

No. 782,163.

PATENTED FEB. 7, 1905.

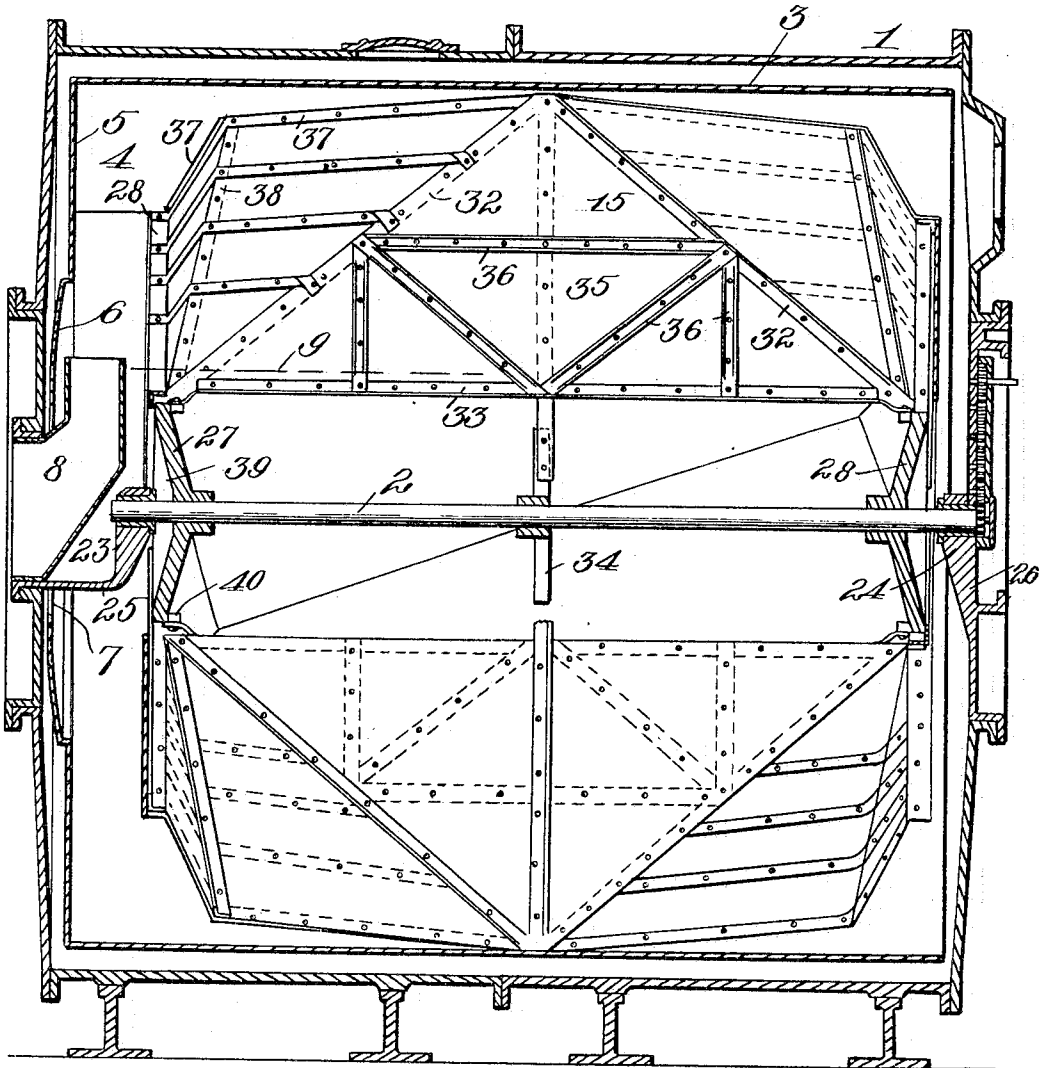
D. McDONALD & L. M. SCOFIELD.

GAS STATION METER.

APPLICATION FILED JUNE 13, 1904.

3 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
C. D. Kester
Dennis Sumby

Inventors
Donald McDonald
Lynn Mason Scofield
By James L. Norris
Attys.

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3 SHEETS—SHEET 2.

Fig. 2.

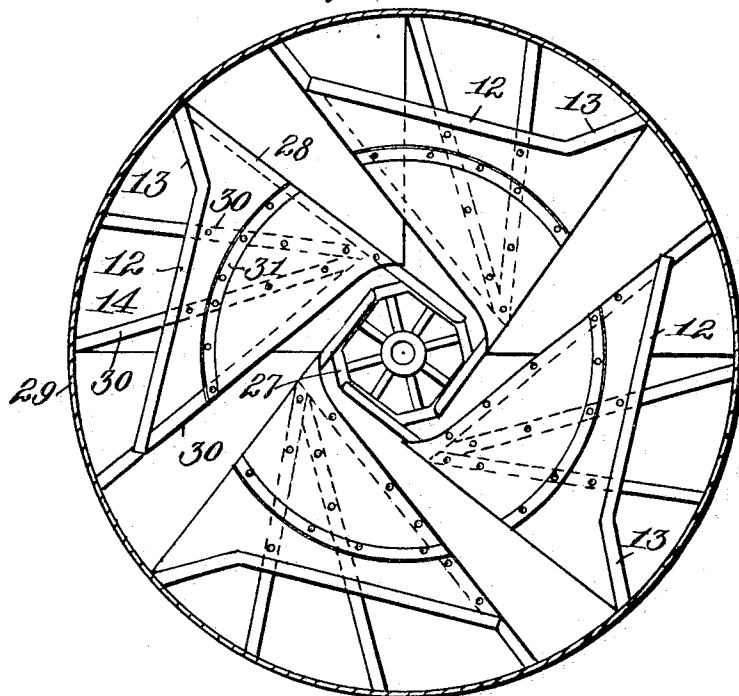
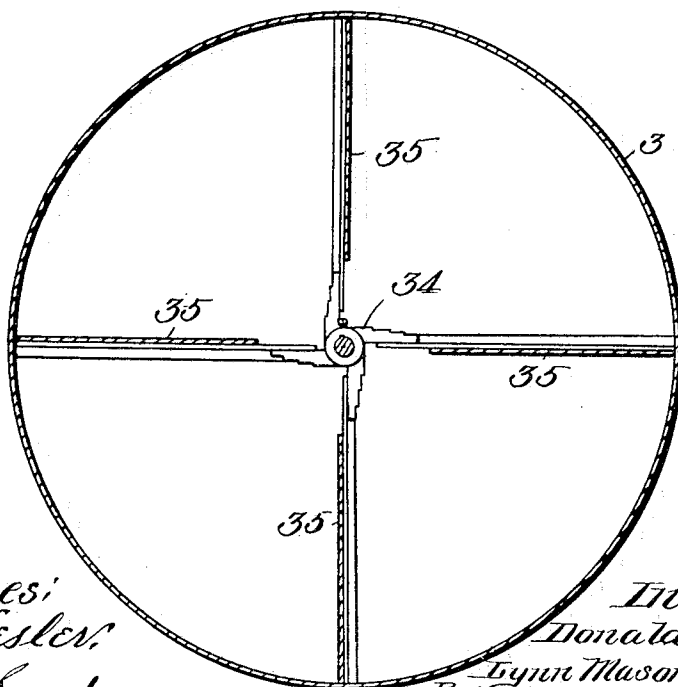


Fig. 3.



Witnesses:
C. S. Kesler,
Dennie Sumbly.

Inventors
Donald M. McDonald
Lynn Mason Scofield
By James L. Norris
Attor.

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3 SHEETS—SHEET 3.

Fig. 4.

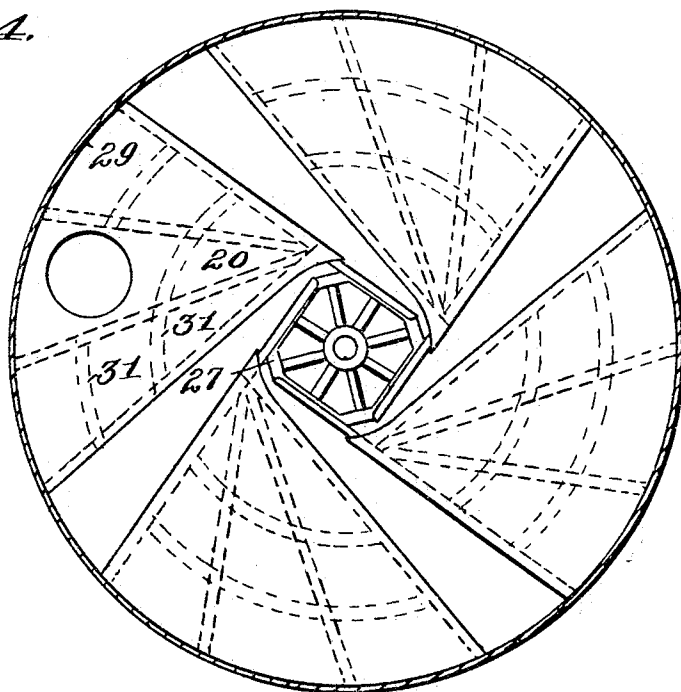


Fig. 5.

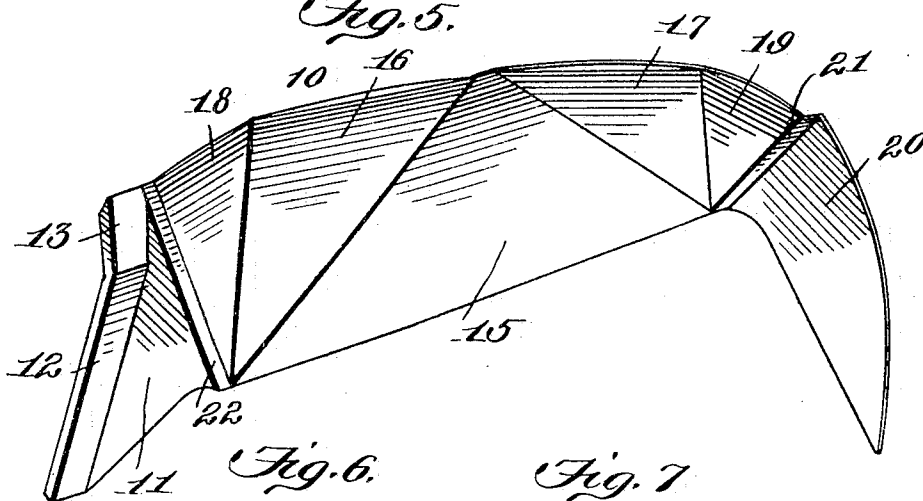


Fig. 6.

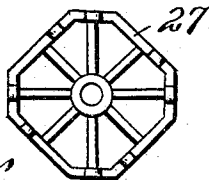
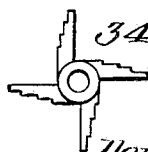


Fig. 7.



Witnesses:
C. D. Kessler,
Dennis Dumbly.

Inventors
Donald M. McDonald
Lynn Mason Scofield
James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

DONALD McDONALD AND LYNN MASON SCOFIELD, OF ALBANY, NEW YORK.

GAS STATION-METER.

SPECIFICATION forming part of Letters Patent No. 782,163, dated February 7, 1905.

Application filed June 13, 1904. Serial No. 212,392.

To all whom it may concern:

Be it known that we, DONALD McDONALD and LYNN MASON SCOFIELD, citizens of the United States, residing at Albany, in the county of Albany and State of New York, have invented new and useful Improvements in Gas Station-Meters, of which the following is a specification.

This invention relates to gas station-meters of the class commonly known as "wet meters," and has for its object to improve the construction of the same to the end that the capacity of the meter may be very materially increased and the revolving drum thereof rendered structurally stronger than has heretofore been the case with meters of the class to which the invention relates.

The meter herein shown is based upon the meter forming the subject-matter of Letters Patent No. 638,457, granted to Charles W. Hinman, December 5, 1899; and the invention aims to improve upon the meter disclosed in said patent primarily in providing additional bends in the division-walls of the gas-pockets and in the manner of mounting the drum upon the axle.

The purpose had in view in the novel features of construction embodied in the present invention will be more clearly gathered from the detailed description to follow.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal sectional view through an apparatus constructed according to our invention. Fig. 2 is a sectional end elevation of the inlet end of the revolving drum. Fig. 3 is a central transverse sectional view of the drum. Fig. 4 is a sectional end elevation of the outlet end of the drum. Fig. 5 is a perspective view of one of the partitions removed from the drum. Fig. 6 is a view of one of the end centers, and Fig. 7 is a view of the four-armed center.

Referring now to the drawings, 1 indicates the outer case, in which is supported upon an axle 2 a revolving drum 3. Said drum is provided at one end with a dry-well chamber 4, over which extends a hood 5, forming one end of the drum. Said hood is provided in its central portion with a circular bulge or

enlargement 6, which is provided with a central aperture 7.

8 indicates the dry well or inlet-pipe for the gas, which is supported in the one end of the outer casing 1 and projects through the opening 7 and upward within the dry-well chamber 4 to a distance above the normal water-line indicated by the dotted line 9.

10 indicates the partitions or division-walls, which are arranged to form the gas-pockets of the drum, and each of these partitions has at the inlet end of the drum an end wall 11, extending parallel to the end of the drum and triangular in shape. Extending outwardly from the outer side of each end wall 11 is a wall 12, which is arranged to bear the relation of a chord to the drum and which has an angular continuation 13 extending to the circumference of the drum. The opposite end of the wall 12 terminates short of the circumference in order to provide an outlet from the dry-well chamber into the auxiliary compartment 14. The outer edges of the walls 12 and of their continuations 13 abut against and may be secured to the inner side of the hood 5, and said hood, together with the walls 12 and 13 and the end walls 11 of the partition, form the dry-well chamber 4.

In the patent to Hinman above referred to his partition is provided with two bends, thereby forming a side wall with two wings extending approximately at right angles to each other. The portion of the division-wall or partition in the present case corresponding to the side wall *c* of Hinman is indicated by 15, the part corresponding to the surface 2 is indicated by 16, and the part indicated by 3 by 17. It will be seen from the drawings that an additional bend in the partition-wall is provided to afford at the end of the surface 16 a wing or inclined surface 18, and at its opposite end the partition is correspondingly bent to provide adjacent to the surface 17 an additional wing or inclined surface 19. Each of the partitions 10 is provided at the outlet end of the drum with an end wall 20, substantially triangular in shape, and between each end wall 20 and the first plane or wing 19 is provided an offset 21, which is perpendicular to the plane of the end wall and extends from

the apex of the end wall to the circumference of the cylinder. Correspondingly at the inlet end of the drum an offset 22 is provided perpendicular to the end wall 11 and connecting said end wall with the first inclined surface or wing 18 of the partition. It may be here stated that by forming these offsets 21 and 22 at the respective ends of the partitions we are enabled to impart to the first inclined surface or wing at each end of the partition a steeper slope, thereby lessening the resistance to the water and insuring greater speed of rotation. It will be seen that this relatively steep slope may be imparted to said first inclined surface or wing and at the same time afford a constant area of discharge-port, thus giving a greater measuring-space to the compartment adjacent and insuring a smaller loss of measuring-space at the port-opening. In addition to these advantages the provision of this extra plane or inclined surface at each end of the partition enables the drum to be braced from within in a manner to greatly strengthen the structure and render the parts of the drum capable of withstanding the great strain to which they are subjected. The manner of mounting the drum and of bracing the partitions will now be described.

The axle 2 is mounted at opposite ends in bearings 23 and 24, the bearing 23 at the inlet end of the drum being provided with a support 25, which extends well within the dry-well chamber 4 to provide sufficient space for the entrance of the dry well 8. Said support 25 and the support 26 for the bearing 24 are suitably mounted on the respective ends of the outer casing 1. Near each end of the shaft 2 and keyed on such shaft is a rectangular cast-iron center 27, and bolted to the respective sides of each of these centers is a tangential arm 28, which extend along the inner sides of the respective offsets 21 22 of the partitions to the circumference of the drum. The arms 28 are of course bolted at suitable intervals to said offsets and at their outer ends are bolted to an encircling band 29 in the usual manner. By providing the rectangular cast-iron centers 27 and securing the arms 28 thereto and to the partitions in the manner described it will be seen that all shearing stress is removed from the bolts and that the strain thereon will be direct. A series of braces 30 is also provided at each end of the drum, which radiate from each tangential arm 28 near its point of support to the center 27 to the circumference of the drum and which are reinforced by circular irons 31, concentric to the main construction.

32 indicates a main triangular truss spanning from end center to end center and having its apex at the periphery of the drum. The sides of this triangular truss extend along the sides of the side wall or surface 15 of each partition, and its outer ends are connected by means of a longitudinal truss 33. Mounted

on the axle 2, at the center thereof, is a cast-iron center 34 of four-arm form. Bolted to the apex of the triangular truss 32 and extending along the surface of the side wall 15, to which it is also bolted, is a radial arm 35, the inner end of which is secured to one of the arms of the center 34. It may be here stated that there are four partitions in the drum shown, and consequently there will be four radial arms 35, each one of which will be secured to one of the arms of the center 34. The main truss 32 and the radial arm 35 are reinforced by lattice-braces 36, as shown. The triangular truss 32 is further supplemented by a series of hip-trusses 37, which span from said truss to the triangular arm 28 and are connected together by means of a hip-liner 38, bolted to the cast-iron center 27. The said cast-iron centers 27 are concave on their outer faces, as indicated at 39, in order to utilize all available space and at the same time properly resolve all stresses. Flanges 40 project inward from the sides of each of the end centers 27, which are utilized for attaching the longitudinal frame-irons and truss-irons direct to the center instead of to the tangential arms 28.

From the foregoing, taken in connection with the drawings, it will be seen that the additional planes or surfaces provided at the ends of the partitions permit placing of the face of the tangential arms perpendicular to the plane of the end walls, thus giving the maximum amount of strength and offering the greatest resistance to transverse stress. Also said planes or surfaces permit of the attachment of the hip-truss irons to the tangential arms in such manner as to avoid a shearing strain on the bolts. Furthermore, these additional surfaces permit a method of construction securing perfect riveting and soldering of the plates forming the dividing-partition at the junction of the hip slant and the end walls.

Having thus fully described the invention, what is claimed as new is—

1. In a gas-meter, a revolving drum having a number of partitions forming gas-receiving pockets, each of said partitions comprising a longitudinal side wall and end walls, and between said side wall and end walls provided with the inclined surfaces or wings 16, 17 and 18, 19.

2. In a gas-meter, a revolving drum having a number of partitions forming gas-receiving pockets, each of said partitions comprising a side wall 15 having adjacent thereto the inclined surfaces or wings 16, 17, and adjacent to said wings having additional wings 18, 19 having a steeper slope than the said wings 16, 17.

3. In a gas-meter, a revolving drum having a number of partitions forming gas-receiving pockets, each of said partitions comprising a side wall and end walls, and between said side

wall and each end wall having the inclined surfaces or wings 16, 17 and 18, 19, respectively, and offsets or wings extending at right angles to said end walls and connecting the outermost wings thereto.

4. In a gas-meter in combination with an axle having a number of rectangular cast-iron centers mounted thereon, a revolving drum having a number of partitions forming gas-receiving pockets, each of said partitions having the offsets 21 and 22, and arms extending along and connected to said offsets and bolted to the respective sides of said centers.

5. In combination with an axle having near opposite ends rectangular cast-iron centers and provided with a central four-armed center, a drum suitably mounted on said end centers and having a number of partitions forming gas-receiving pockets, each of said partitions having a triangular side wall, and a triangular truss extending along and secured to the sides of each of said side walls and bolted at opposite corners to said centers, and a radial arm secured at the apex of each of said trusses and to said side walls and having its inner end bolted to one of the arms of said four-armed center.

6. In combination with an axle provided near opposite ends with rectangular cast-iron centers and having a central four-armed center, of a drum having a number of partitions forming gas-receiving pockets, each of said partitions having a triangular side wall and end walls, and intermediate said end walls and side wall provided with inclined wings and with the offsets 21, 22, arms connected to said offsets and to the sides of said rectangular centers, triangular trusses connected to the sides of said side walls and bolted to said end centers, radial arms connected to the apexes of said triangular trusses and to said side walls and having their inner ends secured to the respective arms of said four-armed center, hip-

trusses extending from opposite sides of each of said triangular trusses to the arms connected to said end centers, and hip-liners connecting said hip-trusses and bolted to said end centers.

7. In a gas-meter in combination with an axle provided near opposite ends with rectangular cast-iron centers, a drum having a number of partitions forming gas-receiving pockets, each of said partitions having end walls and offsets 21, 22 perpendicular thereto, arms connected to said offsets and bolted to the respective sides of said centers, a series of braces radiating from points on each of said arms and extending along the side of and secured to said end walls, and circular irons concentric to the axle and connected to said arms and to said radiating braces.

8. In a gas-meter in combination with an axle provided near opposite ends with rectangular cast-iron centers having inwardly-extending flanges, a drum provided with a number of partitions forming gas-receiving pockets, and a number of frame-irons and truss-irons connected to said partitions and bolted directly to said centers through the medium of said flanges.

9. In a gas-meter in combination with an axle having near opposite ends cast-iron centers concaved on their outer sides for the purpose described, of a drum mounted on said centers, and an outer casing provided with means extending inward toward said centers for rotatively supporting said axle.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

DONALD McDONALD.
LYNN MASON SCOFIELD.

Witnesses:

C. MEYER,
FRANK R. ETTINGER.