

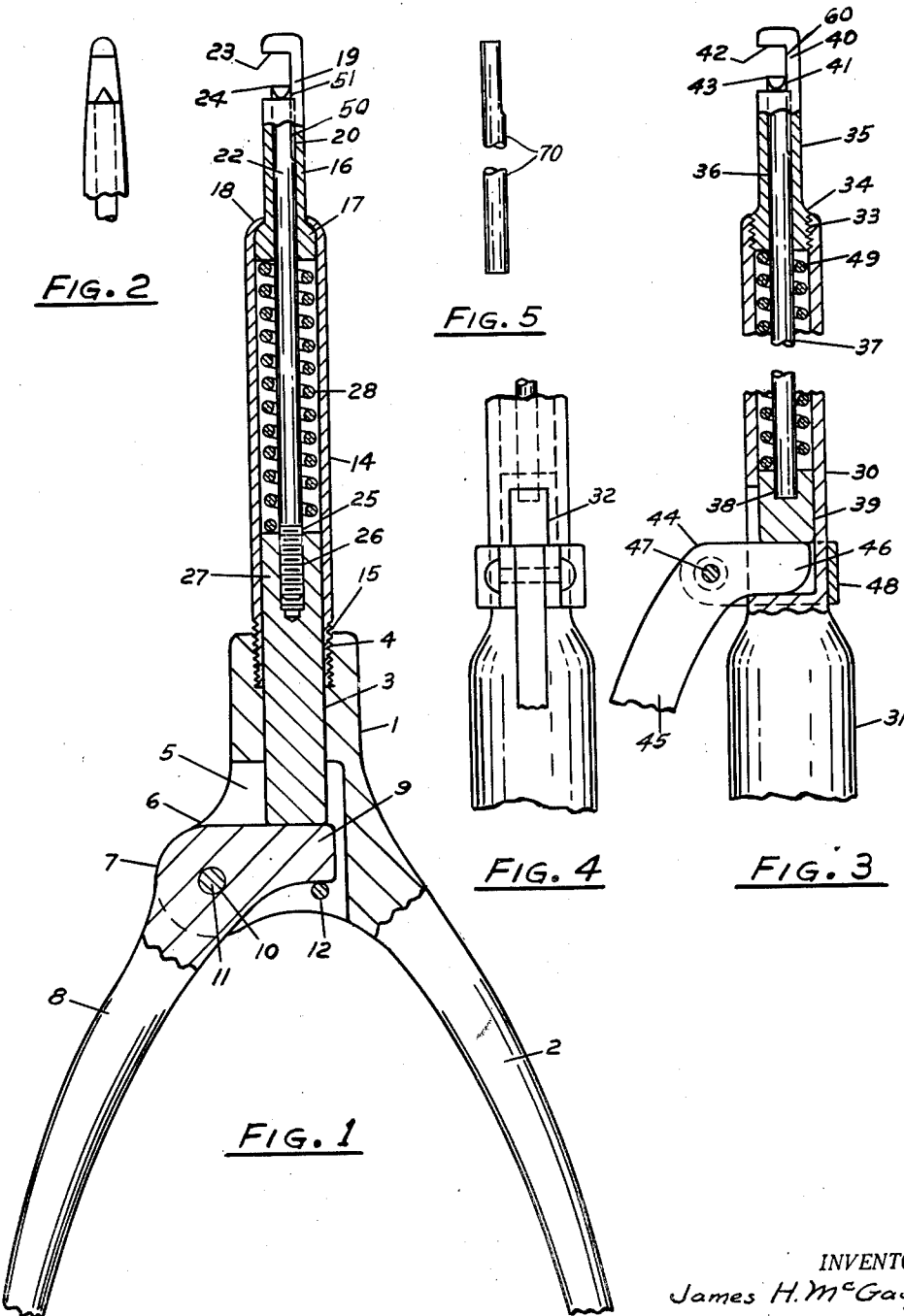
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COMBINED SLIDABLE JAW WIRE CUTTING AND HOLDING TOOL

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## UNITED STATES PATENT OFFICE

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COMBINED SLIDABLE JAW WIRE CUTTING  
AND HOLDING TOOL

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1

This invention relates generally to combination cutting and holding tools and more particularly to combination cutting and holding tools for the cutting and assembly and disassembly of small electrical wires in remote and inaccessible places where the fingers cannot be used.

In the assembly and disassembly of small wires, particularly in a cluster of wires used in a radio set, it is impossible to hold many of the wires with the fingers and it has heretofore required considerable time and expense in attempting to utilize makeshift tools for holding the small wires. This is particularly true when it is desired to repair a radio set where it is necessary to assemble a loose connection in the center of a cluster of wires or other impedimenta. Likewise, cutting a wire in a remote position has heretofore been a very tedious and time consuming job.

It is, accordingly, an object of my invention to provide a combination cutting and holding tool for electrical wires and the like, which is simple in construction, economical in cost, economical in manufacture, and efficient in operation.

Another object of my invention is to provide a combination cutting and holding tool for electric wires and the like for cutting and for assembling and disassembling wires in remote and inaccessible places.

Another object of my invention is to provide a combination cutting and holding tool for electrical wires and the like wherein the head of the tool may be rotated through a 360° angle.

Another object of my invention is to provide a combination cutting and holding tool wherein the cutting or holding member is rotatable with the head thereof.

Another object of my invention is to provide a combination cutting and holding tool for electrical wires and the like wherein adjustments may be made to accommodate different sizes of wire.

Other objects of my invention will become evident from the following detailed description, taken in conjunction with the accompanying drawings, in which

Fig. 1 is a vertical sectional view of one embodiment of my novel combination cutting and holding tool;

Fig. 2 is a fragmentary side elevational view of the head of the tool shown in Fig. 1;

Fig. 3 is a vertical sectional view of another embodiment of my novel combination cutting and holding tool;

2

Fig. 4 is a fragmentary side elevational view of the central portion of tool shown in Fig. 3; and

Fig. 5 is a fragmentary view of a holding member for use in the tool shown in Fig. 3.

Referring now to the drawings, Figs. 1 and 2 show a stationary base member having a handle 2, a center bore 3, a threaded counterbore 4, and a cut-away portion 5 forming parallel ears 6 between which is disposed a bell crank member 7 having a handle 8, an outwardly extending portion 9 and an aperture 10 for receiving a pin 11 which is journaled in the ears 6. A stop pin 12 engages the portion 9 of the bell crank 7 to limit the movement thereof in one direction. An upwardly extending sleeve 14 has a threaded portion 15 for threadably engaging the threaded counterbore 4 of the member 1. A head 16 has an enlarged arcuate shaped portion 17 which engages the inwardly turned, arcuate shaped upper end 18 of the sleeve 14. Head 16 is thus freely rotatable on the sleeve 14. The extension 16 has a cutaway portion 19 and a bore 20 for receiving a cutting member 22 which extends axially of the sleeve 14. The cutaway portion 19 of the extension 16 forms an abutting surface 23 for engaging the inverted V-shaped cutting end 24 of the cutting member 22. The cutting member 22 may be replaced by a blunt ended holding member 20 similar to the one shown in Fig. 5. The cutting member 22 has a flattened surface 50 for engagement with the flat surface 51 so that it rotates with the head 16 and is always in a cutting position. The lower end of the cutting member 22 is threaded at 25 to threadably engage the threaded recess 26 in cylindrical member 27 which slides in the lower end of the sleeve 14 and the bore 3 of the base member 1. The cylindrical member 27 engages the end 9 of the bell crank 7 and is adapted to be moved upwardly by it. A coil spring 28 is disposed between enlarged end 17 of the head 16 and the cylindrical member 27 to urge the cutting end 24 of the member 22 away from the abutting surface 23 of the head 16 and it also urges the enlarged arcuate end 17 of head 16 against the inwardly turned upper end 18 of the sleeve 14.

By pressing inwardly on the handle 8 of the bell crank 7, the end 9 of the bell crank 7 rises and moves the cylindrical member 27 and cutting member 22 upwardly against the force of the spring 28 whereby the upper end 24 of the cutting member 22 moves into engagement with the abutting surface 23 to cut or hold a wire

held in close proximity thereto. The upper end 24 of the member 22 may be blunt or any other form for holding a wire. My novel tool will be preferably provided with a holding member and a cutting member 22 interchangeable with each other.

My novel tool has the head thereof of a comparatively small diameter and extending axially outwardly from a sleeve so that it may be extended into a cluster of wires to engage a wire within the cluster. It has been found that if the head 16 is not rotatable and the handles 2 and 8 are crosswise of the cluster of wires, it is impossible to secure the wire between the abutting surface 23 of the head 16 and the end 24 of the tool member 22. I have provided a head which is freely rotatable in the end of the sleeve 14 so that it can be placed in the best position for it to be passed into a cluster of wires with the handles 2 and 8 parallel with the wires or in any other desired position.

In Figs. 3 and 4, I show another form of my invention in which a tubular member 30 has a handle portion 31, a longitudinally extending slot 32, and an internally threaded portion 33 for threadably engaging the enlarged threaded end 34 of a head 35. The head 35 has a bore 36 for receiving a cutting member 37 flattened at 41 which extends axially of the tubular member 30 and seats in recess 38 in a cylindrical member 39 movable in the lower portion of the tubular member 30. The head 35 has a cut-away portion 40 forming an abutting surface 42 for engaging the inverted V-shaped cutting end 43 of the cutting member 37. The flattened surface 41 of cutting member 37 engages flat surface 60 of the head 35 so that the cutting member 37 rotates with the head 35 to be always in a cutting position. Bell crank member 44 has a handle 45 and an inwardly extending portion 46 for engaging the cylindrical member 39, the portion 46 of the bell crank 44 extending through the longitudinally extending slot 32 in the member 30. The bell crank 44 is pivoted on a pin 47 secured by a clamp 48 surrounding the tubular member 30. A spring 49 is disposed between the head 35 and the cylindrical member 39.

By pressing inwardly on the handle 45 of the bell crank 44, the end 46 of the bell crank 44 rises thereby moving the cylindrical member 39 and holding member 37 upwardly, the upper end 43 of the holding member 37 thereby moving into engagement with the abutting surface 42 of the extension 35 and against the force of the spring 49 between the extension 35 and the cylindrical member 39. By disposing a wire adjacent the abutting surface 42 of the extension 35 and pulling the handle 45 inwardly it will be engaged by the cutting end 43 of the member 37. Cutting member 37 may be replaced by a holding member 70 shown in Fig. 5.

It will be evident that my novel combined cutting and holding device is such that the head or extension end may be rotated to accommodate any position of wire especially when the wire is so remote that the handle portions of the holding tool cannot be rotated. Furthermore, the head 35 in Figs. 3 and 4 may be rotated to increase or decrease the distance between the abutting surface 42 and the end of the cutting member 37 or holding member 70 to accommodate different sizes of wire. It is not absolutely necessary that the head of my novel tool be rotatable or threadable in that the head end of

my novel tool may be built as part of the sleeve, although I have found it preferable to be able to rotate the head 16 to enable one to get at remote wires in various positions.

It will accordingly be seen that I have provided a novel adjustable combined cutting and holding tool which is easy to operate, which may be of different lengths so that the remotest wire may be cut or held therewith, and my novel tool is easily disassembled to effect any repairs which are necessary or to interchange the cutting and holding members.

Various changes may be made in the specific embodiment of my invention without departing from the spirit thereof or from the scope of the appended claims.

What I claim is:

1. A device of the type described comprising a tubular sleeve having the upper end thereof flared inwardly, a head of less diameter than said sleeve and extending axially outwardly therefrom having an enlarged cylindrical portion engageable by the inwardly flared portion of said sleeve whereby said head is freely rotatable on said sleeve, said head having an axially extending bore and a cutaway portion defining a transversely extending abutting surface, a tool member slidable in the bore of said head and extending axially of said sleeve, a slidable member in said sleeve engageable with the end of said tool member in said sleeve, a spring between said slidable member and the enlarged portion of said head to urge said enlarged portion of said head into engagement with the inwardly flared portion of said sleeve and to urge said tool member away from said abutting surface of said head, a handle member to which said sleeve is attached, a cam member pivoted in said handle member engaging the end of said slidable member in said sleeve to move said tool member towards said abutting surface, and means for rotating said cam member to move said tool member longitudinally.

2. A device of the type described comprising a tubular sleeve, a handle attached to one end of said sleeve having a longitudinally extending slot, a bell crank member pivoted on said handle having a cam portion extending into said slot, an axially bored head freely rotatable on the end of said sleeve opposite to said handle having a cut out portion defining a transverse abutting portion transversely of the longitudinal axis thereof, said head being of less diameter than said sleeve, a cylindrical tool movable longitudinally of said sleeve and slidable in the bore of said head, one end of said tool being engaged by the cam portion of said bell crank member whereby the end thereof passing through said head engages the abutting portion of said head, and a spring for urging said tool away from said head, said movable cylindrical member having a flattened portion for engaging a flat portion in the bore of said head.

3. A device of the type described comprising a sleeve, a head freely rotatable on said sleeve and of less diameter than said sleeve having a transversely extending abutting surface and an axial bore, a cylindrical tool member slidably disposed in the bore of said head and extending axially of said sleeve, the end of said tool member slidable in said head being movable to a position adjacent said abutting surface to engage an article therebetween, a cylindrical member longitudinally movable in said sleeve engaged by the end of said tool member in said sleeve,

a tubular member having a handle and an axial bore in which the lower end of said sleeve extends, a bell crank lever having a cam portion engaging the end of said cylindrical member to move it and said tool member in one direction 5 longitudinally, means for pivoting said bell crank lever on said tubular member, and a spring surrounding said tool member and disposed in said sleeve for urging said tool member away from the abutting surface on said head, one side of 10 said tool member disposed in said bore of said head being flattened to slidably engage a longitudinally extending flat surface on one side of the bore in said head.

JAMES H. McGAUGHEY. 15

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