Oct. 3, 1961 J. L. HAUGH 3,002,447

BOWLING BALL LETTERING MACHINE

Filed Sept. 11, 1959 2 Sheets-Sheet 1

FIG. 1.

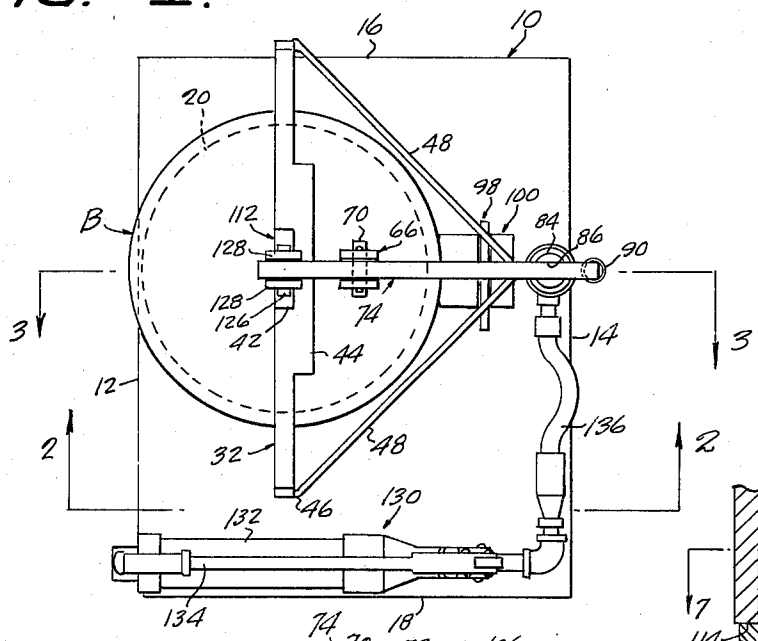



FIG. 2.

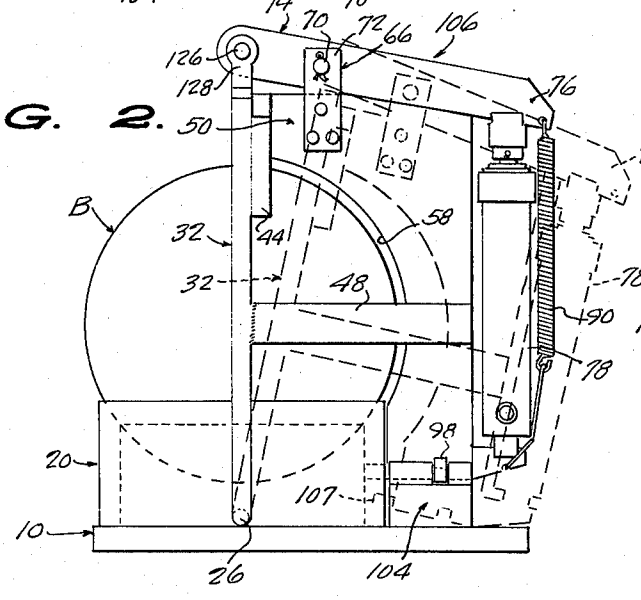



FIG. 6.

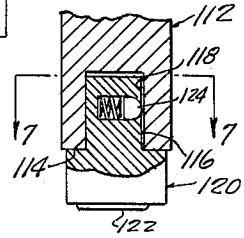
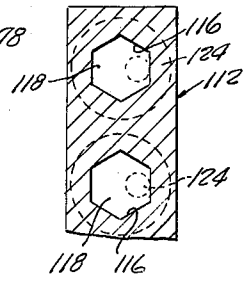



FIG. 7.




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FIG. 3.

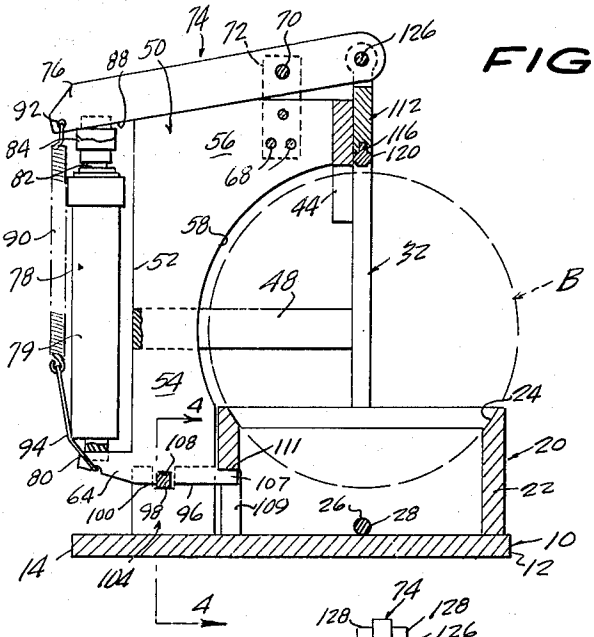



FIG. 4.

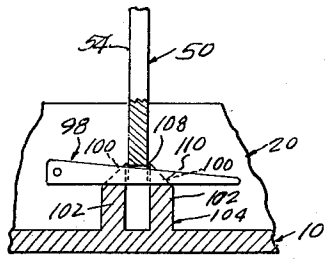
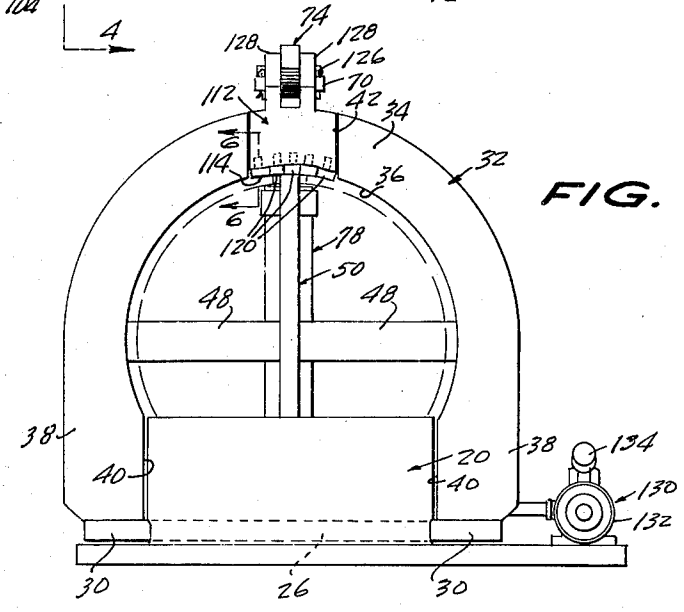



FIG. 5.




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3,002,447

# BOWLING BALL LETTERING MACHINE

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9 Claims. (Cl. 101—4)

This invention relates to an improved machine for stamping bowling balls and the like, with selected indented markings.

The primary object of the invention is to provide a more efficient, practical, and versatile device of the kind indicated which enables quickly, easily, and accurately indenting the surface of such as a bowling ball, to form therein data, such as the manufacturer's or owner's name or team affiliation, patented grip instructions, or any other desired information.

Another object of the invention is to provide a device of the character indicated above which enables pressure-stamping, of such as a bowling ball, in a single stroke, to provide a single marking or a plurality of markings, by the use in the device of a single or a plurality of marking dies or slugs, the dies or slugs being readily removable and replaceable, and being capable of different selected positions in the device to obtain special effects, such as slanted letters and symbols instead of erect letter and symbols.

A further object of the invention is to provide a rugged, durable, and mechanically superior device of the character indicated above, which actuated by hydraulic pressure, and which, while being herein disclosed as being manually operated, is capable of being automatically operated.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

FIGURE 1 is a top plan view of a device of the invention, disposed for marking a bowling ball engaged therein;

FIGURE 2 is a vertical transverse section taken on the line 2—2 of FIGURE 1, showing the device in marking position in full lines and in retracted position in phantom lines;

FIGURE 3 is a vertical transverse section taken on the line 3—3 of FIGURE 1;

FIGURE 4 is an enlarged fragmentary vertical longitudinal section taken on the line 4—4 of FIGURE 3;

FIGURE 5 is a front elevation of the device;

FIGURE 6 is an enlarged fragmentary vertical transverse section taken on the line 6—6 of FIGURE 3; and

FIGURE 7 is a fragmentary horizontal section taken on the line 7—7 of FIGURE 6.

Referring in detail to the drawings, wherein like numerals designate like parts throughout the several views, the illustrated device comprises a flat horizontal base plate 10, preferably of rectangular shape, having a front edge 12, a rear edge 14, and left and right-hand end edges 16 and 18, respectively. Suitably fixed upon the base plate 10, preferably off-center toward the left-hand end edge 16, close to the front edge 12 and spaced from the rear edge 14, is a low-profile, erect, hollow cylindrical seat 20, having a side wall 22, and an internally bevelled upper edge 24, in which is seatable the lower part of a spherical object, such as a bowling ball B, to be marked by means of the device.

The device further comprises a horizontal longitudinal trunnion rod 26 which extends diametrically across the lower part of the seat 20, and is journaled in openings 28 provided in the seat side wall 22, beyond which end portions 30 of the rod 26 extend. An inverted U-shaped



yoke 32 has an arcuate bight portion 34, having an arcuate lower edge 36, which is slightly larger in diameter than a ball B to be marked, and legs 38, which are suitably fixed to the end portions 30 of the rod, with inward edges 40 of the legs 38 disposed to bear against related outside areas of the seat side wall, as seen in FIGURE 5. The yoke 32 is preferably in the form of a single heavy flat plate.

Formed in the front side of the yoke bight portion 34 is a relatively wide marking die or slug accommodating slot 42, which can be an indentation in the bight portion 34, backed by a horizontal, circumferential reinforcing block 44 on the rear side of and conforming in shape to the bight portion 34, and extending beyond the sides of the slot 42.

Fixed, as indicated at 46, at their forward ends, to the outward edges of the legs 38 of the yoke 32 are horizontal, rearwardly converging struts or brace bars 48, which, at their rear ends are suitably fixed to an erect, inverted L-shaped standard 50, at the rear edge 52 thereof. The standard 50 is preferably a heavy flat plate having a vertically elongated upright portion 54, having a forwardly extending foot portion 56 on its upper end. Related forward edge portions of the upright and foot portions are arcuate, as indicated at 58, to spacedly conform to the curvature of a ball B on the seat 20. The standard 50 is disposed transversely of the base plate 10, and at right angles to the yoke 32, and the forward end of its foot portion 56 is suitably fixed to the rear side of the block 44.

The rear edge 52 of the standard 50 is normally perpendicular and its upper edge 62 extends at right angles to the rear edge 60, the upper edge 62 being substantially on a level with the upper edge of the yoke bight portion 34. On the rear edge 52, at its lower end, is a fixed, rearwardly extending bracket arm 64. A clevis 66 is fixed, as indicated at 68, to the foot portion 56 of the standard, and rises thereabove, and carries a fulcrum pivot pin 70, across its arms 72, the pivot pin 70 being spaced rearwardly from the yoke 32 and thereabove.

Positioned between the clevis arms 72 and journaled on the pin 70, at a forwardly offset point, is a generally horizontal rock lever 74, which has a rear end portion 76 which reaches rearwardly beyond the rear edge 52 of the standard 50. A vertical hydraulic jack 78 comprises a cylinder 79 which is supportably engaged, at its lower end, as indicated at 80, on the bracket arm 64 and an upstanding piston rod 82 having a head 84 on its upper end which has therein a slot 86 which loosely receives and supportably engages the lower edge 88 rear end portion 76 of the lever 74. A helical contractile spring 90 is stretched between the rear end portion of the lever 74 and the bracket arm, and is secured thereto, at related ends, as indicated at 92 and 94, respectively. The spring 90 serves to collapse or contract the jack 76 and to elevate the lever 74 from depressed jack-operated position.

The standard 50 is shorter than the yoke 32 and the lower end 96 of the upright portion 54 of the standard is spaced upwardly from the lower end of the yoke and from the base plate 10, as is clear from FIGURES 3 and 4, and is supported in its forwardly tilted, normal erect position, by a removable wedge pin 98 which normally rests in notches 100 provided in the upper edges of the spaced walls 102, of a rest 104, which are fixed to and rise from the base plate, at a location immediately behind and radial with respect to the slot 20. The standard upright portion 54 is disposed to subside between and guidingly engage the rest walls 102, in the rearwardly tilted position of the assembly 106 which is composed of the yoke 32, the standard 50, the lever 74, and the jack, as shown in phantom lines in FIGURE 2, when the pin 98 is removed from the rest 104. In this rearwardly tilted

position of the assembly **106**, a ball B resting in the seat **20** can be freely removed and replaced, and rotated in the seat **20**.

Projecting forwardly from the upright portion **54** of the standard **50**, at the lower end **96** thereof is a stop finger **107** which extends forwardly through a closed vertical slot **109** provided in the rear of the seat side wall **22**. In the elevated position of the standard **50**, locked in place on the rest **104**, by means of the pin **98**, the finger **107** engages the closed upper end **111** of the slot **109** so as to preclude rearwardly tilting of the assembly **106**, out of erect position.

When a ball B has been engaged in the seat for marking thereof, the assembly **106** is elevated by hand and tilted forwardly, so that the pin **98** can be reengaged in the rest notches **100**, and through a notch **108** provided in the lower end **96** of the standard **50**. The pin **98** is provided on its upper side with a longitudinal wedge surface **110**, and is dimensioned in cross section so that forced end-wise movement of the pin wedges the standard **50** upwardly, so as to retain the assembly **106** in its erect ball-marking position, as shown in full lines in FIGURES 2 and 3, wherein the slug or die-accommodating slot **42** in the yoke bight portion **34**, is normal or radial with respect to the ball B, on a perpendicular diameter thereof.

Vertically slidable in the yoke slot **42** is a die or slug-carrying block **112** which is formed in its lower edge **114**, as shown in FIGURES 6 and 7, with a single or with a desired plurality of spaced sockets **116**, which are preferably hexagonal in cross section, to receive upwardly and removably therein the reduced upstanding hexagonal shanks **118** on dies or slugs **120**. These hexagonal formations enable putting the shanks **118** in the sockets **116** in any of six different rotated positions, so that the latter or symbol-forming faces **122** of the slugs or dies can be selectively positioned to mark erect, inverted, or canted letters or symbols on a ball B. For holding the shanks **118** releasably in the sockets **116**, spring-pressed ball detents **124** are provided on the shanks. The letter or symbol-forming faces **122** are preferably projections which indent the surface of a ball B when pressed thereon. The lever **74** is operatively connected to the die or slug block **112**, at its forward end, by means of a cross pin **126** which extends therethrough and through upstanding clevis arms **128** fixed on the upper end of the block **112**.

A ball B being in place in the seat **20** and the assembly **106** being in its erect ball-marking position, the hydraulic jack **78** is extended, either by manual operation of a hand-pump, or by any other suitable source of hydraulic pressure, so that the lever **74** is depressed forwardly and the block **112** thereby forced downwardly in the yoke slot **42**, so as to drive the die or slug faces **122** against and into the surface of the ball B immediately therebeneath. As indicated in FIGURE 5, the lower end **114** of the block **112**, and accordingly, the disposition of the dies or slugs **120** thereof, is preferably arcuate and of the same curvature as the surface of the ball B, so that a plurality of letters or symbols can be uniformly marked, in a relatively long line, on the ball.

The illustrated hand pump **130** can be of a conventional type, comprising a barrel **132** secured end-wise along the right-hand end edge **18** of the base plate **10**, and a vertically swingable handle **134** mounted upon the barrel, the barrel having connected to its rear end a hose **136** which is connected to the jack **78**. Extending the jack **78** is merely a matter of operating the handle **134**.

When the jack is extended, in a ball-marking operation, the spring **90** is stretched and put under tension, which is maintained until the jack **78** is contracted, as by opening a suitable valve (not shown) on the hand pump **130**, whereupon the spring **90** contracts and elevates the lever **74** and raises the die block **112** away from the ball B. In this elevated position of the block **112**, the dies or slugs **120** can be readily removed and replaced, and the ball B rotated in the seat **20**, to provide for desired markings of different areas of the surface of the ball B.

It will be evident that, although the above described device is designed primarily for indented marking or stamping of such as a bowling ball, the device can also be used for non-indenting marking or stamping, by replacing the indenting slugs or dies with non-indenting dies or slugs, to be inked or coated with other marking materials.

Although there has been shown and described herein a preferred form of the invention, it is to be understood that the invention is not necessarily confined thereto, and that any change or changes in the structure of and in the relative arrangements of components thereof are contemplated as being within the scope of the invention as defined by the claims appended hereto.

What is claimed is:

1. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, said yoke having a bight portion spaced above the seat and legs disposed at opposite sides of said seat, to embrace a ball in the seat, a vertically movable die block slidably mounted on said bight portion, ball-stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractible jack means mounted at its lower end of the base plate and engaged at its upper end with the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said yoke normally occupying an erect position, and being tiltable out of erect position to free a ball for removal from the seat, and means for releasably locking the yoke in its erect position.

2. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, said yoke having a bight portion spaced above the seat and legs disposed at opposite sides of said seat, to embrace a ball in the seat, a vertically movable die block slidably mounted on said bight portion, ball-stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractile jack means mounted at its lower end of the base plate and engaged at its upper end with the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said yoke normally occupying an erect position, and being tiltable out of erect position to free a ball for removal from the seat, and means for releasably locking the yoke in its erect position, said jack means comprising a hydraulic jack, and a hand pump mounted on said base plate and connected in communication with the jack.

3. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, said yoke having a bight portion spaced above the seat and legs disposed at opposite sides of said seat, to embrace a ball in the seat, a vertically movable die block slidably mounted on said bight portion, a ball stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractible jack means mounted at its lower end of the base plate and engaged at its upper end with

the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said yoke normally occupying an erect position, and being tiltable out of erect position to free a ball for removal from the seat, and means for releasably locking the yoke in its erect position, yoke supporting means comprising a standard shorter than said yoke and having a lower end spaced upwardly from the lower end of the yoke, said standard having an upright portion spaced laterally from the yoke and a foot portion extending to and fixed to the bight portion of the yoke, and an upstanding rest fixed on said base, said rest having a removable wedge pin extending therethrough upon which the lower end of the standard rests only in an erect position of an assembly composed of said yoke, said standard, and said lever, said standard being depressible and tiltable relative to said rest with the wedge pin removed from the rest.

4. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, said yoke having a bight portion spaced above the seat and legs disposed at opposite sides of said seat, to embrace a ball in the seat, a vertically movable die block slidably mounted on said bight portion, ball stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractible jack means mounted at its lower end of the base plate and engaged at its upper end with the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said yoke normally occupying an erect position, and being tiltable out of erect position to free a ball for removal from the seat, and means for releasably locking the yoke in its erect position, yoke supporting means comprising a standard shorter than said yoke and having a lower end spaced upwardly from the lower end of the yoke, said standard having an upright portion spaced laterally from the yoke and a foot portion extending to and fixed to the bight portion of the yoke, and an upstanding rest fixed on said base, said rest having a removable wedge pin extending therethrough upon which the lower end of the standard rests only in an erect position of an assembly composed of said yoke, said standard, and said lever, said standard being depressible and tiltable relative to said rest with the wedge pin removed from the rest, said wedge pin having an upper wedge surface to engage the lower end of the standard to wedge said assembly to its erect position.

5. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, said yoke having a bight portion spaced above the seat and legs disposed at opposite sides of said seat, to embrace a ball in the seat, a vertically movable die block slidably mounted on said bight portion, ball stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractible jack means mounted at its lower end of the base plate and engaged at its upper end with the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said yoke normally occupying an erect position, and being tiltable out of erect position to free a ball for removal from the seat, and means for releasably locking the yoke in its erect position, yoke supporting means comprising a standard shorter than said yoke and having a lower end



spaced upwardly from the lower end of the yoke, said standard having an upright portion spaced laterally from the yoke and a foot portion extending to and fixed to the bight portion of the yoke, and an upstanding rest fixed on said base, said rest having a removable wedge pin extending therethrough upon which the lower end of the standard rests only in an erect position of an assembly composed of said yoke, said standard, and said lever, said standard being depressible and tiltable relative to said rest with the wedge pin removed from the rest, said wedge pin having an upper wedge surface to engage the lower end of the standard to wedge said assembly in its elevated and erect position, said standard having a stop finger at its lower end and projecting toward the seat, the seat having a side wall provided with a vertical slot having an upper end, said stop finger extending through the seat slot and being engaged with the upper end of the slot to prevent tilting of the assembly away from the seat in its erect position.

6. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, a vertically movable die block mounted on said bight portion, ball stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractible jack means mounted at its lower end of the base plate and engaged at its upper end with the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said supporting means comprising a standard shorter than said yoke and having a lower end spaced upwardly from the lower end of the yoke, said standard having an upright portion spaced from the yoke and a foot portion extending to and fixed to the bight portion of the yoke, and an upstanding rest fixed on said base, said rest having a removable wedge pin extending therethrough upon which the lower end of the standard rests only in an elevated and erect position of an assembly composed of said yoke, said standard, and said lever, said standard being depressible and tiltable relative to said rest with the wedge pin removed from the rest, said wedge pin having an upper wedge surface to engage the lower end of the standard to wedge said assembly in its elevated and erect position, said standard having a stop finger at its lower end and projecting toward the seat, the seat having a side wall provided with a vertical slot having an upper end, said stop finger extending through the seat slot and being engaged with the upper end of the slot to prevent tilting of the assembly away from the seat in the elevated and erect position, and contractile spring means acting between second end of the rock lever and said standard for elevating said rock lever and the die block relative to the yoke.

7. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, said yoke having a bight portion spaced above the seat and legs disposed at opposite sides of said seat, to embrace a ball in the seat, a vertically movable die block slidably mounted on said bight portion, ball stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractible jack means mounted at its lower end of the base plate and engaged at its upper end with the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said yoke normally occupying an erect position, and being tiltable

out of erect position to free a ball for removal from the seat, and means for releasably locking the yoke in its erect position, said yoke being of inverted U-shape and having legs depending from said bight portion at opposite sides of the ball seat, a trunnion rod being journaled diametrically through the ball seat and having end portions at opposite sides of the seat to which the said legs are fixed at their lower ends.

8. A ball stamping machine comprising a horizontal base plate, a circular ball seat fixed on the base plate, a yoke pivotally mounted at its lower end on the base on an axis extending crosswise of said seat, said yoke having a bight portion spaced above the seat and legs disposed at opposite sides of said seat, to embrace a ball in the seat, a vertically movable die block slidably mounted on said bight portion, ball stamping die means on the lower end of said block, a rock lever having a first end pivoted to said block, means rockably supporting said lever on the base plate at a point intermediate the ends of the lever, said lever having a second end, and vertically extensible and contractible jack means mounted at its lower end of the base plate and engaged at its upper end with the second end of the rock lever, said jack means being extensible to force the die block downwardly to apply the die means against a ball resting in said seat, said yoke normally occupying an erect position, and being tiltable out of erect position to free a ball for removal from the seat, and means for releasably locking the yoke in its erect position, said yoke being of inverted U-shape and having legs depending from said bight portion at opposite sides of the ball seat, a trunnion rod being journaled diametrically through the ball seat and having end portions at opposite sides of the seat to which the said legs are fixed at their lower ends, said bight portion having a vertical slot in which said die block is slidably confined.

9. A ball stamping machine comprising a base, an upstanding circular ball seat fixed upon the base, an inverted U-shaped yoke having a bight portion spaced above the seat and depending legs disposed at opposite sides of the seat, means pivoting said legs at their lower ends to the base, a standard having an upright portion disposed at a side of the seat between the yoke legs, said standard having a foot portion extending from said upright portion to and fixed to the bight portion of the yoke, said upright portion having a lower end spaced upwardly from the base, a rest upstanding on said base, a removable pin extending crosswise of and supported on the rest for engagement by the lower end of the upright portion only in erect operative positions of the standard and the yoke, a lever pivoted intermediate its ends on the foot portion of the standard, said lever having first and second ends, a die block mounted on the yoke bight portion for vertical movement, said die block being pivoted to the second end of said lever, and a vertically extensible jack mounted on said upright portion of the standard and operatively engaged with the first end of the lever.

**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 103,919 | Owen | June 7, 1870 |
| 1,537,685 | Ladd | May 12, 1925 |
| 1,724,085 | Hauer | Aug. 13, 1929 |
| 1,834,011 | Valiquette | Dec. 1, 1931 |
| 1,925,236 | Doyle et al. | Sept. 5, 1933 |
| 1,999,647 | Atti | Apr. 30, 1935 |
| 2,002,847 | Atti | May 28, 1935 |
| 2,262,180 | Hauer | Nov. 11, 1941 |
| 2,541,358 | Hirsch | Feb. 13, 1951 |
| 2,561,947 | Premo | July 24, 1951 |
| 2,875,684 | Teel | Mar. 3, 1959 |