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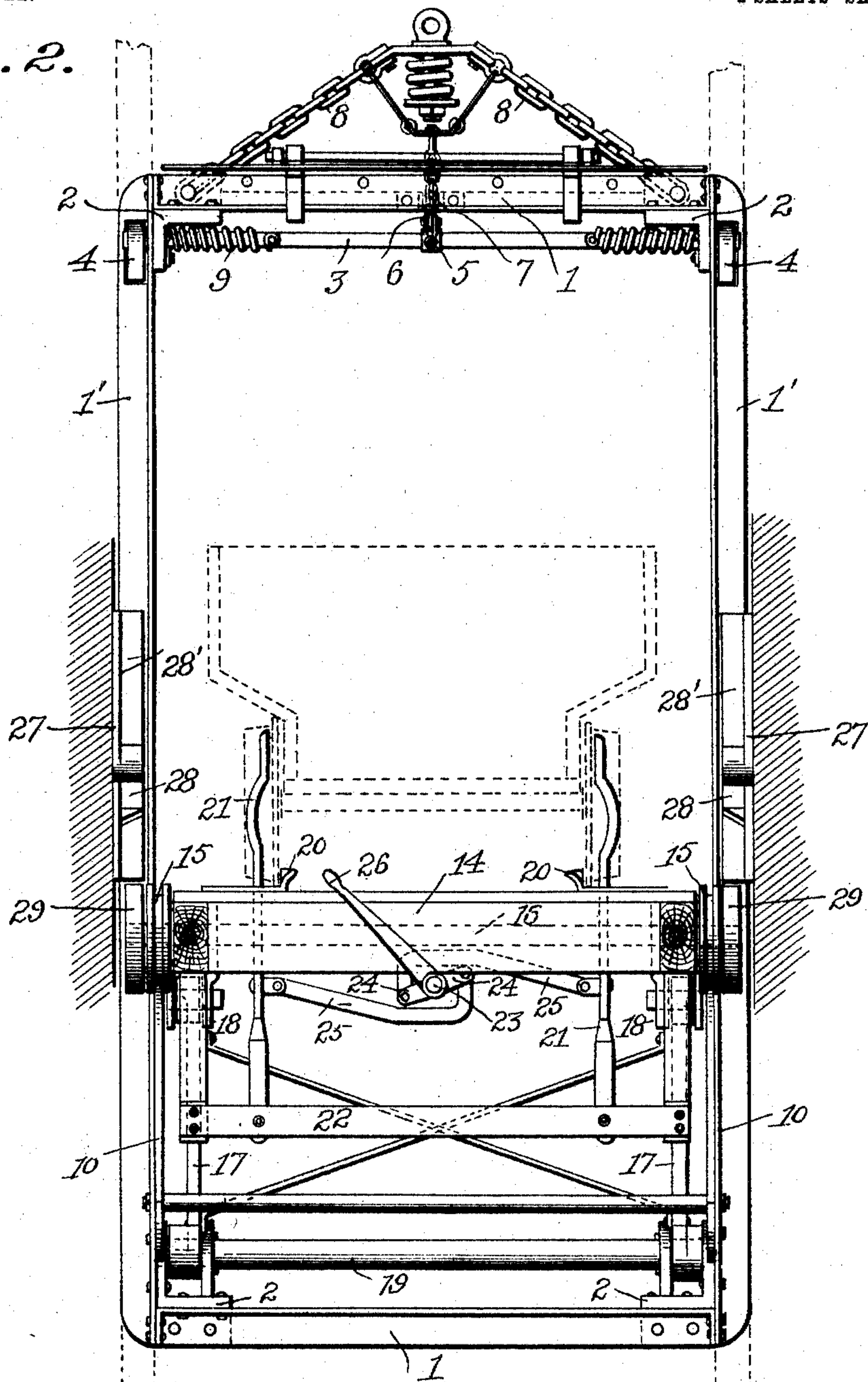
A. T. SMITH.  
AUTOMATIC DUMPING CAGE.

APPLICATION FILED APR. 18, 1904.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.



Inventor

Witnesses

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## UNITED STATES PATENT OFFICE.

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## AUTOMATIC DUMPING-CAGE.

SPECIFICATION forming part of Letters Patent No 766,907, dated August 9, 1904.

Application filed April 18, 1904. Serial No. 203,646. (No model.)

*To all whom it may concern:*

Be it known that I, ALVIN T. SMITH, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented new and useful Improvements in Automatic Dumping-Cages, of which the following is a specification.

This invention relates to tilting hoists specially intended for use in connection with coal-mines and coal-mine cars; and it consists in the novel construction and combination of parts hereinafter set forth, and particularly pointed out in the claims.

In the drawings, Figure 1 is a side view of the cage, the dotted lines showing same in a dumping or tilted position. Fig. 2 is a front view.

The cage-frame is constructed from suitable angle-irons 1 1', securely riveted at the corners to castings 2. The space between the uprights 1' is for wooden guides, (shown in dotted lines,) which are fastened to the sides of the shaft or tower through which the cage travels. Two parallel catch-shafts 3 are journaled in the upper corner-castings 2. On both ends of each shaft are secured tooth-dogs 4. These dogs are held out of contact with the guides by the cranks 5 and chains 6, which travel over the rollers 7. The chains 6 are fastened to the straddle-chains 8. The springs 9 are fastened at one end to the corner-castings 2, and after twisting the spring to a tension it is fastened to the shaft 3. If the hoisting rope or chains 8 should break, the springs 9 would throw the dogs 4 into the wooden guides, clamping them in such a way as to prevent the cage from dropping. A supporting frame or bracket 10 is securely riveted to and projects from one side of each pair of uprights. The outer edge 11 forms an inclined plane and terminates in a hook 12. At its upper outer corner each bracket 10 has a pocket 13 preferably shaped on the segment of a circle.

The cage-platform 14 is supported at one end by supporting-rollers 15, running loose on a shaft 16 and grooved to engage with the edges 11 of the brackets 10. When the platform is level, the supporting-roller rests in the pocket 13, as shown in Fig. 1. The other end of the

platform is supported by links 17, hinged at one end to jaws 18, depending from the platform, and at the other end to a stout shaft 19, mounted on the lower corner-castings 2. On the platform are rails 20 for the wheels of the car, which is shown in dotted lines in Fig. 2. Keepers 21 are hinged to a transverse bar 22, suitably supported under the platform. The keepers can be thrown toward each other to engage with the car-wheels and lock the car to the platform or away from each other to release the car. Their movement is effected by the shaft 23, whose cranks 24 are connected by rods 25 with the keepers. The shaft can be oscillated by hand-levers 26.

At the point where the car is to be dumped curved guides or dumping-quadrants 27 are fastened to opposite sides of the shaft in which the cage runs. Each quadrant has two parallel inwardly-projecting flanges 28 28', which are curved upward and outward away from the guides on which the cage travels. The lower flange 28 covers substantially ninety degrees of arc; but the upper flange 28' is shortened at its upper end. On each side of the platform near the end carrying the supporting-rollers is a lateral projection adapted to engage with the dumping-quadrant. This projection is preferably a roller 29, secured on the end of the shaft 16 and arranged in the plane of a quadrant, so that when the cage arrives at the dumping-point these rollers will pass in between the flanges 28 28'. The diameter of the rollers 29 is only a little less than the distance between said flanges.

The operation is as follows: When the cage in its upward movement arrives at the point where the dumping-rollers enter between the flanges of the stationary quadrants 27, the said rollers are forced outwardly by said curved flanges, thus dislodging the supporting-rollers 15 from the pockets 13 and causing the opposite end of the platform to tilt upward on its links 17. The supporting-rollers are at once engaged by the inclined edges 11, and as the cage continues to rise said edges assist in forcing the dumping-rollers 29 out through the quadrants and in tipping up the opposite end of the platform. When the dumping-



rollers pass out beyond the end of the upper flange 28', the supporting-rollers are caught by the hooks 12, and the platform stands at a sharp angle, with the links 17 upright, as clearly shown in dotted lines in Fig. 1, which is the dumping position. It will be noticed that in this position the dumping-rollers have cleared the upper shorter flanges of the quadrants, so that in case the engineer fails to stop the cage at just this point the rollers can lift off the lower flange 28 and be carried up by the hooks 12, in which the supporting-rollers rest. This is a very great advantage where hundreds of hoists are made in a day, for it is impossible to stop the cage always at the same point. With the present invention the car will always dump at the same point, even though it may be carried three or four feet above that point before the cage stops. When the cage is lowered, the quadrants automatically restore the platform to a level position, where its weight holds it securely, the inclination of the links tending to throw the platform over toward the right in Fig. 1, so that the supporting-rollers are pulled horizontally into a firm bearing in the pockets 13 by the weight of the platform itself. No other locks nor any kind of latches are used to retain the platform in horizontal position, and consequently it cannot be accidentally dumped in the shaft by any failure of a locking device.

Having thus described my invention, what I claim is—

1. An automatic dumping-cage, consisting of an upright frame, supporting-brackets extending laterally therefrom, a platform, links connecting said platform with the upright frame, and lateral projections on said platform engaging with said supporting-brackets.

2. An automatic dumping-cage, consisting of an upright frame, supporting-brackets extending on one side thereof and having pockets, a platform having lateral projections near one end engaging with said pockets, and links connecting the other end of said platform with the upright frame.

3. An automatic dumping-cage, consisting of an upright frame, supporting-brackets extending on one side thereof and having inclined edges with a pocket at the top of the same, a platform having lateral projections near one end engaging said edges and receivable in said pockets, and links connecting the other end of said platform with the upright frame.

4. An automatic dumping-cage, consisting of an upright frame, supporting-brackets ex-

tending on one side thereof and having inclined edges terminating at the bottom in a hook, and a platform having lateral projections near one end engaging with said edges and receivable in said hooks.

5. The combination with an automatic dumping-cage, comprising supporting-brackets having inclined edges terminating in hooks, and a tilting platform having projecting portions receivable in said hooks, of flanged dumping-quadrants to engage said projecting portions, having their upper flanges shortened to permit the projections to be lifted by said hooks when the cage is hoisted past the dumping-point.

6. In an automatic dumping-cage, the combination with an upright frame, of a platform transverse thereto, inclined links running from the frame up to one end of said platform, and stationary means for supporting the other end of said platform without being attached thereto.

7. In an automatic dumping-cage, the combination with an upright frame, of a platform transverse thereto, inclined links running from said frame up to one end of said platform, rollers projecting from near the other end of said platform, and supporting-brackets on said upright frame having pockets for said rollers.

8. In an automatic dumping-cage, the combination with an upright frame, of a platform transverse thereto, inclined links running from said frame up to one end of said platform, rollers projecting from near the other end of said platform, supporting-brackets on said upright frame having pockets for said rollers, and inclines extending downwardly from said pockets and terminating in hooks adapted to receive said rollers.

9. The combination with an upright frame, of the supporting-brackets 10 having the inclined edges 11, the hooks 12 and the pockets 13, the platform 14, the grooved supporting-rollers 15 engaging with the frames 10, the links 17 connecting said platform with the lower part of the upright frame, the quadrant 27 having the flanges 28, 28', and the dumping-rollers 29 projecting beyond the supporting-rollers to engage with said flanges.

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

ALVIN T. SMITH.

Witnesses:

J. E. SCHOEMEHL,  
HERMAN C. PROX.