W. C. ALLYN.

BRACE.

APPLICATION FILED APR. 27, 1909.

993,140.

Patented May 23, 1911.

2 SHEETS—SHEET 1.

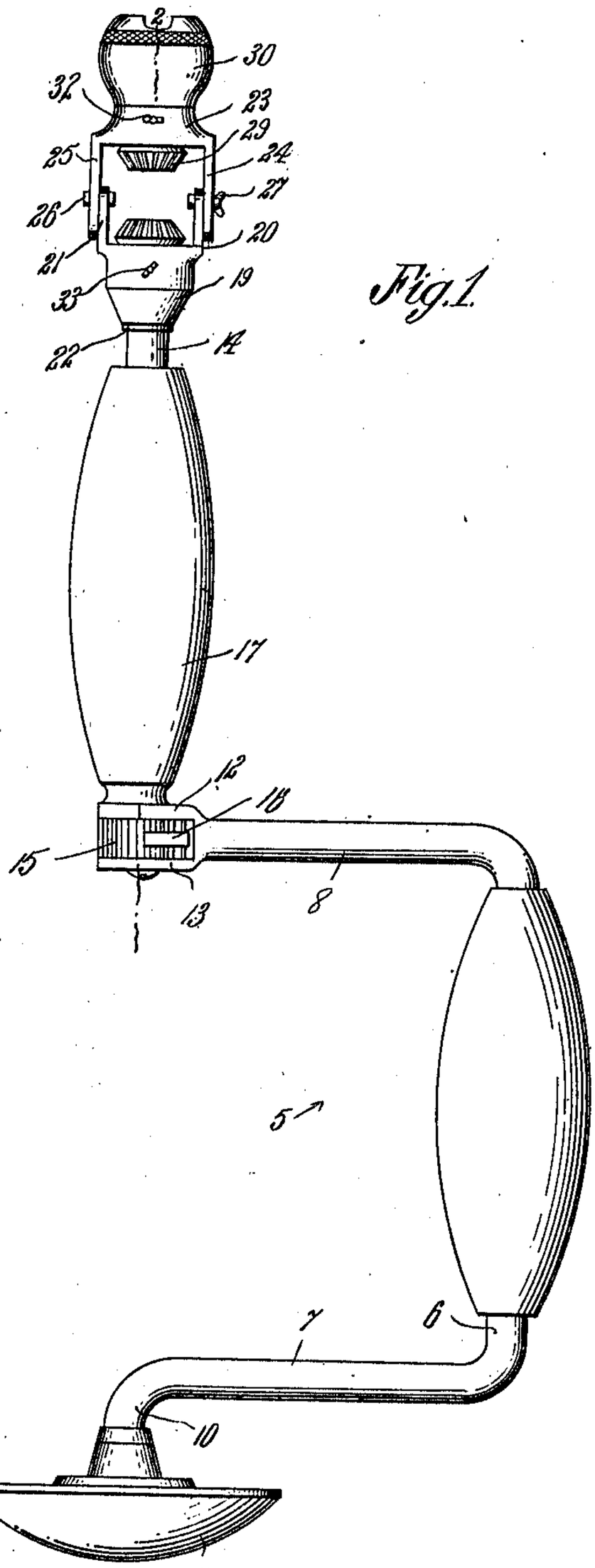

Fig. 1.

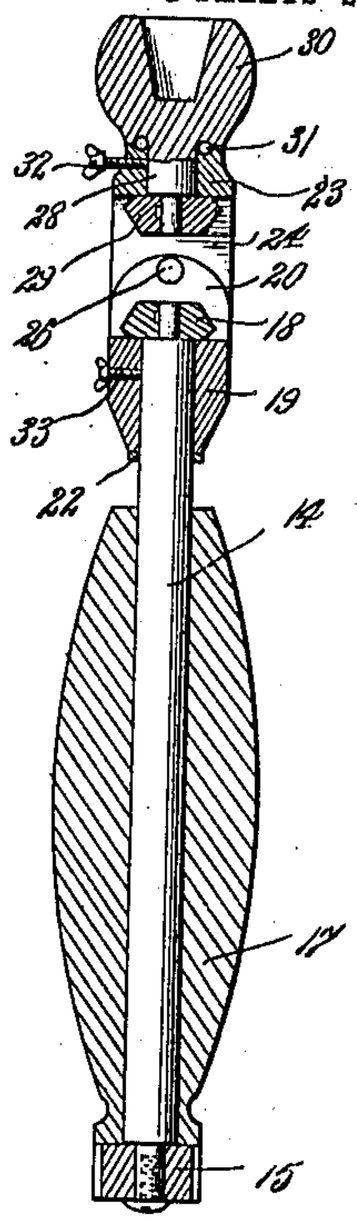

Fig. 2.

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2 SHEETS—SHEET 2.

Fig. 1.

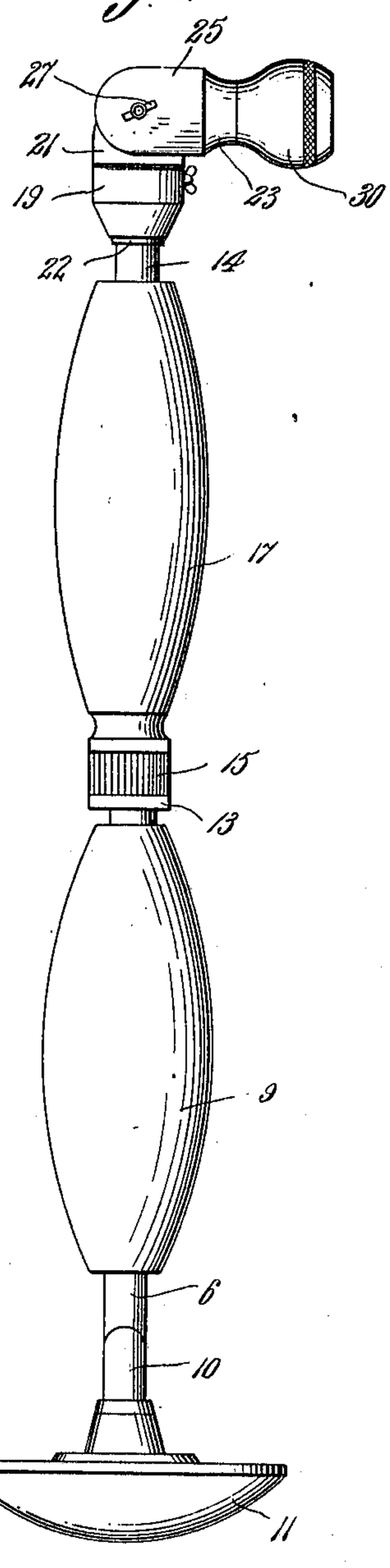
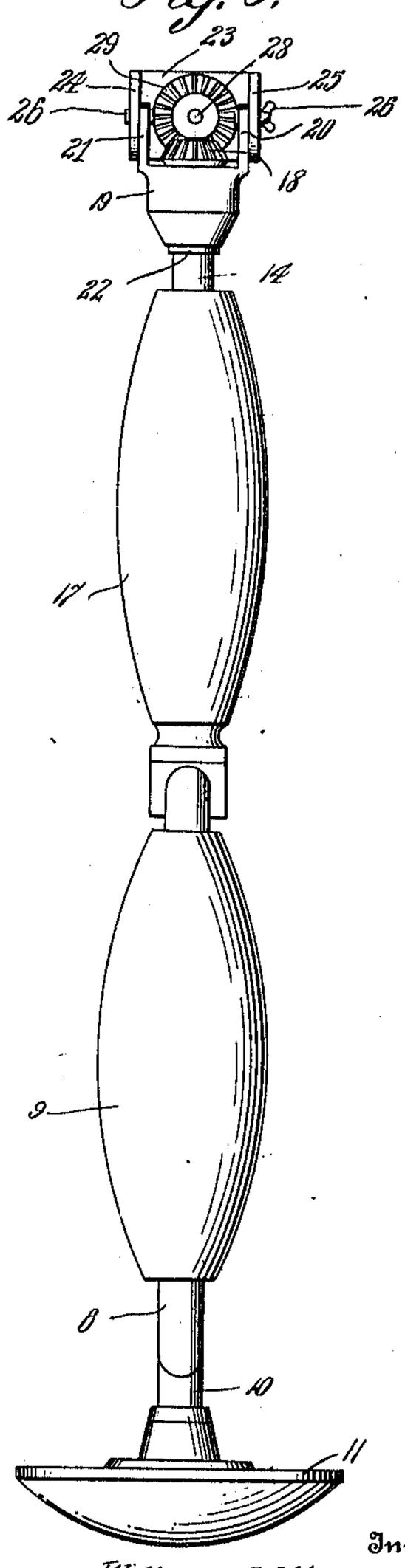


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM C. ALLYN, OF MULBERRY, INDIANA.

BRACE.

993,140. Specification of Letters Patent. Patented May 23, 1911.

Application filed April 27, 1909. Serial No. 492,475.

To all whom it may concern:

Be it known that I, WILLIAM C. ALLYN, a citizen of the United States, residing at Mulberry, in the county of Clinton, State of Indiana, have invented certain new and useful Improvements in Braces; 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.

This invention relates to improvements in tools, and more particularly to bit braces.

It has for its object the provision of a device of that kind which may be adjusted at an approximate right angle to the bit so that the latter can be operated to perform its boring function in cramped spaces.

Another object is the provision of a device of that kind which is simple in construction and comparatively inexpensive to manufacture and which will not easily get out of order.

With these and other objects in view as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claim. It being understood that various changes in the form, proportion, size and minor details of the device may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings forming part of the specification:—Figure 1 is a side elevation of the device. Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1. Fig. 3 is a side elevation but showing the bit holder adjusted at an angle to the brace. Fig. 4 is a similar view of the brace turned to another position.

Similar numerals of reference are employed to designate corresponding parts throughout.

The contour of the brace is similar to that of most devices of this kind having the usual sweep which is designated in general by the numeral 5. This member is preferably formed of a single piece of metal, the opposite end portions of which are bent at right-angles to the intermediate portion 6 and constitute arms 7 and 8. The intermediate portion 6 is provided with a handle grip 9, and what will subsequently be termed the upper arm 7 terminates in an upward extension 10 which is seated in a wooden hand rest 11 and adapted to freely turn therein. The lower arm 8 terminates in a pair of parallel spaced jaws 12 and 13 and journaled between these jaws is one end of a shaft 14. Keyed to that portion of the shaft 14 between the jaws 12 and 13 is a ratchet disk 15, and pivotally mounted between the jaws 12 and 13 and carried by the lower arms 8 is a pawl 16 which engages with the ratchet teeth when the sweep is turned in one direction so as to rotate the shaft 14. Disposed on the shaft 14 intermediate of its ends is a handle grip 17, similar to the member 9. The lower end of the shaft 14 terminates in a miter gear 18. Journaled on that portion of the shaft between the lower end of the handle grip 17 and miter gear 18 is a head 19, the lower end of which is provided with a pair of oppositely arranged ears or lugs 20 and 21 which are disposed parallel with the shaft 14 and extend to a point considerably in advance of the gear 18. The head is held against longitudinal movement on the shaft by means of the gear 18 and a bushing 22 which bears on the upper end of the head adjacent the lower end of the handle grip 17.

Arranged in advance of the head 19 is a boxing 23 which is preferably formed of a single piece of thickened metal, which is slightly greater in length than the distance between the jaws 20 and 21. Extending at right-angles to one face of this boxing and disposed at the opposite ends thereof are a pair of lugs or ears 24 and 25, which are adapted to straddle and bear on the outer faces of the ears 20 and 21. The ears 20 and 21 are provided adjacent their outer ends with alining openings which are adapted to register with similar openings formed adjacent the outer ends of the lugs 24 and 25. These openings are adapted to receive pivot bolts 26, the heads of which are disposed on the opposed inner faces of the lugs 20 and 21 and the threaded shanks of which project beyond the outer faces of the lugs 24 and 25 and engage suitable winged nuts 27. Thus it will be seen when the winged nuts are sufficiently tightened on the bolts 26 that the boxing 23 may be rigidly secured at an approximate right angle to the head 19.

The boxing 23 is centrally provided with

an opening in which is journaled a shaft 28, the inner end of which extends into the space between the lugs 24 and 25 of the boxing and has keyed thereto a miter gear 29. The opposite end of the shaft 28 terminates in a socket 30 which receives the shank of the bit. The bearing surfaces between the inner end of the socket 30 and outer end of the boxing 23 are provided with ball recesses for the reception of suitable ball bearings 31.

In order to prevent the boxing from turning independent of the socket 30, that portion of the boxing surrounding the shaft 28 is provided with a radial opening which is screw-threaded and receives the threaded shank of a set screw 32, the inner end of which is adapted to bind against the surface of the shaft 28. A similar construction is employed with the head 19 which is likewise provided with a radial opening into which is threaded a set screw 33 which binds against the shaft 14. Thus it will be seen when the socket is in a vertical plane with the shaft 14 and the set screws 32 and 33 turned to bind on the shafts 14 and 28, that turning the sweep 5 in a direction to bring the pawl into engagement with the ratchet disk 15 will result in turning the socket 30. When it is necessary to adjust the socket at an angle to the shaft 14 the winged nuts 27 are first unscrewed so as to permit the boxing to be turned on the head 19. If it is necessary to adjust the socket at a right-angle to the shaft 14 the former is turned until the teeth of the miter gear 29 mesh with those of the miter gear 18, when in this position the set screws 27 are turned in the opposite direction until the parts are secured, when the set screws 32 and 33 are loosened so as to permit rotation of the shafts 14 and 28. By now turning the sweep 5 rotary movement will be imparted to the socket through the shaft 14 and gearing.

Thus it will be seen that I have provided a device which is simple in structure and comparatively inexpensive to manufacture embodying few parts and these so arranged that the danger of derangement will be reduced to a minimum.

Having thus described my invention what is claimed as new, is:—

In a brace, the combination with a shaft and means for rotating it, said shaft having a head rotatably mounted thereon and provided with arms, of a miter-gear fixed to the extremity of the shaft between the arms and beyond which the arms extend, a boxing having arms pivoted respectively to the arms of the head, means for holding the arms against pivotal movement, a chuck having a shaft journaled in the boxing, a miter-gear upon the chuck shaft between the arms of the boxing, said arms and gears being proportioned to engage the gears when said shafts are at right angles and to disengage them when the shafts are alined, and means for holding the shafts at times against rotation in the head and boxing respectively, said means consisting of set screws engaged with the head and boxing respectively, in position to impinge against the corresponding shafts.

In testimony whereof, I affix my signature, in presence of two witnesses.

WILLIAM C. ALLYN.

Witnesses:

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HENRY W. OSTERDY.