

No. 878,443.

PATENTED FEB. 4, 1908.

A. G. YOUNG.
GRAIN CHUTE.

APPLICATION FILED OCT. 31, 1907.

2 SHEETS—SHEET 1.

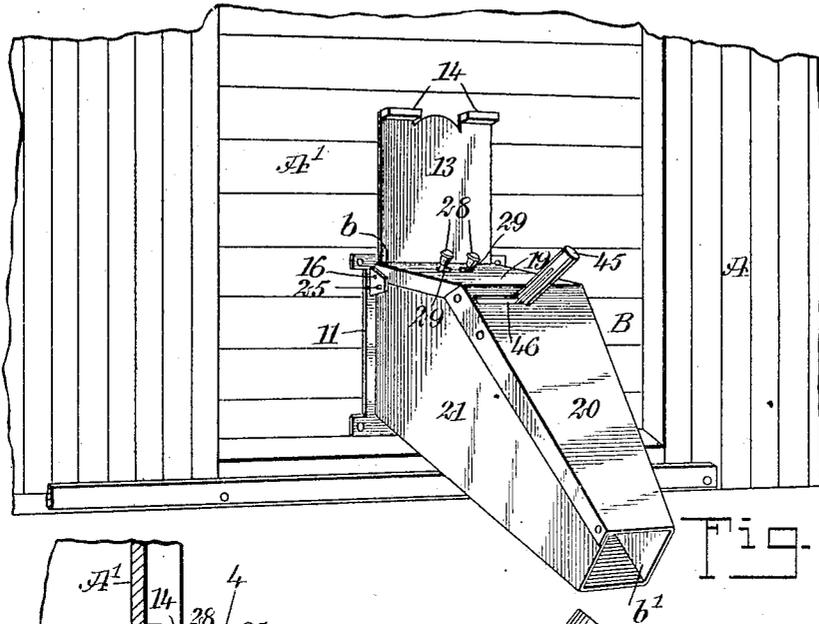


Fig. 1

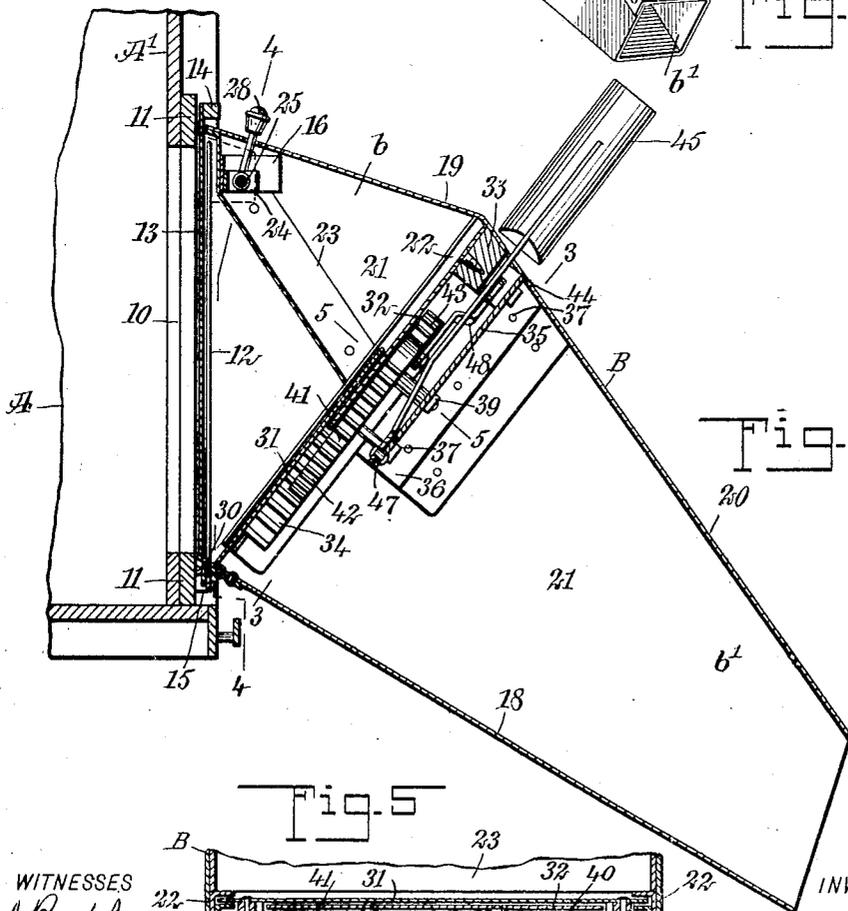


Fig. 2

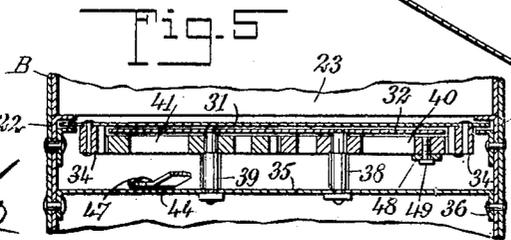


Fig. 5

WITNESSES
J. A. Murphy
W. H. [unclear]

INVENTOR
A. G. Young
BY
Wm. [unclear]
ATTORNEYS.

No. 878,443.

PATENTED FEB. 4, 1908.

A. G. YOUNG.
GRAIN CHUTE.

APPLICATION FILED OCT. 31, 1907.

2 SHEETS—SHEET 2.

Fig. 3

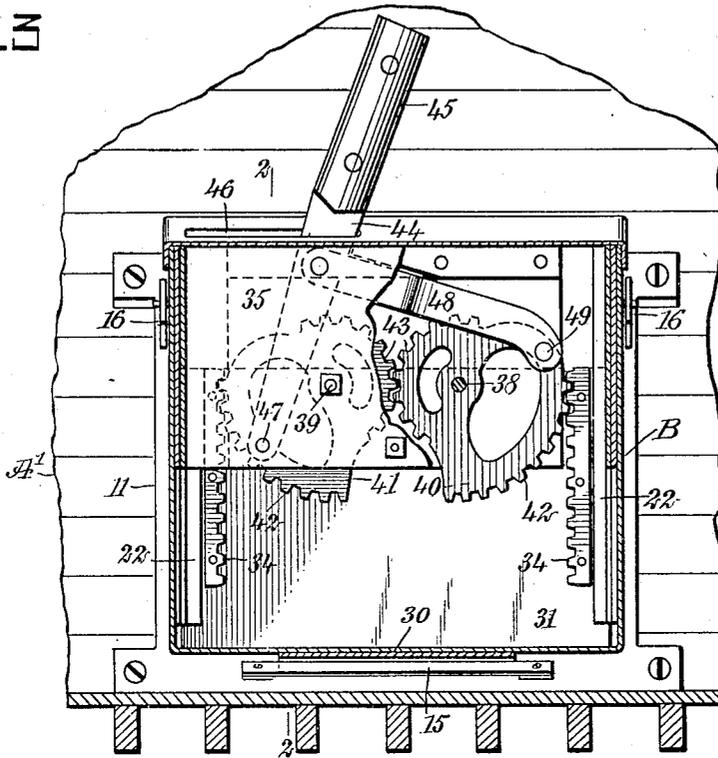
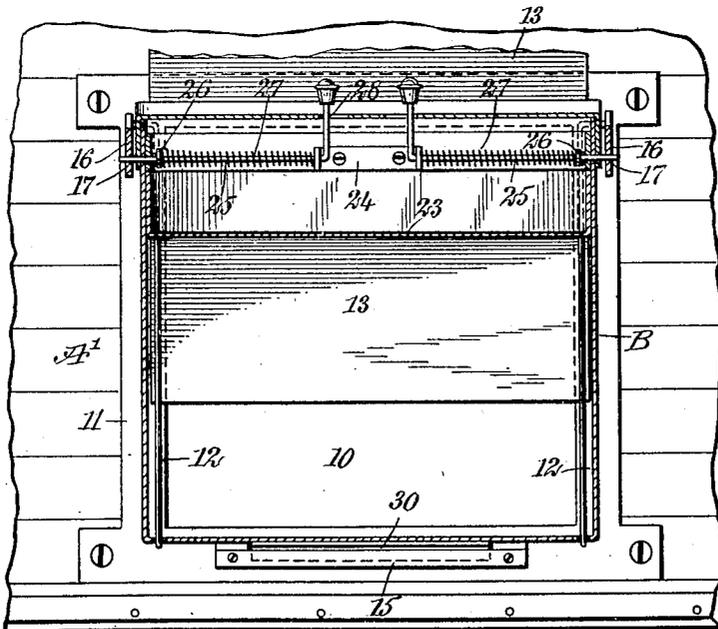


Fig. 4



WITNESSES

J. A. B. P. P. P.
J. A. B. P. P. P.

INVENTOR

Aranza C. Young

BY

Wm. W. Young
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ARANZA GALE YOUNG, OF NEW LONDON, CONNECTICUT.

GRAIN-CHUTE.

No. 878,443.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed October 31, 1907. Serial No. 400,028.

To all whom it may concern:

Be it known that I, ARANZA GALE YOUNG, a citizen of the United States, and a resident of New London, in the county of New London and State of Connecticut, have invented a new and useful Improvement in Grain-Chutes, of which the following is a full, clear, and exact description.

The purpose of the invention is to provide a very simple, durable, and economic form of grain chute, adapted for drawing grain from a car and delivering it into sacks or other receptacles to be weighed, the construction of the chute being such that it can be quickly and conveniently applied to a grain door and as expeditiously and readily removed therefrom, thus obviating the necessity of shoveling up the grain to provide room within the car for scales.

The invention consists in the novel construction and combination of the several parts as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a portion of the side of a car and the improved chute applied to the grain door thereof; Fig. 2 is an enlarged longitudinal section through the applied device, the section being taken practically on the line 2—2 of Fig. 3; Fig. 3 is a transverse section taken substantially on the line 3—3 of Fig. 2; Fig. 4 is a transverse section taken practically on the line 4—4 of Fig. 2; and Fig. 5 is a horizontal section taken substantially on the line 5—5 of Fig. 2.

A represents a portion of the side of a car adapted for the transportation of grain, and A' represents the usual grain door employed. An opening 10 is made in the grain door A', preferably at its central lower portion, as is shown in Fig. 2, and the said opening 10 is surrounded by a frame 11 that is bolted or otherwise attached to the outside of the said grain door. This frame 11 is provided with grooves 12 at its side portions, and in the said grooves a door 13 is mounted to slide, the said door being preferably provided with enlargements 14 at its upper end so as to facilitate the raising and lowering of said door. The door 13 normally closes the opening 10 and may be locked in its closed position if so desired, but ordinarily the door 13 is

protected by the usual outside door provided for the car.

In the further construction of the frame 11, a longitudinal keeper 15 is formed about centrally at its lower portion, as is particularly shown in Fig. 3, and at each side of its upper portion an outwardly extending ear 16 is formed, and in each of these ears an aperture 17 is produced adapted to receive bolts to be hereinafter described.

B represents the chute; this chute is constructed with what may be termed an inner or receiving section *b*, and an outer or delivering section *b'*. A bottom 18 is common to both sections, and the said bottom has a downward and an outward inclination, as is illustrated in Figs. 1 and 2, but the top 19 of the receiving section *b* of the chute has less of an inclination than has the top 20 of the delivering section *b'*, and the sides 21 of the chute are also common to both of the sections, as is particularly shown in Figs. 1 and 2. Where the two sections *b* and *b'* connect, slideways or grooves 22 are produced on the inner side faces of the chute, as is illustrated in Figs. 2 and 5; these slideways 22 are in transverse alinement and extend from top to bottom of the chute. A diagonal partition 23 is provided in the receiving section *b*, which partition 23 extends down vertically from the upper rear portion of the said receiving section *b*, as is shown in Fig. 2, and thence extends downwardly to about the central portion of the slideways 22, and the partition 23 is likewise carried from side to side of the chute, thus when the door 13 is opened the grain is received in the receiving section below the partition 23 and is directed thereby to the delivering section *b'*.

At the central portion of the outer face of the vertical section of the partition 23, a bracket 24 is secured, as is illustrated in Fig. 4, and the inner end portions of opposing bolts 25 are mounted to slide in the end portions of the bracket 24, and the outer ends of the bolts normally extend beyond the side surfaces of the chute, and each bolt is surrounded by a spring 27 having bearing against the bracket 24 and an enlargement 26 near the outer end of the bolt. Each bolt is provided with an outwardly extending handle 28, and these handles are passed out through openings 29 in the top of the receiving section *b*, as is illustrated in Fig. 1, the handles 28 of the bolts 25 bearing such rela-

tion to each other that the two handles may be grasped by the hand and drawn together so as to draw forward the bolts 25, or may be released so as to permit the bolts to assume their normal positions.

A lip 30 is provided at the inner end of the bottom 18 of the chute, and when the chute is applied to a grain door A' this lip 30 is made to enter the keeper 15 on the frame 11, as is illustrated in Figs. 2, 3, and 4, and at such time the bolts 25 are drawn inward and when the upper portion of the chute is in proper position between the ears 16 of the frame, the bolts are released and their springs force the outer ends of the bolts through the apertures 17 in the said ears of the frame, as is particularly shown in Fig. 4. In this manner the chute can be expeditiously applied to a grain door, and may be as readily and conveniently disconnected.

The opening between the receiving section *b* of the chute and the delivering section *b'*, or the opening through which the grain passes from one section to the other, is normally closed by a gate 31, which gate has sliding movement in the slideways 22, heretofore referred to. In front of the slideways, a partition 32 is vertically located; which partition extends practically from the top portion of the chute with the delivering section *b'*, to a point that is just below the upper end of the gate 31 when the gate is closed. The partition 32 is attached to a beam 33 that extends along the top of the delivering section within the same, and the said beam 33 serves to support the partition 32, which partition 32 does not extend to the sides of the chute, as is shown in Fig. 5, thus providing space at the sides for racks 34 that are vertically secured to the outer face of the gate 31 adjacent to its side edges, as is especially shown in Fig. 3. A second partition 35 is located forward of and is spaced from the partition 32. The partition 35 extends down about the same distance as does the partition 32, but the partition 35 is preferably made to extend from side to side of the chute, and is secured thereto by means of suitable flanges 36, as is shown in Figs. 2 and 5, and is attached to the aforesaid beam 33 by means of bolts 37, or their equivalents.

Parallel posts 38 and 39 are supported by the partitions 32 and 35, and a segmental gear 40 is mounted on the post 38, and a corresponding gear 41 is mounted on the post 39, as is best illustrated in Fig. 3. Each of said gears is provided with outer peripheral teeth 42 and inner peripheral teeth 43, the radius of the teeth 42 being much greater than the radius of the teeth 43. The teeth 42 of these gears mesh with the teeth on the racks 34, as is also best shown in Fig. 3, while the inner teeth 43 of the two gears are in engagement, as is illustrated in the same figure.

The inner flattened end 44 of a handle 45

is carried down through a slot 46 produced in the top 20 of the delivering section *b'*, adjacent to where the two sections connect, and the inner end of the said handle 45 is pivoted to the inner face of the forward partition 35, as is shown at 47 in Figs. 3 and 5, the pivotal point being adjacent to the lower portion of the outer teeth 42 of the gear 41. An arm 48 is pivoted at one end to the handle 45 within the said delivering section *b'* of the chute, and the said arm 48 at its outer end is pivotally attached to the upper outer end of the gear 40, as is illustrated at 49 in Figs. 3 and 5. It will thus be observed that when the chute has been properly attached to a grain door, and the door 13 has been raised and is held open while the gate 31 is closed, or in its normal position, the grain cannot pass from the receiving section of the chute to the delivering section, but when the handle 45 is carried to the reverse end of the slot 46 shown in Fig. 3, the arm 48 will actuate the gear 40 and the said gear in its turn will impart motion to the gear 41 and both gears will operate on the racks 34 with which they are engaged, to elevate or open the said gate 31, and the grain is then free to pass out through the delivering section into sacks or other receptacles placed to receive it.

This device is very simple and the few parts employed are such that they are not liable to get out of order, and the handles for the bolts 25 and the handle operating the gears 40 and 41, can be quickly and conveniently manipulated. It is evident that this chute while particularly adapted for the passage of grain from cars, may be also employed with equally good effect for analogous purposes.

Having thus described my invention, I claim as new and desire to secure by Letters Patent,—

1. A chute, a gate mounted to slide in the chute, racks carried by the gate, gears within the chute and meshing with each other and engaging said racks, a lever mounted to swing transversely of the chute, and connected with one of the gears for operating the gate.

2. A chute, a gate mounted to slide in the chute between its receiving and delivering ends, racks carried by the gate, gears mounted within the chute, meshing with each other and engaging said racks, and exteriorly operated means for imparting movement to the gears.

3. A chute, a gate mounted to slide in the chute, racks carried by the gate, gears each having two sectors of different radii, the teeth of one sector of each gear engaging a rack, the other sectors being in mesh, and means for imparting movement to one of the gears.

4. A gate mounted for sliding movement, racks for the gate, gears meshing with each other and with the racks, each gear being

provided with two sectors of different radii, and means for moving the gears.

5 5. In a chute or like device, a gate mounted for sliding movement, racks for the gate, 5 gears meshing with each other and with the racks, each gear having two sectors of different radii, the sectors of the greatest radius operating the racks, and means for moving the gears.

10 6. A casing, a gate mounted to slide in the casing, racks upon said gate, gears mounted to rotate in the casing, each being provided with two sectors of different radii, the sectors of least radius being in mesh, and the sectors 15 of greatest radius engaging the said racks, and means for imparting movement to one of said gears.

20 7. In a chute or like device, a gate mounted for sliding movement within the casing, racks secured to the said gate, gears mounted in the said casing independent of the gate, which gears mesh with each other and also engage with the said racks, each gear being provided with two sectors of different radii, 25 the sectors of greatest radii engaging with the said racks, a lever fulcrumed within the

chute, and an arm pivotally connected with said lever and with one of said gears.

8. In a grain chute, the combination with a frame provided with ears extending out 30 therefrom, of a chute having opposing spring controlled bolts adapted to enter said ears, and means for simultaneously operating the said bolts to and from said ears.

9. In a grain chute, the combination with 35 a frame adapted for attachment to a grain door, and a door for said frame to open and close the same, of a chute, means for connecting the chute with the frame, a gate mounted for sliding movement in the chute, 40 a rack and pinion mechanism for operating the said gate to opened and closed positions, and means for exteriorly operating the said rack and pinion mechanism.

In testimony whereof I have signed my 45 name to this specification in the presence of two subscribing witnesses.

ARANZA GALE YOUNG.

Witnesses:

EDWARD H. CAULKIN,
CLARK E. SMITH.