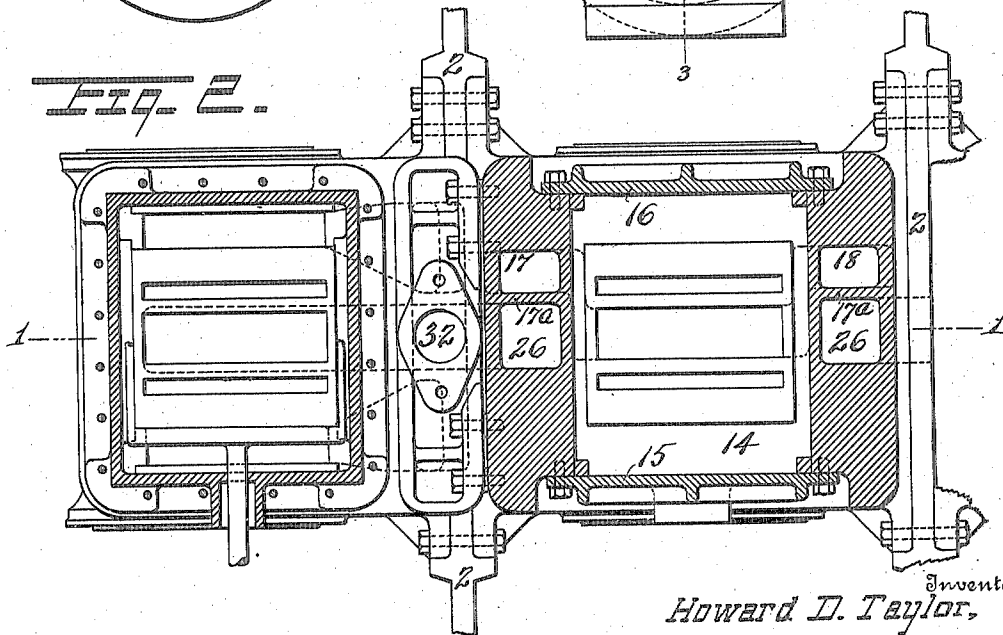
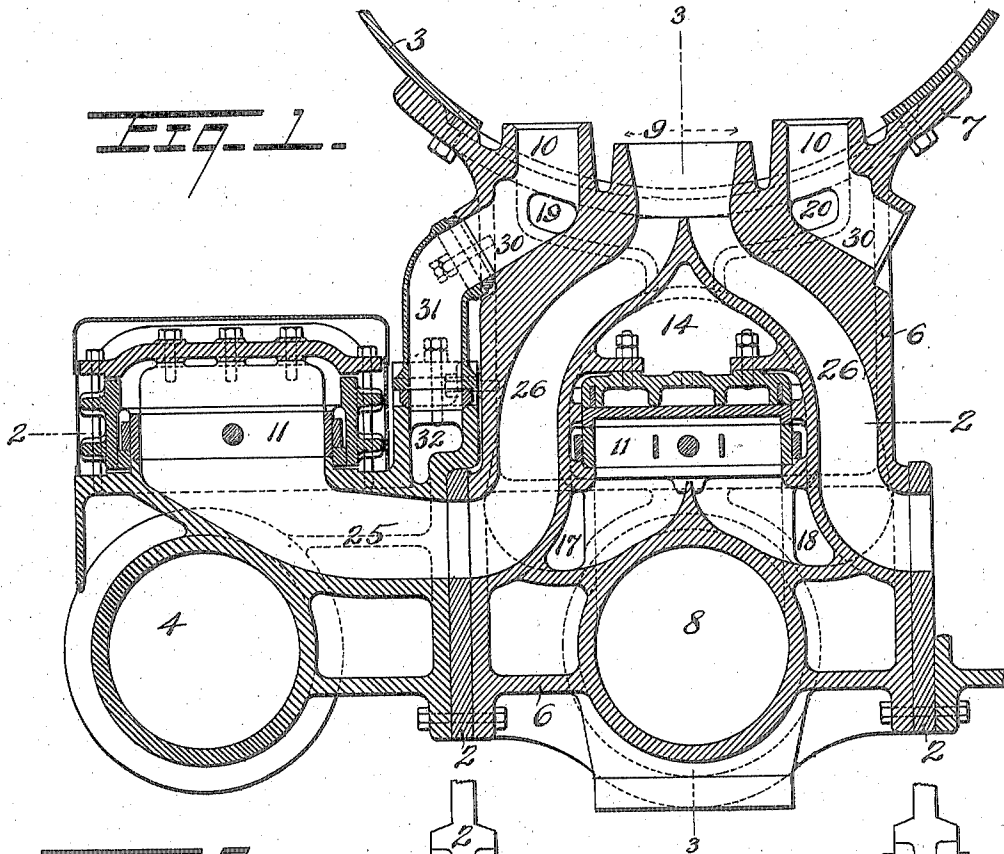


H. D. TAYLOR.
LOCOMOTIVE ENGINE.
APPLICATION FILED JAN. 18, 1908.

948,066.

Patented Feb. 1, 1910.

3 SHEETS—SHEET 1.



Inventor
Howard D. Taylor,

Witnesses

D. Stewart
J. C. Keffe

By

[Signature]

Attorney

948,066.

Patented Feb. 1, 1910.

3 SHEETS—SHEET 2.

Fig. 3.

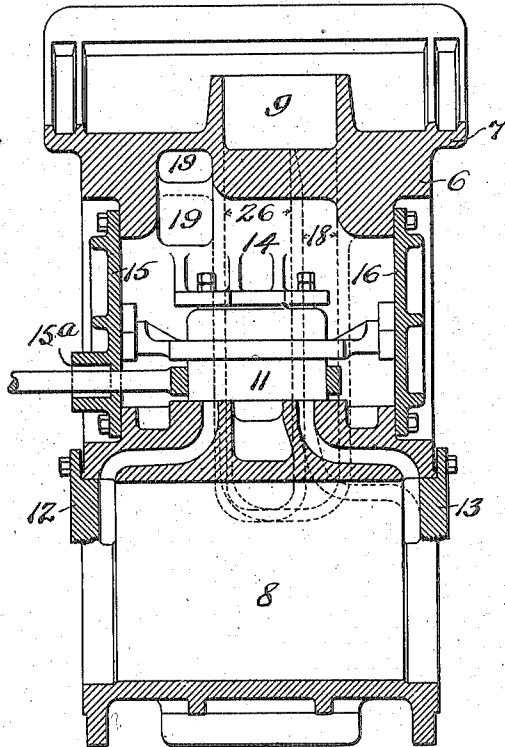
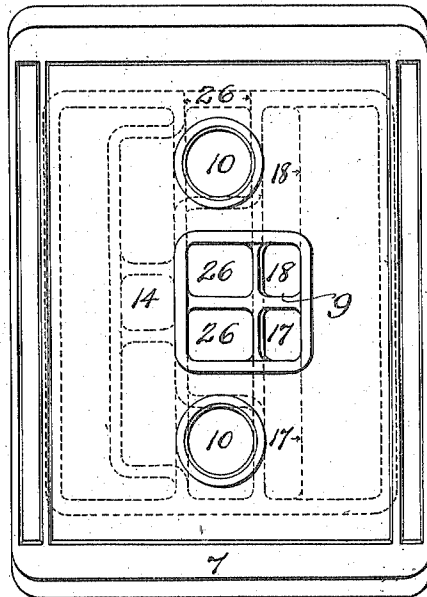


Fig. 4.



Howard D. Taylor,
Inventor

Witnesses.

D. M. Stewart
J. C. Sykes

By

[Signature]

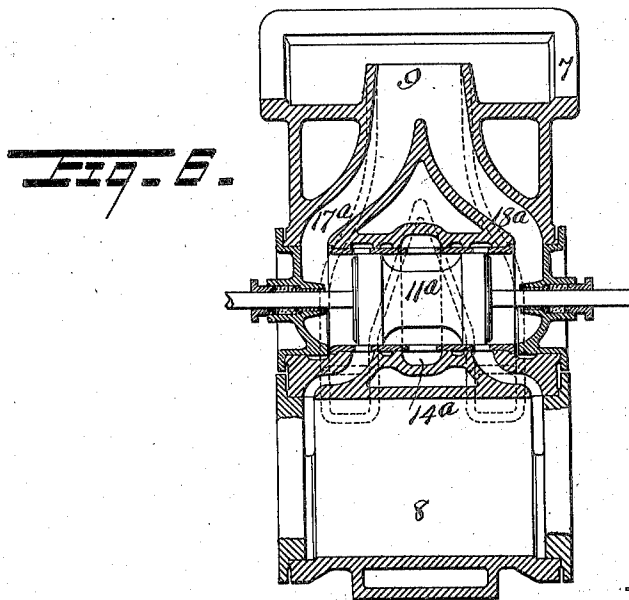
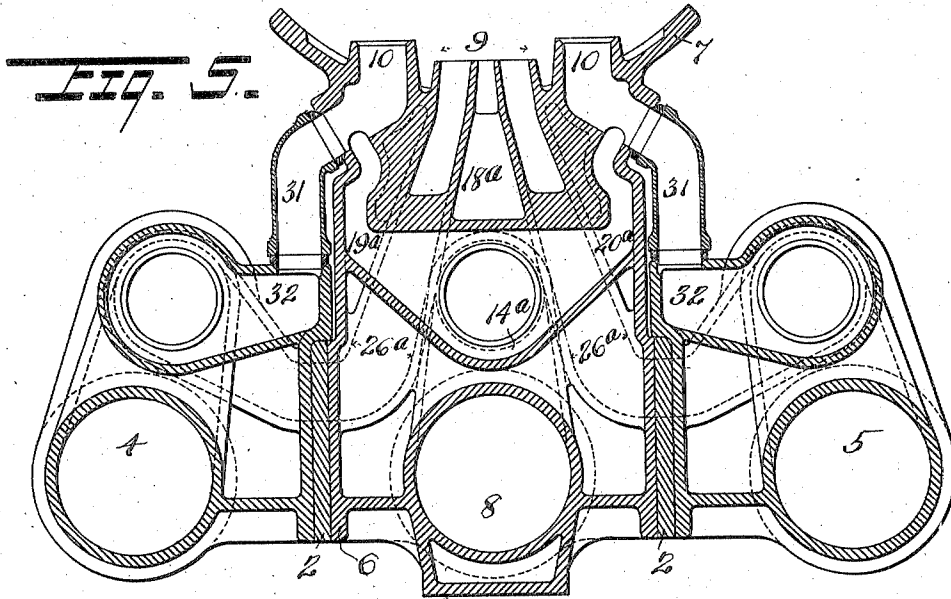
Attorney

H. D. TAYLOR.
LOCOMOTIVE ENGINE.
APPLICATION FILED JAN. 18, 1908.

948,066.

Patented Feb. 1, 1910.

3 SHEETS—SHEET 3.



Howard D. Taylor,
Inventor

Witnesses

D. M. H. Taylor
Calvin J. Fisher

By

Howard D. Taylor

Attorney

UNITED STATES PATENT OFFICE.

HOWARD D. TAYLOR, OF READING, PENNSYLVANIA.

LOCOMOTIVE-ENGINE.

948,066.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed January 18, 1908. Serial No. 411,430.

To all whom it may concern:

Be it known that I, HOWARD D. TAYLOR, a citizen of the United States, and a resident of the city of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Locomotive-Engines, of which the following is a specification.

My invention relates particularly to locomotive engines and it consists in the improved construction and coöperative arrangement of two separately formed outside cylinders with an additional cylinder located between the engine frames, as herein-
after fully described, the novel features being specifically pointed out in the claims.

The need of increased and better applied locomotive power, to provide for the quick starting and rapid movement of heavy traffic, is well known, and the desirability of locating an additional engine cylinder between the usual side cylinders, with suitable connection to a crank axle, has been recognized. My invention provides an improved construction whereby the advantages of such a general arrangement may be secured in a simple and satisfactory manner.

Figures 1, 2, 3, and 4, illustrate a front portion of a locomotive engine embodying my invention: Fig. 1 being a cross-sectional view through the cylinders on the line 1—1 of Fig. 2; Fig. 2 a horizontal section on the line 2—2 of Fig. 1; Fig. 3 a detail section on the line 3—3 of Fig. 1; and Fig. 4 a plan view of the saddle-casting. Figs. 5 and 6 illustrate a modified construction in which piston-valves are employed; Fig. 5 being a cross-sectional view similar to Fig. 1, and Fig. 6 is a central vertical section of the saddle-casting.

The parallel engine frames of a locomotive are indicated at 2, 2 and the smoke-box thereof at 3; a showing of these parts only of well-known locomotive construction being necessary to a full explanation of my invention, inasmuch as the engine connections and valve operating mechanisms employed in connection with the invention may be such as have heretofore been used.

Each of the side cylinders 4, 5, is shown located outside the frames 2—2 as usual, and is formed separate from the saddle casting 6, which latter extends between the frames 2—2 and connects them by means of its saddle-plate 7 to the smoke box 3. The additional cylinder 8 is formed as an integral

part of this saddle casting; and the saddle-plate 7 is provided with a middle exhaust opening 9 and with steam inlet openings 10—10 adapted for connection to the usual steam supply pipes. Each of the cylinders 4, 5, and 8, as shown, is provided with steam and exhaust ports and a controlling valve therefor as usual, and they are arranged to coöperate as a simple multiple-cylinder engine.

The outside cylinders 4 and 5, though formed separate from the saddle-casting 6 as already stated, are adapted to connect with the common exhaust opening 9, and steam supply openings 10—10 of said saddle casting, the special construction of which will be readily understood by reference to the drawings. The cylinder 8 is located in lower middle position in the saddle casting, and is shown as similar in construction to the separate side cylinders 4 and 5, each being provided (Figs. 1—4) with a balanced slide-valve 11, and cylinder heads 12, 13. The steam chest for cylinder 8, is formed in the middle casting 6 by an arched chamber 14 above said cylinder, which chamber is made wide open at both ends (front and rear) so as to permit of readily finishing the interior parts as required; removable heads 15 and 16 being provided to close the chamber, with a packing box 15^a in the rear head 15 for passage of the valve rod. Around the steam chamber 14 are formed exhaust passages 17, 18, which come together below the slide valve seat and communicate with the cylinder as usual, and are also brought together above the chamber 14 to connect with the middle exhaust opening 9. Steam passages 19 and 20 located to front and rear of said exhaust passages, lead from the steam supply openings 10—10 in the saddle plate, into the steam chamber 14, thus completely providing in a simple and advantageous manner for the satisfactory construction and operation of the additional cylinder 8.

To provide in like manner for the side cylinders 4 and 5 each of these is formed with a laterally extending exhaust passage 25, leading toward the saddle-casting, which latter is formed with a branch-exhaust passage 26 for each cylinder 4 and 5, arranged to communicate with the respective exhaust passages 25; this connection as shown being through an opening in the frame slab 2 to which both the side cylinders and the saddle casting are bolted. The exhaust passage 26

provided in the saddle-casting for each side cylinder, as shown, is separated by a partition wall from the adjacent exhaust passage 17 or 18 for the cylinder 8, said partition 5 being indicated in each case by the reference character 17^a, though all these passages come together in the middle exhaust opening 9 as indicated in Fig 4. To provide for the steam supply to the side cylinders, the 10 saddle-casting is also formed with branch steam passages 30, leading laterally from the steam passages 19 and 20 respectively; each of said branches being connected to one of the side cylinders, as shown, by a separately formed conductor pipe 31, arranged 15 exteriorly of the saddle-casting, and communicating through the steam passage 32 of said cylinder with the steam chest thereof. It will be seen that the additional cylinder thus provided in the saddle-casting, is 20 operated in the same manner as the side cylinders ordinarily employed, both the steam supply to all the cylinders, and the exhaust therefrom, being conveyed through passages 25 formed in the saddle-casting; and that the construction of the latter with its integrally formed cylinder, as well as of the separate side cylinders, is simple and convenient, as is also their coöperative arrangement. It 30 will be understood that the specific construction described may be readily modified without departing from my invention. For instance, it may be readily adapted, as indicated in Figs. 5 and 6, to the use of piston 35 valves instead of slide valves, or of different types of valves for the different cylinders as may be desired; the construction and operation of the piston valve 11^a therein substituted for the slide valve 11, being equally 40 well known, and the changes shown in the saddle casting construction as to the specific forms of the steam-chest chamber 14^a, steam passages 19^a and 20^a, and exhaust passages 17^a and 18^a with outside engine branches 45 26^a, being obviously made to correspond.

What I claim is:—

1. In a locomotive, the combination with spaced-apart engine frames and smoke box, of separate engine cylinders located outside 50 of said frames respectively, and a connecting saddle casting and third engine cylinder located between said frames and smoke box, said saddle casting having steam passages forming a common steam chamber for all of 55 said engine cylinders, and separate exhaust passages for said engine cylinders.

2. In a locomotive, the combination with spaced-apart engine frames and smoke-box, of a connecting saddle-casting between said frames and smoke-box having a saddle- 60 plate with two steam openings and an intermediate exhaust opening, an integrally formed engine cylinder with separate passage-ways communicating directly with said exhaust opening, and an integrally formed 65 steam chamber for said cylinder with separate passage-ways thereto communicating with the respective steam openings; and separately formed engine cylinders located 70 outside of said frames and each provided with passage-ways communicating respectively with a steam opening and the exhaust opening of the saddle-plate substantially as set forth.

3. In a locomotive, the combination with 75 spaced-apart engine frames and smoke-box, of a connecting saddle-casting between said frames and smoke-box having a saddle-plate with two steam openings and an intermediate exhaust opening, an integrally 80 formed engine cylinder with separate passage-ways communicating directly with said exhaust opening, and an integrally formed open-end steam chamber for said cylinder with separate passage-ways thereto com- 85 municating with the respective steam openings; separately formed engine cylinders located outside of said frames and provided with exhaust passage-ways communicating respectively with said exhaust opening in 90 the saddle-plate; and separately formed outside conduits connecting said steam passage-ways on the saddle-casting with those of the respective outside cylinders substantially as set forth. 95

4. In a locomotive, the combination with spaced-apart engine frames and smoke box, of separate engine cylinders located outside of said frames respectively, and a connecting saddle casting and third engine cylinder 100 located between said frames and smoke box, said saddle casting having a saddle plate formed with separated steam supply openings, passages connecting said openings and forming a common steam chamber for all of 105 said engine cylinders, and exhaust passages.

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

HOWARD D. TAYLOR.

Witnesses:

D. M. STEWART,
W. G. STEWART.