No. 878,457. PATENTED FEB. 4, 1908.

J. DELLER.

RADIATOR NIPPLE DRAWING DEVICE.

APPLICATION FILED AUG. 8, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

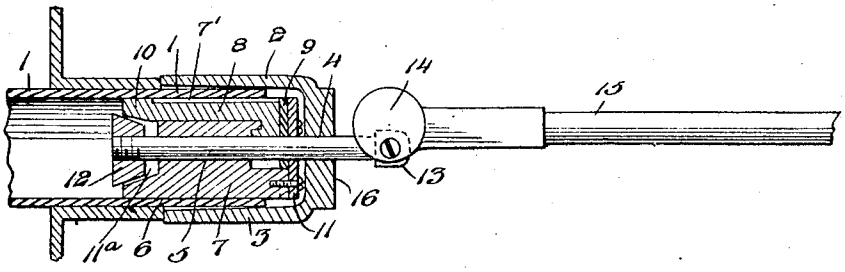


Fig. 2.

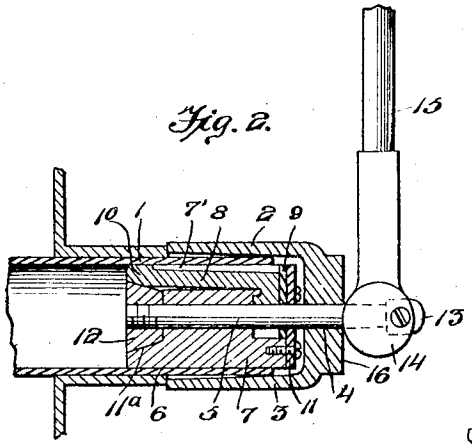
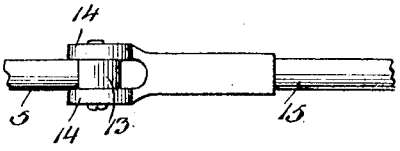


Fig. 4



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2 SHEETS—SHEET 2.

Fig. 3.

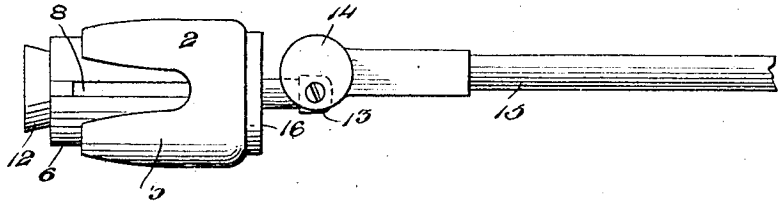


Fig. 5.

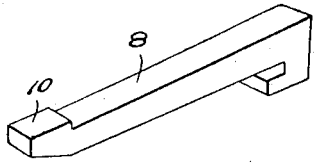


Fig. 6.

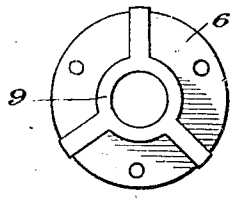
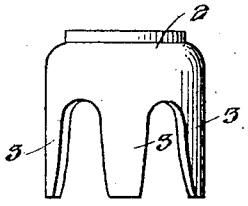


Fig. 7.



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UNITED STATES PATENT OFFICE.

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RADIATOR-NIPPLE-DRAWING DEVICE.

No. 878,457. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed August 8, 1907. Serial No. 387,650.

To all whom it may concern:

Be it known that I, JOHN DELLER, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Radiator-Nipple-Drawing Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in radiator nipple drawing devices, and the main object of my invention is the provision of a device of this character, provided with expanding means for entering the nipple, and means for continuing the expansion while the nipple is being drawn from the radiator.

To this end, the invention consists of a device of this character embodying novel features of construction, as will presently appear.

In the accompanying drawings:—Figure 1 is a sectional view of the device in the position it assumes when engaging the nipple. Fig. 2 is a similar view drawing the nipple. Fig. 3 is a side elevation of the complete device. Fig. 4 is a detail view of the connection between the lever and drawing rod. Fig. 5 is a detail perspective of one of the expanding fingers. Fig. 6 is a plan view of the circular disk or head, showing the spring for controlling the fingers; and Fig. 7 is a side elevation of the outer cup detached.

Referring to the drawings:—The numeral 1 designates a nipple, which is to be drawn. My device for drawing the same consists of the outer cup or cap 2, having the plurality of legs or abutting means 3, and is further provided with a central opening 4, through which the rod 5 passes. Mounted slidably within the cup or cap and upon the rod is a member 6, which consists of the casing 7, having a series of longitudinal slots 7′, for the reception of the expanding fingers or clamps 8, each of which is provided with a spring 9, which normally presses so as to force the gripping or free ends 10 of the fingers within the periphery or exterior of the casing 7, so that the ends 10 will not interfere when inserting the casing in a nipple, the fingers normally being caused to assume the position shown in Fig. 1. To hold the springs and the pivoted ends of the fingers in place, I employ the circular disk or head 11, which is secured to the inner end of the casing. In the outer end of the casing is formed a cupped socket for the reception of the truncated conical expanding end or head 12, carried upon the inner end of rod 5, the inclined surface of the head being adapted to engage the inner faces of the fingers and as the rod is moved to draw the head within the socket 11^a, the gripping ends 10 of the fingers are forced outwardly into tight engagement with the interior of the nipple. The outer end of the rod 5, is provided with a head 13, which is pivoted eccentrically between the circular heads 14, of the lever 15, the curved surfaces of the heads, being adapted to engage the flat surface 16 of the cup 2, so that as the lever is turned, the rod 5 will be drawn outwardly causing the fingers to expand and the casing to be drawn, so as to pull or draw the nipple from engagement with the radiator.

As clearly shown in Fig. 1, to draw a nipple it is simply necessary to place the conical head of the rod and the socketed end of the casing within the nipple, the cup having its legs surrounding the nipple and abutting against the radiator. By pulling upon the lever, the gripping ends of the fingers carried by the casing are forced outwardly and into engagement with the interior of the nipple, by reason of the conical head forcing the fingers outwardly, and as the limit of expansion is reached, the action of the cam lever and its eccentric connection with the rod forces the cup 2 in one direction and pulls the nipple toward the cup, thus removing the same from the radiator, as illustrated in Fig. 2.

From the foregoing description taken in connection with the drawings, it is evident that I provide a very simple, durable and practical device for drawing nipples from radiators, and one which will accomplish the desired purpose without in any way injuring the radiator or its sections.

What I claim, as new, is:—

1. In a device of this character, the combination of a stationary member, a cylindrical smooth exterior surfaced casing adapted to be inserted into a nipple, a series of fingers carried thereby and having their free ends at the inner end of the casing, a spring for normally holding the free ends of the fingers within the periphery of the casing, a rod passing through the member and casing, means carried upon the inner end of the rod adapted to force the free ends of fingers out-

wardly into engagement with the nipple, and means connected with the outer end of the rod adapted to coöperate with the stationary member to expand the fingers and finally withdraw the nipple.

2. In a device of this character, the combination of a stationary member, a cylindrical smooth exterior surfaced casing having a central bore adapted to be inserted within a nipple, a series of fingers pivoted in said casing and adapted to be projected radially to engage the nipple, a spring for normally holding the fingers within the casing so as not to extend beyond the exterior thereof, a rod extending through the casing and member, means carried upon its inner end adapted to project the fingers, and means connected with the outer end of the rod adapted to coöperate with the stationary member to move the rod to cause the fingers to be projected to engage the nipple and to withdraw the nipple simultaneously.

3. In a device of this character, the combination of a stationary member adapted to surround the outer end of a nipple, a cylinder adapted to be inserted within the nipple, radial expanding means carried thereby adapted to engage the interior of the nipple by extending beyond the exterior of the cylinder, means for normally holding the expanding means so that they do not project beyond the periphery of the cylinder, means for expanding said radially expanding means, said means passing through the member and the cylinder, and means connected to said expanding means operating means adapted to coöperate with the stationary member to expand the radial expanding means and withdraw the nipple.

4. In a device of this character, the combination of a cup having a central opening, a rod slidably mounted in said opening, a cylindrical casing slidably mounted on said rod and within the cup, a series of fingers, each having one end secured to the casing and their free ends seated within but free to move outwardly of the cup, means for normally holding the free ends of the fingers to prevent them extending beyond the periphery of the casing, and a truncated head mounted upon the inner end of the rod and adapted when forced into the casing to project the free ends of the fingers.

5. In a device of this character, the combination of a cup having a central opening and a flat outer face, a rod slidably mounted in said opening, a cylindrical casing slidably mounted on said rod and within the cup, a series of fingers, each having one end secured to the casing and their free ends seated within but free to move outwardly of the cup, a truncated head mounted upon the inner end of the rod, and a lever having a cam end, which is pivotally secured to the outer end of the rod exterior of the cup, whereby the cam co-acts with the flat outer surface of the cup and operates the rod and extends the fingers.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN DELLER.

Witnesses:

WILLIAM MÜNCH,

G. W. CHARTERS.