

J. F. BARKER.
LIQUID ELEVATOR FEED WHEEL.
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939,380.

Patented Nov. 9, 1909.

Fig. 2.

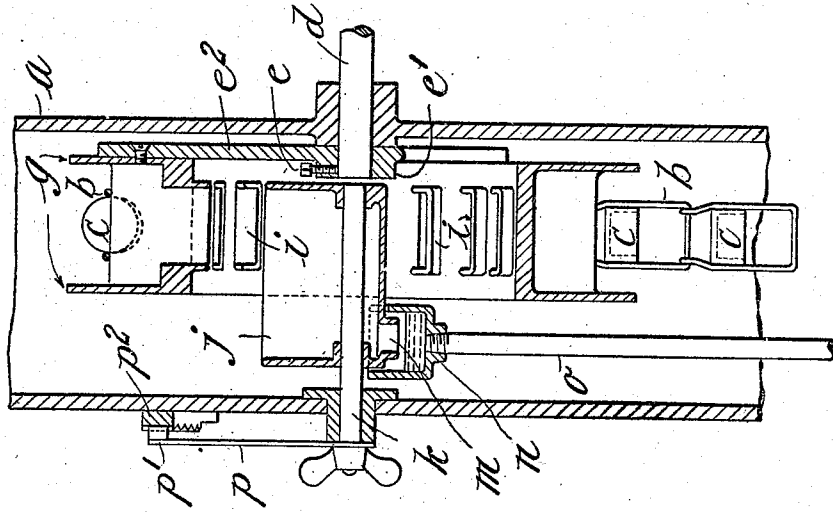
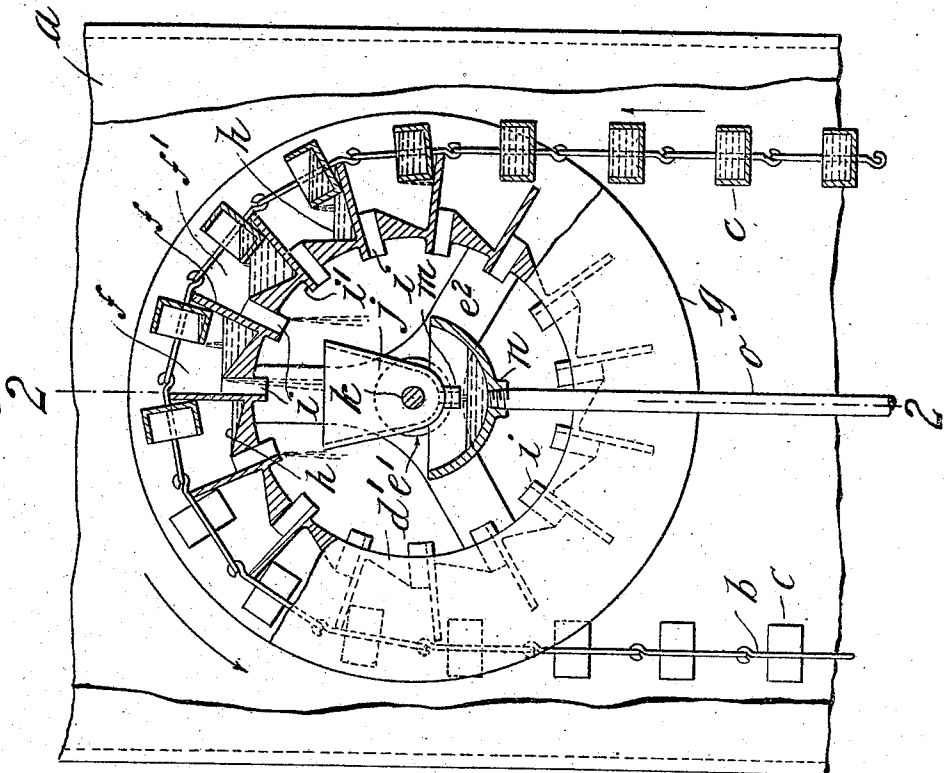


Fig. 1.



WITNESSES:

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LIQUID-ELEVATOR FEED-WHEEL.

939,380.

Specification of Letters Patent.

Patented Nov. 9, 1909.

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To all whom it may concern:

Be it known that I, JOHN F. BARKER, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Liquid-Elevator Feed-Wheels, of which the following is a specification.

This invention relates to improvements in apparatus for feeding and vaporizing oil, and is designed to produce a continuous flow of the oil to be vaporized from the liquid elevator feed-wheel to the vaporizing chamber, the invention being an improvement on the type of structure shown and described in United States Letters Patent issued to George E. Lockwood on August 14, 1906 numbered 828,836 for improvements in "apparatus for feeding and vaporizing oil."

The particular feature of the improvement of my present invention resides in forming pockets at the base of the compartments of the feed-wheel, one edge of the pocket being provided with an opening of comparatively large area so that as the wheel is revolved the oil is permitted to flow in a continuous stream through these openings from the pockets into a suitable receptacle from which the oil is conveyed by means of a pipe to the steam vaporizing chamber in the usual manner.

It has been found in practice that in this class of machines which do not provide any means for effecting a uniform flow of the volatile fluid or oil to the steam vaporizing chamber the best results are not produced. It is therefore my purpose in forming pockets in the liquid elevator feed-wheels of this class of machines to effect the continuous and uniform flow of the oil to the steam vaporizing chamber.

In the drawings forming part of this application,—Figure 1 is a partial detail sectional view of the feed-wheel of a gas machine, a portion of the well or casing which contains the elevator buckets and chain being broken away. Fig. 2 is a vertical sectional view on the line 2—2, Fig. 1.

Referring to the drawings in detail, it has not been thought necessary to show the complete gas machine and the various connections associated therewith, since the invention is confined, as stated above, to the structure of the feed-wheel proper, and in the views shown the letter *a* designates the usual

well in which moves the elevator-chain *b* and the buckets or cups *c* attached thereto.

The feed-wheel is mounted on the shaft *d* and is secured thereto by any suitable means, as for example the set-screw shown at *e* which passes through a hub *e*¹ of the spider *e*². This feed-wheel is provided with partitions *f* which extend transversely of the wheel from one rim or side flange *g* to the other, thus dividing the periphery of the wheel into radially arranged compartments *f*¹.

Each of the partitions *f* is so spaced as to provide compartments of suitable size so as to receive one of the buckets *c*, and so that the contents of the buckets will be successively discharged into each compartment in its turn during the rotation of the feed-wheel.

The bottom or base portion of each compartment *f*¹ is cut away so as to form pockets *h* therein, the forward edge of the same (that is the edge toward which the wheel rotates) being higher than the rear portion thereof, thus forming temporary receptacles for the oil as it is discharged from the buckets *c*. This forward edge communicates, by means of the openings *i*, with the interior of the wheel to permit the oil to flow or drip at a uniform rate from the several pockets *h* at the same time through the openings *i* into the tunnel *j*, which is mounted on the shaft *k* and has an opening in the bottom thereof, as shown at *m*, permitting the contents thereof to flow into the cup or reservoir *n* from which extends a pipe *o* that carries the oil to the usual steam vaporizing chamber (not shown). A pointer *p* is mounted on the end of the shaft *k* and is for indicating the position of the tunnel *j*. This pointer is provided with a tooth *p*¹ for engaging the teeth of the indicating rack *p*² and permits the operator to place the tunnel *j* so as to catch more or less of the oil as it flows from the openings *i*, depending upon how many cubic feet of gas it is desired to have the machine produce; and when once set it can be retained in that position for the same output.

It will be noticed from Fig. 2 that the openings *i* are made rather narrow and quite long transversely of the feed-wheel so that the oil will flow in thin layers or sheets into the tunnel *j* from a comparatively large area.

It is an important feature of my invention that the fins or ribs i^1 are made very thin so that the oil when leaving the openings i will drop vertically and flow freely downward and away from the fins i^1 without any danger of the oil running down on the inside rim d^1 of the wheel, thus defeating the very object of the invention.

The position of the wheel on the shaft d determines in a measure the rate of flow of oil from each of the pockets h , that is to say the oil may flow faster or slower through the openings i as they approach the vertical position depending upon the adjustment of the wheel on the shaft, but from practice it has been determined that the liquid elevator feed wheel should be so arranged on the shaft d that the pockets h will be entirely empty when they have passed about the distance of one compartment beyond the position indicated by a vertically arranged line drawn through the diameter of the wheel. The position of the wheel on the shaft d may be adjusted by simply loosening the set-nut e , when the bottom surface of the buckets can be so adjusted that all of the contents of the same will be discharged when in the position mentioned.

The principal thing is, in the operation of this machine, to effect a continuous and uniform flow of the oil from the pockets h into the tunnel j and from there into the pipe o which leads to the vaporizing chamber. It will therefore be seen that I have produced a liquid elevator feed-wheel that will effect a continuous and uniform flow of oil from said wheel to the pipe leading to the vaporizing chamber.

What I claim, is:—

1. A feed-wheel of the character described

provided with a plurality of elevator bucket receiving compartments, each compartment having an inclined bottom portion forming a pocket between the inclination thereof and one side of the compartment and also having its bottom provided with a comparatively narrow ledge-like portion adjacent said inclined portion which is provided with a narrow opening extending substantially throughout its length and leading to the interior of the wheel, and a thinly constructed fin or border projecting from the opening to cause the liquid to flow vertically from the opening, whereby the liquid will be gradually and uniformly discharged from the pocket through said opening when the wheel is rotated.

2. A feed-wheel of the character described provided with a plurality of elevator bucket receiving compartments, each compartment having an inclined bottom portion forming a pocket between the inclination thereof and one side of the compartment and also having an elongated comparatively narrow opening terminating short of the ends of the compartment and leading to the interior of the wheel, and a thinly constructed fin or border projecting from the opening to cause the liquid to flow vertically from the opening, said fin or border having one open side with its closed side having its inner face disposed in alinement with the corresponding side wall of said opening, whereby the liquid will be gradually and uniformly discharged from the pocket through said opening of each pocket when the wheel is rotated.

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Witnesses:

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