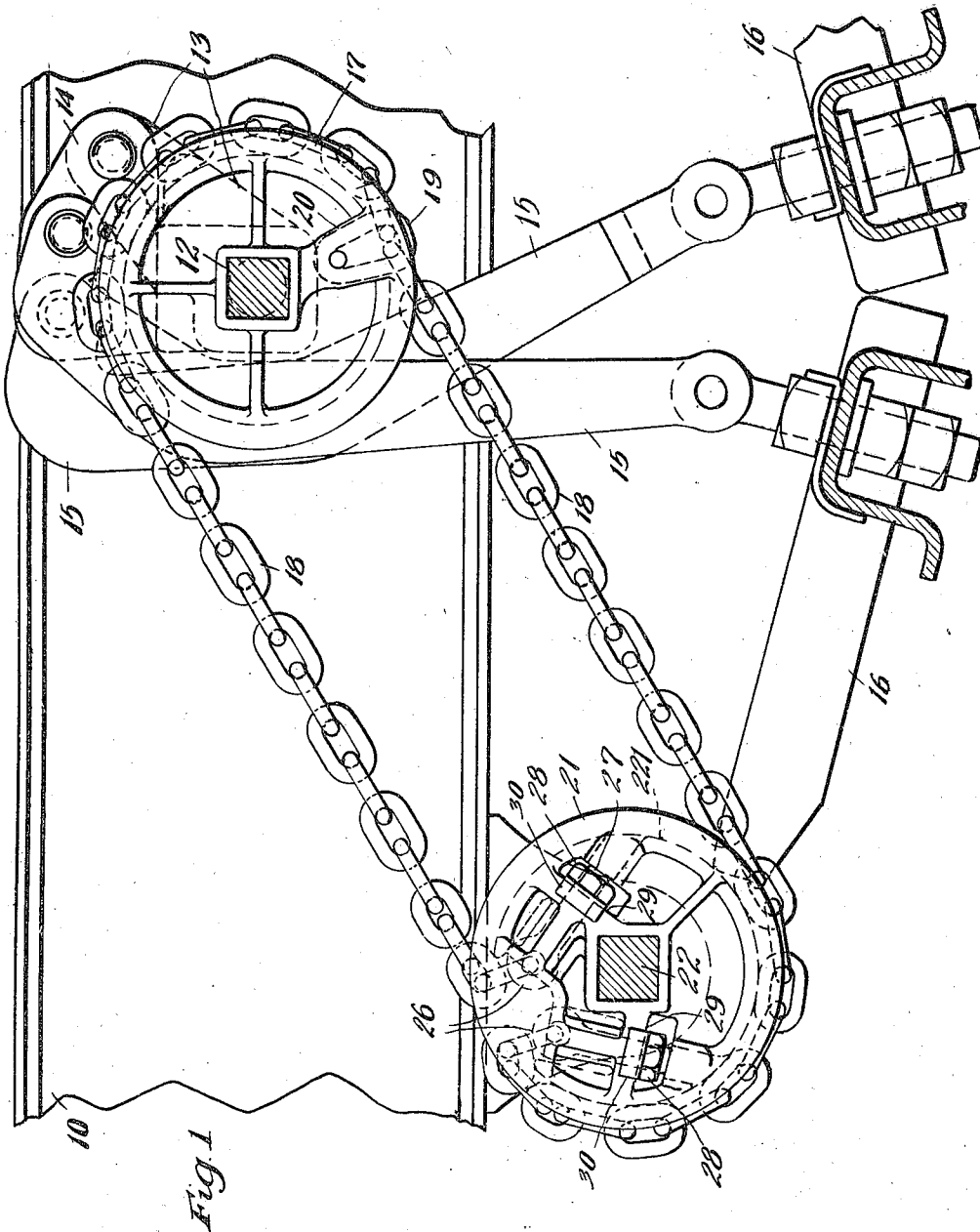


A. CAMPBELL.
HOPPER CAR DOOR OPERATING MECHANISM.
APPLICATION FILED JAN. 30, 1913.

1,062,385.

Patented May 20, 1913.

2 SHEETS-SHEET 1.



WITNESSES:

Wm. Geiger
Pearl Abrams

INVENTOR.

Argyle Campbell

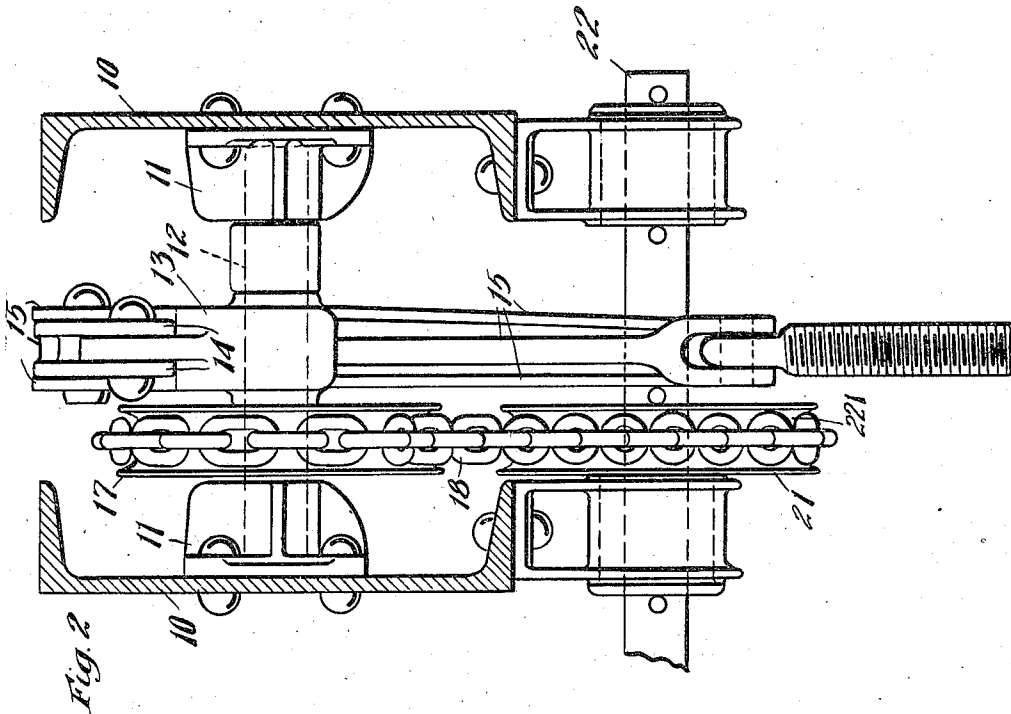
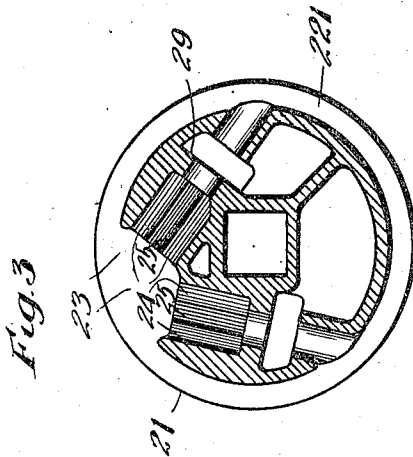
BY *Munday, Evans,*
Adcock & Clarke,
his ATTORNEYS.

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

ARGYLE CAMPBELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO ENTERPRISE RAILWAY EQUIPMENT COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

HOPPER-CAR-DOOR-OPERATING MECHANISM.

1,062,385.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed January 30, 1913. Serial No. 745,057.

To all whom it may concern:

Be it known that I, ARGYLE CAMPBELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hopper-Car-Door-Operating Mechanism, of which the following is a specification.

This invention relates to improvements in hopper car door operating mechanisms, and more particularly to the type of door operating mechanism shown and described in my co-pending application, Serial No. 737,784, for hopper cars, filed December 20, 1912.

An object of the invention is to provide simple means for adjusting the length of the chains of the door operating mechanism.

Another and more specific object of the invention is to provide a sheave wheel having means for independently and adjustably attaching two chain ends thereto.

The invention furthermore consists in the improvements in the parts and devices and in the novel combinations of parts and devices herein shown, described or claimed.

In the drawing forming a part of this specification, Figure 1 is a detail, longitudinal, sectional view of a portion of a hopper car showing one construction embodying my improvements, the section being taken substantially centrally of the car. Fig. 2 is a transverse, detail, sectional view of a portion of a hopper car embodying my improvements, the section being taken on a line to the left of the structure shown in Fig. 1, and Fig. 3 is a detail sectional view of the improved sheave wheel.

In said drawing, the center sills of the car are denoted by the references 10, and mounted between said center sills on supporting brackets 11 is a short shaft 12, the latter being provided with a drum 13 having pivotally connected thereto links 14, the latter in turn being pivotally connected to hook shaped links 15, pivoted at their lower end to hopper doors 16. Also mounted on shaft 12 is a sheave wheel 17 over which winds a chain 18 secured to said sheave wheel 17 by means of a link 19 held within a socket 20, said link 19 being located approximately at the middle of the length of

the chain. The chain 18 has each of its ends adjustably secured to another sheave wheel 21, mounted on a transversely extending operating shaft 22.

The means for adjustably connecting the ends of the chain to the sheave 21 comprise the following: By referring to Fig. 3, it will be seen that the sheave wheel 21 is provided with a circumferentially extending groove 22, adapted to receive the chain, two recesses 23, said recesses 23 being arranged at an angle to each other, each of said recesses 23 being provided with a pair of longitudinally extending slots 24 and 25, said pairs of slots 24 and 25 being arranged at right angles to each other for a purpose hereinafter described. The slots 24 are each adapted to receive the eyes 26 of the eye-bolts 27, connected to each end of the chain, and as will be obvious, the slots 24 will prevent the eye-bolt from rotating, but will allow the latter to be adjusted up and down by means of the nuts 28, which engage the eye-bolts beneath a ledge or bracket 29 formed in the sheave wheel. The other slots 25 are each adapted to receive the end links of the chain ends and will also serve to prevent the chain from twisting, at the same time permitting the end links to be adjusted in and out of the slots. Each nut 28 is provided with a locking plate 30 to prevent the nut from rotating.

From the foregoing description, it will be seen that although the chain 18 is secured to the sheave wheel 17 by fixed means, yet the length of each portion of the chain is independently adjustable by means of the construction of the sheave wheel 27 and eye-bolts at the ends of the chains, whereby any wear or "give" of the parts may be compensated for to insure the proper closing of the hopper doors 16. At the same time, the adjustable attaching means for the ends of the chain is prevented from rotating or twisting, which would otherwise occur to thereby increase the length of the chain.

Although I have herein shown and described what I now consider the preferred embodiment of my improvements, yet it will be understood that the same may be changed as to the details of construction, without departing from the spirit of the

invention, and all changes are contemplated as fall within the scope of the claims appended hereto.

I claim:—

- 5 1. A door operating mechanism of the character described including, a chain, a sheave wheel over which said chain winds and to which one end of the chain is secured, and means for adjustably securing said end
10 of the chain to the sheave wheel, said means including an eye-bolt, a recess in the sheave wheel through which the bolt passes, said recess having a slotted portion in which the eye of the eye-bolt is slidable but is
15 prevented from turning, substantially as specified.
2. A door operating mechanism of the character described including, a sheave wheel, said sheave wheel being provided
20 with a pair of recesses, each recess being provided with a slotted portion, and two chain ends adjustably secured to said sheave wheel by means including an eye-bolt, the eye of which is adjustable up and down said
25 slotted portion, but is prevented from twisting therein, substantially as specified.
3. A door operating mechanism of the character described, including a chain, a sheave wheel over which said chain winds
30 and to which one end of the chain is secured, and means for adjustably securing said end of the chain to the sheave wheel, said means including an eye-bolt, a recess in the sheave wheel through which the bolt
35 is adapted to pass, said recess being pro-

vided with a pair of slots arranged at right angles to each other, one of said slots being adapted to receive the eye of the eye-bolt, and the other of which is adapted to receive the end link of the chain, said slots preventing turning of the eye-bolt and end link, substantially as specified. 40

4. A door operating mechanism of the character described, including a chain, a sheave wheel, and two sets of devices for
45 independently and adjustably attaching the two ends of said chain to the sheave wheel, each set of devices including an eye-bolt secured to the end link of the chain, a recess in the sheave wheel through which the eye-
50 bolt is adapted to pass, said recess having slotted portions arranged at right angles to each other, one of the slotted portions being adapted to receive the eye of the eye-bolt and the other being adapted to receive
55 the end link of the chain, substantially as specified.

5. A door operating mechanism of the character described including a sheave wheel, a chain, and devices for independ-
60 ently adjustably connecting each end of said chain to the sheave wheel, said devices including an eye-bolt, and means integral with the sheave wheel for preventing the eye-bolt from turning, substantially as
65 specified.

ARGYLE CAMPBELL.

Witnesses:

PEARL ABRAMS,
JOSEPH HARRIS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."