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PATENTED DEC. 12, 1905.

J. PETERSON.
BUCKET DUMPING APPARATUS.

APPLICATION FILED MAY 8, 1905.

2 SHEETS—SHEET 1.

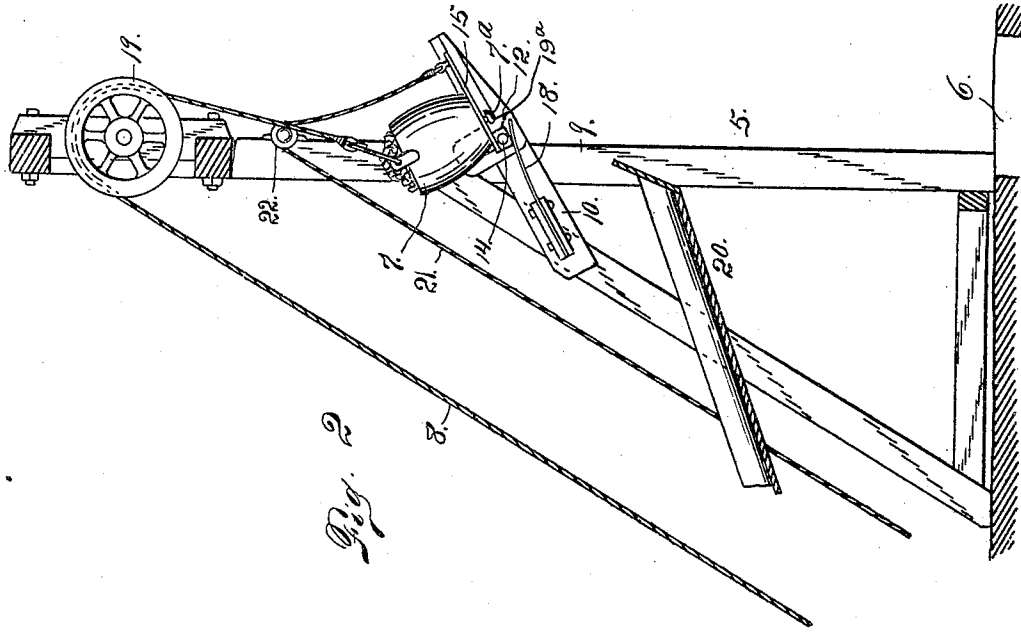


Fig. 2

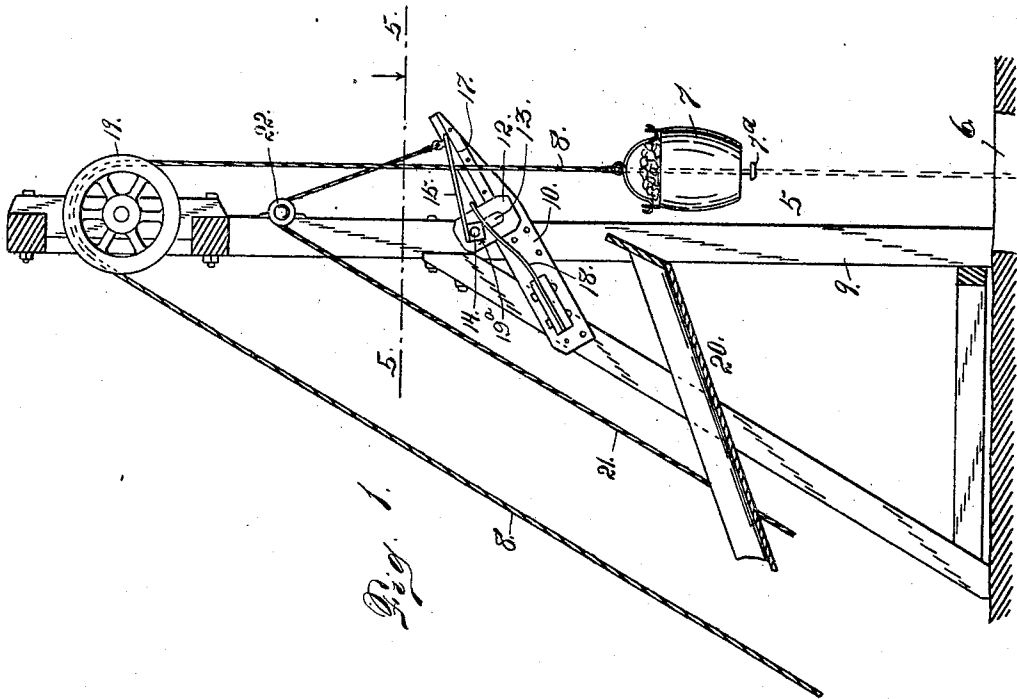


Fig. 1

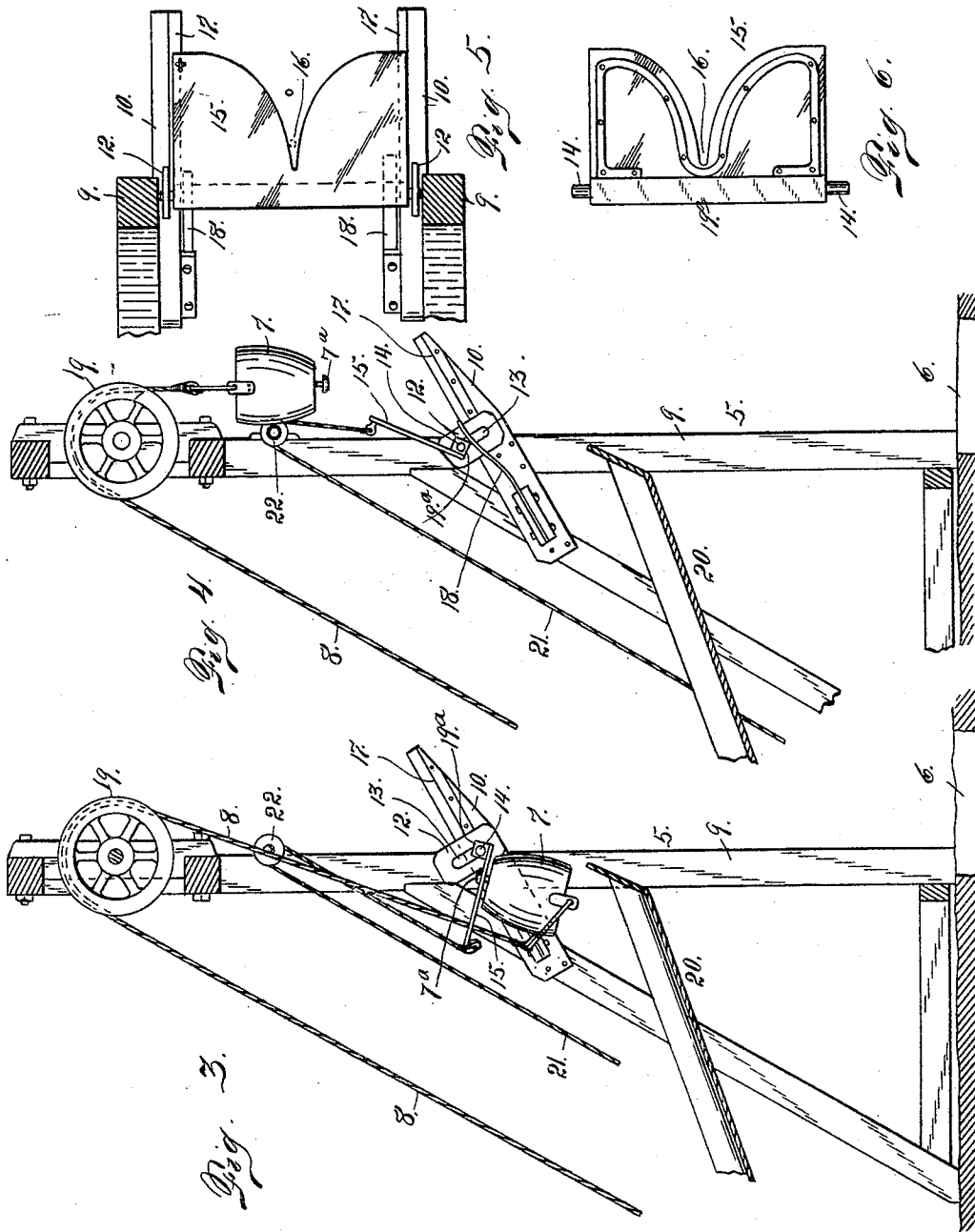
Witnesses
Otto E. Haddick.
Dena Nelson.

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BUCKET-DUMPING APPARATUS.

No. 806,992.

Specification of Letters Patent.

Patented Dec. 12, 1905.

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To all whom it may concern:

Be it known that I, JOHN PETERSON, a citizen of the United States, residing at Idaho Springs, in the county of Clear Creek and State of Colorado, have invented certain new and useful Improvements in Bucket-Dumping Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in bucket-dumping apparatus, my object being more especially to provide means for dumping ore-buckets as they are drawn from the mining-shaft. It is evident, however, that my improved apparatus may be used to equal advantage in dumping buckets containing any other material, providing the conditions are similar.

The apparatus consists of a hinged spring-supported platform adapted to move upwardly as the loaded bucket is drawn from the mine as the bucket engages the platform. The bucket is then lowered to rest upon the platform, and its weight forces the latter downwardly to an inclination sufficient to cause the bucket to dump automatically as the supporting-cable is released sufficiently for the purpose. As the bucket slides downwardly upon the inclined surface of the platform a projection from its bottom engages a slot in the platform, whereby the bucket is retained when in the inverted position. This projection from the bottom of the bucket maintains its position in the slot of the platform until the bucket is returned to its upright position, in which event the springs which support the platform are of sufficient strength to raise the latter to its normal position approaching the horizontal. When this is done, the projection from the bottom of the bucket is released from the slot, when the platform and the bucket may be drawn upwardly. As soon as this is done the hinged platform may be raised and the bucket allowed to descend into the mine in a manner that will be readily understood.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accom-

panying drawings, in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a side elevation of a gallows-frame equipped with my improvements. Fig. 2 is a similar view showing the bucket in the position just before dumping. Fig. 3 is a similar view showing the bucket in the dumped position. In this view the chute is shown in section. Fig. 4 is a similar view showing the bucket raised above the spring-platform, after which it has been dumped. Fig. 5 is a top view of the spring-platform and its support shown on a larger scale, the uprights of the gallows-frame being shown in horizontal section. Fig. 6 is an underneath plan view in detail of the bucket-dumping platform.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a suitable framework, ordinarily termed a "gallows-frame." This frame is mounted adjacent the mouth of a mining-shaft 6, from which the material to be dumped is drawn in a bucket 7, with which is connected a cable 8, passing over a pulley 19, journaled on the upper part of the frame. This frame is provided with two separated upright bars 9, to the inside of which are respectively secured inclined side bars 10, which are sufficiently separated to allow the bucket 7 to pass between them. Upon these side bars are mounted upwardly-projecting ears 12, provided with slots 13, adapted to receive pins 14, projecting from the opposite sides of a platform 15, provided with a slot 16, which gradually increases in width from the axis of the platform outwardly. The inclined bars 10 are provided with offsets forming shoulders 17 of a width to support the platform by engaging its opposite ends. These inclined bars 10 extend on opposite sides beyond the upright bars 9 of the gallows-frame. To their inner portions, or the portions extending to the left of the upright bars of the gallows-frame in Figs. 1 to 4 of the drawings, are attached leaf-springs 18, which project underneath the bar 19^a of the platform and normally support the latter in the position shown in Fig. 1 of the drawings, whereby it is only slightly inclined from the horizontal.

The bottom of the bucket is provided with a projection 7^a, which may consist of a bolt connected with the bottom of the bucket and

having its head extremity projecting a short distance therefrom.

In describing the operation of my improved bucket-dumping apparatus I will assume that the parts are in the position shown in Fig. 1. Now as the loaded bucket moves upwardly it will strike the platform 15 and automatically raise it out of the way to allow the bucket to pass above the platform. As soon as the bucket reaches the position above the platform, the latter will drop into place. The bucket is then lowered, in which event the hanger 7^a passes through the slot 16 where it is of considerable width. Now as the bucket settles upon the platform the latter is lowered to the inclined position shown in Fig. 2, and the bottom of the bucket slides downwardly on the platform until the hanger 7^a reaches the inner extremity of the slot 16, so that the head 7^a of the hanger will not pull through the slot. Then as the bucket-cable is released the bucket tips to the position shown in Fig. 3, discharging the ore into an inclined chute 20. In this event the platform is carried over with the bucket to the position shown in Fig. 3. After the bucket is dumped the cable 8 is actuated to return the bucket to the upright position on the platform, in which event as the bucket has now discharged its load the springs 18 will act to raise the platform to the position shown in Fig. 1, whereby the hanger readily pulls out of the slot 16. Attention is called to the fact that if it were not for the springs 18 there would be difficulty in releasing the hanger from the slotted platform, since when the said platform is inclined sufficiently to properly dump the bucket, the inclination is too great to allow the bucket-hanger to be readily released automatically as the bucket is drawn upwardly after dumping; but by employing the springs 18, adapted to yield under the weight of the loaded bucket, but also adapted to raise the platform to the position shown in Fig. 1 when the empty bucket is on the platform, the construction operates freely and satisfactorily. After the bucket has been raised to the position shown in Fig. 4 the operator by pulling a cord or cable 21, connected with the upper extremity of the dumping-platform, raises the latter to the position shown in Fig. 4, allowing the bucket to descend between the inclined bars 10, after which the cord or cable 21 is released to allow the platform 15 to assume its normal position. The cord or cable 21 passes over a small pulley 22, mounted on the frame.

Having thus described my invention, what I claim is—

1. In bucket-dumping apparatus, the com-

60 bination with a suitable frame, of a spring-supported platform mounted on the frame and having projections entering slots formed in the frame, the strength of the springs being such that they will support the platform in such a position that the projections will engage the upper extremities of the slots, while 65 when the loaded bucket is on the platform, the said projections will be moved downwardly to cause the platform to assume a position of greater inclination. 70

2. The combination with a suitable frame, of a slotted spring-supported platform mounted on the frame, the platform being hinged and the springs acting on its hinged extremity to hold the latter at its upward limit of 75 movement, the strength of the springs being so regulated that a bucket of predetermined weight resting on the platform will depress the latter to a position of greater inclination.

3. The combination with a suitable frame 80 and a bucket, the latter having a hanger, of a platform pivoted on the frame, the frame being provided with slots which the pivots of the platform engage, a spring for holding the pivoted end of the platform at its upward limit 85 of movement in the slots, the tension of the spring, however, being such that a loaded bucket will depress the platform to the bucket-dumping inclination, the platform being slotted to receive the hanger of the bucket, substantially as described. 90

4. The combination with a suitable frame, of a platform pivoted thereon, an inclined support for the platform, a spring for supporting the platform, the pivots of the latter engaging 95 elongated bearings, a bucket whose bottom is provided with a hanger, the platform having a slot to receive the bucket-hanger, substantially as described.

5. The combination with a suitable frame, 100 of a platform pivotally mounted thereon and having a centrally-located slot narrowest at the pivoted end of the platform and increasing in size outwardly from the pivot, a spring for supporting the pivoted end of the platform, 105 the tension of the spring being regulated to raise the pivoted end of the platform when an empty bucket is located thereon, the spring yielding, however, to allow the pivoted end of the platform to be depressed whereby the inclination of the platform is increased, when a 110 loaded bucket is located on the platform.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN PETERSON.

Witnesses:

E. A. EATON,

GEO. W. DUTTON