Jan. 17, 1928. 1,656,243

G. A. SEELEY

SEVERING APPARATUS

Filed April 24, 1926

Fig. 1.

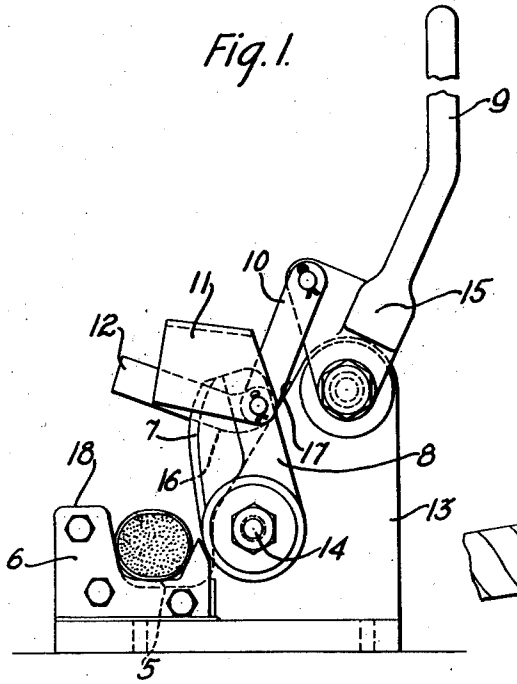


Fig. 2.

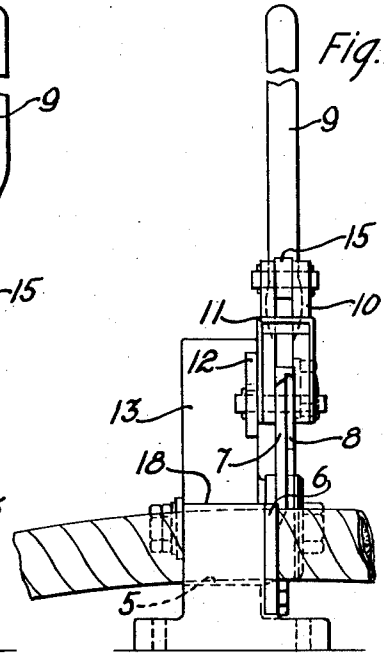


Fig. 3.

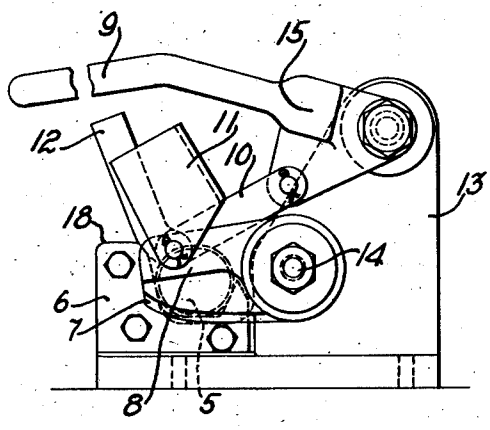
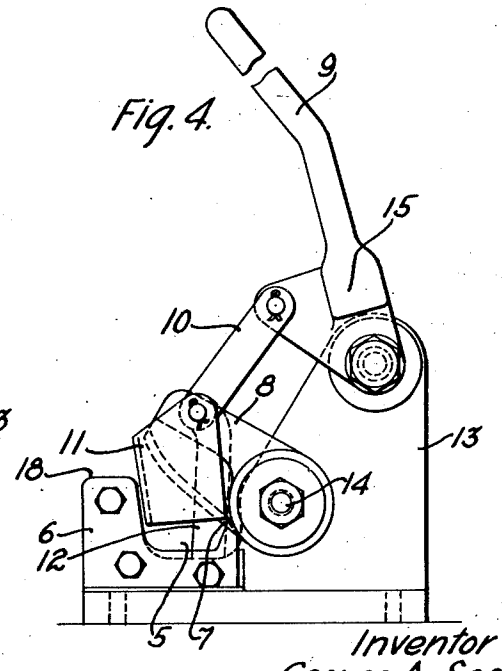


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SEVERING APPARATUS.

Application filed April 24, 1926. Serial No. 104,382.

This invention relates to a severing apparatus, and more especially to apparatus for cutting cables of the type used in telephone transmission lines.

An object of the invention is to produce a device having a combined shearing and cutting action in order to produce a smooth, clean cut without materially deforming the edges of the material being severed.

In accordance with one embodiment, the invention contemplates the provision of a cutting device arranged with a cutting blade constructed and mounted in a manner such that upon its movement a combined shearing and cutting action results. In order to prevent possible accidental contact with the cutting blade a guard covers the cutting blade when in an idle position, which is arranged with a projecting portion for preventing accidental movement of the cutting blade and which is operated upon the retraction of the cutting blade for allowing access to a recess of the cutting device for the insertion of material to be severed.

It is believed that a complete understanding of the invention may be had by reference to the following description taken in conjunction with the accompanying drawing illustrating one embodiment thereof and in which

Fig. 1 is a side elevation showing the cutter in position to receive the cable;

Fig. 2 is an end elevation of the device in the position shown in Fig. 1;

Fig. 3 is a view similar to Fig. 1 showing the device as it appears just after the cutting operation, and

Fig. 4 is a view similar to Fig. 1 showing the device in its idle position and showing the guard covering the blade and supporting the handle in an inclined upright position.

Referring to the drawing wherein similar parts are designated by the same reference characters throughout the various views, the cable cutting device consists of a frame 13 which carries a spindle 14 upon which a blade 8, preferably of hardened steel, is rotatably mounted. An edge 7 of the blade 8 has a curved outline and the blade is so mounted that a rotation of the blade about the spindle 14 will cause a combined shearing and cutting action. The shearing action is due to the pressure between the edge 7 of the blade 8 and the edge of a hardened steel plate 6 suitably mounted in a fixed position upon the frame. The cutting action is caused by drawing the knife edge 7 along the material. On account of the curved outline of the knife edge 7 a rotation of the blade 8 will draw the knife along the material. This will become evident when it is noted that the lower portion of the blade first comes in contact with the material at the beginning of the severing operation, and when the severing operation is nearly completed the upper portion of the blade is in contact with the material indicating that the sharp edge of the blade has been drawn along the material through its entire length, thereby producing a cutting effect. As the blade rotates the distance between the edge 7 of the blade 8 and the edge of the shearing plate 6 will diminish causing a pressure on the material and producing a shearing effect. For this purpose the blade is so arranged as to rotate through an angle of approximately 90 degrees and the plate 6 is of such a configuration as to present an opposing edge to the blade throughout the movement of the blade.

A handle 9 of the device is integral with a bell crank lever 15 and movement of the handle is communicated to the blade through links 10 which form a toggle joint with the blade. This arrangement gives a large ratio of movement between the knife and the handle at a point where the major portion of the cutting occurs.

The knife edge 7 of the blade is protected by a guard 11 having integral therewith a stop element 12. The stop 12 is provided with a cam surface 16 which is adapted to ride on the inclined surface 17 of the frame for the purpose of lifting the guard to the position shown in Fig. 1 when the handle is moved from the position shown in Fig. 4 to the position illustrated in Fig. 1.

The stop 12 may also serve as a prop to hold the handle in an inclined position as shown in Fig. 4 when the cutter is idle.

The operation of the cutter is as follows: The handle is placed in a vertical position (Fig. 1) which automatically raises the guard and the cable is inserted in the recess 5. The handle is then moved in an anti-

clockwise direction with sufficient speed that the stop 12 will strike the surface 18 and ride thereon during the remainder of the cutting operation. As the handle 9 descends, the blade 8 will rotate about the spindle 14 producing both a cutting and shearing action as described above, the final position of the cutting operation being shown in Fig. 3. If it is desired to place the cutter in the idle position shown in Fig. 4, the handle 9 is first placed in the upright position shown in Fig. 1 and then brought down slowly in order to permit the stop 12 to fall in the recess 5. The stop 12 will then serve as a prop to hold the handle in an inclined position. In order to place the cutter in position to receive the cable from the idle position it is only necessary to push the handle to the vertical position. This makes it possible for a single operator to use the cutting device, manipulating the handle with one hand and the cable with the other.

It will be understood that the embodiment of the invention herein described and illustrated is merely a convenient and useful form of the invention, which is capable of many other modifications without departing from the spirit and scope of the invention.

What is claimed is:

1. In an apparatus for severing material, a blade having a combined shearing and cutting action and mounted to rotate through approximately 90 degrees, and a fixed blade having a recess provided with tapered walls to receive the material to be severed so as to present an opposing edge to the rotatable blade in every position of the rotatable blade and to wedge the material in the recess during the severing operation.

2. A device for severing material comprising a handle, a fixed shearing blade, a movable cutting blade operatively connected with the handle, a guard for the fixed and movable blades, and means for moving the guard upon the movement of the handle for permitting the insertion of the material to be cut between the blades.

3. A cutting device comprising a frame having a recess to receive the work, a movable blade, a guard to close the recess and thereby prevent contact with the blade, and means to open the recess by raising the guard when the blade is placed in its retracted position.

4. A cutting device comprising a movable blade, a guard for the movable blade, and a cam rendered effective upon the retraction of the blade for removing the guard from its guarding position.

5. A cutting device comprising a movable blade, a guard for normally covering the entire accessible length of the edge of the movable blade, and means to remove the guard from a portion of the edge of the blade when the blade is placed in its retracted position.

6. A cutting device comprising a blade, a handle to operate the blade, and a guard for the blade provided with a stop to support the handle in an inclined vertical position.

7. In a device for cutting material, a handle to operate the device, a movable guard, means to prevent the guard from interfering with the material to be cut when the device is in operation and hold the handle in an upright position when the device is idle.

8. In a cutting device, a handle to operate the device, a prop to support the handle in the idle position, and means controlled by the movement of the handle to remove the prop when the handle is moved to the operative position.

In witness whereof, I hereunto subscribe my name this 13th day of April, A. D. 1926.

GEORGE ALLEN SEELEY.