No. 711,449.

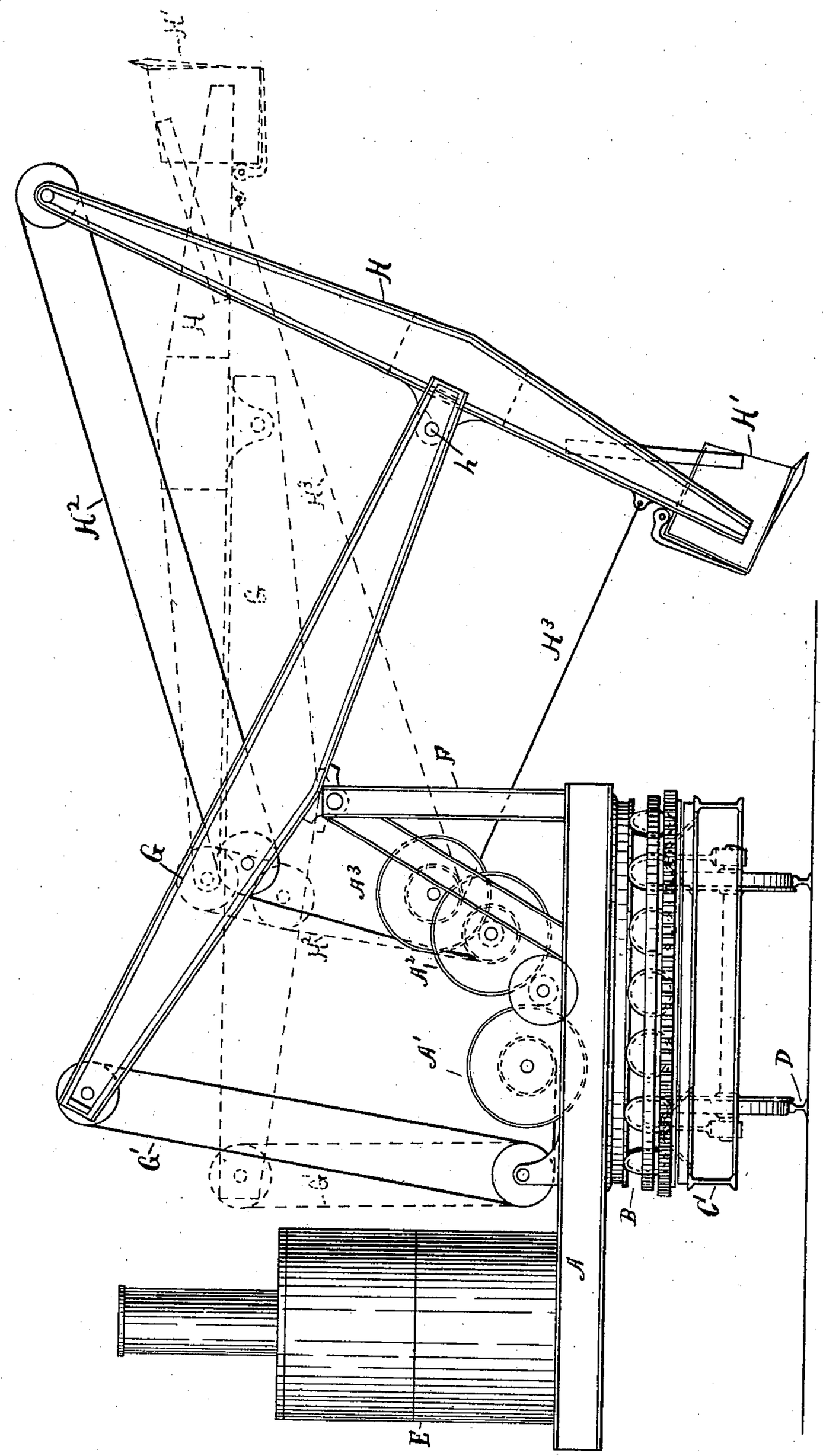
Patented Oct. 14, 1902.

G. H. WILLIAMS.

EXCAVATOR.

(Application filed July 25, 1901.)

(No Model.)



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EXCAVATOR.

SPECIFICATION forming part of Letters Patent No. 711,449, dated October 14, 1902.

Application filed July 25, 1901. Serial No. 69,718. (No model.)

To all whom it may concern:

Be it known that I, GURDON H. WILLIAMS, a citizen of the United States, residing in Brooklyn township, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Excavators; and I hereby 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 pertains to make and use the same.

My invention relates to excavators; and it consists in the peculiar construction of the same, which will be hereinafter fully set forth and claimed.

The figure in the drawing is a view in side elevation of an excavator embodying my invention.

A represents a platform, which is mounted upon a turn-table B, the turn-table in turn being suitably mounted on truck C, adapted to travel upon suitable tracks D.

Upon the platform A is mounted the motive power for the excavator, which in the case illustrated comprises a boiler E, a suitable engine, (not shown,) and a series of drums A′, A², and A³. The said drums A′, A², and A³ are suitably connected to the motive power and are provided with the necessary clutch and brake devices, arranged so as to operate said drums. The boiler E is mounted upon the platform A at one side thereof and diametrically opposite the excavating mechanism and acts as a counterpoise or balance to said mechanism.

A mast F is suitably mounted and braced with struts and ties approximately diametrically opposite the boiler E. At the upper end of the mast F is mounted a vertically-pivoted boom G, constructed and adapted to rock in a vertical direction upon the upper end of said mast and at its inner end connected with a drum A′ by means of a cable G′, by means of which said boom is controlled and operated. At the outer end of the boom G is pivotally secured, as at *h*, a bucket-arm H, the lower end of which is provided with a bucket H′, securely attached thereto in any suitable manner. The bucket-arm H is pivoted to the outer end of the boom G at a point near the center of said arm and in such a manner that the said arm will have a vertically-oscillating movement in relation to said boom, which is controlled at the upper end of the arm H by means of a cable H² and drum A². At the lower end of said arm H a cable H³ and drum A³ control the movement of said arm H, and thus it will be seen that the arm H and its position in relation to the boom G are controlled by the taking in or letting out of the respective cables H² and H³ by means of the drums A² A³, respectively, and that the height of the pivotal point *h* of the arm H is controlled by the cable G′ and drum A′.

The construction and assemblage of the parts at the pivotal connection *h* are such that when the arm H is caused to assume the position shown in dotted lines in the drawing the boom G and arm H are parallel or approximately so, and when said boom G assumes a horizontal position, as illustrated in dotted lines, the whole excavator may pass beneath a very low obstruction, the whole construction and assemblage being such that a maximum amount of leverage is obtained a great scope of position is attainable, resulting in giving the excavator great capacity; also, the construction and assemblage is very simple, easily controlled, and such as to decrease the liability of breakage or disarrangement, and in case of such allowing repairs to be quickly and cheaply made. It will also be seen that the arm H allows the scoop or bucket H′ to engage the earth or material at a point close up to the tracks D and platform A, thus allowing the said tracks and excavator-platform to be close to the excavation, thus allowing the engineer to oversee the work and properly locate the bucket H′, so as to produce the best results.

The operation of my excavator will be clearly understood on account of its simplicity, it being only necessary to state that the depth of the excavation is controlled by the boom G as it is raised or lowered.

What I claim is—

1. In combination with a platform, with suitable motive power mounted on said platform, of a mast mounted on the platform, a boom pivotally mounted on said mast to have a vertically-rocking movement thereon, a

bucket-arm pivotally connected to the outer end of said boom at a point between the ends of the arm, an excavator-bucket connected to the lower end of said arm, cables connecting the arm above and below its pivoted points with drums on the platform for controlling the movement of the arm independently of the boom, and a cable connecting the inner end of the boom to a drum on the platform for controlling the movement of the boom, substantially as described.

2. An excavating-machine comprising a platform, suitable motive power and drums mounted upon said platform, cables connected with said drums and operated thereby, a boom pivotally connected at approximately its central portion with said platform and adapted to be moved vertically by means of one of said cables connected to its inner end and to one of said drums, a pivotally-connected bucket-arm secured at a point between its ends to the outer end of said boom, an excavator-bucket secured to one end of said arm, the movement of said arm in relation to the boom being controlled by separate cables connected to its ends and to drums on the platform, for the purpose set forth.

3. In an excavating-machine of the type set forth, the combination of a vertical mast stationary on a rotatable platform, a boom pivotally attached to the upper end of the mast and having a vertical movement, a bucket-arm pivotally secured to the outer end of the boom, said pivotal attachment being such as to allow said boom and arm to assume positions parallel with each other, an excavator-bucket secured to the outer end of said bucket-arm, and separate cables connected to the ends of said bucket-arm and to separate drums on the platform for controlling the movement of said arm independently of the boom, substantially as described.

4. An excavator-machine comprising a platform adapted to have horizontal rotary movement, motive power including winding-drums mounted upon said platform, a vertically-pivoted boom mounted upon said platform and centrally pivoted to the same, a bucket-arm pivoted to the outer end of said boom, a bucket connected to the lower end of said arm, and means connected to the arm above and below its pivoted point for controlling the arm independently of the boom, substantially as described.

5. In an excavator of the type set forth, the combination with a vertically-rocking boom and means connected to its inner end for imparting a vertical rocking movement thereto, of a bucket-arm centrally pivoted to the outer end of said boom, cables or the like secured to each end of said arm, separate drums secured to and operating said cables and a scoop or bucket secured to the lower end of said arm for the purpose set forth.

Signed by me at Cleveland, in the county of Cuyahoga and State of Ohio, this 13th day of April, 1901.

GURDON H. WILLIAMS.

Witnesses:
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E. B. DONNELLY.