

No. 770,786.

PATENTED SEPT. 27, 1904.

W. H. STROUSE.
FIRING LOCOMOTIVE ENGINES.
APPLICATION FILED OCT. 9, 1903.

NO MODEL.

Fig. 1.

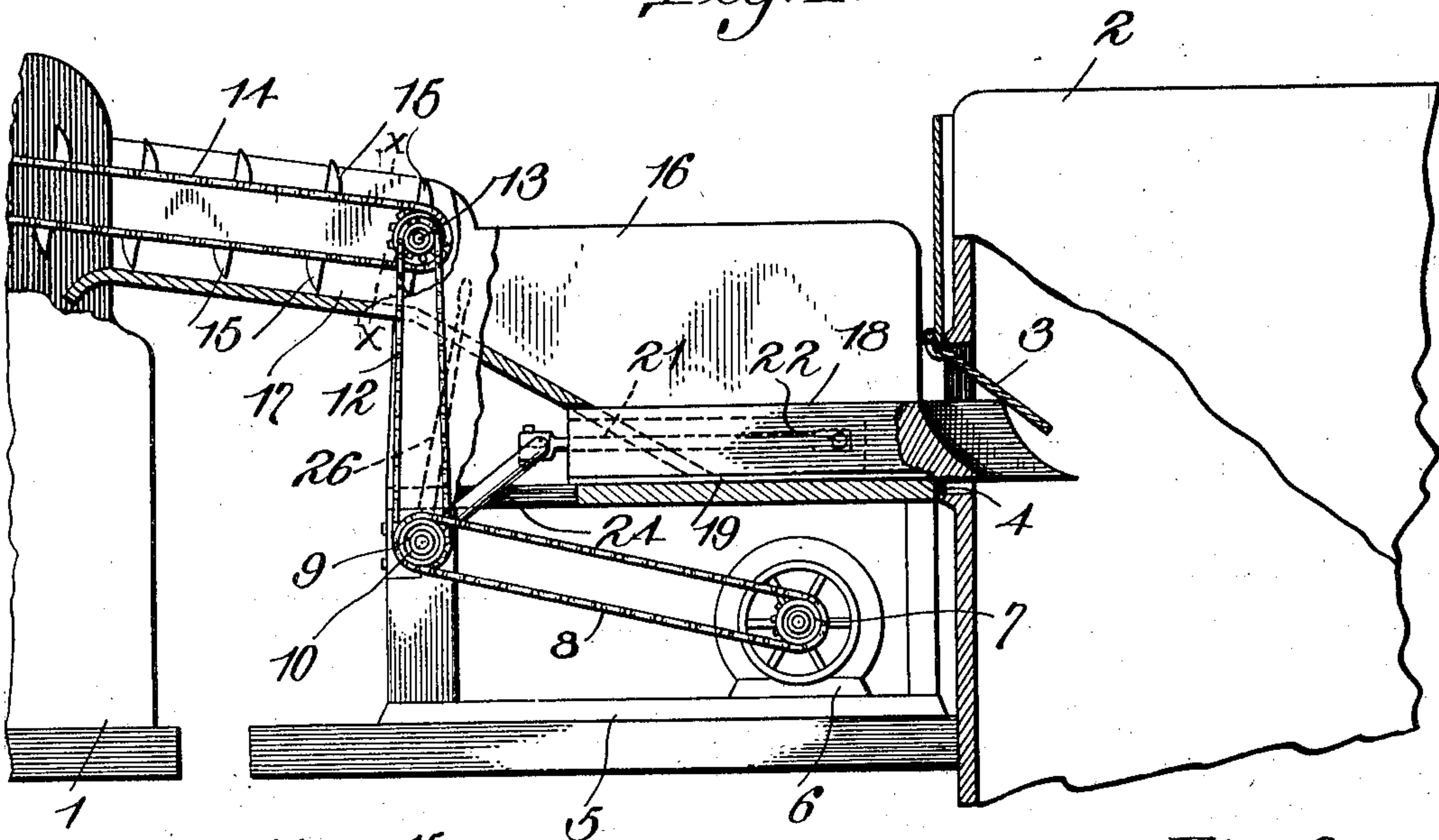


Fig. 3.

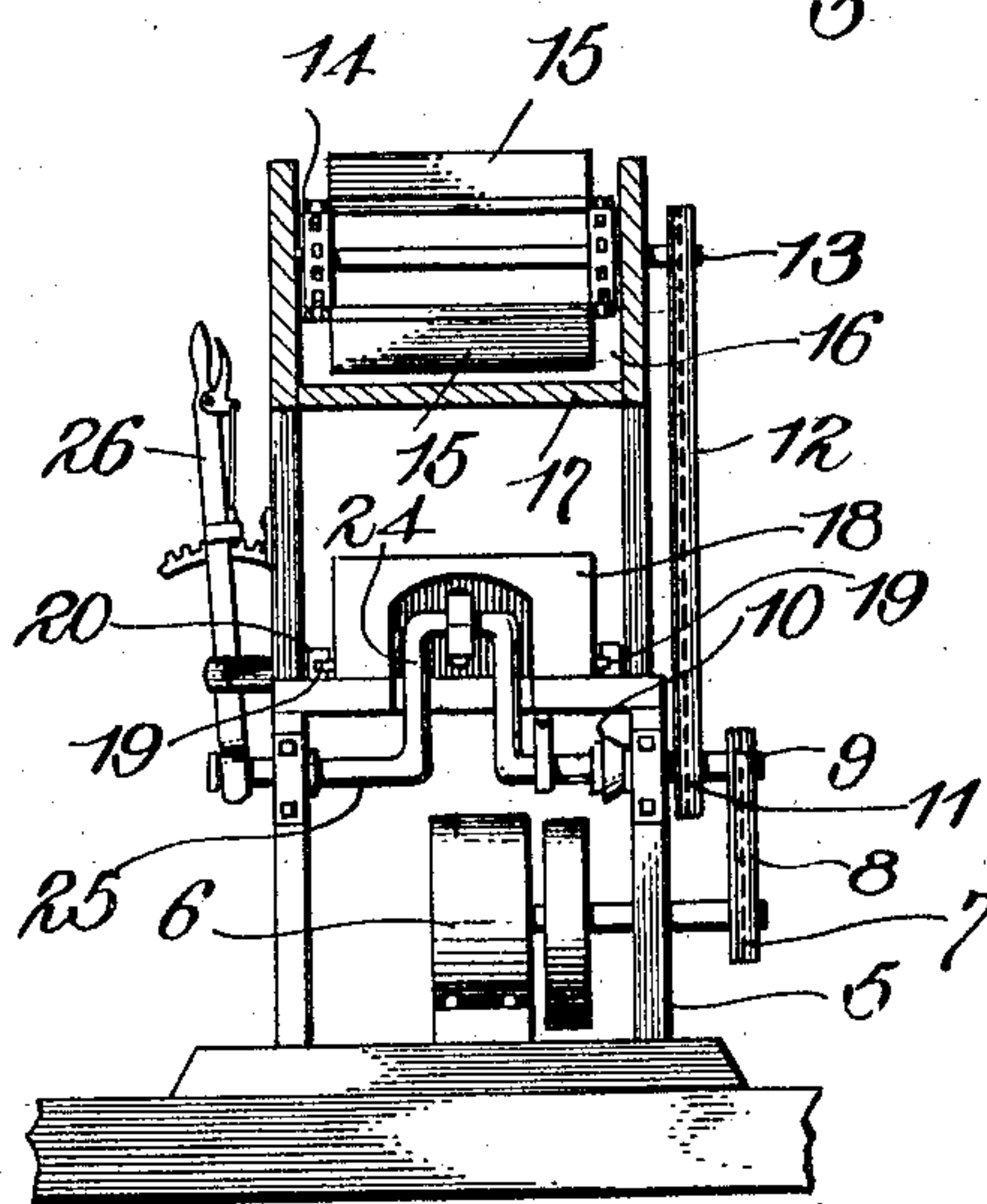


Fig. 2.

Fig. 4.

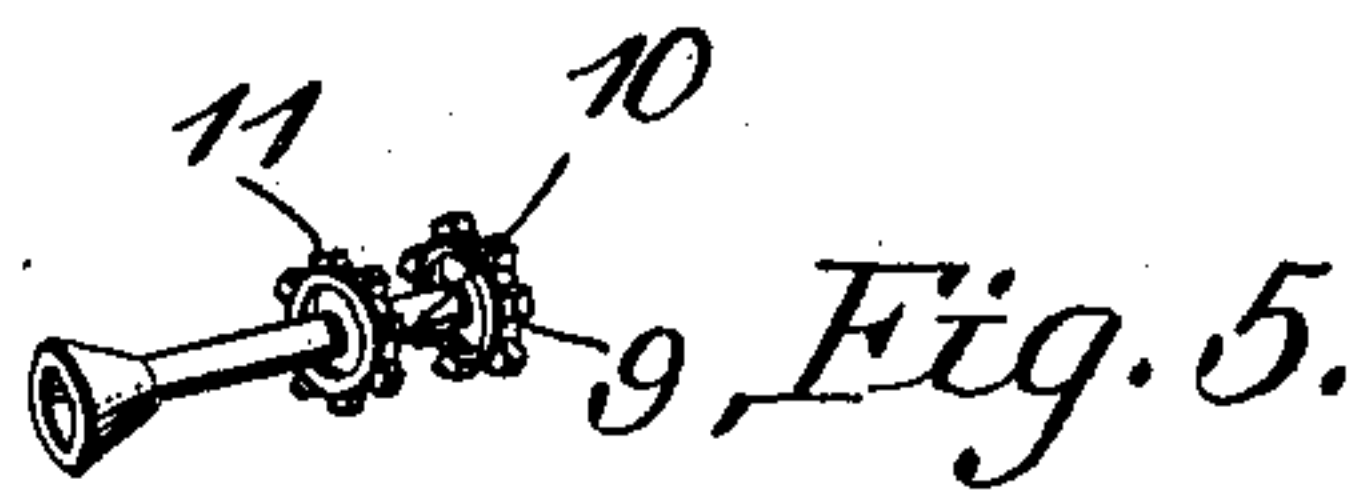
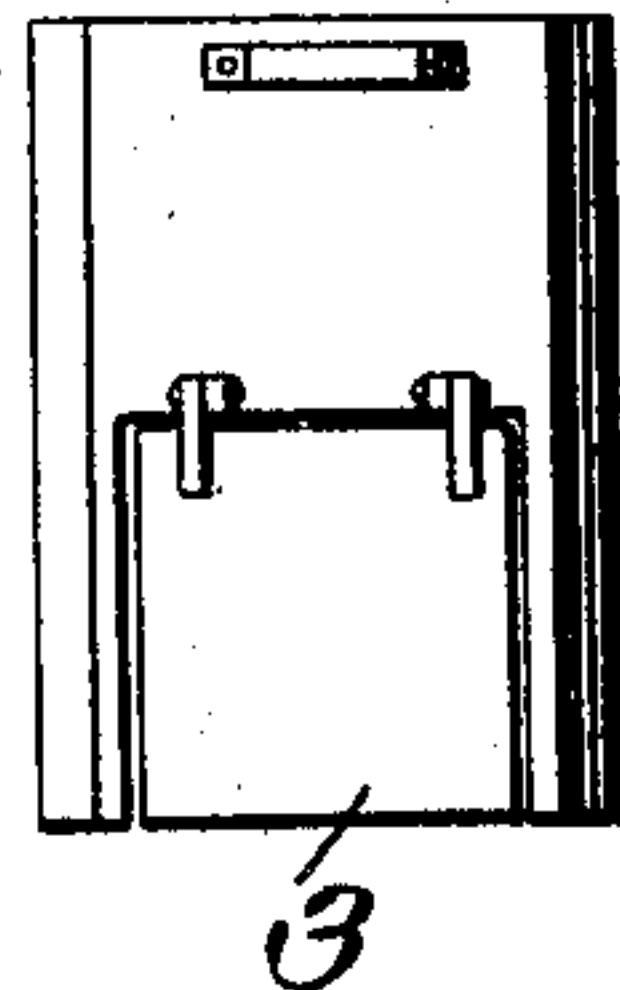
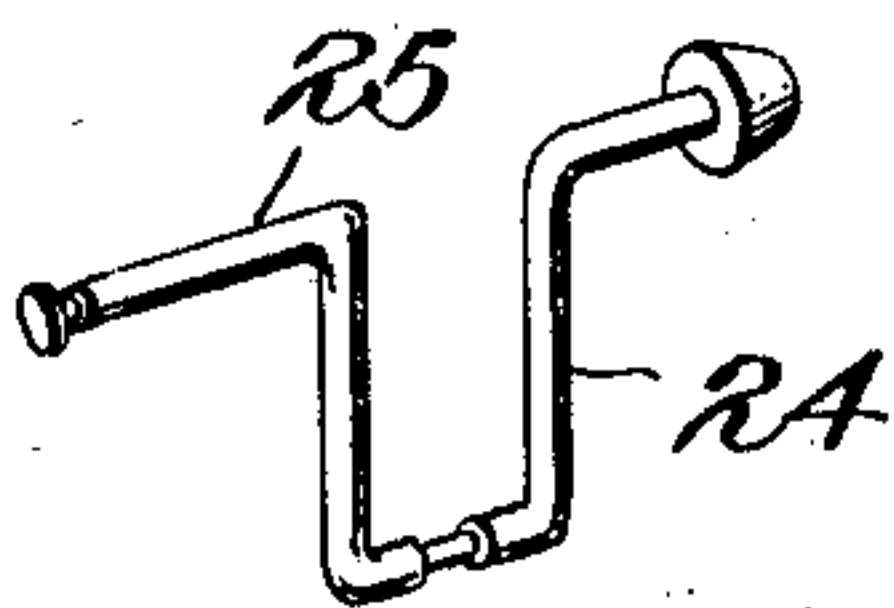


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM H. STROUSE, OF OSKALOOSA, IOWA.

FIRING LOCOMOTIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 770,786, dated September 27, 1904.

Application filed October 9, 1903. Serial No. 176,357. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. STROUSE, a citizen of the United States of America, residing at Oskaloosa, in the county of Mahaska and State of Iowa, have invented certain new and useful Improvements in Firing Locomotive-Engines, of which the following is a specification.

This invention relates to steam boilers and furnaces, and particularly to that class thereunder known as "fuel-feeding devices."

An object of the invention is to produce an apparatus that will convey the coal from an engine-tender and deliver it to a suitable hopper and, in combination therewith, means for conducting the fuel to the fire-box without impairing or disturbing the draft through the fire-box, as the opening through which the fuel is fed is automatically closed with the return of the fuel-feeding agent, while the fuel-feeding agent itself obstructs the opening when in the act of delivering the fuel.

Furthermore, an object of the invention is to produce a novel form of plunger which permits the fuel being distributed in a regular and even layer over the fire-bed as it is reciprocated through the medium of the operating mechanism.

Furthermore, an object of the invention is to provide means for driving the plunger and conveyer simultaneously or independently for permitting the starting and stopping of the machinery through the agency of the suitable clutch mechanism under the control of an operator.

Finally, an object of the invention is to produce a fuel-feeding apparatus which will possess advantages in points of efficiency and durability, proving at the same time comparatively inexpensive to produce and maintain.

With the foregoing and other objects in view the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail reference will be had to the accompanying drawings, forming part of the specification, wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 is a view and elevation of a portion of the fire-box and tender with the fuel-feeding apparatus interposed. Fig. 2 is a sectional view taken on the line X X of Fig. 1. Fig. 3 is a detailed view of the door to the fire-box, and Fig. 4 and 5 are detailed views of the several parts of the apparatus.

In the drawings, 1 denotes the front end of an engine-tender, and 2 the rear end of the fire-box, which is provided with a vertically-hinged door 3, which is designed and hinged to close by gravitation, the said door being free to swing inwardly, but being limited in the outward movement beyond a vertical plane by means of a shoulder 4 on the outward surface of the door-casing. A suitable frame 5 is stationed between the tender and fire-box and contains a rotary engine 6 of any ordinary construction, on the shaft of which is keyed a sprocket-wheel 7, driving the sprocket-chain 8, and the sprocket-chain 8 being run over the sprocket-wheel 9, carried by one clutch member 10, which is journaled in the frame. The clutch member 10 has a second sprocket-wheel 11, which through the medium of the chain 12 drives the shaft 13 of the conveyer 14, the said conveyer being of any ordinary construction, but here shown as comprising a chain carrying a series of hooks or fingers 15, which serve to drag the fuel into the hopper 16, which is mounted on the frame 5. The conveyer works in a chute 17, extending from the front end of the tender to the mouth of the hopper, as fully shown. Within the hopper is a plunger 18, which has side flanges 19 at its lower edges and said flanges are supported by and guided in the approximately C-shaped tracks 20, which are mounted longitudinally of the frame.

The plunger 18 has a recessed end to receive the fuel. The said end tapers from the base to the top and is slightly concaved in order to form a pocket-like receptacle for the fuel. Owing to the peculiar shape of the end of the plunger it will be observed that the fuel is deposited gradually and not *en masse* as the plunger is thrust into the opening of the fire-box, and as said plunger moves during the time the fuel is discharged therefrom it follows that said discharge would extend over a

suitable area of the fire-bed and that the deposit would be in an even layer. The under surface of the plunger is recessed from the rear end to a point beyond its longitudinal center, and a rod 21 is pivoted to a cross-bar 22 in said recess, the said rod projecting from the end and being connected to the crank 24, which is formed with one bar 25 of the clutch. The outer end of the clutch-bar has an operating-lever 26, swiveled thereto, so that the clutch-bar 25 is moved with relation to the clutch member 10 to connect or disengage the same. As here shown, the clutch is of the friction type, the part 10 having a socket to receive the head of the member 25.

The clutch, the conveyer, the frame, and the engine may be of any desired construction; but the form shown and described has been found to be admirably adapted for the use intended.

In operation the plunger is withdrawn from the fire-box, and the clutch is thrown to disengage while the conveyer is being operated to deliver the fuel to the hopper on the plunger, or the hopper may have an inclined bottom, and the fuel might be fed continuously thereto while the plunger is in operation, it being understood that the capacity of the conveyer and the capacity of the plunger should be about equal in order to avoid undue accumulation of fuel within the hopper.

The construction, operation, and advantages will, it is thought, be understood from the foregoing description, it being noted that various changes may be made in the proportions and details of construction for successfully carrying the invention into practice without departing from its scope.

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

1. In a fuel-feeding apparatus, a fire-box, a plunger having a tapered and concaved end reciprocating with relation to the fire-box, means for moving the plunger and means for delivering fuel thereto.

2. In a fuel-feeding apparatus, a fire-box, a plunger having a tapered concaved end, a suitable frame and guides for supporting the plunger, a hopper discharging into the plunger, a conveyer for conducting fuel to the hopper, and means for reciprocating the plunger.

3. In a fuel-feeding apparatus, a suitable frame and guides, a plunger reciprocating in the guides, the said plunger having a tapered end for delivering the fuel, a hopper in which the plunger moves, a chute communicating with an engine-tender and leading to the hopper, and conveyer working in the chute and means for reciprocating the plunger and driving the conveyer.

4. In a fuel-feeding apparatus, a plunger having a tapered and recessed end adapted to enter the fire-box of a furnace, and suitable frame and guides for the plunger, a hopper in which the plunger moves, and chute and conveyer leading from a locomotive-tender to the hopper, a cranked clutch member and a connection therefrom to the plunger, a second clutch member suitably driven, means whereby the conveyer is driven by the second-named clutch member and means for throwing the said clutch member into and out of engagement substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses, this 19th day of August, 1903.

WILLIAM H. STROUSE.

Witnesses:

L. A. RODGERS,
SAM W. JONES.