

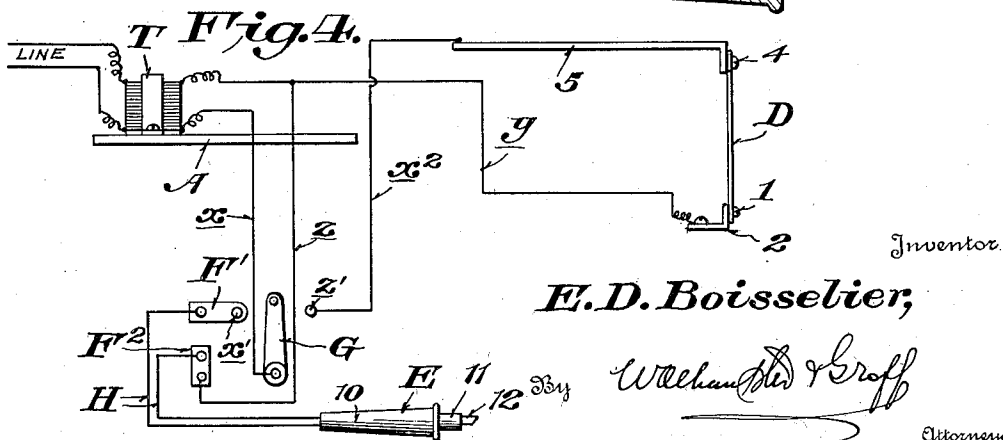
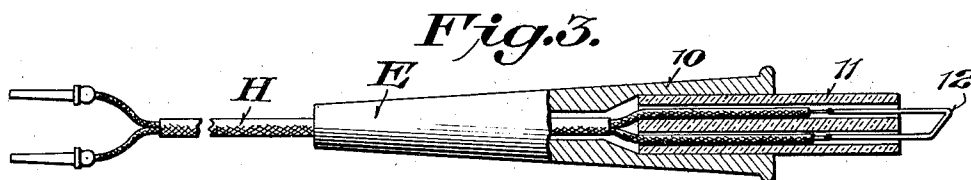
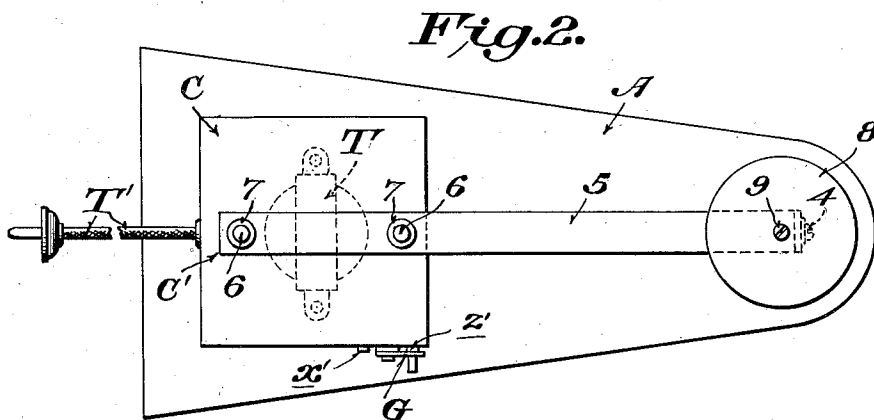
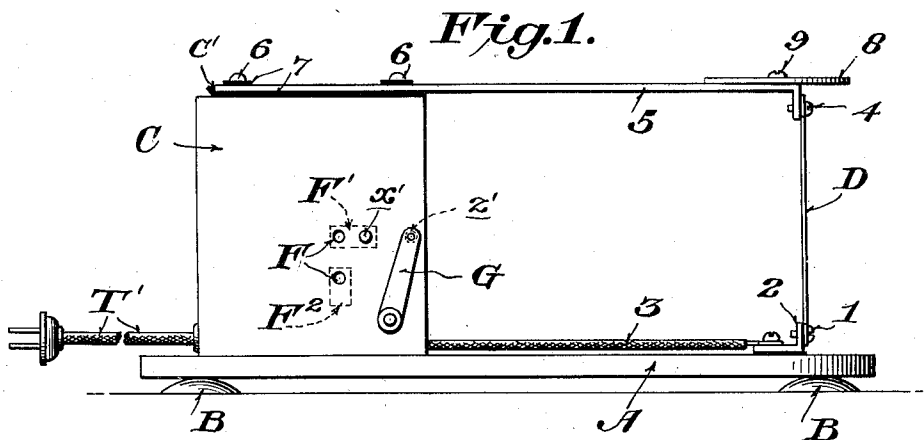
Feb. 10, 1942.

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2,272,931

WIRE BURNING UNIT

Filed March 11, 1939



UNITED STATES PATENT OFFICE

2,272,931

WIRE BURNING UNIT

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Application March 11, 1939, Serial No. 261,272

2 Claims. (Cl. 219—29)

This invention relates to devices for cutting out various ornaments, figures, designs and the like, by a heated resistance wire which cuts by burning the material to conform to the desired outline or shape.

More especially, the present invention relates to a device adapted for juvenile amusement, or educational purposes from an artistic standpoint, and has particularly in view the provision of a burning wire heated by low voltage current which will substantially perform the function of a jig saw in a safe and practical manner, and without the noise and other disadvantages of a saw or cutter of the type heretofore used. In that connection, the invention contemplates a device which may be plugged into any convenient service so that the user may obtain the desired cutting effect by slowly moving the material to be cut against the wire in a straight line or from side to side, or backward or forward, as the case may be, to permit following any pre-determined outline. In other words, the heating resistance wire provides in effect a blade which cuts from any and all sides and any and all angles.

A further object of the invention is to provide a simple and practical unit which may be readily manufactured and sold within a reasonable price range thereby particularly adapting the construction for general use as a toy or for educational purposes as desired.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

The preferred and practical embodiment is shown in the accompanying drawing, in which:

Figure 1 is a side elevation of the improved device.

Figure 2 is a top plan view of the construction shown in Figure 1.

Figure 3 is a detail perspective view of a wire burning pencil.

Figure 4 is a wiring diagram.

Similar references designate corresponding parts throughout the several figures of the drawing.

According to the embodiment shown in the drawing, the same includes in its organization a base or stand designated generally as A, preferably made of metal stamping, although wood may be used, and provided at its under side with rubber suction cups B for secure attachment to

a table or other surface so that it will not move or shift when in use.

Mounted on the base A is a housing C which may also be of metal, and has its bottom edge 5 clinched or otherwise secured to the base A while its upper end is closed by a top wall C'. This casing houses a transformer T which may be connected with any convenient service outlet by a cord and plug unit T'.

At the end of the base A opposite the casing C there is provided a hot wire element D. This wire has its lower end anchored to the terminal screw 1 of a bracket 2 secured to the base and suitably insulated therefrom. The bracket 2 is connected by a wire 3 with one of the terminals of the transformer T. The upper end of the wire D is connected to a terminal 4 formed on the end of a spring brass bar or plate 5 which has the end thereof opposite the terminal 4 20 riveted or otherwise secured to the top wall C' of the housing C by insulating rivets 6 and a suitable insulation plate 7. The end of the spring bar 5 carrying the terminal 4 is provided with a circular guard plate 8 secured to the end of the bar by a suitable fastening 9.

It will thus be apparent that since the bar 5 is made of spring metal, the hot wire D will remain stretched so as to permit the wood, cardboard or other material being operated on, firmly pressed against the wire.

According to Figure 1 it is apparent that the device may be equipped so that a wire burning pencil E may be conveniently used in place of the vertical hot wire D, if desired. To that end, one side of the casing C is provided with plug receptacle openings F and a switch designated generally as G and including an operator's handle. From the wiring diagram, Figure 4, it will be apparent that the switch G may be manipulated to render either the hot wire D operative, or throw the low voltage current to the terminals F₁ and F₂ behind the plug receptacle openings F. That is to say, from Figure 4 it will be observed that the transformer wire x leads to the base of the handle of the switch G so that when the handle is moved to contact with the switch terminal x, the current will follow the wire x² to the burning wire D and will thence make its way back to the transformer over the lead y. The lead y is tapped by a lead z which leads to the plug terminal F₂. Thus, when the switch handle is moved to the position z' the current from the transformer lead x will be transferred to the terminal F' so that the recep-

tacle terminals R' and F² are electrically available.

The pencil E preferably includes a Bakelite handle 10 having a porcelain insert 11 in one end thereof, said insert being provided with suitable openings for housing the ends of the wires of the cord unit which are connected with a resistance wire 12 forming the point of the pencil. The plug members H' and H² of the cord H are of special formation, for example, of round wire so that these terminals can only be plugged into the receptacle opening F and cannot be inserted into a standard outlet receptacle using a 110 volt current. This provides a safety feature which limits the use of the pencil to the present low voltage device.

When it is desired to use the pencil, it will, of course, be understood that the switch G is manipulated to cut off the current to the wire D so that it will not be heated, and thus eliminate a hazard during the use of the pencil.

From the foregoing it will be apparent that the present device provides a heated cutting wire or pencil which may be operated at low voltage with complete safety to the user, only 3-6 volts being used, and in addition is very economical in operation. The hot wire heats instantly and cools instantly and provides, in the case of the wire D, simple and convenient means for cutting any outline from any angle, or in the case of the pencil, enables the user to lay the pattern on a

suitable surface and follow the desired outline.

I claim:

1. A hot wire burning device for making ornamental designs, figures and the like, comprising a base, a transformer on the base, a housing on the base for the transformer, a bracket secured to the base, a wire terminal on the bracket, a spring arm carried by the casing, a wire terminal on the end of the spring arm, a resistance wire having its lower end connected with the terminal on the bracket and its upper end connected with the terminal on said spring arm, a guard carried by the end of the spring arm for shielding the hot wire, and current supplying leads connecting the said wire terminals with the transformer.

2. A hot wire device for making ornamental designs, figures and the like, comprising a base, a transformer and a transformer housing mounted on the base, an arm fixed at one end to said transformer housing and extending from said housing into overlying relationship to the base, a resistance wire supported at one end by said base and at its other end to said arm, means for conducting current to said transformer, plug receptacle means carried by said housing, and a switch also carried by said housing and operable to selectively include said resistance wire and said plug receptacle means in circuit with said transformer.

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