

(No Model.)

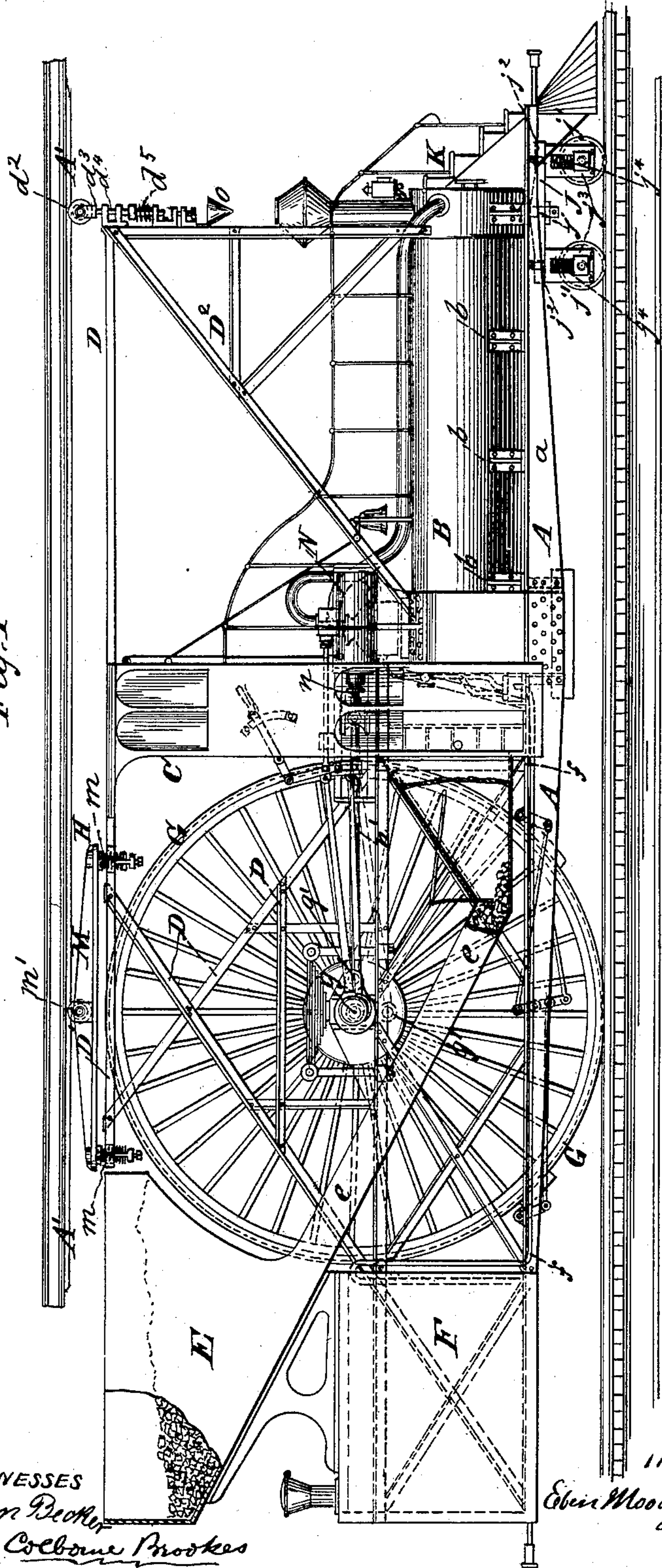
3 Sheets—Sheet 1.

E. M. BOYNTON.
LOCOMOTIVE.

No. 359,008.

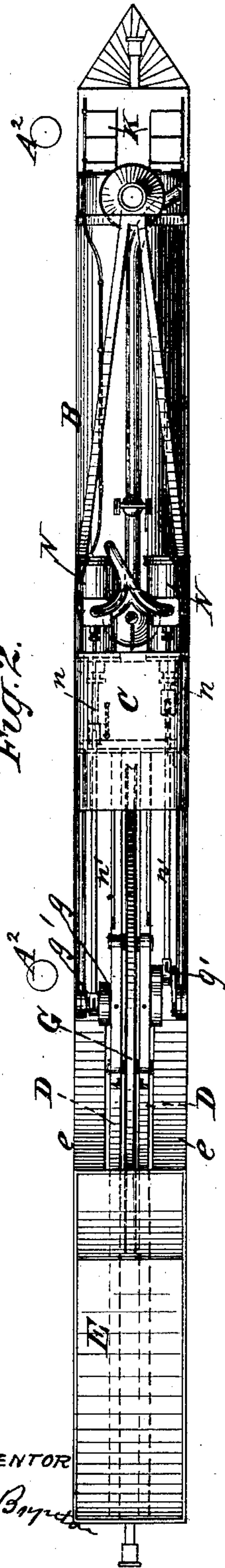
Patented Mar. 8, 1887.

Fig. 1



WITNESSES
John Decker
W. Colborne Prookes

Fig. 2



INVENTOR

Edwin Moody Boynton

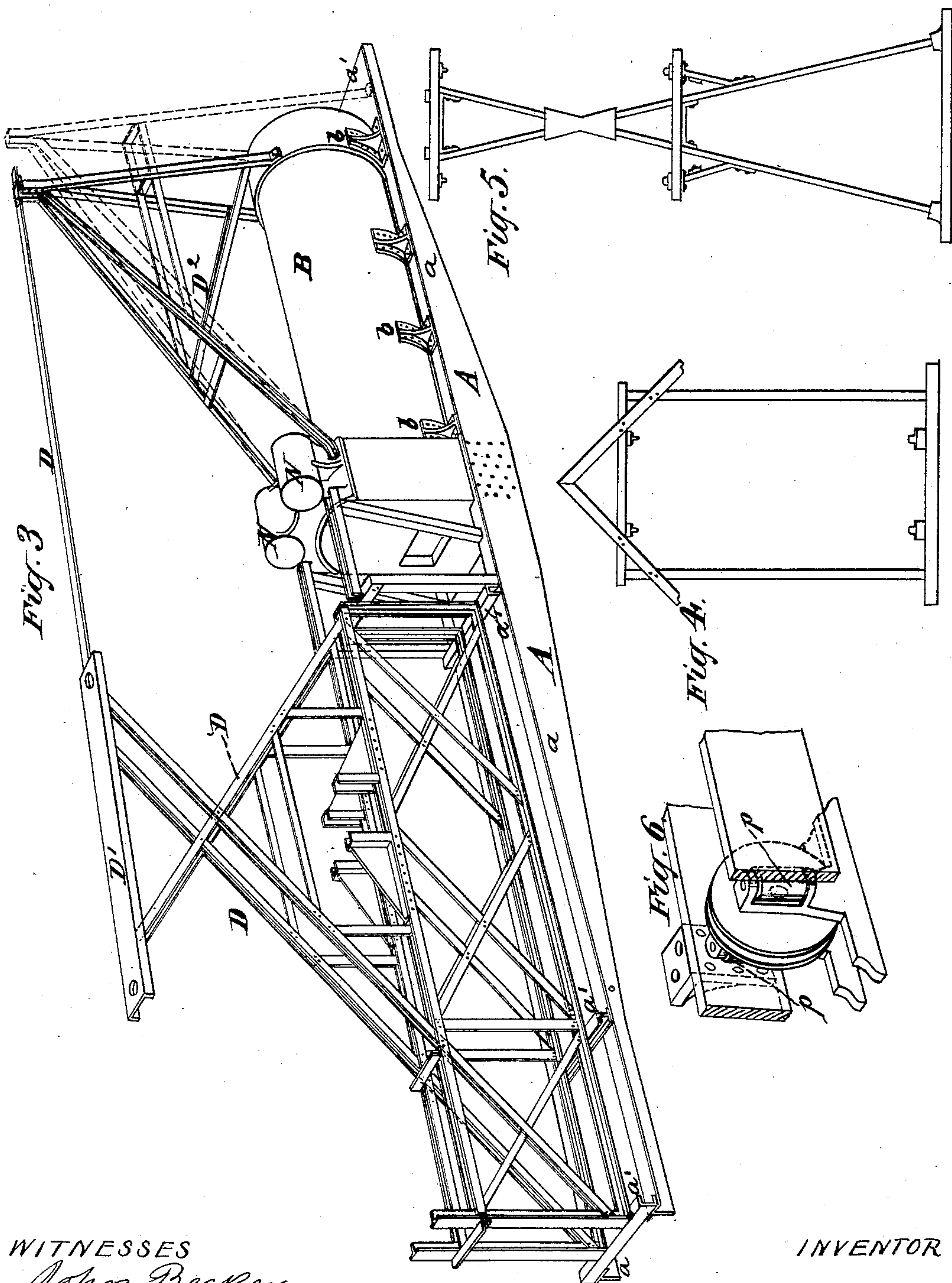
(No Model.)

3 Sheets—Sheet 2.

E. M. BOYNTON.
LOCOMOTIVE.

No. 359,008.

Patented Mar. 8, 1887.



WITNESSES

John Becker

W. Colborne Brooks

INVENTOR

Eben Moody Boynton

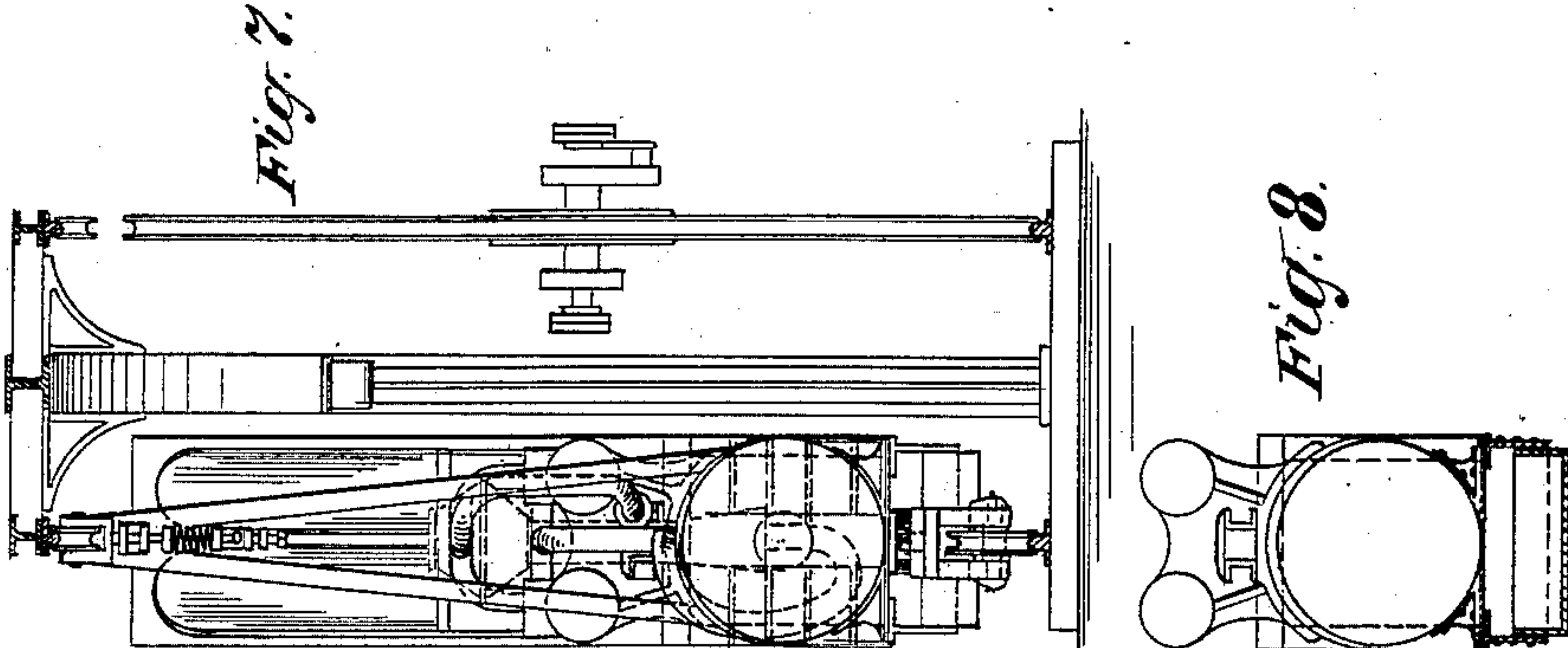
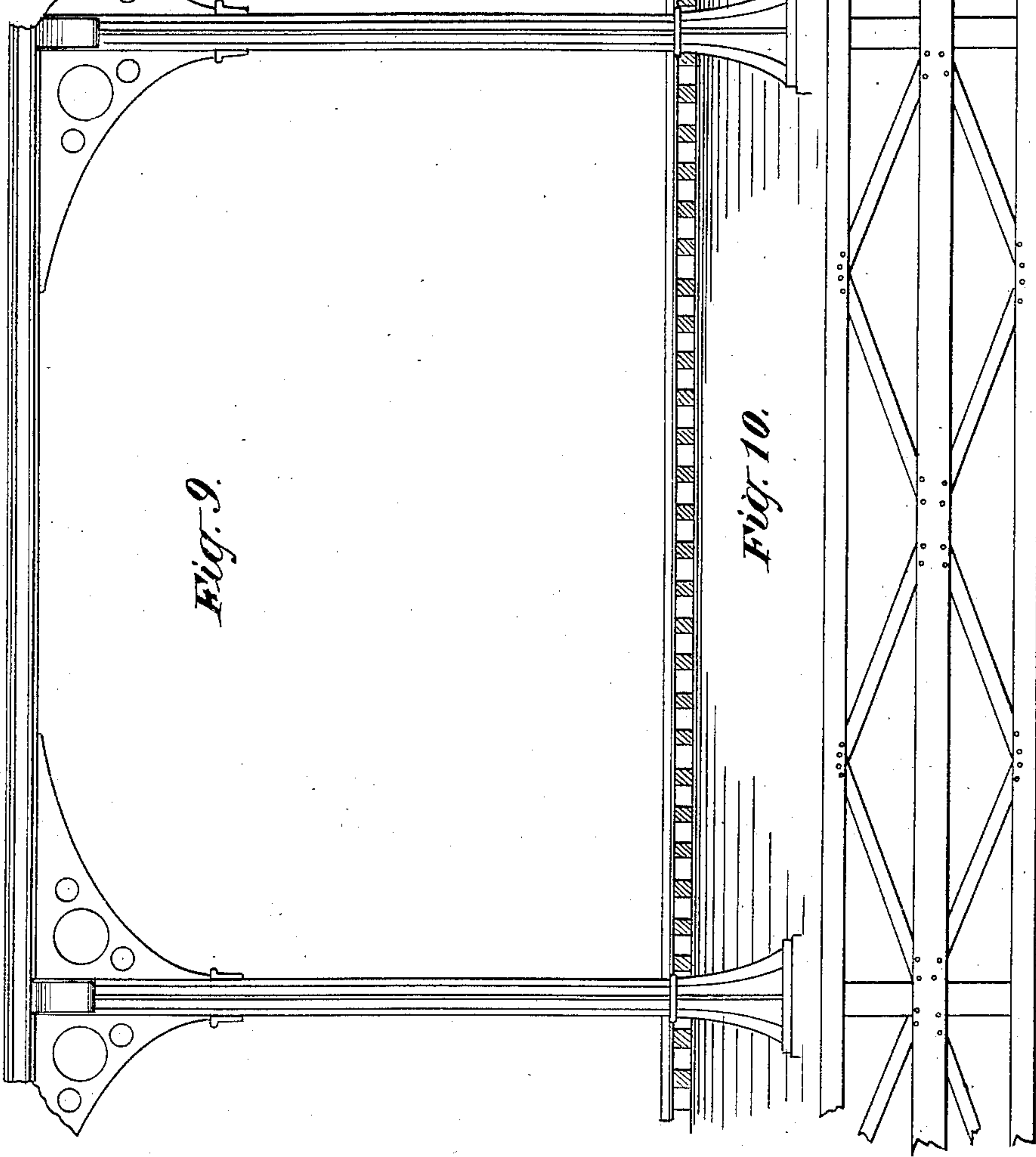
(No Model.)

3 Sheets—Sheet 3.

E. M. BOYNTON.
LOCOMOTIVE.

No. 359,008.

Patented Mar. 8, 1887.



WITNESSES

John Becker
W. Colburn Brothers

INVENTOR

E. M. Boynton

UNITED STATES PATENT OFFICE.

EBEN MOODY BOYNTON, OF WEST NEWBURY, MASS., ASSIGNOR TO THE
BOYNTON BICYCLE RAILWAY COMPANY, OF NEW YORK, N. Y.

LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 359,008, dated March 8, 1887.

Application filed August 16, 1886. Serial No. 210,998. (No model.)

To all whom it may concern:

Be it known that I, EBEN MOODY BOYNTON, a citizen of the United States, residing at West Newbury, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Locomotives, of which the following is a specification.

My invention relates to improvements in locomotives adapted to be employed in conjunction with the Boynton bicycle railway system, for which Letters Patent of the United States were granted to me, and numbered 230,999 and 232,109. According to this system the carriages and other rolling-stock are supported upon central wheels running upon a single track of ordinary or other suitable construction, and they are retained in a vertical position by means of another wheel or wheels arranged above the said carriages and rolling-stock, in position to engage with a rail or guide supported above the path of the train.

In carrying out my invention I construct a main bed or platform, which is composed of two parallel girders connected together at intervals by cross-pieces. Upon this platform I support the boiler, cab, coal and water supply, and a framing for the support of the guide-wheels for insuring the proper vertical position of the engine. The engine is supported on a single central driving-wheel of large diameter, and by a truck pivoted at its front end and provided with one central wheel or a pair of central wheels trailing one after the other on the same rail. The main bed is, by preference, extended considerably beyond the front end of the smoke-box, and is provided with steps or stairways arranged on either side of the smoke-stack. The cow-catcher is arranged in front of the main bed in a manner similar to that commonly adopted, but by preference is extended upward, so as to divide the resisting current of air. The engine is fitted with a boiler, fire-box, cylinders, and other necessary working parts of any ordinary or suitable construction. The driving-wheel is arranged at the rear of the cab, and is supported in bearings carried by a framing which supports the rear guiding-wheel. A coal-box is arranged in the rear of the driving-wheel, which is provided with inclined supply-tubes, arranged on either side of the driving-wheel, adapted to

automatically lead the coal to a platform in the rear of the furnace-door. At the rear of the coal-box I arrange a tank, from which water is supplied to the boiler by a pump or other suitable supply device connected with the tank and with the boiler in the ordinary or other suitable manner. A frame is arranged at the forward end of the engine, which is, by preference, connected by ties to the rear frame, and is adapted to support a guiding-wheel so arranged as to engage with the superimposed guiding-rail. The guiding-wheels are supported in bearings carried by the framing, and the forward wheel and parts connected therewith are protected from the destructive products of combustion and other substances ejected from the smoke-stack by means of an inverted funnel-shaped guard.

The accompanying drawings form part of this specification and illustrate what I consider the best means of carrying out my invention.

Referring to the drawings, Figure 1 is a side view of my improved locomotive. Fig. 2 is a sectional plan of the same. Fig. 3 is a perspective view of the main frame and boiler with the working parts removed. Fig. 4 is a sectional view of a series of rails arranged for a ground structure. Fig. 5 represents a similar view for an elevated structure. Fig. 6 is a perspective view of one of the guide-wheels with anti-friction wheels applied to its bearings. Fig. 7 is a sectional view of the structure, showing the engine on one side and a skeleton wheel on the other. Fig. 8 is a detail section of the engine. Figs. 9 and 10 are detail views of one arrangement of the structure.

In each of the views similar letters of reference are employed to indicate corresponding parts wherever they occur.

A represents the main bed or sill-girder, which in the arrangement shown is composed of two guides, *a a*, connected together at intervals by means of cross-pieces *a' a'*.

Upon the sill-girder A, I support the boiler B and its connected and supported parts, the cab C, the framing D, the coal-box E, and its supply-tubes *e*, and also the water-tank F.

The engine at its rear is supported on a single central driving-wheel, G, of a diameter, by preference, of a measurement slightly in

excess of the height of the top of the cab C from the upper surface of the supporting-rail A'. At its forward end the frame A is supported by a truck, J, pivoted at j to the said frame, and provided with a pair of wheels, $j' j'$, supported in pivotal bearings $j^2 j^2$, carried in brackets $j^3 j^3$, affixed to the under side of the truck J. The pivotal bearings $j^2 j^2$ are held in position by springs $j^4 j^4$. The wheels $j' j'$ are arranged to trail one after the other on the same rail.

The main girder-frame A in the arrangement shown is extended considerably beyond the front end of the smoke-box and is provided with steps or stairs K, leading from the foot of the sill-girder A to ways over the boiler B, which are protected by railings L. At the rear end of the girder-sill A, and beneath the coal-box E, I arrange a water-tank, F, which is provided with a supply-pipe, f , connected with a pump or injector and a delivery-pipe connected with the boiler B.

The frame D is, by preference, formed of angle-iron cross-braced, as shown, and supporting at its upper end a longitudinal tie, D', which at its forward end is connected to the upper part of a framing, D², which is carried by the boiler B.

Above the framing D, and connected thereto by spring-connections $m m$, I arrange a bearing-piece, M, in the center of which is pivoted a guide-wheel, m' , adapted to engage with a guiding-rail, A', supported by posts A², (indicated in Fig. 2,) or by a framing, such as shown by Figs. 4 and 5.

The boiler B is held to the platform A by means of brackets $b b$, and is fitted with the necessary tubes and valves, and is connected with a pair of cylinders, N N, which are provided with pistons operating piston-rods $n n$, which, by means of crank-rods $n' n'$, are connected to and operate cranks $g' g'$, arranged on the opposite ends of the shaft g of the driving-wheel G.

The framing D², supported above the boiler, is provided with a guide wheel or wheels, d^2 , adapted to engage with the upper rail, H'. The guide-wheel d^2 , as shown by the drawings, is supported in bearings d^3 , carried by the front upright of the framing D² by means of a shaft, d^4 , which is held in position by a spring, d^5 .

Beneath the shaft d^4 and the parts immediately connected therewith I arrange an inverted funnel-shaped guard, O, which I prefer to be connected to and supported by the forward face of the framing D².

The framings D and D², I prefer to be constructed as shown in the drawings; but the arrangement may be varied. I can employ various forms of structures to support the guide-wheels.

In some cases I employ friction-rollers $p p$ on the exterior of the bearings of the guide-wheels, as shown by Fig. 6. The anti-friction wheels in the arrangement shown are adapted to bear against boards or plates supported vertically on each side of the rail A' and the pendant from the support of rail A'.

In Fig. 4 I have shown a structure adapted to support and conduct two lines of tracks on a ground-level, while at Fig. 5 I have shown an elevated structure by which two lines of tracks are supported at any given elevation.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A locomotive having a central driving-wheel and central or leading wheel or wheels adapted to support and operate the said locomotive and a guide or retaining wheel or wheels arranged and supported above the locomotive, substantially as shown and described.

2. The combination, with a locomotive having a central driving-wheel and a central leading wheel or wheels adapted to support and operate the said locomotive, and a guide or retaining wheel or wheels arranged and supported above the locomotive, of a coal-box having supply-tubes arranged on either side of the driving wheel or wheels, substantially as shown and described.

3. A locomotive having a single central driving-wheel supported on a single bearing-rail and having a central guiding wheel or wheels engaging with a superimposed rail or rails, substantially as described.

4. The combination, with a locomotive having a single central driving-wheel and a central leading-wheel or leading-wheels, of one or more guide-wheels arranged above the said locomotive in position to engage with a rail or guide supported above the trainway, substantially as set forth.

5. A locomotive frame composed of a bed, A, and a superimposed frame or frames for the support of guide-wheels, substantially as and for the purpose stated.

6. The combination, with a locomotive having a single driving-wheel, of a coal-supply having inclined feeders arranged on opposite sides of the driving-wheel, substantially as shown and described.

In witness whereof I have hereunto set my hand.

EBEN MOODY BOYNTON.

Witnesses:

W. COLBORNE BROOKES,
CHARLES J. TULLY.