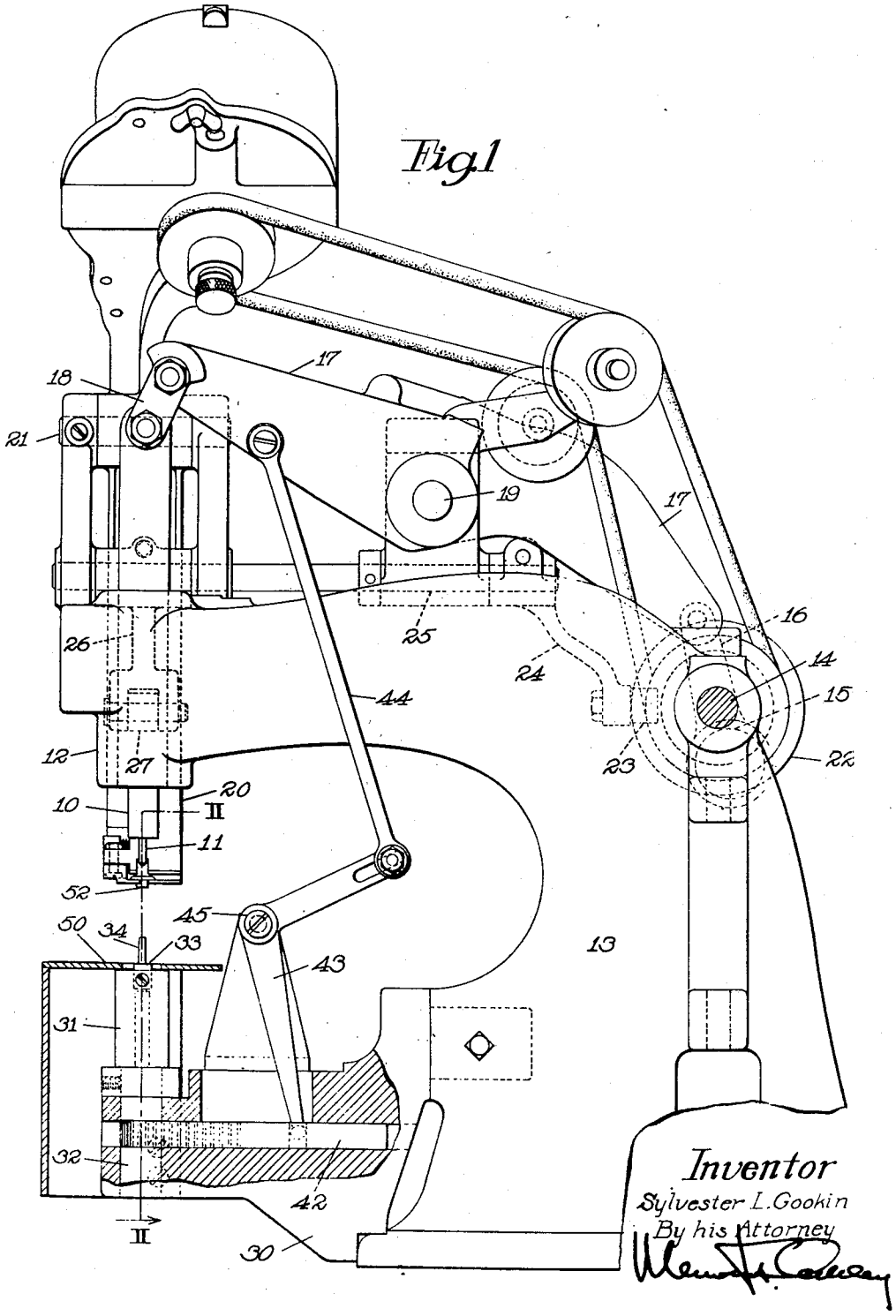
Nov. 21, 1950 S. L. GOOKIN 2,530,575

EYELETING MACHINE

Filed May 11, 1946 2 Sheets-Sheet 1

Fig. 1



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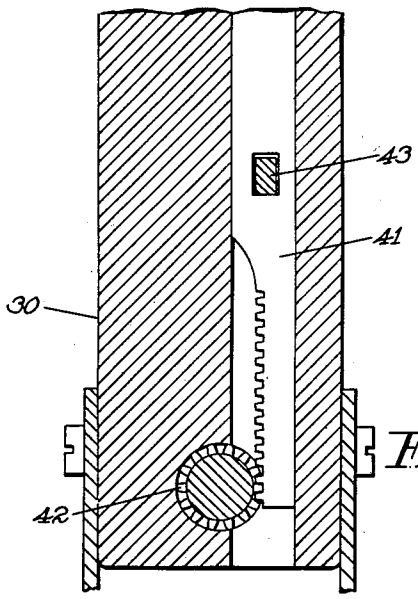


Fig. 3

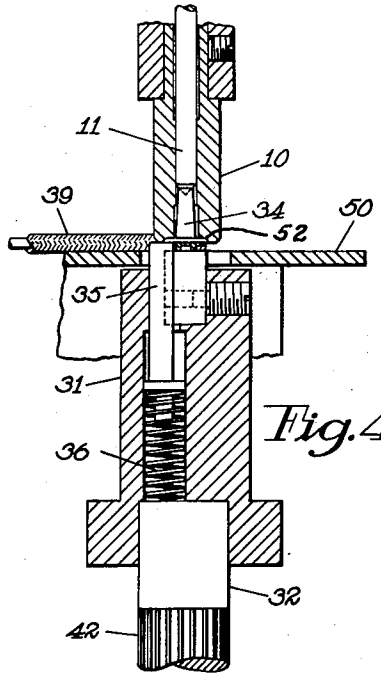


Fig. 4

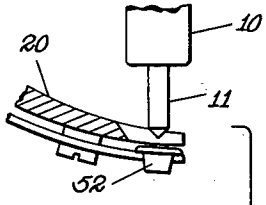
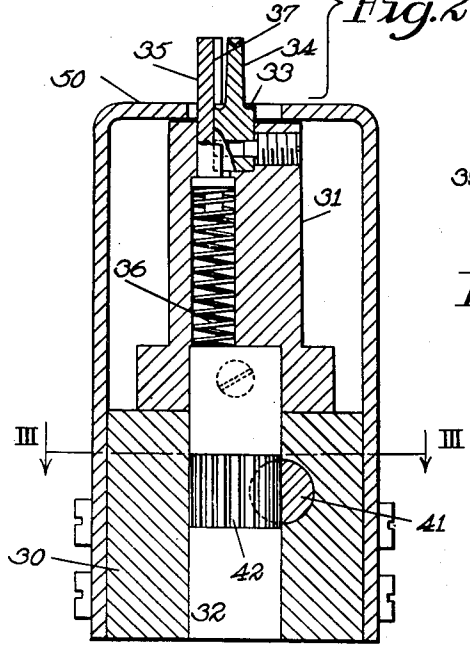


Fig. 2



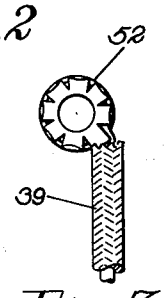


Fig. 7

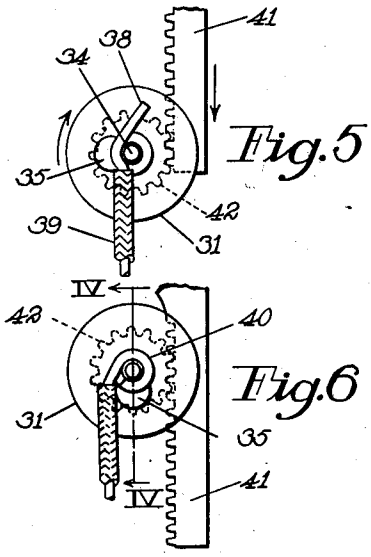


Fig. 5

Fig. 6

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2,530,575

UNITED STATES PATENT OFFICE

2,530,575

EYELETING MACHINE

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Application May 11, 1946, Serial No. 669,130

1 Claim. (Cl. 153—1)

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The purpose of the present invention is to provide improvements in machines for making wire terminals of the type illustrated in United States Letters Patent No. 2,439,465, granted April 13, 1948, upon my application. Such a terminal is made by forming a loop or eye of wire and installing an eyelet therein.

In some respects the machine illustrated herein is similar to that illustrated in the patent mentioned above, but in other respects the machine hereinafter described embodies improvements that avoid detrimental effects due to wear of the wire-bending mechanism.

Referring to the drawings,

Fig. 1 is a right side elevation, partly in section, of a machine embodying the present invention;

Fig. 2 is a vertical section, on a larger scale, of the anvil assemblage and a portion of the eyelet-raceway (line II–II in Fig. 1);

Fig. 3 is a horizontal section (line III–III in Fig. 2) of means for oscillating the anvil;

Fig. 4 is a vertical section (line IV–IV in Fig. 6) of the work-engaging elements in the final stage of making a terminal;

Fig. 5 is a top plan view of the anvil in its initial position, and includes a wire in position to be transformed to provide a terminal eye or loop;

Fig. 6 is a view similar to Fig. 5 except that the anvil has completed the terminal eye and stands at the opposite limit of its range of oscillation; and

Fig. 7 is a bottom plan view of a completed terminal.

The general organization of the illustrated machine, disregarding the elements concerned with bending a wire, is the same as that disclosed in United States Letters Patent No. 1,369,021, Glass, granted February 22, 1921. A vertically movable setting tool 10, provided as usual with a spring-pressed spindle 11, slides in a bearing 12 in the frame 13. The tool 10 is reciprocated by mechanism comprising a rotary shaft 14, a crank-pin 15, a connection link 16, a lever 17 and another link 18 to which the upper end of the tool is connected. The fulcrum pin 19 of the lever 17 has a bearing in the frame 13.

Eyelets are supplied to the spindle 11, as usual, by a raceway 20 that rocks on a horizontal pivot pin 21 fastened to the frame 13. The raceway is oscillated by mechanism comprising a cam 22, a cam-roll 23, a cam-arm 24, a rockshaft 25, an arm 26, and a link 27 connecting the latter

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arm and the raceway. The shaft 14 is provided with a clutch (not shown), and the clutch is controlled by manually operable means including a member for arresting the shaft at the conclusion of every run when the tool 10 is at the upper limit of its range of travel (Figs. 1 and 2). A clutch of this type is shown and described in Patent No. 2,056,316, Gookin, granted October 6, 1936.

The frame of the machine includes a fixed bed 30 by which a rotable anvil 31 of improved construction is supported below and in line with the setting tool 10. The anvil is provided with a cylindrical shank 32 and the latter has a bearing in the bed. The rotational axis of the anvil coincides with the axis of the setting tool 10. The anvil is also provided with an annular concentric upsetting shoulder 33 of concave section (Fig. 2) and with an upstanding concentric pilot 34 for guiding an eyelet thereto. A finger 35 is provided for wrapping a wire around the pilot to form a circular loop or eye 40 for receiving an eyelet. The finger 35 has a bearing in an eccentric portion of the anvil and is telescopically related thereto. A spring 36 normally raises the finger to place its upper portion alongside the pilot 34 and in the path of the setting tool 10. One side of the finger has an incurved arcuate surface 37 conformed to and engaging a segment of the perimeter of the upsetting shoulder 33. The surface 37 is concentric with the axis of the anvil, and is spaced from the pilot 34 just far enough to admit a stranded electric wire 38 from which insulating material 39 has been stripped. This surface is wide enough to confine the ends of wires that may be not quite long enough to encircle the barrel of an eyelet. For simplicity of drawing the wire is represented without attempt to indicate individual strands.

Rotary motion of the anvil through an angle of 270° is sufficient to form an eye 40 of the wire 38. For this purpose a reciprocatory rack bar 41 is installed in the bed 30 and arranged to engage a pinion 42 in the shank 32 of the anvil. The rack bar is reciprocated in timed relation to the strokes of the tool 10 and receives its motions from the power-operated lever 17 to which it is connected by a bell-crank 43 and a link 44. The fulcrum stud 45 of the bell-crank is fastened to the bed. These connections synchronize the wrapping motion of the anvil and the downward travel of the tool 10, and spread the eye-forming operation through one-half revolution of the crank 15.

A work supporting table 50 is fastened to the bed 30. Its upper surface is located at the level of the upsetting shoulder 33, and it is provided with a hole through which the pilot 34 and the wrapping finger 35 may project without touching the table.

When preparing a stranded wire for production of a terminal, the length of wire 38 to be bared by stripping insulating material 39 therefrom will preferably be just enough to encircle the barrel of an eyelet, but no more. The end of the insulating material will then be adapted to locate the bare portion of the wire lengthwise (Fig. 5) in the desired position when that portion is placed between the pilot and the finger 35. Once the wire has been placed in the desired position, the operator will hold the covered part thereof on or near the table and trip the clutch. Immediately, the anvil will start to turn clockwise about its axis in response to the forward stroke of the rack bar 41 which will continue until the finger 35 has wrapped the wire around the pilot 34 to form an eye 40 (Fig. 6).

Meanwhile, the down-stroke of the setting tool 10 will carry the spindle 11 through an eyelet 52 in the raceway 20, the latter will be retracted, the spindle will transfer the eyelet to the pilot 34, the tool 10 will depress the spring-biased finger 35 (Fig. 4) and drive the eyelet along the pilot and through the eye 40 until, finally, the prongs of the barrel of the eyelet are curled and clenched against the bottom of the eye by the upsetting shoulder 33. At this stage the job will be finished, the tool 10 and anvil 31 will return to their initial positions, and rotation of the shaft 14 will be arrested.

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

An eyeleting machine comprising a bed, an anvil supported thereby and rotatable about its vertical axis, the anvil having an annular upsetting shoulder and an upstanding pilot concentric with said axis for guiding an eyelet thereto, an eyelet-setting tool arranged to cooperate with the anvil, power-operated means for moving said tool toward and from the anvil, a member movable in the bed for oscillating the anvil about said axis, direct mechanical connections between the member and said means for so oscillating the anvil in time relation to the tool movements, a finger on said anvil spaced from said pilot to accommodate a wire between said finger and said pilot, said finger being depressible into the anvil and arranged to project therefrom into the path of said tool, and means normally urging said finger into said path, said finger being arranged to wrap a wire around the pilot upon rotation of said anvil and to recede from said path when depressed by said tool.

SYLVESTER L. GOOKIN.

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