Aug. 30, 1955 W. J. GEORGE 2,716,378

DEVICE FOR PRINTING EMBOSSED FIGURES ON COMPUTER WHEELS

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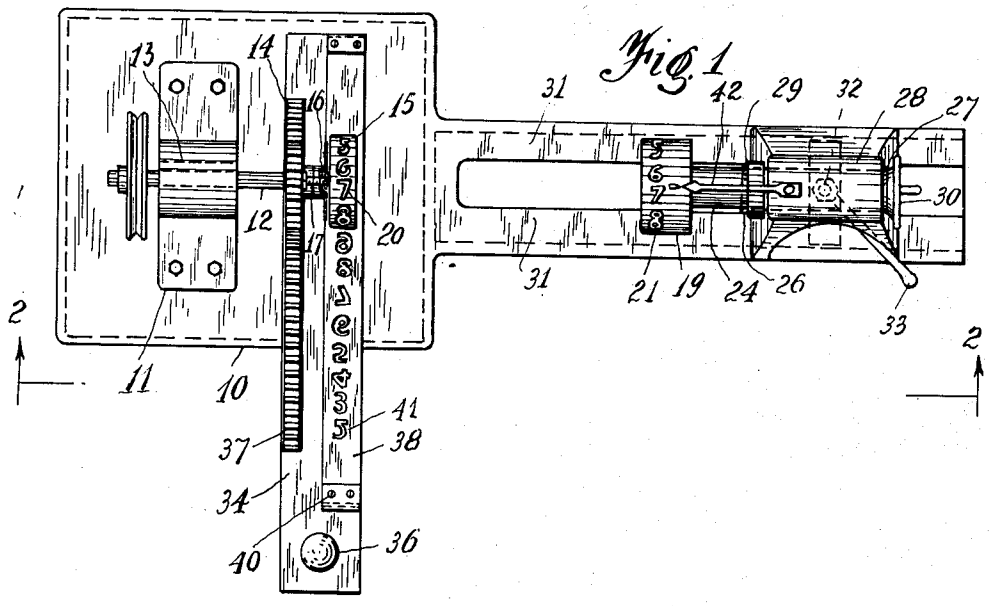


Fig. 1

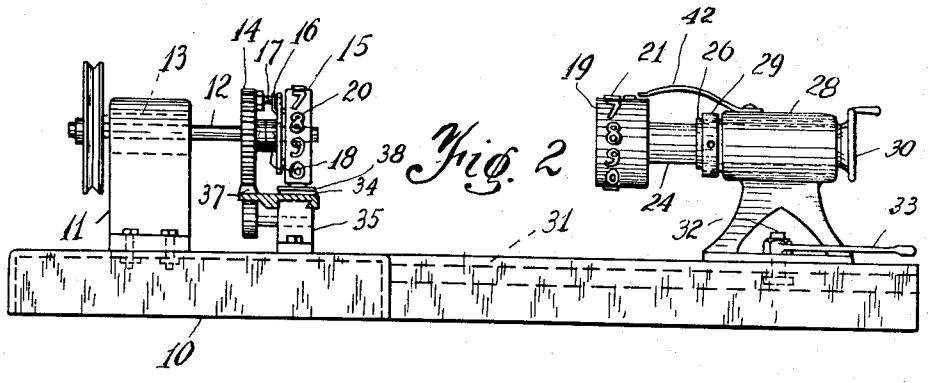


Fig. 2

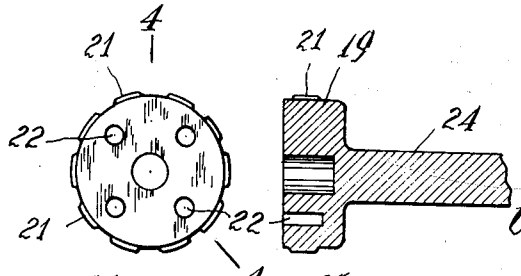


Fig. 3 Fig. 4

William J. George
INVENTOR.

BY Ralph Dewath
Attorney

Aug. 30, 1955 W. J. GEORGE 2,716,378

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Fig. 5

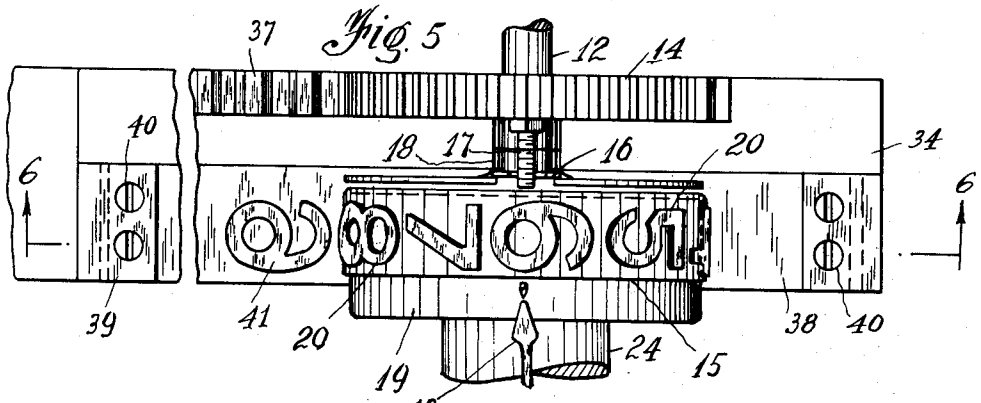


Fig. 6

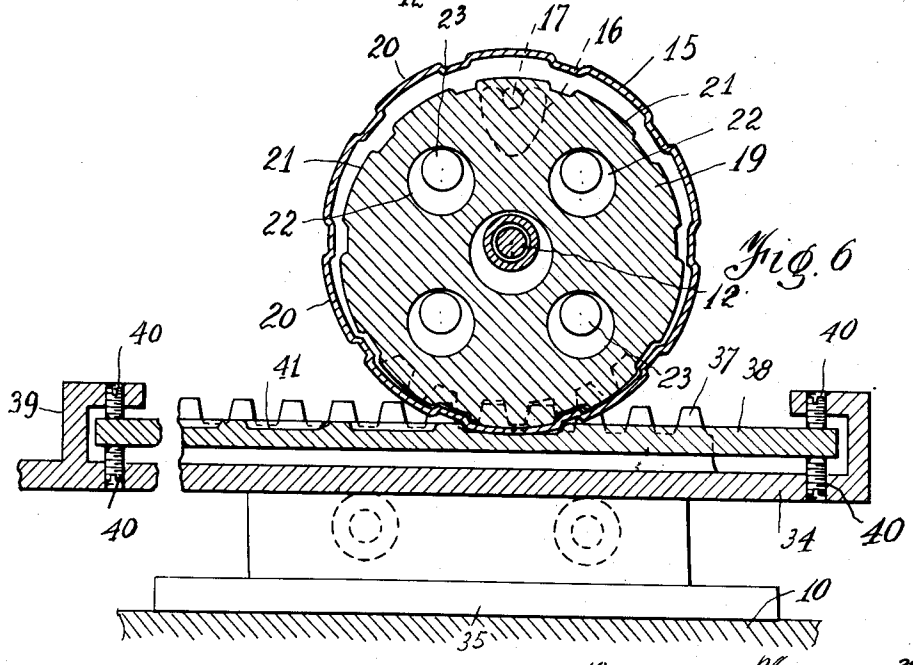


Fig. 7

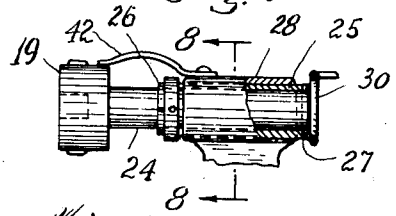


Fig. 8



Fig. 9

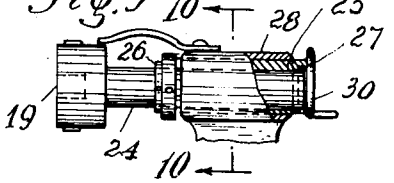
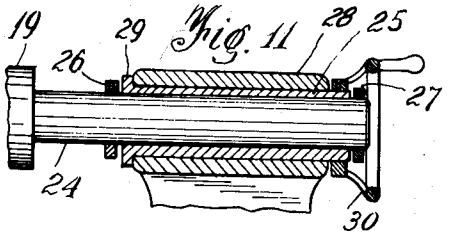


Fig. 10



Fig. 11



William J. George
INVENTOR.

BY Ralph Wonacott
Attorney.

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2,716,378

DEVICE FOR PRINTING EMBOSSED FIGURES ON COMPUTER WHEELS

William J. George, Canonsburg, Pa.

Application June 25, 1953, Serial No. 364,132

5 Claims. (Cl. 101—38)

This invention relates to a device for printing embossed figures in the peripheral surface of a cylindrical object and particularly to a device for printing the embossed figures now commonly used in gasoline metering pumps upon which the printed matter must appear in fixed relation to a given index point or points.

This invention is an improvement upon the invention claimed in Patent No. 2,564,657 issued August 21, 1951. The apparatus of that patent was for the purpose of printing cylindrical objects in which the figures were printed on the peripheral surface. Recent developments in gasoline metering pumps have shown that cylindrical computing wheels last longer and are more satisfactory if the figures thereon are embossed above the level of the peripheral surface of the computing wheel. These developments raised new problems in printing the embossed figures and required that they be done by hand since apparatus designed to print flush figures would not handle the new embossed figure computing wheels.

An object of the present invention is to provide apparatus for printing embossed figures in cylindrical objects.

Another object of the present invention is to provide apparatus capable of printing such embossed figures relative to fixed index points.

A further object of the invention is to provide apparatus for supporting and backing up the computer roll during the printing operation.

Other objects and advantages of the invention will become apparent from a consideration of the following description and from the accompanying drawings in which:

Figure 1 is a top plan view of an apparatus according to this invention.

Figure 2 is a side elevation of the apparatus of Figure 1 on the line 2—2 of Figure 1.

Figure 3 is an end elevation of a support wheel for use in the apparatus of Figure 1.

Figure 4 is a section on the line 4—4 of Figure 3.

Figure 5 is an enlarged plan view partially broken away showing a computer wheel mounted for printing.

Figure 6 is a section on the line 6—6 of Figure 5.

Figure 7 is a side elevation of the support member for the computer wheel and the mounting therefor.

Figure 8 is a section on the line 8—8 of Figure 7.

Figure 9 is a side elevation of the same support member of figure but in lowered, engaging position.

Figure 10 is a section on the line 10—10 of Figure 9.

Figure 11 is an enlarged, longitudinal section through the support of Figures 7 and 9.

Referring to the drawings there is illustrated a printing device having a T-shaped frame 10 upon the top of which a housing 11 is mounted. A spindle 12 is journaled for rotation in a bearing 13 in the housing 11. A toothed wheel 14 is removably keyed on the spindle 12 so that rotation of the toothed wheel imparts rotation to the spindle 12. The cylinder to be printed, in this case a computing wheel 15 for a gasoline dispensing pump, is mounted on the spindle so that a pin engaging member 16 thereon is in engagement with a positioning pin 17 on the

toothed wheel 14. The cylinder (computing wheel) 15 is held firmly on the spindle between a collar 18 thereon and a back-up wheel 19. The computing wheel 15 is fitted with embossed figures 20 which are to be printed. Similarly the back-up wheel 19 is fitted with raised or embossed figures 21 about its periphery. The diameter of the back-up wheel 19 is sufficiently smaller than the smallest internal diameter of the computing wheel to permit its insertion into the interior of the computing wheel. Openings 22 are drilled in the face of the back-up wheel to receive spindles 23 which normally project into the interior of gasoline pump computer wheels. This engagement acts as drive means between the computing wheel and the back-up wheel during the printing operation as will be hereafter described.

The back-up wheel 19 is mounted in an eccentric bushing 25. The shaft 24 is held in place on the eccentric bushing by locking rings 26 and 27 at either end thereof. The eccentric bushing 25 is in turn journaled in a head stock 28 and is held there by a locking ring 29 and a crank handle and ring 30 by means of which the eccentric bushing 25 can be rotated in the head stock 28 to raise and lower the level of the shaft 24. The head stock 28 is slidably mounted on guideways 31 on the leg of the T-shaped frame 10 so as to be slidable parallel to the spindle 12 to bring the back-up wheel 19 into the interior of the computing wheel 15 mounted on the spindle 12. A lock bolt 32 extending beneath the guideways 31 from the headstock 28 and provided with locking handle 33 acts to lock the head stock in a given position on the guideways in the conventional manner of lathe stocks.

A printing bar 34 is slidably mounted beneath the computing wheel 15 on a stand 35 attached to the frame 10. The printing bar is supported on a pair of wheels in the manner shown in Patent No. 2,564,657 previously mentioned. A hand knob 36 is mounted on one end of the printing bar for moving it slidably beneath the computing wheel. A resilient rack bar 37 is fixed at its ends on the printing bar so that the portion intermediate its ends may be depressed. The rack bar 37 in its normal position is in engagement with the toothed wheel 14 and the pitch of the wheel and the rack are in the same plane as the periphery of the computing wheel to be printed. A printing plate 38 is adjustably held in slots 39 formed on the surface of the printing bar by adjusting screws 40 so that the surface of the printing bar is tangential to the periphery of the computing wheel 15. The figures 41 on the printing bar may be depressed as shown in Figure 6 or raised as shown in my Patent No. 2,564,657. In the latter case an inking roll as shown in Patent No. 2,564,657 may be contacting the raised figures 41 on the printing bar. In the first case a conventional intaglio inking means including a doctor blade (not shown) may be used.

The apparatus of this invention is operated as follows: A computing wheel 15 with embossed figures to be printed is placed on the spindle 12 and aligned so that positioning pin 17 engages the pin engaging member 16 of the computing wheel. The headstock 28 is then moved toward the computing wheel until the back-up wheel 19 enters into the interior of the computer wheel with the spindle 23 of the computer wheel in the openings 22 in the back-up wheel. The headstock is locked in position by turning the locking handle 33. The back-up wheel is then indexed to properly enter the computer wheel by means of positions 42 on the headstock so that after the headstock is tightened the eccentric bushing 25 is rotated to lower the shaft 24 and thereby drop the back-up wheel so that the embossed figures 21 of the back-up wheel enter the corresponding embossed figures 20 in the computer wheel. The printing bar is then adjusted relative to the computer wheel to index the two relative to one another and is then moved slidably be-

neath the computer wheel with the raised figures on the printing bar contacting the surfaces of the embossed figures on the computer wheel to print them. At the same time the back-up wheel is rotated through its engagement with the internal spindles 23 in the computer wheel so that the embossed figures on the wall of the back-up wheel enter into and back up the embossed figures in the computer wheel.

While there is illustrated and described above a presently preferred embodiment of this invention it will be understood that it may be otherwise embodied within the scope of the following claims.

I claim:

1. A device for printing embossed figures on the peripheral surface of a cylindrical object comprising a frame, a housing mounted on one side of said frame, a spindle rotatably mounted in said housing and extending outwardly therefrom, a toothed wheel keyed to said spindle adjacent the housing, means on the spindle receiving the cylindrical object to be printed, means on the cylindrical object and the toothed wheel cooperating to hold the two in fixed relation, back-up means entering the cylindrical object and provided with portions corresponding to the embossed figures being printed, means bringing the back-up wheel into engagement with a particular figure being printed, a printing bar mounted on the frame beneath the spindle and slidable at right angles thereto, a rack bar supported at its ends on the printing bar and engaging the toothed wheel on the spindle, said rack bar being depressable intermediate its ends to disengage it from the toothed wheel, and a printing plate on the printing bar provided with raised figures corresponding to the figures being printed and contacting them to print the surface of the embossed figure, said plate being tangential to the periphery of the wheel being printed.

2. A device as claimed in claim 1 in which the back-up means is a wheel whose outer diameter is substantially equal to the smallest internal diameter of the cylinder being printed, said wheel being mounted on an eccentrically rotatable shaft whereby the outer periphery of the back-up wheel is made tangential to the inner periphery of the cylinder at the point of printing.

3. A device as claimed in claim 1 wherein the frame is T-shaped and the back-up means is a wheel whose greatest outer diameter is substantially equal to the smallest internal diameter of the cylinder being printed, said wheel being journaled on a shaft eccentrically mounted in a head stock, said head stock being slidable in guideways on the leg of the T frame in a direction parallel to the axis of the rotatable spindle whereby the back-up wheel is movable into and out of the cylinder being printed and the outer periphery of said back-up wheel is made tangential to the inner periphery of the cylinder at the point of printing thereby to support it.

4. A device as claimed in claim 1 wherein the back-up means is a wheel whose greatest outer diameter is substantially equal to the smallest internal diameter of the cylinder being printed, said wheel being eccentrically mounted on the frame for sliding axially of the rotatable spindle whereby the back-up wheel is movable into and out of the cylinder being printed and indexing means on said back-up wheel indexing the wheel in the cylinder being printed.

5. A device as claimed in claim 1 wherein the frame is T-shaped and the back-up means is a wheel whose outer diameter is substantially equal to the smallest internal diameter of the cylinder being printed, said wheel being fixed to a rotatable shaft journaled in an eccentric bearing, said eccentric bearing being rotatably mounted in a head stock slidable in guide ways on the leg of the T-frame in a direction parallel to the axis of the rotatable spindle whereby the back-up wheel is movable into and out of the cylinder being printed, and means for rotating the eccentric bushing and thereby raising and lowering the back-up wheel into and away from tangential engagement with the cylinder being printed at the point of printing.

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