

J. C. McLAUGHLIN.
SOLDERING CLAMP.
APPLICATION FILED JAN. 12, 1911.

1,063,816.

Patented June 3, 1913.

Fig. 1.

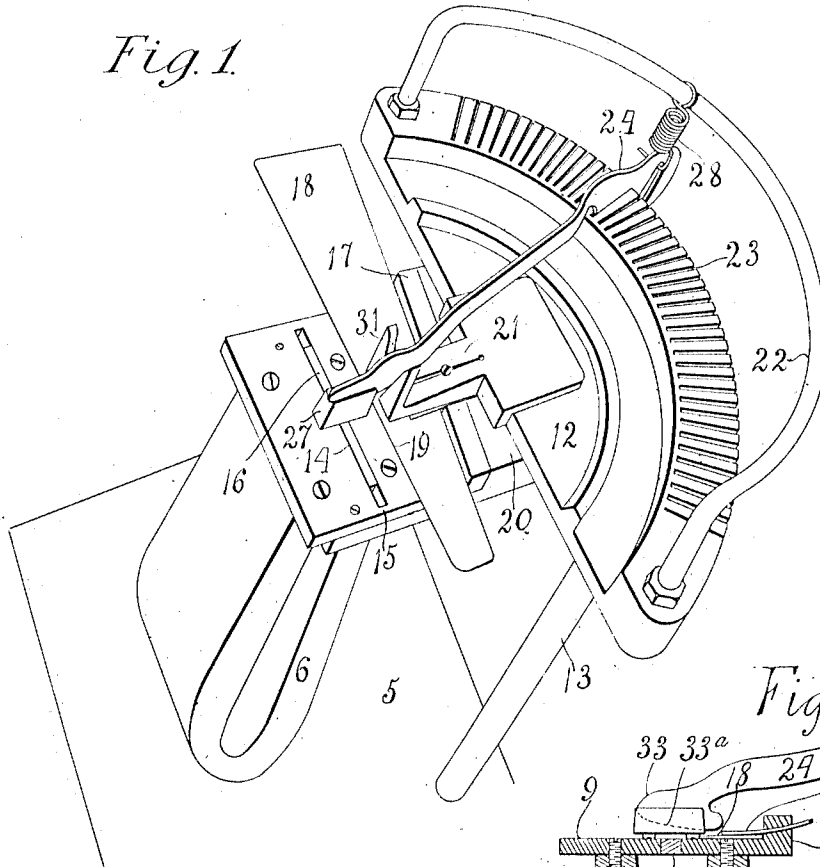


Fig. 3.

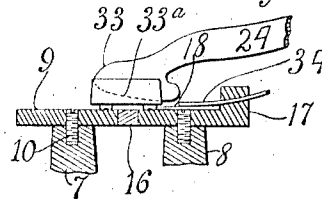


Fig. 2.

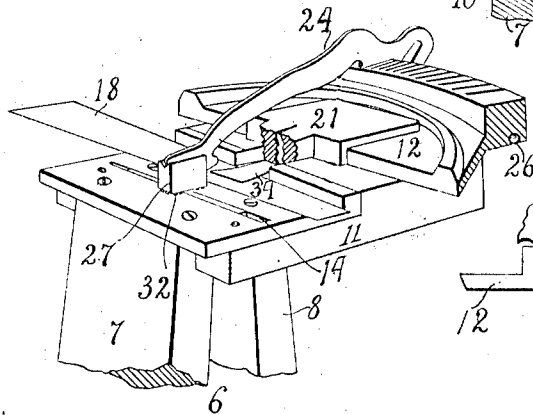
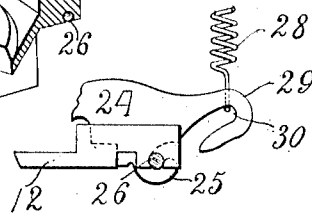


Fig. 4.



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SOLDERING-CLAMP.

1,063,816.

Specification of Letters Patent.

Patented June 3, 1913.

Application filed January 12, 1911. Serial No. 602,162.

To all whom it may concern:

Be it known that I, JOHN C. McLAUGHLIN, a citizen of the United States, residing in Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Soldering-Clamps, of which the following is a specification.

This invention relates to a soldering gage for facilitating the soldering of the type of typewriting machines to the type bars; the device facilitates the application of the solder, and insures a proper alinement of the type, so that the letters of the written page will be in line. It also operates as a surface gage, so that the face of the type will strike the paper squarely.

The object of the invention is to provide simple and effective means for supporting the type with its face in the proper plane when it is being attached to the type bar, alining the type, and holding the type in the position in which it has been alined, until it has been secured by the solder.

I have illustrated the gage as used for securing the type to the type bars of an Underwood typewriter.

In the accompanying drawings, Figure 1 is a perspective showing my device as viewed from an elevated position, showing a type-bar mounted for soldering, with the type soldered thereto. Fig. 2 is also a perspective of the parts near the point where the type is supported, certain parts being broken away, and shown in cross section to illustrate more particularly the construction and operation of the alining means. Fig. 3 is a vertical transverse section taken through the device at the point where the type is supported and secured to the type bar, and this view further illustrates the means for insuring that all the types will have the same alinement. Fig. 4 is a vertical section taken through a segment of the form used in the well known Underwood typewriter, and illustrating means for holding a type-bar temporarily in position to receive the type.

As illustrated in the accompanying drawings, my device comprises a base plate or table 5, upon which there is supported in any suitable manner a common horse shoe magnet 6 in an inverted position, having poles 7 and 8, to the upper ends of which a surface plate 9 may be secured by suitable

studs or screws 10. The side edges of this plate project or overhang the edges of the poles 7 and 8, and at these points, to the plate 9, there is attached a gage block 11. This gage block is adapted to support a segment 12, laid flat upon it in the manner illustrated to facilitate the mounting of the type bars and the soldering operation. The base plate 5 may be provided with a suitable post 13, as shown, to assist in supporting the segment.

The surface plate 9 is formed with a transverse gap or slot 14, producing two sections or divisions of the plate, and this slot extends nearly across the plate. Small bonds or connecting bars 15 are left at the ends of the slot which connect the divisions of the plate. Extending nearly throughout the entire length of the gap 14, there is provided a filler or plug strip 16, which is composed of aluminum or some other non-magnetic metal or material. Aluminum is preferable because the solder ordinarily used will not adhere to it. The upper face of this filler is flush with the upper face of the surface plate.

At the rear edge of the surface plate 9, is formed a transversely disposed shoulder or rib 17, which inclines longitudinally toward the slot. Resting against this shoulder on the upper face of the surface plate, there lies a gage plate 18 of very thin material. The edge of this gage plate which lies against the shoulder 17, is inclined to correspond with the inclination of the shoulder 17, so that the outer or forward edge 19 of the gage plate extends across the surface plate parallel with the aforesaid gap 14.

The rear portion of the block 11 is increased in thickness, so that this portion of the block presents an elevated rest 20, the upper face of which is flush with the upper face of the aforesaid shoulder 17. In using the device, the segment 12, which is to receive the type bars, is laid flat upon the rest 20 in a horizontal position with its type-bar guide 21 projecting over the edge of the shoulder 17, and at the middle of the slot 14. Suitable marks or other means may be employed if desired for insuring proper alinement of the segment with respect to the gage-plate and gap. The segment is temporarily provided with a curved guide bar 22 which extends around over the radial type-bar slots 23 in the edge of the segment.

In Fig. 1, I illustrate a type bar 24 set in position for securing the type 27 thereto. As shown in Fig. 4, this type bar is formed with the usual hook 25, which engages the arcuate pivot rod 26, which passes through the segment near the curved edge thereof. The slots 23 and the type bars are numbered correspondingly; in mounting the type bars they are applied one by one, each in its correspondingly numbered slot 23 and hooked into the pivot rod 26 in the usual manner. In order to hold the type bar in position for soldering the type 27 to it, a small coiled spring 28 is suspended from the bar 22 and detachably connected to the open slot 30 formed at the end 29 of the type bar. As shown in Fig. 4, the tension of this spring tends to rotate the type bar in the same direction that it would be rotated when striking in the typewriter, and it holds the free end of the type bar in the notch 31 of the type bar guide 21, that is, in such a way that the end of the type bar projects across the gap 14, and above the surface plate 9.

The type 27 is provided on its under face with type characters 32, which rest directly upon the surface plate 9, as indicated in Fig. 3. The upper side or back of the type is provided with a longitudinal notch 33 in the usual manner, in which the head 33 of the type bar is received as indicated in Fig. 3.

The magnet 6 induces magnetism in the surface plate 9, and the magnetic attraction holds the type standing or in an upright position on the surface plate, and overcomes any tendency of the type to move or to tip over to one side when touched. This insures a proper surface alinement of the type as will presently appear. In order to aline the type uniformly, the gage plate 18 is adjusted to such a point that when the type is forced back with the lower case character against the edge of the gage plate, the type will be in proper position to strike the platen fairly in action. With the type in this position, it should be soldered to the type bar by applying solder in the notch 33 in the usual manner.

After one type has been alined by the gage plate 18 and secured to its proper type bar, by the solder, the gage plate 18 should be left in the same position, and the remaining types should be held against it successively in the same manner as that described. In doing this, of course, the type bars which have been soldered, should be thrown back out of the way, so as to leave the type bar guide unobstructed. The segment should be held fixed until all the type bars are attached to it and soldered. This insures uniform alinement.

In order to hold the gage plate 18 in position, I may provide the shoulder 17 with a

small flat spring 34, which presses the gage plate against the surface plate as illustrated most clearly in Fig. 3. By nearly dividing the surface plate 9 in two, I greatly increase the efficiency of the magnet 6, for the poles 7 and 8 induce magnetic poles on the two sides of the slot. The slot compels the lines of force to spread through the adjoining air, and as the type extends from one of these poles to the other, the lines of force will pass through the type and tend to draw it down against these poles.

The purpose of the filler or plug 16 is to prevent any possibility of the type falling into the slot, and also to provide a continuous flush supporting surface for the type, enabling the type to be slid readily on the plate.

The surface plate should be made of tool steel, hardened to produce a wearing surface. In hardening the plate, when the proper color is drawn, the plate should be cooled suddenly, and the color left on the plate. When treated in this manner, the surface plate will not favor the adhesion of any solder which may be spilled accidentally upon it during soldering operations. Special attention is called to the curved guide bar 22 which enables the spring to be slipped from one position to another, so as to be attached to the particular type bar which is being soldered.

When the segment is in position on the rest 20, and the type bar in place in the type bar guide, the face of the surface plate 9 occupies the same position in respect to the segment that the forward face of the platen does when the segment is secured in the machine.

As suggested above, the guide bar 22 is only temporarily mounted on the segment so that after all of the type bars have been attached to the segment and soldered, the segment may then be removed and assembled in the typewriter. This makes it unnecessary to detach the type bars after the type have been soldered to them. If desired, however, the segment may be made a part of the device, and this adapts the device particularly for resoldering any individual type bar when removed from a machine.

By employing the gapped surface plate with a bipolar magnet I increase the efficiency of the magnet to such an extent that a relatively weak permanent horse-shoe magnet can do this work instead of an electro-magnet. In this way I obviate the necessity of using an electric circuit with switches and other accessories.

The idea might suggest itself that the surface plate 9 could be made more economically in two distinct pieces separated by the gap; but it is really more advantageous to form it in one piece, for the reason that the entire face of the plate is sure to be in one

plane. If the plate were in two distinct parts, the parts might be in different planes and make the plate untrue as a surface gage.

Variations in the construction and arrangement of the parts may be made within the scope of the invention.

Having thus described my invention, I claim:

1. In a soldering gage, the combination of a permanent magnet having two adjacent poles adapted to support the type in an upright position, and means for supporting a type bar adjacent to the poles of said magnet and extending transversely with respect to the same.

2. In a soldering gage, the combination of a magnet presenting two poles, a surface plate of magnetic material divided between said poles and adjacent thereto for supporting a type when being soldered, and means for supporting a type bar in a transverse position with respect to said surface-plate, and with its head adjacent to said surface plate.

3. A soldering gage comprising the combination of a magnet presenting two poles, a surface plate disposed over said poles and having a gap dividing said plate between said poles, said surface plate being inductively magnetized by said magnet and adapted to support the type in an upright position resting on the type-face, and a gage plate coöperating with said surface plate to aline the type in soldering the same to the said type bar.

4. A soldering gage comprising a magnet with two adjacent poles, a surface plate mounted over said poles and having a transverse gap disposed between said poles and substantially dividing said plate into sections corresponding to the poles of said magnet, and means for supporting a type bar with its head projecting across said slot and adjacent to said surface plate.

5. A soldering gage comprising a magnet with adjacent poles, a surface plate disposed adjacent to the poles of said magnet for supporting a type, a gage plate having an edge adapted to engage the type to aline the same, and means for supporting a type bar with its head projecting over said surface plate and adjacent thereto.

6. A soldering gage comprising a magnet, a surface plate disposed adjacent to the poles of said magnet, for supporting the type, a gage plate mounted on said surface plate sliding thereupon and having an edge adapted to engage the type character on the lower face of said type to aline the same, means for supporting a type bar with its head projecting over said surface plate and adjacent thereto, and means for holding said gage plate in adjusted positions.

7. A soldering gage comprising a magnet, a surface plate forming a support for type

and disposed adjacent to the poles of said magnet, said surface plate having a dividing line between the poles of said magnet, guiding means inclined with respect to said dividing line, and a gage moving on said guiding means, resting on said surface plate and adapted to aline the type over said dividing line.

8. A soldering gage comprising a magnet, a surface plate disposed adjacent to the poles of said magnet, a rest arranged to support a segment so that a type bar carried thereby may project over said surface plate, and alining means for the type coöperating with said surface plate.

9. A soldering gage comprising a segment having means for supporting a plurality of type bars, a type bar guide, detachable means for holding the type bars successively extended so as to project through said type-bar guide, and means for supporting the type adjacent to said type-bar guide and a magnet for holding said type in place.

10. A soldering gage comprising a segment having means for supporting a plurality of type-bars, a guide bar in connection with said segment, a spring sliding on said guide-bar adapted to be attached to the type-bars in succession to extend said type bars into their striking position, and a surface-plate near the location of the ends of said type-bars when extended.

11. In a device of the class described, means for positively holding a part to be soldered, a permanent magnet having two adjacent poles, in combination with a unitary surface-plate of magnetic material disposed over said poles and having a transverse gap between said poles.

12. In a device of the class described, means for positively holding a part to be soldered, a magnet having two adjacent poles, a unitary surface plate of magnetic material having a transverse gap therein between said poles, and a filler of non-magnetic material in said gap adjacent to said poles, the upper face of said filler being flush with the upper face of said plate.

13. A soldering gage comprising a magnet, a magnetic guide surface indifferent to solder arranged over the poles thereof, and means for positively holding a part to be soldered in proper relation to a part magnetically held on the magnetic guide surface.

14. A soldering gage comprising means for positively holding a part to be soldered, a magnet having two adjacent poles, a magnetic alining surface magnetized by said poles, a gap in said surface creating poles on opposite sides of the gap, and a non-magnetic filler in said gap making said surface plate a continuous alining surface.

15. A soldering gage comprising a magnet having two adjacent poles, a magnetic alining surface magnetized by said poles, a

gap in said surface creating poles on opposite sides of the gap, a non-magnetic filler in said gap making said surface plate a continuous alining surface, and a gage plate on
 5 said surface, both said magnetic and non-magnetic alining surfaces being indifferent to solder.

16. A soldering gage comprising a type holder, a type bar support, a type bar guide,
 10 and a spring holding a type bar in said guide against a type on said holder.

17. A soldering gage comprising means for holding a part of a typewriter forming the support for type bars, an alining plate
 15 to hold a type, an abutment on said alining plate and a wedge shaped gage plate movable along said abutment to form a guide for said type on said alining plate.

18. A soldering gage comprising a magnetic
 20 net, a magnetic surface indifferent to solder between the poles of said magnet, and to

hold a part in place so that it may slide on said surface, and a mechanical holding means for another part holding it positively
 25 locked to be soldered to said first part.

19. In a soldering gage, the combination with a magnet, of a magnetic surface on which a part to be soldered may be set and held by said magnet, a gage on said plate and a coating on said surface indifferent to
 30 solder.

20. In a soldering gage, the combination with a magnet, of a magnetic plate comprising a slot between the poles of the magnet, a non magnetic substance filling said
 35 slot, and a metallic surface on both said plate and said substance which is indifferent to solder, and a gage.

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Witnesses:

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