

No. 660,898.

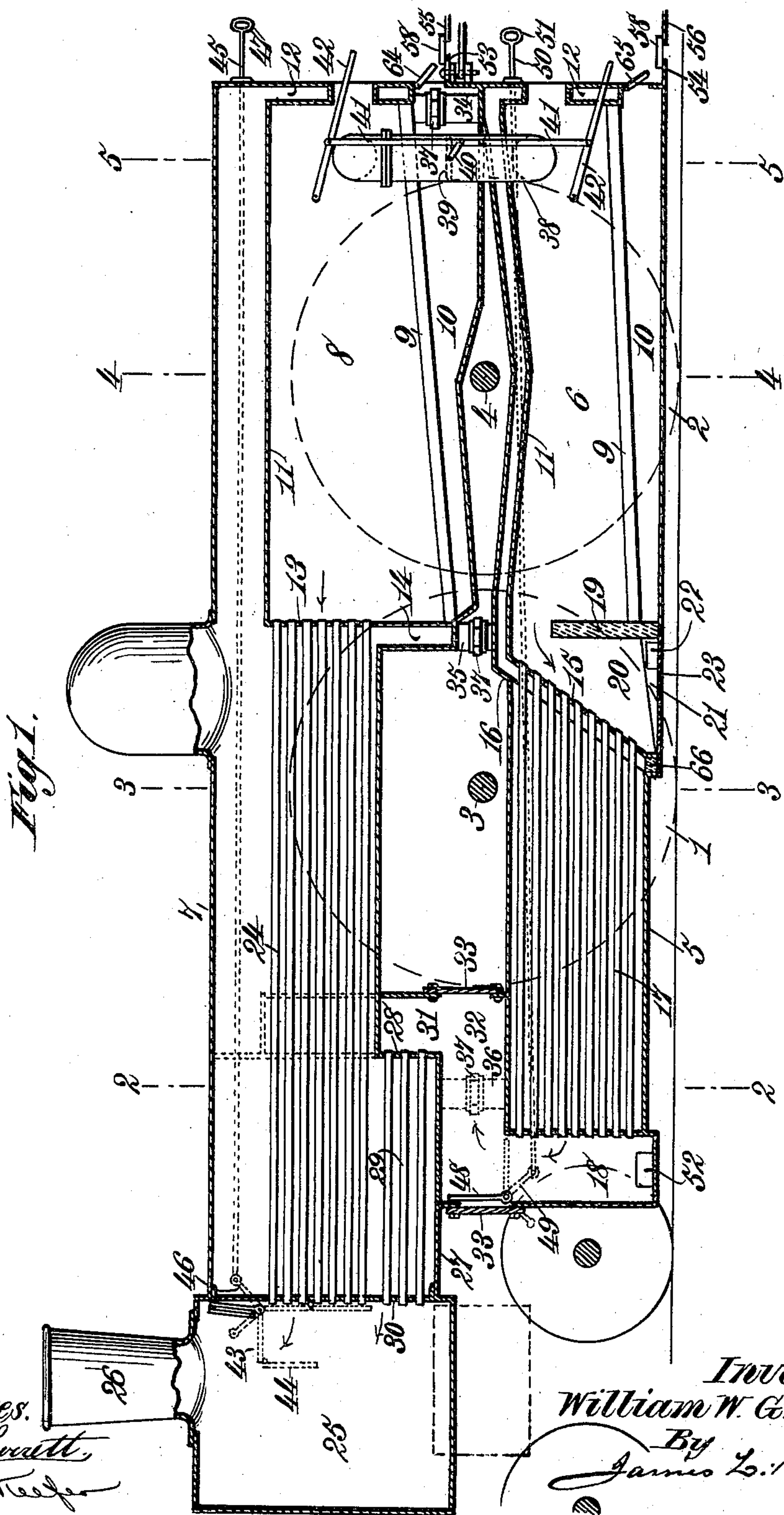
Patented Oct. 30, 1900.

W. W. GREGG.
LOCOMOTIVE.

(Application filed May 23, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses.

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Inventor:
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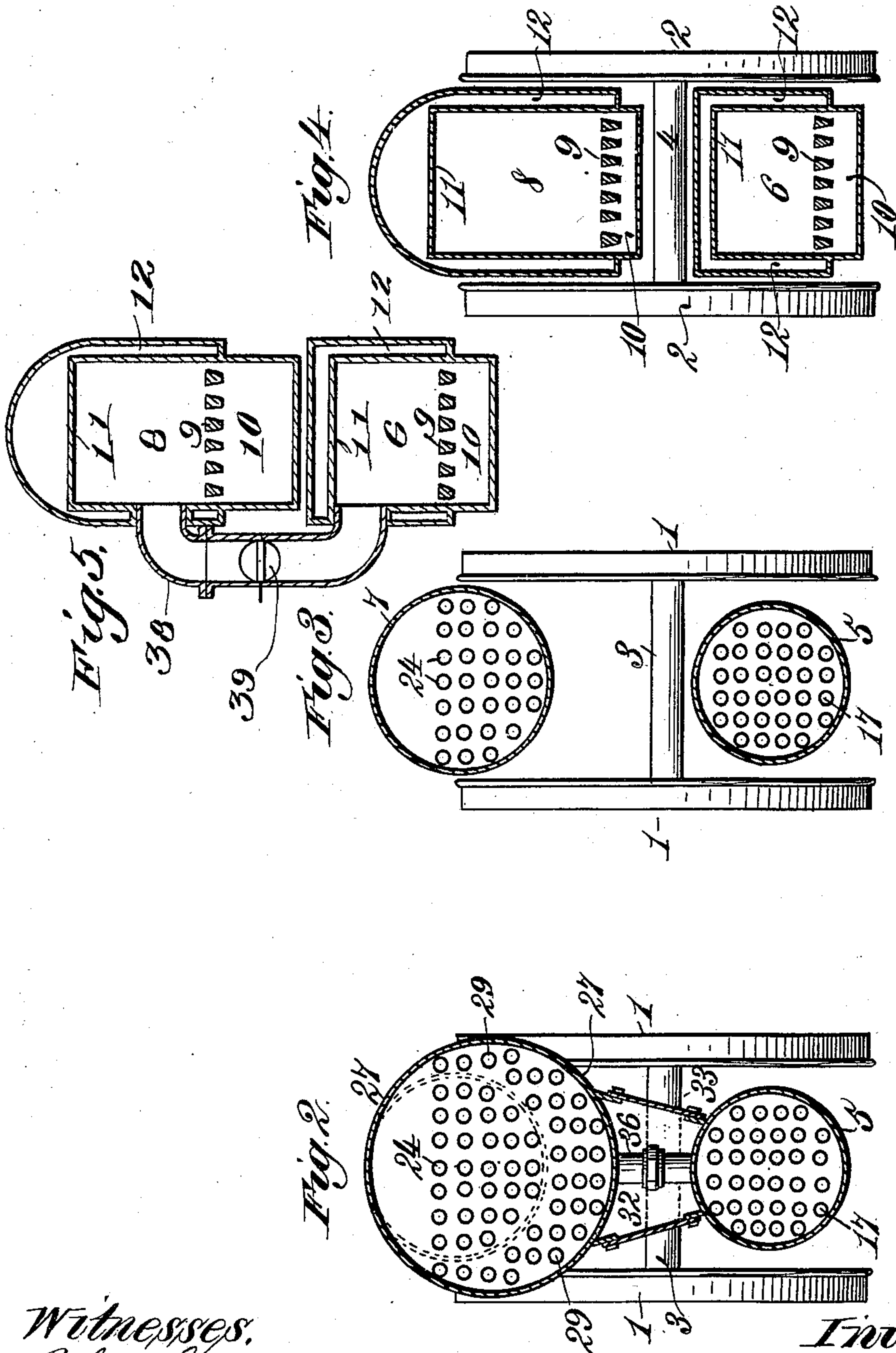
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Application filed May 23, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses.
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J. B. Keefe

Inventor.
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UNITED STATES PATENT OFFICE.

WILLIAM W. GREGG, OF ELMIRA, NEW YORK.

LOCOMOTIVE.

SPECIFICATION forming part of Letters Patent No. 660,898, dated October 30, 1900.

Application filed May 23, 1900. Serial No. 17,733. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GREGG, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented new and useful Improvements in Locomotives, of which the following is a specification.

This invention relates to locomotives, and is in the nature of an improvement upon the locomotive for which I filed an application for Letters Patent on the 24th day of November, 1899, which application is serially numbered 738,206. In the application for Letters Patent referred to I show and describe a locomotive provided with two separate fire-boxes placed one above the other, combined with two boilers, placed one above the other, also the upper fire-box communicating with the upper boiler and the lower fire-box communicating with the lower boiler, the smoke and products of combustion after passing through the respective boilers escaping into a common smoke box or chamber and from thence out through the smoke-stack. I also show and describe in said application in connection with the described arrangement of duplex boilers and fire-boxes two pairs of coupled driving-wheels of the well-known "American" type, said wheels being of very large diameter, the axle of the rear drivers being arranged between the upper and lower fire-boxes and the axle of the forward drivers being arranged between the upper and lower boilers, the lower boiler and fire-box being removable from the upper boiler and fire-box and from one another, and each pair of drivers, with its axle, being also removable.

It is one object of the present invention to combine with a locomotive of the general type just described means for shutting off at will the communication between either of the fire-boxes and the common smoke box or chamber and to provide means for shutting off the passage of smoke and gases from either of the fire-boxes through the corresponding boiler and directing them into the combustion-chamber of the other fire-box.

It also has for its object to improve the construction and arrangement of the upper boiler.

It has for a further object to improve the construction and arrangement of the lower

fire-box and boiler and to provide them with novel combustion-chambers, and finally it has for its object to improve the construction and render more efficient the operation generally of a locomotive of the general type referred to.

To these ends my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a longitudinal sectional view of a sufficient portion of a locomotive to illustrate my invention. Fig. 2 is a transverse sectional view on the line 2 2 of Fig. 1. Fig. 3 is a similar view on the line 3 3 of Fig. 1. Fig. 4 is a similar view on the line 4 4 of Fig. 1. Fig. 5 is a similar view on the line 5 5 of Fig. 1.

Referring to the drawings, the numerals 1 and 2 indicate, respectively, the front and rear driving-wheels, and 3 and 4 their axles, constructed in the usual manner, excepting that the drivers are made of much greater diameter than usual. The numeral 5 indicates the lower boiler, and 6 the lower fire-box, while the numerals 7 and 8 indicate, respectively, the upper boiler and upper fire-box. Both fire-boxes are made as long as practicable and as wide as the space between the opposite drivers will permit. As shown, the axle 3 of the forward drivers is arranged between the upper and lower boilers and the axle 4 of the rear drivers between the upper and lower fire-boxes. Each fire-box, as usual, comprises a grate 9, below which is arranged an ash-pit 10, forming the bottom of the fire-box, a crown-sheet 11 forming the top, and water-legs 12 forming the sides and rear end, of the fire-box. At the forward end of the upper fire-box are arranged a flue-sheet 13 and water-leg 14, and at the corresponding end of the lower fire-box is a forwardly and downwardly inclined flue-sheet 15. The flue-sheet 15 is connected at its upper end to the crown-sheet 11, is extended laterally and connected to the inner walls of the lateral water-legs of the lower fire-box, and is extended downward and connected to the mud-ring 66 of said lower fire-box. Disposed immediately forward of

and parallel with the flue-sheet 15 is a sheet or plate 16, which is connected to the rear end of the lower boiler-shell and is extended upward to meet the outside plates inclosing the upper water-space of the fire-box 6, laterally to the outside plates of the lateral water-legs of said fire-box, and downward to said mud-ring 66. The sheet or plate 16, in connection with the flue-sheet 15, forms a water-leg or water-space at the forward end of the lower fire-box, which communicates with the water-legs or water-space on the sides and top of said fire-box.

The lower boiler 5 is provided with a number of fire-tubes 17, which extend through the flue-sheet 15 at their rear ends and at their forward ends communicate with a chamber 18, arranged in front of the lower boiler. In the forward portion of the lower fire-box and at the forward end of the fire-grate 9 therein is arranged a fire-arch 19, preferably constructed of fire-brick or other suitable refractory material, whereby is formed a combustion-chamber 20 in the forward end of the lower fire-box and partially separated from the remaining portion of said fire-box. The fire-arch 19 extends below the bottom of the lateral water-legs of the fire-box and to the bottom of the ash-pit, thus separating the ash-pit from the combustion-chamber 20. The sides 21 of the combustion-chamber below the lateral water-legs of the fire-box are of fire-brick or other suitable refractory material, are attached to the said water-legs, and are provided with openings, which are closed by suitable doors 22. The said openings are arranged in the rear of the forward drivers, so as to be easily accessible, and through the same may be conveniently removed the accumulation of cinders and soot in the combustion-chamber. The bottom 23 of the combustion-chamber 20 may be lined with fire-brick or other suitable material and is detachably bolted to the forward and rear ends and to each side of the combustion-chamber, so that it may be easily removed in case access to said chamber from below is desired.

The upper boiler 7 is provided with a number of fire-tubes 24, which extend through the flue-sheet 13 at their rear ends and at their forward ends into a smoke-box 25, arranged in front of the upper boiler and from which leads the usual smoke-stack 26. The waste heat, gases, and products of combustion pass from the upper fire-box 8 into and through the tubes 24 and out into the smoke-box 25, where they mingle with the products of combustion from the lower fire-box, as will hereinafter be explained, and finally pass off through the smoke-stack 26. The upper boiler 7 at its forward end is provided with a cylindrical enlargement 27 of a diameter considerably exceeding that of the other portion of the boiler, said enlarged section being eccentrically formed relatively to the other boiler-section, as is most clearly shown in Fig. 2 of the drawings, in such manner that the tops

of both said boiler-sections lie in the same or approximately the same horizontal plane. The rear end of the enlarged section 27 is formed by a flue-sheet 28, which is joined to the rear end of the shell of said section and to the forward end of the shell of the section of lesser diameter. The enlarged section 27 is provided with a number of fire-tubes 29, which extend through the flue-sheet 28 at their rear ends and at their forward ends extend into the smoke-box 25, the uppermost of said tubes being on a level with the uppermost of the tubes 24. In practice said enlarged boiler-section should be of such a size that both the number and diameter of the tubes 29 may be the same or approximately the same as that of the tubes 17 of the lower boiler. The tubes 24 and 29 at their forward ends pass through a flue-sheet 30 common to them both and which closes the forward ends of both the upper boiler-sections.

On the forward end of the lower boiler 5 is arranged a heat or combustion chamber 18, and at the rear ends of the tubes 29 is arranged a heat or combustion chamber 31. A flue or passage 32 connects the chambers 18 and 31, the sides and ends of said flue or passage being formed by plates 33, (see Figs. 1 and 2,) which are detachably bolted to one another, to the upper and lower boilers, and to the sides and ends of the combustion-chambers 18 and 31. The heat, gases, and products of combustion pass from the main portion of the lower fire-box over the fire-arch 19 into the combustion-chamber 20, where they strike against the inclined flue-sheet 15, and are thereby in part deflected downward into the lower and larger portion of said combustion-chamber, and from thence are distributed among the tubes 17 of the lower boiler. After passing through said tubes the heat, gases, and products of combustion enter the combustion-chamber 18, and from thence they pass through the flue 32 and enter the chamber 31, from whence they enter and pass through the tubes 29 of the upper boiler and into the smoke-box 25, where they mingle with the products of combustion from the upper fire-box and finally pass off through the smoke-stack 26.

The water-legs and water-space on both sides of the upper and lower fire-boxes are connected or placed in communication by pipes 34 and 35, while the water-spaces of the two boilers are connected by a single pipe 36. The pipes 34 and 35 enter the water-space of the lower fire-box at the highest parts of the latter, which parts are at or near the ends of the fire-box, as most clearly shown in Fig. 1, the lowermost part of the top of said fire-box being directly beneath the rear axle 4. By such arrangement is obtained a continuous upward current of heated water, and water highly surcharged with steam, which rises to said highest parts of the water-space of the lower fire-box, from thence passes into and through said pipes and into the water-spaces

of the upper fire-box and boiler, where it is further heated, and finally collects as steam in the upper part of the upper boiler. A similar current also passes upward through the pipe 36, excepting when feed-water is injected into the forward part of the upper boiler, at which time a downward current is established through said pipe by the cold water admitted sinking to the lower part of the enlarged section 27 of the upper boiler and from thence passing downward through the pipe 36 into the lower boiler, through which it circulates into the water-spaces of the lower fire-box, and upon becoming sufficiently heated rises to the highest parts of said fire-box, passes through the pipes 34 and 35 into the water-spaces of the upper fire-box and boiler, and finally collects as steam above the water-line in the upper boiler. By the described arrangement of boilers, fire-boxes, and pipe connections a free circulation of water and steam is maintained between the water-legs and water-spaces of the two fire-boxes, between the two boilers, and between each boiler and the water-spaces of the corresponding fire-box. Each of the pipes referred to is made in sections detachably coupled together by pipe-couplings 37, whereby the lower boiler and lower fire-box may be entirely disconnected internally from the upper boiler and upper fire-box whenever it is desired to remove the lower boiler and fire-box. The disposition, number, and size of the pipe connections referred to and as shown in Fig. 1, may be altered or changed as desired. The upper boiler and fire-box are attached to the locomotive-frame in the usual or in any suitable manner; but the lower boiler and fire-box are removably attached to the frame in such manner as will permit of their being easily detached and removed—as, for example, in the manner shown and described in my said application for Letters Patent before referred to.

Formed in one of the lateral water-legs of the upper fire-box, near the rear end thereof and above the fuel-line, is an opening, and a similar opening is formed in the corresponding water-leg of the lower fire-box. Fitted in said openings and communicating with the interiors of the fire-boxes above the fuel-levels are the opposite ends of a flue 38, formed of pipe-sections detachably coupled together. Arranged in the flue 38 is a damper 39, on the axis of which is fixed an arm 40. To the end of the arm 40 are attached links 41, which are also attached to levers 42, adapted to be operated from the firing-platforms of the upper and lower fire-boxes, hereinafter described, whereby the damper may be opened and closed from either of said platforms.

At the forward end of the upper boiler is arranged a door or damper of a size sufficient to cover when closed the ends of the boiler-tubes 24. The said door consists of two plates 43 and 44, hinged together at their adjoining edges, the upper plate 43 being hinged at its

upper edge to the flue-sheet 30, so that when the plate 43 is fully lowered or shut and in place against the forward ends of a portion of the tubes 24 the plate 44 will hang suspended in the same plane with and form a continuation of the plate 43 and will therefore cover the forward ends of the remaining tubes 24. When the door or damper is fully raised or opened, the two plates 43 and 44 are folded one against the other and against the upper part of the front end of the upper boiler in the upper part of the smoke-box 25, thus entirely uncovering the forward ends of all the tubes 24. A rod 45 is connected at its forward end to one end of an arm 46, the other end of said arm being fixed on the hinge-pintle of the plate 43. Said rod extends to the rear end of the upper fire-box, where it terminates in a handle 47, whereby the door or damper may be raised and lowered or opened and shut from the firing-platform of the upper fire-box for the purpose hereinafter explained.

A door or damper 48 is hinged at one end to the upper portion of the front wall of the combustion-chamber 18 in front of the lower boiler, which door when raised or opened lies back against the front end of the flue or passage 32 and places said flue or passage in communication with the combustion-chamber 18, but when closed or lowered completely covers the upper end of the chamber 18, thereby preventing any egress therefrom to said flue or passage 32. An arm 49 is fixed at one end on the hinge-pintle of the damper 48 and at its other end is connected to the forward end of a rod 50, which extends to the platform of the lower fire-box, where it terminates in a handle 51, by means of which the door or damper can be raised and lowered or opened and closed from said platform for the purpose hereinafter set forth.

As shown, the bottoms of the combustion-chambers 18 and 20 are depressed slightly below the bottom of the lower boiler 5 in order that the accumulation of cinders and soot may not block or clog the tubes in said boiler, and the bottom of the smoke-box 25 is similarly depressed below the tubes 29 in order that the latter may not in like manner become blocked or clogged. The combustion-chamber 18 is provided with an opening closed by a suitable door 52, through which the accumulation of cinders and soot in said chamber may be conveniently removed.

The numerals 53 and 54 indicate projecting shelves or platforms attached, respectively, to the rear ends of the upper and lower fire-boxes, while 55 and 56 indicate corresponding shelves or platforms projecting horizontally from the tender one above the other and which, in connection with the usual aprons 58, form platforms from which the two fire-boxes are stoked or fired.

At the rear ends of the ash-pits 10 of the upper and lower fire-boxes are openings for the admission of atmospheric air to the un-

der sides of the grates 9, and in said openings are fitted doors 64 and 65, which may be independently opened and adjusted at any desired angle in order to regulate the admission of air to the fire-boxes. By such an arrangement of independent and adjustable draft-doors the drafts of the upper and lower fire-boxes may be so regulated that each will receive its proportionate amount of air for supporting the proper combustion of fuel in the fire-boxes, and, further, whenever one fire-box for any reason requires more than its normal share of the total draft such extra draft may be supplied by closing the draft-door of the other fire-box, the draft-door of the fire-box to be supplied with the extra draft remaining open, thus causing practically the entire force of the partial vacuum created by the exhaust or blower usually employed in locomotives (not shown) to be applied to the fire-box needing it. By such an arrangement the two fire-boxes are rendered practically independent of one another.

Under normal conditions the fire-spaces of the upper and lower fire-boxes are entirely separate and disconnected from one another, the damper 39 being closed and the dampers 43, 44, and 48 being open, so that the heat, gases, and products of combustion from the respective fire-boxes do not meet until they reach the common smoke-box 25. In order to consume the smoke, the smoke and products of combustion of one furnace when fuel is freshly added or combustion is otherwise imperfect therein are directed into and through the other furnace, which is at the time highly heated, the gases therein being in practically a perfect state of combustion. The smoke thus introduced into one of the fire-boxes becomes highly heated and is practically consumed, and the gases thereby formed mingle and pass off with the other gases generated from the fuel consumed in such fire-box. This operation is accomplished in the following manner: As soon as fuel has been fed, for example, to the lower fire-box 6 or just previous to such admission if any considerable quantity of fuel is to be admitted, the upper fire-box 8 being at the time highly heated and the combustion therein being practically perfect, the lowermost lever 42 is raised, thereby opening the damper 39. The rod 50 is then pushed forward, thus lowering or closing the damper 48. The gases and products of combustion in the lower fire-box being thus prevented from escaping in the usual way are drawn by the force of the exhaust-blower or natural draft up through the flue 38 and into the upper fire-box 8, where the smoke mixed with said gases and products of combustion is consumed and the resultant gaseous products pass off through the tubes 24 into the smoke-box. As soon as the fire in the lower fire-box has become practically free from smoke the damper 48 is raised or opened and the damper 39 is closed, whereby the two fire-boxes are again rendered independent of

one another. In similar manner when fuel has been or is about to be freshly fed into the upper fire-box, the lower fire-box at the time being highly heated and the combustion therein being practically perfect, the uppermost lever 42 is raised, thereby opening the damper 39, and the rod 45 is then pushed forward, unfolding and lowering the damper 43 44 and closing the ends of the tubes 24. The gases and products of combustion in the upper fire-box being thus prevented from escaping in the usual way are drawn by the force of the exhaust-blower or natural draft down through the flue 38 and into the lower fire-box, where the smoke mixed with said gases and products of combustion is practically consumed and the resultant products pass off through the tubes 17 and 29 into the smoke-box. As soon as the fire in the upper fire-box has become practically free from smoke the damper 43 44 is opened and folded up and back and the damper 39 is closed, whereby the two fire-boxes are again rendered independent of one another. Thus by alternately feeding fuel to the two fire-boxes and alternately opening and closing the dampers in the manner described an efficient and practical consumption of the smoke is effected. If desired, each of the dampers may be adjusted and held more or less open at any desired angle by means that will readily suggest themselves to those skilled in the art. The usual crown-bars and stay-bolts used in locomotive-boiler and fire-box construction are not shown in the accompanying drawings, but may be easily supplied in practice by those familiar with such construction.

Should it be desired to remove the lower fire-box and boiler, the detachable plates 33, forming the front and rear ends and the sides of the flue 32, are unbolted and removed, the two sections of the flue 38 are disconnected, the pipes 34, 35, and 36 are uncoupled, and, finally, the lower fire-box and boiler are unbolted and disconnected from the locomotive-frame, thus entirely detaching and disconnecting both internally and externally the lower fire-box and boiler from the upper fire-box and boiler and from the rest of the locomotive. When the lower boiler and fire-box have been removed, the drivers and their axles may be detached and removed from the frame in the usual manner, thus permitting each pair of drivers and their axle to be removed for the purpose of repairs and for returning in order to correct irregularities incident to the usual wear of the faces of the wheels.

Having described my invention, what I claim is—

1. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler and with a portion of the tubes

of the upper boiler, and a smoke-box disposed at the forward end of the locomotive and arranged to receive the gases and products of combustion from the fire-boxes after they

5 have passed through their respective boilers and before they enter the smoke-stack, substantially as described.

2. In a locomotive, the combination with an upper fire-box, and boiler, and a lower fire-box
10 and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler and with a portion of the tubes
15 of the upper boiler, a flue connecting the two fire-boxes, a damper in said flue, and means for shutting off the communication between the two boilers, substantially as described.

3. In a locomotive, the combination with an
20 upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with
25 the lower boiler and with a portion of the tubes of the upper boiler, a flue connecting the two fire-boxes, a damper in said flue, and means for closing the tubes in the upper boiler that are disconnected from the lower
30 boiler, substantially as described.

4. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other
35 and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, of means for causing at will the gases and products of combustion to pass from either one of the fire-boxes into the
40 other, substantially as described.

5. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other
45 and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, and means for causing at will the gases and products of combustion of both fire-boxes to pass through either boiler,
50 substantially as described.

6. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other
55 and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler and with a portion of the tubes of the upper boiler, of means for causing at will the gases and products of combustion to pass from the upper fire-box into the lower fire-box and from the latter through the lower boiler and through a portion of the tubes of the upper boiler, substantially as described.
60

7. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being

respectively arranged one above the other and the upper fire-box communicating with the upper boiler and the lower fire-box with
70 the lower boiler, said upper boiler being provided with an enlarged section at one end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes in the enlarged section of the upper boiler,
75 substantially as described.

8. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other
80 and the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of
85 the lower boiler with the rear ends of the tubes in said enlarged section of the upper boiler, a damper in said flue, a flue connecting said fire-boxes, and a damper in said flue, substantially as described.
90

9. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other,
95 the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes
100 in the enlarged section of the upper boiler, a damper in said flue, a folding sectional damper suspended over the front ends of the tubes in the upper boiler disconnected with the enlarged section, means for folding up
105 and unfolding said sectional damper to cover and uncover the ends of said tubes, a flue connecting the two fire-boxes, and a damper arranged in said last-mentioned flue, substantially as described.
110

10. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other,
115 the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, and the lower fire-box and boiler being removable, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of
120 the lower boiler with the rear ends of the tubes in said enlarged section of the upper boiler, a damper in said flue, a flue connecting the fire-boxes, and a damper in said flue, the said flues being formed in separable sections to permit the removal of the lower fire-box and boiler, substantially as described.
125

11. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other,
130 the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, and the lower fire-box and boiler

being removable, said upper boiler being provided with an enlarged section at its forward end, of a flue connecting the forward end of the lower boiler with the rear ends of the tubes in said enlarged section of the upper boiler, pipes detachably connecting the highest parts of the water-space of the lower fire-box with the water-legs of the upper fire-box, and a pipe detachably connecting the lower boiler with the enlarged section of the upper boiler, substantially as described.

12. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, of a downwardly and forwardly inclined flue-sheet forming the rear end of the lower boiler, and a fire-arch arranged in the forward end of the lower fire-box in rear of said flue-sheet and constituting in connection with the latter a combustion-chamber, said inclined flue-sheet operating to deflect downward a portion of the gases and products of combustion entering the combustion-chamber and to distribute the same through the tubes of the lower boiler, substantially as described.

13. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers be-

ing respectively arranged one above the other, the upper fire-box communicating with the upper boiler, and the lower fire-box communicating with the lower boiler, of a flue connecting the fire-boxes, a damper arranged in said flue, firing-platforms arranged one above the other for firing the fire-boxes, and means for operating said damper from either of the platforms at will, substantially as described.

14. In a locomotive, the combination with an upper fire-box and boiler and a lower fire-box and boiler, said fire-boxes and boilers being respectively arranged one above the other, the upper fire-box communicating with the upper boiler and the lower fire-box with the lower boiler, of a flue connecting the tubes of the lower boiler with a portion of the tubes of the upper boiler, a damper arranged in said flue, a damper controlling the tubes of the upper boiler that are disconnected with the lower boiler, firing-platforms arranged one above the other for firing the upper and lower fire-boxes, and means for independently operating said dampers from the firing-platforms, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM W. GREGG.

Witnesses:

J. HOWARD BURGESS,
ROSCIUS MORSE, Jr.