

W. MASON.
LOCOMOTIVE.

No. 177,343.

Patented May 16, 1876.

Fig. 1

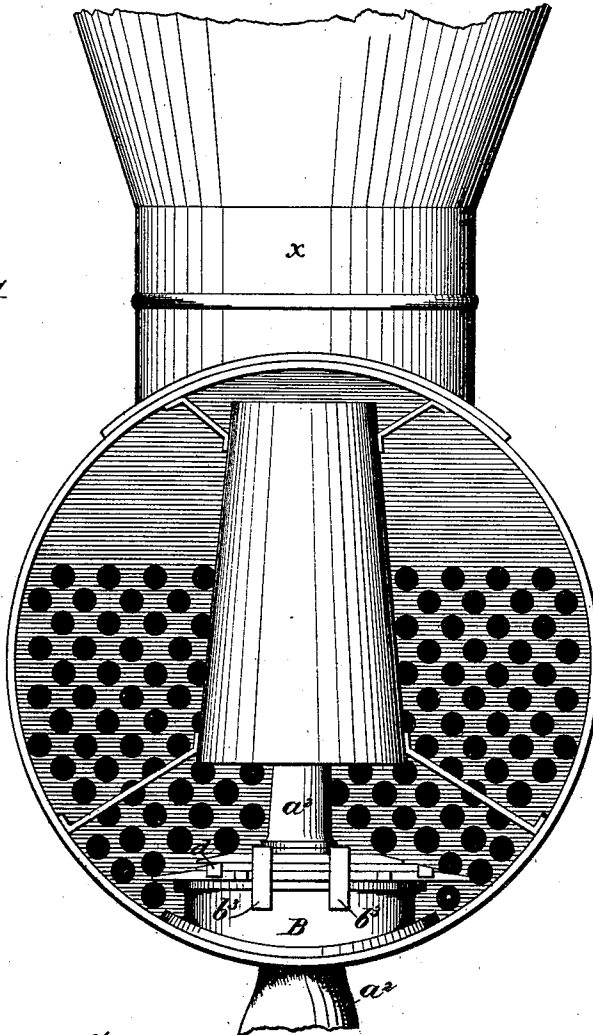
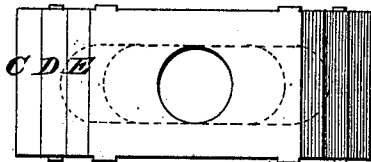


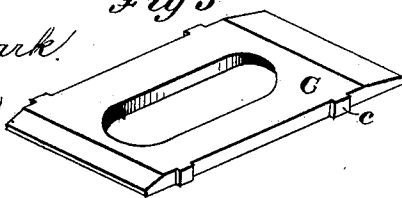
Fig 4.



Witnesses:

Harry C. Clark
M. C. Stallings

Fig 5



Inventor.

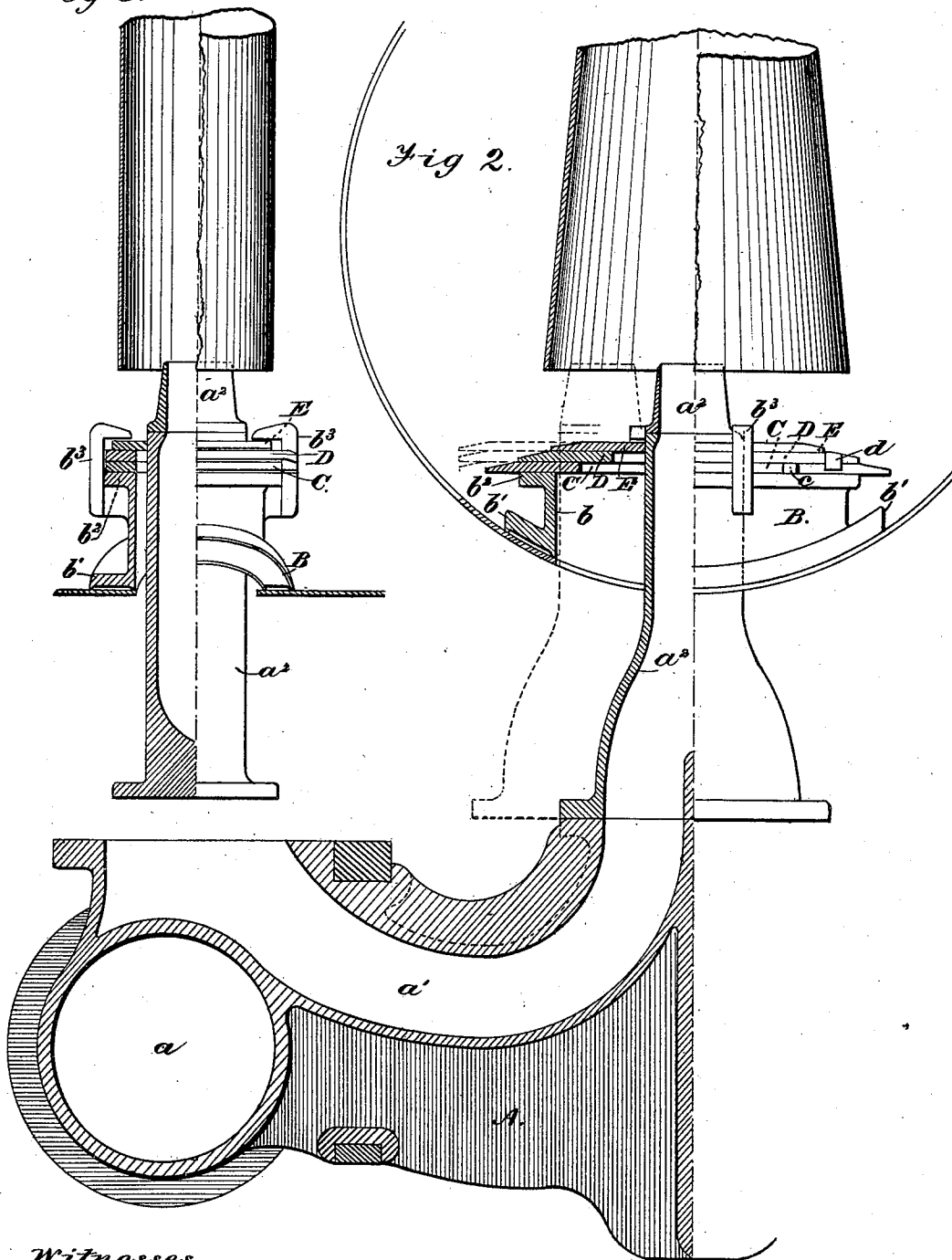
William Mason
by Geo. Beadle & Co.
his Attys.

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Fig 3.



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by *Howe & Beadler*
his Attys.

UNITED STATES PATENT OFFICE.

WILLIAM MASON, OF TAUNTON, MASSACHUSETTS.

IMPROVEMENT IN LOCOMOTIVES.

Specification forming part of Letters Patent No. **177,343**, dated May 16, 1876; application filed April 8, 1876.

To all whom it may concern:

Be it known that I, WILLIAM MASON, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in Locomotives; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to double-truck engines, having the boiler and trucks adapted to move independently of each other, and which are provided, also, with means for conveying steam from the boiler to the steam-cylinders upon the truck; and it has for its object the delivery of the exhaust steam from the cylinders upon the independently-moving truck to the smoke-stack upon the boiler. Its novelty consists, mainly, in the combination of a discharge-pipe rigidly fixed to the truck with an elongated opening in the smoke-arch of the boiler, and suitable mechanism for closing the opening without interfering with the proper movements of the parts, as will be fully described hereinafter.

In the drawings, Figure 1 represents a front elevation of my improvement, as applied to an engine; Fig. 2, a front elevation, mainly in section; Fig. 3, a side elevation, partially in section; Fig. 4, a plan view of the intermediate plates, and Fig. 5 a perspective view of the lower intermediate plate.

To enable others skilled in the art to make and use my invention, I will now proceed to describe fully its construction and manner of operation.

A represents the truck of an engine of any suitable construction, which is provided with steam-cylinders *a*, adapted to receive steam from the boiler in any proper manner, the construction and arrangement being preferred, however, which is described in my patent of October 20, 1874, No. 156,031. *a*¹ represents a passage-way for the exhaust steam, which communicates at one end with the steam-cylinders in any proper manner, and at the other with the discharge-pipe *a*², centrally secured to the truck by any proper means. This pipe may be of any proper form, but is preferably caused to taper from a wide base at the bottom to a suitable size for the reception of

blast-nozzles of the dimensions in general use. This pipe extends into the smoke-arch through an elongated opening, and the blast-nozzle in the end of it extends a short distance into an upright conical cylinder, frequently called a petticoat-pipe, secured within the smoke-arch, which cylinder is sufficiently broad at the base to retain within the opening or area of its base the blast-nozzle when it traverses across the bottom of the cylinder, in consequence of the movement of the truck relatively to the boiler, and which cylinder, receiving the exhaust steam from the exhaust-nozzles, guides it to the smoke-stack, thus producing and continuing the draft necessary to support combustion, one part of the smoke and sparks being taken by the force of the exhaust steam into the bottom of the conical cylinder, and through it into the smoke-stack, and the other part into the smoke-stack through the opening between the conical cylinder and the top of the smoke-arch and bottom of the smoke-stack. B represents a casting, consisting, essentially, of a box, *b*, without bottom or top, which is provided below with a proper flange, *b*¹, adapted to fit accurately the curved line of the boiler, and above with a similar flange, *b*², lying in a horizontal plane, which is adapted to furnish proper support for the moving parts which close the openings around the discharge or exhaust pipe. *b*³ *b*³ represent guide-bars or standards rising from the casting B, by means of which the loose parts are held in place and properly guided in their movements. C represents a plate resting upon the upper bearing-surface of the casting B, and adapted to slide thereon in a longitudinal direction, which is provided with a centrally-located elongated opening and stops, *c c*, located upon its sides, as shown. D represents a similar plate, of smaller size, provided with limiting-stops *d d*, as shown. E represents the top plate, provided with a central opening adapted to permit the protrusion of the discharge-pipe, as shown, it being rigidly attached to the latter, so as to move with it under all circumstances. This plate is also held and guided in its movements by the bent ends of the standards, as shown.

The operation of the parts is as follows: The truck and its rigidly-attached discharge-

pipe move independently of the boiler and the smoke-stack attached thereto. This independent movement is rendered possible by the elongated opening in the smoke-arch, and this opening is closed by the sliding plates, which permit the necessary movement to take place. The operation of the plates will be understood by inspecting Fig 2. The boiler being considered stationary, any movement of the truck will cause the rigidly-attached discharge-pipe to make a corresponding movement in the elongated opening of the boiler. This movement will necessarily cause the top plate E, rigidly attached to the discharge-pipe, to slide upon the plate D below it, until the pipe in its movement strikes against the edge of the opening of the plate, when the latter will necessarily be carried forward with the pipe and plate E, and be caused to slide in its turn upon the plate C below it, until the pipe in its continued movement strikes the edge of the opening in the last plate, when all, of course, will move together until the limit of movement is reached. The stops and guide-bars serve to limit the movement of each, also, so that displacement is impossible. By the employment of a series of sliding plates the distance of movement may be so divided that no plate will be required to slide a long distance, and consequently but little room is required for the moving parts.

By means of the construction described the

exhaust steam is taken from the cylinders upon the moving truck and discharged into the smoke-stack upon the relatively-fixed boiler, without leaving an opening of any kind in the latter except through the discharge-pipe.

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

1. In combination with a double-truck engine, a rigid exhaust-pipe, without joints, firmly attached to the truck and entering the smoke-arch, substantially as described.

2. The combination of the discharge-pipe, the smoke-arch having an elongated opening, as described, and means, substantially as described, for closing the opening around the discharge-pipe, as and for the purpose set forth.

3. The combination of the pipe a^2 , casting B, intermediate sliding plates C D E, as described.

4. A double-truck engine, having a fixed discharge-pipe for the exhaust located upon the moving truck in line below the smoke-stack upon the relatively-fixed boiler, substantially as described.

This specification signed and witnessed this 16th day of March, 1876.

WM. MASON.

Witnesses:

BENJ. DEAN,
J. E. DODGE.