F. G. GAUNTT.

FEEDING DEVICE.

APPLICATION FILED NOV. 29, 1909.

972,761. **Patented Oct. 11, 1910.**

2 SHEETS—SHEET 1.

FIG. 1

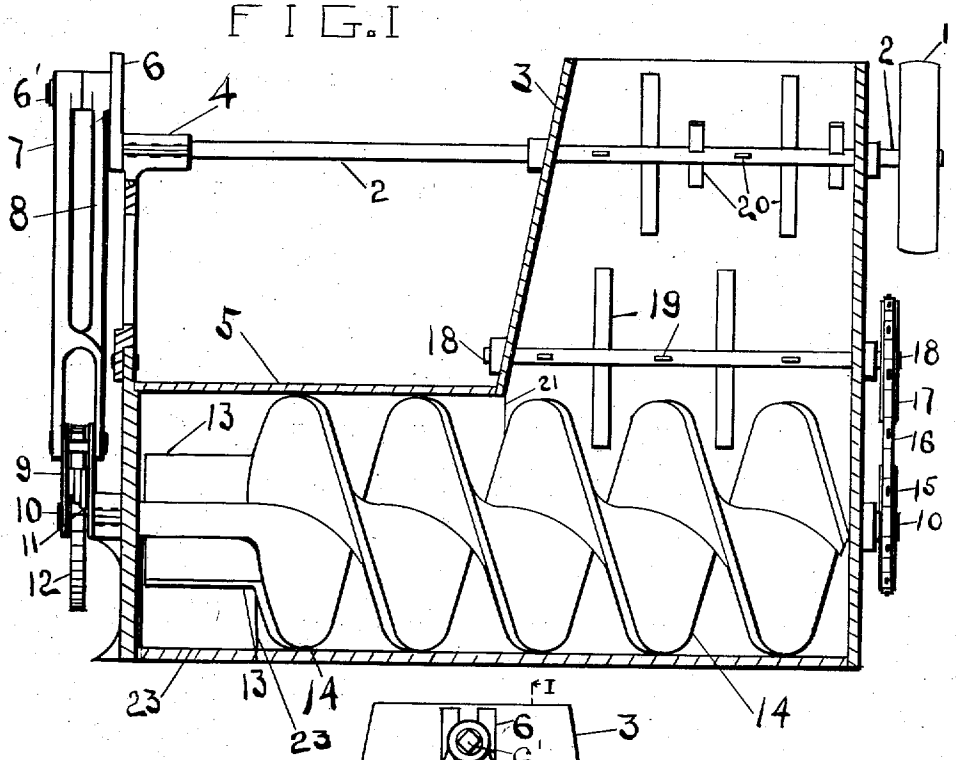
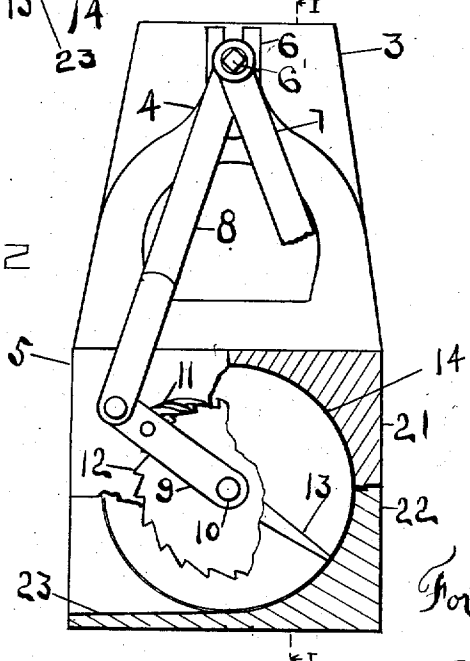


FIG. 2



Witnesses

Gladys Jamieson

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2 SHEETS—SHEET 2.

FIG. 4

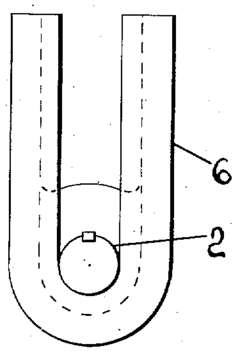


FIG. 5

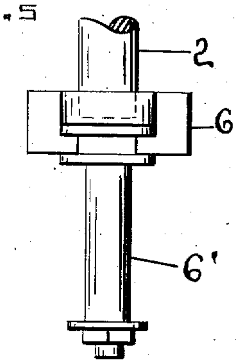
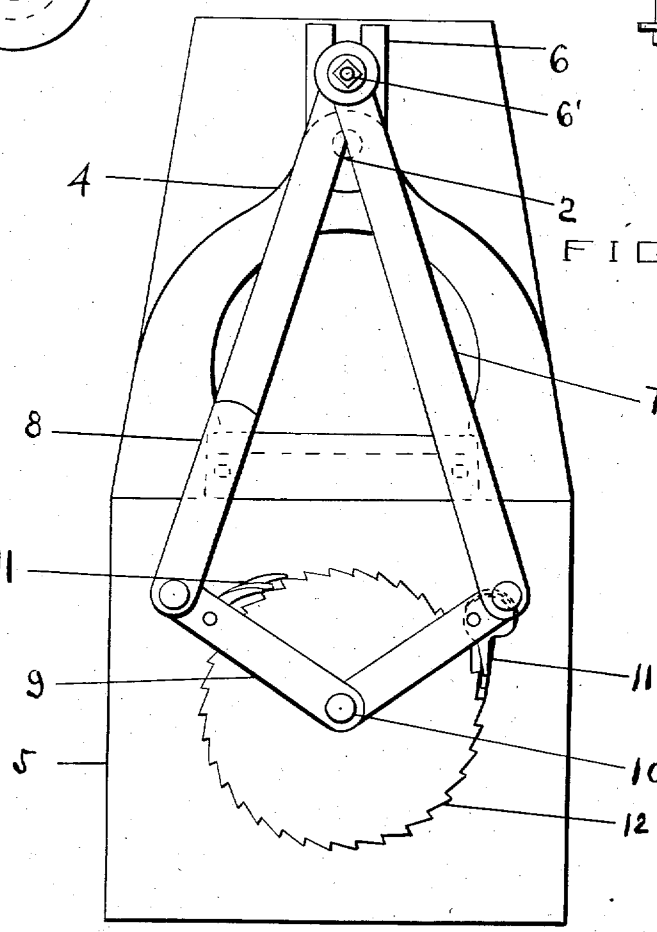


FIG. 3



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UNITED STATES PATENT OFFICE.

FOREST G. GAUNTT, OF FORT WAYNE, INDIANA.

FEEDING DEVICE.

972,761. Specification of Letters Patent. **Patented Oct. 11, 1910.**

Application filed November 29, 1909. Serial No. 530,336.

To all whom it may concern:

Be it known that I, FOREST G. GAUNTT, a citizen of the United States, residing at Fort Wayne, Allen county, Indiana, have invented a new and useful Feeding Device, of which the following is a specification.

This invention relates to feeding devices.

This invention has utility when adapted to deliver material at various determined rates, which rates may be varied over a wide range.

Referring to the drawings: Figure 1 is a longitudinal vertical section on the line 1—1 of Fig. 2, showing an embodiment of the invention as adapted to handle fine material, as small grains, hulls or powdered products; Fig. 2 is an end view with parts broken away of the device as shown in Fig. 1; Fig. 3, is a view similar to Fig. 2, but showing the driving device complete; Fig. 4 is a detail view of the adjustable crank; and Fig. 5 is a view showing the wrist pin mounting in the crank.

The driving pulley 1 may be continuously driven from a source of power to actuate the shaft 2 at a uniform speed. The shaft 2 is mounted in a downwardly outwardly tapering hopper 3, and a bearing 4, carried by a bracket which hopper and bracket are mounted on the housing 5. This is a compact and substantial construction permitting assemblage of the machine as a unit. The continuously driving shaft 2, on the end thereof remote from the pulley 1, has a forked crank 6 receiving the radially adjustable wrist pin 6′. This wrist pin 6′ provides bearing for the connecting rods or links 7 and 8. These links engage arms 9 mounted on the driven shaft 10. Carried by the arms 9 are stepped pawls 11 to engage the ratchet wheel 12 on the shaft 10. The arm 9 connected to the link 8 is effective to rotate wheel 12 in upward travel, while the link 7 is effective during the downward travel. Adjacent to wheel 12, the shaft 10 has in the housing 5, kicker portions 13 disposed radially and parallel to the shaft. Extending from these kicker portions are a plurality of scroll flights 14 of similar radial extent as said kickers and continuous therewith. Upon the end of the shaft 10, remote from the ratchet wheel 12, is the sprocket wheel 15 about which passes the sprocket chain 16 to drive sprocket wheel 17 on shaft 18. This shaft 18 has agitator arms 19 thereon arranged to travel between the scroll flight portions 14 on shaft 10. In the hopper 3 above the shaft 18 and in the narrow portion of said hopper there is carried by the shaft 2 agitator arms 20.

The main housing or casing 5 comprises an upper section 21 and a lower section 22 conforming to the outline of the scroll spirals 14. Adjacent kicker portions 13 the section 22 is provided with a discharge outlet 23.

Operation: Material fed into the hopper is continuously agitated by the arms 20 to avoid clogging. This hopper 3 having its lower portion of greater cross-sectional area, is of a self freeing form. Accordingly normally there is no tendency for material to become clogged therein. The gear wheels 15 and 17 being of the same size, agitator arms 19 always move in proper relation as to the flight 14 to effect clearing and thereby tend to avoid any difficulties arising from clogging of material between the flights. The flight scheme embodying a plurality of spirals results in considerable advantage in practice, for it not only permits of slower speed in driving to obtain maximum delivery capacity, but coöperates to maintain accuracy of stroke measuring by the co-action of the scroll flights with the housing sections 21 and 22. In large pitch flights there is a tendency in material having a low angle of repose, to run through in short machines and thereby materially detract from the accuracy in the measuring. There is attained herein the advantage of low pitch accuracy combined with the greater capacity, without increase in speed, thereby avoiding disadvantages due to more rapid rotation. The form of the housing sections insures accuracy in stroke measurement by removing at each rotation a definite scroll full of material from the hopper. There is shown sufficient flight length in the housing 5 beyond the hopper 3 to prevent free running through of the material being fed.

In addition to the general features of construction which insure maximum of accurate capacity, there is provision in the intermittent grip mechanism which permits the driving connection between the shafts 2 and 10 to considerably vary the range of the machine. By adjusting the wrist pin close to the center of the shaft 2 no throw of the pawls 11 will result and the feeder is thus stopped. From this limit of no feed, up to the maximum range of the crank 6, adjust-

ment may be made to cause the pawls 11 to so oscillate that the shaft 10 is continuously driven. The two-stroke drive of the ratchet wheel 12 due to the two sets of pawls is a feature of considerable advantage in the handling of materials of low angle of repose in the short length feed device often made necessary in practice, for there is not the stopping of the flight operation permitting the material to run out irregularly of its own accord, but the whole scheme so handles the material by forcing it out continuously that no inaccuracy or irregularity may result.

What is claimed and it is desired to secure by Letters Patent is:

1. The combination in a feeder of a hopper, a driving shaft adapted to operate in either direction of rotation and having agitators in the hopper, a casing having near one end thereof an inlet opening in communication with said hopper and at the other end thereof a discharge opening, the intermediate portion of said hopper being tubular, a rotatable flight feeding device longitudinally disposed in said tubular portion, and a one direction driving mechanism connecting the driving shaft and the feeding device to rotate the device in one direction to carry material from the hopper regardless of which direction the driving shaft rotates.

2. The combination with a rotatable continuous pitched scroll flight carrying device, of a rotatable agitating and flight clearing device having arms operating toward and between the scroll portions of the flight carrying device, and driving means separate from the flight clearing arms and operable to actuate the clearing device and the scroll device in synchronism to effect clearing of the scroll flight carrying device by the arms of the flight clearing device.

3. The combination in a feeder of a housing having an inlet opening near one end and a discharge opening near the other end thereof, a rotatable element in the housing having a radially extending flight of scroll form extending from the inlet opening to adjacent the discharge opening to effect axial travel of material from the inlet end toward the discharge end of the housing, said scroll form of the flight terminating short of the housing in a kicker portion at said discharge opening, said kicker portion being continuous with the thread of the scroll of the flight and of similar radial extent to effect radial travel of the material.

In testimony whereof I affix my signature in the presence of two witnesses.

FOREST G. GAUNTT.

Witnesses:
FRANKLIN P. WILT,
ANNA M. KERN.

Correction in Letters Patent No. 972,761.

It is hereby certified that in Letters Patent No. 972,761, granted October 11, 1910, upon the application of Forest G. Gauntt, of Fort Wayne, Indiana, for an improvement in "Feeding Devices," an error appears in the printed specification requiring correction as follows: Page 2, line 24, the word "hopper" should read *casing;* and that the proper correction has been made in the files and records of the Patent Office and is hereby made in the said Letters Patent.

Signed and sealed this 2d day of May, A. D., 1911.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

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