

No. 709,733.

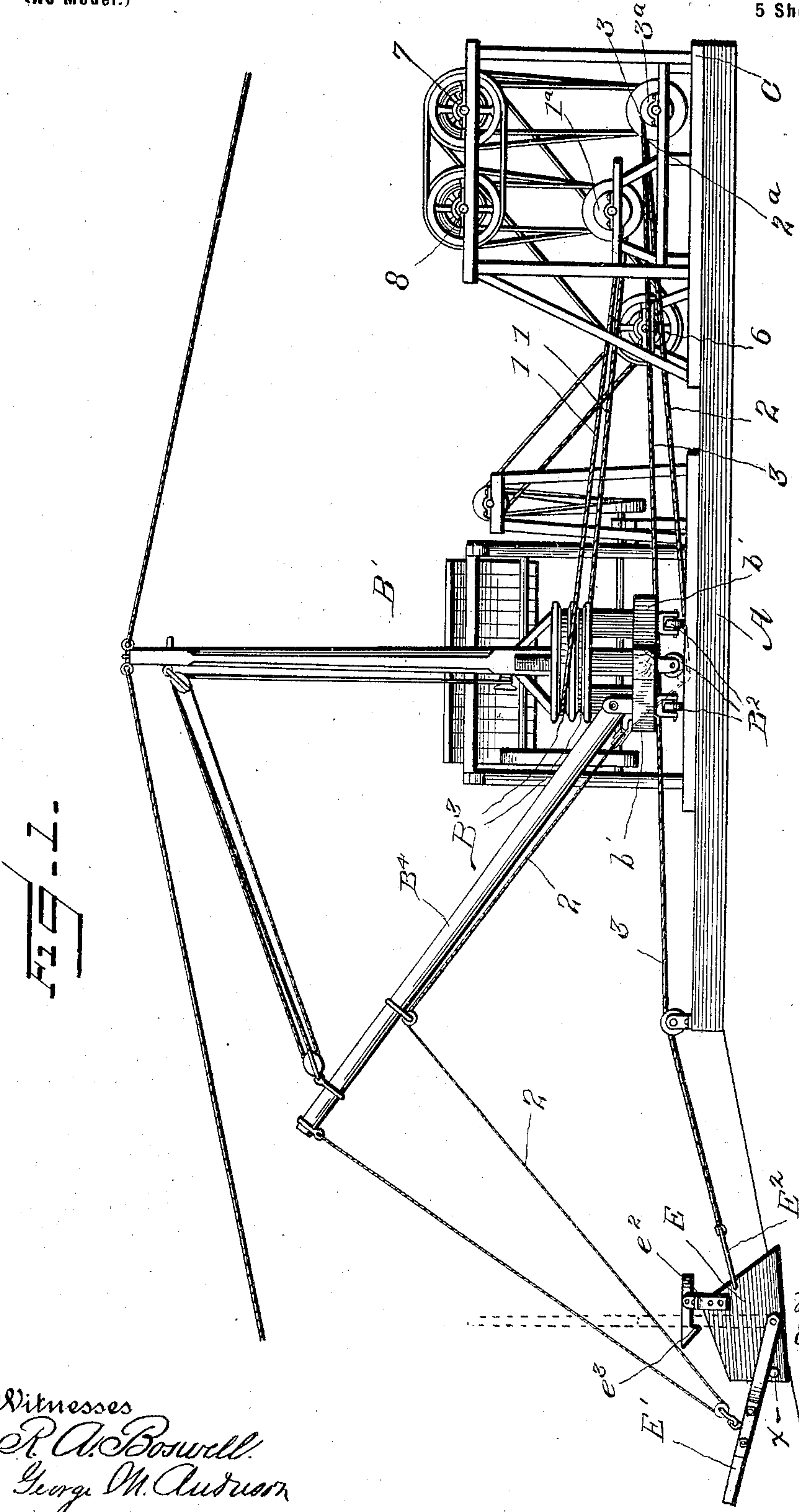
Patented Sept. 23. 1902.

H. J. BARTON & A. C. LA BUD.
MINING DREDGE.

(Application filed June 20, 1901.)

(No Model.)

5 Sheets—Sheet 1.



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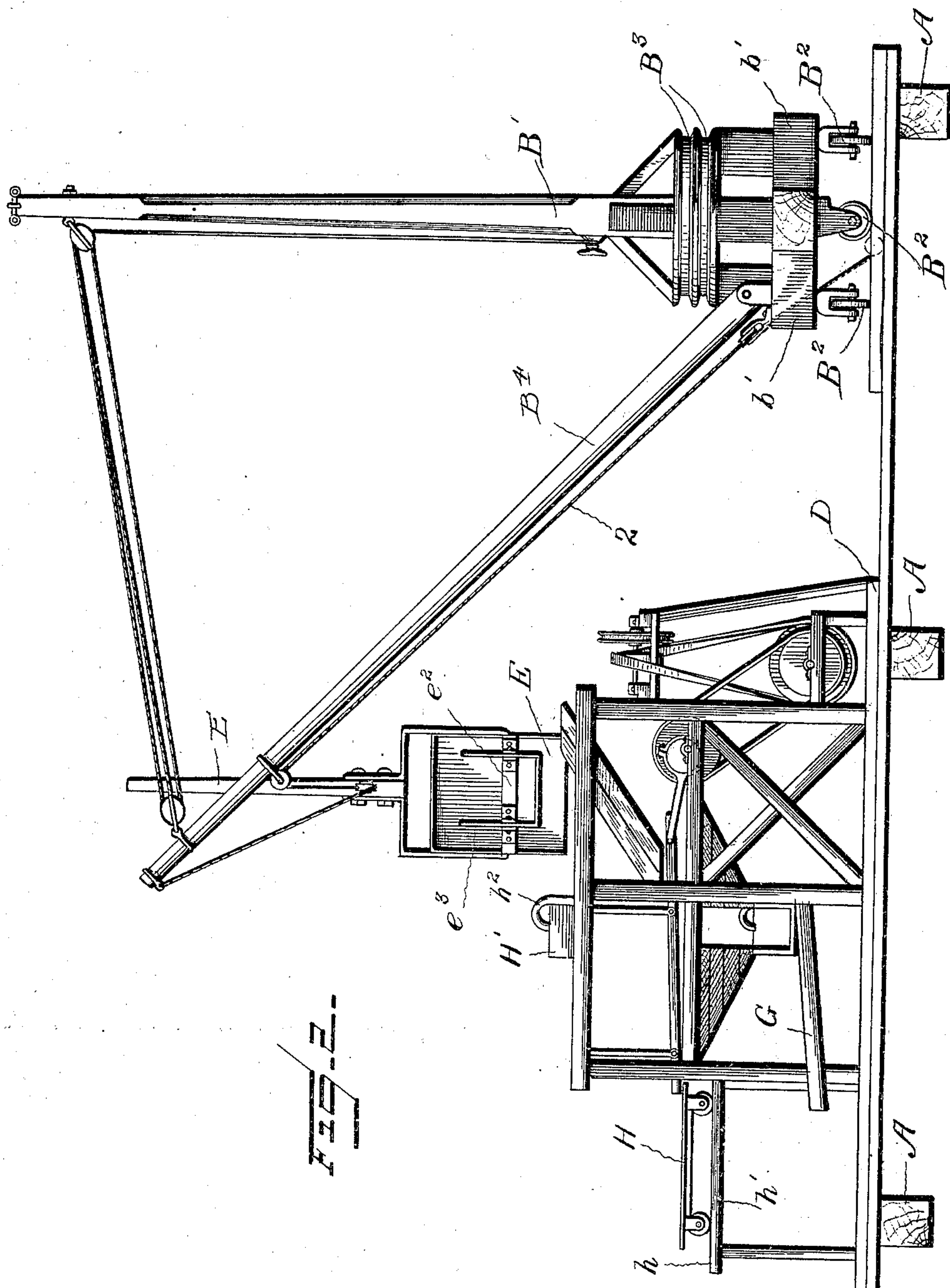


Fig. 2.

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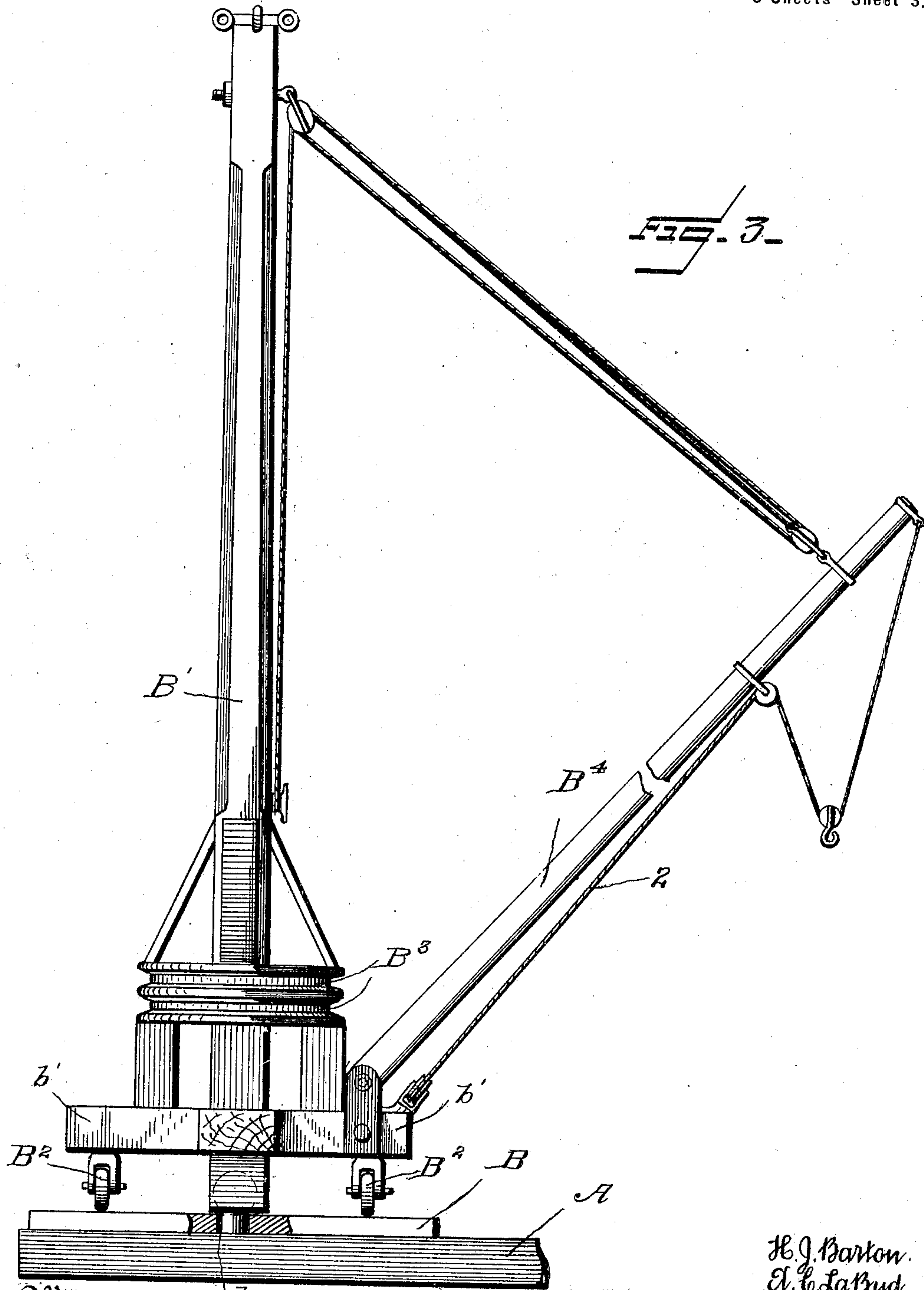
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5 Sheets—Sheet 3.



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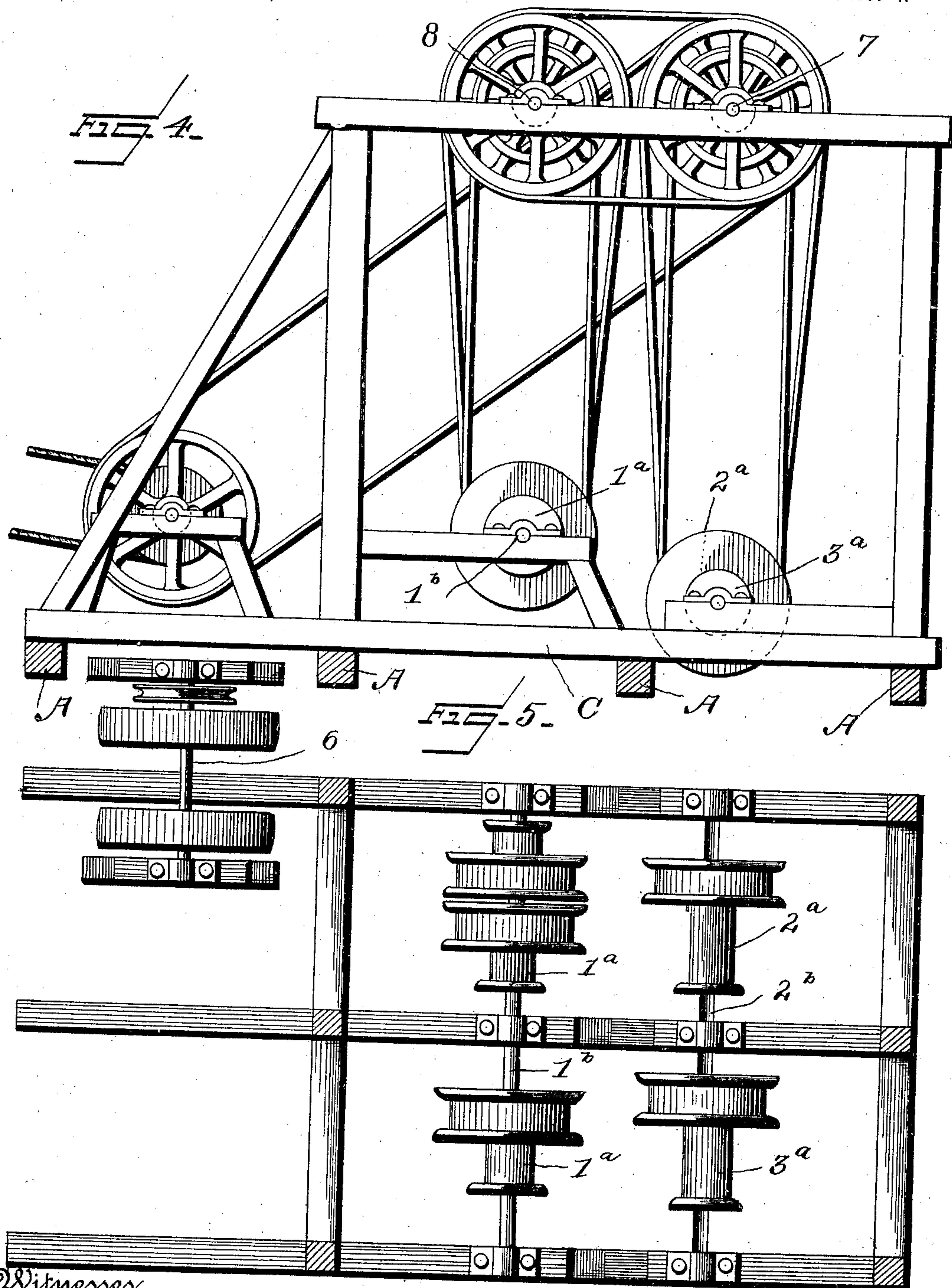
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(No Model.)

(Application filed June 20, 1901.)

5 Sheets—Sheet 4.



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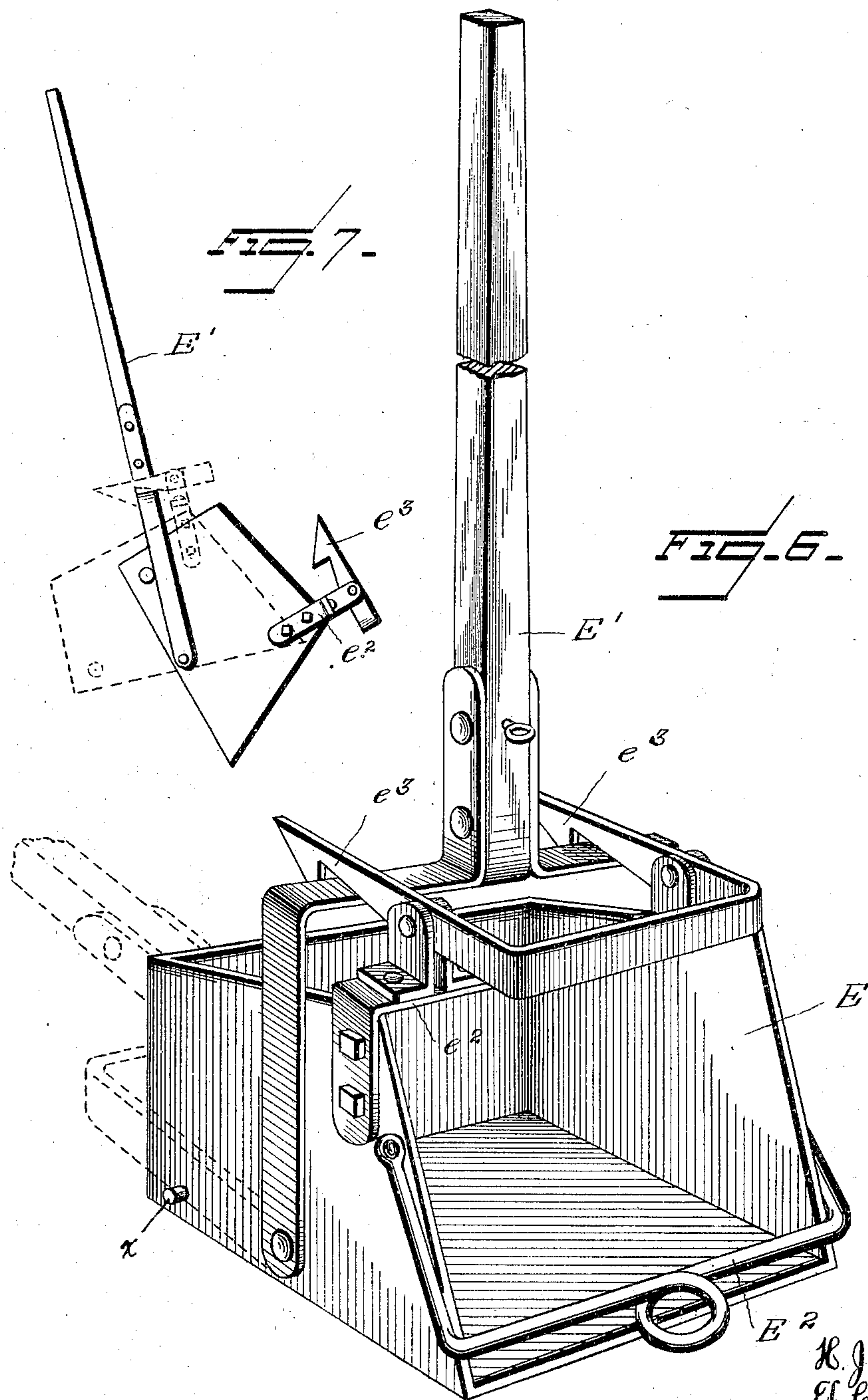
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5 Sheets—Sheet 5.



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UNITED STATES PATENT OFFICE.

HENRY J. BARTON AND AUGUST C. LA BUD, OF OAKBAR, CALIFORNIA.

MINING-DREDGE.

SPECIFICATION forming part of Letters Patent No. 709,733, dated September 23, 1902.

Application filed June 20, 1901. Serial No. 65,299. (No model.)

To all whom it may concern:

Be it known that we, HENRY J. BARTON and AUGUST C. LA BUD, citizens of the United States, and residents of Oakbar, in the county of Siskiyou and State of California, have made a certain new and useful Invention in Mining-Dredges; and we declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention has relation to mining machinery, and especially to an excavator or dredge for mining purposes operating in an open cut without the use of water by a straight draft or pull to form a pit having a gradual inclination from top to bottom, the derrick and all other machinery being located outside of the pit, whereby an unobstructed view is allowed of the pit or ground being worked at all times and facilitating cleaning of the bed-rock, which may be done without stopping or interfering with the operation of the dredge or excavator, and whereby boulders or other large obstructions are clearly visible and may be removed without injury to the machinery by straining thereagainst, a pump being used to keep the pit free of water.

We mount our derrick, our gold-separator, and our power machinery upon separate platforms, in turn mounted upon skids movable over the surface of the ground.

Our apparatus is simple in construction and operation, comparatively inexpensive to manufacture, and may be worked by three men with an engine of thirty-horse power to handle about thirty cubic yards of gravel per hour.

Other objects and advantages will hereinafter appear.

The invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of our dredge as in operation. Fig. 2 is an end elevation of the same on a somewhat larger scale, the dredge-scoop be-

ing shown as raised above and over the separator in dumping position. Fig. 3 is a side elevation of the derrick. Figs. 4 and 5 are views of the power-platform, its drums, and pulleys in side elevation and horizontal section beneath the upper tier of pulleys, respectively. Fig. 6 is a perspective view of the dredge-scoop latched to its carrier. Fig. 7 is a side view of the same on a smaller scale and in dumping position.

Referring to the drawings, the letter A designates the horizontal skids resting directly upon the surface of the ground, B the derrick-platform; C, the power-platform, and D the separator-platform.

We will first proceed to describe the derrick and dredge or excavator.

B' is the mast of the derrick, having a cylindrical lower end portion fitting into a cylindrical bearing *b* in the platform, and B² represents the caster-wheels, having ball-bearings and supporting such mast, the vertical pins of said wheels having bearings in cross-timbers *b'*, carried by the mast, such wheels revolving upon the derrick-platform, which is of steel.

B³ represents suitable adjacent pulleys or wheels carried by the derrick-mast for transmission of power thereto to rotate the same, suitable bracing-bars being provided between the lower cross-timbers and the wheels and between such wheels and the mast. Cables 1 1 engage the derrick-wheels B³ and pass around drums 1^a 1^a of the power-platform, such drums having suitable belting with the power-shaft.

B⁴ is the boom pivoted to one of the cross-timbers *b'*, the usual blocks and tackle being employed for operating such boom.

E is the excavator or dredge bucket or scoop of shovel form and to which steel teeth (not shown) may be applied.

E' is the hoisting or carrying lever for the scoop, which is pivoted centrally of its lower portion between bifurcated arms of such lever. The side walls of the scoop are connected and braced at their upper forward portions by a cross-bar *e*², shouldered or barbed, rearwardly-projecting catches *e*³ being carried by said cross-brace and being arranged when the scoop is loaded and the lever is raised to engage the cross-arms of the bifurcations of

said lever to form a rigid connection between lever and scoop. The lever thus stands normally upright, and being operated regulates or controls the working of the scoop, which is thus prevented from tipping forward or going too deep when loading. The lever and scoop are subsequently hoisted to a position adjacent to the outer end of the boom by hoisting-cable 2, connected with such lever at the lower portion of the same, passing upwardly over a guide-pulley at the outer end of the boom, then downwardly over a guide-pulley at the inner end of the boom, and thence to the power-platform, around the hoisting-drum 2^a thereof. The draft or loading cable 3 of the dredge is directly connected to a bail E², free of fulcrum connections, and the lateral arms of which have a connection with the lateral walls of the forward end portion of the scoop just a little above the center of the height thereof, such cable passing over a guide-pulley located at the forward end of the skids and a little above the level thereof and thence rearwardly around the loading-drum 3^a of the power-platform. In this way a draft upon cable 3, which in loading position is at a low inclination to the surface of the ground being worked, will force the nose or point of the scoop into the gravel, the lower wall of the scoop taking an inclination to the surface of the gravel, and as the scoop is thus drawn up the bank of the pit it is loaded, the draft being regulated by the man attending to the scoop-lever, which lever when lowered is limited in its downward movement by a suitable abutment *x* of the scoop to prevent such scoop from tipping forwardly or going too deep into the ground. When the scoop is loaded, the lever is raised, as aforesaid, and scoop and lever being latched together are hoisted, the lever being operated by the attendant when the scoop is clear of the ground to settle the gravel contents rearwardly and prevent escape thereof. The scoop is now swung by the derrick to the separator and dumped upon the chute of such separator. A cable from the power-platform and leading to a sheave anchored upon the worked ground of the pit may be attached to the ring at the end of the scoop-lever for the purpose of hauling such scoop backwardly for better loading of the same and scraping bed-rock. This cable may also be used to haul large rocks from the face of the bank and to deposit the same upon the ground already worked without interfering with the operation of the excavator and saving the expenditure of energy which would be necessary to hoist such rocks. In the present case the gravel is hoisted to a height of over fourteen feet above the surface of the ground, thus allowing a dump of nine feet for the sluice-box and a twelve-foot dump for the rock-car besides the fall of the sluice-box. The dirt is graded at once as it passes over the shaking-table to a size of one and one-half inches in diameter and is again graded

twice over to sizes of one inch and three-quarters of an inch in diameter by the riffles in the sluice-box.

Referring now to the power-platform, the wheels of this platform are arranged in two tiers, the lower tier including the hoisting-drum, the loading-drum, the drums for swinging the derrick forwardly and back, and the drum for the drag-cable. The main power-shaft 6 is also in the lower tier. The hoisting and loading drums 2^a and 3^a are arranged upon transverse shaft 2^b at the lower rear part of the power-platform. The drums 1^a 1^a for swinging the derrick forwardly and back are arranged upon transverse shaft 1^b at the lower forward part of such platform, the drum for the drag-cable 5 being also upon this shaft. The power-shaft, which is arranged forwardly of such drums in the lower tier, is belted to a transverse shaft 7 above transverse shaft 2^b, which shaft 7 has vertical belts connecting it with the pulleys of the loading and hoisting drums. The transverse shaft 8 is located above shaft 1^b and has vertical belts connecting it with the pulleys of the drums for swinging the derrick forwardly and back and with the pulley of the drum for the drag-cable, a cross-belt connecting shafts 7 and 8.

In commencing the excavation of a pit, the parts being arranged as stated, the scoop forms first a very gradual declivity having a low inclination to the surface of the ground, the inclination of which declivity is gradually increased as the operation progresses.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a mining dredge or excavator, the scoop of shovel form, the draft-loop connected to the lateral walls of said scoop just above the center of the height thereof, the rear handle-lever pivoted to said scoop, a catch carried by the scoop for holding said lever upright, the loading-drum located near the surface of the ground, the draft or loading cable carried by said drum, and connected to said draft-loop, and the hoisting-cable connected to said handle-lever, substantially as specified.

2. In a mining dredge or excavator, the dredge bucket or scoop having a lever pivoted thereto, a catch carried by the scoop for said lever, a derrick, guide-pulleys, and a hoisting-cable connected at one end portion thereof, to the outer end of the derrick-boom looped around a connection of the scoop-lever, and thence passing around said guide-pulleys to the hoisting-drum, substantially as specified.

3. In a mining dredge or excavator, the scoop of shovel form, having the forward draft-loop, and the rear handle and hoisting-lever, and a catch carried by the scoop for said lever to hold the lever upright, substantially as specified.

4. In a mining dredge or excavator, the scoop of shovel form, having the handle and hoisting-lever pivoted thereto, said lever hav-

ing the scoop-embracing fork and the rear power or handle extension thereof, a catch carried by the scoop for said lever to hold the lever upright, such lever being arranged to swing rearwardly of the scoop when released, substantially as specified.

5. In a mining-dredge, the straight forked carrier, the scoop of shovel form pivoted to said carrier, a catch upon the scoop for said carrier, the draft-cable connected to the scoop and the hoisting-cable connected to the carrier in rear of the fork thereof, substantially specified.

6. In a mining-dredge, the straight forked carrier, the scoop of shovel form pivoted to said carrier, and having a catch arranged to engage the transverse arms of the carrier-fork, the draft-cable connected to the forward end portion of the scoop above the center of the height thereof and the hoisting-cable connected to said carrier, substantially as specified.

7. In a dredge-excavator, the scoop, the draft-cable connected to the forward part of

said scoop, a lever pivoted to said scoop, a catch carried by the scoop for said lever, the derrick, and a cable carried by said derrick and connected to said lever and arranged to first effect the catch between lever and scoop, and to subsequently hoist the scoop, substantially as specified.

8. In a dredge-excavator, the scoop of shovel form having the rearwardly-extending catch-shoulders, the lever pivoted to said scoop and having the cross-arm, and the hoisting-cable connected to said lever and arranged to first effect an engagement of said catch-shoulders and cross-arm, and to subsequently hoist the scoop, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY J. BARTON.
AUGUST C. LA BUD.

Witnesses:

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