

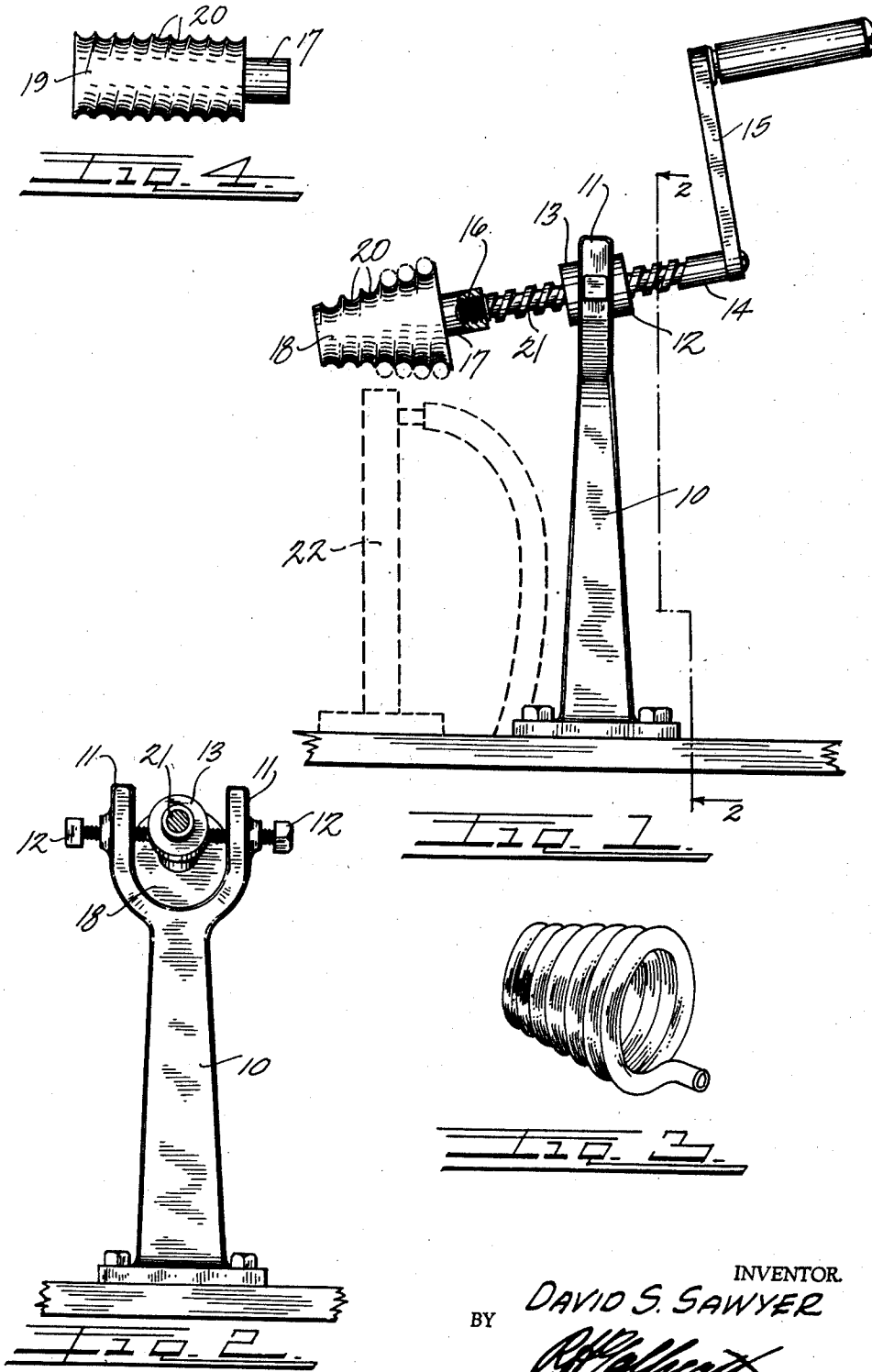
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D. F. SAWYER

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GASEOUS TUBE BENDING MACHINE

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INVENTOR.
DAVID S. SAWYER
BY *R. H. Hallmark*

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GASEOUS TUBE BENDING MACHINE

David F. Sawyer, Rock Springs, Wyo.

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1 Claim. (Cl. 49—7)

This invention relates to a device for bending glass tubes, more particularly for bending glass tubes of the type used in gaseous tube lighting. Gaseous tubes of the "neon" type are used as light sources for various general illumination purposes, such as traffic signals, indirect interior and exterior illumination with reflectors, etc. The latter types of installations require the tube to be wrapped in a very close spiral of a shape to obtain a concentration of illumination at the focal point of the particular reflector upon which they are to be used.

Heretofore, these spirals have been formed by hand and it is difficult, even for an expert glass worker, to obtain a perfectly contoured coil and to obtain uniformity in the coils.

The principal object of this invention is to provide a simple and convenient device for forming coils of any desired shape with a perfect contour and to provide a device with which a repeated number of coils of the same contour can be formed with perfect uniformity.

Another object of the invention is to provide a device which will hold the glass tube at the proper distance above the burner regardless of the incline or shape of the particular coil being formed.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a side view of the improved tube bending device.

Fig. 2 is an end view thereof taken on the line 2—2, Fig. 1.

Fig. 3 is a detail perspective view of a typical coil as formed by the tube bending device.

Fig. 4 is a detail view of an alternate form of mandrel for use with the device.

The improved tube bending device comprises a vertical standard 10 having a bifurcated upper extremity 11, through the legs of which, two aligned pivot screws 12 are threaded. The points of these screws rest in receiving depressions in the opposite sides of a nut member 13. A threaded shaft 14 is threaded through the nut member

13 and terminates at one extremity in a hand crank 15 or other rotation imparting device.

At the other extremity, the shaft 14 is threaded, as shown at 16 to receive an attachment collar 17 of a forming mandrel 18. The mandrel 18 is formed with a contour to correspond with the desired contour of the coil to be formed. It may be a conical mandrel of any desired incline or may be a cylindrical mandrel as illustrated at 19 in Fig. 4.

The mandrel is formed with a continuous, spirally-extending, coil-receiving groove 20. The shaft 14 is formed with a spiral thread groove 21. The pitch of the thread groove 21 corresponds with the pitch of the receiving groove 20.

The standard 10 supports the mandrel over any suitable heating burner 22 preferably of a type to produce the usual ribbon burner flame.

In use, the crank is rotated to bring the first turn of the groove 20 over the burner 22 and the heated glass tube is started around the first turn of the groove 20. It is preferred in a conical coil, to start the first turn at the small end of the mandrel which acts to lock the coil to the end of the mandrel since it can not climb up the incline thereof.

The mandrel is then rotated and inclined to maintain the tube over the heating flame and wrap it into the groove 20. Since the thread grooves 21 are of the same pitch as the grooves 20, the forming portion of the coil will be maintained over the burner 22 during the entire operation.

The operator can tilt the shaft 13 to position the mandrel and tube at the proper height above the burner at all times during the winding operation. This tilting action, of the shaft 14 is very important upon conical coils, especially upon coils that are wound almost flat.

By tightening the screws 12 sufficient friction may be placed upon the nut to support the mandrel and tube until manually adjusted.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

A machine for forming tapered spirals from glass tubing comprising: a standard having a bifurcated upper extremity; pivot bolts extending oppositely inward into the furcation of said

extremity; a nut member pivotally mounted between said bolts, said nut member having a threaded passage extending therethrough at right angles to said bolts; a threaded shaft threaded through said passage so as to project from both sides thereof and supported solely by said nut; a crank on one extremity of said shaft; a ta-

pered mandrel axially supported on the other extremity of said shaft; and a spiral tubing-receiving groove in the surface of said mandrel, the spiral of said groove corresponding in pitch to the pitch of the threads on said shaft. 5

DAVID F. SAWYER.