This invention relates to the necessity for accurate and reliable metering in the supply of granulated materials or powders for the provision of stock feed in agriculture or additives in mining or...
In support of the Application made by **STANLEY JOHN JACK**

for a patent for an invention entitled **VOLUMETRIC METERING DEVICE**

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1. **STANLEY JOHN JACK**
   
of **11 SOUTH WEST HIGHWAY - WICKET - 6221 - W.A.**
   
do solemnly and sincerely declare as follows:—

   1. I am the applicant for the patent.
      
      (or, in the case of an application by a body corporate)
      
      1. I am authorized by the applicant for the patent to make this declaration on its behalf.

   2. I am the actual inventor of the invention.
      
      (or, where a person other than the inventor is the applicant)
      
      2. **[Name]** is the actual inventor of the invention and the facts upon which I am entitled to make the application are as follows:—

---

Declared at **PERTH** this **TWENTY SEVENTH** day of **APRIL** 1984

TO:

THE COMMISSIONER OF PATENTS.

(Signature of Declarant)

(IMPORTANT - Cross out inapplicable words in the above Form.)

C.J. Thomas, Commonwealth Government Printer

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Figure 4 shows the adjustable sealing plate with crank removed to allow internal inspection;

Figure 5 shows front elevation with inspection panel removed;
SIXTY DOLLARS

of SIXTY DOLLARS

hereby apply for the grant of a standard patent

patent-of-addition

VOLUMETRIC METERING DEVICE

which is described in the accompanying provisional specification.

*(To be Included in the case of a Convention application)

Details of basic application(s) —

Number of basic application

Name of Convention country in which basic application was filed

Date of basic application

*(To be included in the case of an application made by virtue of section 91)

Number of original application

Person by whom made

*(To be included in the case of an application for a patent of addition)

I request that the patent may be granted as a patent of addition to the patent applied for on Application No.

In the name of

I request that the term of the patent of addition be the same as that for the main invention or so much of the patent for the main invention as is unexpired.

My address for service is

Dated this day of 19

To:

THE COMMISSIONER OF PATENTS

COMPLETE AFTER PROVISIONAL SPECIFICATION No. 41057/85

This form must be accompanied by either a provisional specification (Form 9 and true copy) or by a complete specification (Form 10 and true copy).

C. J. Todd, Commonwealth Government Printer

The suitable screw 11 adjoins toggle 14 through linkage 15 and is fixed to the crank mechanism 9 by a suitable screw 16, as shown in Figure 6. The lever 32 is connected to the link 19 by a suitable screw 20.
DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT

In support of the Application made by STANLEY JOHN JACOB

for a patent for an invention entitled VOLUMETRIC METERING DEVICE

1. I am the applicant for the patent.

   (or, in the case of an application by a body corporate)

   I am authorized by

   the applicant for the patent to make this declaration on its behalf.

2. I am the actual inventor of the invention.

   (or, where a person other than the inventor is the applicant)

   of

   is the actual inventor of the invention and the

   facts upon which I am entitled to make the application are as follows:


Declared at PERTH this 15th day of OCTOBER 1984

TO:

THE COMMISSIONER OF PATENTS.

(Signature of Declarant)

(IMPORTANT - Cross out inapplicable words in the above Form.)

C. J. Thompson, Commonwealth Government Printer
STANLEY JOHN FALCIC
of
61 SOUTH WEST HIGHWAY - WOKALUP - 6221 - WA

hereby apply for the grant of a standard patent
for an invention entitled VOLUMETRIC

METERING DEVICE

which is described in the accompanying
provisional specification.

*(To be included in the case of a Convention application)
Details of basic application(s) -
Number of basic application
Name of Convention country in which basic application was filed
Date of basic application

*(To be included in the case of an application made by virtue of section 51)
Number of original application
Person by whom made

*(To be included in the case of an application for a patent of addition)*
I request that the patent may be granted as a patent of addition to the patent applied for on Application No. ........................... Patent No. .................................. in the name of ........................................

I request that the term of the patent of addition be the same as that for the main invention or so much of the patent for the main invention as is unexpired.

My address for service is
61 SOUTH WEST HIGHWAY
WOKALUP - 6221 - WA

Dated this 11TH day of APRIL 1985

To:
THE COMMISSIONER OF PATENTS

This form must be accompanied by either a provisional specification (Form 9 and true copy) or by a complete specification
(Form 10 and true copy).

* These sections are to be completed only where applicable.

C.J. Teubner, Commonwealth Government Printer

The claims defining the invention are as follows:
A metering device comprising a suitable housing with an internal butterfly gate control unit, consisting of a horizontal shaft fixed in an off centre position to a flat plate in a vertical position and connected by gussets to a curved section to be part of the sealing mechanism and together with three hinged sealing plates forms the volumetric metering chamber and wherein one hinged sealing plate moves in conjunction with the butterfly gate control unit to form a barrier to the supply source.
COMPLETE SPECIFICATION

(ORIGINAL)

FOR OFFICE USE

Short Title: 4/057/85

Int. Cl: 4/057/85

Application Number: P.C. 4710 and P.C. 4622

Lodged: 27-4-84 and 15-10-84

Complete Specification—Lodged:

Accepted:

Lapsed:

Published:

Priority:


Related Art:

TO BE COMPLETED BY APPLICANT

Name of Applicant: STANLEY JOHN JACEK;

Address of Applicant: 61 South West Highway, Wokalup,
in the State of Western Australia, Commonwealth of Australia.

Inventor: Stanley John Jacek.

or Service: 61 South West Highway, Wokalup,
W.A. 6221.

Specification for the invention entitled: "VOLUMETRIC METERING DEVICE"

This statement is a full description of this invention, including the best method of performing it known
he description is to be typed in double spacing, pica type face, in an area not exceeding 260 mm. in depth and 160 mm in
width, on tough white paper of good quality and it is to be inserted inside this form.

Printed by C.J. THOMPSON, Commonwealth Government Printer, Canberra
This invention relates to the necessity for accurate and reliable metering in the supply of granulated materials or powders for the provision of stock feed in agriculture or additives in mining or industrial operations which are normally supplied from overhead storage bins.

Improvements over existing metering systems are found in the easy internal access and the external adjustment features. This mechanical metering device is an accurate and adjustable unit, with easy access in the event of a foreign body being introduced into the supply bin or circuit.

The volumetric metering device comprises a suitable housing with an internal butterfly gate control unit, consisting of a horizontal shaft fixed in an off centre position to a flat plate in a vertical position and connected by gussets to a curved section allowing the curved section to be part of the sealing mechanism. The butterfly gate control unit works in conjunction with a hinged sealing plate to form a barrier to the supply source and together with two other hinged sealing plates forms the volumetric metering chamber.

The second hinged sealing plate activated by a crank mechanism increases or decreases the size of the metering chamber and works in conjunction with a third sealing plate to form a barrier to the supply bin.

A more detailed description of the invention follows, with reference to the accompanying drawings in which:

Figure 1 shows the butterfly gate control unit in position to be filled from overhead supply, with the metering chamber at maximum capacity;

Figure 2 shows the butterfly gate control unit in position for sealing off supply and discharging the contents of the metering chamber;

Figure 3 shows the butterfly gate control unit in position with the metering chamber at minimum capacity, ready to be filled from supply;
Figure 4 shows the adjustable sealing plate with crank removed to allow internal inspection; Figure 5 shows front elevation with inspection panel removed; Figure 6 shows the adjusting mechanism which operates the crank mechanism.

The invention consists of a flat plate fixed to a shaft 1, a curved section 4 and suitably designed gussets 5 comprising the butterfly gate control unit. Section 3 of the plate is of greater length than section 2, so that when rotated on its axis section 2 closes quickly and section 3 provides a wider opening resulting in the quicker discharge of material.

The butterfly gate control unit is encased in a suitably designed bin 6, with a suitably designed hinged sealing plate 7. The adjustable sealing plate 8 enables alteration of the volumetric metering chamber via the crank mechanism 9. The range of alteration is from the minimum setting, as shown in figure 3, through any desired setting up to the maximum, as shown in figure 1.

By rotating the suitable screw 11 (figure 5) the crank mechanism 9 is activated in a way which enables it to swing through its axis to alter the position of the adjustable sealing plate 8 to any desired location from maximum to minimum capacity.

The hinged sealing plate 10 moves in conjunction with the adjustable sealing plate 8 to maintain a seal from the overhead supply bin.

Operating lever 12 (figure 5) allows the butterfly gate control unit to swing through its axis, shutting off supply and discharging the contents of the metering chamber, as shown in figure 2.

Releasing the operating lever allows the suitable spring 13 (figure 5) to return the butterfly gate control unit to its original position, allowing the metering chamber to be refilled, as shown in figure 1.
The suitable screw 11 adjoins toggle 14 through linkage 15 and is fixed to the crank mechanism 9 by a suitable screw 16, as shown in figure 6. Rotating the suitable screw 11 causes the linkage 15 to move, allowing the crank mechanism 9 to swing through its axis and to be stopped at any desired point to adjust the size of the metering chamber. The removal of the suitable screw 16 allows the linkage 15 to be removed from the crank mechanism 9, allowing total removal of the crank mechanism from the bin or housing 6, which permits the adjustable sealing plate 8 to move forward giving ready access to the workings of the butterfly gate control unit for maintenance purposes, as shown in figure 4.

The activating lever 12 can be manually, pneumatically, electrically or hydraulically controlled. This would allow for computer installation and control if required.

It should be appreciated that the scope of the present invention need not be limited to the particular scope of the embodiment described above and in particular need not be limited to a metering device with an adjustable crank mechanism but can be applied where there is need for a metering chamber of fixed volume.
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and to a metering
applied
volume,
The claims defining the invention are as follows:

1. A metering device comprising a suitable housing with an internal butterfly gate control unit, consisting of a horizontal shaft fixed in an off centre position to a flat plate in a vertical position and connected by gussets to a curved section to be part of the sealing mechanism and together with three hinged sealing plates forms the volumetric metering chamber and wherein one hinged sealing plate moves in conjunction with the butterfly gate control unit to form a barrier to the supply source.

2. A metering device as claimed at claim 1 wherein a hinged sealing plate activated by a crank mechanism increases or decreases the size of the metering chamber and moves in conjunction with another sealing plate to form a barrier to the supply source.

3. A metering device as claimed at claim 1 or 2 wherein the crank mechanism can be removed to gain access to the interior.

4. A metering device as claimed at claim 1, 2 or 3 wherein activation of the crank mechanism inwards from the maximum setting reduces the volumetric metering chamber.

5. A metering device as claimed at claim 1, 2, 3 or 4 wherein activation of the crank mechanism outwards from the minimum setting increases the size of the volumetric metering chamber.

6. A metering device as claimed at claim 1, 2, 3, 4 or 5 wherein rotation of the butterfly gate control unit on its axis seals off the supply bin and discharges the contents from the volumetric chamber.

7. A metering device as claimed at claim 1, 2, 3, 4, 5 or 6 wherein rotation of the butterfly gate control unit in the opposite direction seals off the unit and allows the volumetric chamber to be recharged.
8. A metering device substantially as herein described with reference to the accompanying drawings.

DATED THIS 11TH DAY OF APRIL 1985.

STANLEY JOHN JACEK
Applicant
The claims defining the invention are as follows:

Dated this ________________ day of ________________ , 19

NAME OF APPLICANT

*Note: If there is insufficient space above to type the statement of claim, do not use this sheet, but use separate sheets of paper beginning with the words "The claims defining the invention are as follows:" and ending with the date and the name of the applicant in block letters.