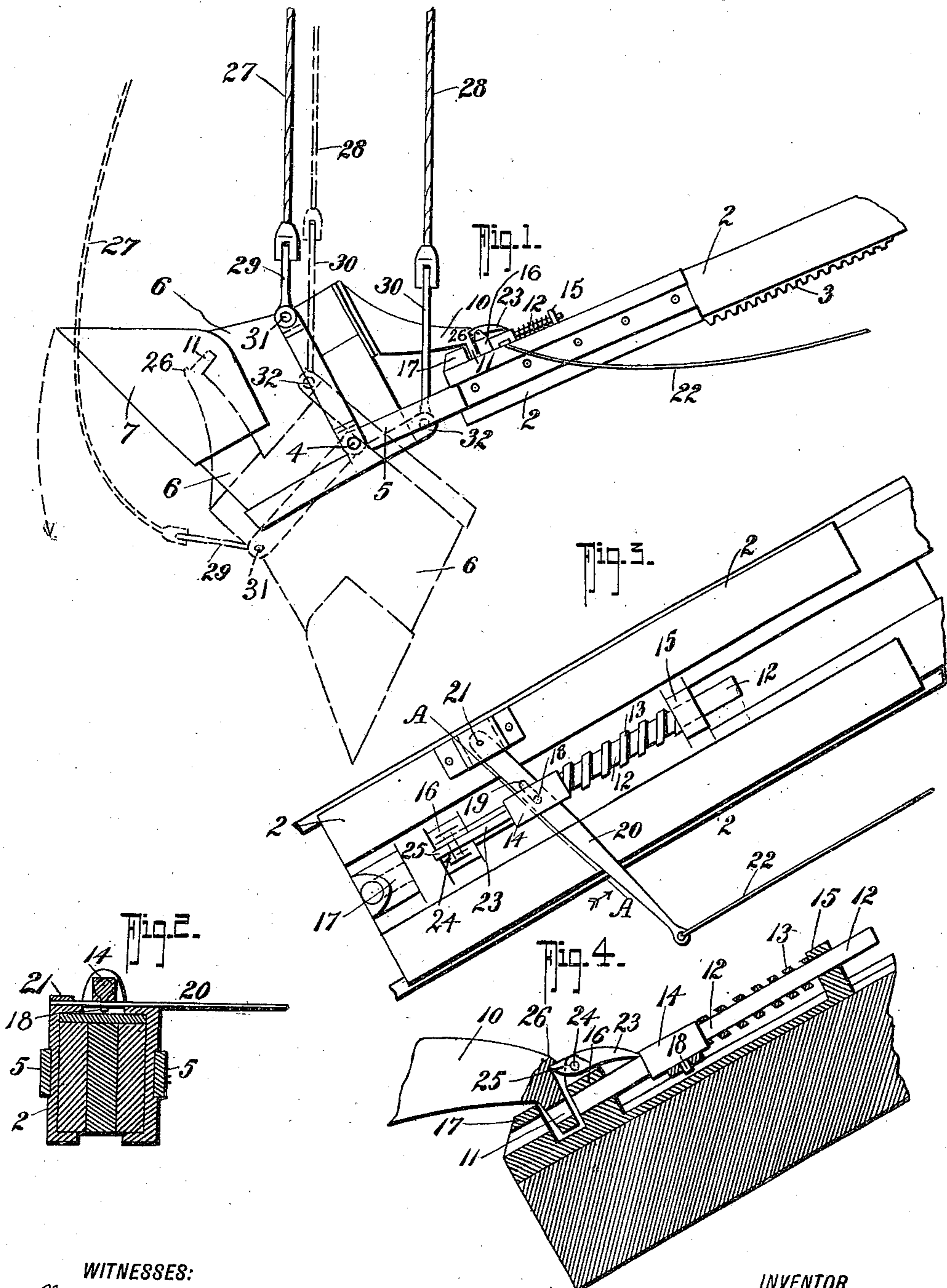


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DREDGE BUCKET.

APPLICATION FILED MAR. 12, 1909.

964,042.

Patented July 12, 1910.



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DREDGE-BUCKET.

964,042.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed March 12, 1909. Serial No. 482,884.

To all whom it may concern:

Be it known that I, WILLIAM JOHN MOORE, citizen of the Dominion of Canada, residing at Vancouver, in the Province of British Columbia, Canada, have invented a new and useful Dredge-Bucket, of which the following is a specification.

This invention relates to a dredge bucket of the dipper class wherein the bucket is attached to the outer end of an arm mechanically operated from a derrick boom from the upper end of which the bucket is suspended. The mechanism is particularly designed to enable a dredge bucket of this class to be used in excavating the submerged gold bearing sands and gravels of river bars and the like. Where such dipper dredges are used for this purpose they are provided with a hinged bottom through which the contents may be dumped, and difficulty is experienced in keeping watertight the joints of this hinged bottom, and where water passes fine gold is lost. To overcome this difficulty I dispense with the hinged bottom and use a watertight bucket pivotally mounted at the end of an arm by which it is held out from the boom, in a manner that it may be readily overturned. A means is also provided whereby this pivotally mounted bucket may when excavating be rigidly secured against rotation on its trunnions to the arm 2 which securing means may be released at will when it is desired to dump the contents of the bucket. The bucket is suspended and raised and lowered by two wire ropes over sheaves at the head of the boom one of which is connected to a bail on the upper edge of the bucket and the other to one connected to a position below the trunnions on which the bucket turns so that while both may be used while excavating or while raising the bucket, when it is desired to dump the contents the lock may be released and the rope connected to the upper side of the bucket may be slackened when the bucket will overturn on its trunnions and deposit its contents.

The invention is particularly described in the following specification reference being made to the drawings by which it is accompanied in which:

Figure 1 is a side elevation showing the bucket and its connection to the arm and to the suspension ropes by which it is raised and lowered the dot and dash line indicating the bucket in the dumping position. Fig. 2

a cross section to an enlarged scale of the arm on the line A A in Fig. 3 and Figs. 3 and 4 show in plan and longitudinal section the means whereby the bucket may be locked to the arm or released therefrom.

In these drawings 2 represents the arm of the dipper which is provided with a rack 3 by which it is pivotally connected to the derrick boom from which the bucket is suspended and projected from and withdrawn to it. The bucket 6 is pivotally mounted on trunnion pins 4 on each side to stout irons 5 projecting from the end of the arm 2 within which irons the bucket is susceptible of rotation. The bucket 6 is strongly constructed in the usual manner but with a watertight bottom, and is provided with a removable mouthpiece 7 for renewal. From the upper side of the bucket a strong projection 10 extends toward the arm 2 and is provided with an eye 11 designed to enter into alinement with an endwise slidable bolt 12 which when projected through the eye will secure the bucket rigidly to the arm 2 and prevent rotation of it on the trunnions 4.

The bolt 12 is endwise slidable in bearings 15 and 16 and when projected outward enters into a supporting bearing 17. It is provided with a shouldered enlargement 14 between which and the after bearing 15 is a strong coiled spring 13 tending to project the bolt outward.

From the under side of the enlargement 14 projects a stud 18 which passes through an elongated aperture 19 in a lever 20 pivotally mounted at 21 to the side of the arm 2 by which lever the bolt 12 may be drawn back against the resistance of the spring 13 by means of a lanyard 22. The bolt is automatically locked in this backward position by a pawl 23 pivotally mounted at 24 on the bearing 16 of the bolt, the end of which pawl engages the shouldered enlargement 14 and holds the bolt clear to enable the eye 11 of the projection 10 of the bucket to enter into alinement with the bolt. This pawl 23 is automatically released from engagement with the bolt when the bucket is turned into the excavating position by a spur 26 from the after end of the projection 10 which spur engages the end 25 of the pawl as the eye comes into alinement with the bolt and lifts the pawl from engagement with the shoulder when the bolt end is shot through the eye 11 by the impulse of the spring 13 and into the socket 17, in which position the

bucket is strongly and securely held to the arm 2 against rotation on its trunnions 4.

The bucket is lifted by wire ropes 27 and 28, 27 being connected to a bail 29 pivotally mounted on pins 31 on the upper edge of the bucket at each side, and the rope 28 to a similar bail 30 connected at 32 to the bottom back edge of the bucket. By these ropes 27 and 28 the bucket may be raised and lowered in the operation of excavating, and when it is desired to dump the contents the lever 21 is drawn back to withdraw the bolt from the eye 11 of the projection 10, when the bucket is free to turn on its trunnions, the rope 27 is then slackened when the weight being suspended from the after end of the bucket and below its center of gravity the bucket will overturn to the position shown by dot and dash lines in Fig. 1.

To return the bucket to the excavating position the lifting rope 27 is tightened when the bucket is rotated backward and when the spur 26 of the projection 10 engages the end 25 of the pawl 23 the bolt 12 is automatically released and is projected through the eye 11 and secures the bucket rigidly to the arm 2.

With this arrangement gold bearing sands and gravels may be raised from below water and deposited on a scow or barge alongside or direct into the gold recovering screens or sluices without the loss which is common with drop bottom buckets.

Having now particularly described my invention and the manner of its use I hereby declare that what I claim as new and desire to be protected in by Letters Patent is:

1. A dredge comprising in combination, a water-tight bucket pivotally connected to the dipper arm of a dredge, a latch for securing the bucket against rotation on its pivots, means for holding said latch in a set position, and means governed by the movement of the bucket for releasing said holding means to permit said latch to latch the bucket against rotation on its pivots.

2. In a dredge, the combination with the dipper arm and a water-tight bucket pivotally connected to said dipper arm, of a latch engaging member carried by the bucket, a latch on the dipper arm for engaging said latch engaging member to hold the bucket against rotation on its pivot, manually controlled means for withdrawing said latch from engagement with said bucket member, means for locking said latch in its withdrawn position at times, and means governed by the movement of the bucket for releasing said locking means to permit said latch to engage said bucket member to latch the bucket against rotation on its axis.

3. A gold dredge comprising in combina-

tion, a water-tight excavating bucket supported by means of trunnions to the upper end of the dipper arm of a dredge, a spring actuated bolt by which the bucket may be secured against rotation to the dipper arm, a lever by which that bolt may be withdrawn from its engagement with the bucket connection, a pawl to retain the bolt in the withdrawn position, means for releasing the pawl and automatically freeing the bolt when the bucket is in the excavating position, means for connecting the upper side of the bucket to the elevating rope or chain, and means for connecting the under side of the bucket to a rope by which the bucket may be overturned when the locking bolt is released.

4. A dredge comprising in combination a dipper arm, a water-tight bucket pivotally supported on said dipper arm, a latch for securing said bucket against rotation on its trunnions, a member carried by said bucket to engage said latch, means for withdrawing said latch from engagement with said bucket member, means for sustaining said latch in its withdrawn position at times, means for securing the upper side of the bucket to a rope by which it may be raised or lowered, means for connecting the underside of the bucket to a rope by means of which it may be raised and lowered when the bucket is locked to the arm or overturned on its trunnions when the bucket is released.

5. A dredge comprising in combination a dipper arm, a water-tight bucket pivotally supported on said dipper arm, a latch for securing said bucket against rotation on its trunnions, a member carried by said bucket to engage said latch, means for withdrawing said latch from engagement with said bucket member, means for sustaining said latch in its withdrawn position at times, means for securing the upper side of the bucket to a rope by which it may be raised or lowered, means for connecting the underside of the bucket to a rope by means of which it may be raised and lowered when the bucket is locked to the arm or overturned on its trunnions when the bucket is released, and means governed by the movement of the bucket for releasing said latch to engage said bucket member and latch the bucket from rotation on its axis at times.

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

WILLIAM JOHN MOORE.

Witnesses:

ROWLAND BRITAIN,
A. G. WOOLSEY.