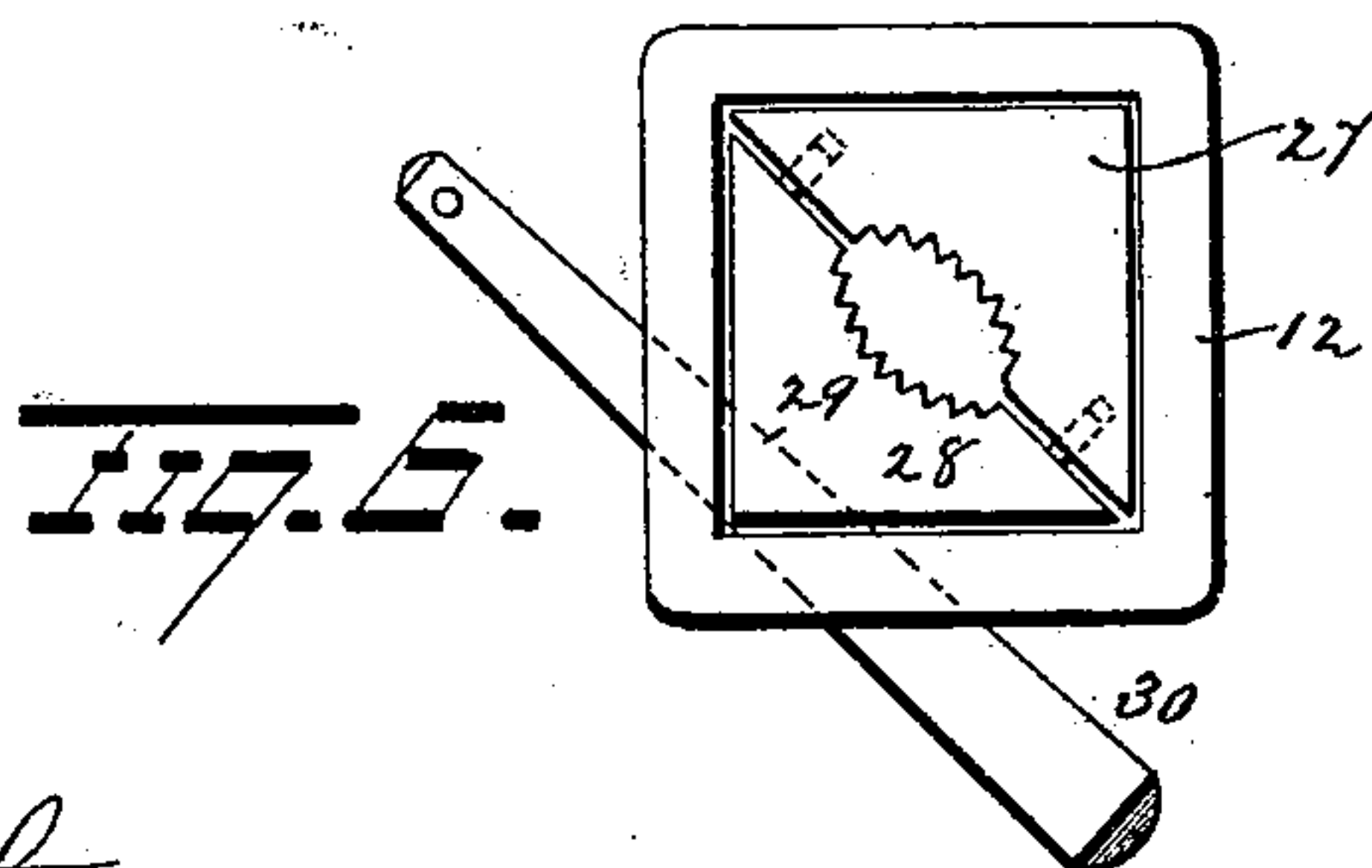
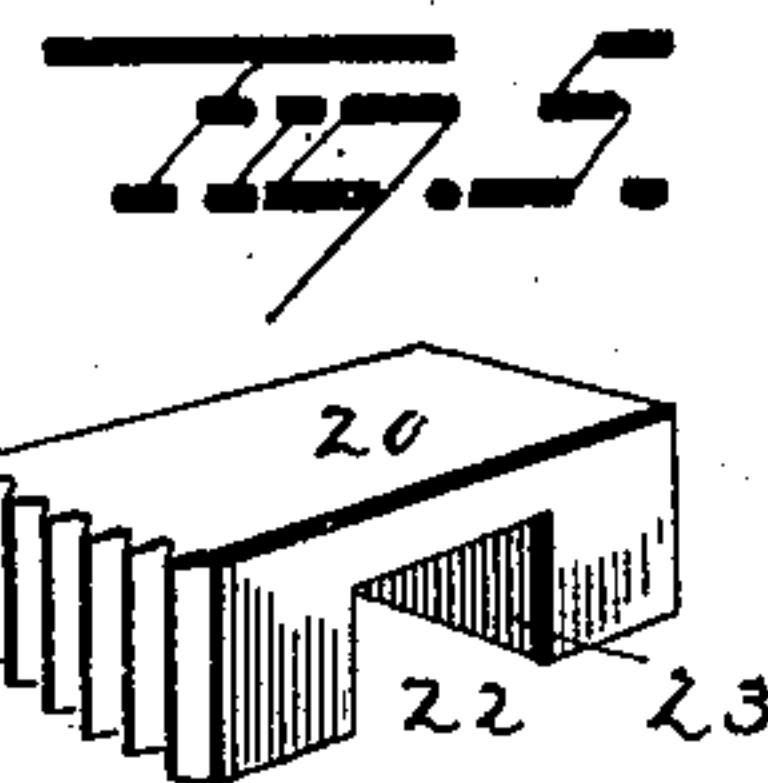
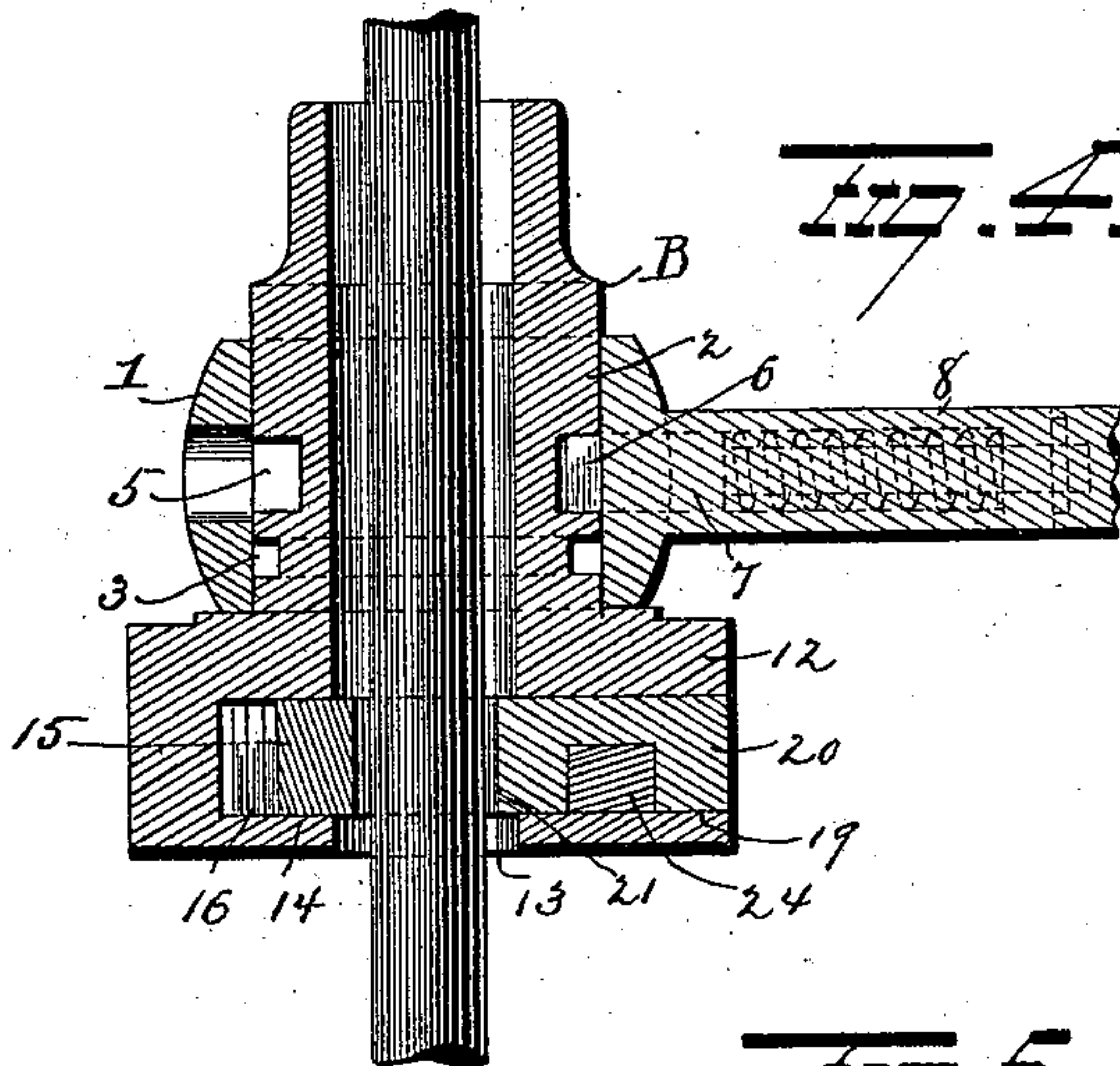
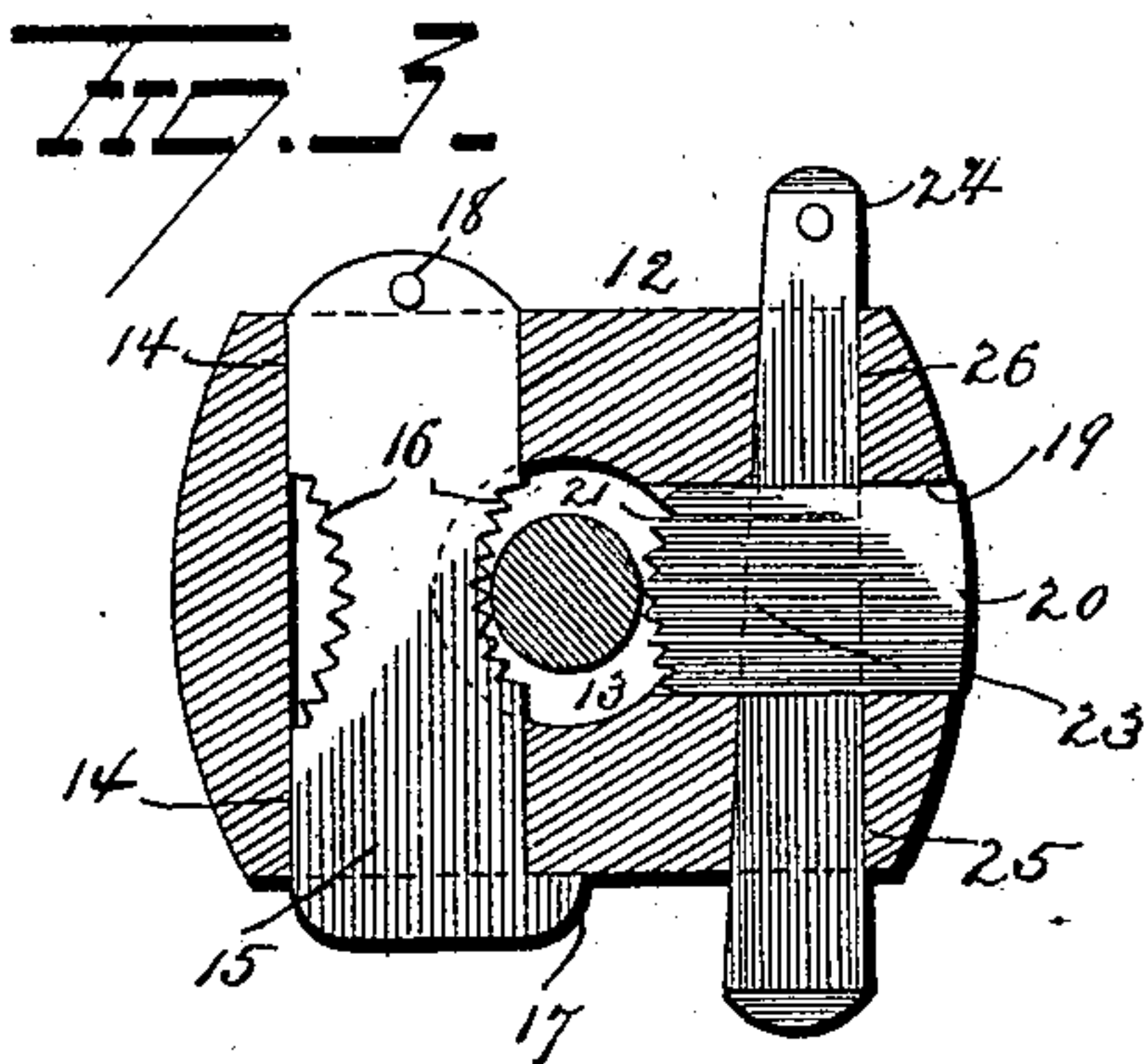
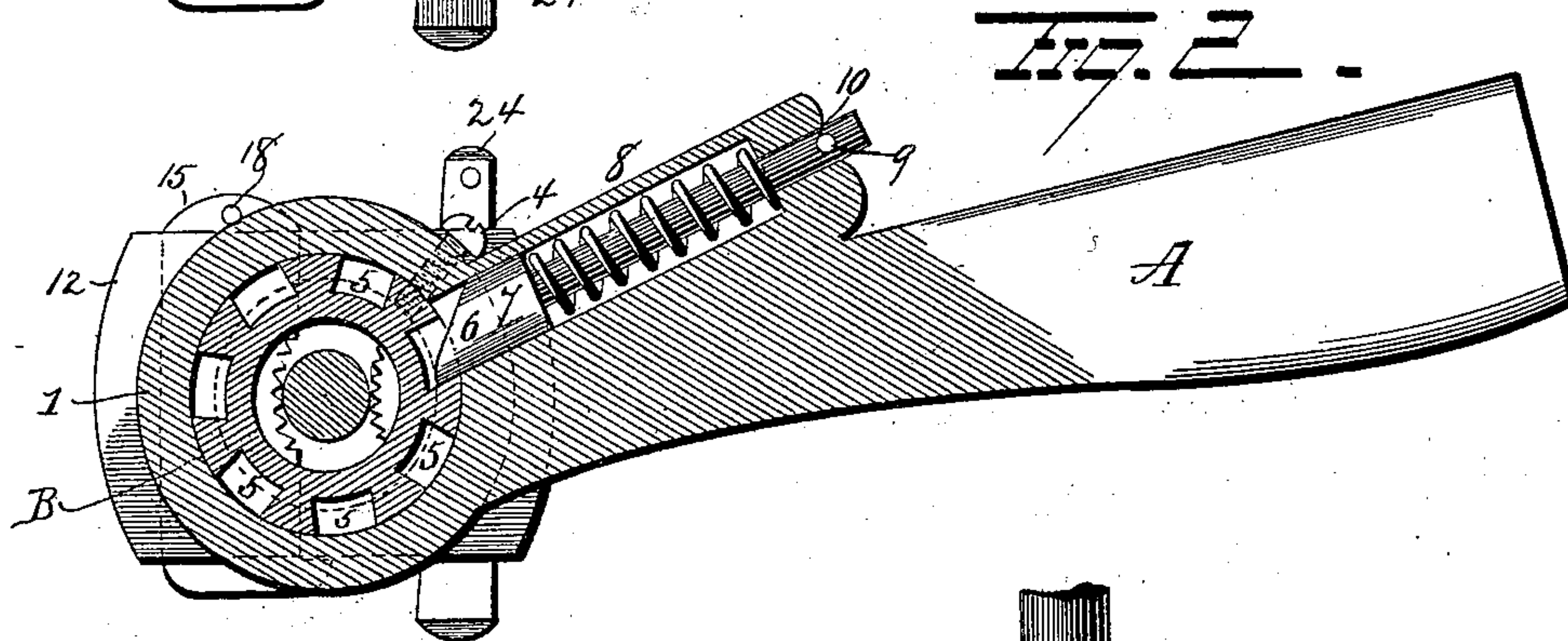
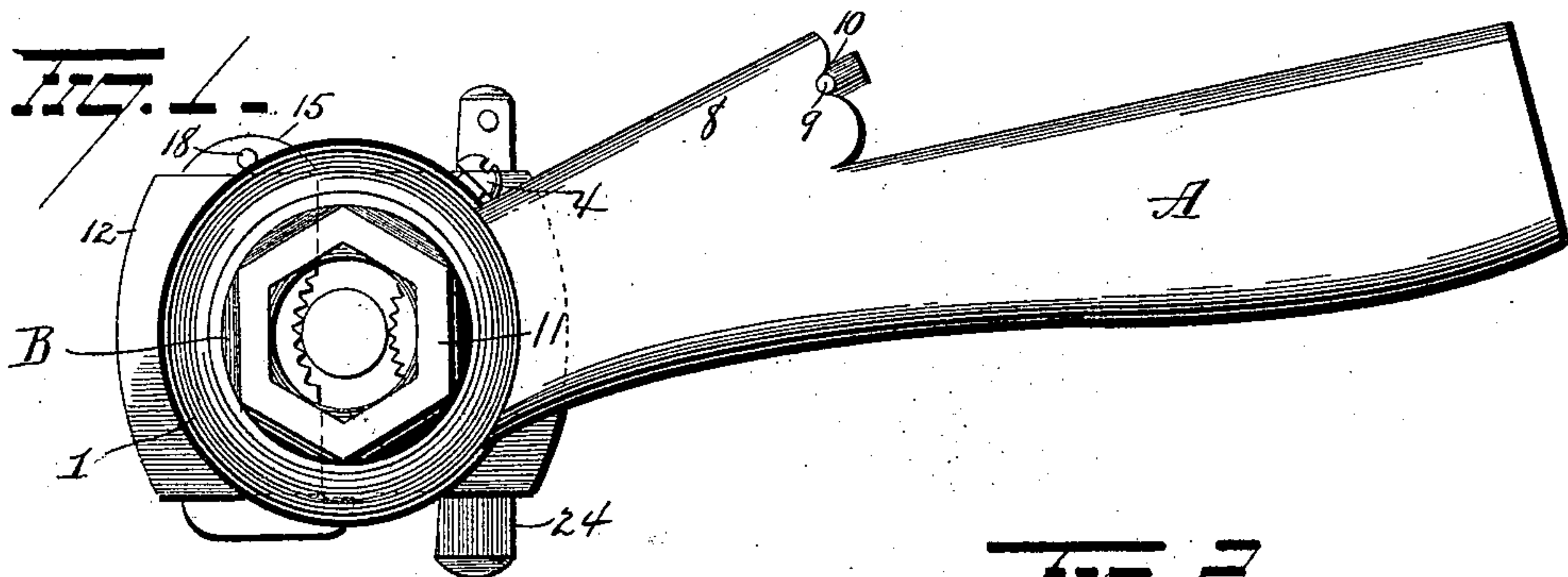


(No Model.)

J. D. WHITE.
WRENCH.

No. 552,343.

Patented Dec. 31, 1895.



Witnesses
E. J. Nottingham
G. J. Downing.

J. D. White Inventor
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UNITED STATES PATENT OFFICE.

JOSEPH D. WHITE, OF ALTOONA, PENNSYLVANIA.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 552,343, dated December 31, 1895.

Application filed October 23, 1895. Serial No. 566,630. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH D. WHITE, a resident of Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in wrenches, and more particularly to such as are adapted for inserting or withdrawing studs which are not provided with angular heads for the reception of a nut-wrench, the object of my invention being to produce a wrench of the class specified which shall be simple in construction, which shall be quick-acting, which shall be comparatively easy to manufacture and easy to operate, not liable to get out of order, and which shall be effectual in all respects in the performance of its functions.

A further object is to produce a wrench of the class mentioned which can be either operated by means of a nut-wrench or by a reversible ratchet device.

A further object is to provide an improved wrench capable of operating on round bolts, screws, rods, &c., and which can also be used for operating on nuts to screw or unscrew them.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of my improved wrench. Figs. 2 and 4 are sectional views. Fig. 3 is a view showing the arrangement of jaws. Fig. 5 is a detail view of the jaw 20. Fig. 6 is a view of a modification.

A represents a lever having an annular enlargement or collar 1 at one end for the reception of the head B of the wrench. The head B is made hollow for the reception of the stud or screw to be operated upon, and a portion 2 of said head is made cylindrical in form, so as to turn freely in the annular enlargement 1 of the operating-lever, and in this cylindrical portion an annular groove 3 is

made for the reception of the end of a screw 4, which passes through the wall of the enlargement 1 and prevents displacement of the head B therefrom. The cylindrical portion 2 of the head is also made with an annular series of sockets 5 for the reception of the beveled end 6 of a spring-actuated dog 7, the latter being mounted in a pocket or enlargement 8 on the operating-lever A. The upper end of the dog is provided with a transverse pin 9, which is normally seated in notches 10 in the end of said pocket or enlargement 8. From this construction it will be seen that by operating the lever A the head can be rotated in one direction and that by turning the dog half-way round the head can be rotated in the reverse direction. The head B is also preferably provided with a hollow angular end 11, adapted to the reception of a nut-wrench by means of which to turn said head, if desired, in which case the ratchet-lever can be dispensed with. The hollow angular enlargement 11 also serves for the reception of a nut when it is desired to screw or unscrew the latter.

The head B is made with a hollow enlargement 12, preferably rectangular in form, this enlargement being also made with a central opening 13 for the reception of the stud or bolt to be operated upon. The enlargement 12 is made with elongated transverse openings 14 for the reception of a fixed jaw 15, the latter being made (in opposite edges) with serrated recess 16 of different sizes to receive the bolt or stud. One end of the jaw 15 is made with a lip 17 to engage one side of the enlargement 12, and the other end of said jaw is perforated for the reception of a retaining-pin 18. The opposite end of the hollow enlargement 12 is made with a hole 19 for the reception of the movable jaw 20, one end of which is preferably curved and made with serrations 21 to act in conjunction with the jaw 15 to grasp the stud or bolt to be operated upon. The movable jaw 20 is made with a recess 22, having a beveled wall 23, and through this recess a wedge-shaped key 24 is passed, said key also passing through transverse holes 25 26 in the enlargement 12. From this construction and arrangement of parts it will be seen that when a stud or other round device is placed through the opening

13 and between the jaws 15 and 20, and the key 24 inserted as above explained, the jaws will be made to firmly grasp the stud or bolt and thereby operating the ratchet-lever the head B will be rotated and the stud or bolt will be inserted or withdrawn, as the case may be.

A bolt or stud can be quickly grasped by my improved wrench, will be tightly held, and the bolt or stud can be easily and quickly inserted or withdrawn.

The enlargement 12 on the head B may be made square, as shown in Fig. 6, and the jaws 27 28 made triangular in form and placed in said square enlargement. One or both of the jaws will be made with recesses 29 for the reception of wedge-shaped keys 30, which pass through holes in the diametrically-opposite corners of the square enlargement 12.

Various other slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope, and hence I do not wish to limit myself to the precise details of construction herein set forth.

My improvements are simple in construction, comparatively cheap to construct, and effectual, in all respects, in the performance of their functions.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a wrench, the combination with a revoluble head, of jaws therein, and a wedge-shaped key for causing said jaws to grasp a stud or other round device, substantially as set forth.

2. In a wrench, the combination with a revoluble head, of a fixed jaw in said head, a movable jaw in said head adapted to cooperate with the fixed jaw and having a recess

therein, said head having transverse openings and a wedge passing through said transverse openings and said recess in the movable jaw, substantially as set forth.

3. In a wrench, the combination with a revoluble head, of a fixed jaw having serrated recesses in opposite edges, a movable jaw and a wedge-shaped key for moving said movable jaw, substantially as set forth.

4. In a wrench, the combination with a revoluble head, of a fixed jaw removably placed in said head and having a lip at one end to engage the head, a pin passing through the other end of the jaw, a movable jaw and a wedge for moving said movable jaw, substantially as set forth.

5. In a wrench, the combination with a head, of jaws at one end adapted to receive a stud or other round device, the other end of said head being made with a hollow portion made angular both externally and internally whereby to receive a nut or enter a nut-wrench, substantially as set forth.

6. In a wrench, the combination with a head having an annular series of sockets, and a lever having an annular enlargement in which said head is revolvably mounted, of a reversible spring actuated dog carried by the lever and adapted to engage said sockets in the head, a fixed jaw in said head, a movable jaw in the head and a wedge-shaped key passing through the head and engaging said movable jaw, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOSEPH D. WHITE.

Witnesses:

JAMES ROBERTSON,
DAVID F. WHITE.