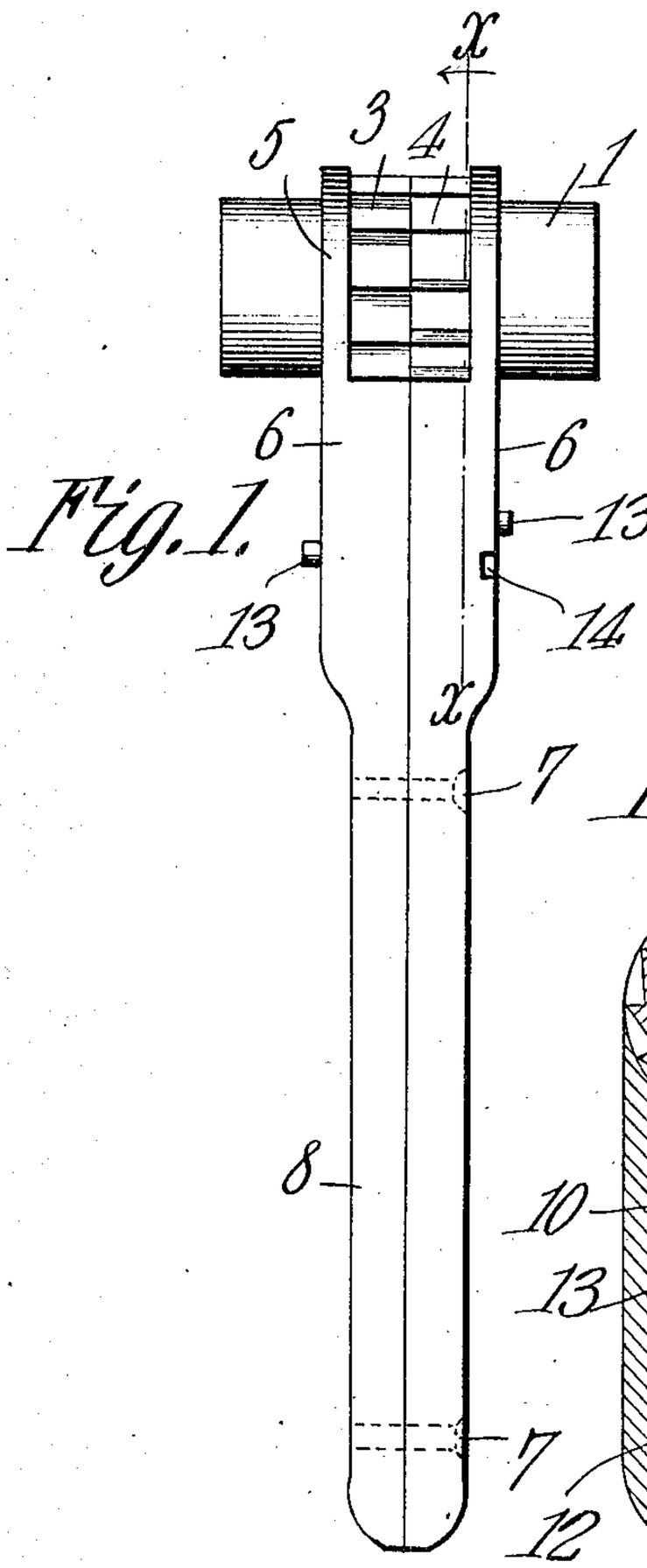

Fig. 1.

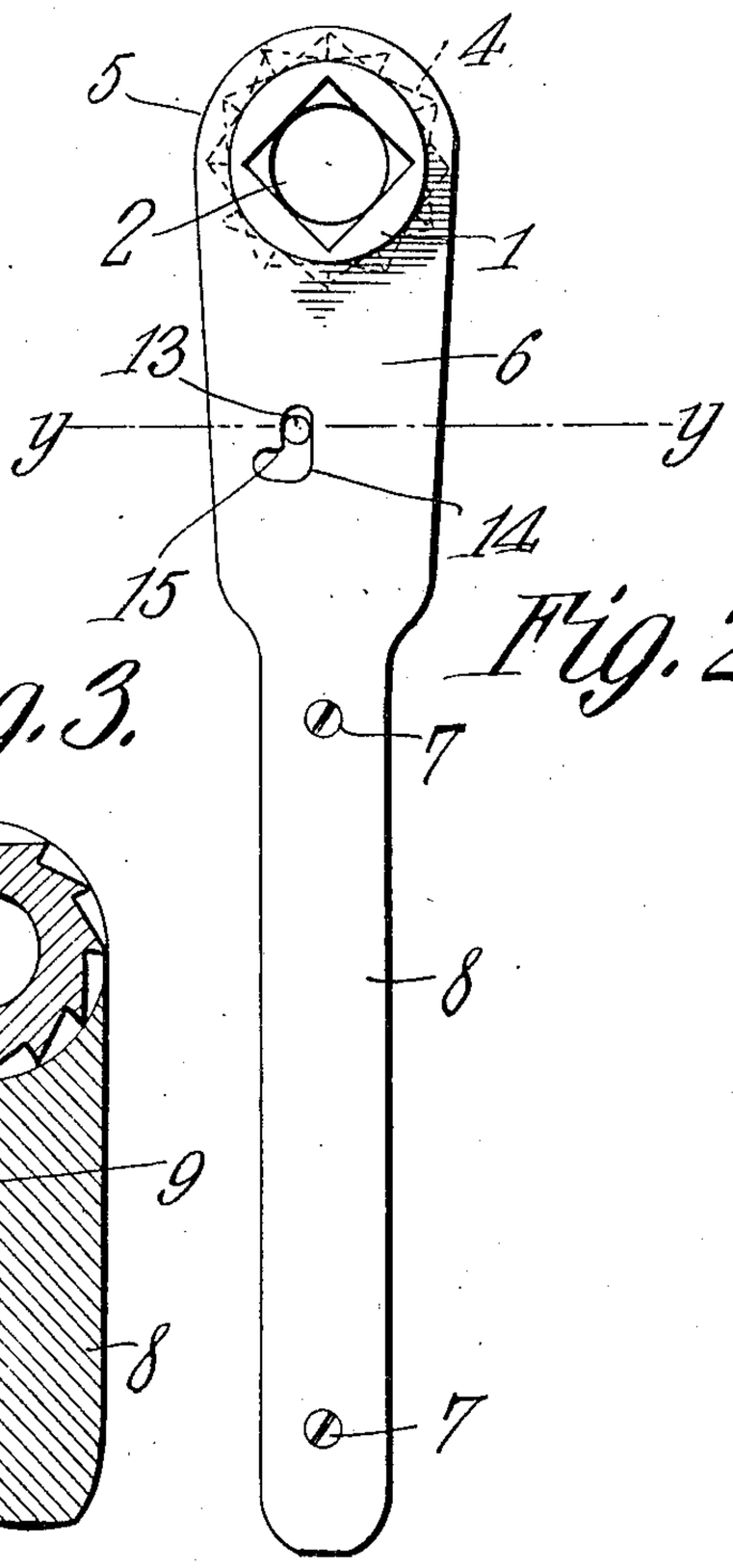

Fig. 2.

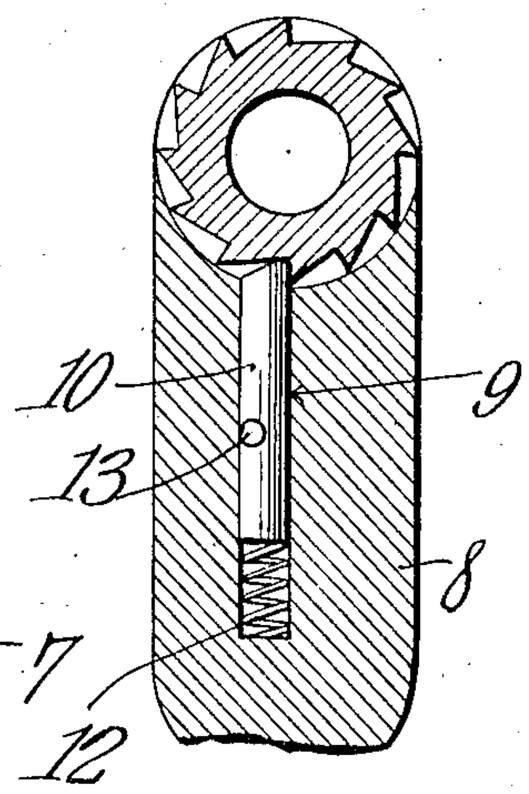

Fig. 3.

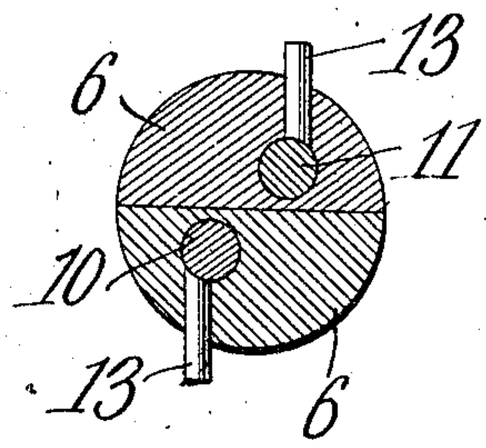

Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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WRENCH.

No. 871,690. Specification of Letters Patent. Patented Nov. 19, 1907.

Application filed August 6, 1907. Serial No. 387,339.

To all whom it may concern:

Be it known that I, FRED GEHNER, a citizen of the United States, residing at Garrison, in the county of McLean and State of North Dakota, have invented a new and useful Wrench, of which the following is a specification.

This invention relates to wrenches of that character known as ratchet wrenches and its object is to provide a simple, durable and efficient device of this character having means whereby the nut engaging portion of the wrench can be caused to rotate either to the right or to the left when the handle is oscillated.

Another object is to provide means whereby the head of the wrench can be readily removed and another substituted therefor.

Another object is to provide simple means whereby either or both of the ratchet engaging pawls can be held out of engagement with the ratchet.

With these and other objects in view the invention consists of certain novel features of construction and combinations of parts which will be hereinafter more fully described and pointed out in the claims.

In the accompanying drawings is shown the preferred form of the invention.

In said drawings: Figure 1 is a side elevation of a wrench embodying the present improvements. Fig. 2 is a front view thereof. Fig. 3 is a section on line *x*—*x*, Fig. 1. Fig. 4 is a section on line *y*—*y*, Fig. 2.

Referring to the figures by characters of reference, 1 designates the cylindrical head of the wrench the same having angular sockets 2 in the ends thereof which may be of different proportions so as to fit nuts or bolt heads of different sizes. Extending around the central portion of the head are integral adjoining ratchets 3 and 4 the teeth of which are oppositely pitched. These ratchets project beyond the periphery of the head 1 and are designed to rotate between retaining plates 5 extending from handle sections 6. The head 1 is revolubly mounted within these plates 5 and is held against longitudinal movement by the ratchets which bear against the inner or adjoining faces of the plates 5. The handle sections 6 are similar in construction and have flat longitudinal faces designed to be held in contact by means of transversely extending screws 7 or other similar fastening means. Sections 6 are reduced and rounded from points near the centers thereof to their outer or free ends to form a grip & whereby the wrench may be conveniently held. The diameter of the grip is much less than the thickness of the remaining portion of the handle sections and therefore the wrench can be held close to a flat surface without cramping the fingers holding the wrench or causing them to slide upon the surface. Each handle section has a longitudinal bore 9 extending thereinto from between the plates 5 and located within these bores are slidable pawls 10 and 11 held normally projected into engagement with the respective ratchets by means of springs 12. Each of the pawls has a lug 13 outstanding therefrom and designed to move within an angular or L-shaped slot 14 opening into the pawl. Each slot is so disposed that the shoulder 15 therein may constitute an abutment for the purpose of engaging lug 13 and holding the pawl retracted.

It is thought that the operation of the wrench will be fully understood from the foregoing description. When the two pawls are in engagement with their respective ratchets the oscillation of the handle will cause a corresponding movement of the head 1. If, however, the pawl 10 should be retracted and the lug 13 thereof placed in engagement with shoulder 15 the oscillation of the handle would cause the other pawl 11 to rotate the head in one direction. This movement of the head can be reversed by releasing the pawl 10 and withdrawing the pawl from engagement with its ratchet. It is designed to utilize a set of heads in connection with each wrench, each head being designed to fit two sizes of nuts. Should it be desired to substitute a head for the one already in the wrench, the two handle sections are disconnected and a new head inserted within the plates 5 whereupon, by returning the handle sections to their original positions the wrench can be used as before. That portion of the handle in which the slots 14 are located is preferably substantially circular in cross section so that the lug of each pawl will project beyond the face of the handle about the same distance throughout its movement.

What is claimed is:

In a wrench the combination with oppositely disposed detachably connected similar handle sections, spaced holding plates extending from said sections, each section having a longitudinal bore extending into

one end thereof, the wall of each bore having an angular slot, a spring pressed pawl within the bore of each section, and an outstanding portion upon each pawl movable within the angular slot; of a head revolubly mounted within the plates, and integral ratchets surrounding the head and interposed between and bearing against the inner faces of the plates, the teeth of said ratchets being oppositely pitched and disposed to be engaged by the respective pawls.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRED GEHNER.

Witnesses:
FREDRICK W. THORNE,
W. O. ANACKER.