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H. G. ROECKER

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METERING DEVICE

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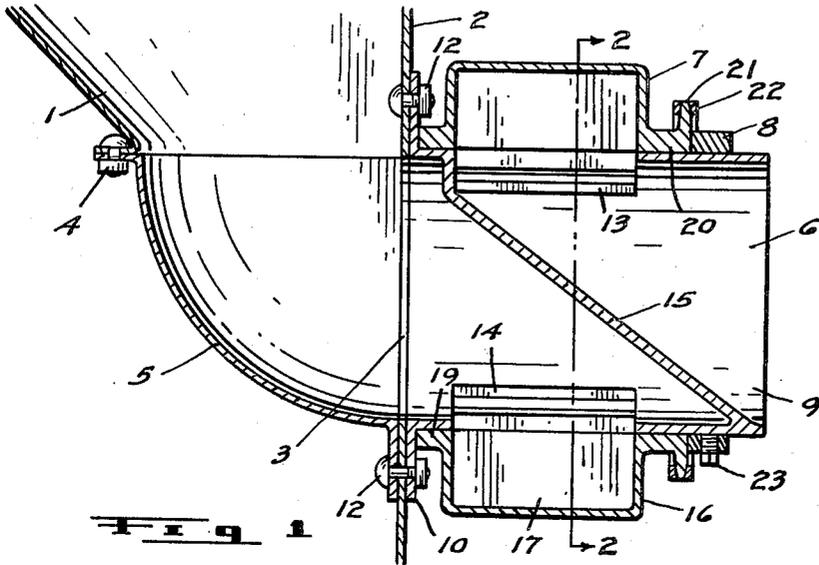


Fig 1

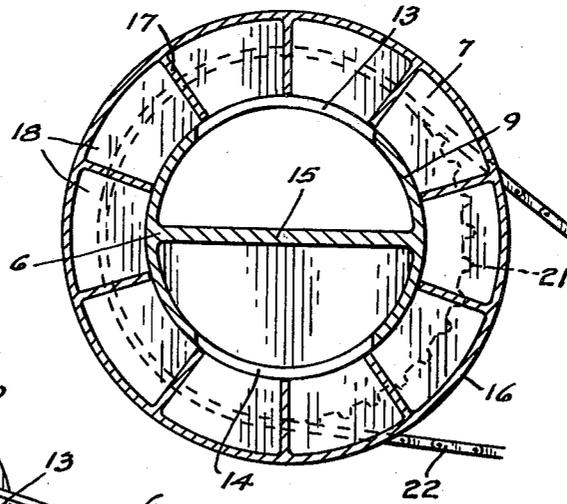


Fig 2

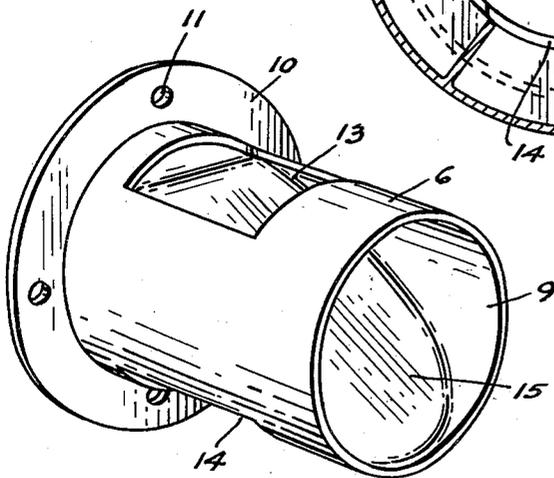


Fig 3

Inventor

H. G. Roecker

By

Walter C. Stapp

AGENT

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## METERING DEVICE

Herman George Roecker, Fort Garry,  
Manitoba, Canada

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2 Claims. (Cl. 222—367)

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The principal object of the present invention is to design a mechanical device for continuous even delivery of a flowable or semi-flowable material. By semi-flowable material I mean material such as grain, sand and gravel, sugar, et cetera.

A further object of the invention is to design the device for power driven rotation so that the quantity of material delivered over a period of time can be regulated or metered by varying the speed of rotation.

A further object of the invention is to design the device in a durable manner, for ease of attachment to machines requiring such a device, simplicity of operation, and such that it will occupy a minimum of space and yet be highly efficient when in use.

A still further object of the invention is to design the device from two castings, held together by a locked ring for simplicity and cheapness of manufacture and assembly.

With the above important objects in view, the invention consists essentially in the design and assembly of the various parts hereinafter more particularly described, reference being had to the accompanying drawings in which:

Figure 1 is a vertical section of the metering device connected to a supply hopper.

Figure 2 is a vertical section taken on the line 2—2, Figure 1.

Figure 3 is a perspective view of the central cast tubing.

In the drawings like characters of reference indicate corresponding parts in the several figures.

The lower part of a downwardly tapering supply hopper is indicated at 1. This hopper is suitably secured to and supported by a metal wall 2 which is provided lower down with a hole 3. The lower end of the hopper is bolted, as at 4, to an elbow member 5 having the opposite end connected to the wall 2, so that flowable or semi-flowable material (not shown) in the hopper 1 can pass down through the elbow 5 and hole 3 into the metering device now to be described.

The metering device comprising this invention is formed in the present instance from two castings 6 and 7 which are held in working position by a ring 8. These parts will now be described in detail.

The casting 6 is best shown in Figure 3 and comprises an open ended tubing 9 having an outer encircling flange 10 at one end thereof. This flange is provided with holes 11 therearound so that it can be placed against the wall 2 on the

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side remote from the hopper and secured by bolts 12. When so secured, the open end, adjacent the wall, is aligned with the hole 3. A pair of diametrically opposed, upper and lower, rectangular-shaped openings 13 and 14 respectively are provided in the wall of the tubing 9, slightly off-centre toward the flange. A partition 15 is formed within the tubing 9, passes downwardly from the flange end of the opening 13, then is bent and continues at an angle down to the bottom of the tubing at the end remote from the flange. This partition effectively closes off the passage directly through the tubing and such that the opening 13 is on one side of the partition and the opening 14 is on the other side.

The casting 7 comprises an annular drum 16 of a U-shape in cross-section and with the open side of the U facing inwardly. In the present instance, ten partitions 17 pass across the interior of the U at equi-spaced intervals around the drum to divide same into ten compartments or pockets 18 of equal size. The interior edges of the drum sides are widened into hubs 19 and 20 so that the drum can be telescoped over and rotatably mounted on the tubing 9 with the hub 19 riding against the face of the flange 10. When so mounted, the pockets 18 will register with the openings 13 and 14 of the tubing in the rotation of the drum therearound. The hub 20 is provided with sprocket teeth 21 so that a chain 22 can link therein and rotatably drive the drum from a suitable motor or shaft (not shown). The ring 8 telescopes over the tubing 9, against the hub 20, and is secured by set screws 23 to hold the drum against side movement when rotating.

In operation, the drum 16 is rotated and the flowable or semi-flowable material above mentioned enters the tubing 9, passes through the opening 14 and into the moving pockets 18 which become filled as they pass thereunder. In rotating around the tubing 9, the pockets carry the material up and over the opening 13 through which it falls to slide down the sloping partition 15 and be delivered out the opposite end of the tubing 9.

From the above description, it will be seen that the size of the pockets together with the drum speed determines the quantity of material coming from the delivery end of the tubing 9 in a pre-determined time, and the delivery will be a constant stream. By regulating the speed of the drum rotation, faster or slower, the quantity delivered over a period of time can be increased or reduced respectively to suit the requirements of the operator. The device is sim-

ple both to manufacture and in operation, it occupies a minimum of space, it will run efficiently for years with very little trouble and can be quickly dismantled for cleaning or repairs. Its design readily lends itself for attachment to various machines requiring such a metering device. It is cheap to manufacture.

What I claim as my invention is:

1. A metering device, comprising: a stationary tubing, open at each end and the interior centrally divided by a sloping partition; a pair of openings through the wall of said tubing, at diametrically opposite locations thereon; each of said openings connecting with the interior of said tubing on opposite sides of said partition; an annular drum of U-shape cross-section rotatably mounted on said tubing; said annular drum having partitions thereacross therearound to divide same into pockets, with the openings to said pockets facing interiorly and registerable with the openings in said tubing in the rotation of said drum; means for securing said tubing to a support; means for feeding flowable material into one end of said tubing; and means for rotating said drum.

2. A metering device, comprising: an open-ended cast tubing having an outer flange on one end and said flange secured to a support; the interior of said tubing centrally divided by a partition, sloping in a direction away from said flanged end; a pair of aligned rectangular-shaped openings in the wall of said tubing, one above said partition and the other below same; a hollow drum-shaped member telescopically receiv-

able over said tubing and with the sides thereof in contact with said tubing for rotation of said drum-shaped member thereon; partitions passing across said drum-shaped member therearound to form a plurality of pockets; the open sides of said pockets facing inwardly and registerable with the openings in said tubing in the rotation of said drum-shaped member; means for feeding flowable material into the open flanged end of said tubing to drop through said lower opening of said tubing and into said pockets; means for power rotating said drum-shaped member to elevate said filled pockets over said upper opening in said tubing, and for said material to fall through said latter opening and slide down said sloping partition in said tubing; and means on said tubing to hold said drum-shaped member in said rotatable position on said tubing.

HERMAN GEORGE ROECKER.

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