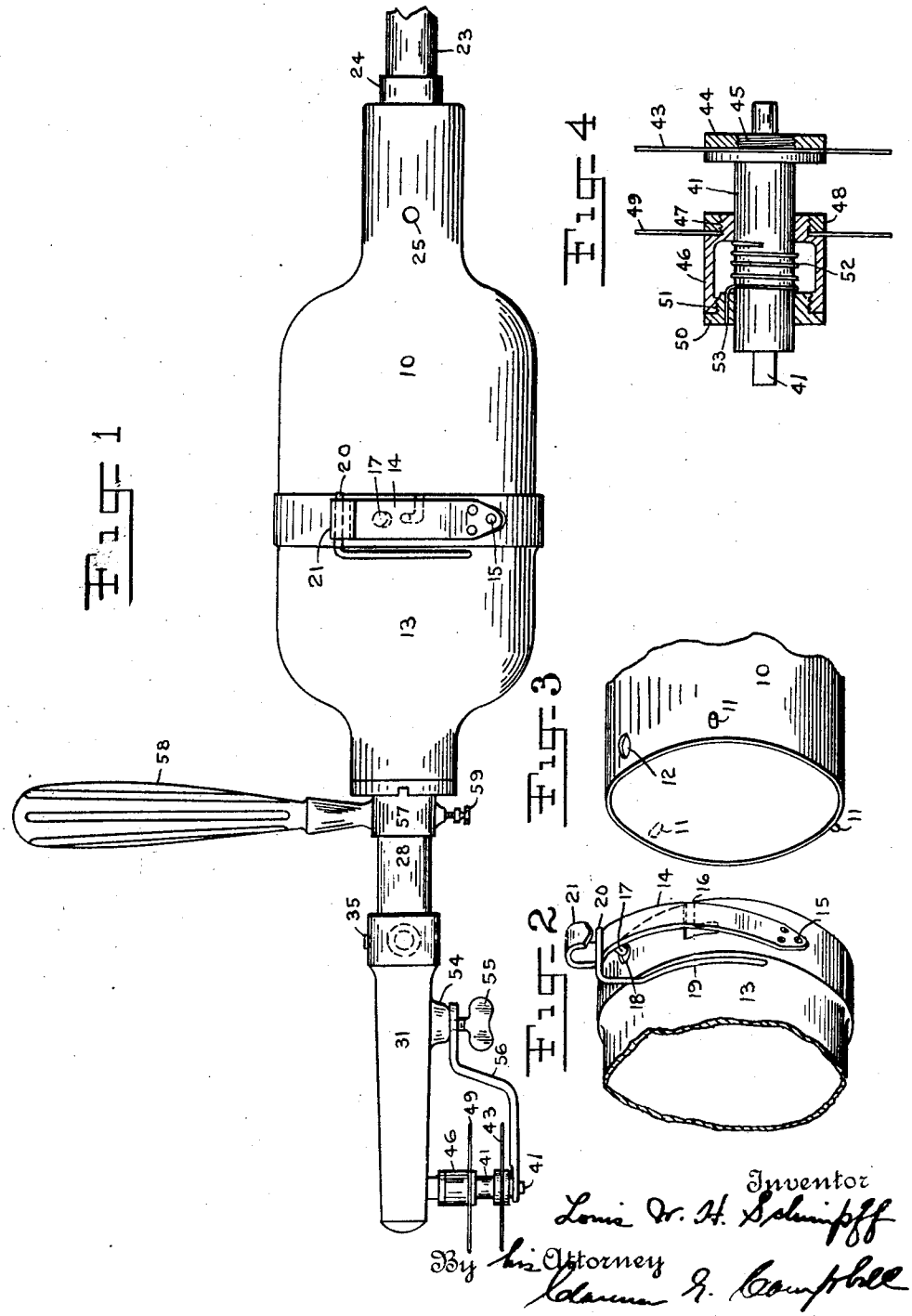
Feb. 21, 1928. 1,660,015

L. W. H. SCHIMPFF

BONE SET

Filed June 26, 1926 2 Sheets-Sheet 1



Feb. 21, 1928.

1,660,015

L. W. H. SCHIMPFF

BONE SET

Filed June 26, 1926

2 Sheets-Sheet 2

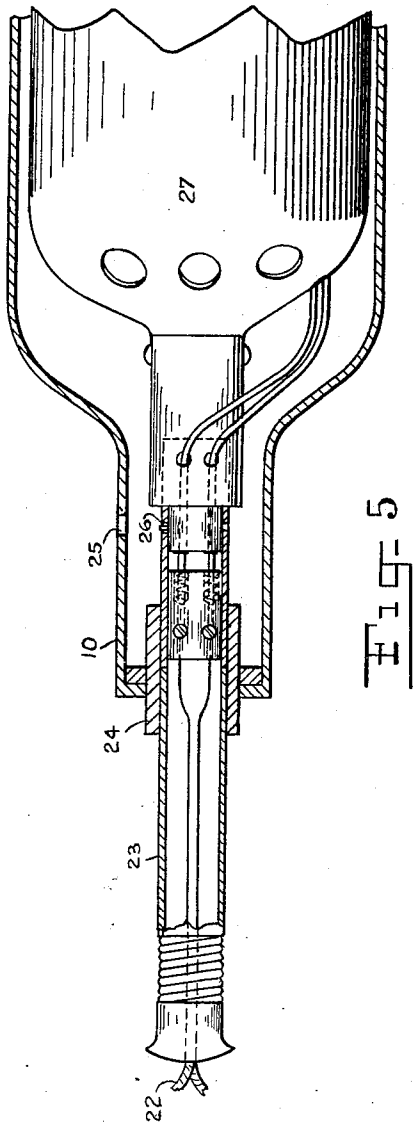


FIG. 5

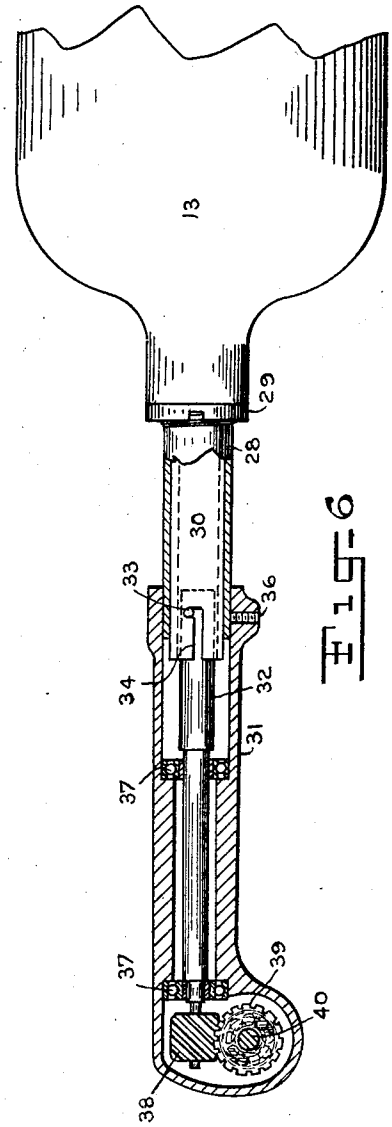


FIG. 6

Inventor
Louis W. H. Schimpff

By his Attorney
Clarence R. Campbell.

Patented Feb. 21, 1928. 1,660,015

UNITED STATES PATENT OFFICE.

LOUIS W. H. SCHIMPFF, OF RIDGEFIELD, NEW JERSEY, ASSIGNOR TO THE KNY-SCHEERER CORPORATION OF AMERICA, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

BONE SET.

Application filed June 26, 1926. Serial No. 118,732.

My invention relates to an improvement in a bone set and the novelty consists in the adaptation and arrangement of parts as will be more fully hereinafter pointed out.

In performing operations where the patient's bone is to be cut it is often necessary to first cut a piece of the patient's own bone from the shin and then proceed with the bone repairing as a piece of the patient's own bone is required for such operations. This necessarily entails a long operation and therefore the cutting device used must be simple and effective and it must be possible to make quick changes of the tools being used and the instrument must lock into positive position to prevent any slipping or loosening which might prove most harmful.

My device is adapted to fulfill these requirements and furnishes a set which has a shell which can be readily removed for sterilization and has an observation opening to insure perfect electrical contact and a handle which is adjustable for either a right-hand or a left-hand operator. Furthermore, it has means for quickly detaching the tool in use and attaching another with a positive lock and an adjustment whereby twin saws may be quickly changed as to their width of adjustment apart without taking them apart. Furthermore, the drive is more direct than in any prior device thereby insuring more power application in the use of the same motor.

Referring to the drawings Figure 1 is a front elevation of my complete device; Figure 2 is a detail of the upper portion of the outer shell member; Figure 3 is a detail of the lower portion of the inner shell member; Figure 4 is a detail of the twin saws; Figure 5 is an elevation of the upper portion of the bone set, portions being shown in section so as to show the inside connections; Figure 6 is a portion of the lower part of the bone set, parts being cut away so as to show the interior parts and connections.

In the drawings 10 is the inner shell member having external lugs 11 and a hole 12. 13 is an outer shell member having a spring 14 secured at 15 and said spring 14 normally tends to bend toward shell 13, and said shell 13 has three bayonet locking members 16 adapted to engage the lugs 11 of the inner shell member 10. Lug 17 is rigidly secured to the under side of the spring 14, passes through a hole 18 in the outer shell member 13 and is adapted to engage hole 12 in the inner shell member 10. A limiting member 19 is rigidly secured to the outer shell 13 and has an outer end 20 turned at right angles to the main body of the limiting member 19 whereby it engages an outer hooked member 21 of the spring 14 thereby limiting the outward movement of said spring.

Power wire connections 22 are connected to a source of power not shown and pass through a connecting element 23 having reenforcing element 24 thereover at the point where it passes through the inner shell member 10. The electrical plug connections are of the usual type but an observation hole 25 is cut in the inner shell member 10 so as to permit the operator to see if the bayonet lock 26 is properly engaged to insure perfect electrical connection. 27 is the usual type of motor used in these devices.

The outer shell member 13 has an extension shell member 28 adapted to be locked to the shell member 13 by means of the usual nut 29 and motor shaft 30 is thereby protected in said extension shell member 28.

In the Figures 1 and 6 is shown a driving or saw shaft housing 31 in which is mounted a shaft 32 having a lug 33 adapted to lock into bayonet lock 34 whereby the upper end of the shaft 32 is locked into the shaft 30. Said shaft 32 is normally driven by said motor 27 in a clockwise direction. A set screw 35 mounted in the thread 36 of the housing 31 is adapted to lock said housing 31 rigidly in position after the lug 33 has been locked into the bayonet lock 34 thereby securing the housing 31 securely in position against the extension shell 28. Shaft 32 is mounted on ball bearings 37 and has a worm gear 38 rigidly secured to its lower end. A second and driven worm gear 39 is mounted on a shaft 40 in mesh with gear 38 and rotating counter clockwise in the lower end of the housing 31

and a saw shaft 41 having a flattened portion 42 adapted to engage a flattened portion of shaft 40 has mounted thereon a rotary saw plate 43 secured in the usual manner by means of nut 44 over the threaded portion 45 of the shaft 41 and a housing 46 is mounted on said shaft 41 having a threaded portion 47 on which is mounted a nut 48 whereby a second rotary saw 49 is secured in position and in the other end of said housing 46 is a closing member 50 having a threaded portion 51 adapted to be engaged by the housing member 46. A spring 52 is mounted on the shaft 41 so as to fit the same snugly and one end of this spring 52 is run through an opening in the closing member 50 whereby this end of the spring is held and turns with the housing 46.

As the spring 52 is mounted on the shaft 41 it will bind and lock against possible rotation of the housing 46 and the saw 49 carried thereby in the direction counter to the direction of the rotation of the saw 49 through frictional contact but will readily loosen and permit the housing 46 and the saw 49 to be turned thereby moving the housing 46 and the saw 49 on the shaft 41 in the direction of the rotation of the saw. This permits the operator to readily effect a quick adjustment of the space between the saws 49 and 43 without any danger of loosening the members or taking them apart as the spring 52, housing 46 and saw 49 carried thereby are positively locked in position against rotation counter to the direction of the rotation of the saw, and it is to be noted that the saw 49 travels with the shaft 41 in a counter-clockwise direction.

Near the upper end of the housing 31 is a projection 54 in which is threaded a thumb screw 55 and a bracket 56 is adapted to be secured at one end over the shaft 41 and at the other end over the thumb screw 55 whereby the turning down of thumb screw 55 will lock said bracket 56 rigidly in position so that it may act as an outer bearing at this lower end for the shaft 41.

The extension shell member 28 has a pair of ridges of usual construction in its upper end adapted to be engaged by slots in a ring 57 of a handle 58 whereby in conjunction with a set screw 59 said handle may be rigidly locked in position as shown in Figure 1 or by loosening the set screw 59 by sliding the ring 57 off of said ridges which are not shown herein being of usual construction the handle may be swung around to the other side and be placed in position on these said ridges and the set screw 59 again tightened thereby locking the said handle into position for a left handed operator.

I claim:

1. In a bone set the combination of an electric motor having a shaft driven thereby, a separable shell for said motor and shaft, a handle adjustable for right and left hand operators, a housed shaft engageable with said motor shaft, said housing engaging said motor shaft shell, a driving gear on the outer end of said housed shaft, a driven gear meshing with said driving gear and two rotary saws mounted on a driven pinion engaging said shafts outside of said housing and means for manually adjusting the space between said saws comprising one fixed saw and one mounted on a housing having a spring secured at one end to said housing and passing around said pinion so as to permit said spring housing and saw to be turned in the direction of rotation of the pinion.

2. In a bone set the combination of an electric motor having a shaft driven thereby, a separable shell encasing said motor, means for readily separating said shell, a handle for said set, a housed shaft, means for securing said housed shaft to said motor shaft, means for securing said housing to said shell, a pair of saws mounted on said housing and means for manually adjusting the space between said saws comprising one fixed saw and one mounted on a spring housing having a spring secured at one end to said spring housing and passing around said pinion so as to permit said spring housing and saw to be turned in the direction of rotation of the pinion.

3. In a bone set the combination of an electric motor having a shaft driven thereby, a separable shell encasing said motor, means for readily separating said shell, a handle for said set, a housed shaft, means for securing said housing to said shell, a saw mounted on said housing, means for driving said saw comprising a gear at the outer end of said housing shaft, a pinion gear meshing therewith, a pair of saws mounted on the outer end of the pinion of said pinion gear outside of said housing and means for manually adjusting the space between said saws comprising one fixed saw and one mounted on a housing having a spring secured at one end to said housing and passing around said pinion so as to permit said spring housing and saw to be turned in the direction of rotation of the pinion.

4. In a bone set the combination of an electric motor having a shaft driven thereby, a separable shell encasing said motor, means for readily separating said shell, a handle for said set, a housed shaft, means for securing said housed shaft to said motor shaft, means for securing said housing to said shell, a pair of saws mounted on said housing and means for manually adjusting the space between said saws comprising one fixed saw and one mounted on a spring housing having a spring secured at one end to said housing and passing around said pinion so as to permit said spring housing and saw to be turned in the direction of rotation of

the pinion, said saw pinion being readily separable from said driven pinion.

5. In a bone set a pair of saws and means for adjusting the space between the same comprising a pinion, one fixed saw mounted thereon and one mounted thereon on a spring housing having a spring secured at one end to said spring housing and passing around said pinion so as to permit said spring housing and saw to be turned in the direction of rotation of the pinion.

In testimony whereof I affix my signature.

LOUIS W. H. SCHIMPFF.