

(No Model.)

R. DITTRICH & J. M. MOLAMPHY.

APPARATUS FOR LOADING PIG METAL.

No. 246,734.

Patented Sept. 6, 1881.

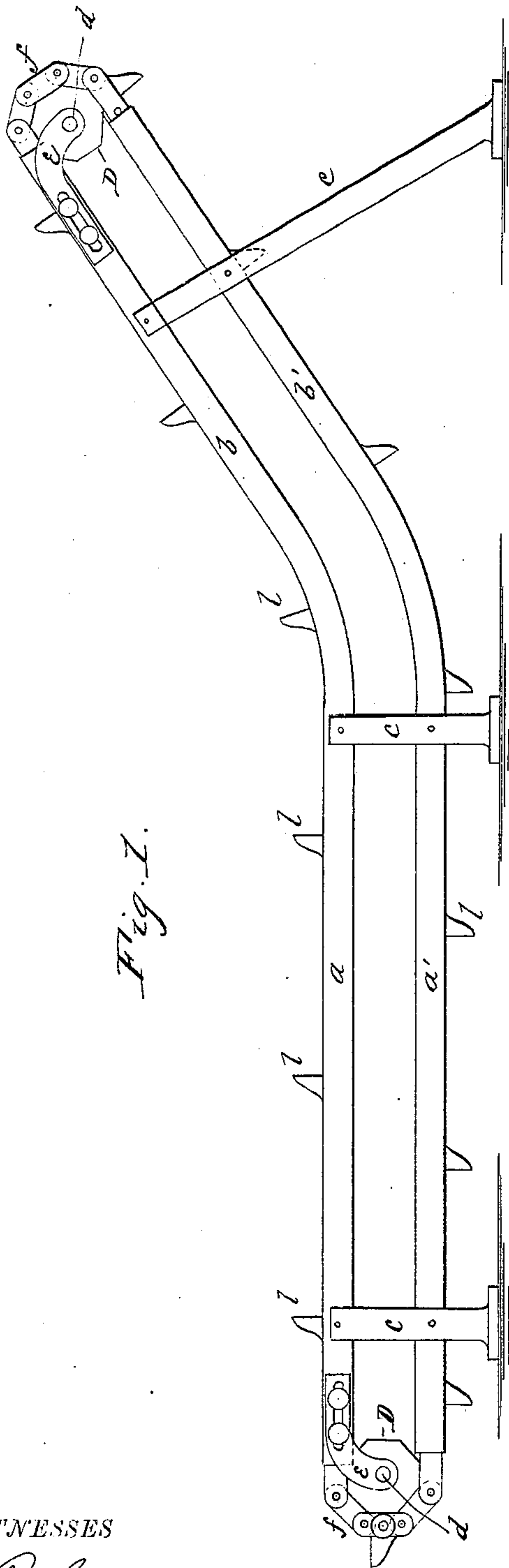


Fig. 1.

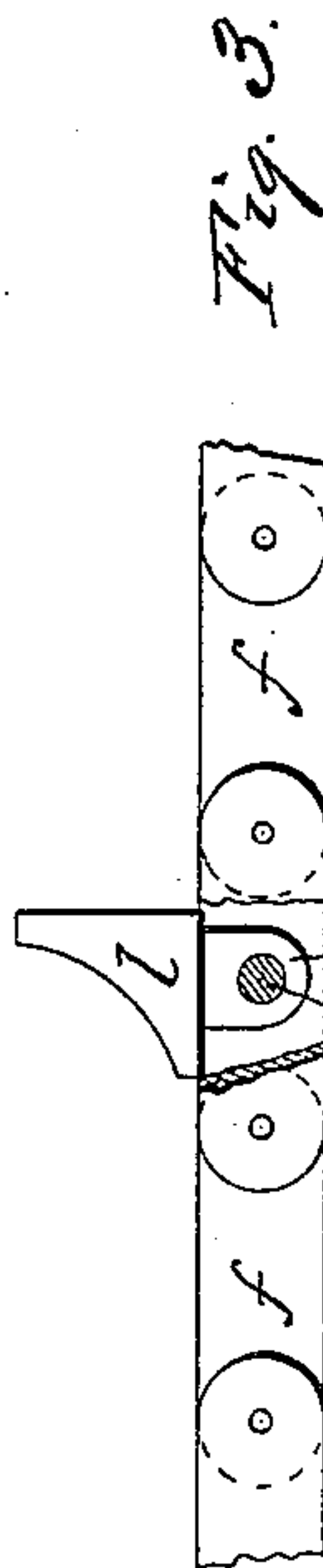


Fig. 3.

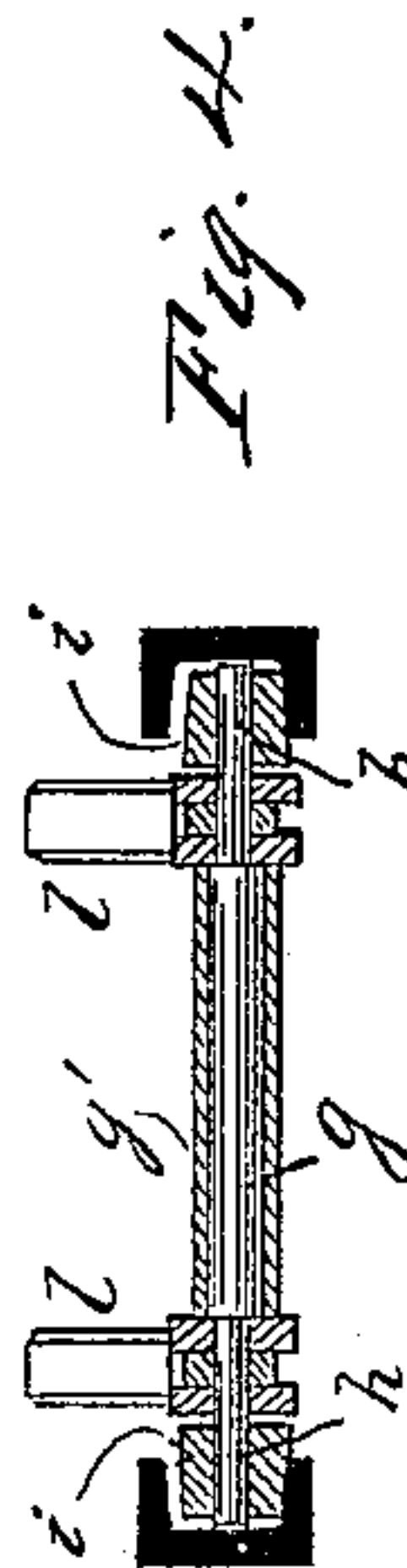


Fig. 4.

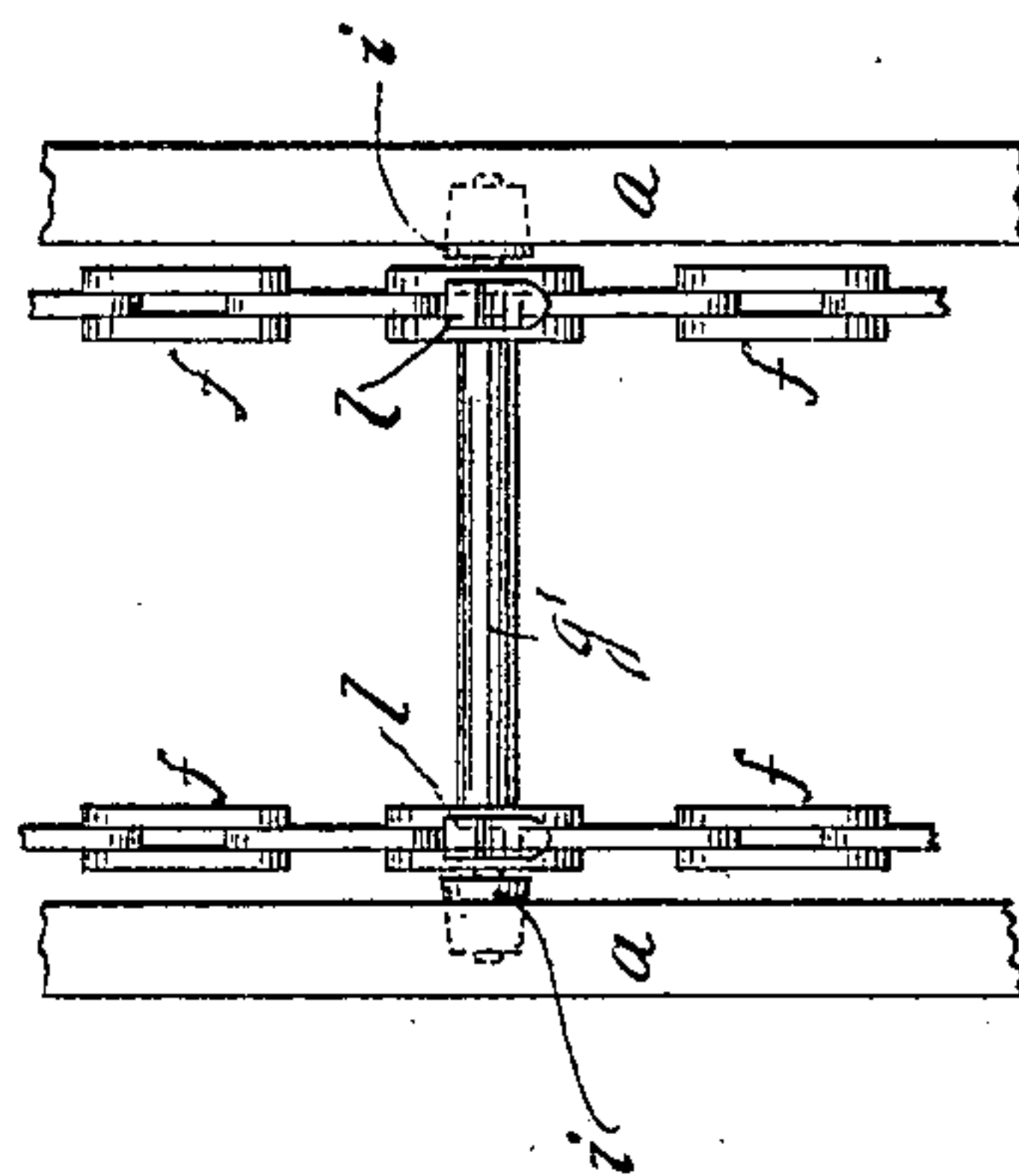


Fig. 2.

WITNESSES

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ROBERT DITTRICH AND JOHN M. MOLAMPHY, OF PITTSBURG, PA.

APPARATUS FOR LOADING PIG METAL.

SPECIFICATION forming part of Letters Patent No. 246,734, dated September 6, 1881.

Application filed June 18, 1881. (No model.)

To all whom it may concern:

Be it known that we, ROBERT DITTRICH and JOHN M. MOLAMPHY, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Loading Pig Metal; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, in which—

Figure 1 is a side elevation of our apparatus. Fig. 2 is a plan view of a part. Fig. 3 is an enlarged elevation of some links of the chain. Fig. 4 is a transverse section of the conveyer.

Our invention has for its object the construction of apparatus or machinery for removing metal pigs from the foundry or casting-house and loading them into cars; and it consists in the construction, combination, and arrangement of parts, as hereinafter fully described and claimed.

In the modern practice of the blast-furnace it is the custom to tap the well frequently, and in furnaces of large capacity the entire floor of the casting-house may be used for the production of the pigs at each pouring. As the beds must be cleared and prepared quickly for another cast, the pigs have to be removed before they are cooled off, thus making the toil of the workmen doubly hard and burdensome. It is our design to lighten this work as much as possible, and to effect the removal of the pigs to the cars more expeditiously than is possible by the present manual system. To effect this we place an apparatus of the kind known as "endless-chain conveyers" at convenient locations in the casting-house, so that when in motion it is only necessary for the workmen to lift the pigs onto the conveyer, and it is at once carried out of the casting-house and elevated into the car outside solely by the action of our apparatus.

Our invention more particularly consists in arranging two endless chains held apart by suitable means and traveling on projecting rollers which run on the flanges of channel-

bars set on edge, the chain being provided at suitable points with carrying fingers or abutments, whereby the upper edges of the channel-bars constitute the slides upon which the pigs ride, and the rollers are confined and guided in any direction without regard to vertical bends in the path of motion.

We take ordinary channel-bars and bend them edgewise to form the horizontal slides *a a'* and the inclined slides *b b'*, as shown. These are so supported by standards *c* that the upper slides, *a*, stand a foot or two from the ground and the slides *b* rise to a height a little above the car to be loaded. At each end two sprocket-wheels, *D*, are journaled on a shaft, *d*, supported in brackets *e*, which are adjustably attached to one of the channel-bars, so as to afford means of taking up the slack of the chains. Wheels *D* are located just inside the slides and carry the chains *f f'*. At intervals a small rod or shaft, *g*, is set shouldering against the links, with a reduced journal, *h*, extending through the links and carrying a roller, *i*, at each end, the rollers *i* rolling freely on the flanges of the channel-bars, as shown, and the rods *g* being assisted in keeping chains apart by tubes *g'*.

By this construction we are not confined to a straight motion of the chain, as if the channel-bars are bent, no matter how often or to what extent, the chains must follow their lines, being retained without friction by the rollers *i*, which roll upon the lower or upper flanges of the channel bars or rails, according to the nature of the bend or inclination. At the points where the journals *h* pass through the double links of the chain, such points being of suitable frequency, we insert between the double links the tongue *k* of a finger or abutment, *l*, said tongue being perforated for retention by the journal which passes through it. The abutment *l* is shouldered to rest squarely upon the upper edges of the double link. This construction might be applied otherwise by passing the shaft *g* through the single links and forming the abutment with two tongues to straddle the link.

The object of this feature is to prevent breakage of the abutments. A pig being placed upon

the slides *a*, the abutments *l* come along rapidly, as the sprocket-wheels *D* are driven preferably by steam-power. Now, if the abutments *l* were rigid, the forcible collision with the yet stationary pig would be apt to break the abutments off; but as the abutments are fixed to the links in such manner as to yield by rotation on the journals *h*, as in Fig. 3, the strain is eased off by the whole chain sharing in it, and no breakage can occur. The moving abutments *l* drag the pig along, the latter sliding on the upper edges of the channel-bars *a*, (or upon rails laid thereon,) and no possibility exists for damage to the working parts. On the return the chain-rollers travel in the channel-bars *b* after passing the sprocket-wheels.

Instead of making the conveyer in a single system, it may be divided into a separate horizontal and an inclined portion.

The slides *a b* and chain by our invention may be arranged in any shape almost, and will run with but little more friction than if made straight.

For discharging the pigs into the car a skid is attached at the top of the incline, and the pigs ride down it over the edge of the car.

The power may be applied to the sprocket-wheels *D* at either end.

In practice we use several of the above conveyers, arranged between the beds in the casting-house and extending out, so as to deliver into cars alongside. The workmen have crane-

tongs, wherewith the pigs are easily lifted and placed on the slides *a* without inconvenient exposure of the workmen to the heat.

The whole device is arranged so as to be swung up out of the way when the pigs are all removed, in order to leave no obstruction to the preparation of the beds for the next cast.

We claim as our invention—

1. In endless-chain conveyers, the combination of the links *f*, rod *g h*, journaled centrally in links *f*, and finger *l*, shouldered on said links and having perforated tongue *k*, through which said rod *g h* passes, substantially as described.

2. In endless-chain conveyers, the combination of the chain *f f*, rods *g h*, channel-bars *a b* or slides, rollers *i*, and abutments or fingers *l*, said chains being below the level of slides *a b*, and said fingers projecting above the slides, substantially as described.

3. In endless-chain conveyers, the channel bars or rails *a*, forming, with their top surface, the slide, and their inner flanges the permanent way, in combination with rods *g* and rollers *i*, carrying the chain, substantially as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

ROBERT DITTRICH.

JOHN M. MOLAMPHY.

Witnesses:

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