

No. 633,064.

Patented Sept. 12, 1899.

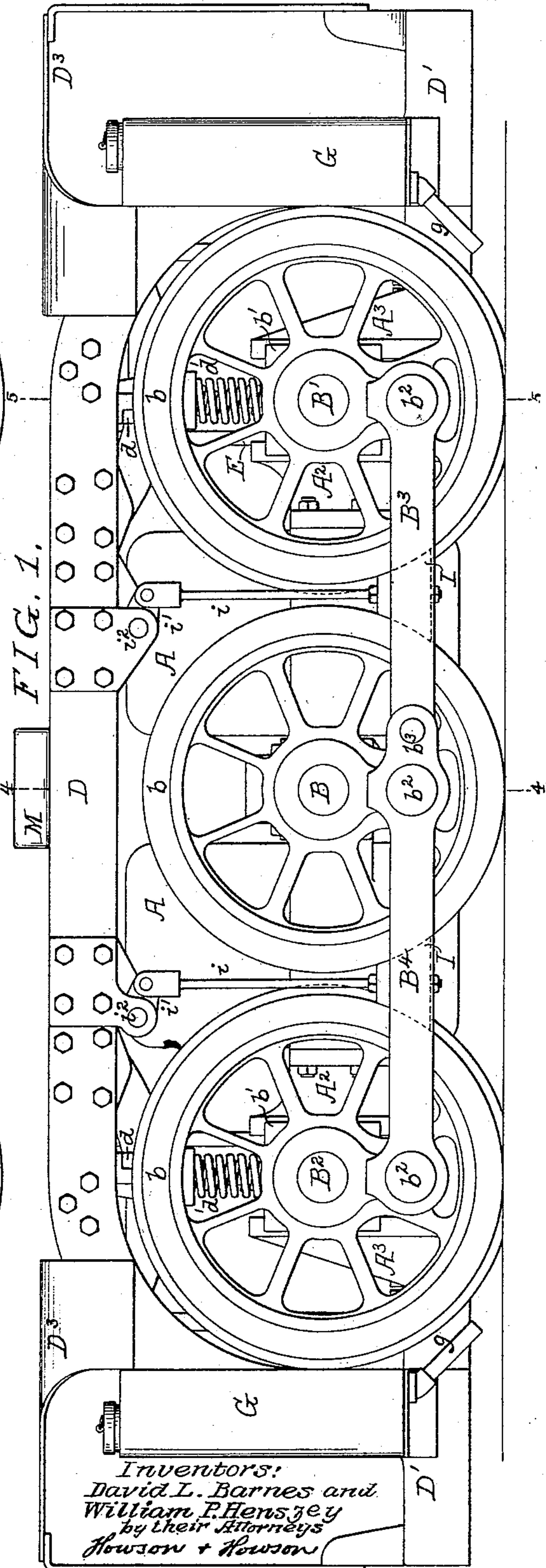
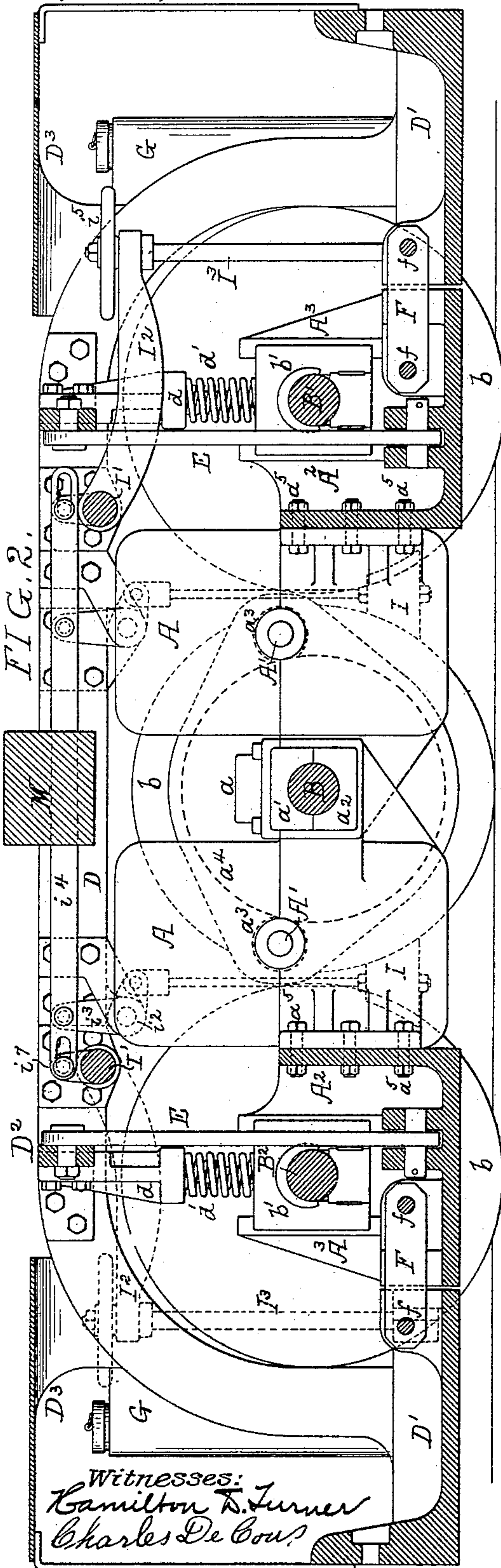
D. L. BARNES & W. P. HENSZEY.

MINE LOCOMOTIVE.

(Application filed Mar. 20, 1896.)

(No Model.)

3 Sheets—Sheet 1.



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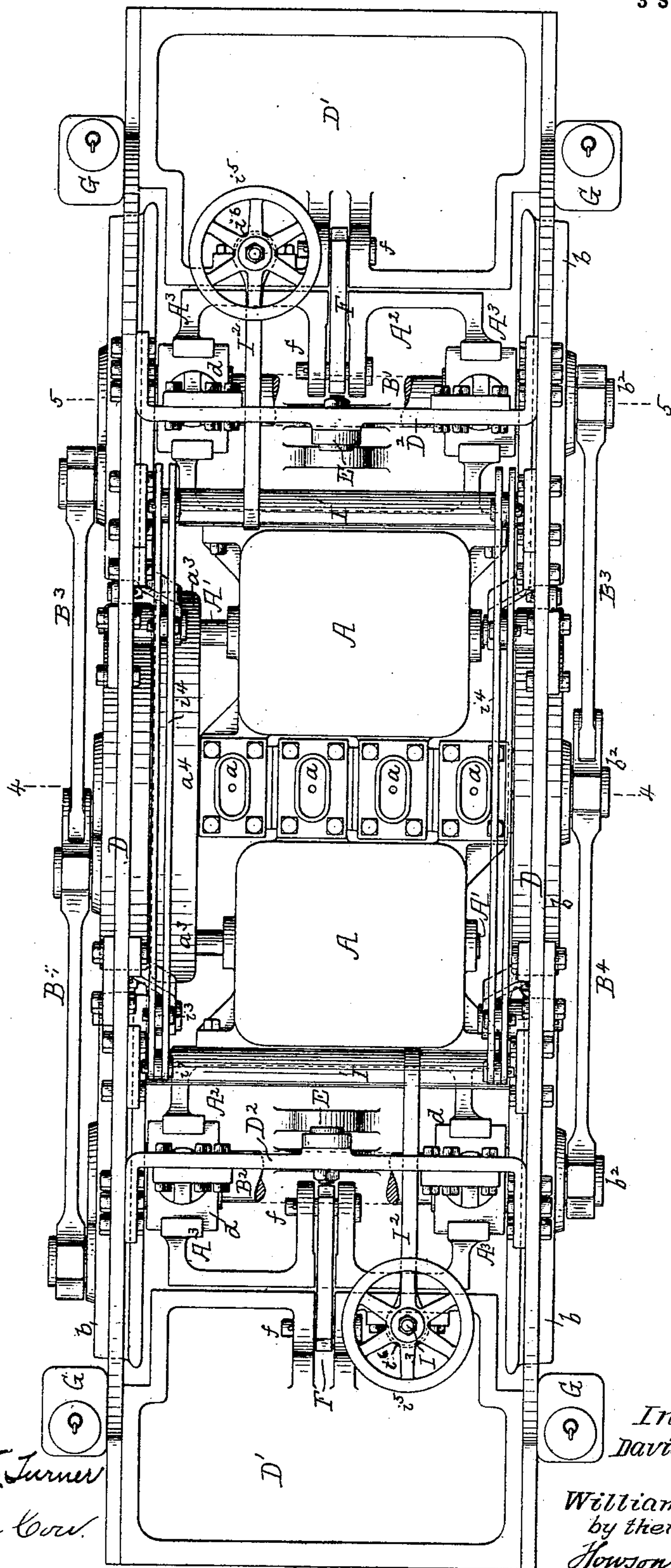
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(No Model.)

3 Sheets—Sheet 2.

FIG. 3.



Witnesses:
Hamilton T. Turner
Charles De Cour.

Inventors:
David L. Barnes
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by their Attorneys
Howson & Howson.

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8 Sheets—Sheet 3.

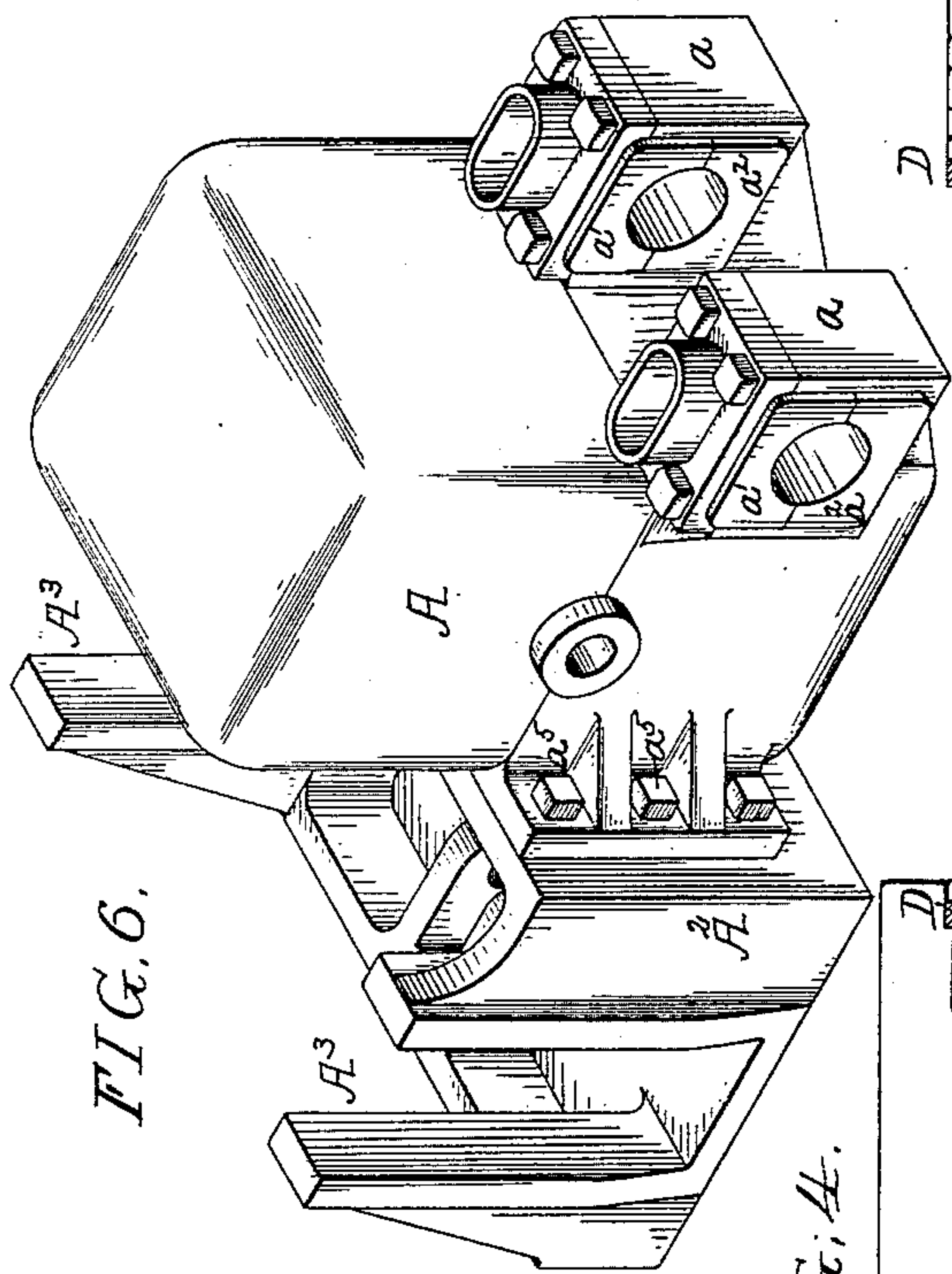


FIG. 5.

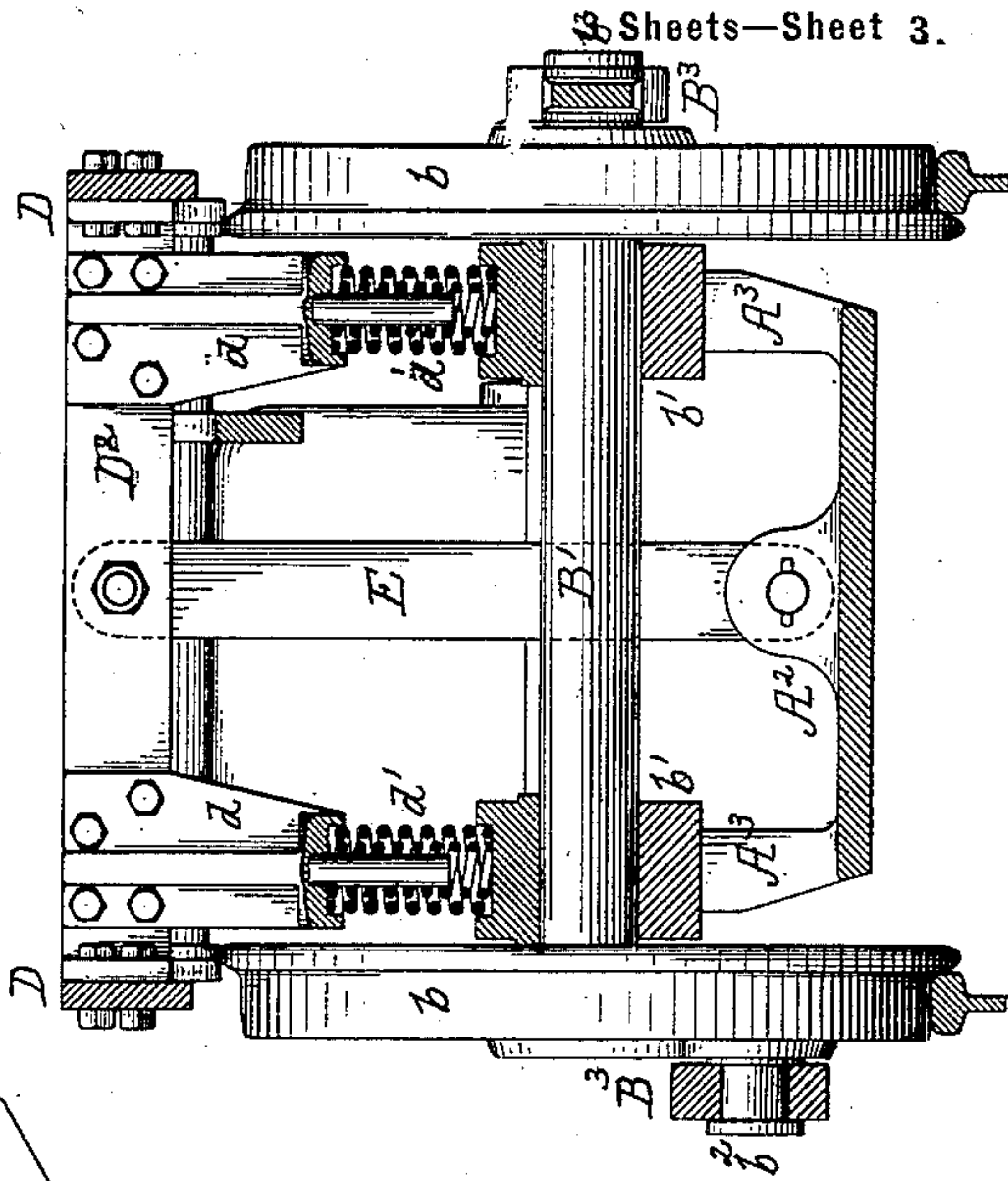
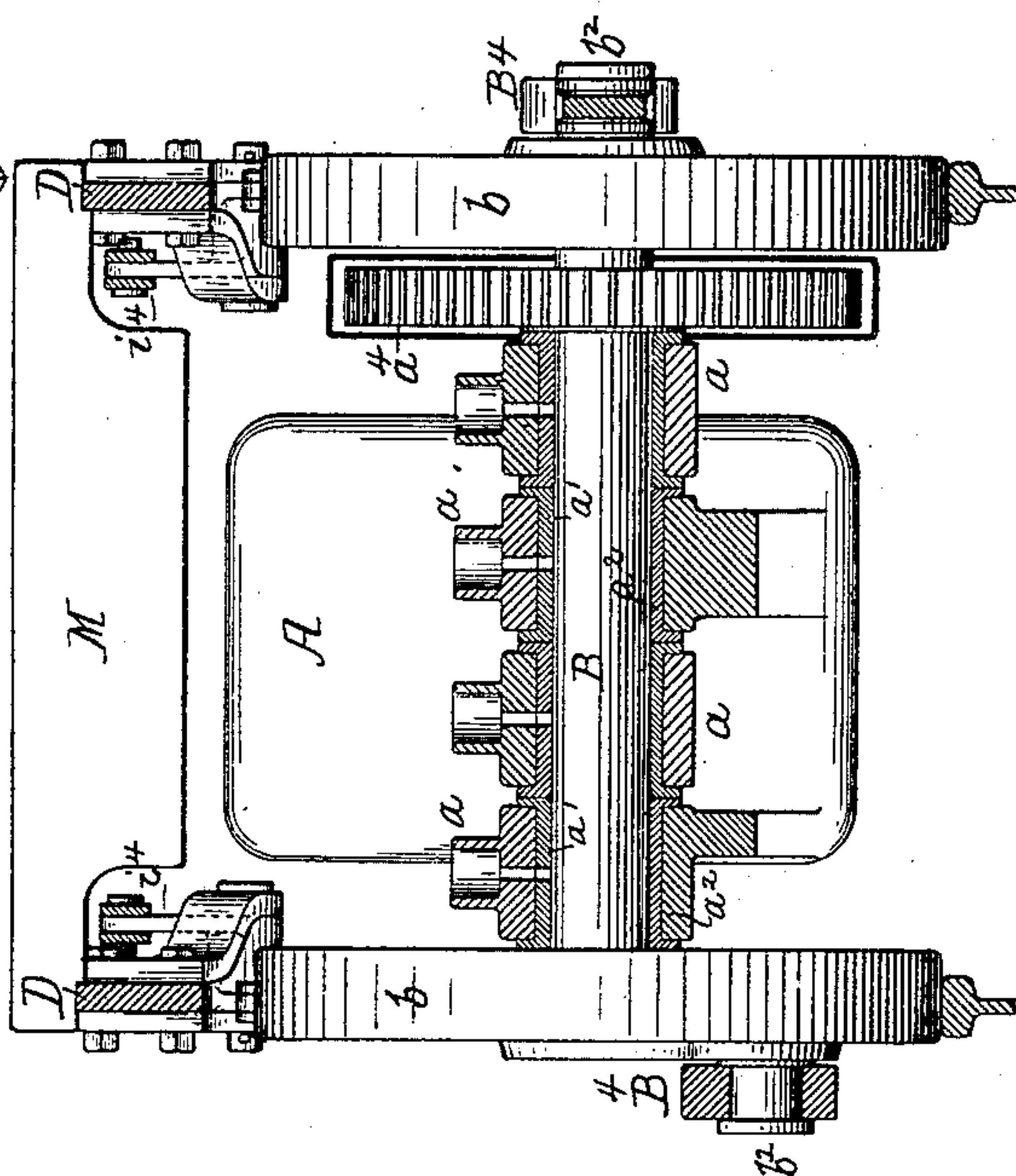


FIG. 4.



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Charles DeGou?

Inventors:
David L. Barnes and
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UNITED STATES PATENT OFFICE.

DAVID L. BARNES, OF CHICAGO, ILLINOIS, AND WILLIAM P. HENSZEY, OF PHILADELPHIA, PENNSYLVANIA.

MINE-LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 633,064, dated September 12, 1899.

Application filed March 20, 1896. Serial No. 584,074. (No model.)

To all whom it may concern:

Be it known that we, DAVID L. BARNES, a resident of Chicago, Illinois, and WILLIAM P. HENSZEY, a resident of Philadelphia, Pennsylvania, citizens of the United States, have invented certain Improvements in Mine-Locomotives, of which the following is a specification.

The object of our invention is to construct an electric locomotive especially adapted for use in mines.

One of the main features of the invention is the utilization of the motors as part of the frame of the locomotive.

Referring to the accompanying drawings, Figure 1 is a side view of our improved electric mine-locomotive. Fig. 2 is a longitudinal sectional view. Fig. 3 is a plan view with the weights removed. Fig. 4 is a transverse sectional view on the line 4 4, Fig. 3. Fig. 5 is a transverse section on the line 5 5, Fig. 3. Fig. 6 is a detached perspective view of one of the motors and its bracket.

A A are the two electric motors, and on the frames of these motors are projecting bearings a , the bearings of one motor alternating with the bearings of the other motor, so that the axle B will be journaled in both sets of bearings. Each bearing a has an upper and lower bearing-block a' a^2 of the ordinary construction, and each bearing is provided with cups for lubricants. The shafts A' of the motors are geared to the axle B through pinions a^3 and gear-wheels a^4 , (shown by dotted lines in Figs. 2 and 3,) so that it will be seen that power is applied directly to the central axle B.

On each motor-frame A are secured brackets A^2 by bolts a^5 , and on these brackets are formed the pedestals A^3 for the boxes b' of the axles B' B^2 . On the several axles B' B^2 are the traction-wheels b . The center pair of wheels are plain, while the end wheels are flanged. Each wheel has a crank-pin b^2 , and these crank-pins are coupled by connecting-rods B^3 B^4 . The connecting-rod B^3 is coupled directly to the connecting-rod B^4 by a pin b^3 . (Shown clearly in Fig. 1.) Power is applied from the motors directly to the central axle B and is applied indirectly to the axles B' B^2 . It will be seen that the three axles are independent as regards vertical motion, as the

hinge-joint formed by the axle B and the bearings on the motor-frames allows the parts to yield to a certain extent.

Extending over the wheels from end to end of the locomotive are two beams D, curved at each end so as to conform somewhat to the shape of the end wheels, and these beams carry the two platforms D' , one at each end. The frames are tied together by cross-bars D^2 , and on these cross-bars are brackets d , between which and the boxes b' for the axles B' B^2 are springs d' , so that the frame composed of the longitudinal beams D and cross-bars D^2 is supported on the axles B' B^2 through the medium of the springs. The brackets A^2 , which are bolted to the motor-frames A, are connected to the cross-bars D^2 by suspension-rods E. Thus the outer end of each motor-frame is suspended from the frame composed of the beams D and cross-bars D^2 . In order that the pulling strain may be transmitted directly from the motor-frame to the platform D' , we couple the motor-frame to the platform by links F, secured to the parts by pins f . The links have sufficient play so that a certain amount of lateral motion can be given to the parts independently, yet when the strain is placed upon the rear platform the power will be exerted direct from the axles through the rear bracket and the links. The platforms are so shaped that the operator can sit upon the floor and place his limbs under the axle of the adjoining bracket, the hood D^3 being of a sufficient height to allow the operator to sit with comfort.

On each side of the platform D' are the sand-boxes G, having spouts g . These sand-boxes may be arranged in a different manner without departing from our invention. A controller of the ordinary construction may be mounted on each platform within reach of the operator.

The brake-shoes I, which are mounted between the wheels, conform to them, as shown, so that when they are drawn up they will bind upon both wheels. These brake-shoes are connected by rods i to arms i' of levers i^2 on a stud mounted in bearings secured to the frame D. The arms i^3 of the levers are connected to rods i^4 , coupled to rock-shafts I' , and on these rock-shafts are arms I^2 , which

span the vertical shafts I^3 , having the hand-wheels i^5 . The lower ends of the vertical shafts I^3 are threaded and adapted to threaded bearings i^6 on the platforms D' , so that on turning
 5 the hand-wheels i^5 the shaft I' will be rocked. The openings in the rods i^4 for the pins i^7 of the short arm of the rock-shaft I' are elongated, so that the brakes can be operated from either end. The vertical shaft I^3 at one end
 10 has a right-hand screw-thread and the shaft I^3 at the opposite end has a left-hand screw-thread, one shaft being raised to put on the brakes and the shaft at the opposite end is lowered to put on brakes. It will be understood that the brake mechanism may be modified without departing from the main feature
 15 of our invention.

If there is not sufficient traction, we may use weights M , which rest upon the frames
 20 $D D$ and extend from one side to the other, as shown in Fig. 4. These weights may be placed at any point desired on the frame.

We claim as our invention—

1. The combination in an electric locomotive,
 25 of the axles, an electric motor hung to one of said axles, its armature-shaft being geared thereto, extensions on the motor, boxes adapted to the extensions and to the axle, a frame resting on the boxes and from which
 30 the free end of the motor is suspended, substantially as described.

2. The combination in an electric locomotive, of the central axle, driving-wheels thereon, electric motors pivoted to the driving-axle
 35 and geared thereto, said motors having extensions in which the other axles are mounted, substantially as described.

3. The combination in an electric locomotive, of the central driving-axle, wheels thereon, electric motors adapted to drive the axle,
 40 bearings projecting from said motors, said bearings being alternately arranged on the axle, substantially as described.

4. The combination in electric locomotives,
 45 the driving-axle, its wheels, motors pivoted to the axle and geared thereto, extensions on each motor, boxes carried by the said extensions, axles adapted to the boxes and a frame extending over the motors and their extensions and resting upon the boxes and connected to the extensions of the motors, substantially as described.
 50

5. The combination of the central driving-axle, its wheels, motors pivoted to the axle,

extensions on each motor, boxes adapted to
 55 the said extensions, axles adapted to the boxes, wheels on said axles, frames extending over the motors and resting on springs mounted on the boxes and platforms secured at each end of the frame and connected to
 60 the extensions of the motors, said extensions being suspended from the said frame, substantially as described.

6. The combination in a mining-locomotive, the central axle, wheels thereon, axles at each
 65 side of the central axle and having wheels, said wheels being coupled to the central wheels, motors pivoted to the central axle and geared thereto, each motor having an extension, boxes adapted to said extensions,
 70 platforms at each end of the locomotive and on a line with the motors and their extensions, curved frames secured to the platforms, springs mounted on the boxes and supporting the curved frames and the platforms, and
 75 suspension-rods extending from the frame to the motors, substantially as described.

7. The combination in a mining-locomotive, of the central axle, motors hung thereto on each side, rigid extensions on said motors,
 80 and boxes, axles adapted to said boxes, platforms at each end of the locomotive, connecting-rods coupling the cabs to the extensions of the motors so that the draft will be from the driving-axle to the platform through a
 85 connecting-rod, substantially as described.

8. The combination of the central axle, motors pivoted thereto, extensions on said motors, boxes mounted in said extensions, axles adapted to said boxes, frames extending over
 90 the motors and axles, springs between the boxes and frames, platforms at each end of the frame on a line with the motors, suspension-rods coupling the extensions of the motors to the frame and rods coupling the said
 95 extensions to the platforms, said rods being loosely mounted so as to allow the motor-frame a certain amount of independent motion, substantially as described.

In testimony whereof we have signed our
 100 names to this specification in the presence of two subscribing witnesses.

DAVID L. BARNES.
 WILLIAM P. HENSZEY.

Witnesses:

JAMES G. KEYS,
 HENRY HOWSON.