Jan. 5, 1932. F. PARDEE 1,839,494

DISCHARGE CHUTE

Filed July 2, 1929

Fig. 1.

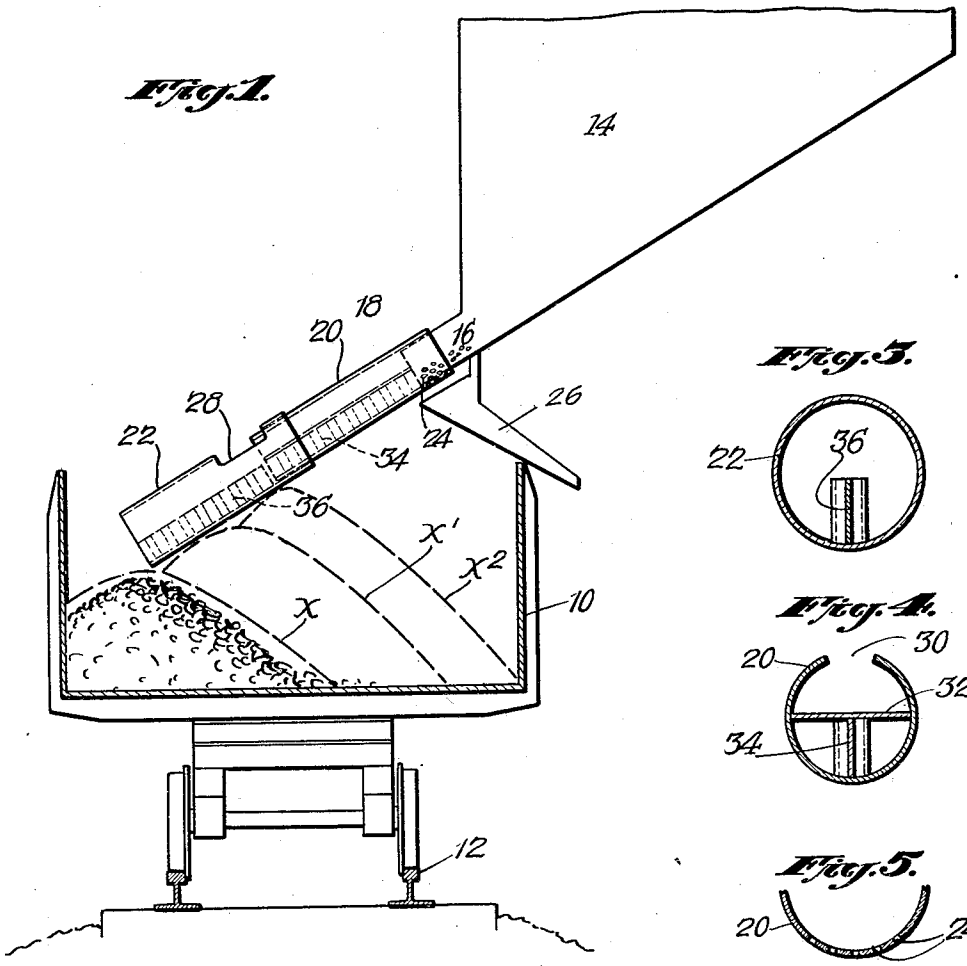


Fig. 3.

Fig. 4.

Fig. 5.

Fig. 2.

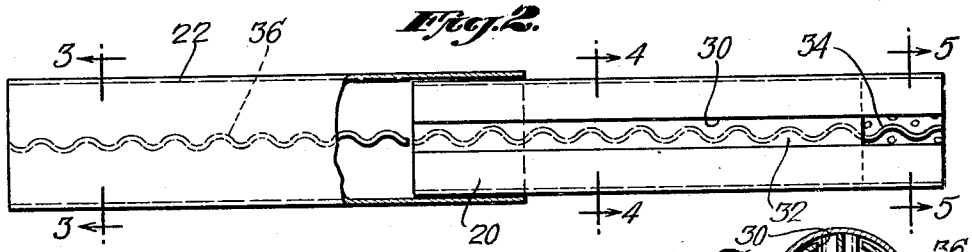


Fig. 7.

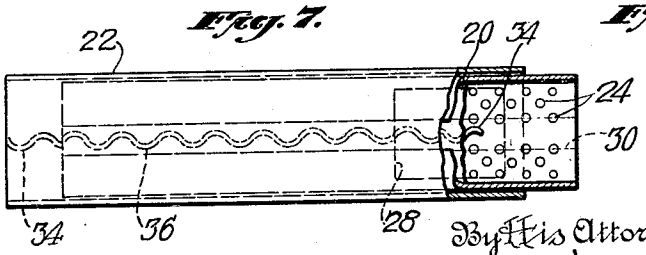
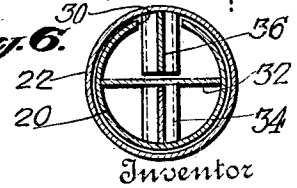


Fig. 6.



Inventor

FRANK PARDEE

By His Attorneys

Ware & Rambo

Patented Jan. 5, 1932 1,839,494

UNITED STATES PATENT OFFICE

FRANK PARDEE, OF HAZLETON, PENNSYLVANIA, ASSIGNOR TO ANTHRACITE SEPARATOR COMPANY, OF HAZLETON, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

DISCHARGE CHUTE

Application filed July 2, 1929. Serial No. 375,499.

This invention while not limited thereto relates to improvements in chutes adapted particularly for transferring material from bins to railway cars.

In the handling of coal it is important that the lumps move slowly in transit from the bin to their final resting place. This is to avoid breakage or formation of fines which have little or no sale value. My improved discharge chute includes a serpentine or sinuous retarding member which tends to slow up the lumps travelling from the bin to the car. This member prevents breakage or production of unsaleable fines.

In the embodiment of the invention illustrated, I provide two telescopic sections. During the initial stage of loading the telescopic sections are expanded and the lumps of coal leave the chute in the approximate zone which is to be their final resting place in the railway car while in transit. As the car fills up the sections are collapsed to as to shorten the distance between the end of the chute and the growing pile in the car. The car is also adapted to be moved longitudinally so as to permit progressive loading lengthwise of the car.

The improved chute is so designed that the two parts when collapsed nest together, the retarding member of one part of the chute being accommodated in a slot formed in the other chute.

The invention will be fully apparent from the following specification when read in connection with the accompanying drawings and the features of novelty will be defined with particularity in the appended claims.

In the drawings:

Fig. 1 represents a transverse section through a freight car and also shows in elevation a bin equipped with a telescopic discharge chute embodying the present invention;

Fig. 2 is an enlarged plan view of the improved discharge chute, parts being broken away and shown in section to reveal interior structural features;

Fig. 3 is a vertical transverse section on line 3—3 of Fig. 2;

Fig. 4 is a similar section on line 4—4 of Fig. 2;

Fig. 5 is a fragmentary section on line 5—5 of Fig. 2;

Fig. 6 is a sectional view illustrating the relative position of parts after section shown in Fig. 3 has been turned 180 degrees and collapsed over the section illustrated in Fig. 4;

Fig. 7 is a plan view of Fig. 6 showing the parts collapsed.

Referring in detail to the drawings, 10 represents somewhat diagrammatically an ordinary coal car adapted to be moved along the track siding 12 located adjacent a storage or coal breaker bin 14. This bin is provided with the usual form of outlet or neck portion 16 to which is secured my improved discharge chute indicated generally at 18. This chute as shown consists of an upper section 20 and a lower section 22. The lower section embraces and is adapted to telescopically engage the upper section.

The underside of the upper section is provided with a foraminous portion 24 adapted to permit the passage therethrough of dust or fines which escape to a discharge chute 26 leading to a waste pile. The lower section 22 is formed with an interrupted portion 28 which, when the two sections are collapsed, is adapted to be brought into register with the foraminous portion so as not to interfere with the escape of fines.

The upper and lower sections 20 and 22 are of substantially cylindrical form and are arranged for telescopic engagement. The upper section has an interrupted or slotted portion 30 extending longitudinally thereof from end to end. A partition or division wall 32 is located coincident with the central axis of the section 20, as shown in Fig. 4.

Located between this partition wall and the lower inner surface of the section 20 is secured a retarding member 34 of sinuous or zig-zag form as clearly indicated in Fig. 2. This member 34 is of such form that it resists the travel of material through the chute and is designed to reduce the velocity of flow to such an extent that the breakage of coal will be minimized.

The lower section 22 is also provided with a retarding member, as indicated at 36.

In the initial stage of loading a car with coal from a bin 14 the sections 20 and 22 will be in extended position, as illustrated in Fig. 1. As the pile of coal stacks up in the car approximately to the position indicated by the dotted line x the railway car will be moved endwise so as to build up the pile in the corner from substantially one end of the car to the other. With this arrangement it will be understood that the coal falls a shorter distance from the end of the chute to the car than would be the case if the chute were only half as long.

As the coal begins to accumulate in the bottom of the car and in the corner opposite the end of the chute it is necessary to shorten up the distance. This can be done by moving the extended chute bodily back toward the bin 14 along the neck portion 16. As the car begins to fill up the chute can be materially shortened by turning the lower section 22 approximately 180 degrees with relation to the section 20 whereupon the lower section can be pushed back or telescoped on the upper section. The lower section of course can occupy a great number of positions so as to permit the pile to be progressively built up in the car as indicated by the dotted lines x' and x^2. When the section 22 is retracted or partially collapsed it will be understood that the retarding member 36 of the lower section passes freely through the slotted portion 30 and the upper section and is accommodated in the space above the partition wall 32. When the section 22 is fully collapsed on the section 20 the interrupted or cut-away portion 28 registers with the foraminous portion 24 so that the escape of fines to the discharge chute 26 is in no way interfered with.

It will be appreciated by those skilled in the art that the improved discharge chute described herein enables coal handlers to progressively load the railway coal cars in such a way that the free flow of coal lumps from the end of the chute to the growing pile is so shortened that a minimum breakage of lumps will take place. Thus by use of the improved discharge chute the loss due to breakage of coal into unsalable fines will be materially lessened.

An important characteristic of the invention resides in the provision of a retarding member of serpentine, sinuous or undulating form in which the crests as well as the hollows are rounded or curved as shown. The curves may be arcuate or otherwise and the surfaces joining the curved crests with the curved hollows may be either straight or curved. The provision of a retarding member of this shape influences the travel of material through the chute so that it progresses en masse with a slow wave motion. Thus the coal lumps leave the end of the chute at a relatively slow rate of speed thereby avoiding the breakage or the production of unsalable fines.

While I have described quite specifically the details of the embodiment of the invention herein illustrated it is not to be construed that I am limited thereto since changes in the arrangement and substitution of equivalents may be made by those skilled in the art without departing from the invention as defined in the appended claims.

1. A discharge chute of the character described comprising a pair of sections in telescopic engagement, respective retarding members secured to said sections, one of the sections having an interrupted portion adapted to accommodate the retarding member of the other section when the two are collapsed.

2. A discharge chute of the character described comprising a pair of substantially cylindrical sections, one section having a longitudinal slot extending lengthwise of the top thereof and a longitudinal partition substantially central thereof and a retarding wall between said partition and the lower inner surface of said section, the other section embracing the first mentioned section and having a retarding member adapted to pass through said slot above said partition when the two sections are collapsed.

3. A discharge chute of the character described comprising upper and lower substantially cylindrical sections, said upper section having a retarding member therein and having a foraminous portion to permit the escape of fine material, said lower section telescopically embracing the upper section and having an interrupted portion adapted to be brought to substantial register with the foraminous portion of the upper section when the parts are collapsed.

4. A discharge chute comprising a pair of tubular sections in telescopic engagement, one of the sections having an upright retarding wall extending lengthwise thereof and the other section having an interrupted portion adapted to accommodate said retarding wall when the two sections are collapsed.

5. A discharge chute adapted to be obliquely disposed, and having an inclined runway surface along which material is adapted to flow by gravity, and a sinuous retarding member disposed lengthwise of the chute and extending upwardly from said inclined runway surface.

6. A discharge chute of the character described comprising an obliquely supported tube along the lower portion of which material is adapted to flow by gravity and a sinuous retarding member disposed centrally of the runway portion and dividing it into two longitudinally inclined zones.

In witness whereof, I have hereunto signed my name.

FRANK PARDEE.