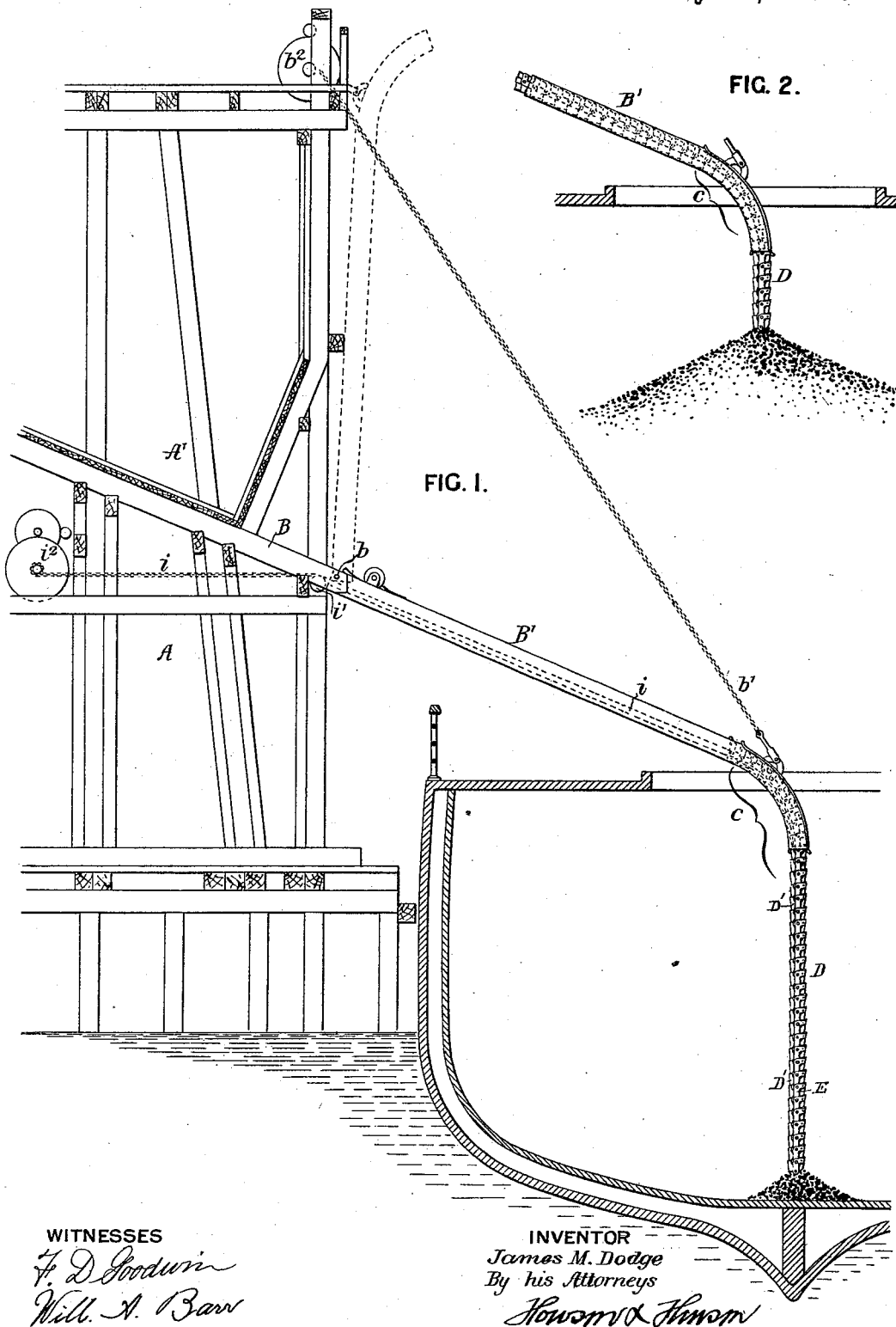


J. M. DODGE.

CHUTE FOR LOADING VESSELS, CARS, &c.

No. 523,851.

Patented July 31, 1894.



WITNESSES

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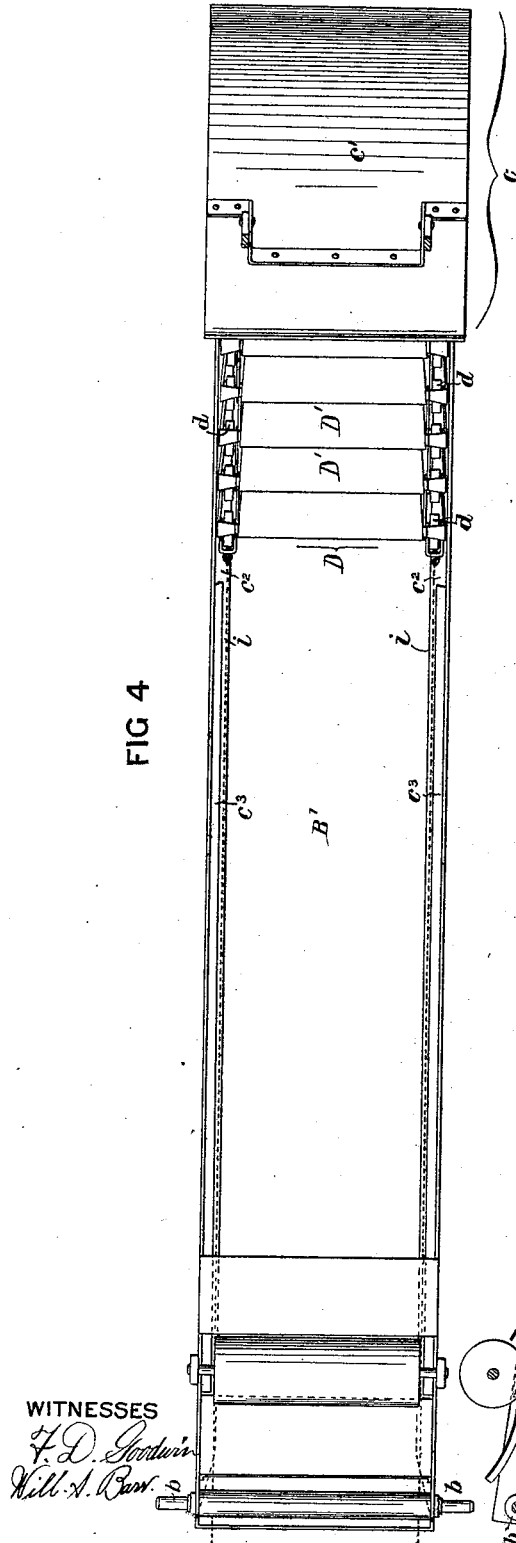
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FIG 4



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FIG 3

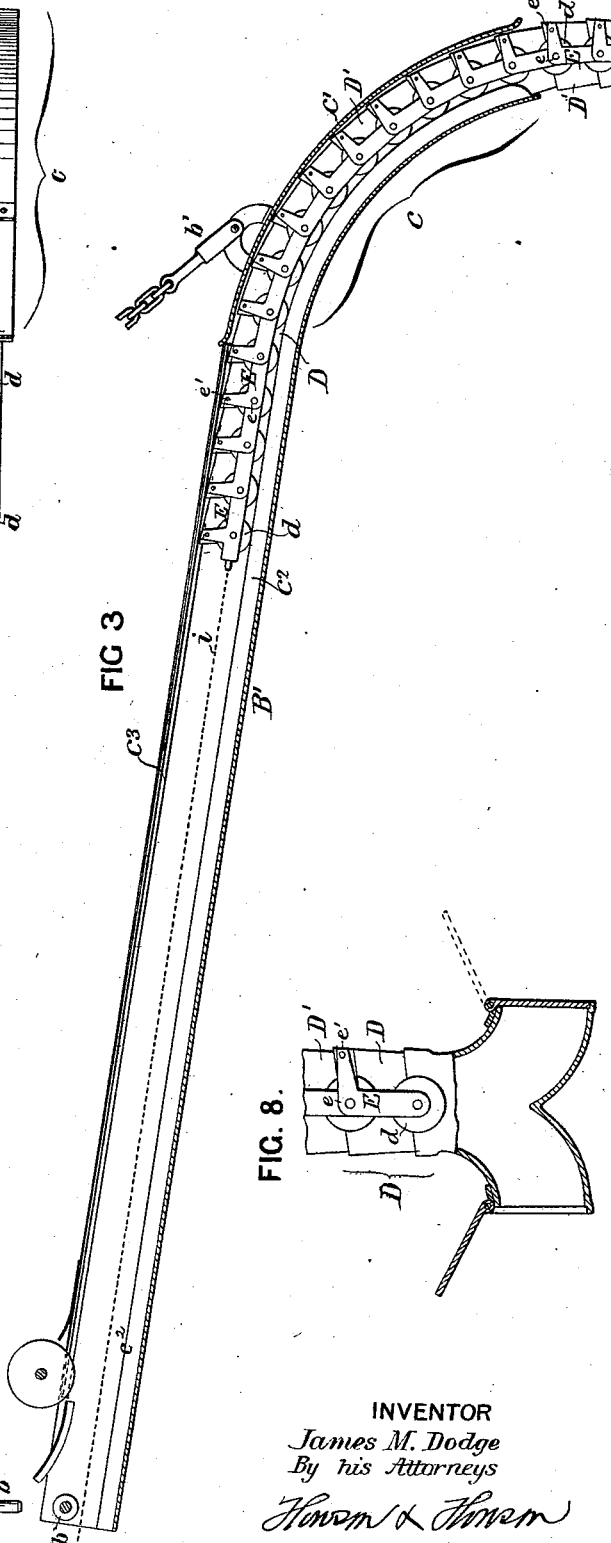
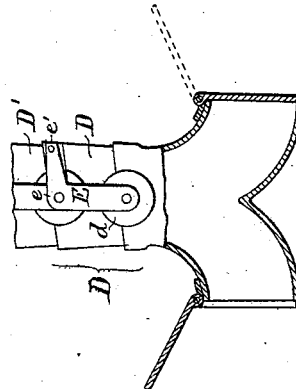


FIG. 8.



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FIG 7

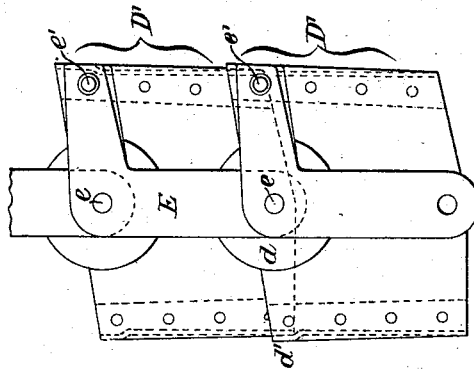


FIG 5

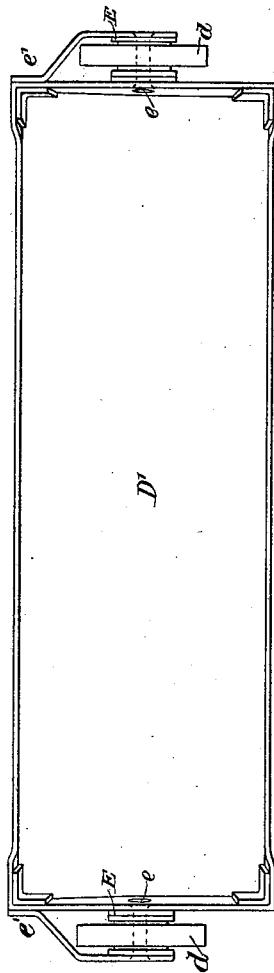
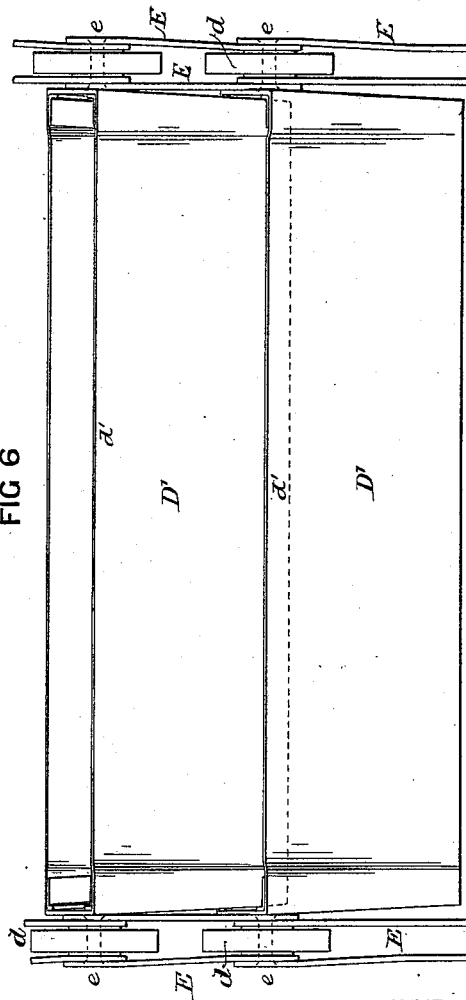


FIG 6



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# UNITED STATES PATENT OFFICE.

JAMES M. DODGE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
DODGE COAL STORAGE COMPANY, OF NAUGATUCK, CONNECTICUT.

## CHUTE FOR LOADING VESSELS, CARS, &c.

SPECIFICATION forming part of Letters Patent No. 523,851, dated July 31, 1894.

Application filed May 9, 1894. Serial No. 510,602. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES M. DODGE, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain  
5 Improvements in Chutes for Loading Vessels, Cars, &c., of which the following is a specification.

The object of my invention is to provide an ordinary chute for loading vessels and cars  
10 with coal or other material with a section which can be drawn into the trough, or lowered so as to hang therefrom in order that coal as it is delivered will not fall a great distance but will flow into the vessel or other  
15 receptacle without causing a great percentage of breakage.

Referring to the accompanying drawings:—  
Figure 1, is a view showing my invention applied to a coal chute mounted on a dock, with  
20 a vessel in section. Fig. 2, is a view of a portion of Fig. 1, showing the position of the telescopic section elevated to accommodate the increased height of the body of coal. Fig. 3, is an enlarged sectional view of the coal  
25 chute showing the telescopic section partly within the chute. Fig. 4, is a plan view of Fig. 3. Figs. 5, 6 and 7, are detailed views of the telescopic section. Fig. 8, is a view showing the valved end sections.

30 Referring in the first instance to Figs. 1 and 2, A is the trestle work supporting the coal bin A' into which coal is dumped from the cars on the tracks above and extending from this bin is a fixed chute B to which is  
35 hung at b the pivoted chute B', this chute can be raised or lowered by the chain b' extending from the outer portion of the chute to a drum b<sup>2</sup>, by this means the pivoted chute can be raised to the position shown by dotted  
40 lines in Fig. 1, or lowered to the position shown by full lines in said figure, or any intermediate position.

The chute in the present instance has a curved outer end c, provided with a cover c',  
45 and on each side of the chute is a rail c<sup>2</sup> on which travel the wheels or rollers d of the telescopic section D when in the chute, as clearly shown in Fig. 3.

The telescopic section D is made up of a  
50 number of pivoted parts D', the end of one part fitting into the end of the adjoining part,

as shown in Figs. 6 and 7, the parts are so shaped that they will move freely, yet will be sufficiently tight to prevent small particles of coal clogging the joints, and the parts  
55 are so arranged that the forward end of one part will fit into the rear end of the adjoining part, so that as the coal flows through the chute its flow will not be impeded by any projecting ends.

In order to provide an even surface for the passage of coal I expand the rear portion d' of each section D', so that the coal will flow over a practically even surface. In the present  
60 instance each section D' is made quadrangular in cross section as shown in Fig. 5, and extends across the chute B'; the bottom of the first section is arranged to come in contact with the bottom of the chute so that as  
65 the coal flows through the chute, it will flow into the first part of the telescopic section and will then flow through the entire length, and discharge into the vessel or other receptacle, as shown in Fig. 1.

E are the chain links on which are mounted  
75 the rollers or wheels d, the pivot pins e of these links pass through one end of each section so as to secure the sections D' together and the outer links are L-shaped and act as braces being secured to the sections at e',  
80 Fig. 7.

The end links are secured to chains or ropes i, at each side of the chute, and these chains or ropes pass over a sheave i' to a drum i<sup>2</sup>  
85 driven by the ordinary winding mechanism either by hand or by power, so that by simply turning the drum, the telescopic section D can be drawn into the chute.

The telescopic section can be entirely drawn into the chute and is confined therein by the  
90 guard rails c<sup>3</sup> on the upper edge of the chute (Figs. 3 and 4), so that when the chute is elevated in Fig. 1, the telescopic sections will not be dislodged.

The operation is as follows:—If, for instance, a vessel is to be loaded with coal, the chute is moved to the position shown by full  
95 lines in Fig. 1, and the telescopic section is lowered until it assumes the position shown  
100 in said figure, coal is allowed to flow through the chute into the vessel, and as the pile of

coal increases, the telescopic section is raised and drawn into the chute, until it assumes a position, for instance, as shown in Fig. 2, with a very small portion of the chute exposed.

5 When the telescopic section is within the chute, it is entirely out of the way and protected and the chute can be used either with, or without, extending the section. The lower end of the telescopic section may be provided  
10 with doors or gates, as shown in Fig. 8, or the flow of coal may be regulated by the chute itself.

I claim as my invention—

1. The combination of a chute, with a movable extension consisting of a series of pivoted sections adapted to be drawn into the chute, substantially as described.

2. The combination of a pivoted coal chute, with a flexible telescopic section adapted to  
20 the chute, substantially as described.

3. The combination of a chute, an extension adapted to be drawn into the chute and having sections linked together with rollers

adapted to travel on the chute and mechanism for drawing the extension into the chute, 25 substantially as described.

4. The combination of a chute, a telescopic extension consisting of a series of quadrangular sections, links extending from one section to another, rollers adapted to travel upon  
30 the chute and means for operating the telescopic section, substantially as described.

5. The combination of the pivoted chute having a curved end, the telescopic extension adapted to said chute consisting of a series  
35 of quadrangular sections, a link secured to one end of each section, and rollers carried by the links, substantially as described.

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

JAMES M. DODGE.

Witnesses:

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JOSEPH H. KLEIN.