Feb. 3, 1931. J. E. FERGUSON 1,791,303

BASE BRANDING MACHINE

Filed Sept. 27, 1926 2 Sheets-Sheet 1

FIG. 1.

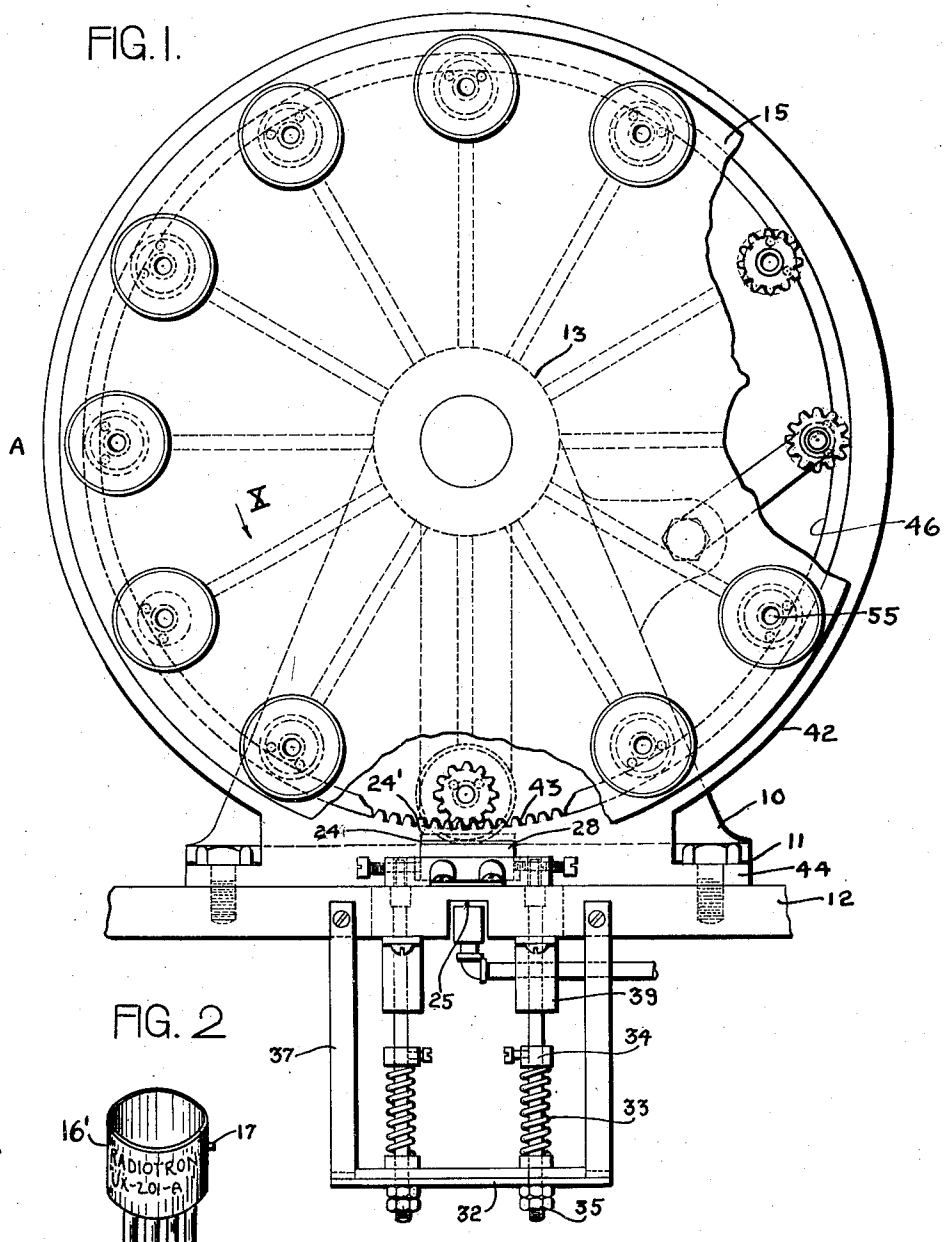


FIG. 2

INVENTOR
John E. Ferguson.
BY
ATTORNEY

Feb. 3, 1931. J. E. FERGUSON 1,791,303

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FIG. 3

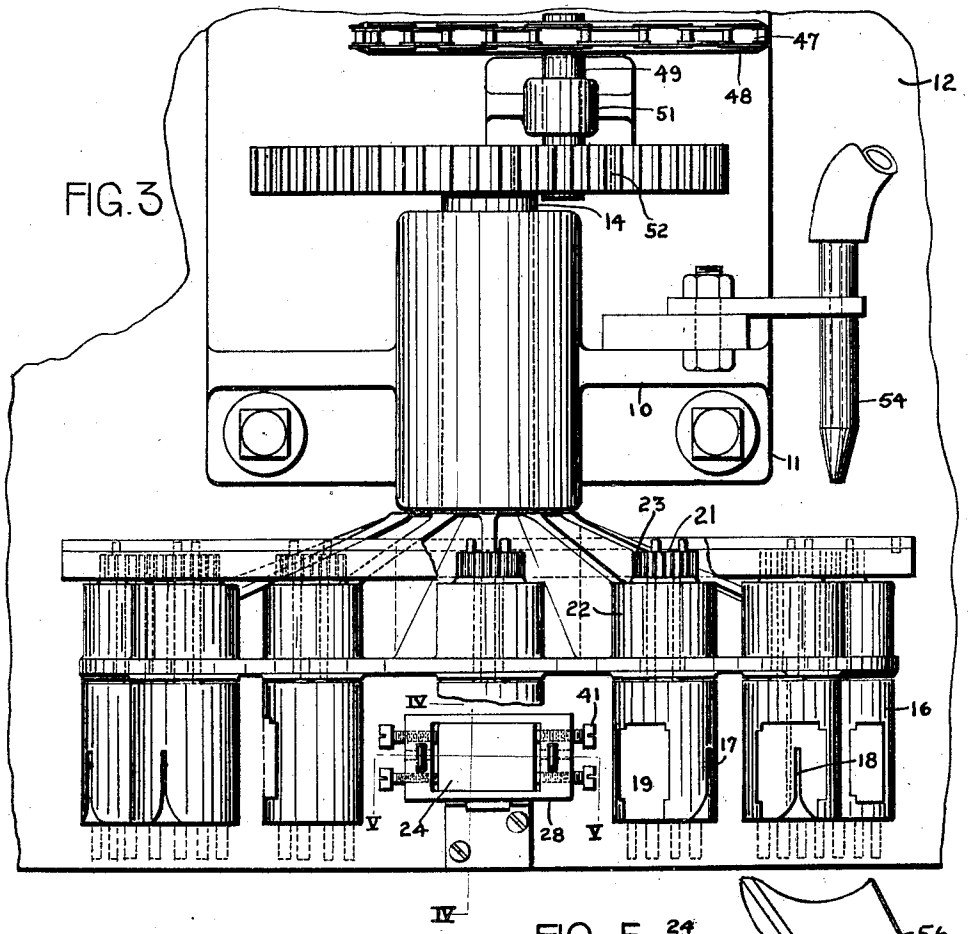


FIG. 4.

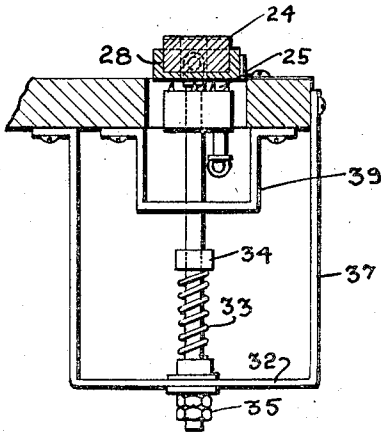
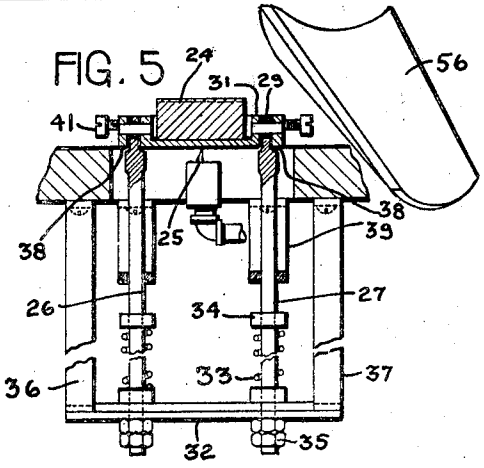


FIG. 5



INVENTOR
John E. Ferguson.
BY
ATTORNEY

Patented Feb. 3, 1931

1,791,303

UNITED STATES PATENT OFFICE

JOHN E. FERGUSON, OF BLOOMFIELD, NEW JERSEY, ASSIGNOR TO WESTINGHOUSE LAMP COMPANY, A CORPORATION OF PENNSYLVANIA

BASE-BRANDING MACHINE

Application filed September 27, 1926. Serial No. 137,861.

This invention relates to a machine for marking articles and more particularly to the marking of curved surfaces.

It is often desirable to provide a machine which will give a smooth even marking as when printing a legend upon a curved object such for example as a base of a radiotron or the like.

Heretofore when applying a marking to the curved exterior surface of a cylindrical object printing members have been provided with the curvature of their printing surface in conformation with the curved surface to be printed upon.

It was therefore essential to provide different sized printing members for different sized objects to be printed; making the printing equipment of relatively high initial and maintenance cost. Furthermore, the dimensions of a given type of objects to be printed, such, for instance, as radiotron bases, may vary slightly due to manufacturing inaccuracies and thus cause defective or poorly impressed inscriptions.

An object of the present invention is therefore to provide a plane surfaced printing member and in causing a co-relation of movement between an object to be printed and the printing member to produce an impression on the former.

Although the present invention is applicable for the impression of a printing member upon any curved surface it will be described as employed for the marking of a radiotron base composed of a substance of a material such as a condensation product capable of being marked or branded by contact with a heated printing member. A printing member having the usual raised lettering when heated and applied to a composition base leaves a clear and distinct impression since the contacting portions of the letters slightly singe the glazed surface of the base and a difference in color is produced between the plain and scored areas leaving the marking clear and legible.

When the invention is practiced for printing or branding radiotron bases a machine may be provided comprising a conveyor having thereon a plurality of sockets to receive bases disposed in spaced relation. A printing member or die having a flat printing surface may be disposed adjacent to the path of movement of the conveyor for contact with the bases. The die may be held in what may be termed a "floating" or self-adjusting relation to the bases so that the curved surface of a base may be rolled over the die; the floating action of the latter compensating for any variation in the diameter of the base thus insuring a firm and even contact.

The invention will be more fully understood by reference to the accompanying drawing in which Fig. 1 is a front elevational view of a machine embodying the present invention; Fig. 2 is a radiotron base showing an example of a legend inscribed by the present machine. Fig. 3 is a top view of the machine shown in Fig. 1. Fig. 4 is a sectional detail view taken on line IV—IV in Fig. 3; and Fig. 5 is a sectional detail view taken on line V—V in Fig. 3 and shows an adjustable die and a resilient support therefor.

A machine constituting a practical embodiment of the present invention may comprise a bearing bracket 10, having a base plate 11 suitably secured to a table 12. A bearing portion 13 of the bracket 10 is adapted to rotatably support a shaft 14 at one end of which is secured a conveyor 15 in the form of a circular reinforced plate.

The conveyor is provided with a plurality of sockets disposed in spaced relation along its perimeter. The sockets 16 may be of such dimension as to fit a given type of base 16′ as shown in Fig. 2. Bases of this type are provided with a laterally extending pin 17 and a slot 18 is provided in the sockets so that

when a base is inserted the pin thereof may frictionally engage with the edges of a slot to hold the base in position. The bases snugly fit the sockets which have windows or cut out portions 19 to expose given areas of the exterior surfaces of the bases for contact with a printing member in a manner to be presently described.

Each socket is provided with an axially disposed hollow spindle 21, one end of which is secured to the socket, the opposite end extending through a hub on the conveyor and having a pinion 23 secured thereto for rotating the socket when a base disposed within a socket is moved against a die or printing member 24. The printing member may be mounted adjacent to the path of movement of the sockets so that as a socket passes the die the exposed area of a base will make contact therewith to receive an impression. The present device employs a die heated by fires 25 in the form of gas flames so that when the composition base makes contact with the printing surface of the die, which is preferably of metal, a scoring or singeing of the surface will occur, leaving the inscription clearly legible and irradicable.

The die 24 may be held, in adjustable relation to the bases to be marked, by rods 26 and 27 (see Fig. 5). An end of each rod is loosely attached to a die box 28 by pins 29 in slots 31 provided at each side of the box. The opposite end of each rod extends through a plate 32 and is provided with a helical spring 33 disposed between a stop 34 secured to a rod and the plate 32. The rod is thus urged away from the plate and stop nuts 35 are provided at the end of each rod to limit the movement thereof under the action of its spring and hold the die box with the die therein resiliently in position.

The plate 32 through which the rods 26 and 27 extend may be supported by frames 36 and 37 and guide frames 38 and 39 are provided to aid in aligning the rods during movement with the die box 28. The die 24 may be held in the die box by set screws 41. By this arrangement the die may be held in resilient contact with a base and at the same time may have a rocking movement to allow for any irregularities that may occur on the different bases being marked.

As above set forth each of the sockets 16 is provided with a pinion 23 so that when a socket reaches an operative position with respect to the die it will be given a partial rotation. For this purpose a ring 42, having a toothed portion 43 is provided. The ring may have a foot-piece 44 suitably secured to the table 12 and may be so disposed with relation to the conveyor that when the sockets are moved to position for the printing operation, the pinions 23 mesh with the toothed portion 43 and give the sockets and consequently the bases therein the necessary rotation to produce the rolling action in contact with the stamp or printing member 24. It is of course necessary to start the rotary movement of the sockets at the proper time and the pinions 23 are therefore each provided with a pair of pins 45. During the movement of the sockets to and from the toothed portion 43 the pins 45 make contact with an extended flange 46 on the ring 42 and the sockets are held from relative movement with respect to the conveyor. The flange 46 terminates at the beginning of the toothed portion 43, however, leaving the sockets free to rotate when the pinions 23 mesh with the toothed portion 43 and the bases are rolled over the surface of the printing member. The toothed segment or portion 43 is equal in length to the circumference of a pinion 23 thus a socket is given a complete revolution so as to again position the pins 45 for contact with the flange 46.

The conveyor 15 may be rotated by any suitable source of power as by a motor (not shown) which may be connected by a chain 47 to a sprocket 48 at one end of a stub shaft 49 mounted in a bearing 51. The other end of the shaft 49 is provided with a gear wheel 52 disposed in mesh with a gear wheel 53 secured to an end of the shaft 14 upon which the conveyor 16 is mounted.

After a base has been printed or branded it may be removed by the operator and means may be provided for automatically ejecting the bases. As shown in the drawing the present machine provides an air nozzle 54 which may be connected to any suitable air pressure line. The nozzle is so disposed as to be directed into apertures or passages 55 in the hollow spindles 21 which communicate to the interior of the bases in the sockets. When an aperture 55 moves in to alignment with the air nozzle the air pressure serves to eject the base which may drop into a guide or chute 56 for delivery into a suitable receptacle.

In operation the machine is preferably positioned so that the conveyor rotates in a vertical plane. The bases are loaded at A the conveyor moving in the direction indicated by the arrow X. Usually the operator loads all the sockets within reach thus giving ample time for the loading operation even though the movement of the conveyor is continuous. During loading, the sockets are obviously not rotating since the pins 45 hold the sockets with the apertures 19 in fixed positions as the bases are moved toward the printing member.

When a base is moved into contact with the printing member the floating support for the latter allows it to make a rolling contact with a base or object to be printed thus giving a uniform and perfect impression of the legend to be applied. It will be noted that the die 24 is normally moved to the position

indicated in dotted lines in Fig. 1. When no base is engaging with the die the surface 24' thereof projects over the path of movement of the surfaces of the bases. Thus when a base engages the die the initial contact is made at one side thereof and the rolling action of the base results in a contact over the entire surface of the die. This is only possible by reason of resilient support which makes the die self-adjusting.

After branding the bases move to position under the air jet and are ejected, at which time the sockets are positioned to receive new bases when reaching the loading stage A. It is of course obvious that although the machine is shown as adapted to be loaded by hand that the bases may be loaded automatically especially since the whole operation of loading and printing is continuous. Only one die or printing member is shown but it is evident that several adjustable dies may be used as where a large area is to be printed upon.

Although a preferred embodiment of the invention is shown and described herein it is to be understood that modifications may be made therein without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A machine for marking the cylindrical surface of a radio tube or the like comprising a conveyor, a plurality of rotatable sockets on said conveyor to receive the base portions of tubes, a printing member disposed adjacent to the path of movement of said conveyor, means for resiliently supporting said printing member for contact with the cylindrical surfaces of bases, means for moving said conveyor and means for rotating said bases when in contact with said printing member.

2. A machine for marking the cylindrical surfaces of radio tube bases or the like comprising a conveyor, a plurality of sockets on said conveyor to receive bases, said sockets having portions removed to expose portions of the cylindrical surfaces of bases, means for holding said bases with given portions exposed, a printing member, means for resiliently supporting said member, means for moving said conveyor to bring said exposed surfaces in contact with said printing member and means for rotating said bases during contact with said member.

3. A machine for marking the cylindrical surfaces of radio tube bases or the like comprising a conveyor, a plurality of holders on said conveyor to receive bases, means for retaining bases in given positions in said holders, a printing member adjacent to the path of movement of said conveyor and means for adjusting said holders to present given surfaces of said bases to said printing member.

4. A machine for marking the cylindrical surfaces of radio tube bases or the like comprising a conveyor, a plurality of rotatable base receiving sockets on said conveyor, means for holding said sockets against rotation during a partial movement of the conveyor, a printing member positioned to contact with the surfaces of said bases during a partial movement of said conveyor and means for rotating said bases during contact with said printing member.

5. A machine for marking the cylindrical surfaces of radio tube bases or the like comprising a holder, means for adjusting a base in a given position in said holder, a printing member, means for adjusting said holder to present a given portion of the surface of a base to said printing member and means for engaging said surface with said member.

6. A machine for marking the cylindrical surfaces of radio tube bases or the like comprising a holder, means for adjusting a base in a given position in said holder, a printing member, means for adjusting said holder to present a given portion of the surface of a base to said printing member, means for engaging said surface with said member and means for rotating said holder during the engagement of said surface and said printing member.

7. A machine for marking the cylindrical surface of radio tube bases or the like comprising a holder, means for retaining a base in a given relative position in said holder, a printing member, means for moving said holder to engage a portion of the surface of a base with said printing member and means for rotating said holder during contact between said base and said printing member.

8. A machine for marking the cylindrical surface of a radio tube base or the like comprising a base receiving socket, said socket having a window to expose a given portion of the surface of a base, a slot in said socket to receive the side pin of a base to adjust the base with a given surface exposed through said window, a printing member and means for moving said holder to bring the exposed surface of said base into contact with said member.

9. A machine for marking the cylindrical surface of a radio tube base or the like comprising a base receiving socket, said socket having a window to expose a given portion of the surface of a base, a slot in said socket to receive the side pin of a base to adjust the base with a given surface exposed through said window, a printing member, means for resiliently supporting said member, means for moving said holder to bring the exposed surface of said base into contact with said member and means for rotating said base during contact with said member.

10. A machine for marking the cylindrical surface of a radio tube base or the like com-

prising a flat printing member, a cup shaped holder to receive the base, said holder having a portion removed to expose a portion of the surface of the base to be marked, a spindle extending from said holder, a bearing for said spindle, a pinion on said spindle, a gear rack adapted to mesh with said pinion, a printing member positioned to engage the exposed surface of said base and means for changing the relative positions of said rack and pinion to effect a rotation of said exposed surface of the base over said printing member.

In testimony whereof, I have hereunto subscribed my name this 25th day of September, 1926.

JOHN E. FERGUSON.