(No Model.) 3 Sheets—Sheet 1.

J. M. DODGE.

AUTOMATIC FEED SPOUT FOR CONVEYERS.

No. 588,899. Patented Aug. 24, 1897.

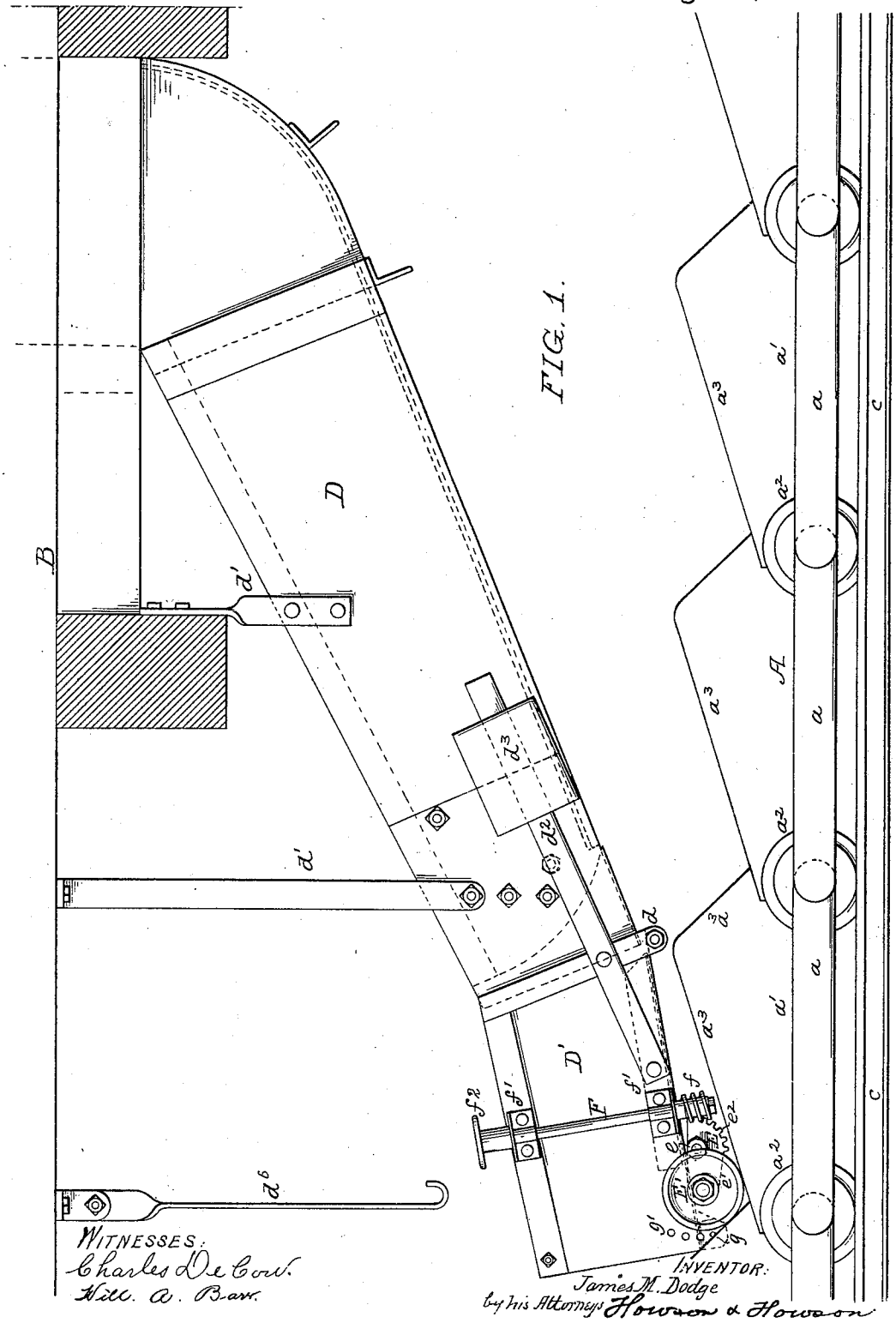


FIG. 1.

WITNESSES:
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INVENTOR:
James M. Dodge
by his Attorneys Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

J. M. DODGE.

AUTOMATIC FEED SPOUT FOR CONVEYERS.

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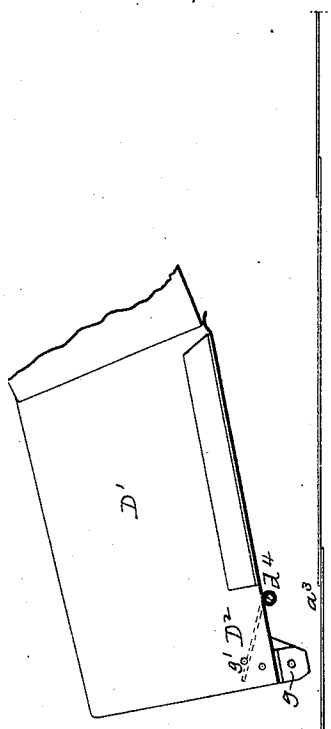


FIG. 3.

FIG. 2.

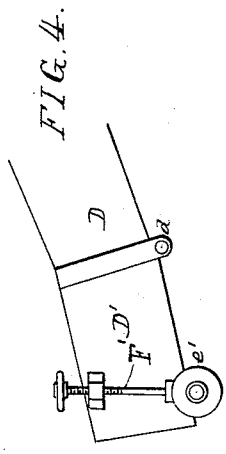


FIG. 4.

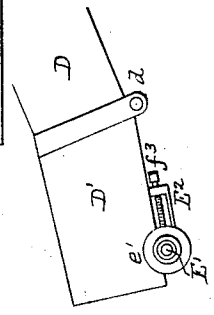


FIG. 5.

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(No Model.) 3 Sheets—Sheet 3.

J. M. DODGE.

AUTOMATIC FEED SPOUT FOR CONVEYERS.

No. 588,899. Patented Aug. 24, 1897.

FIG. 6.

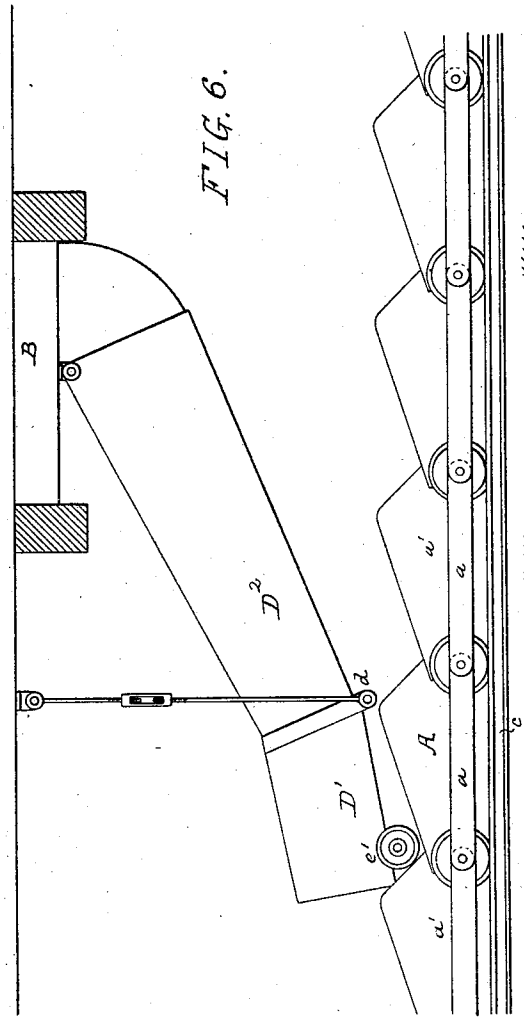
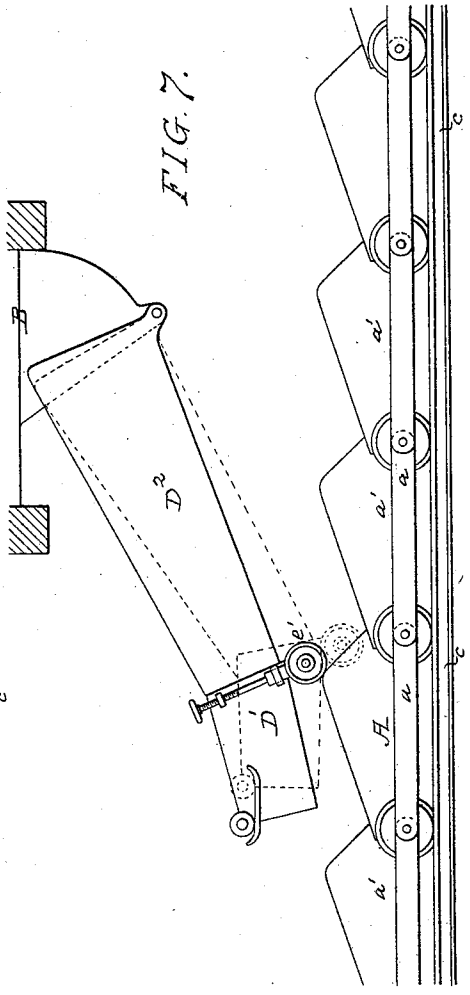


FIG. 7.



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UNITED STATES PATENT OFFICE.

JAMES M. DODGE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE LINK-BELT ENGINEERING COMPANY, OF SAME PLACE.

AUTOMATIC FEED-SPOUT FOR CONVEYERS.

SPECIFICATION forming part of Letters Patent No. 588,899, dated August 24, 1897.

Application filed March 26, 1897. Serial No. 629,413. (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 Improvements in Automatic Feed-Spouts for Conveyers, of which the following is a specification.

My invention relates to certain improvements in spouts for charging conveyers with granular or other material; and the spout is especially adapted for intermittently charging the buckets of endless-chain conveyers with given quantities of material, such as coal; and the essential feature of my invention is the means for regulating the flow of material to the conveyer, as fully described hereinafter.

In the accompanying drawings, Figure 1 is a side view of my improved spout, showing it in connection with an endless-chain bucket conveyer. Fig. 2 is a plan view of the spout. Fig. 3 is a sectional view on the line 3 3, Fig. 2; and Figs. 4, 5, 6, and 7 are views of modifications of my invention.

A is the conveyer, consisting of a series of links a, buckets a', and wheels a^3. The wheels travel in the present instance upon a track c. The upper edge a^3 of each bucket acts as a cam to raise and lower the pivoted end of the spout, as described hereinafter.

B is a floor or the base of a bin, and D is the spout, having a section D′ pivoted at d. The main body of the spout is fixed and is suspended in the present instance by rods d', although it will be understood that other means of attaching this spout to the fixed structure may be resorted to without departing from my invention.

Secured to the pivoted section D′ of the spout is an arm d^2, carrying counterweights d^3, which tend to counterbalance the weight of the section D′, so as to make the operation of the section D′ much easier. In the present instance the counterweights are on each side of the spout, but in some instances a single counterweight may be used on one side only.

Pivoted at e to the section D′ of the spout are arms E E, carrying at their outer ends a shaft E′, on which are rotating shoes or wheels e', adapted to ride upon the cam edges a^3 of the buckets, so that the pivoted section D′ of the spout will be raised and lowered as the buckets are moved past the mouth of the spout, and the flow of material which travels down the spout will be checked when the pivoted section of the spout is elevated and the material will resume its flow when the pivoted section is in its lowest position, so that the flow through the spout is intermittent. The object of this is to charge the buckets evenly with material.

In order to regulate the discharge of the spout so that the buckets can be charged with more or less material, I form on each arm E in the present instance a toothed segment e^2, which meshes with a worm-wheel f on the upright shaft F, adapted to bearings f' on the pivoted section D′ of the spout. This shaft is provided with hand-wheels f^2, by which the shafts are turned. In the present instance I have shown two shafts, one at each side of the section D′, Fig. 2, but in some instances a single shaft may be used, and the segment may be independently mounted upon a shaft e, so that by turning one hand-shaft F the arms carrying the shaft E′ can be raised or lowered. The two shafts may be belted together, as shown by dotted lines in Fig. 2, if necessary.

When the wheels e' are adjusted to the position shown in Fig. 1, the spout will discharge the greatest amount of material, but by turning the shafts F the arms are so shifted as to move the wheels away from the bottom of the spout, and consequently the pivoted section D′ will be raised to a greater height and the duration of the flow of material will be shortened, so that the amount of material flowing into the buckets will be decreased.

In some instances, as shown in Figs. 2 and 3, I may pivot the outer end D^2 of the bottom plate of the section D′ at d^4, so that it can be raised and lowered and secured in the adjusted position by pins g, adapted to any one of the holes g' in the side plates of the section D′. This means of regulating is used when the character of the material passing through the spout is changed or for coarse adjustment.

On the outer end of the section D′ is a bar d^5, and suspended from the floor B is a pivoted hook d^6, which is adapted to hook onto the bar d^5, so as to suspend the spout out of action.

The means of adjusting the wheels e e' may be modified without departing from my invention. For instance, in Fig. 4 I have shown the screw-shaft F′ adapted to directly carry the wheel e', and the shaft is threaded and works in a screw-threaded bearing on the pivoted section D′ of the spout. Another modification is shown in Fig. 5, in which the shaft E′, carrying rollers e', is adapted to a slotted bearing E^2 and is adjusted by means of an adjusting-screw f^3.

In some instances in the place of the rollers or wheels fixed shoes may be used; but I prefer to use the rollers or wheels, as shown.

In Fig. 6 the rollers are shown fixed to the section D′ of the spout, and the main portion D^2 of the spout is adjusted by any well-known means, as to raise or lower the pivot-point d. In the present instance I have shown an adjustable suspension-rod to which the spout is attached.

In Fig. 7 I have shown the adjustable roller or shoe at the pivot-point, and the main spout pivoted so that its outer end can be raised and lowered by the cam edge of the buckets. The outer end of the section D′ in the present instance is supported by rails, on which it slides to accommodate the movement of the main portion of the spout.

I claim as my invention—

1. The combination of a conveyer, a chute for charging the conveyer, with means for operating the chute as the conveyer passes thereunder so that the conveyer will be intermittently charged with material from the chute, with mechanism for adjusting the chute to regulate the flow of the material, substantially as described.

2. The combination of a conveyer, a chute made in two sections pivoted together, means for operating the chute as the conveyer passes thereunder, so that the conveyer will be intermittently charged with material from the chute, with adjusting mechanism for changing the relation of one section of the chute to the other, substantially as described.

3. The combination of a bucket conveyer, a chute, said chute being acted upon by the conveyer to intermittently charge the buckets, with means for adjusting the chute to regulate the flow of material, substantially as described.

4. The combination of a bucket conveyer, cams thereon, a chute made in two sections, wheels carried by the chute and resting upon the cams on the conveyer, and means for adjusting the chute to regulate the flow of material, substantially as described.

5. The combination of a conveyer, a spout having a pivoted end section, bearing-wheels carried by the pivoted section and resting upon the conveyer, with means for adjusting the wheels, substantially as described.

6. The combination of a conveyer, buckets thereon having edges in the form of cams, a spout having a pivoted end section, wheels carried by the pivoted section and adapted to rest upon the cam edges of the buckets and means for adjusting the wheels so as to increase or diminish the flow of material through the spout, substantially as described.

7. The combination of a conveyer, buckets thereon having cam-shaped edges, a spout having a pivoted section, wheels carried by the section and resting upon the cam edges of the conveyer-buckets, a pivoted bottom plate at the outer end of the pivoted section and means for securing the pivoted bottom plate in its adjusted position, substantially as described.

8. The combination of a conveyer, buckets thereon having cam-shaped edges, a spout having a pivoted section, a counterbalance on the section extending beyond the pivot, wheels resting upon the cam edges of the bucket and means for adjusting the wheels so as to regulate the flow of material through the spout, substantially as described.

9. The combination of a conveyer, buckets thereon having cam edges, a spout, a section pivoted to the spout and forming a continuation thereof, an arm E pivoted to the said section and carrying a wheel adapted to bear upon the cam edges of the buckets, a toothed segment on the arm, a regulating-shaft, a worm thereon engaging with the segment, substantially as described.

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

JAMES M. DODGE.

Witnesses:
WILL. A. BARR,
JOS. H. KLEIN.