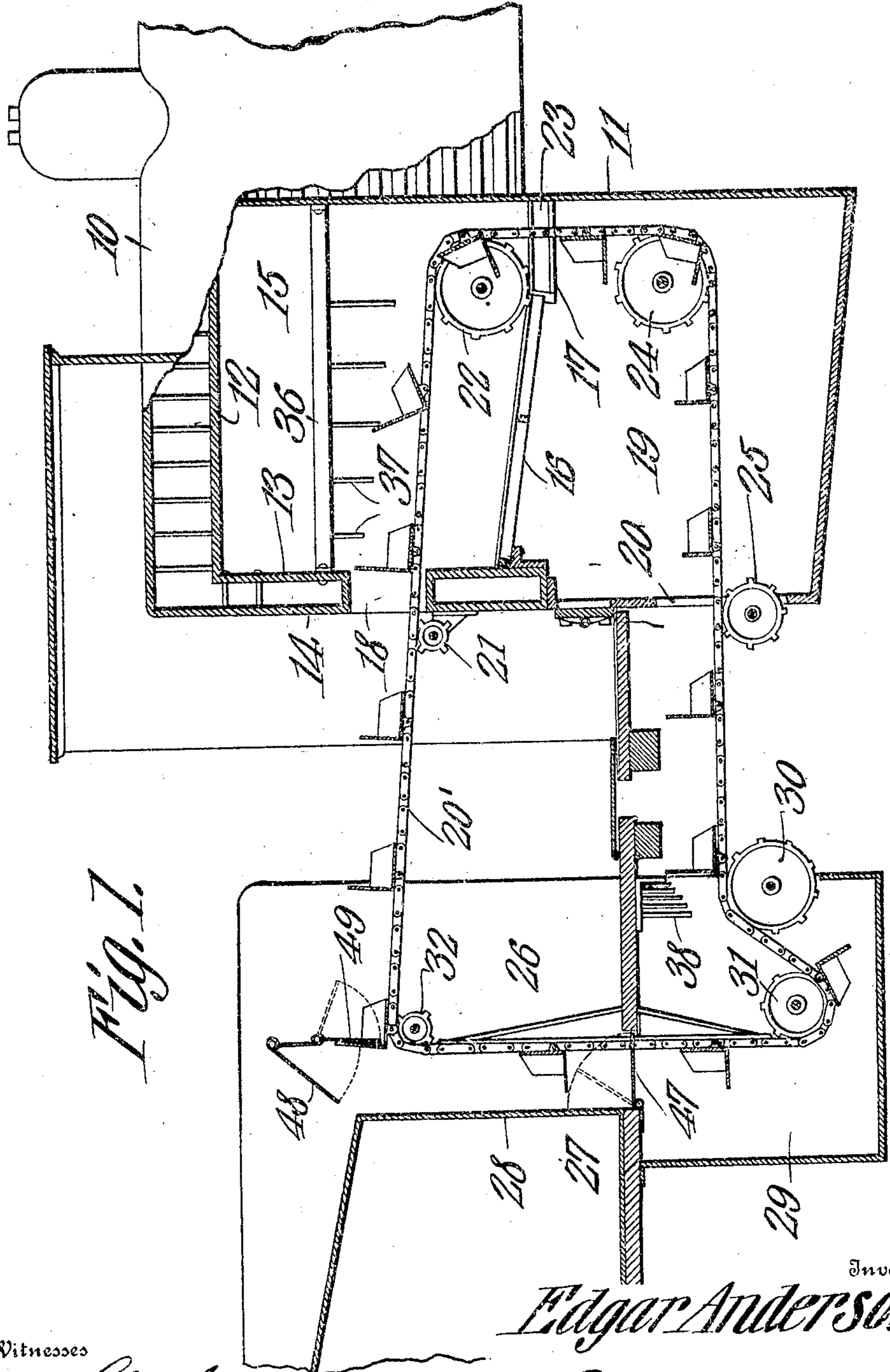


E. ANDERSON.
FUEL CONVEYER FOR FURNACES.
APPLICATION FILED MAR. 23. 1908.

912,931.

Patented Feb. 16, 1909.
2 SHEETS—SHEET 1.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 2.

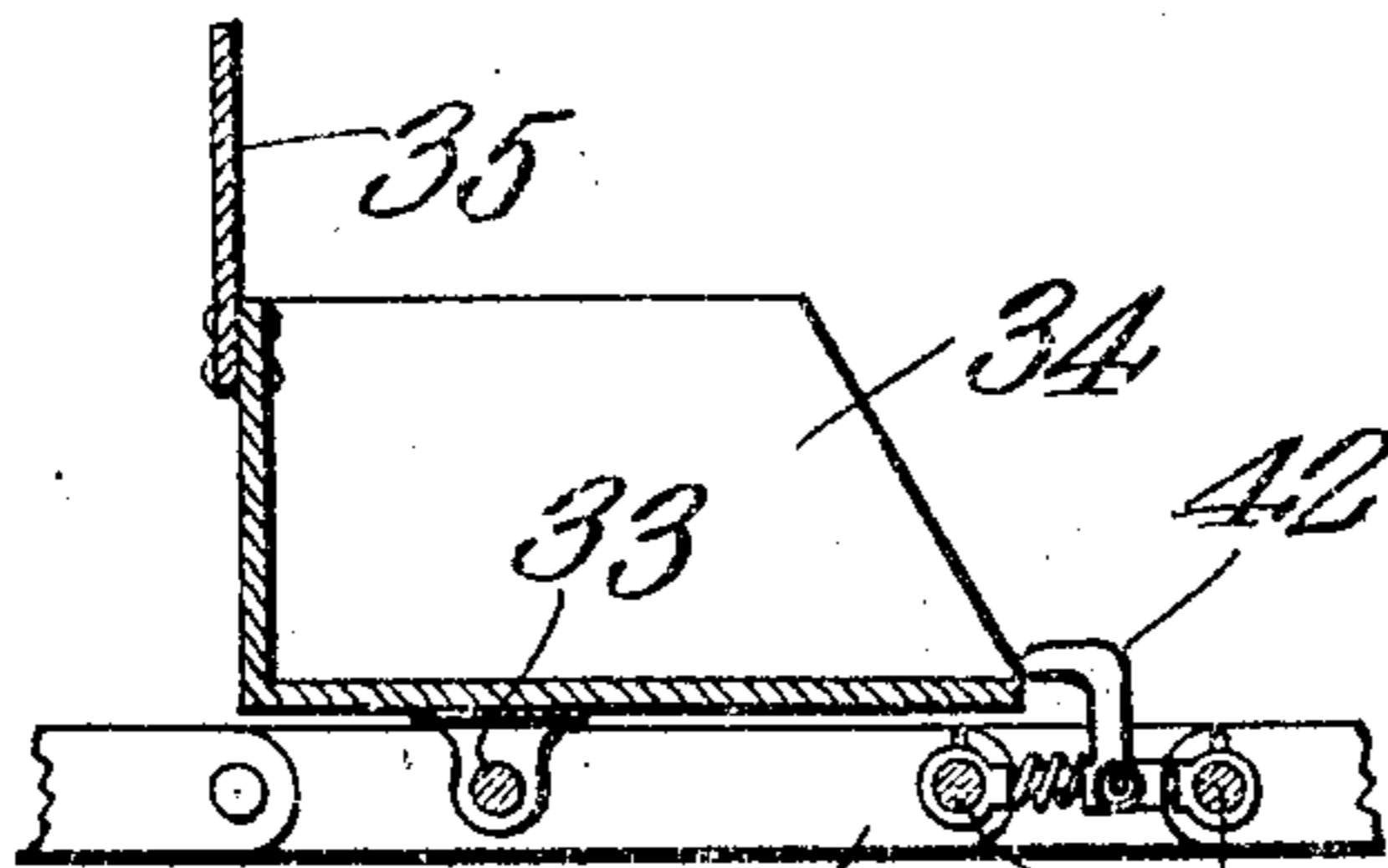
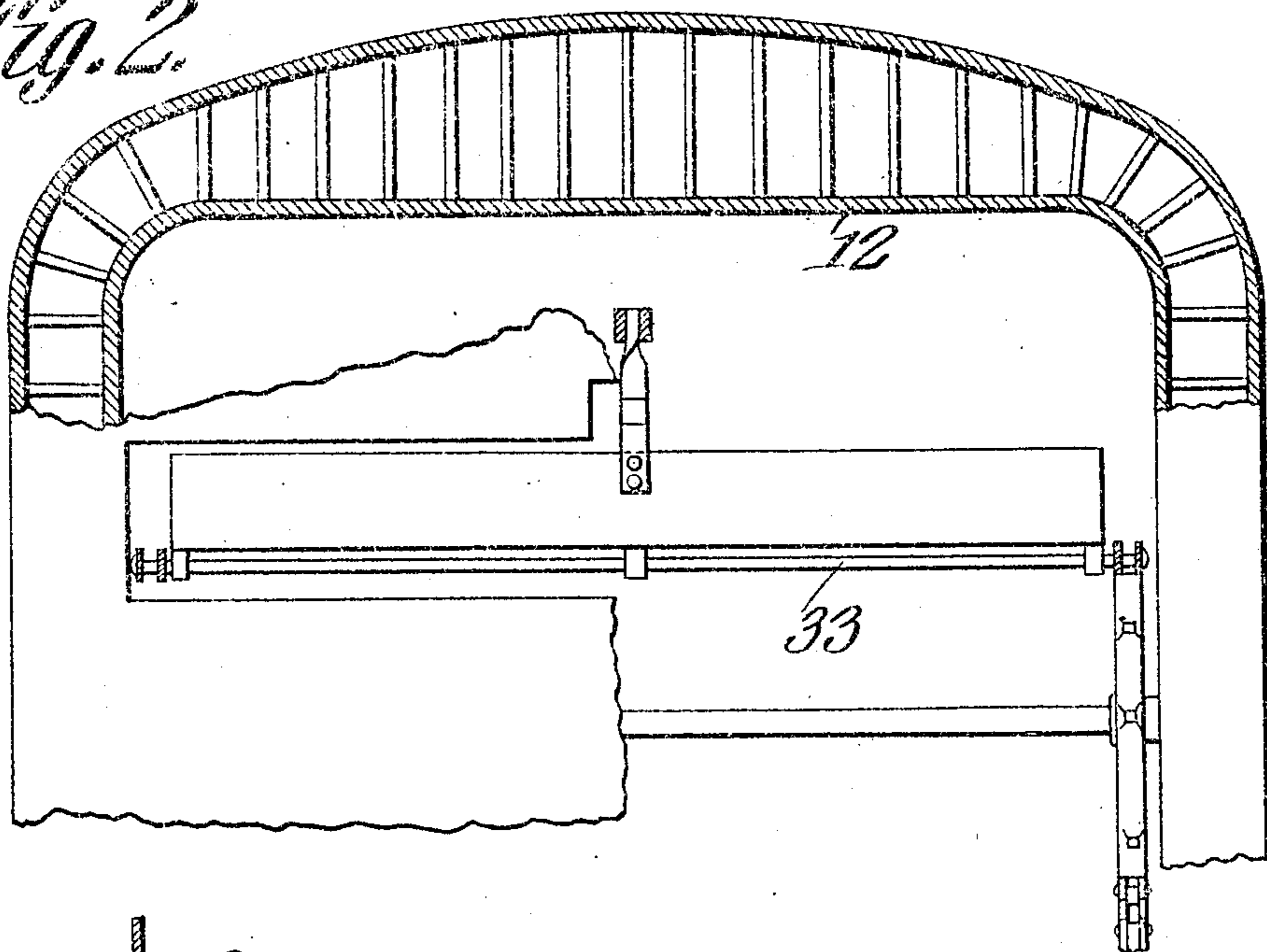


Fig. 3.

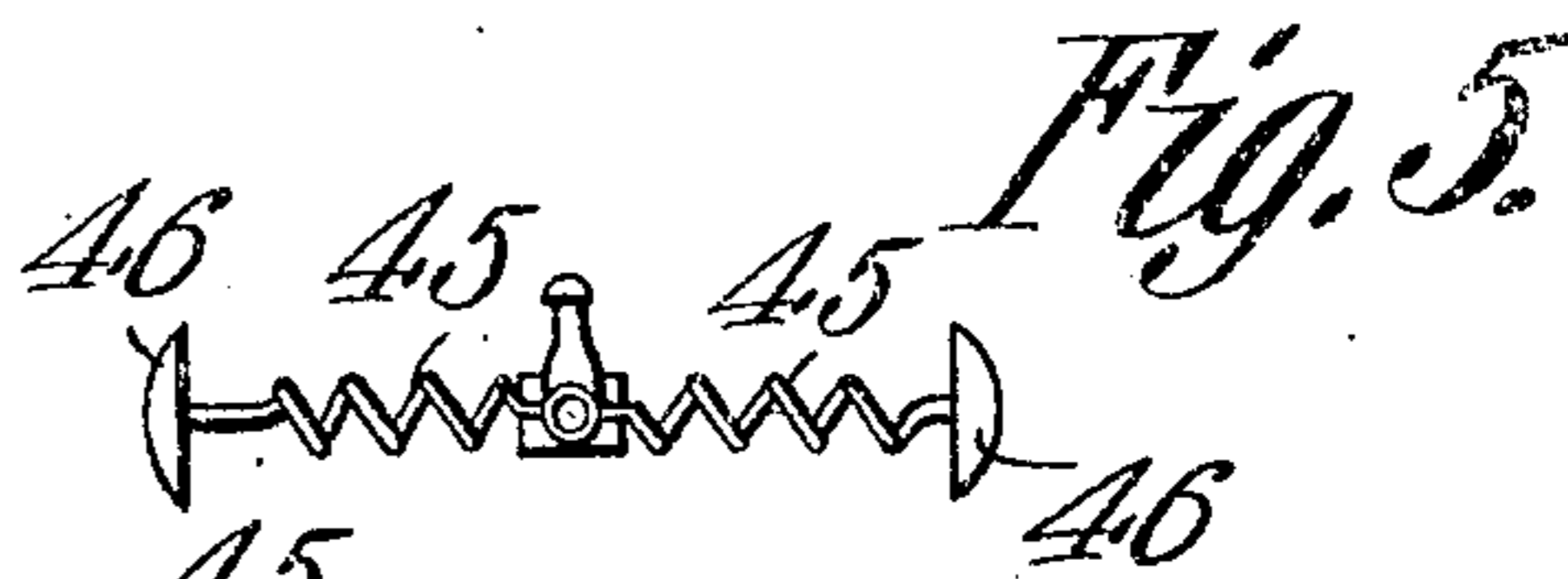


Fig. 5.

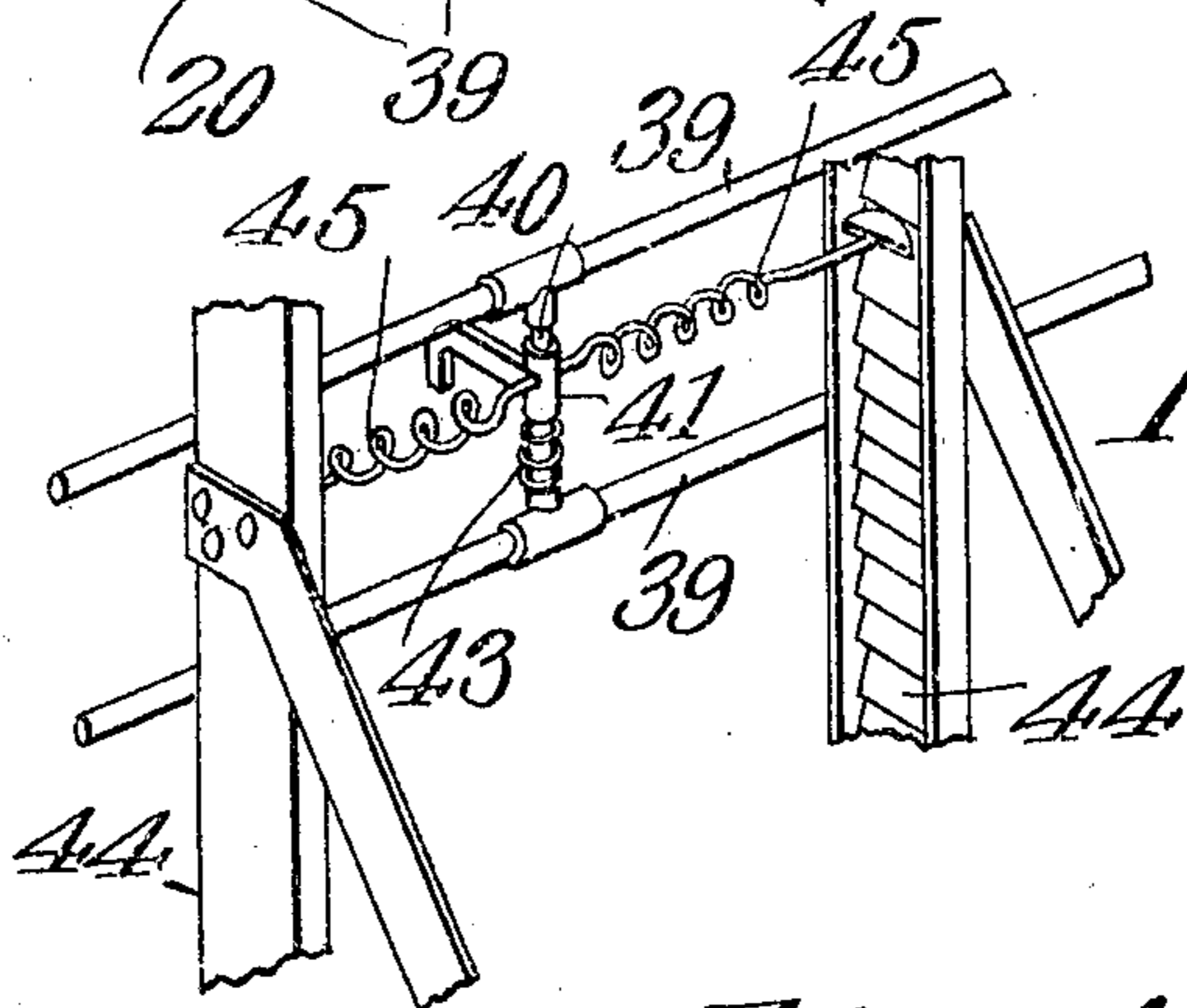


Fig. 4.

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UNITED STATES PATENT OFFICE.

EDGAR ANDERSON, OF ALTO PASS, ILLINOIS.

FUEL-CONVEYER FOR FURNACES.

No. 912,931.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed March 23, 1908. Serial No. 422,693.

To all whom it may concern:

Be it known that I, EDGAR ANDERSON, a citizen of the United States, residing at Alto Pass, in the county of Union and State of Illinois, have invented a new and useful Fuel-Conveyer for Furnaces, of which the following is a specification.

This invention relates to conveyers and more especially to conveyers for locomotive engines arranged to convey the fuel from the tender into the fire-box of the locomotive.

One object of the invention is to provide a conveyer of the above description which will automatically convey coal or the like.

Another object of the invention is to provide a means for depositing the coal on the grate in the series of predetermined positions so that the same may be conveniently distributed.

A still further object of the invention is to provide means whereby the conveyer may be cooled after passing into the fire-box.

With these and other objects in view as will appear from the detailed description of the device the invention consists in certain novel form, the construction, combination of parts and arrangement of elements herewith fully described, illustrated in the accompanying drawings and specifically set forth in the claims.

In the accompanying drawings: Figure 1 is a section taken longitudinally through a portion of a locomotive and tender showing the device as applied thereto the illustration being partly diagrammatic. Fig. 2 is a transverse view partly in section of the locomotive fire-box. Fig. 3 is a detail of the manner of mounting the tip buckets on the conveyer. Fig. 4 is a partial perspective view of the locking device hereinafter described. Fig. 5 is a detail of one part thereof.

The numeral 10 indicates a locomotive boiler wherein 11 is the flue sheet, 12 is the crown sheet, 13 the back fire-box sheet and 14 the back head. The fire-box is indicated by the numeral 15 and there is held in any preferred manner a grate whereof 16 indicates the live grate and 17 the dead grate.

At 18 is formed a door extending substantially across the entire width of the sheet 13 as illustrated plainly in Fig. 2.

At 19 is formed the usual ash pan, in this

instance provided with an opening 20 commensurate with an opening 18 in the fire-box.

The conveyer itself comprises a plurality of endless link belts 20' running over a series of sprockets now to be described; the sprocket 21 is held in suitable brackets adjacent the door 18. Within the fire-box is mounted a sprocket 22 arranged to carry one of said chains. This sprocket being positioned so that the chain passing therethrough together with the parts held thereon will move downward through a suitable opening 23 in the dead grate and then around a sprocket 24, from the sprocket 24 the chain is carried toward the tender over a sprocket 25 situated at the rear of the fire-box. The tender 26 is provided with any desired form of tank as at 27 preferably having a vertically disposed front end 28. A supplemental tank 29 is preferably held below the floor of the tender as shown in Fig. 1. A sprocket 30 is arranged to receive the chain passing from the sprocket 25 before referred to and a sprocket 31 is held in the supplemental tank 29 to cause said chain to dip below the surface of the water indicated therein. The chain after leaving the sprocket 31 passes upward substantially parallel to the end sheet of the tank 28 and over a sprocket 32 from whence it returns to the sprocket 21. Attached to one of said sprockets is provided any suitable motive power not deemed necessary to be here shown.

In the device as here illustrated there has been shown a pair of chains arranged on opposite sides of the fire-box and it is of course obvious that each chain will have its own series of sprockets oppositely disposed. Pivotaly mounted on rods 33 extending from one of said chains to the other and securely fastened thereto are tip buckets 34 each provided with a finger 35 secured at the rear end thereof. In the preferred form of this device these buckets are arranged so that there will be a number of sets thereof in each of which the fingers 35 will have varying heights. Within the fire-box is mounted a means for tipping said buckets preferably comprising a bar 36 provided with a series of downwardly depending fingers 37 arranged to lie in the path of the fingers 35 on the tip bucket. These fingers are preferably equal

in number to the number of sets of tip buckets and are of such length that each one will contact with the finger of the set it is adapted to operate and tip the buckets of that set.

- 5 A series of similar fingers 38 are held within the tank 29 and replace said buckets after having been tipped. In order to hold the buckets securely in position while the coal is loaded thereon bars 39 are held on the chains
10 extending from one to the other and on these bars is mounted a cross bar 40 carrying a sleeve 41 provided with a hook 42 formed thereon. A spring 43 is mounted on the bar 40 to normally press said hook out of en-
15 gagement with the bucket 34. To cause said hook to engage the bucket 34 ratchet bars 44 are mounted in the tender adjacent the vertical path of the conveyer as indicated in Fig. 1. Carried upon the sleeve 41 are a
20 pair of resilient arms 45 having heads 46 thereon arranged to engage the ratchet bars 44 as shown in Fig. 4. Now it is to be observed that as the arms 45 are drawn along over the ratchet bars 44 the spring 43 will be
25 compressed and the hook 42 be caused to engage the bucket 34 thereby holding the same from tipping.

In order to prevent the coal dropping down into the supplemental tank 29 there is
30 provided a trap door 47 arranged to move freely upward and permit passage of the buckets as indicated in Fig. 1. In order to transversely feed the coal there are also provided trap doors 48 and 49 as shown in the
35 same figure.

In the operation of the device as the buckets pass upward from the sprocket 31 to the sprocket 32 they will be loaded with coal being held from tipping by the means illustrated in Fig. 4 and previously described.
40 As these buckets pass along into the fire-box they are tipped by the coaction of the fingers 37 and 35, each one being disposed in proper position to uniformly distribute the coal.
45 They then pass outward through the dead grate and over the sprocket 30 at this point the fingers 38 operate to right the buckets from the vertical position on the chain and they pass downward through the water being
50 there cooled.

It is obvious that many minor changes may be made in the form and construction of the device without departing from the principles thereof and it is not desired to confine
55 the invention to the exact form herein shown and described but it is wished to cover all such as properly come within the scope thereof.

I claim:

- 60 1. In a device of the class described, a fire-box, a door therein, an ash-pit provided with a similar door, a grate held between the fire-box and the ash-pit, and a conveyer arranged to pass through the fire-box door and down

through the grate and out through the ash-pit door.

2. In a device of the class described, a fire-box having a door therein, an ash-pit provided with a similar door, a grate held between the fire-box and the ash-pit, provided with an opening in the back end thereof, a shaft in said fire-box above the grate opening, a second shaft in said ash-pit beneath the first mentioned shaft, and a conveyer arranged to pass through the fire-box door and over the first mentioned shaft, down through the grate opening, beneath the shaft and the ash-pit, and out through the ash-pit door.

3. In a device of the class described, a fire-box having a door therein, an ash-pit provided with a similar door, a grate held between the fire-box and ash-pit provided with an opening at the back end thereof, a shaft in said fire-box above the grate opening, a second shaft in said ash-pit beneath the first mentioned shaft, sprockets mounted on said shaft, an endless chain carried on said sprocket and arranged to pass through the fire-box door over the first shaft, down through the grate opening, under the second shaft, and out through the ash-pit door, tip buckets carried on said chain, and selecting members held in said fire-box and on said buckets, arranged to tip certain of said buckets in predetermined positions within said fire-box.

4. In a device of the class described, a fire-box having a door therein, an ash-pit provided with a similar door, a grate held between the fire-box and ash-pit and provided with an opening at the back end thereof, a shaft in said fire-box, above the grate opening, a second shaft in the said ash-pit, beneath the first mentioned shaft, sprockets mounted on said shaft, an endless chain carried on said sprockets, tip buckets supported on said endless chain, selecting means arranged to co-act with said tip-buckets, another selecting means arranged to co-act with the selecting means on the tip buckets, held in said fire-box to tip said buckets in predetermined positions within the fire-box, and a cooling means for such buckets, exterior of said fire-box and ash-pit.

5. In a fuel-feeder, a fire-box, an endless conveyer arranged to travel through the said fire-box, a grate within the fire-box, above which the said conveyer travels, pivotal buckets carried by the said conveyer, said buckets being arranged in a series of sets, and means arranged within the fire-box for successively engaging the buckets of each set to tilt the same.

6. In a fuel-feeder, a fire-box, an endless conveyer arranged for travel through the fire-box, a grate within the fire-box above which the said conveyer travels, pivotal buckets carried by the said conveyer, said

buckets being arranged in a series of sets, and a plurality of elements arranged at various points above the surface of the grate of the fire-box, and constructed to successively engage the buckets of each set to tilt the same.

my own, I have hereto affixed my signature in the presence of two witnesses.

EDGAR ANDERSON.

Witnesses:

L. E. HOLCOMB,

RUD. VON PFLEGER.

In testimony that I claim the foregoing as