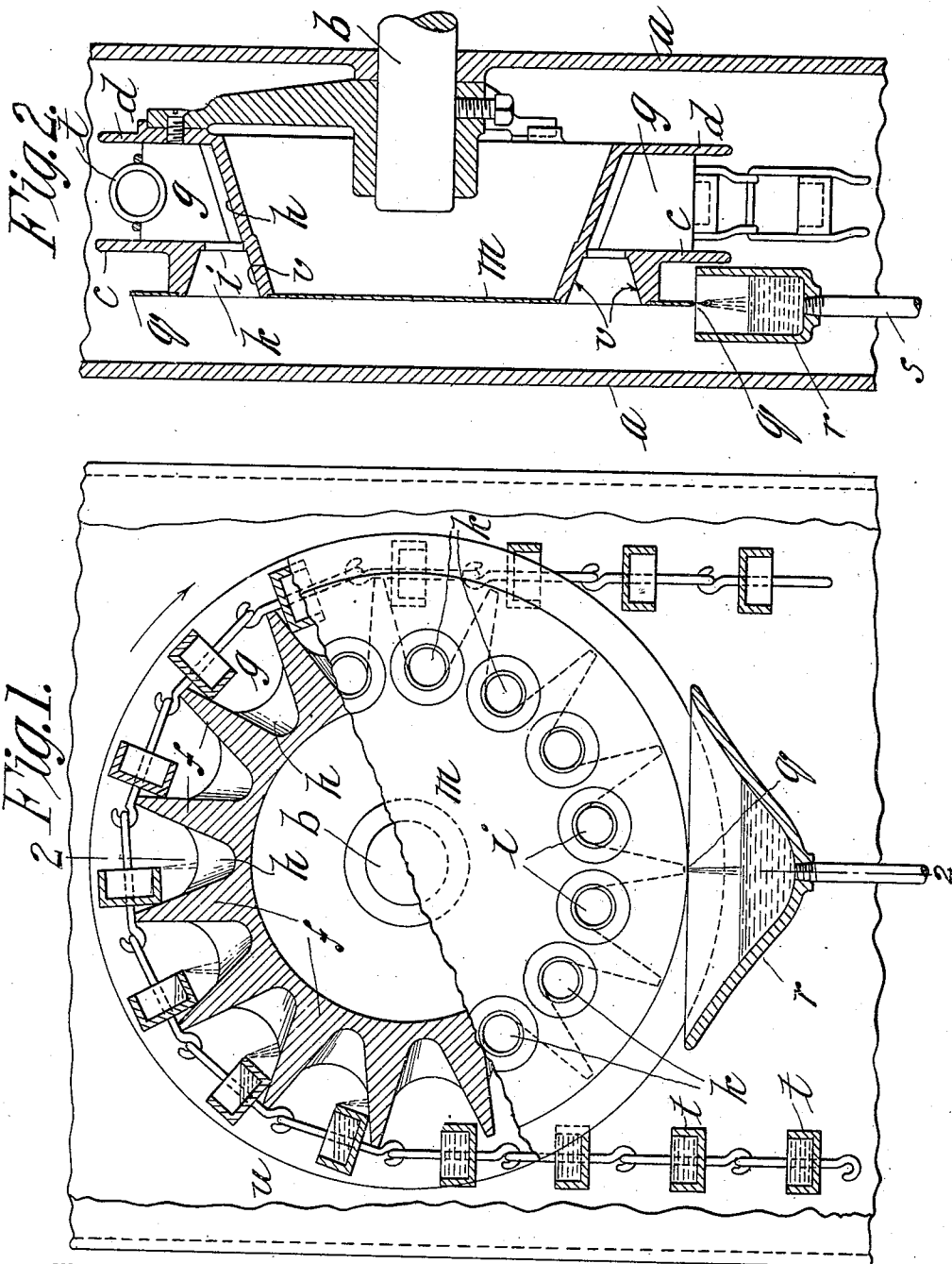


J. F. BARKER.
ELEVATOR WHEEL.
APPLICATION FILED MAR. 18, 1910.

977,062.

Patented Nov. 29, 1910.



WITNESSES:

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ELEVATOR-WHEEL.

977,062.

Specification of Letters Patent.

Patented Nov. 29, 1910.

Application filed March 18, 1910. Serial No. 550,113.

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 Elevator-Wheels, of which the following is a specification.

This invention relates to improvements in apparatus for elevating and vaporizing oil, and it is designed to produce a continuous flow of the oil to the vaporizing chamber of liquid fuel gas machines, the particular object of the invention being to provide a wheel (commonly known as an elevator or feed-wheel) over which buckets carrying the oil for vaporizing are elevated in succession and the contents of the buckets discharged into pockets that are formed on the periphery of the wheel.

The invention is an improvement on the type of structure shown and described in Letters Patent of the United States issued to George E. Lockwood on August 14, 1906 numbered 828,856 for improvements in treating and vaporizing oil.

My present invention is designed to overcome the common defects in this class of inventions in which quite a large portion of the oil that is elevated is permitted to flow or drip back into the elevator well, and this improvement relates in particular to elevator wheels in vaporizing machines in which the cubical contents of the oil-lifting buckets is very carefully determined as to the requirements of the plant which is using the vaporized oil as a fuel or for other purposes. Therefore all of the oil that is elevated by the wheel must be conveyed to the vaporizing chamber without wasting or losing any of the same, thus the necessity arises for designing an elevator wheel in which none of the oil carried up by the buckets will be spilled or wasted back into the elevator well, but all of it may flow to the vaporizing chamber.

Broadly, the invention consists in arranging on the periphery of the wheel a series of pockets into which the oil from the buckets is discharged, the bottom portions of which are inclined or formed as a part of a conical-shaped hub portion of the wheel, and having, in the bottoms of these pockets, openings which communicate with

a series of outwardly flaring or conical-shaped recesses on the lateral or side portion of the wheel. Also in providing means whereby, as the contents of the buckets are discharged in succession into these pockets, and from there into the recesses, all of the oil will be conveyed outwardly to the outer surface of the wheel on which a thin annular or disk member is placed for permitting the oil to drip from this disk member into a receiving funnel that communicates with the steam-vaporizing chamber, it being understood that the feed-wheel is operated in the usual manner.

In the drawings forming part of this application,—Figure 1 is a side elevation of the elevator-wheel, partially in section, showing the arrangement of the peripheral pockets into which the contents of the buckets are discharged; also the recesses in the outer face of the wheel and which communicate with the bottom portion of the pockets. Fig. 2 is a vertical, sectional view on the line 2—2, Fig. 1, clearly illustrating the conical surfaces down which the oil flows, both in the pockets and the recesses to the outer surface of the wheel.

Referring to the drawings in detail, *a* designates the usual casing member in which the elevator-wheel of the gas machine is located, and *b* the driving-shaft on which the wheel is mounted in the usual manner.

c and *d* designate the opposite flanged or side members of the wheel, and *f* the equally spaced partition elements whereby the space between the flanged or side members is divided into a series of pockets *g*, the bottom portions of which are formed with conical or inclined surfaces *h*. The lower portions of these pockets communicate with outlet openings *i* that lead into a series of outwardly flared or frustum shaped recesses that are concentrically arranged on the lateral or side portions of the wheel, as clearly indicated in Fig. 1.

Extending across the outlet or discharge side of the wheel and surrounding the recesses *h* is a disk member *m*, the rim or outer portion of which extends beyond the frustum-shaped recesses *h*, as indicated at *o*. This disk member *m* is made of very thin material so that the edge portion *q* is very thin and provides means for the oil to readily drop from the same into the funnel-

shaped element r , as shown in the drawings, which communicates with the pipe s , whereby the oil is conveyed from the funnel-shaped member to the steam-vaporizer chamber (not shown) in the usual manner in this class of machines. The outer surface of the disk is flush with the outer edges of the recesses.

As stated above, the cubical contents of the buckets t are very accurately gaged so that during the operation of the wheel the correct quantity of oil to be vaporized is carried upward by each bucket and discharged into the pockets g , the size of the buckets and the rate of rotation of the wheel being determined by the requirements of the plant that is using the vaporized fuel or gas.

Referring now to the operation of the elevator-wheel, whereby all of the oil that is carried up by the buckets is discharged into the receiving funnel r : Since the bottom portions of the pockets g are made inclined and formed as a part of the surface of the cone, the moment that the first bucket begins to discharge the contents into any of the pockets on the upper advancing side of the wheel, as shown at the position u (Fig. 1) the oil will immediately flow down the inclined surface h by gravity, toward and through the opening i and into the frustum-shaped recesses k , and since the sides of these openings are also formed on an incline and outward, as shown at v , no matter what position the wheel may be in, the oil will always run down the surface v and onto the disk-member m , then downward across the outer face of this member until it reaches the lower sharp edge q which is directly over the funnel r . The edge q of this disk is made very thin and sharp so that all capillary attraction is overcome, that is to say, practically none of the oil will be carried upward on the disk, as the wheel rotates, during the cycle of its operations.

It will therefore be seen that by accurately gaging the contents of the buckets, the right quantity of oil only is elevated by the wheel, and that all of it drips back into the funnel r , as described.

What I claim, is:—

1. An elevator wheel of the class described comprising parallel flanged members, a series of spaced partitions extending transversely of the flanged members for forming a series of pockets in the periphery of the wheel, the bottoms of the pockets being formed as a portion of the surface of a cone, a series of recesses in the side of the wheel and openings forming communication between the recesses and the pockets, a disk member surrounding the recesses and extending beyond the edge portion of the recesses, the sides of the recesses converging toward the openings, whereby when the liquid is discharged into the pockets the same will freely flow to the edge portion of the disk, as described.

2. An elevator-wheel for fuel gas machines comprising a series of liquid-receiving pockets arranged on the periphery of the wheel, a series of recesses in the sides of the wheel, openings forming communication between the pockets and recesses, a disk member surrounding the recesses and flush with the outer edge of the recesses and provided with a thin edge, whereby liquid can freely flow from the pockets to the edge of the disk member for discharge.

3. An elevator wheel for liquid-fuel gas machines, provided with means for conveying the liquid to the side portion of the wheel, said means comprising a series of pockets with bottoms which are inclined at an angle to the axis of the wheel, a side of the wheel having a series of recesses whose sides are inclined, the pockets and recesses being connected by openings, and a thin disk element having its outer face flush with the outer edge of the recesses, and the peripheral portion extending beyond the recesses whereby said fuel will freely flow by gravity to the thin peripheral portion of the disk.

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Witnesses:

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