

M. G. BUNNELL.
EXCAVATOR.

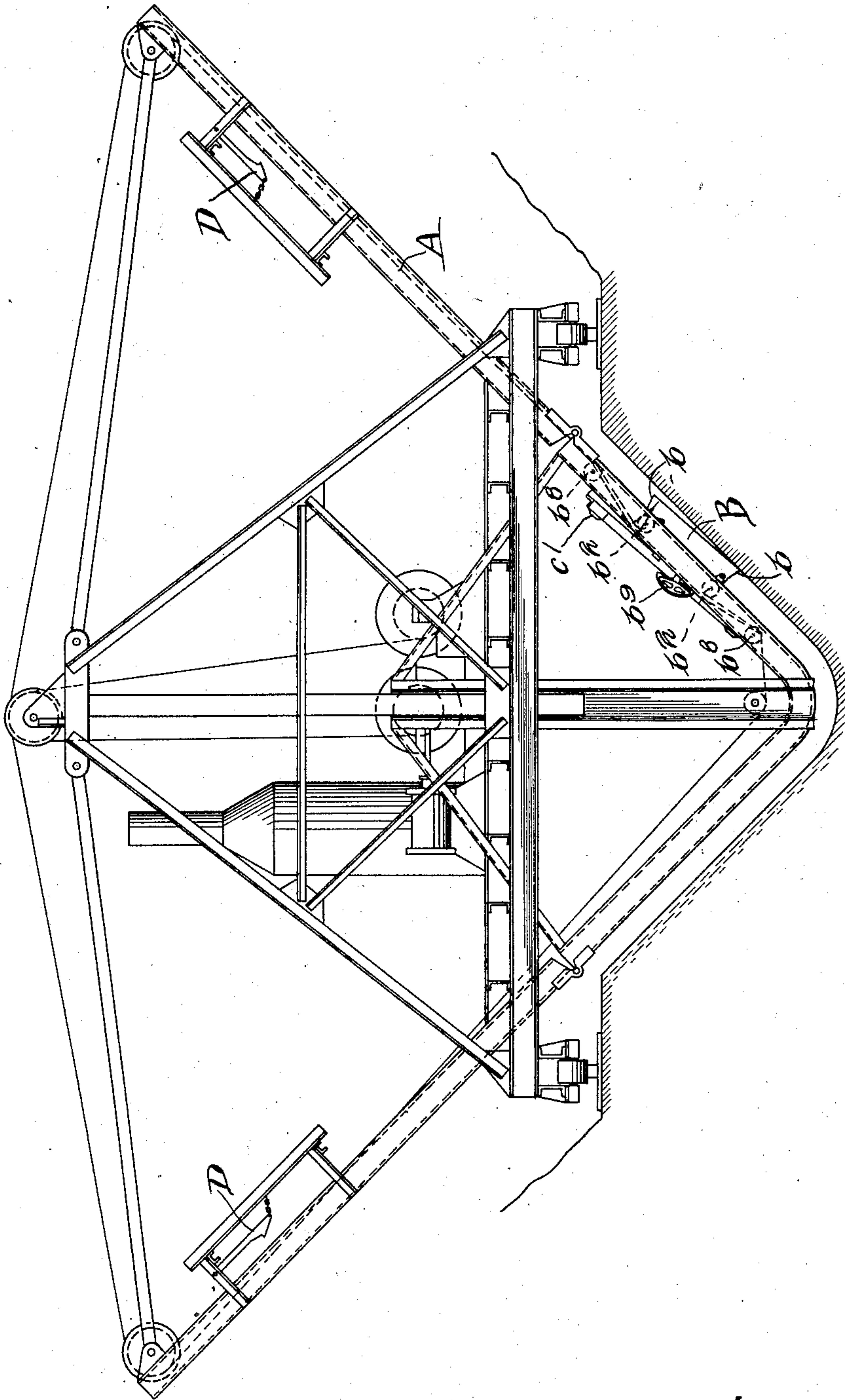
APPLICATION FILED OCT. 15, 1909.

Patented July 11, 1911.

3 SHEETS—SHEET 1.

997,543.

FIG. 1.



WITNESSES
A. Andersen
Wm. Durmon

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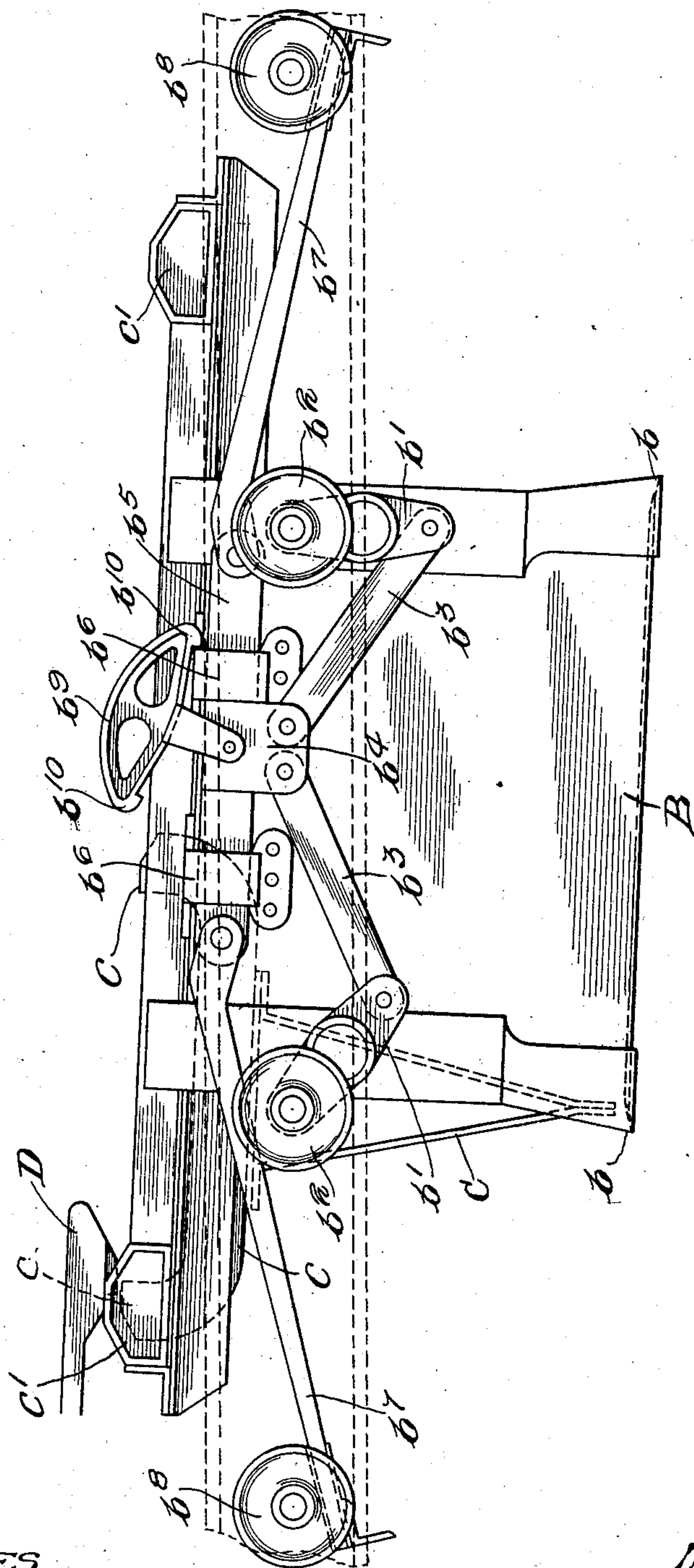
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3 SHEETS-SHEET 2.

FIG. 2.



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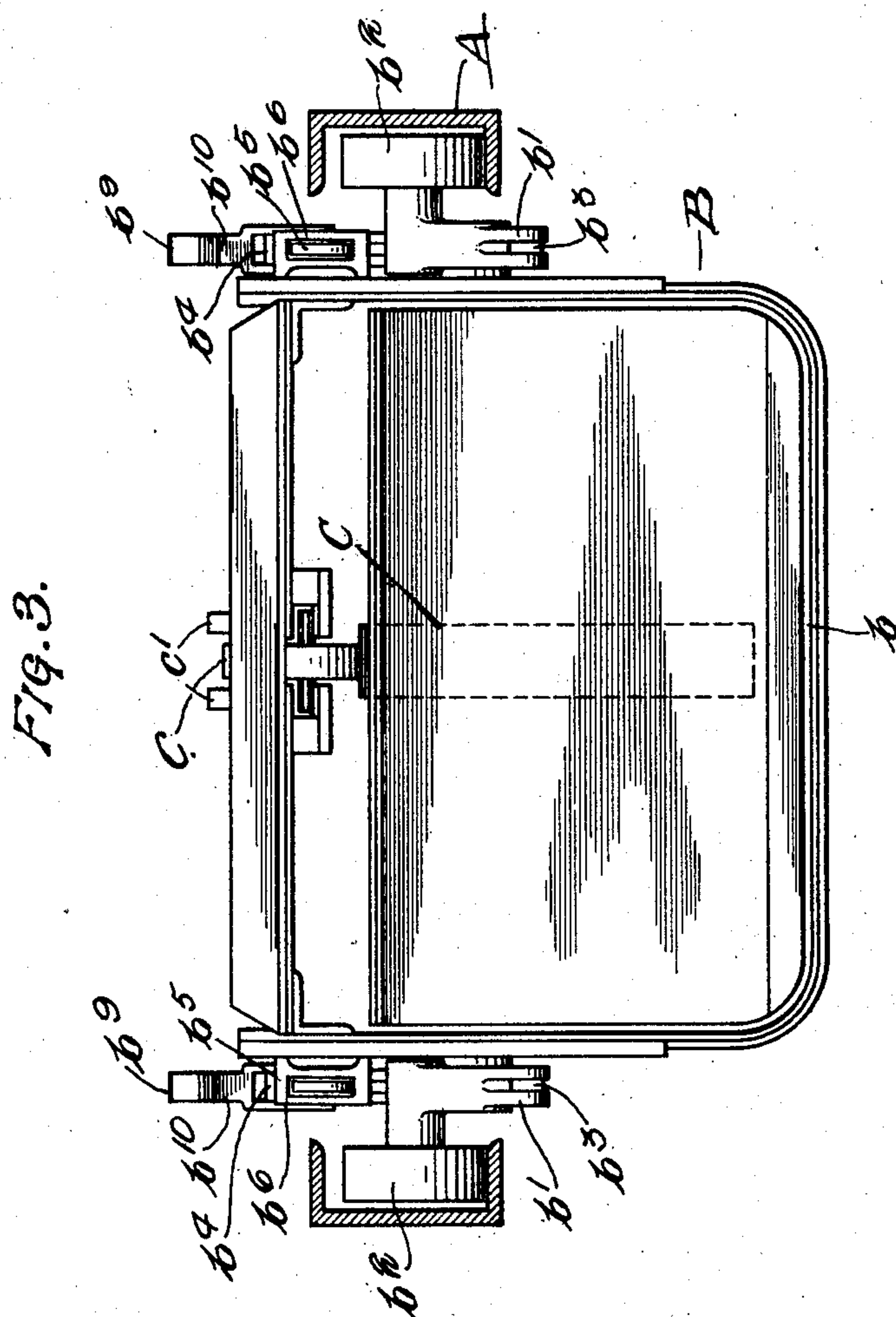
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3 SHEETS-SHEET 3.



WITNESSES
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UNITED STATES PATENT OFFICE.

MORTON G. BUNNELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO FREDERICK C. AUSTIN, OF CHICAGO, ILLINOIS.

EXCAVATOR.

997,543.

Specification of Letters Patent.

Patented July 11, 1911.

Application filed October 15, 1909. Serial No. 522,749.

To all whom it may concern:

Be it known that I, MORTON G. BUNNELL, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Excavators, of which the following is a specification.

My invention relates to excavators of that type in which a bucket or scoop is arranged to travel back and forth on a track or runway.

It relates more particularly to excavators of this kind in which the said bucket or scoop is adapted to fill while traveling in either direction, and adapted to dump at each end of the runway.

In certain respects, also, my invention is in the nature of an improvement on an excavator of this character in which the runway serves as a templet for shaping the ditch.

The object of my invention is the provision of means for automatically locking the bucket or scoop in position with either lip slightly depressed below the other, depending on the direction in which the bucket or scoop is traveling, so that the said bucket or scoop will fill more readily than if free to rest with both ends on the ground, as was the case in said prior machines, and whereby the said bucket or scoop may be caused to tilt or dip forward for a portion of its travel, and then be released and allowed to travel freely for the remainder of the distance necessary to reach the point of discharge whereby, for example, with the construction disclosed, the bucket or scoop is locked in loading position as it goes down into the excavation, but is unlocked while ascending the other side of the excavation.

To the foregoing and other useful ends, my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings—Figure 1 is a front elevation of an excavating machine embodying the principles of my invention. Fig. 2 is an enlarged side elevation of the bucket or scoop shown descending into the excavation in Fig. 1. Fig. 3 is an end elevation of the bucket shown in Fig. 2, showing the tracks or ways in cross section.

As thus illustrated, the body of the machine and the runway A may be of the well known general character heretofore employed in machines of this kind. The bucket

B has a lip *b* at each end thereof, and is open at each end. The sides of the bucket are provided with pivoted arms *b'* that have wheels *b²* at their upper ends. The lower ends of these arms *b'* have links *b³* that are pivoted thereto and to the plate *b⁴*. This plate *b⁴* is on the bar *b⁵* that slides in guides *b⁶* on the side of the bucket. It will be understood that this arrangement is duplicated at the other side of the bucket. These bars *b⁵* have their ends provided with swinging draft members *b⁷* to which the operating cable is attached for drawing the bucket back and forth on the runway. These draft members *b⁷* have wheels *b⁸* that travel on the runway. As shown in Fig. 2, the draft on the right hand member *b⁷* has pulled the bar *b⁵* to the limit of its shift in that direction, and the downward shift of the wheels *b²* at the left has caused the rear of the bucket to rise above the forward end. Thus as the bucket travels forward, the lip *b* in front is below the lip *b* in the rear. The bucket is locked in this position by the latch *b⁹* which has end portions or hooks *b¹⁰* adapted to engage the tops of the guides *b⁶*. The bucket tilts up at the rear as it starts forward, and the latch *b⁹*, which falls first one way and then the other, locks the bucket in such position until it starts up hill. Then the said latch falls back and the bucket rides up hill unlocked.

The movable wall C of the bucket shifts from one open end of the bucket to the other. It serves as a back for the bucket while the latter is filling. Upon reaching either end of the runway one of the portions *c* of the wall C is caught and engaged by a hook D pivoted on the runway. Then when the motion of the bucket is reversed the wall C stands still until one of the cams *c'* on the bucket frame disengages said hook. This, however, does not take place until the entire contents of the bucket has been discharged by the movement of the bucket while the wall C remains stationary. Thus the bucket is automatically dumped at each end of the runway, by the reversal of motion.

It will be seen that I provide a device for automatically locking the bucket in position to more readily fill while going down hill. The initial pull on the bucket, while the wall C is held by one of the hooks D, tilts the bucket to the desired position, and

the device b^9 then locks and holds it therein. The device b^9 falls over and unlocks the bucket or scoop when it reaches the bottom of the ditch and starts up the other side. Or it may be operated manually by a cord or other connection, if such is desired. I find, however, that the devices b^9 , one at each side of the bucket, can be given such weight and proportion that they will work automatically, in the manner described.

What I claim as my invention is:

1. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, and means for locking the bucket in tilted position.

2. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, and means for automatically locking the bucket in tilted position.

3. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, and means for locking the bucket in tilted position, adapted automatically to unlock when the bucket starts upward.

4. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, and means operated by gravity for locking the bucket in tilted position.

5. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means for locking the bucket in tilted position, said bucket having a movable back wall, and means on the end of said runway for causing said movable wall to dump the load at either end of said runway, whereby the bucket travels locked in tilted position for a portion of its travel in each direction.

6. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means for automatically locking the bucket in tilted position, said bucket having a movable back wall, and means on the end of said runway for causing said movable wall to dump the load at either end of said runway, whereby the bucket travels locked in tilted position for a portion of its travel in each direction.

7. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means for locking the bucket in tilted position,

adapted automatically to unlock when the bucket starts upward, said bucket having a movable back wall, and means on the end of said runway for causing said movable wall to dump the load at either end of said runway, whereby the bucket travels locked in tilted position for a portion of its travel in each direction.

8. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means operated by gravity for locking the bucket in tilted position, said bucket having a movable back wall, and means on the end of said runway for causing said movable wall to dump the load at either end of said runway, whereby the bucket travels locked in tilted position for a portion of its travel in each direction.

9. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means for locking the bucket in tilted position, said locking means consisting of a pivoted latch, and means on the bucket for engaging said latch.

10. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means for locking the bucket in tilted position, said locking means consisting of a pivoted latch, and means on the bucket for engaging said latch.

11. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means for locking the bucket in tilted position, adapted automatically to unlock when the bucket starts upward, said locking means consisting of a pivoted latch, and means on the bucket for engaging said latch.

12. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means operated by gravity for locking the bucket in tilted position, said locking means consisting of a pivoted latch, and means on the bucket for engaging said latch.

13. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means for locking the bucket in tilted position, the means for tilting the bucket comprising pivoted arms provided with wheels for engaging said runway, draft connection, and means operated by the pull or draft on said connection for causing said wheels to tilt or dip the bucket in the direction of travel thereof.

14. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, 5 means for automatically locking the bucket in tilted position, the means for tilting the bucket comprising pivoted arms provided with wheels for engaging said runway, draft connection, and means operated by the pull 10 or draft on said connection for causing said wheels to tilt or dip the bucket in the direction of travel thereof.

15. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, 15 means for locking the bucket in tilted position, adapted automatically to unlock when the bucket starts upward, the means for tilting the bucket comprising pivoted arms provided with wheels for engaging said runway, draft connection, and means operated 20

by the pull or draft on said connection for causing said wheels to tilt or dip the bucket in the direction of travel thereof. 25

16. In an excavator, a runway, a bucket movable back and forth thereon, means for tilting the bucket on the runway, to facilitate loading during its forward movement, means operated by gravity for locking the 30 bucket in tilted position, the means for tilting the bucket comprising pivoted arms provided with wheels for engaging said runway, draft connection, and means operated by the pull or draft on said connection for 35 causing said wheels to tilt or dip the bucket in the direction of travel thereof.

Signed by me at Atkinson, Illinois, this 11th day of October, 1909.

MORTON G. BUNNELL.

Witnesses:

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ANWIN W. KENNWEIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."