Nov. 1, 1932. O. BRISBOIS 1,886,257

TYPE BAR SOLDERING MACHINE

Original Filed May 15, 1929 2 Sheets-Sheet 1

Fig. 1.

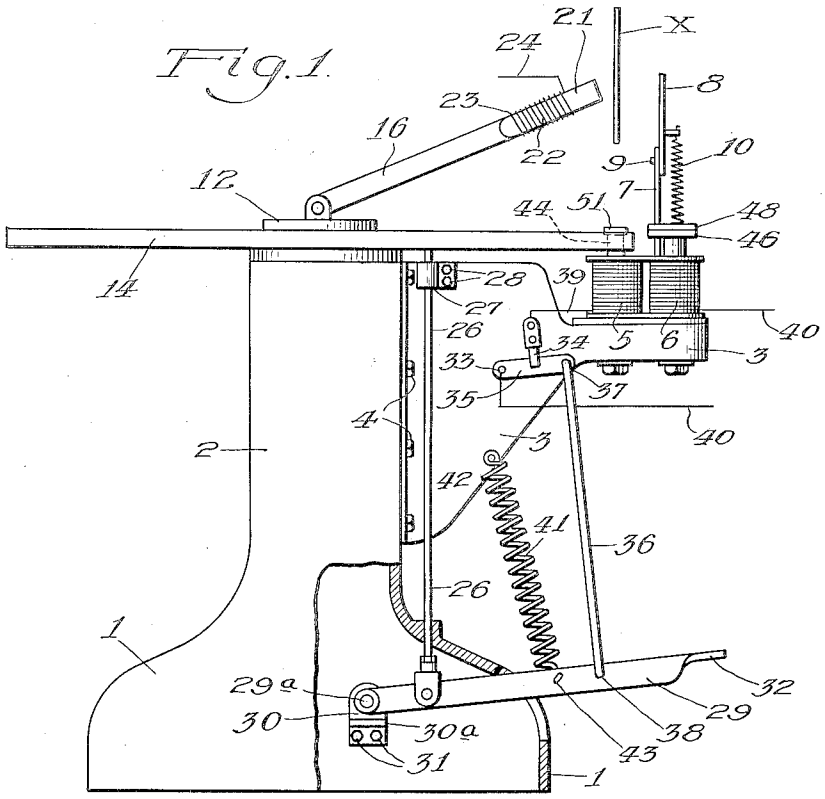
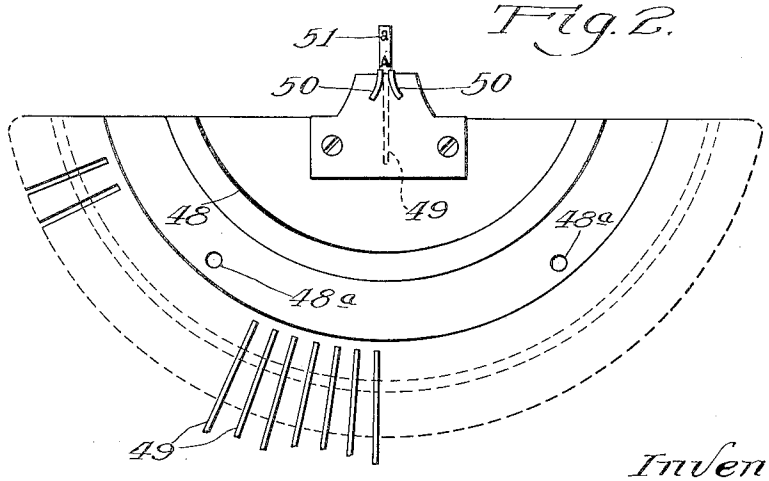


Fig. 2.



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Fig. 3.

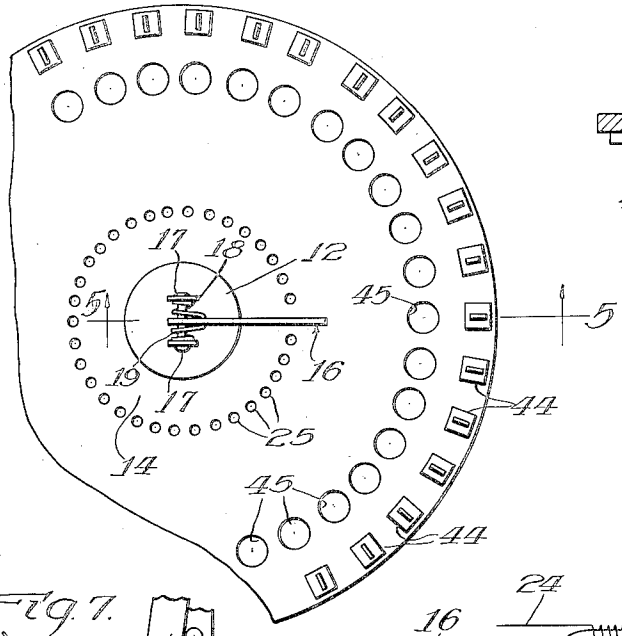


Fig. 4

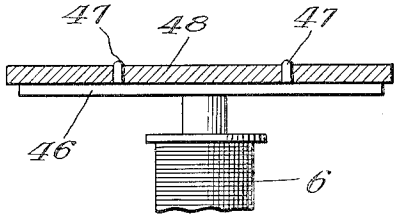


Fig. 6.

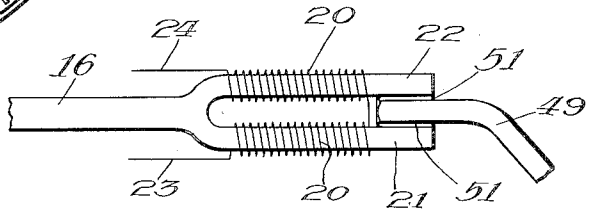


Fig. 7.

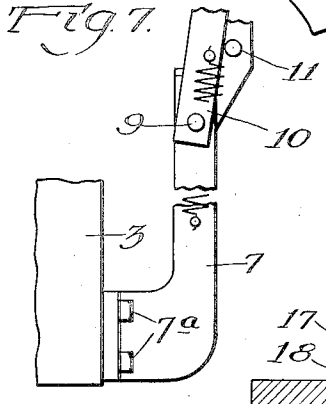
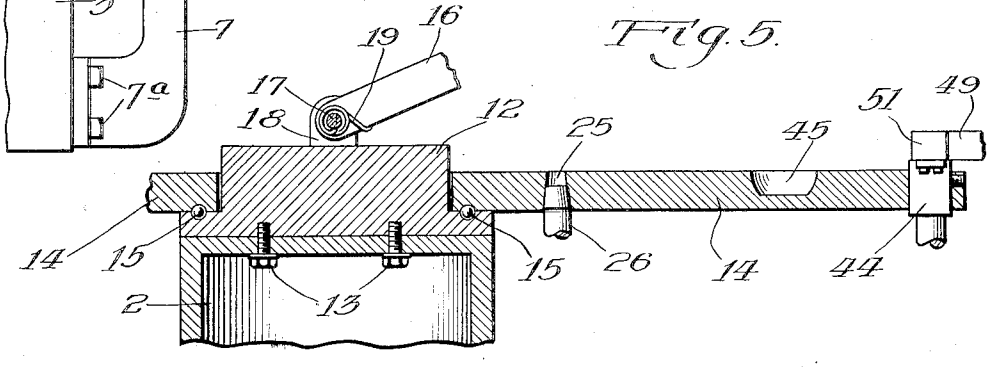


Fig. 5.



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UNITED STATES PATENT OFFICE

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TYPE BAR SOLDERING MACHINE

Continuation of application Serial No. 363,367, filed May 15, 1929. This application filed November 30, 1931. Serial No. 577,982.

This invention relates to means whereby type characters may be secured on bars in such manner that no adjustment of said bars or type relative to the platen upon which the type is forced, is required, in the operation of the type writer, billing machine, or other construction of which said type and bars form elements.

Among the objects of the invention is to obtain mechanism by means of which a predetermined relative position of the type characters and the type bars of a type writer, billing machine, or the like, can be obtained, and said characters and bars rigidly joined in said determined relative position. An additional object is to obtain mechanism whereby type characters and corresponding type bars can be readily assembled in proper relative position and the rigid joining thereof be rapidly effected. An additional object is to obtain mechanism whereby type characters and corresponding type bars can be assembled and rigidly joined in such manner as to obviate any adjustment to align said characters relative to a platen, after the plate on which bars are mounted is secured in place on a type writer, billing machine, etc. An additional object is to obtain mechanism of the kind and for the purpose set forth which is simple in construction, durable, not liable to become broken or to get out of order, and which is easily operated by a person of moderate skill in the art.

In the drawings referred to Fig. 1 is a side elevation of a construction embodying the invention. Fig. 2 is a top plan view of a plate on which type bars are mounted, showing several of said type bars pivoted thereon. Fig. 3 is a top plan view of a portion of a rotatably mounted disk or table and associated parts. Fig. 4 is a side elevation of the upper end of an electric magnet and a vertical section of a portion of the plate on which type bars are pivotally mounted, on said table. Fig. 5 is a vertical section of the upper end of the base of the construction which is illustrated in Fig. 1, and of the disk or table which is rotatively mounted thereon, showing a type matrix on said disk or table, a type character on said matrix and one end of a type bar in suitable relation to said character. Fig. 6 is a top plan view of one end of a type bar, a type character in proper relation thereto, and a soldering member forming an element of the construction which is illustrated in Figs. 1 and 3, said soldering member in contact with the parallel sides of said type character, and Fig. 7 is a side elevation of a portion of mechanical members which may be employed to maintain a type bar and a type character in proper relative position while being joined, as by solder.

This application is a continuation of my application Serial No. 363,367 filed May 15, 1929.

A reference character applied to designate a given part indicates said part throughout the several figures of the drawings wherever the same appears.

1 represents a base which is illustrated as a hollow cast iron member integral with the hollow cylindrical element 2. 3 represents an arm member which is rigidly secured to member 2, as by bolts or cap screws 4. The arm member 3 forms a base or support for the electro magnets 5, 6, and for the supporting member 7 which is illustrated as secured thereto by the bolts or cap screws 7*a*, in Fig. 7. 8 represents an arm or lever which is pivotally mounted, as by pin or bolt 9, on supporting member 7. 10 represents a spring which yieldingly holds arm 8 against stop 11, when said arm is not in use, and which yieldingly holds said arm on to a type bar when said arm is used as hereinafter described. 12, Figs. 1 and 5, represents a base or head which is rigidly mounted on the upper end of cylindrical member 2, as by bolts or cap screws 13. 14 represents a disk or table which is rotatably mounted on head 12, as by ball bearing 15. 16 represents an arm which is movably mounted, as by pin or pivot 17, between projections 18, (Figs. 3, and 5), on head 12; and 19 represents a spring which yieldingly holds arms 16 in substantially the position illustrated in said Fig. 5. The upper and free end of arm 16 is forked, as represented in Fig. 6, and 20 represents resistance coils on said forked ends (21, 22). 23, 24,

represent electric conductors to and from the resistance coils. 25 represents a series of spaced apertures in disk or table 14, and 26 represents a longitudinally movable pin which is insertable in each of said apertures when said disk or table is turned to successively bring said apertures in a predetermined position. The angular position of disk or table 14 is determined by the one of said apertures 25 in which the upper end of pin 26 is inserted. 27 represents a bearing in which the pin 26 is longitudinally movable, said bearing being secured in place on supporting arm member 3, as by cap screws 28. 29 represents a lever which is fulcrumed on pivot 29*a*. 30 represents a base member which is rigidly mounted on bar 30*a*, and said bar 30*a* is secured to base 1, as by bolts or cap screws 31. The fulcrum 29*a* is mounted in base 30. 32 represents a pedal on lever 29. 33, 34, respectively represent electric contact points and 35 a movable bar adapted to electrically connect said contact points or buttons. 36 represents a connection between movable bar 35 and lever 29, said connection being attached as at 37 to said bar 35 and at 38 to said lever 29. 39 represents an electric conductor connecting contact 34 with the coil of electro magnet 5. The wire forming coils 5 and 6 is continuous and 40 represents the incoming and outgoing conductors; one thereof to contact 33, and one from coil 6. 41 represents a spring which is attached, as at 42, to member 3 and, as at 43, to lever 29; said spring yieldingly holding said lever in substantially the position in which it is illustrated in Fig. 1. 44 represents matrices, which are, respectively mounted in spaced relation adjacent to the periphery of disk or table 14. 45 represents depressions in disk or table, 14, which respectively serve as receptacles adjacent to a corresponding matrix to hold type characters. 46 represents a table of magnetizable material, as soft iron, which is rigidly mounted on the core of coil 6. The several matrices 44 also are of magnetizable material, and they extend through disk or table 14 a short distance so that when a given matrix is above the core of coil 5 it is very close and serves as an armature thereto. 47 represents pins secured in table 46. 48, Figs. 2 and 4, represents a plate which is adapted to be attached to a type writer, a billing or other like machine, and 48*a* represents apertures in plate 48, which are positioned to fit over pins 47 when said plate 48 is in proper position on table 46. 49 represents type bars which are, respectively, pivotally mounted on plate 48, in the ordinary manner. 50 represents abutments between which the ends of the tye type bars and a portion of a corresponding type character extend when said type character and bar are about to be joined and soldered in the machine embodying this invention; and between which, also, said end of the bar and said type character extend when the type character is forced to its platen in the operation of the type writer, billing machine or other machine to which the plate 48 is attached. When an electric current is available on the conductors to, through and from the coils 5, 6, and a determined type character is in its matrix, said character is held firmly in place, by magnetism, and at the same time a plate 48 placed on table 46, with pins 47 in apertures 48*a*, is held firmly in place by coil 6, pedal 38 and lever 29 being in substantially the position illustrated in Fig. 1. When said current is not available, either temporarily or permanently, a type character is placed in a corresponding matrix, the type bar turned so that the free end thereof is between the side members of the type character, and the lever or arm 8 is brought forward to rest on the bar, where it is yieldingly held by spring 10; thus holding said bar and character in proper relation while being soldered together. To solder the bar and the character together the arm 16 is brought downward on its fulcrum 17 until the forked ends 21, 22, of the soldering iron are beside and in contact with the side members of the type character 51, as is illustrated in Fig. 6, and the solder, represented as at X, in Fig. 1 is brought down to come in contact with the type bar 49. It is assumed that said forked ends of the soldering iron are properly heated, as by a current through resistance coils 20, or by other means, as say, a gas jet. After said bar and type character are soldered together, as above described, lever 29 is forced downward to release pin 26 from the aperture 25 with which it is in engagement, and at the same time bar 35 is turned out of engagement with contact point 34 and the electric circuit is thereby broken. The disk or table 14 is then turned on ball bearing 15 to bring the next one of the apertures 25 in proper relation with pin 26, a suitable type character is placed in the matrix thereof, a corresponding type bar is turned into proper relation with said type character, and pedal 32 and lever 29 released. The soldering of said type character and bar, as above described, is affected. The operation is repeated until all the type characters to be used on the type writer or other like machine are soldered to corresponding type bars.

When plate 48 is mounted on a type writer, billing or other like machine, the several type bars are turnable around a pivot, or a pivotal axis, to bring the type characters against paper on a platen, to obtain imprints forming a printed line. The spaced and angular relation of each of the type characters to the pivotal axis of its type bar at the time the soldering is effected must be accurately determined to obtain such perfect alignment and such exact spacing between the several

characters forming a word or words on the line that the eye of an observer will not detect a variation in said alignment and spacing. Also, each character must be in a plane at right angles to the line of imprints obtained, or it can be detected and will mar the appearance of said line.

In some type writer, billing and other like machines, an aperture in the type bar adjacent to one end thereof has inserted therein a pin or wire forming the pivot around which said bar is turned in the operation of the machine, and the axial line of said pivot is the pivotal axis of the bar. In other of said machines a rigid member on the frame of the machine, which may be a wire, enters a recess adjacent to one end of the bar and extending inwards from one edge of the bar to a point forming the pivotal axis thereof, and the bar turns around said rigid member. In other machines the type bars are mounted on ball bearings, the balls travelling in substantially vertical planes around the pivotal axis of the bar. The manner of mounting the units obtained by joining the type characters and the type bars in a type writer or other machine forms no part of this invention; the object of this machine being to obtain means whereby each type character required may be joined to a selected type bar in a determined spaced and angular relation to the pivotal axis of the bar, and with the type character so positioned on the type bar that an even spacing is obtained between all adjacent imprints in a line of said imprints.

The foregoing being the object of applicant's invention, each and every type character must be in spaced relation to the pivotal axis of its type bar, and each type character must be at a different angular relation to the pivotal axis of its type bar than each of the remaining characters is to the pivotal axis of its type bar. And further, each type character must be in a given position in the plane in which the face of the character extends, and it must stand on "its feet" in said plane.

The movement of a platen of a type writer or other like machine, when the type characters make imprints at a determined common center, and when said characters are at right angles to the line of movement of said platen, causes succeeding imprints to be at the side of, parallel with and in proper spaced relation to a preceding imprint.

I claim:

1. In a type bar soldering machine, in combination, a base, a disk rotatably mounted on said base, means to determine the angular position of said disk, matrices on said disk, a table in determined spaced relation to said disk, means to hold a plate provided with type bars mounted thereon in determined relation with type characters in said matrices and means to solder a determined type bar and a type character in a determined matrix together.

2. In a type bar soldering machine, in combination, a base, a disk rotatably mounted on said base, means to determine the angular position of said disk, matrices of magnetizable material on said disk, a table in determined spaced relation to said disk, magnetic poles adjacent said disk and said table, and means to solder a determined type bar and a type character in a determined matrix together.

3. In a type bar soldering machine, in combination, a base, a disk rotatably mounted on said base, means to control the angular position of said disk, matrices of magnetizable material on said disk, a table of magnetizable material in determined spaced relation to said disk, magnetic poles adjacent said disk and said table, and means to control the flow of an electric current through the coils of said electromagnets.

4. In a type bar soldering machine, in combination, a base, a disk rotatably mounted on said base, apertures in spaced relation around the axis of said disk and matrices in spaced relation around said axis, a table in determined spaced relation to said disk, a longitudinally movable pin adapted to successively engage with said spaced apertures, means to withdraw said pin from said apertures, means to hold a plate provided with type bars pivotally mounted thereon on said table, and means to solder a determined type bar and a determined type character together.

5. In a type bar soldering machine, a disk, a base, a ball bearing interposed between said disk and said base, means comprising apertures in spaced relation to adjacent ones and to the axis of said disk and a longitudinally movable pin successively engageable with said apertures, to determine the angular position of said disk, in combination with means to control the position of said pin relative to said apertures, matrices on said disk in spaced relation to said apertures, a table in spaced relation to said matrices, means to hold a plate provided with type bars pivotally mounted thereon in a determined relation to type characters in said matrices, and means to solder a type character in a determined matrix to a determined type bar.

6. In a type bar soldering machine, a base, a disk rotatably mounted on a ball bearing interposed between said disk and said base, means comprising apertures in spaced relation to adjacent ones and to the axis of said disk and a longitudinally movable pin successively engageable with said apertures, to determine the angular position of said disk, in combination with means to control the position of said pin relative to said apertures, said apertures extending inward from the under side of said disk, matrices of magnetizable material in spaced relation to

said apertures mounted on said disk, a table in determined spaced relation to said matrices, means to hold a type plate provided with bars pivotally mounted thereon in determined relation to type characters in said matrices, and means to solder a type character in a determined matrix to a determined type bar.

7. In a type bar soldering machine, a disk, a base, a ball bearing interposed between said disk and said base, means comprising apertures extending inward from the under side of said disk and a longitudinally movable pin adapted to successively engage said apertures, to determine the angular position of said disk and means to control the position of said pin relative to said apertures, in combination with matrices of magnetizable material in spaced relation with said apertures and extending through said disk, a table of magnetizable material in spaced relation to said matrices, means to position a plate provided with type bars pivotally mounted thereon in a determined position on said plate, electromagnets positioned in determined relation to said matrices and said table, respectively, and means to control the flow of a current of electricity through the coils of said electro magnets.

8. Matrices of material to form the armature of an electro magnet and means to hold said matrices in a determined position, in combination with a table of material to form the armature of an electro magnet, means to hold a plate provided with type bars pivotally mounted thereon in a determined position on said table in spaced relation to said matrices, magnetic poles adjacent said matrices and said table, and means to solder a determined type character placed in its matrix to a determined type bar.

9. In apparatus of the kind described, a rotatably mounted disk, means for holding said disk in a determined position, matrices on said disk equally spaced from each other and the axis of rotation of said disk, said matrices being provided with depressions adapted to hold type characters loosely on the upper face of said disk, means for bringing a determined type bar into determined relation to a character in a determined matrix, and means for soldering said character to said bar.

10. A rotatably mounted disk, a plurality of type matrices of magnetizable material rigidly mounted on said disk in spaced relation to each other and to the pivotal axis of said disk, said matrices respectively extending through said disk, controlled means to determine the angular position of said disk, in combination with a table of magnetizable material, means to mount a plate provided with a plurality of type bars pivotally mounted thereon in spaced relation to said disk, and controlled electro magnets disposed to hold said plate in said position, respectively, and means to join determined type bar to said type character in said matrix.

11. In apparatus of the kind described, means for supporting movably mounted type bars, means for supporting a type character, and electro-magnetic means for creating a magnetic field passing through substantially the entire length of said type bar and through said character to hold them in positions wherein they may be soldered to each other.

12. In apparatus of the kind described, a rotatably mounted disk, a plurality of matrices carried by the disk and equidistantly spaced from each other and from the axis of rotation of the disk, a table of magnetic material for supporting a plate carrying pivotally mounted type bars, said type bars being adapted to be brought into registry with said matrices and said matrices being adapted to hold type characters, and an electro-magnetizing structure having one of its poles adapted to register with said matrices and having the other of its poles disposed adjacent said table, said electro-magnetizing structure being adapted to hold said type bars in soldering position with respect to said type characters.

13. In apparatus of the kind described a matrix for supporting a type character with its face downwards, said matrix being adapted to prevent lateral displacement of said type character, means for supporting a pivoted type bar, and electro magnetic means for forming a magnetic circuit through said type character and through the entire length of said type bar to retain one end of the type bar in a position wherein it may be soldered to said type character.

14. In apparatus of the kind described, a disc mounted for rotation around a vertical axis, a plurality of matrices of magnetic material adapted to hold type characters, said matrices being engageable with the faces of said type characters and being adapted to prevent lateral displacement of said type characters, means for supporting a bracket having a plurality of type bars pivoted thereto, the disc being adapted to bring said matrices into registery with the means for supporting said type bars whereby a type bar may be swung into a position where it may be soldered to a type character supported by one of said matrices, and magnetic means for forming a magnetic circuit through said matrix, said type character and through the entire length of said type bar to hold said type bar in the position wherein it may be soldered to said type character.

15. In apparatus of the kind described, a matrix for supporting a type character with its face downwards, said matrix being adapted to prevent lateral displacement of said type character, means for supporting a

type bar in a position wherein one end of it is in a position wherein it may be soldered to a type character supported by said matrix and magnetic means for forming a magnetic circuit through said type character and through the entire length of said type bar to retain said type bar in the position it may be soldered to said type character.

16. In a machine, means for moving a plurality of matrices, successively, to a common point with a corresponding type character in the matrix brought to said common point, means for holding pivotally mounted type bars in positions wherein the free ends thereof are movable, successively, to said common point, means to produce a magnetic field through the length of said type bar and through said type character to hold them in close proximity to each other, and means to apply heat to said bar and said type character to solder them to each other.

In witness whereof I have hereunto set my hand this 27th day of November, 1931.

ODILON BRISBOIS.