

No. 866,910.

PATENTED SEPT. 24, 1907.

E. J. BUDD.  
BOILER LEVELER.

APPLICATION FILED AUG. 11, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

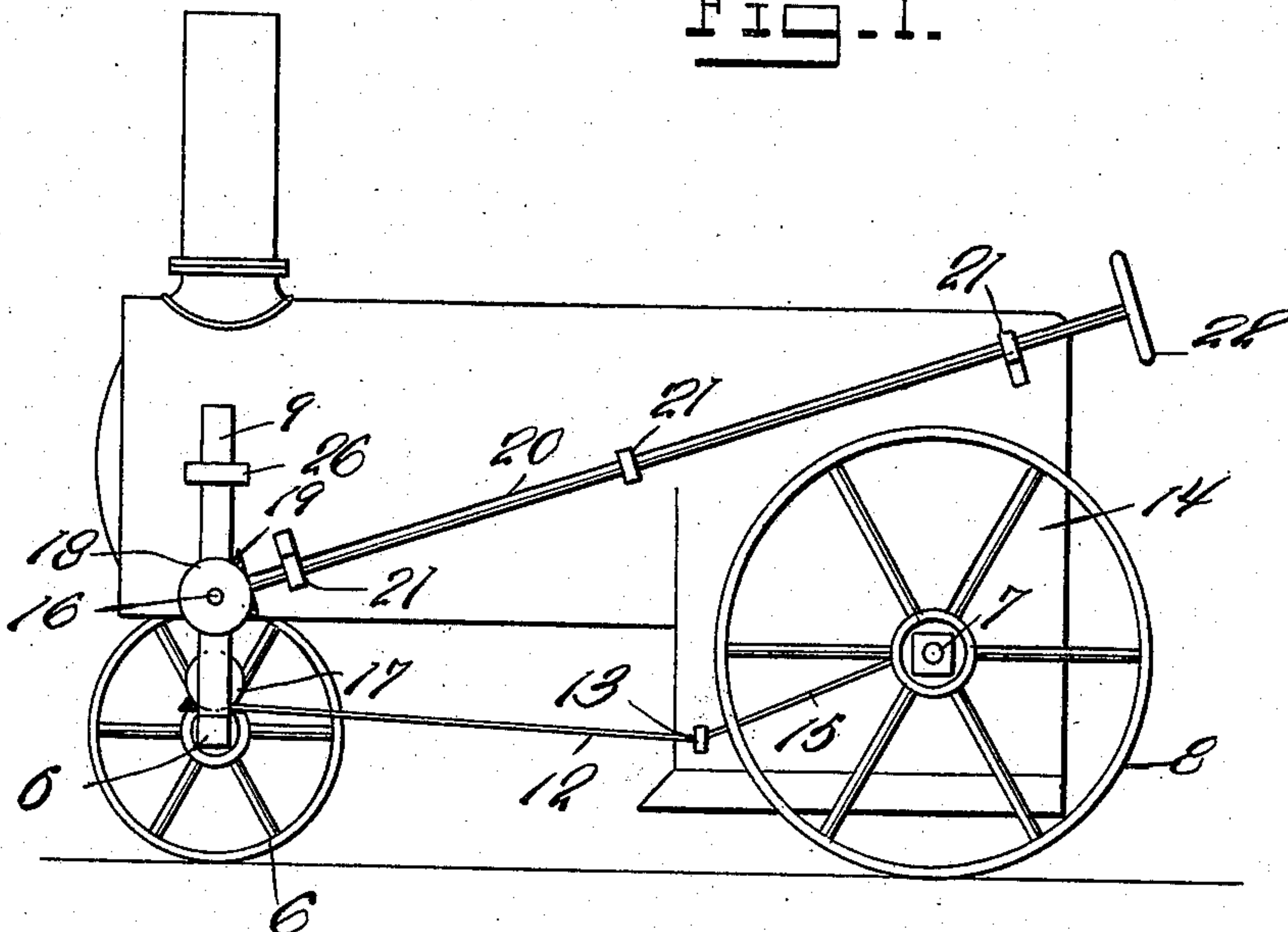
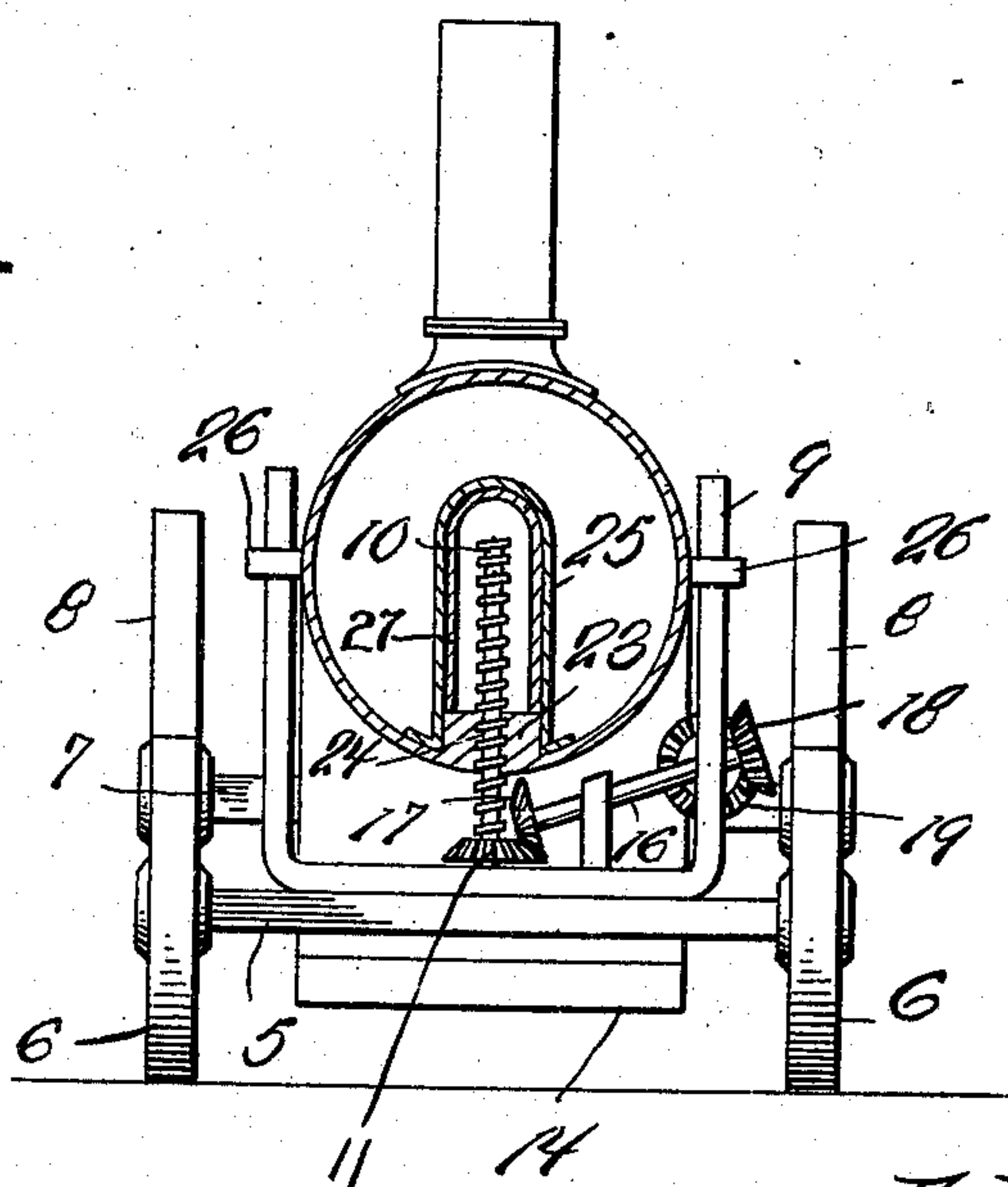


Fig. 2.



Witnesses  
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2 SHEETS—SHEET 2.

Fig. 3

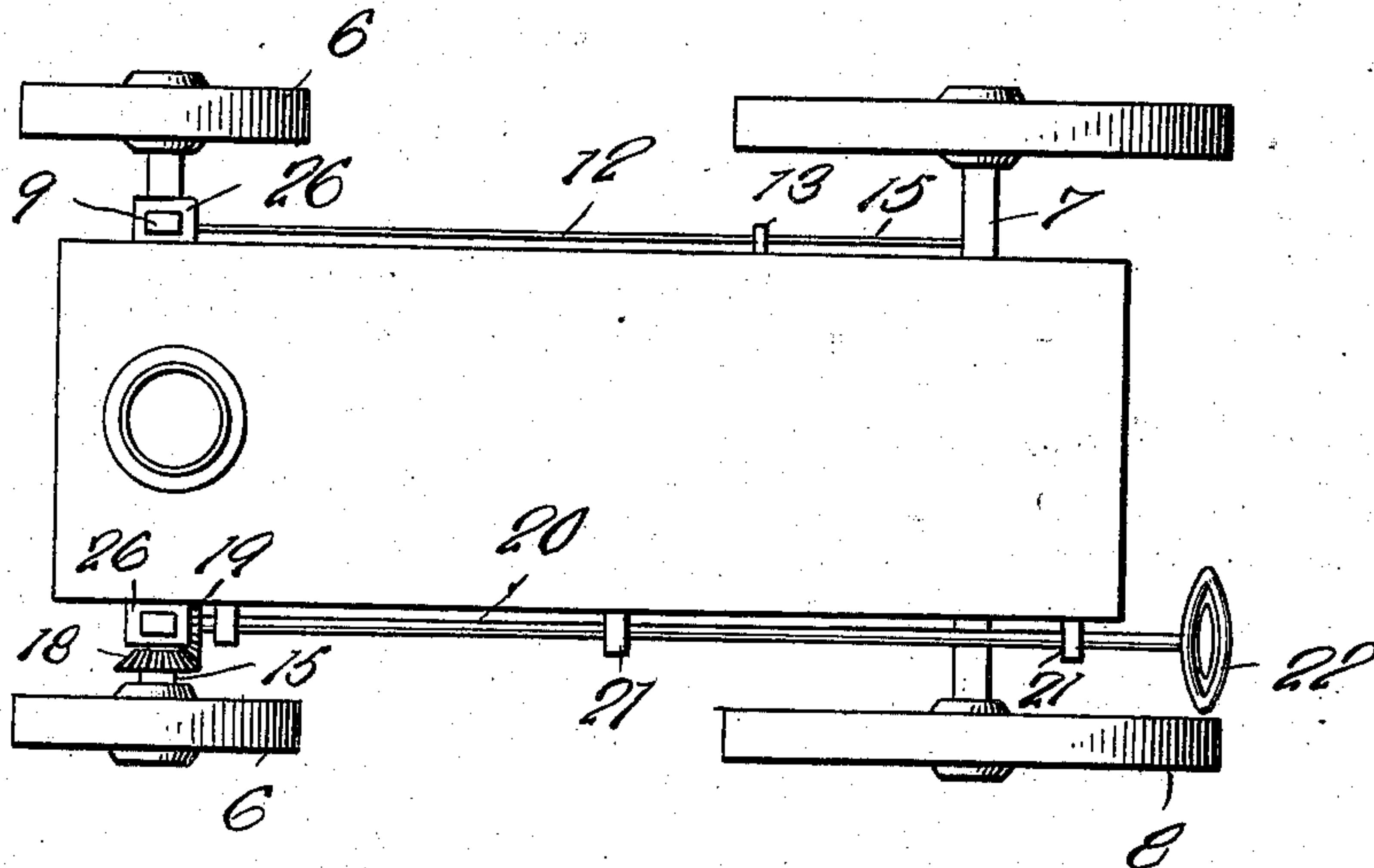
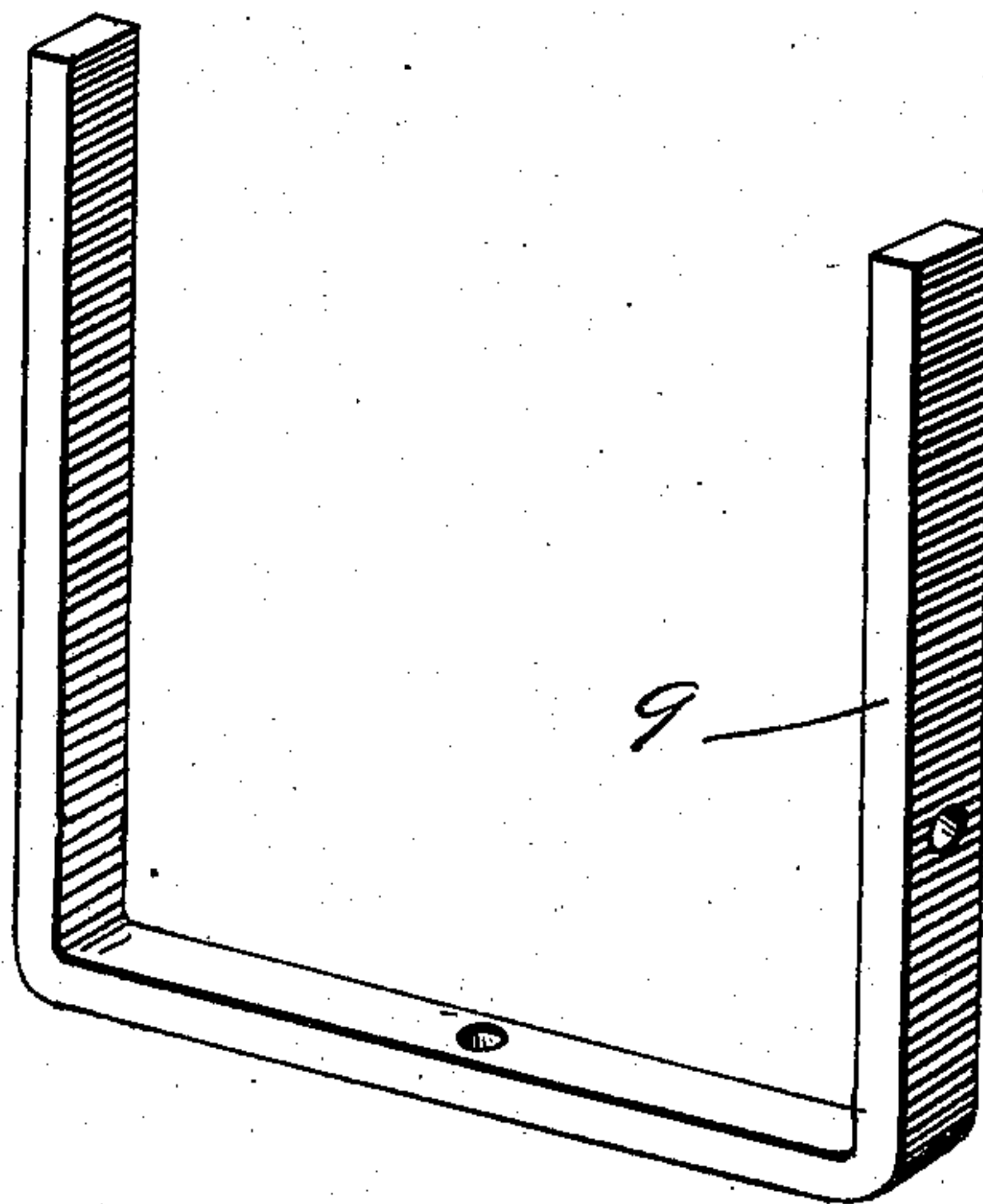


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

EARL J. BUDD, OF KETTLE FALLS, WASHINGTON.

## BOILER-LEVELER.

No. 866,910.

Specification of Letters Patent.

Patented Sept. 24, 1907.

Application filed August 11, 1906. Serial No. 330,184.

*To all whom it may concern:*

Be it known that I, EARL J. BUDD, a citizen of the United States, residing at Kettle Falls, in the county of Stevens, State of Washington, have invented certain new and useful Improvements in Boiler-Levelers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to leveling attachments for boilers its object consisting in the provision of means whereby the boiler of a traction engine or similar machine may be at all times maintained in a horizontal position during the travel of the engine on uneven ground or up and down hills.

A further object includes the provision of means for guiding the front end of the boiler in its upward or downward movement.

To this end the invention resides in the attachment to the front axle of the engine of a U-shaped guide the arms of which pass through ears provided on opposite sides of the boiler, the guide carrying a threaded rotatable rod having play within the threaded opening of a block secured within the interior of the boiler, whereby rotation of the rod in one direction or the other will effect a corresponding upward and downward movement of the front end of the boiler.

The invention further consists in the construction, combination and arrangement of parts all as hereinafter fully described, specifically claimed, and illustrated in the accompanying drawings in which,

Figure 1 is a side elevation of a traction engine provided with the improved leveling attachment. Fig. 2 is a transverse vertical section through the front end of the boiler taken approximately on line 2—2 of Fig. 1. Fig. 3 is a top plan view. Fig. 4 is a perspective view, of the U-shaped guide.

Like parts are designated by corresponding reference numerals in the several views.

Referring more particularly to the drawings 5 and 6 designate respectively the front axle and wheels and 7 and 8 the rear axle and wheels upon which the boiler is carried.

The front axle is provided with a vertically disposed U-shaped guide frame 9 mounted thereon, in which is journaled a threaded shaft 10. The horizontal or bottom portion of said guide is connected by means of a pair of braces 12 with ears 13 provided on opposite sides of the fire box 14 of the boiler, the rear axle 8 being connected with the rear ends of braces 12 by means of brace rods 15.

Journaled in one of the arms of the guide is a shaft 16 provided at its inner end with a beveled pinion 17 in mesh with gear 11 keyed to the threaded shaft 10,

the opposite end of shaft 16 having secured thereto a pinion 18 driven by a pinion 19 carried on the front end of an inclined shaft 20 journaled in brackets 21 formed on the corresponding side of the boiler, and having a hand wheel 22 secured to its rear end.

Located in the interior of the boiler at the front end thereof is a stationary metal block 23 having a threaded opening 24 formed therethrough to receive the threaded shaft 10. Said block and shaft are inclosed by a tubular casing 25 mounted in the interior of the boiler and provided with a lining 27 of asbestos or other heat insulating material to prevent undue heating of the threaded shaft.

The front end of the boiler carries a pair of perforated ears 26 arranged on opposite sides thereof through which the arms of the U-shaped guide extend.

It will be understood from the foregoing that when the inclined shaft 20 is turned in one direction or the other by its hand wheel 22 the threaded shaft 10 will have a corresponding rotation thus effecting the raising or lowering of the front end of the boiler, the perforated ears 26 guiding the boiler during such movement and further preventing any lateral movement thereof.

The connection between the front axle and the U-shaped guide is such that the former may be swung in either direction to allow the engine to be steered, the inclined shaft 20 extending rearwardly to a point within reach of the driver of the engine.

Various modifications and changes may obviously be made within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:—

The combination, in a machine of the class described, including front and rear axles; of a boiler provided at its front end with a pair of perforated ears formed on opposite sides thereof; a vertically disposed U-shaped guide mounted on the front axle, the arms of said guide extending through said ears; a rotatably mounted threaded member carried by said guide and extending into said boiler; a tubular casing arranged within the boiler and adapted to receive said threaded member; a stationary block mounted in the interior of said boiler within said casing and provided with a threaded opening through which said threaded member extends; a gear secured to said threaded member exteriorly of the boiler; a shaft journaled in one of the arms of said guide; a gear secured to said shaft in mesh with said first-mentioned gear; and means for rotating said shaft, to effect the rotation of said threaded member and the consequent raising or lowering of the front of the boiler with respect to said guide.

In testimony whereof, I affix my signature, in presence of two witnesses.

EARL J. BUDD.

Witnesses:

Mrs. W. BUDD,  
N. B. WHEELER.