July 17, 1923. 1,462,101

E. G. COLSON

TOOL

Filed Jan. 19, 1921

Fig.3.

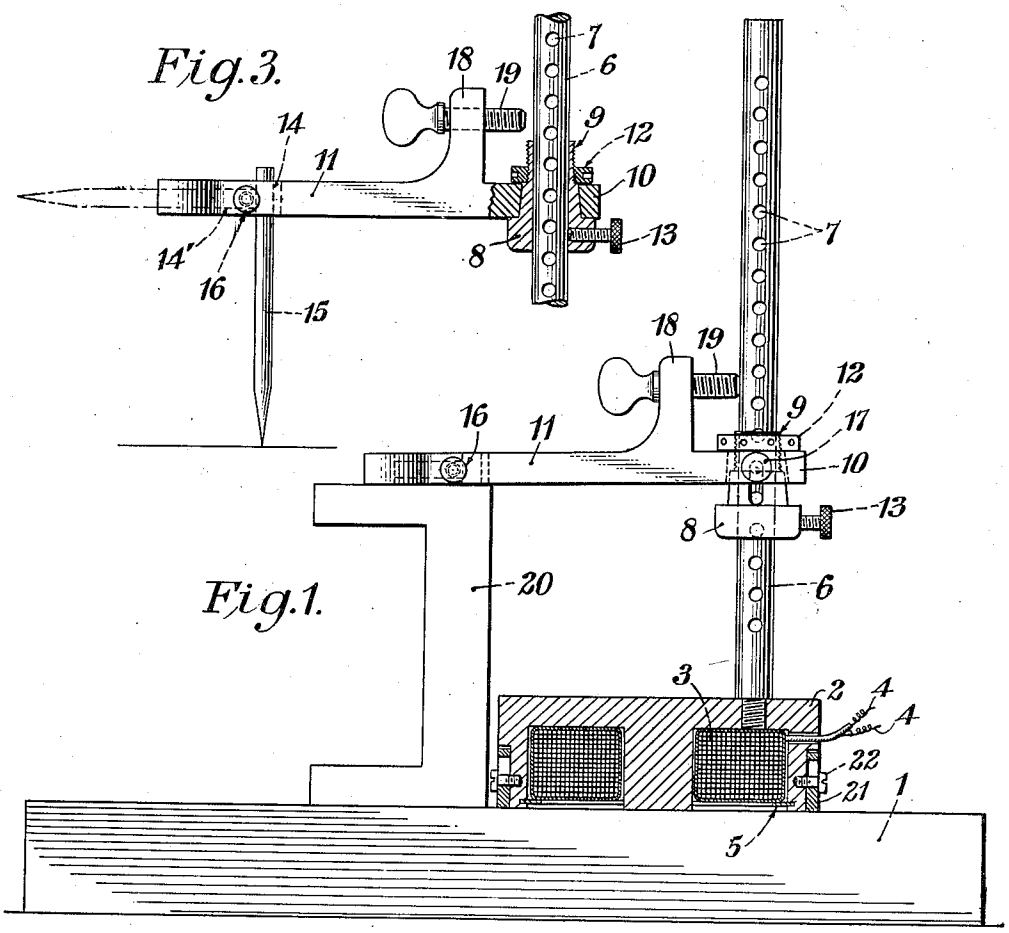


Fig.1.

Fig.2.

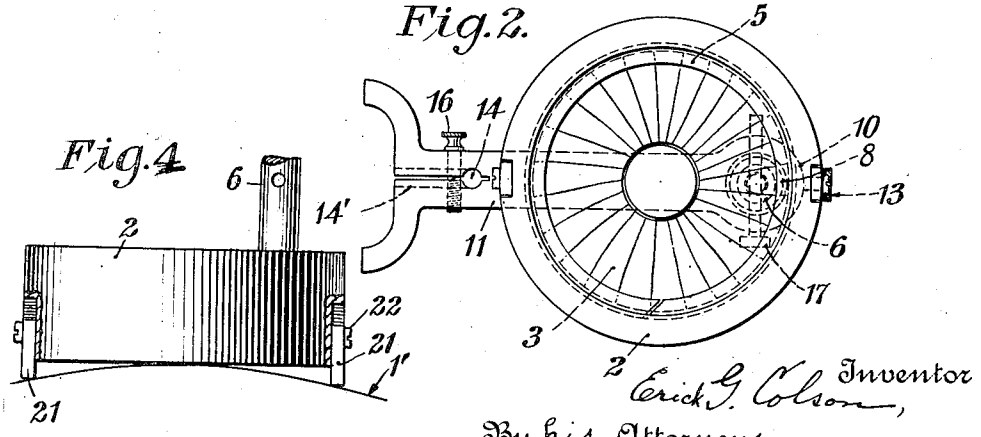


Fig.4

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By his Attorneys

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UNITED STATES PATENT OFFICE.

ERICK G. COLSON, OF GLEN MORRIS, NEW YORK.

TOOL.

Application filed January 19, 1921. Serial No. 438,494.

To all whom it may concern:

Be it known that I, ERICK G. COLSON, a citizen of the United States, residing at Glen Morris, in the county of Queens, State of New York, have invented certain new and useful Improvements in Tools; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to tools and more particularly to a tool adapted to be used on the surface of a metal which is adapted to possess magnetic properties.

It is frequently desirable to clamp a piece of work, a gauge or other device, to a surface plate or other flat surface, or even to a curved surface, of a magnetizable material. It is sometimes desirable to have a scribing device or other tool firmly held in place upon a surface plate or other surface. In such cases, it is usually impossible to clamp the tool or member to the surface plate by mechanical means. My invention has therefore, for its object, the provision of a tool which will be held firmly in place upon a surface plate or other magnetizable surface without the use of mechanical clamps.

In accordance with the invention I provide an electromagnetic member which when energized will be held firmly to the magnetizable surface, and which has associated therewith a post or other part which will permit a piece to be clamped to the surface or will permit the electromagnetic member to be utilized for other purposes such as for scribing.

The particular nature of the invention as well as other objects and advantages thereof will appear more clearly from a description of a preferred embodiment as shown in the accompanying drawings in which—

Fig. 1 is an elevation partly in section of the tool, showing the manner in which it may be used to clamp a piece upon a flat surface,

Fig. 2 is a top plan view of the tool,

Fig. 3 shows the manner in which the tool may be used for scribing or other purposes, and

Fig. 4 is a fragmentary view showing the base of the tool applied to a curved surface.

In Fig. 1 the tool is shown as applied to a member 1 having a flat surface, such as a surface plate of the usual type used in machine shops and like places, although it is not necessary that this member be a surface plate, but it should be subject to magnetic properties.

The tool comprises a base 2 of magnetizable material such as iron or steel, which is provided with an annular cavity adapted to receive an electromagnet coil 3 having leads 4 by means of which it may be connected to any source of electric supply, such as an ordinary lamp socket. The coil 3 is held within the base by a split ring 5 which fits into a groove in the outer periphery of the annular cavity.

Mounted upon the base 2 is a post 6 which may be utilized for different purposes and in the construction shown is provided with a series of holes 7. Mounted upon the post 6 is a slidable member 8 which has its intermediate part slightly cone shaped and the upper part of less diameter and threaded as at 9. Surrounding the cone shaped surface of the intermediate part is a hub 10 carrying an arm 11. This hub is held in position by a nut 12 which is threaded upon the upper portion 9 of the slidable member 8. This member 8 also carries a set screw 13 which is adapted to engage the post 6 to hold the member rigidly in place. The arm 11 is preferably bifurcated at its other end and is provided with a transverse circular hole 14 and a longitudinal socket 14′, each of which is adapted to receive a scriber or other form of tool 15, as shown in Fig. 3, the scriber being held in position by a screw 16 which draws the bifurcated end portions of the arm 11 together to clamp the scriber firmly in place. The hub 10 is provided with diametrically opposite apertures through which may be inserted a pin 17 which also passes through one of the holes 7 in the post 6 and through slots extending downwardly below the top of member 8 on opposite sides thereof.

The arm 11 is provided with an off-set part 18 through which is threaded a thumb screw 19 adapted to press against the post 6.

When the tool is to be used for clamping a piece 20, as shown in Fig. 1, the nut 12 is screwed upward from the position shown in Fig. 3 and the set screw 13 is also loosened

so that the member 8 may drop to the position shown in the former figure. The pin 17 which passes through the hub 10 and one of the holes 7 then serves as a fulcrum for the arm 11 so that when the thumb screw 19 is pressed against the post 6, the arm will serve to clamp the piece 20 firmly to the surface plate 1. This piece may be a piece which it is desired to hold in position upon the plate 1 during inspection or for other purposes, or it may be a gauge or other measuring device.

When the tool is to be utilized as a scriber for making circles or for other purposes, the nut 12 is screwed down to bring the cone shaped surfaces of the hub 10 and the slidable member 8 into engagement as shown in Fig. 3. The set screw 13 is then utilized to clamp the slidable member 8 to the post 6 and the pin 17 is withdrawn. The thumb screw 19 is loosened so that it does not press against the post 6. When the parts are in the position shown in Fig. 3 the scriber 15 may be utilized to draw a circle upon the plate 1, but by inserting it in the socket as indicated by broken lines in this figure, it may be used for marking the inner surface of a member which partly or wholly surrounds the post.

While the tool has been shown and described in connection with a flat surface to which the base is attached, it is equally adapted for use with curved surfaces, such as shown at 1′ in Fig. 4. In order that the base 2 of the tool may be held upon such a surface without rocking, it is provided at diametrically opposite points with lugs 21, preferably set within recesses in its periphery, and adapted to be clamped in any desired position by means of set screws 22, the lugs being slotted, as shown in Fig. 1, to permit adjustment. In using the tool upon a curved surface the lugs 21 should be set so that they will engage the surface when the central portion of the base is also in engagement therewith in order that the magnetic circuit may be established through the lugs to hold the base firmly upon the surface.

The above instances are but a few of the many uses to which the tool may be put, and it will also be understood that various changes in the details of construction may be made without departing from the principle of the invention as defined in the appended claims:

I claim:

1. A tool adapted for use on magnetizable surfaces, comprising a base, an electromagnetic coil associated with the base, and adapted when energized to hold the base in engagement with a magnetizable surface, and a tool support carried upon the base and movable independently thereof with definite guidance with relation to work.

2. A tool adapted for use on magnetizable surfaces, comprising a base, an electromagnetic coil associated with the base, and adapted when energized to hold the base in engagement with a magnetizable surface, and a tool support carried on the base, said tool support comprising a post, an arm slidably mounted on the post, means to variously relate said arm to said post in different work-affecting positions, and means coacting with the arm for clamping a piece of work to the magnetizable surface.

3. In a tool of the character described, a base of magnetizable material, an electromagnetic coil associated with the base, and adapted when energized to clamp the base to magnetizable surface, a tool support adjustable to a variety of definite working positions, and means combined with said base and carrying said tool support.

4. In a tool of the character described, a base of magnetizable material, an electromagnetic coil associated with the base, and adapted when energized to clamp the base to a magnetizable surface, a post attached to the base, a member slidably mounted on the post, means for clamping the member on the post, an arm movably mounted on the member, and means for holding the arm upon the post independently of the member.

5. In a tool of the character described, a base of magnetizable material, an electromagnetic coil associated with the base, and adapted when energized to clamp the base to a magnetizable surface, a post attached to the base and provided with a plurality of transverse apertures, a member slidably mounted on the post, an arm provided with a part adapted to cooperate with a corresponding part of the member, means for holding the member in any desired position upon the post, means for holding the arm upon the member with the parts in operative relation to permit the arm to be rotated on the member, but adapted to release the member from operative relation to the arm, means associated with the arm and adapted to be passed through one of the apertures in the post for holding the arm thereon independently of the member, and means associated with the arm for clamping an object between it and the surface upon which the tool is placed.

In testimony whereof I affix my signature.

ERIC G. COLSON.