(No Model.) 2 Sheets—Sheet 1.

A. E. BROWN.

SKIP CAR.

No. 370,678. Patented Sept. 27, 1887.

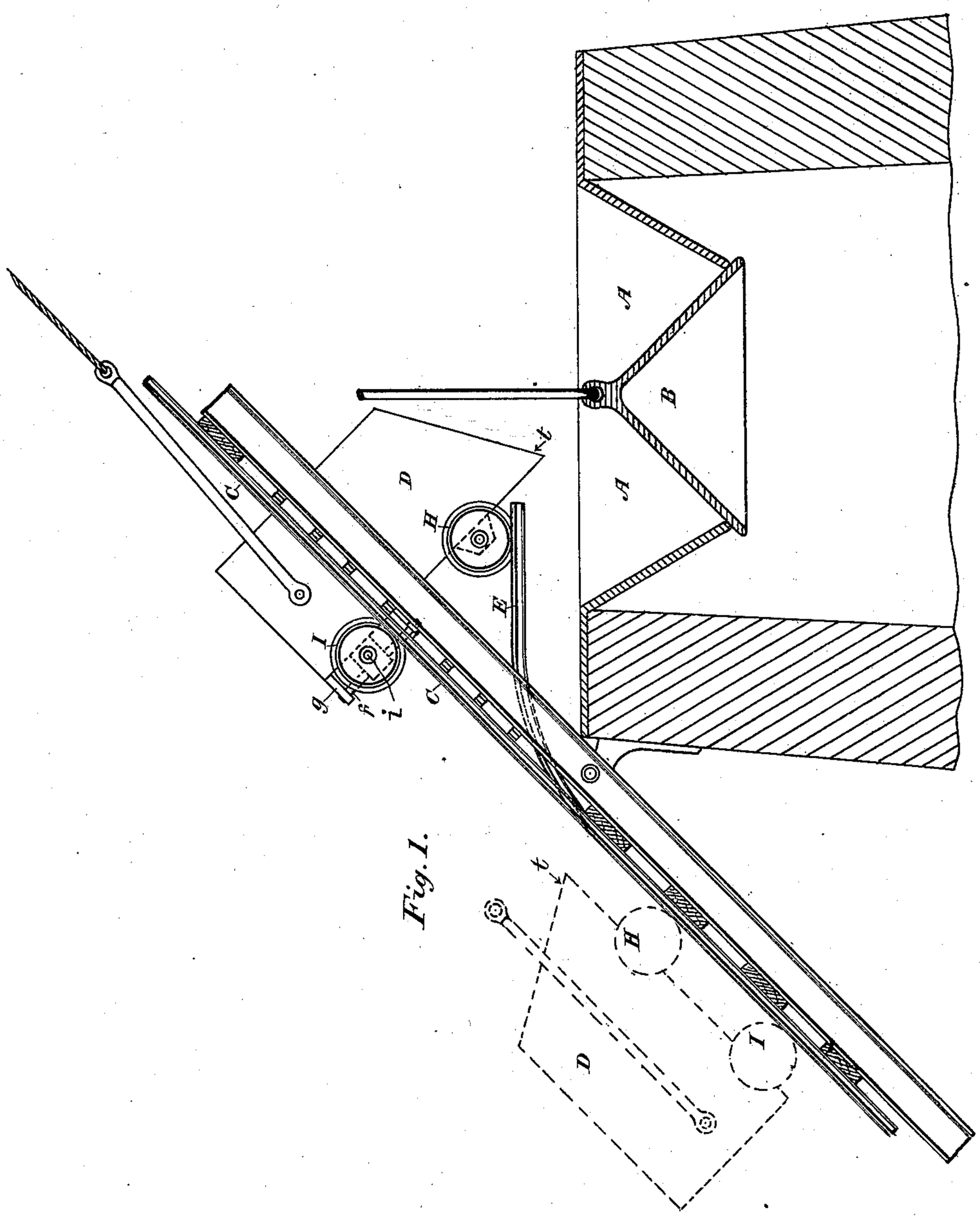

Fig. 1.

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(No Model.) 2 Sheets—Sheet 2.

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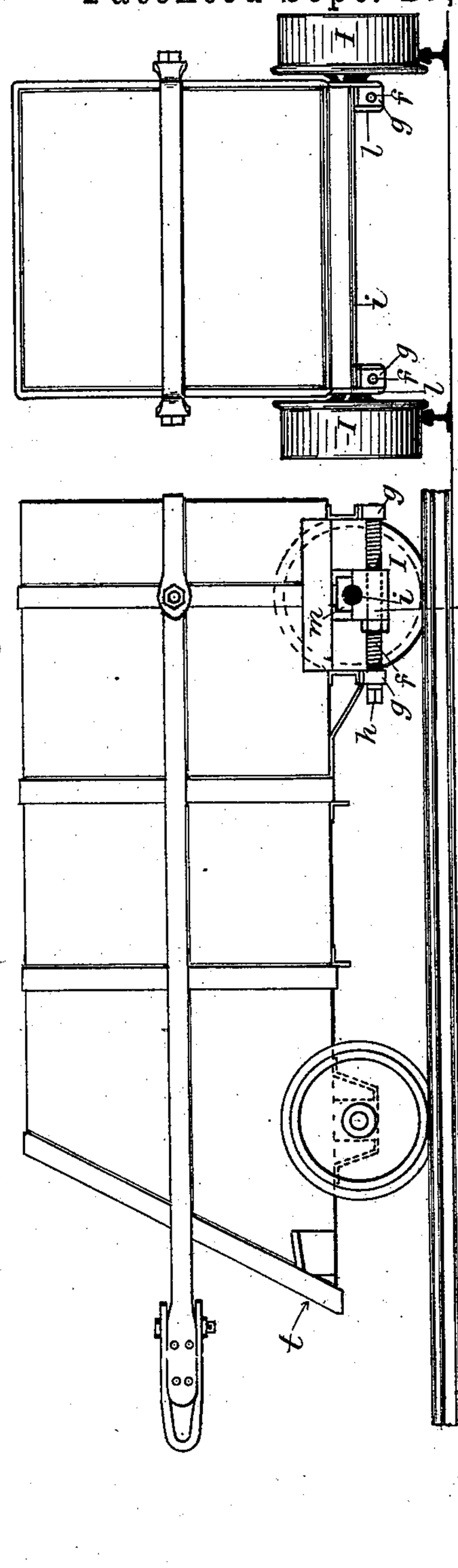

Fig. 3.

Fig. 2.

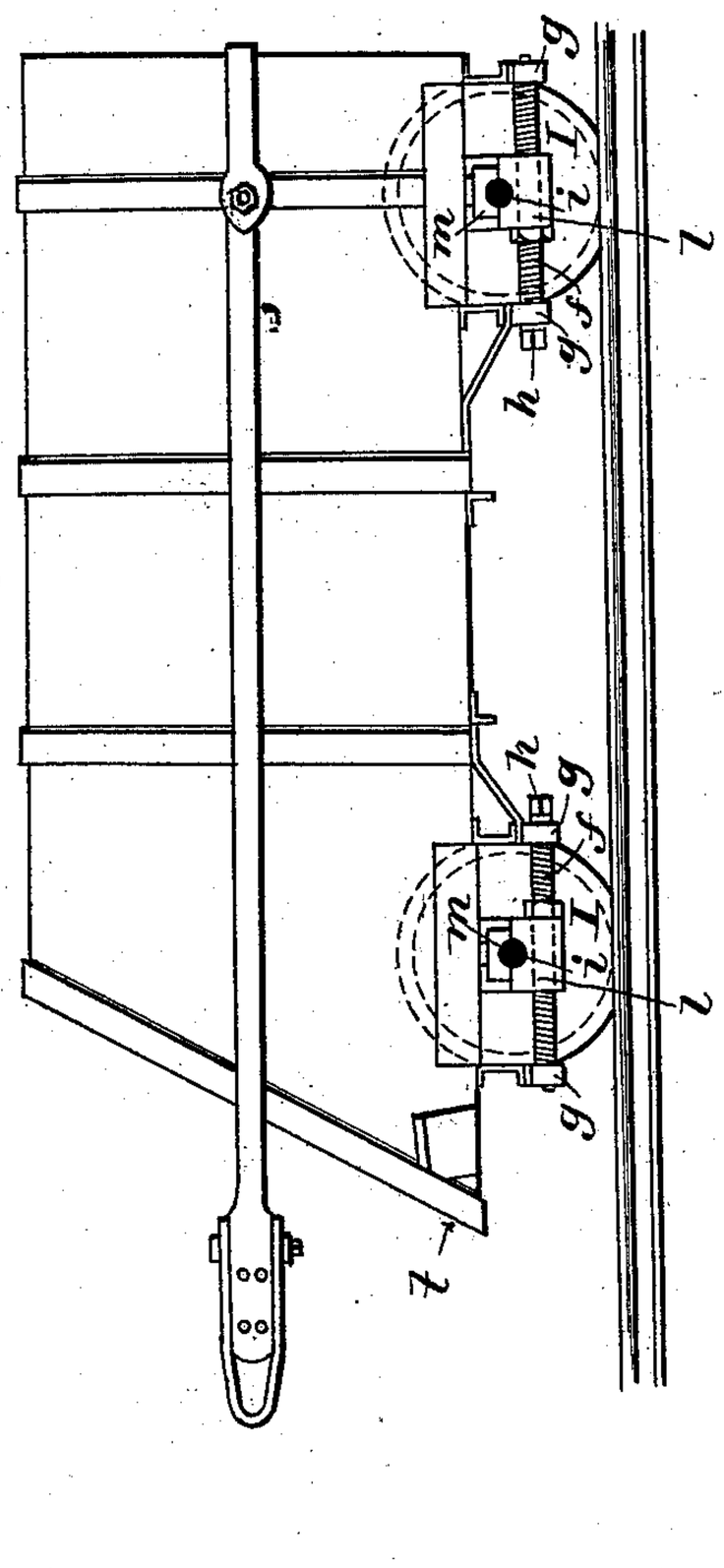

Fig. 4.

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UNITED STATES PATENT OFFICE.

ALEXANDER E. BROWN, OF CLEVELAND, OHIO.

SKIP-CAR.

SPECIFICATION forming part of Letters Patent No. 370,678, dated September 27, 1887.

Application filed March 5, 1887. Serial No. 229,813. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER E. BROWN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Skip-Cars for Feeding Material to Blast-Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to a new and useful improvement in what are known as "skip-cars," used mostly for filling in the materials at the tops of furnaces.

Under the more approved plans of construction of furnaces and apparatuses for automatically filling the same it is quite common to employ automatically-dumping skip-cars, which travel from the source of fuel and ore supply down below, up to, and over the top of the furnace, where they automatically discharge their contents onto the bell of the furnace. Such automatically dumping and filling-in cars are usually arranged to dump by reason of the forward truck (or set of wheels) of the car running off on an inwardly-curved track, (of smaller gage than that on which the wheels of the rear truck travel,) while the said rear wheels continue to ride upwardly on the inclined ascending track; and it is proposed to have the car always dump its contents by these means automatically, and so that the charge shall be properly distributed on top of the bell of the furnace. It has, however, been found in practice that ofttimes it becomes necessary to vary or adjust the point of discharge of the car relatively to the apex of the bell of the furnace, so as to cause the material discharged from the car to fall in one manner or another or at one or another exact point on the bell, in order to get just the proper distribution of the materials in feeding or filling in the furnace. I propose to provide a simple and efficient means for such adjustment of the skip-cars now in use in connection with the track system, hereinbefore alluded to, for causing the car to tip over and discharge its contents.

My invention to this end may be said to consist, essentially, in a skip-car having one or both of its trucks (or sets of wheels) adjustable relatively to the body of the car, for the purpose of inducing the body to tip and dump its contents at one or another point, all as will be hereinafter more fully explained, and as will be most particularly pointed out and defined in the claim of this specification.

To enable those skilled in the art to which my improvement relates to make and use my invention, I will now proceed to more fully describe it, referring by letters to the accompanying drawings, which form part of this specification, and in which I have shown my invention carried out in that form in which I have so far successfully practiced it, and which is the best form now known to me.

In the drawings, Figure 1 is a skeleton or diagrammatical view showing simply a well-known arrangement of furnace, inclined railroad-track, and automatic skip-car device for bringing up and feeding into the top of the blast-furnace the materials supplied thereto in a manner well understood. Fig. 2 is a side view (on a large scale) of my improved car. Fig. 3 is an end or rear view of the same. Fig. 4 is a view similar to Fig. 2, except that both of the trucks are provided with means for adjustment.

In the four figures the same parts will be found designated by the same letters of reference.

At Fig. 1 I have shown the skip-car, in full lines, in the dumping position, while the dotted lines illustrate its position while ascending the inclined track that leads up to the top of the furnace.

A represents the top opening, and B the bell, of the furnace.

C is the upper portion of the inclined railway on which travel the skip-cars D, and E is the diverging inner track, (of narrower gage than the straight portion C,) onto which run the forward wheels, H, of the car, while the rear wheels, I, ascend the track C, thus causing the car D to tip over, as illustrated at Fig. 1 in a manner well understood.

In order to effect an adjustment of the parts for the purpose of varying the point at which the contents of car D shall be dumped, I make one or both of the trucks or axles of the car adjustable bodily lengthwise of the car. In the drawings I have shown only

the hind or rear axle, *i*, of the wheels I adjustable, and as the greatest degree of variation in the position of the mouth or discharge end of the car may be accomplished by any change of position of this hind axle, *i*, I deem it preferable, on the score of simplicity and economy of construction, to have only this one axle movable. However, both may be made adjustable without departing from the principle of my invention.

A reference to Fig. 1 will make plain the fact that any material change made in the position of the axle *i* and wheel I relatively to the body of the car D lengthwise of the latter must result in a material change in the position of the mouth or discharge end *t* of the car relatively to the apex of the bell B of the furnace; for if the axle *i* and its wheels I be moved forward on the body of the car such adjustment must necessarily result in the placement of the car-body farther back relatively to the rails or track C, on which the wheels I must always travel and rest, and if these wheels I be set farther back on the body of the car then the latter must of course assume a more forward position relatively to the track C, and in each of the supposed cases the open or discharge end of the car must be respectively farther to the rear of and farther forward of the apex of the bell B, and the car must in each case dump its contents at a different point over the furnace.

The means which I have chosen and used, practically, for effecting the ready adjustment of the hind axle, *i*, is shown clearly at Fig. 2, and consists in a screw-shaft, *f*, mounted at either end in suitable bearings in metallic stands *g*, that depend from the bottom of the car, and provided with a polygonal head, *h*, adapted to be manipulated by a wrench, the said screw-shafts passing through and working within nut-like stands or boxes, *l*, which carry the journal-boxes *m* of the axle *i*. By these means I am enabled, by simply turning the screw-shaft at each side of the car, to move each end of the rear axle, *i*, (the same distance,) either backward or forward, and to thus set the hind pair of wheels, I, either farther forward or farther back, as may be desired; but it will be understood that my invention does not lie in the particular means shown for effecting the adjustment of the axle *i*, since any other means than that shown may be employed and all the new and useful objects and advantages of my improvements be gained.

The gist of my invention rests in having either one or both of the trucks (or sets of wheels) of the car adjustable lengthwise of the car, whereby I am enabled to vary the position of the car-body relatively to the track C when the hind wheels only travel upon said track, and hence am enabled to vary the position of the discharge end of the car relatively to the apex of the bell B of the furnace.

What I therefore claim, broadly, as of my invention, and desire to secure by Letters Patent, is—

A skip-car for filling furnaces, the trucks or sets of wheels of which are adjustable relatively and lengthwise of the car, in substantially the manner and for the purposes hereinbefore set forth.

In witness whereof I have hereunto set my hand this 31st day of August, A. D. 1886.

ALEXANDER E. BROWN.

In presence of—

E. T. SCOVILL,

CHAS. W. KELLY.