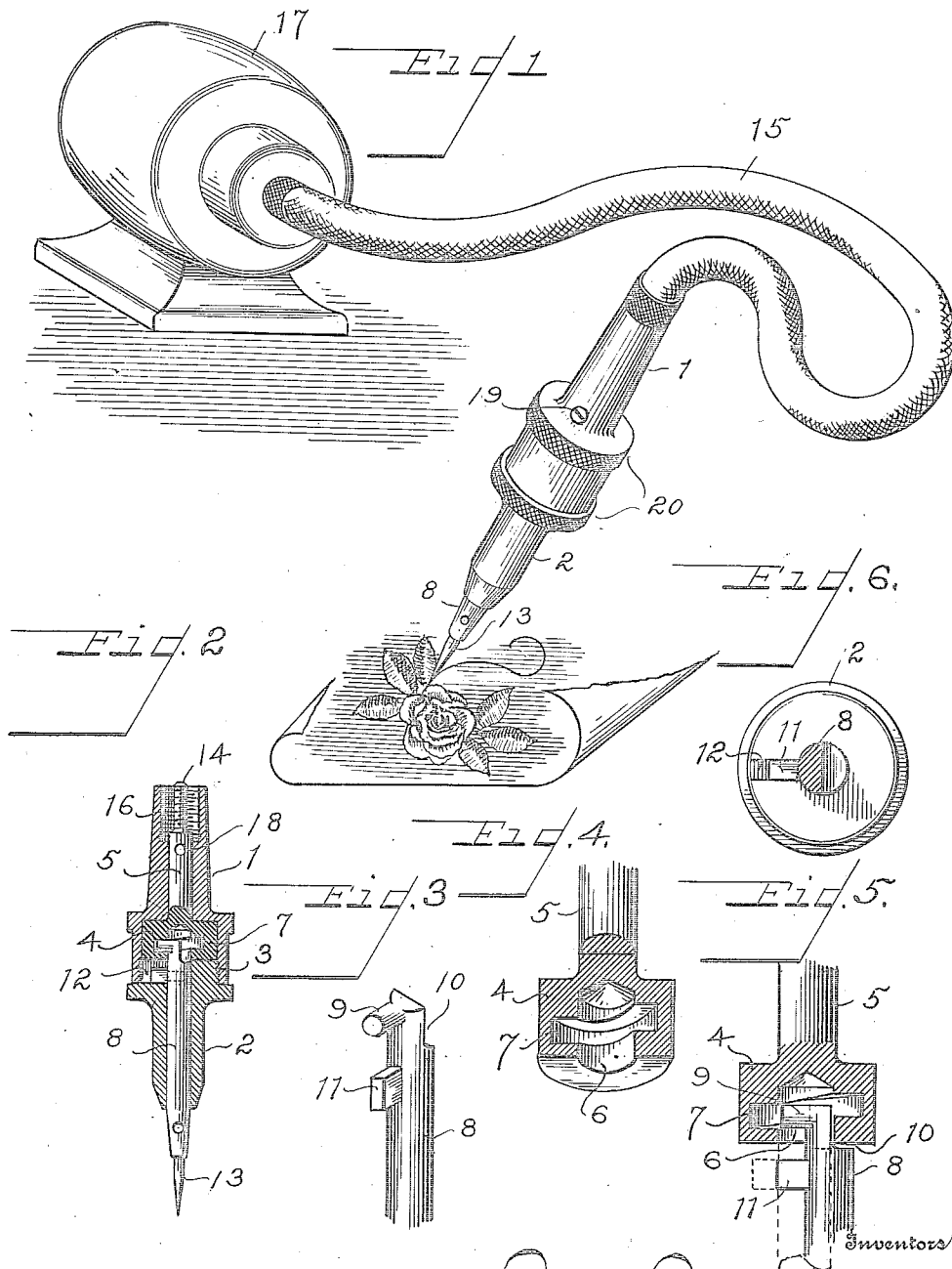


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PAPER TRIMMER.
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Patented Apr. 5, 1910.



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PAPER-TRIMMER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROSCOE PIERCE and WILLIAM U. COLTHAR, both citizens of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Paper-Trimmers, of which the following is a specification.

Our invention relates to paper trimmers and particularly to devices for cutting irregular outlines in paper, fabric or similar material.

The implement is more especially adapted to the use of paper hangers and decorators for trimming irregular outline figures of wall paper and friezes, and for outlining ornamental stencils, but is equally applicable to other purposes, such as, cutting patterns of various sorts and similar uses.

The object of the invention is to simplify the structure as well as the means and mode of operation of such implements whereby they will not only be cheapened in construction, but will be more efficient in use, more easily operated, and unlikely to get out of repair.

With the above primary and other incidental objects in view, as will more fully appear in the specification, the invention consists of the features of construction, the parts and combinations thereof, and the mode of operation, or their equivalents, as hereinafter fully described and set forth in the claims.

Referring to the drawings, Figure 1 is a perspective view of the implement in use, together with the driving connections therefor. Fig. 2 is a vertical sectional view of the implement. Fig. 3 is a perspective view of the upper end of the reciprocating plunger. Fig. 4 is a sectional perspective view of the driving head. Fig. 5 is a sectional view illustrating the method of engaging and disengaging the reciprocating plunger and the driving head. Fig. 6 is a plan view of the lower casing member showing the reciprocating plunger in place with the upper end thereof broken away. Figs. 1 and 2 are drawn substantially full size while Figs. 3, 4, 5, and 6 are substantially double scale.

Like parts are indicated by similar characters of reference throughout the several views.

The implement forming the subject matter thereof is adapted to cut paper, fabric, or similar material, upon irregular lines by tracing said lines with the point of the implement, such as following the outline of a flowered figure as shown in Fig. 1 with the point of the stylus. The cutting action is accomplished by the reciprocatory movement of the stylus, which moves at a very high rate of speed, forming thereby a row of perforations, the individual perforations being so closely located as to form a continuous cut, severing the material.

In constructing the implement, there is employed a separable casing comprising an upper casing member 1 and a lower casing member 2 screw threaded together at 3. Within the upper casing member 1 is provided a chamber in which is located a revoluble actuating head 4 from which projects a driving shaft 5 preferably formed integral therewith and journaled in the casing member 1. The actuating head 4 is provided with a central bore 6 within the interior periphery of which is formed a continuous cam groove 7. The plane of said cam groove 7 is angular or inclined to the axis of rotation of the actuating head 4. Located within the lower casing member 2 is a reciprocating plunger 8, the upper end of which projects within the central bore 6 of the actuating head 4, and is provided with a laterally projecting stud 9 which engages the cam groove 7 of said actuating head. The upper extremity of the plunger 8 is recessed or reduced as at 10. This formation of the extremity of the plunger is to facilitate the assembling of the implement and permit the reduced portion of the plunger and the stud 9 thereon to be introduced within the bore 6 of the actuating head 4 as shown in Fig. 5, after which the plunger 8 is moved laterally as shown by dotted lines in Fig. 5, causing the stud 9 to engage within the cam groove 7 of the actuating head. Projecting laterally from the reciprocating plunger 8 is a spline or feather 11 engaging a slot 12 in the lower casing member 2. The

engagement of the spline 11 in the slot 12 prevents rotation of the plunger 8, permitting only a reciprocatory movement thereof. At its lower extremity, the plunger 8 carries a stylus 13 removably engaged therewith in any suitable manner, such as a taper chuck, or which may be, if desired, formed integral with the plunger 8. At its upper extremity, the revoluble shaft 5 of the actuating head 4 is screw threaded as at 14, whereby it is engaged with the terminal of a flexible driving cable 15, the casing of said cable 15 being screw threaded into the socket 16 of the member 1. The flexible drive cable 15 may be connected to any suitable motive power, preferably to an electric motor, as indicated at 17.

In operation, the implement is connected direct to the motor or other motive power, by the cable 15, which, through the shaft 5, causes the actuating head 4 to revolve at a high rate of speed. The stud 9 of the plunger 8 engaging the cam groove 7 of said connecting head causes the plunger 8 to reciprocate within the member 2, said plunger being prevented from rotating by the spline 11.

In the drawings, the cam groove 7 has been shown as extending in a single plane whereby the plunger 8 is reciprocated once for each rotation of the actuating head 4. It is obvious that the cam groove 7 might be formed unaligned within the head 4 whereby the plunger 8 might be given two or more reciprocatory movements during each rotation of the head.

When in use, the outlines of the figure or pattern to be cut out are traced with the stylus 13, which being reciprocated at a very high rate of speed, as stated, causes a series of perforations in the material. The speed of the stylus being proportionately greater than the speed with which the implement is moved over the outlines of the pattern, the perforations made by the stylus will be so closely placed as to form a continuous cut separating the pattern or irregular figure from the stock material.

The implement is also adaptable for use as a perforator for perforating pounce patterns and similar purposes. When used as a perforator, the speed with which the stylus is reciprocated is very materially reduced in its ratio with the speed with which the stylus is moved over the outlines of the figure, thereby placing the perforations made by the stylus at greater distance from each other.

The shaft 5 is provided with a transverse hole 18 through which may be inserted a pin thereby enabling the shaft to be more tightly screwed into the terminal of the flexible cable 15.

Oil ducts are provided at 19 in each of the casing members 1 and 2. In order to

facilitate the engagement of the casing members 1 and 2, said members are each knurled as at 20.

From the above description it will be apparent that there is thus produced a paper trimming device adapted to trim figures of irregular outlines, which possesses the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportion, detail construction, and arrangement of parts, without departing from the principle involved, or sacrificing any of its advantages.

Having thus described our invention we claim:

1. In an implement for cutting irregular outlines in paper or similar material, the combination with an actuating motor and a flexible drive shaft, of a housing, a revoluble actuating head within said housing, having a central bore, and a cam groove in the inner periphery of said bore, a reciprocating plunger extending within said bore, a lateral projection on said plunger engaging said cam groove whereby the revoluble movement of said actuating head will cause a reciprocatory movement of the plunger, a stylus carried by said plunger and adapted to perforate the stock material in predetermined lines traced by said stylus, substantially as specified.

2. In an implement for cutting irregular outlines in paper or similar material, the combination with an actuating motor and a flexible drive shaft, of a separable housing one of the housing members having a chamber therein, a revoluble actuating head in said chamber having a cam groove formed therein, a reciprocatory plunger in the other housing member, engaging said cam groove of the actuating head whereby the revoluble movement of the head will cause a reciprocatory movement of the plunger, said second housing member having a slide formed therein and a projection rigidly fixed on said plunger engaging said slide, and movable therein with the movement of said plunger whereby said plunger will be permitted a reciprocatory movement only and will be held by the engagement of said projection within said slide against the revoluble movement, substantially as and for the purpose specified.

3. In an implement for cutting irregular outlines in paper or similar material, the combination with an actuating motor and a flexible drive shaft, of a housing, a revoluble actuating head within said housing having a central bore, a cam groove within the inner periphery of said bore, a reciprocating plunger its upper end being of reduced thickness, said reduced portion of the plunger extending within the central bore of said

head, a projection carried by the reduced portion of the plunger and engaging the interior cam groove of the actuating head, said plunger being laterally movable within the bore of said head whereby the projection thereon may be disengaged and engaged with said cam groove, substantially as specified.

In testimony whereof, we have hereunto set our hands this 30th day of January A. D. 1909.

ROSCOE PIERCE.
WILLIAM U. COLTHAR.

Witnesses:

HARRY R. HARFORD,
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