COMMONWEALTH OF AUSTRALIA
PATENT ACT 1952-1969
APPLICATION FOR A PATENT

INSTRUCTIONS

Full names of applicant(s).

We

RODNEY IVAN HALE and ESNE MARJORIE HALE

Address(es) of applicant(s).

of

43 Fourth Street, Warooka State of South Australia,
Commonwealth of Australia,

Title of Invention.

hereby apply for the grant of a Patent for an invention entitled

"FEED DISTRIBUTION APPARATUS"

which is described in the accompanying provisional/complete specification.

Our address for service is care of COLLISON & CO., Patent Attorneys,
Savings Bank Building, 97 King William Street, Adelaide, South Australia, 5000

Dated this 1st day of September, 1976

RODNEY IVAN HALE and
ESNE MARJORIE HALE
By their Patent Attorneys,
COLLISON & CO.

H.K. SCHULZE

To: The Commissioner of Patents,
Commonwealth of Australia.
COMMONWEALTH OF AUSTRALIA

Patent Act 1952

DECLARATION IN SUPPORT OF AN APPLICATION FOR A PATENT OR PATENT OF ADDITION

INSTRUCTIONS

Insert if available.

Full name(s) of applicant(s).

In support of the Application

made by

RODNEY IVAN HALE and

ESNE MARJORIE HALE

for a patent/patent-of-addition for an invention entitled

"FRED DISTRIBUTION APPARATUS"

Full name(s) of declaring(s).

x/We

RODNEY IVAN HALE and ESNE MARJORIE HALE

Address(es) of declaration:

of 43 Fourth Street, Warooka, State of South Australia, Commonwealth of Australia

Address(es) of applicants:

of 43 Fourth Street, Warooka, State of South Australia, Commonwealth of Australia

do solemnly and sincerely declare as follows:—

1. We/We are the applicant(s) for the patent/patent-of-addition
   (or, in the case of an application by a body corporate)

2. I/we We/We are authorized by the abovementioned applicant(s) for the patent/patent-of-addition
to make this declaration on its/their behalf.

3. We/We are the actual inventor(s) of the invention
   (or, where a person other than the inventor is the applicant)

Full name(s) of actual inventor(s).

2

RODNEY IVAN HALE

Address(es) of actual inventor(s):

of 43 Fourth Street, Warooka, State of South Australia, Commonwealth of Australia

is/are the actual inventor(s) of the invention and the facts upon which the applicant(s) is/are entitled to make the application are as follows:— The said Rodney Ivan Hale

has assigned part interest in the invention to Esne Marjorie Hale.

Declared at Warooka this th... day of... September 1976

R.I. Hale

Commissioner of Patents

Patent Office

COLLISON & CO., Savings Bank Building, 97 King William Street, Adelaide, South Australia.
1. Animal Feed Distribution Apparatus including a feed storage container supported by ground engaging wheels, extraction means to effect positive extraction feed within the container and drive means coupled to said extraction means, selectively engageable with respect to one of the ground engaging wheels whereby to effect drive of the extraction means whereby to effect extraction of feed from the storage means substantially in proportion to the distance of travel of the apparatus.
Complete Specification
(ORIGINAL)

FOR OFFICE USE:

Application Number:
Lodged:

Complete Specification Lodged:
Accepted:
Published:

Priority:

Related Art:

Name of Applicant: RODNEY IVAN HALE and ESNE MARJORIE HALE

Address of Applicant: 43 Fourth Street, Warooka, State of South Australia, Commonwealth of Australia

Actual Inventor: RODNEY IVAN HALE and ESNE MARJORIE HALE

Address for Service: Care of COLLISON & CO., Savings Bank Building, 97 King William Street, Adelaide, South Australia

Complete Specification for the invention entitled:
"FEED DISTRIBUTION APPARATUS"

The following statement is a full description of this invention, including the best method of performing it known to us:

______________________________
This invention relates to Feed Distribution Apparatus.

A difficulty resides in distributing an accurately estimated amount of feed which may have to be varied from time to time due for instance to different animal numbers or otherwise.

It is known of course to provide a separate engine by which withdrawal of feed from a container can be effected.

The difficulty, however, is to provide some means by which a farmer can provide additional feed if there are two or three more animals out of for instance a total of say eighty animals so that expensive feed is not wasted and furthermore that the feed is generally distributed in a uniform manner so that all animals have about the same access to it.

It will be appreciated that the cost of feed supplied to animals is critical in relation to an efficient running and indeed profitable running of a property and the quantity of feed distributed for a select number of animals at any one time is crucial to this profitability.

Variations of 1 or 2% can be the difference between a profitable exercise and not.

It would therefore be appreciated it is essential to have an apparatus by which very accurate assessment or repeatable supply of feed can be made but that such supply can be on a basis which a farmer in the difficult practical situation in a field, can accurately distinguish
between supply of feed for eighty animals and perhaps eighty two animals.

This invention proposes a positive withdrawal means from a food container which is adapted to be drawn behind some motor vehicle but the arrangement is distinguished by the fact that there is positive withdrawal means which are selectively operable so that the drive to the withdrawal means is proportional to the distance travelled over the ground of the apparatus.

The importance of this feature is that it has been found a farmer can readily identify marks along his path at which he can selectively connect the drive and subsequently disconnect so that the amount of food is then a factor of the distance he travels while the drive is engaged.

It will now be appreciated that with a reasonably modest withdrawal rate of feed, if this is desired by the farmer, all sorts of markers can be used to give a reliable and indeed as has been found in practice a very accurate means by which the amount of feed supplied to the animals can be judged.

In some instances, the posts along a fence can be used as these are spaced at regular intervals apart and the farmer will know that perhaps passing ten posts with the drive engaged will feed in those conditions ten animals.

It is now obvious that multiples of this number
can be very readily used or of course any division with very accurate results can now be achieved so that the distribution of the feed becomes controllable within very fine tolerances in a very practical and effective way.

The invention can be said in one form, to reside in animal feed distribution apparatus including a feed storage container supported by ground engaging wheels, extraction means to effect positive extraction of feed within the container and drive means coupled to set extraction means, selectively engageable with respect to one of the ground engaging wheels whereby to effect drive of the extraction means whereby to effect extraction of feed from the storage means substantially in proportion to the distance of travel of the apparatus.

It is a preferred feature that the drive means include a drive shaft and a friction wheel, the friction wheel arranged to be engageable with friction engagement against one of the ground engaging wheels.

Preferably the extraction means include an auger within a conduit and furthermore there are adjustable closure means across an outlet in the storage container.

A further preferred feature is that the auger is arranged to rotate about a horizontal axis and the storage means comprise a container having a shaping floor to effect, by gravity, feed supply through an outlet into an inlet of conduit.
It is preferred that there are resilient means urging the drive means away from a position of frictional engagement with the ground engaging wheel this ensuring that an operator can selectively counter such resilient action for a selected period of time as described.

The invention could also of course reside in a method of operation of the apparatus including the steps of drawing the apparatus across the ground, selectively engaging the drive means with respect to one of the ground engaging wheels whereby to effect withdrawal of feed from the storage container to be distributed onto the ground for the feeding of animals.

The invention will now be described with reference to a preferred embodiment which shall be described with the assistance of drawings in which Figure 1 is a front elevation of preferred embodiment there however being part cutaways to clearly show parts such as the auger within the conduit, the drive connections and the friction wheel, Figure 2 is a perspective view of the same embodiment and in Figure 1 once again with parts cut away to show more clearly the drive connection to the ground engaging wheel and Figure 3 is a side elevation once again with part cut away and is simplified representation of the ground engaging wheel to assist in interpretation of the main feature of the embodiment.

Referring now in detail to the drawing, the animal feed distribution apparatus comprises a trailer 1
which has in somewhat conventional manner 2
ground engaging wheels 2 and 3 coupled by a frame
4 with a forward hitch coupling 5.

There are of course mudguards 6 in conventional
manner.

Supported by the frame 4 is a feed storage
container 7 having upper vertical sides 8 and a lower
most sloping floor 9 arranged so that any feed within
the container 7 will fall under effect of gravity into
outlet 10.

The storage container 7 has a removable uppermost
closure member 11 which is held in a closed position
by resilient retaining means 12.

The outlet 10 of the storage container 7 is closed
or selectively opened by means of a vane 13 which is
slidable between runners 14 so as to either totally close
the outlet or to be withdrawn from this and allow full
access of the feed into the inlet 15 of the extraction
means 16.

The "extraction means" generally refer to the
whole of the assembly by which feed is extracted from
the feed storage container in a positive manner, that
is, such that generally it would be expected that the
rate of extraction is proportional to some rate of
rotation to achieve a portion of the device.

In this case there is an auger 17 nesting with
snug fit within a conduit 18 so that feed will be
positively taken from the inlet 15 through to the outlet
of the extraction means 19 and will there pass through the outlet to be distributed over the ground.

The drive of the auger is by means of drive shaft 20 which couples through a universal connection 21 to a friction wheel 22.

The friction wheel 22 is selectively positionable in that it is supported by lever arm 23 which is pivotally supported at 1 of a plurality of possible pivot support locations 24 the lever arm 23 being held so that the friction wheel 22 is in a non engageable position by reason of resilience spring 25 which has one end anchored to the frame 4 and the other to location 26 of the lever arm 23.

The position of the lever arm 23 is controlled however by tension transmission means 27 which include a resilient spring 28 which is coupled through arm 29 which in turn connects through shaft 30 to a second arm 31 which will normally have a cord or chain attached thereto which will be operable by an operator which is of course not shown in the drawing for the sake of simplicity.

By tension in a forward direction against the outer end of the lever arm 31, this will effect attention through tension transmission means 27 which in turn will effect a turning of the lever arm 23 which will bring the friction wheel 22 into engagement with the periphery of the tyre 32 of the ground engaging wheel 3.

This will have the result of causing the friction
wheel 22 to rotate in direct proportion to the
degree of turning of the ground engaging wheel 3
and hence the rotation of the auger 17 will be
directly proportional to the distance travelled
of the ground engaging wheel during the engagement
of the friction wheel 22 with the wheel 3.

It will be seen now from this description that
what is described will provide a very effective and
efficient means of distributing feed for animals which
will allow for a very accurate determination in an
eminently practical way of the amount of feed that
will be the most efficient feed for a selected number
of animals.
The claims defining the invention are as follows:

1. Animal Feed Distribution Apparatus including a feed storage container supported by ground engaging wheels, extraction means to effect positive extraction feed within the container and drive means coupled to said extraction means, selectively engageable with respect to one of the ground engaging wheels whereby to effect drive of the extraction means whereby to effect extraction of feed from the storage means substantially in proportion to the distance of travel of the apparatus.

2. Animal Feed Distribution Apparatus as in claim 1 in which the drive means include a drive shaft and a friction wheel, the friction wheel arranged to be engageable with friction engagement against one of the ground engaging wheels.

3. Animal Feed Distribution Apparatus as in either claim 1 or 2 in which the extraction means include an auger within a conduit.

4. Animal Feed Distribution Apparatus as in any one of the preceding claims in which there is an adjustable closure means across an outlet in the storage container.

5. Animal Feed Distribution Apparatus as in either claim 3 or 4 in which the auger is arranged to rotate about a horizontal axis and the storage being comprised of a container having a sloping floor to effect by gravity
feed supply through an outlet into an inlet of the conduit.

6. Animal Feed Distribution Apparatus as in any one of the preceding claims in which there are resilient means urging the drive means away from the position of frictional engagement with the ground engaging wheel.

7. Animal Feed Distribution Apparatus as in any one of the preceding claims in which the selective means to engage the drive means with the ground engaging wheel include a flexible cord coupled through a resilient tension transmission means to a support lever arm the position of which controls the engagement.

8. Animal feed Distribution Apparatus including a feed storage container including a lowermost outlet, an auger within a conduit having an inlet connected to the container outlet and an outlet spaced from the inlet, adjustable closure means across the interconnection between the container outlet and the auger inlet, rotational drive means coupled to the auger to effect rotation thereof and including a friction wheel, and control means to selectively hold said friction wheel with frictional engagement against one of the ground engaging wheels to effect rotation of the friction wheel and hence the auger.
9. Animal Feed Distribution Apparatus substantially as described in this specification with reference to and as illustrated by the accompanying drawings.

Dated this 31st day of August, 1977

RODNEY IVAN HALE and ESNE MARJORIE HALE by their Patent Attorneys, COLLISON & CO.