A. H. BOYD.

FUSE CUTTING MACHINE.

APPLICATION FILED MAR. 20, 1911.

1,014,862.

Patented Jan. 16, 1912.

2 SHEETS—SHEET 1.

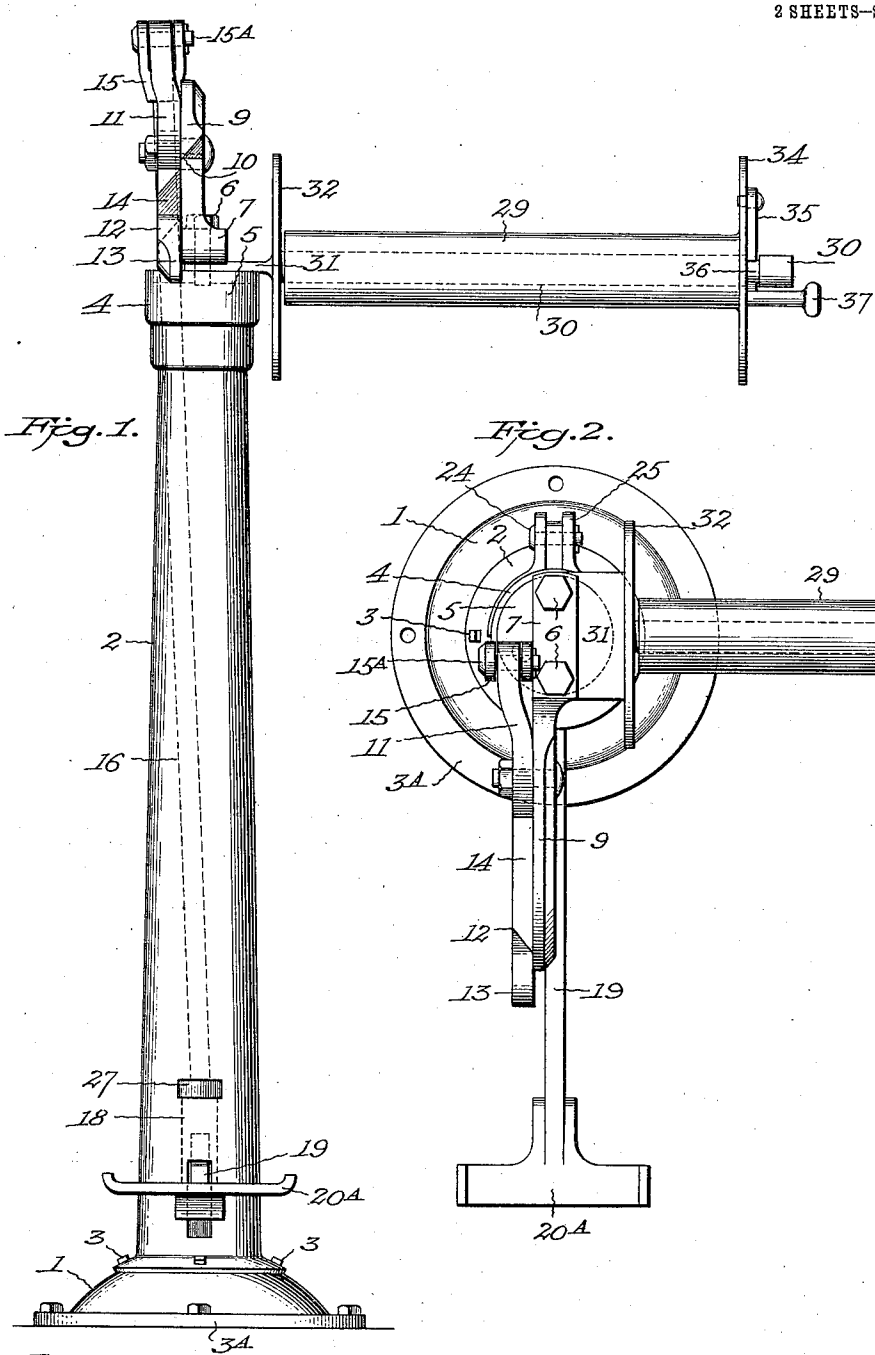

Fig. 1.

Fig. 2.

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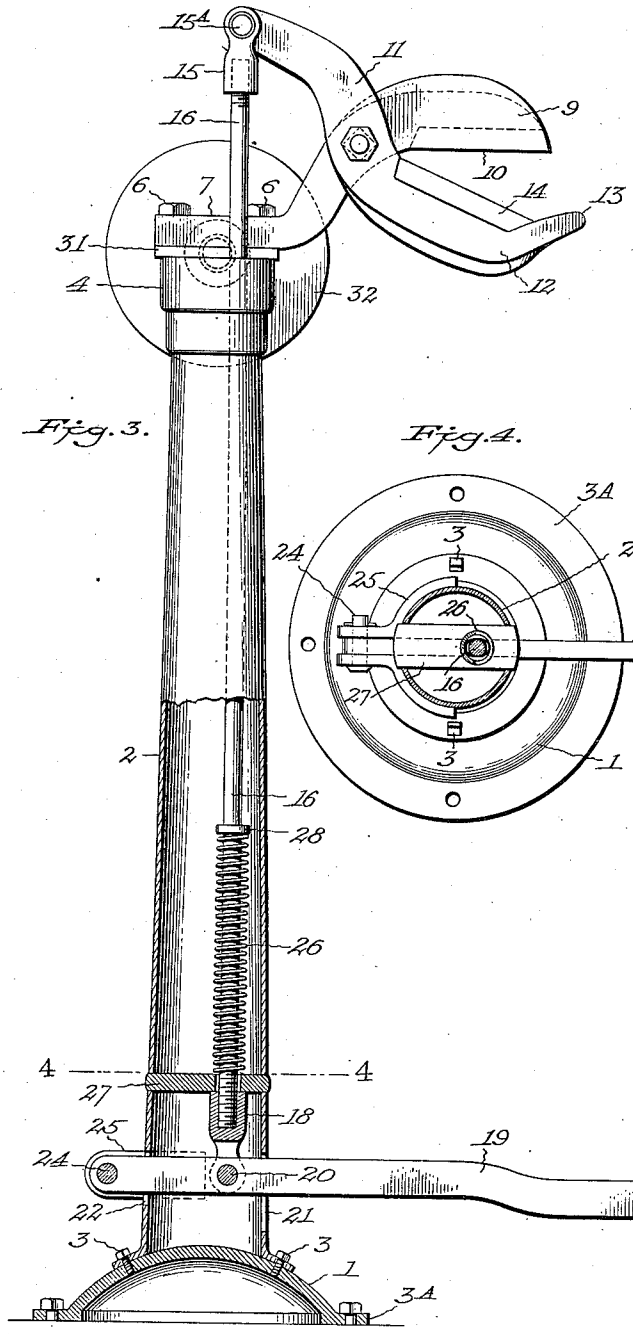


Fig. 3.

Fig. 5.

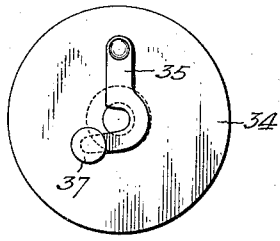
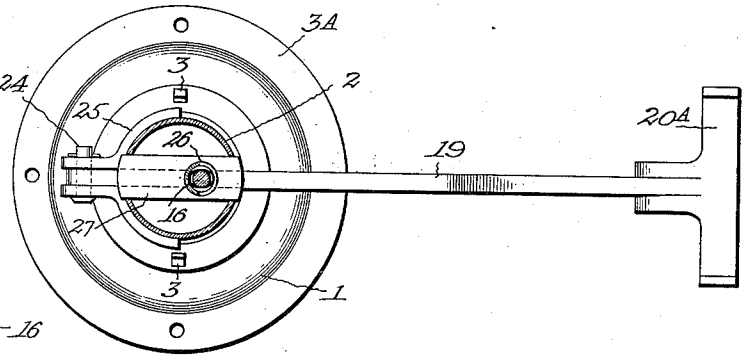


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBERT H. BOYD, OF DENVER, COLORADO, ASSIGNOR OF ONE-HALF TO THOMAS M. HAMILTON, OF HELENA, MONTANA.

FUSE-CUTTING MACHINE.

1,014,862. Specification of Letters Patent. Patented Jan. 16, 1912.

Application filed March 20, 1911. Serial No. 615,558.

To all whom it may concern:

Be it known that I, ALBERT H. BOYD, a citizen of the United States of America, residing in the city and county of Denver and State of Colorado, have invented a new and useful Fuse-Cutting Machine, of which the following is a specification.

My invention relates to improvements in fuse cutting machines, and the objects of my invention are: First—to provide a fuse cutting machine adapted to cut a plurality of fuses of any predetermined lengths at each operation. Second—to provide a simple fuse holding drum and cutting apparatus; and third—to provide a simple fuse cutting and a cap crimping machine that can be operated by one person. I attain these objects by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation of the improved fuse cutting machine. Fig. 2 is a plan view thereof, a porton of the fuse reel being omitted. Fig. 3 is a side elevation of the same, partly in section. Fig. 4 is a horizontal sectional view on the line 4—4 of Fig. 3. And Fig. 5 is a front view of the front end of the reel, showing the latch for retaining the same upon the supporting shaft.

Similar marks of reference refer to similar parts throughout the several views.

Referring to the drawings, the numeral 1 designates the base and 2 designates the supporting frame of my machine. This supporting frame comprises a vertical column, which, with the base, is preferably round in form. The column is preferably bolted to the base by bolts 3, but may be made integral with it, if desired. The column and its base may be made of either cast or of a soft wrought iron or steel. The base is provided with a floor flange portion 3^A, of suitable diameter to support the standard in an operative vertical position, and the column is preferably hollow. At the top of the column a cap portion 4 is formed, the top of which is provided with an end plate 5. To this top end plate I secure by screws 6 one end of an arm 7. The opposite end of this arm extends from the cap in a straight line far enough beyond the column to permit its outer end to be formed into a jaw 9 of a pair of fuse cutting shears. This shear jaw 9 is a fixed jaw and is provided with a beveled cutting edge portion 10. To this fixed arm 9 I pivotally secure intermediately of its ends another arm 11, the outer end 12 of which is formed into a jaw portion which is provided with an upwardly extending terminal lip portion 13 and with a beveled cutting edge portion 14, which is arranged in operative fuse cutting relation to the cutting edge 10 of the fixed jaw 9. The opposite end of the arm 11 is pivotally secured to a yoke sleeve 15 by a suitable pin 15^A. This yoke sleeve is threaded or otherwise secured to the upper end of a pull-rod 16, which extends loosely down through an aperture formed in the cap 5 and through the hollow column standard to near its base, where its end is threaded or otherwise secured to one end of a yoke sleeve 18, the opposite end of which straddles and is pivotally secured to a foot pedal lever 19 by a pin 20 intermediate of its ends, the outer end of which is provided with a foot pedal portion 20^A. This foot lever extends through slots 21 and 22 formed through opposite sides of the center of the column standard in alinement with the fuse cutting shear jaws and with the foot tread portion directly under these jaws, while the opposite end of this lever extends through the slot 22 and beyond the column a short distance, and is pivotally secured by a pin 24 between a pair of arms 25, which are bolted to the adjacent side portions of the column. The pin 24 acts as a pivotal fulcrum, and when the foot of an operator is placed on the tread of the foot pedal lever and is pressed down to the floor to the pull-rod is pulled down and the arm 11 is moved to close the jaw 12 in cutting relation to the fixed jaw.

My invention contemplates the automatic opening of the fuse cutting shears and the return of the foot lever to its normal position after each fuse cutting closing movement of the movable jaw of the shears; and, while there are a number of ways in which this feature of my invention may be carried out, I preferably carry out this feature of my invention in the following manner: Upon the pull-rod at and adjacent to the yoke sleeve 18 an expansive coiled spring 26 is mounted, the lower end of which rests on a cross bridge piece of metal 27, which is secured to the inside of the column and contains an aperture through which the pull-rod extends loosely and at its opposite end the spring bears against a collar 28, that is mounted on and is secured to the pull-rod at

a suitable distance above the yoke sleeve to enable a coiled spring of sufficient resilient tension and movement to counterbalance the weight of and operate the shear jaw and foot pedal lever and the pull-rod. This coiled spring holds the adjacent end of the yoke sleeve up against the under side of the bridge piece, which acts as a stop for and defines the automatic movement of the movable shear jaw and foot pedal into positions for operative fuse cutting use.

My invention contemplates the cutting of a number of fuses at each cutting stroke of the movable shear, and in order to accomplish this I arrange a fuse carrying drum 29 on the column in such relation to the shears that a number of lines of fuse can be quickly led in a group between the jaws of the shears; and, while this fuse carrying drum may be made and arranged in operative relation to the column in several different ways, I preferably carry out this feature of my invention in the following manner: To the cap portion of the column I secure one end of a shaft 30 by any suitable means, preferably by providing the end of the shaft with a flattened end portion 31 and placing this flattened portion underneath the end of the arm of the stationary shear and securing it to the top of the cap by the same screw bolts 6 that are used to secure the arm 7 to the cap. I preferably position this shaft and the fuse drum to project from the column at right angles from the fuse cutting shears, although it may be arranged in any other position desired relative to the fuse cutting shears. At the junction of the flat end portion 31 with the round part of the shaft a flange 32 is secured. A drum 29 is mounted on the shaft and extends to near its opposite end and is provided with a flange 34 of the same diameter as the flange on the shaft. The drum 29 is removably mounted upon the shaft 30, and is held thereon by a latch 35, consisting of an arm, the upper end of which is pivotally attached to the disk 34, while its lower portion is in the form of a hook, which is adapted to engage an annular groove 36, adjacent to the outer end of the shaft. The hook is provided with a knob 37, by which the latch may be swung to one side, when it is desired to remove the drum for the purpose of placing a plurality of coils of fuse thereon.

The operation is as follows: A plurality of coils of fuse are arranged on the drum, as desired, and the operator takes the ends of all, or of as many of these coils of fuses as he desires to cut fuses from, and places them between the two jaws of the shears, resting them on the lower cutting edge of the movable jaw, and the upwardly extending lip of this jaw holds them from slipping off of this jaw. Then, having adjusted the several ends of the fuse to the lengths desired, the operator places one foot on the pedal and presses the pedal down, which movement pulls the pull-lever down and the arm 11 of the movable jaw and closes the movable jaw against the several lines of fuse and the fixed jaw and cuts off all of the lines of fuse at the one movement. After the fuse is cut, it is attached to the cap in the usual manner and the cap can be placed between the shears and be pinched and crimped to secure the cap to the fuse between the jaws by applying a slight pressure to the foot pedal.

My invention is simple, practical and enables a number of lines of fuse to be cut at one operation, and the cutting operation to be repeated in quick succession, and consequently a large number of fuses can be cut of any desired length in a short time.

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

1. A fuse cutting machine comprising a supporting column, a pair of shear cutting jaws, one of which is fixed to said column and the other is pivotally connected to said fixed jaw intermediately of its ends, said shear jaws being provided with fuse cutting edges, a foot pedal lever pivotally secured to said column, a pull-rod connected at one end to the end of said movable jaw opposite to its fuse cutting end, said pull-rod being connected at its opposite end to the foot pedal lever, and a spring arranged in operative relation to hold said movable jaw in an open fuse receiving relation to said fixed jaw.

2. A fuse cutter comprising a supporting column, a pair of fuse cutting shears mounted on said column, one jaw of which shears is fixed and the other jaw of which is movable to and from said fixed jaw, means including a foot-pedal for holding said movable jaw in an open fuse-receiving position relatively to said fixed jaw, said movable jaw being provided with an upwardly projecting lip portion at its outer end adapted to hold lines of fuse on said movable jaw against accidental displacement.

3. In a fuse cutter, the combination of a suitable supporting base and column, an aperture being formed through said base, a foot-pedal lever extending through said aperture, a bracket portion secured to said column adjacent to said aperture and pivoted at its outer end to one end of said foot-pedal lever, a foot portion at the opposite end of said lever, a pull-rod extending up through said column and pivotally connected to said foot-lever between its ends, a fixed fuse-cutting jaw mounted on the top portion of said column, a movable fuse-cutting jaw pivoted to said fixed jaw intermediate of its ends and being

provided with an upwardly extending lip portion, said movable jaw being pivotally secured to the upper end of said pull-rod, a fixed bridge-piece extending into said column and provided with an aperture through which said pull-rod extends loosely, an expansive spring mounted on said pull-rod and resting at one end on said bridge, a collar secured on said pull-rod and positioned to confine the opposite end of said spring on said pull-rod under expansive tension, and a stop on said pull-rod below said bridge-piece adapted to be held up against said bridge-piece by said spring, whereby said movable jaw is held in open fuse-receiving relation to said fixed jaw.

4. In a fuse cutter, the combination with a supporting column, a stationary shearing jaw upon the upper end thereof, a shearing jaw pivotally attached to the stationary jaw in shearing relation therewith, a foot-lever pivotally attached to the lower end of the column, a rod connecting said lever and pivoted jaw, and a spring for normally holding the latter jaw out of cutting relation with the stationary jaw.

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

ALBERT H. BOYD.

Witnesses:
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