E. H. KENDALL.

CRANE TROLLEY.

APPLICATION FILED NOV. 16, 1912.

1,148,323.

Patented July 27, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

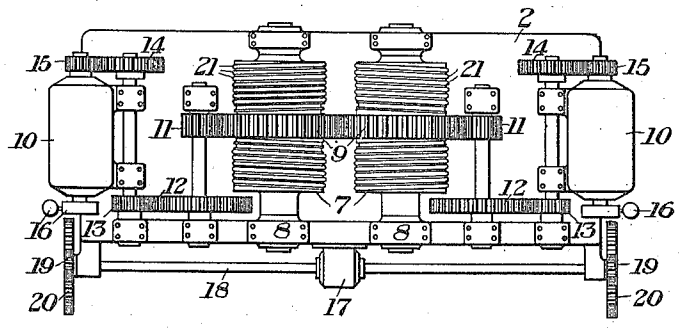
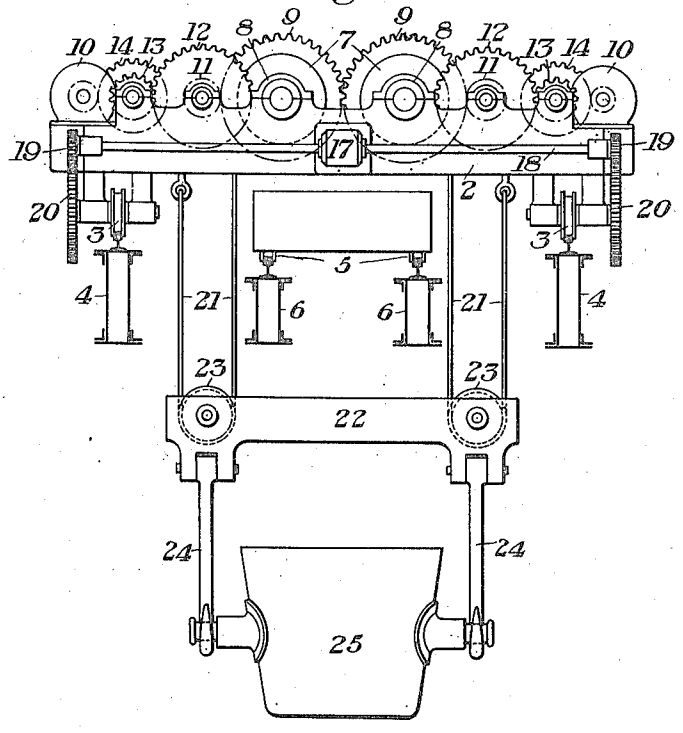


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

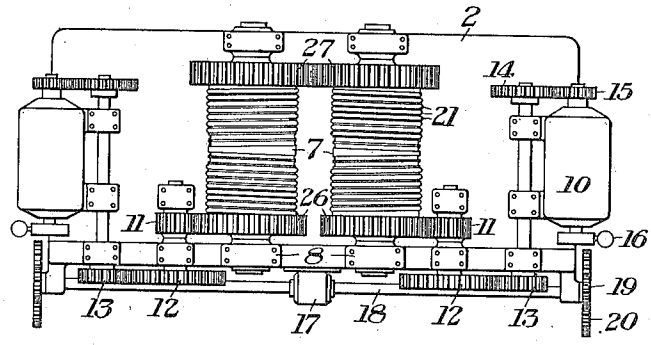
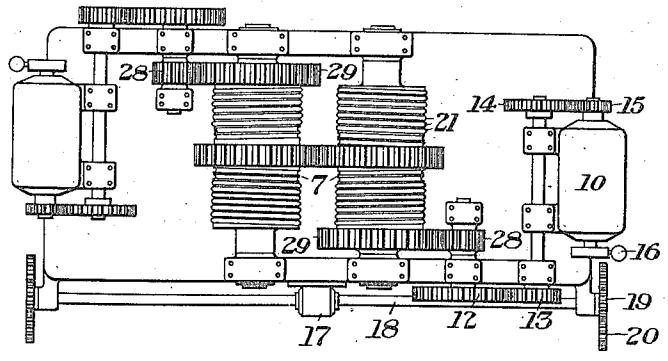


Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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CRANE-TROLLEY.

Specification of Letters Patent. Patented July 27, 1915.

1,148,323.

Application filed November 16, 1912. Serial No. 731,718.

To all whom it may concern:

Be it known that I, EDGAR HOMER KENDALL, a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Crane-Trolleys, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view; Fig. 2 is a side elevation of a crane trolley embodying my invention; and Figs. 3 and 4 are plan views showing two different modifications.

My invention has relation to certain new and useful improvements in crane trolleys, and has been designed primarily for use on ladle cranes of the character described and claimed in the patent to George W. Shem, No. 791,951, of June 6, 1905, although it is equally applicable to any construction where the hoist requires two sets of hoisting ropes which must be hoisted at the same speed. Another form of crane to which the invention is applicable is, for instance, cranes for lifting long bars or beams, in which two sets of hoisting ropes are used in order to steady the load by lifting it from two points instead of one.

My invention consists in a novel arrangement of the hoisting drums, in accordance with which they are placed side by side, and are each provided with a gear rigidly secured thereto and the two gears meshing with each other. Each of the drums is driven by an electric motor through a train of gearing. The arrangement is such that if any gear in a train of gears from the motor to the drum should break or if either motor should fail, the other motor would sustain the load and prevent it from dropping.

Referring to the accompanying drawings, in which I have shown one embodiment of my invention, the numeral 2 designates the trolley frame supported on the track wheels 3, which run on the girders 4 of a traveling crane bridge. This bridge may be, for example, of a construction similar to that shown in Patent No. 791,951, above referred to. 5 designates an auxiliary trolley running on girders 6, as in the said patent.

The numeral 7 designates the two hoisting drums which are placed side by side, being journaled in suitable bearings 8, on the trolley frame. Each drum has rigidly secured thereto a large gear 9, these two gears intermeshing, as shown. Each of the gears 9 is connected to a driving motor 10, through a train of gears 11, 12, 13, 14 and 15.

16 designates the usual magnetic brakes, which are attached to the motors 10, for the purpose of stopping the revolution of the motor armatures when current is cut off.

17 is an electric motor mounted on the trolley frame 2 and designed to move the trolley along the girders 4, through the shaft 18, and the gears 19 and 20. The gears 20 are keyed on the shaft to which the track wheels 3 are secured.

21 designates the two sets of hoisting ropes, one set depending from each of the drums 7.

22 designates a lifting beam carrying a pulley 23, at each end portion. The ropes 21 pass around these pulleys by which there is an equal lifting action on each end of the beam. In the present instance, the beam 22 is shown as provided with depending ladle hooks 24, which engage the trunnions of a ladle 25. As above stated, however, the lifting beam may be of any suitable character.

The advantages of my invention will be apparent from the foregoing. The motors 10 are preferably series-wound motors, so that in case either motor burns out, the remaining motor will be sufficiently powerful to lift or lower the load and prevent its dropping. If any gear in either train of gears connecting the drums with their respective motors should break, the load will also be sustained through the intermeshing gears 9.

I do not desire to limit myself to the particular construction and arrangement of parts as herein shown and described, but it is obvious that they may be varied in many ways within the scope of my invention, as defined in the appended claims. For instance, the arrangement of the gearing between the motors and their drums may be changed, the two drums may be intergeared with each other in a different manner, and various other changes may be made. In Fig. 3, for instance, I have shown the two drums as being driven through the separated gears 26 at one end and intergeared at the opposite end through the intermeshing gears 27. In Fig. 4, I have shown an arrangement similar to that of Fig. 1, but in which

the respective driving pinions 28 mesh with the gears 29 at opposite ends of the two drums. It will be noted that in this figure, as in Figs. 1 and 3, the drums, intermediate shafts, gearing, bearing brackets, etc., are all interchangeable from one side to the other. That is to say, there are no right and left parts. It will further be observed that the drums can be operated with either one or two motors, without changing the distance between the centers of the two drums. The motor or motors are located away from the heat and in the most accessible position. Ample room is provided for the application of either mechanical or electric brakes or both, and either brake can be made of sufficient power to control and sustain the load. The gearing is a large factor of safety, accidents from breakage of any of the parts up to the hoisting cables being eliminated. The drums being geared together, the thrust between the drum pinion and drum gear tends to separate these gears, but this separation is neutralized by having the two drums geared together.

I claim:

1. A single crane-trolley having a rigid frame with two lifting drums arranged side by side and directly and permanently intergeared with each other, and two actuating motors each geared to one of the drums, each of said motors and its gears being of sufficient power to resist dropping of the maximum load if the other motor or its connections become inoperative; substantially as described.

2. A single crane-trolley having a single rigid frame with two lifting drums arranged side by side intermediate of its length and directly and permanently intergeared one with the other, two drum actuating motors located at opposite end portions of the trolley and each geared to its adjacent drum, each of said motors and its gears being of sufficient power to resist dropping of the maximum load if the other motor or its connections become inoperative; substantially as described.

In testimony whereof, I have hereunto set my hand.

EDGAR HOMER KENDALL.

Witnesses:

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H. M. CORWIN.