

(No Model.)

3 Sheets—Sheet 1.

C. J. GRAY.

PNEUMATIC BUFFER TRUCK FOR RAILWAY TRAINS.

No. 518,449.

Patented Apr. 17, 1894.

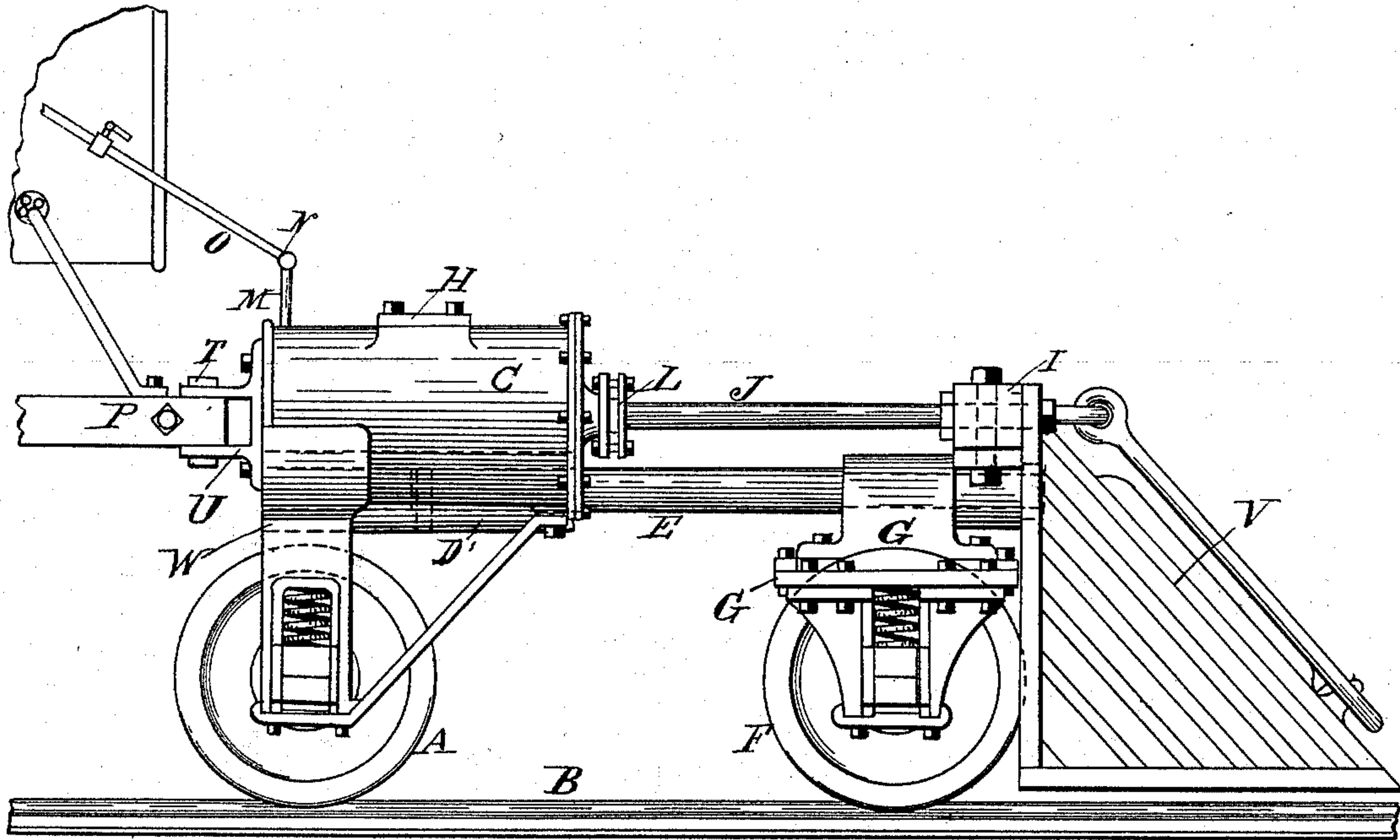


Fig. 1

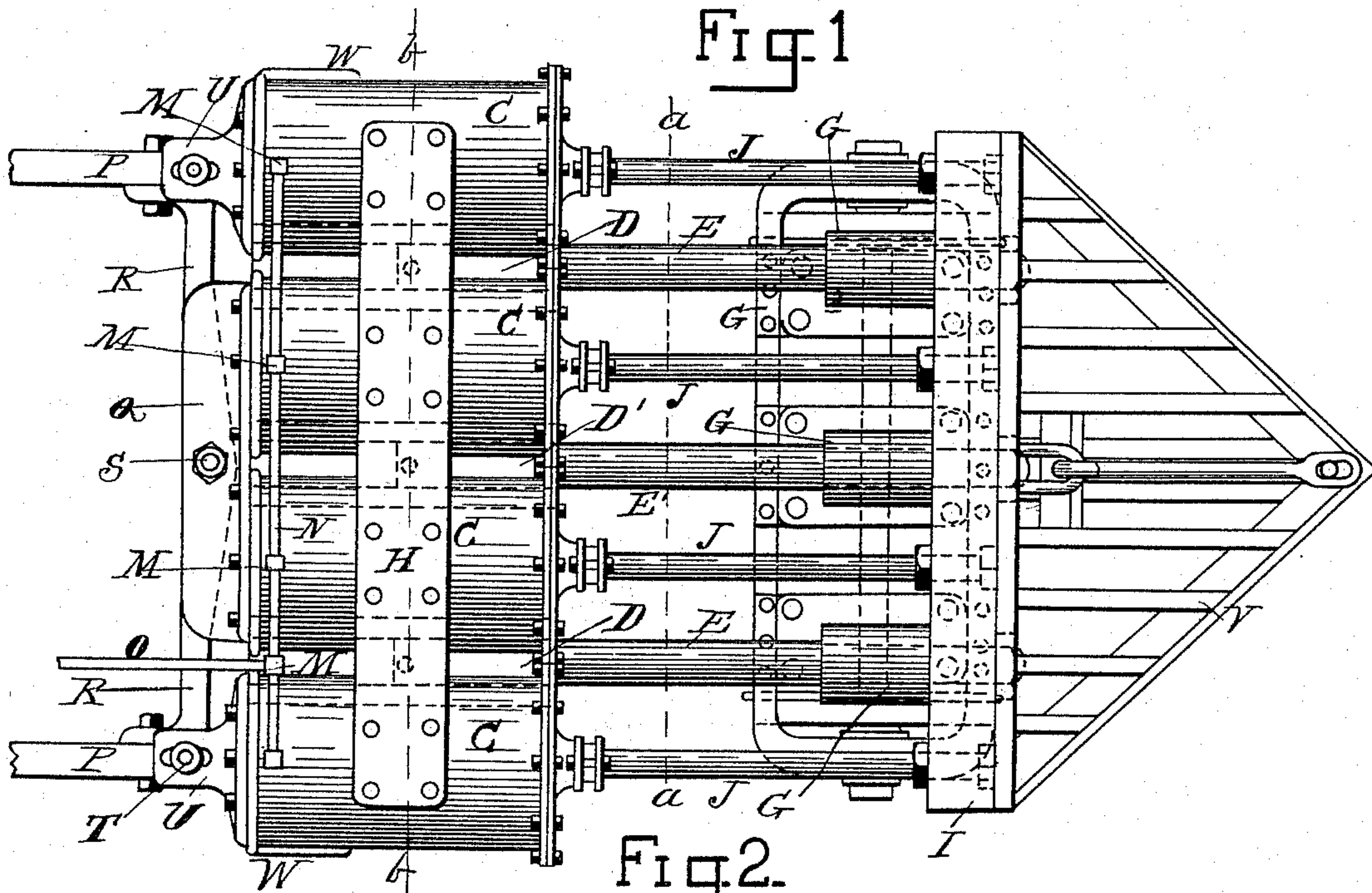


Fig. 2.

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INVENTOR:
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by G. L. Chapin, Atty.

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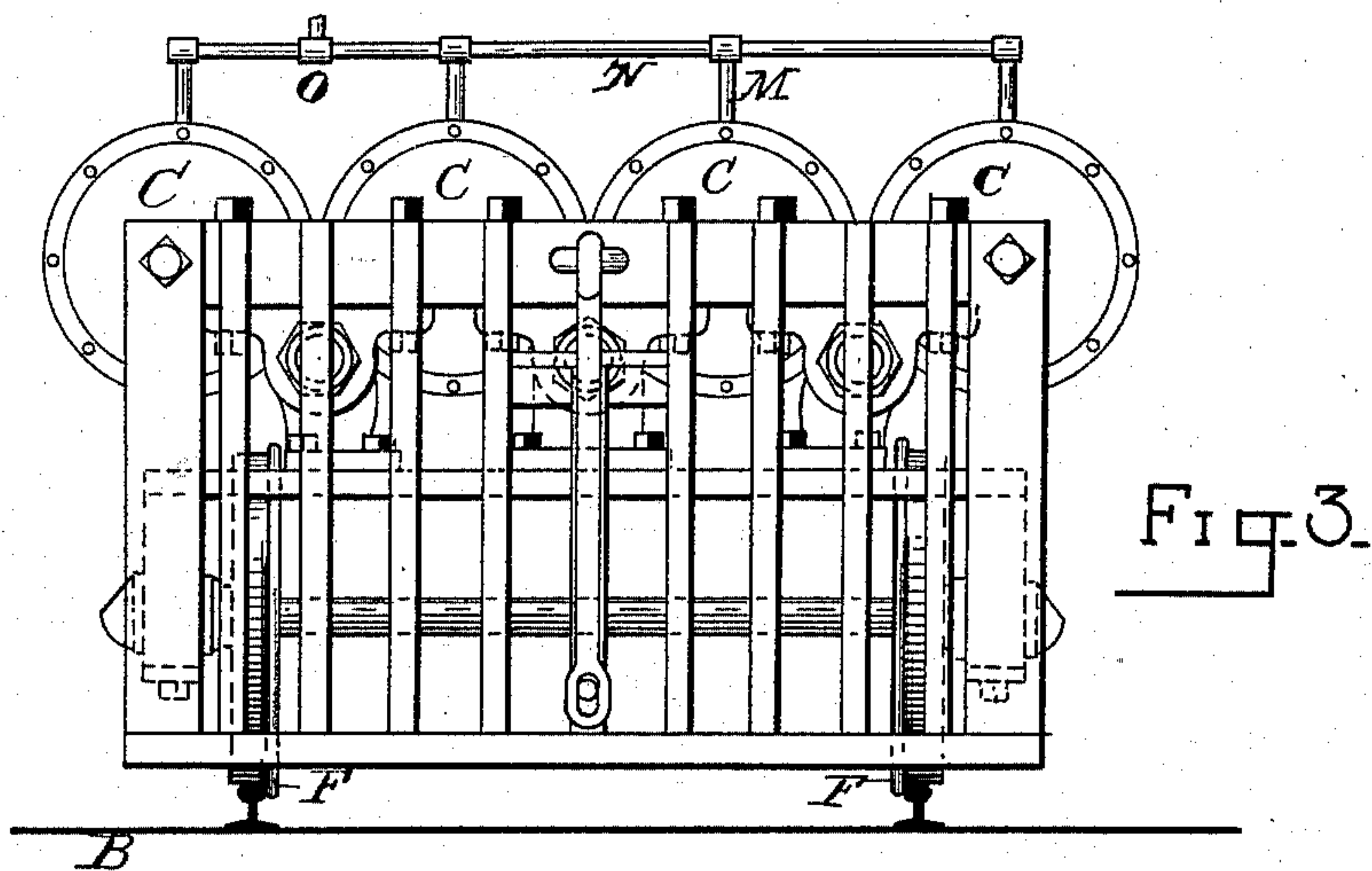


Fig. 3.

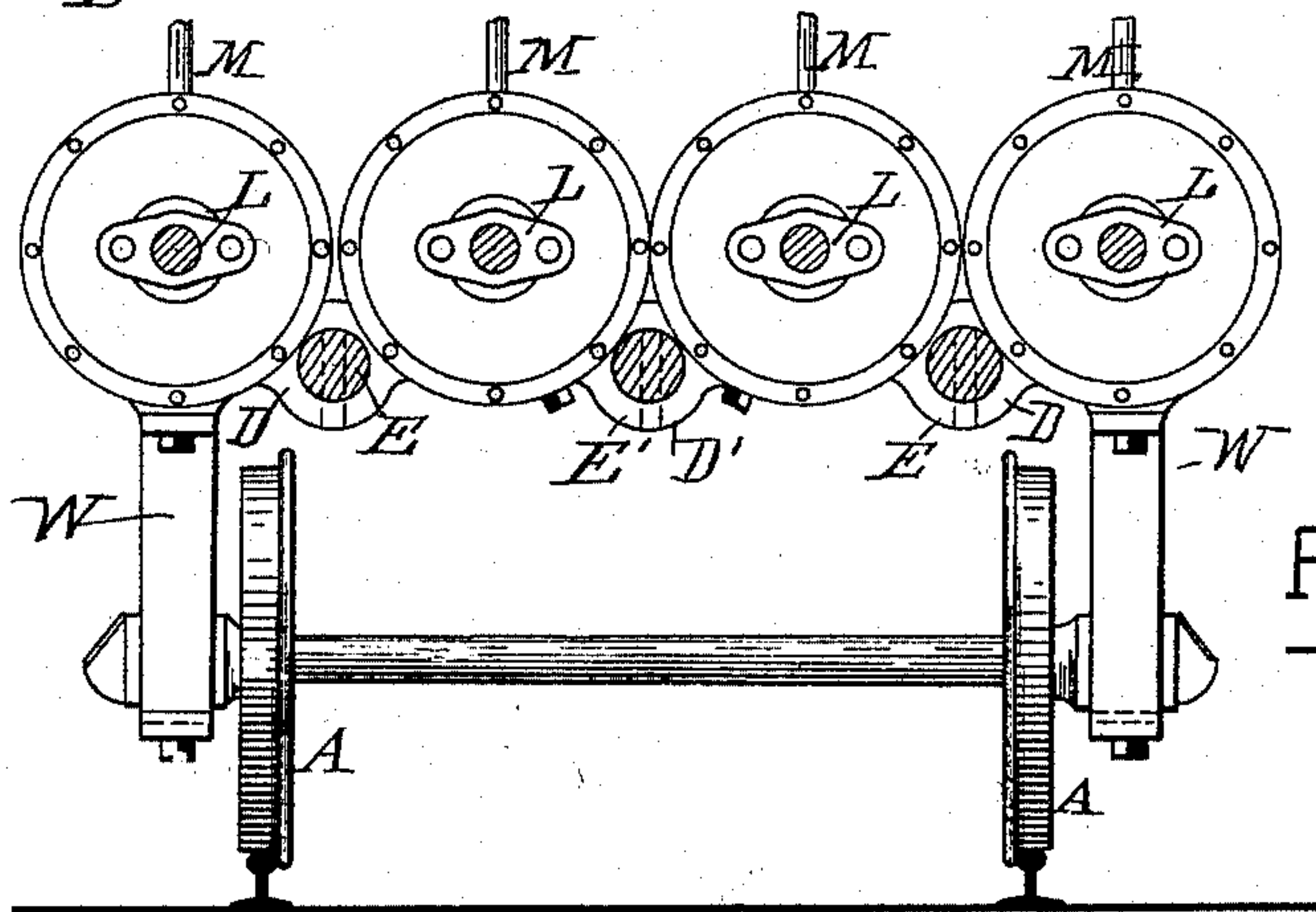


Fig. 4.

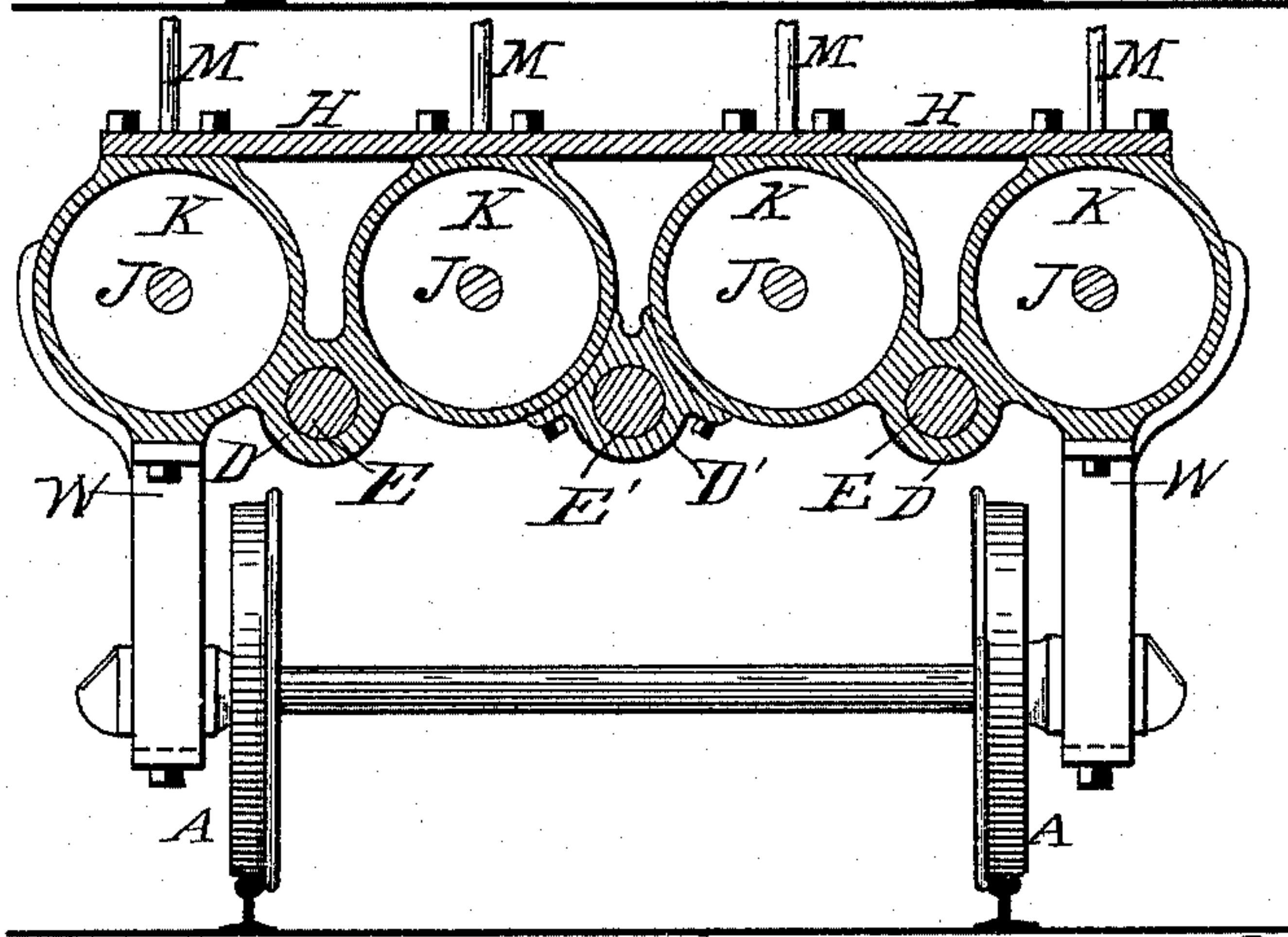


Fig. 5.

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3 Sheets—Sheet 3.

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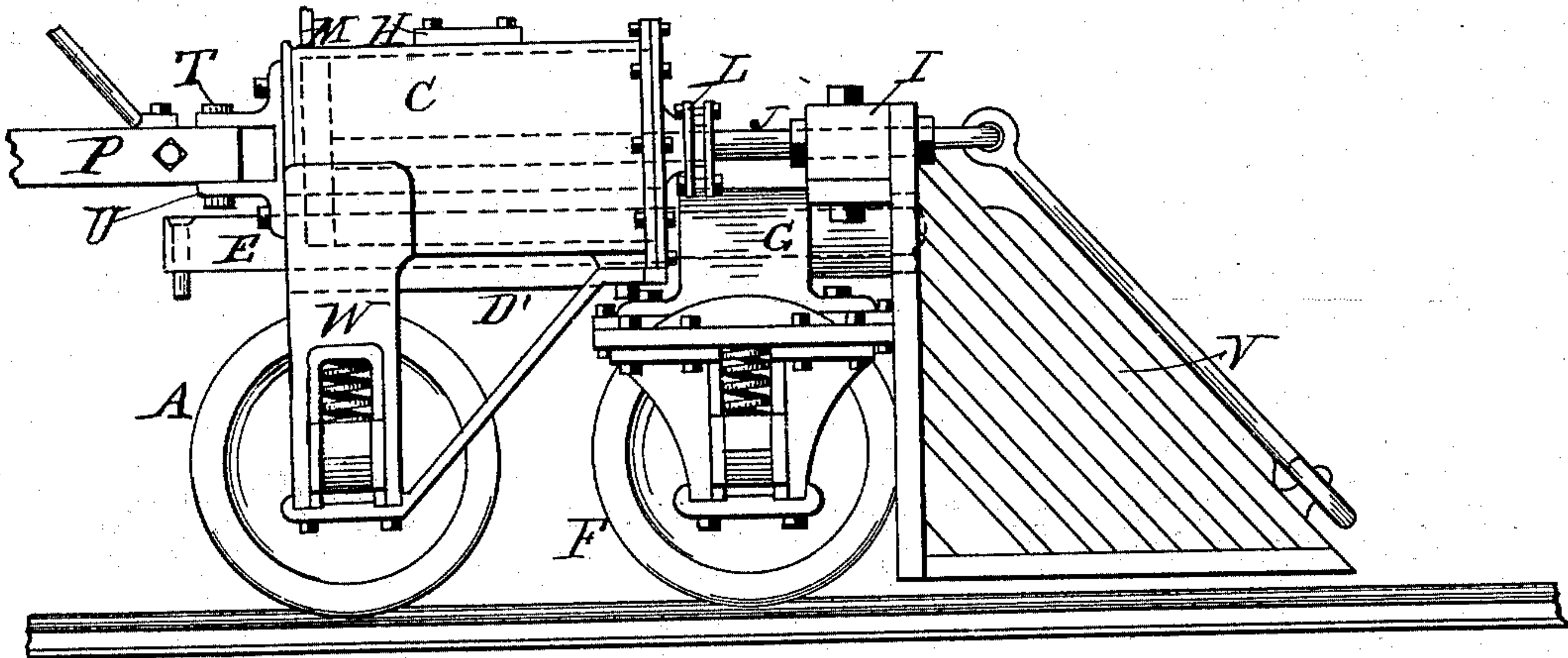


Fig. 6.

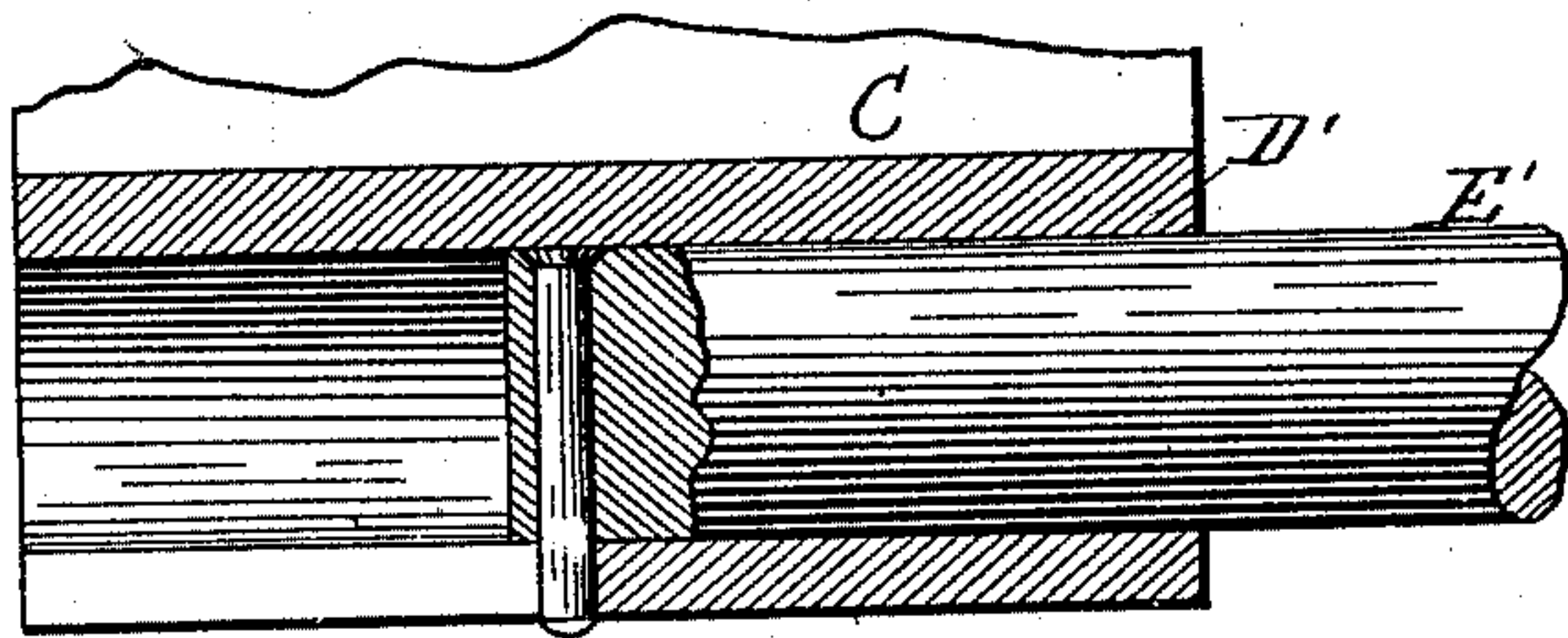


Fig. 7.

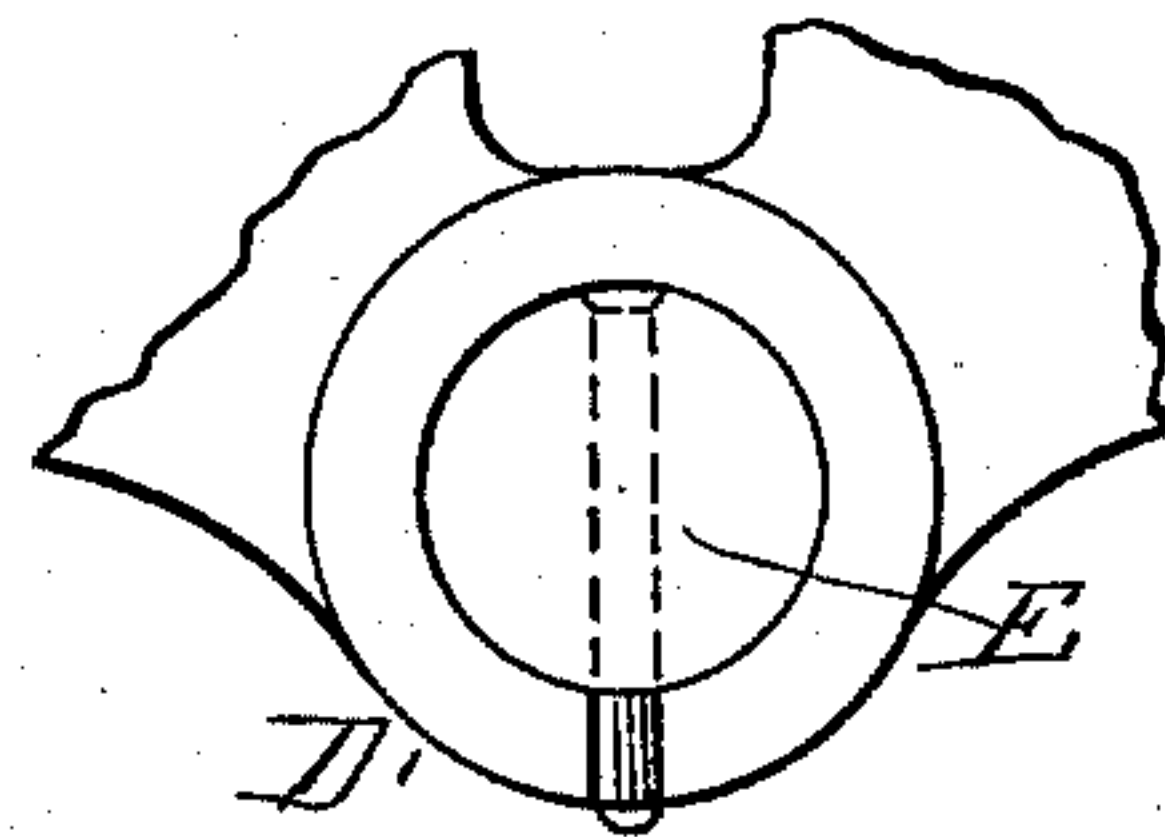


Fig. 8.

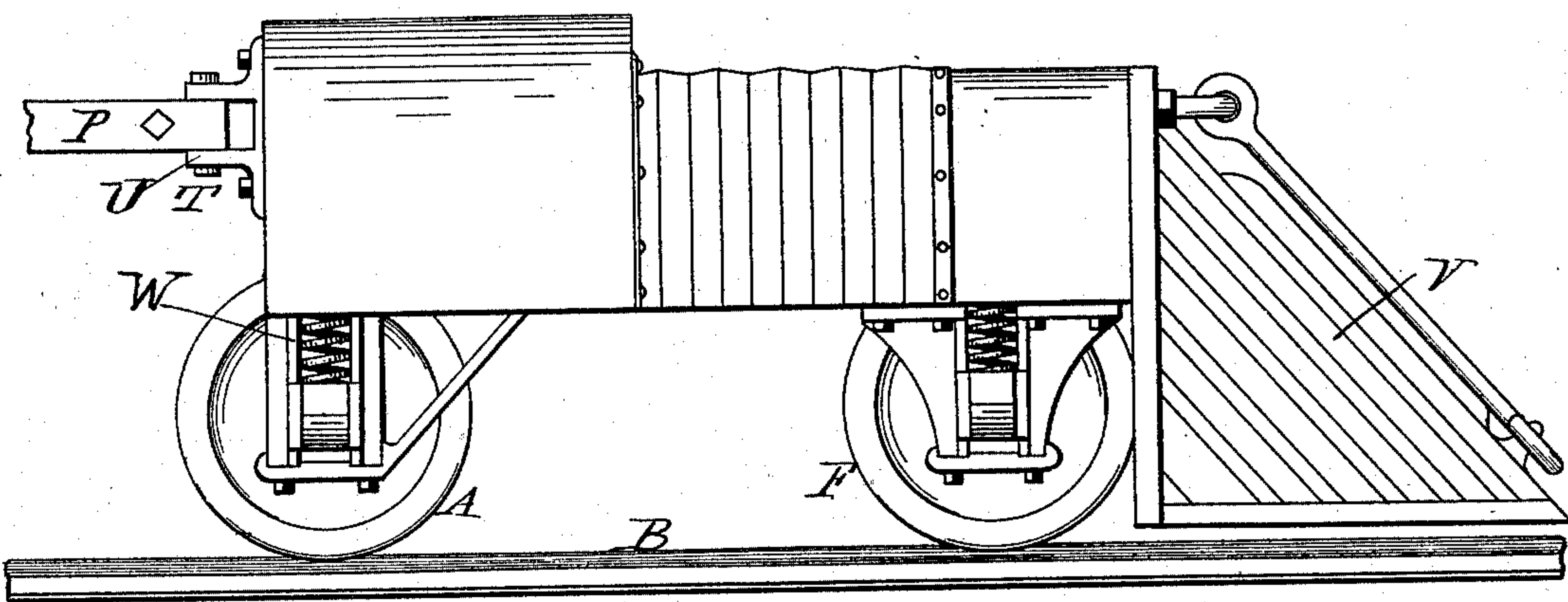


Fig. 9.

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UNITED STATES PATENT OFFICE.

CHARLES J. GRAY, OF OSHKOSH, WISCONSIN.

PNEUMATIC BUFFER-TRUCK FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 518,449, dated April 17, 1894.

Application filed August 7, 1893. Serial No. 482,549. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. GRAY, a citizen of the United States, and a resident of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Pneumatic Buffer-Trucks for Railroad-Trains, of which the following is a specification.

The present invention consists in certain improvements in pneumatic buffer trucks for easing the concussion of railroad trains in case of collisions.

It has heretofore been impossible, by devices employed, to bring the shock of colliding trains directly in line with the pistons of the air cylinders, for the reason that said cylinders, or no two of them, have been integral, neither has there been employed any guide for the collapse of the two-part buffer truck except the piston guided by the cylinders; and, as a result, unless the cars are moving in line with the piston-rods the latter are driven to one side, and the result sought is not attained. To avoid objection in this regard each pair of cylinders containing compressed air is cast solid in one piece of metal, and the two pairs of cylinders are firmly secured together; and to the front buffer beam are secured two strong guide-rods having bearings cast solid with each pair of cylinders, and a central guide is formed between the two pairs of cylinders for a central guide rod secured to the buffer beam to operate in, whereby if the two trains meet, not on a line with the piston rods, the rods will not be deflected from their work and the trains will have the easing to be attained from the compressed air. Further, the rear trucks are supported by castings which are portions of the exterior cylinders. This construction is such as to provide a maximum cushioning force with a minimum length of truck; and in this regard is very desirable and necessary in moving trains on the track, as the whole is hereinafter fully described and shown.

In the drawings, three sheets, made a part of this specification:—Figure 1, is a side elevation of the truck attached to the locomotive and pilot in front; Fig. 2, a top view of the same. Fig. 3, is a front end view of Fig. 1. Fig. 4, is a section on *a, a*, Fig. 2. Fig. 5, is a section on *b, b*, Fig. 2, looking toward the locomotive; Fig. 6, a side elevation of Fig. 1,

partially telescoped together. Figs. 7 and 8, are details showing how the two sections of the truck are held together. Fig. 9, is the same as Fig. 1, with a collapsible cover or hood-cover.

A, A, represent the two truck wheels which support the fixed portion of the two-part truck.

B, represents the track.

C, C, C, C, represent four cylinders which are constructed to withstand a great pressure, five hundred pounds per inch in surface being substantially the minimum. In practice I cast these cylinders of steel and connect each pair by a single casting with a guide portion D, lying between the outer two and near to their lower portions, to guide and support the strong rods E which have a reciprocating movement therein when the truck is telescoped by a collision. A central guide D' connects the inner cylinders by means of bolts, and a middle rod E' operates therein. At Figs. 2, 5 and 6, a strong plate H, is shown to be bolted to the upper surface of the cylinders C, for the purpose of uniting them thoroughly together. The opposite ends of the rods E, E', are rigidly secured to frame portions G, G, which carry the forward truck wheels F, F. A strong beam I is rigidly secured to the frame G, G, and to it are affixed the outer ends of the four piston rods J, which connect pistons K in the cylinders. These pistons are packed within the cylinders substantially air tight; and the rods J at L are packed air tight in stuffing boxes. The cylinders back of the pistons are supplied with any pressure of air desired by pipes M, N which are fixtures with the cylinders, and a pipe O connecting with the air cylinder of the ordinary air brake. R, R, represent a support which connects the timbers P of the locomotive, and to which the two middle cylinders are connected by means of a pivot S, and a plate Q bolted to the heads of the said cylinders. The outer cylinders by means of slotted plates U and bolts T may move on the arc of a circle to enable the truck to follow a curved track, S being the pivot. The pilot V is attached to the beam I in the same manner as now attached to a locomotive.

Preferably the truck and mechanism are constructed of heavy steel and of sufficient strength to enable the full cushioning force

of the air in the cylinders to be utilized. The bearings W for the rear wheels A, A, are preferably cast solid with the outer cylinders; and the cylinders are preferably each four feet
5 long and two feet in diameter, the shells being about one and one half inch ($1\frac{1}{2}$ inch) in thickness. Should the truck be destroyed by a collision the cushioning effect of the air would be fully utilized; inasmuch as there
10 would be for columns of compressed air eight feet long between the trains; and it is assumed under all ordinary circumstances that the loss even of both trucks would be far less than the extra damage to the trains were the
15 trucks not employed. The trucks being constructed as shown at Figs. 1 and 2, and attached to the locomotive as shown are in condition to put in use when three or four volumes of air are put in the cylinders.

I claim as new and desire to secure by Letters Patent—

In an improvement in pneumatic buffers trucks for railroad trains, two pairs of air cylinders located side by side, and each pair of cylinders cast of a single piece of metal with
25 a guide orifice between them—a guide orifice between the two pair of cylinders and exterior lugs supported by a rear truck, and both pairs of cylinders rigidly secured together in combination with a front buffer beam, also
30 supported on trucks; and carrying three guide rods operating in said orifices, and carrying the piston rods to the cylinders; as and for the purpose specified.

CHARLES J. GRAY.

Witnesses:

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J. C. STOCKTON.