

No. 684,201.

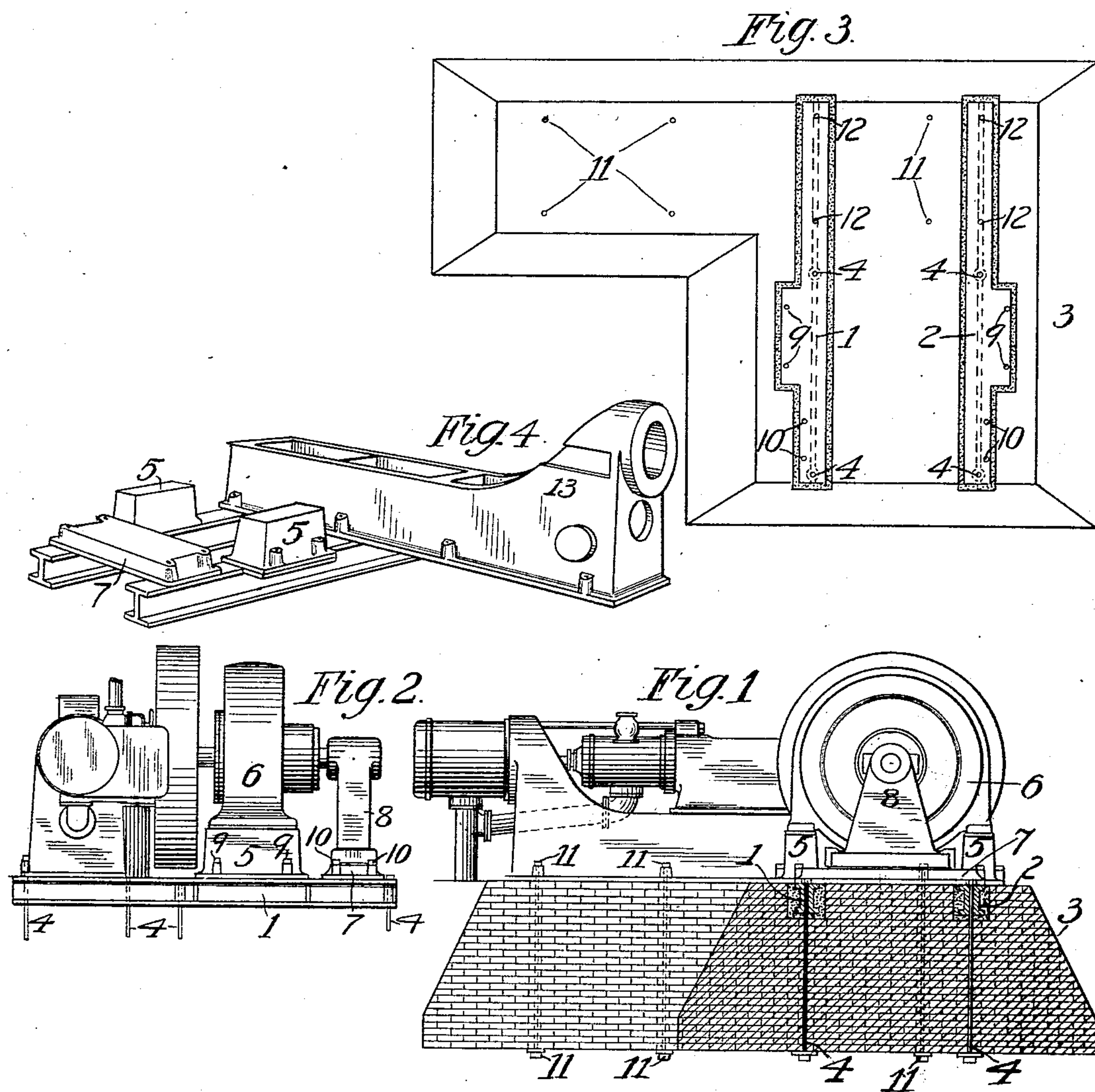
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J. DICK.

SUBBASE STRUCTURE FOR ENGINES OR GENERATORS.

(Application filed July 8, 1901.)

(No Model.)



WITNESSES:

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UNITED STATES PATENT OFFICE.

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SUBBASE STRUCTURE FOR ENGINES OR GENERATORS.

SPECIFICATION forming part of Letters Patent No. 684,201, dated October 8, 1901.

Application filed July 8, 1901. Serial No. 67,389. (No model.)

To all whom it may concern:

Be it known that I, JOHN DICK, a citizen of the United States, residing at Meadville, county of Crawford, State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Subbase Structures for Engines or Generators or other Machines, of which improvement the following is a specification.

10 The object of my invention is to provide a new and improved extended subbase for direct-connected or belted engines and electrical generators or other machines that may be coupled to the engine; and to this end my
15 invention consists of a new and improved construction whereby many objectionable features in the structures now in use are eliminated and the expense and time heretofore required in the erection of such engines and
20 machines are greatly reduced.

In the accompanying drawings, which illustrate an application of my invention, Figure 1 is a view showing an engine and direct-connected generator in side elevation and a portion of the foundation in section; Fig. 2, an
25 end elevation of the engine, generator, and subbase; Fig. 3, a plan view of the masonry foundation and a portion of the subbase structure; and Fig. 4, a perspective view showing
30 the subbase structure.

It has been heretofore the universal custom in high-speed direct-connected engines and generators to mount the main frame of the engine on a cast-iron subbase and to provide
35 on one side of the engine-subbase a cast-iron subbase extension for the electrical generator or other machine, which subbase extension is either cast in one piece with the engine-subbase or bolted to it, the latter being the more
40 usual construction and the only one that is admissible for large sizes. In center-crank engines this subbase extension must be large enough to provide room on it for the generator and its outer bearing, and in case the en-
45 gine is what is called a "side-crank" engine, in which the governor-wheel is located between the generator and the main frame of the engine, the subbase extension must be still larger in order to provide the additional
50 space required for the governor-wheel. This construction requires a large mass of cast-iron above the floor-line, which is altogether

unnecessary, as will be seen from my construction, and which is in all forms unsightly to even an ordinary observer, but more so to
55 the engineer or mechanic who sees in it a large mass of metal altogether out of proportion to its usefulness. The subbase extensions are sometimes so wide that it is impracticable to plane them if they are cast in one
60 piece. They must, consequently, be split through the middle, which increases the expense and the time required to make them.

In the construction where the subbase extension is bolted to the subbase, any settling
65 of the masonry foundation—such as frequently occurs, for example, if the corner of the foundation under the main engine at the crank end should settle—the subbase extension cannot settle, and the strain will then
70 be thrown on the bolts. This has occurred in actual practice, causing fracture of the subbase.

The construction heretofore employed is not only expensive, but annoying to the engine-manufacturer, who is frequently com-
75 pelled to make new patterns or modify existing patterns, as each make of generator differs from the others.

In my improved construction I provide two
80 I-beams 1 and 2, which are set in the masonry foundation 3 and extend the whole way across at its greatest width on top. These I-beams are set with their upper surfaces flush with the floor-line, and after they are leveled up by means of iron wedges underneath
85 and the foundation-bolts 4, which pass through the I-beams, are securely fastened and the I-beams are grouted in. This is done at the time of building the masonry foundations and
90 before the engine arrives. A perfectly level surface is thus provided, and it is then a very simple and easy matter to level and secure thereto the subbase or the main frame of the engine and the sole-plates for the generator
95 and outer bearing. The I-beams are planed on top before being put in, and the sole-plates 5 for the generator 6 and the sole-plate 7 for the outer bearing 8 are planed on top and bottom and secured to the I-beams 1 and
100 2 by means of bolts 9 and 10, and there is very little adjusting for the erecting engineer to do in getting his engine, generator, and outer bearing in perfect alinement. In the

other form of construction heretofore employed the adjustment is very difficult, and a great deal of time and care are required in bedding down an engine with the subbase extension and grouting the whole thing in. The subbase 13 of the engine in addition to being secured by means of the bolts 11 through the masonry foundation may also be secured to the I-beams by means of tap screws or bolts at the points 12, and the engine-frame and the sole-plates for the generator and for the outer bearing being rigidly secured to the I-beams will therefore be rigidly secured together and to the masonry foundation.

The employment of the I-beams, as shown in my construction, will correct any tendency of the foundation to settle, as one corner of it cannot settle without breaking the I-beams.

Where the old form of subbase extension is employed, the engine-builder is not able to do anything toward getting out his engine until he gets a drawing from the maker of the generator showing the exact form and size of the subbase extension. This sometimes causes a delay of three or four weeks before the necessary information is obtained to enable the builder to go ahead and make or alter his patterns for the necessary castings. The worst feature, however, is the continual changing of patterns or making of new subbase-extension patterns and the valuable storage-room taken up by the multitude of subbase-extension patterns. In my improved construction these disadvantages of delay and extra pattern work are eliminated, as I do not have to be particular as to the exact length of the I-beams, inasmuch as they are bedded down flush with the floor-line, and it is a comparatively simple matter to get out the sole-plates that support the generator and the outer bearing. My improved construction will save a large amount of time and expense in construction and will require much less time for the erecting-engineer in setting up the engine and generator.

It will be obvious that the application of my improvement is not limited to a construction in which an electric generator is employed, but that it is equally applicable to constructions in which the engine is similarly connected to another kind of machine, and my claims are therefore intended to cover such application of my improvement.

My improvement is also applicable to an engine which is belted to a generator or other machine and which is provided with an outer bearing.

The subbase or base of the engine or the main frame or a sole-plate or bed-plate therefor may rest directly on the I-beams, and my invention is not limited in its application to any particular construction of engine-base, subbase, bed, or frame by whatever term it may be designated, and is applicable to constructions in which two or more of these parts

may be formed integral with one another or otherwise rigidly secured together, and the parts referred to as "sole-plates" may be of any desired height or form to constitute a support for the bearing proper or for the generator or other machine.

I claim as my invention and desire to secure by Letters Patent—

1. A foundation for an engine, comprising a masonry foundation, beams bedded therein and secured thereto, an engine frame or subbase resting on the beams and a sole-plate for an outer bearing, secured to the beams.

2. A foundation for an engine, comprising a masonry foundation, beams bedded therein and secured thereto, an engine frame or subbase resting on and secured to the beams and a sole-plate for an outer bearing, secured to the beams.

3. A foundation for an engine and generator, or other machine to which the engine may be connected, directly, or by belting, comprising a masonry foundation, beams bedded therein and secured thereto, an engine frame or subbase resting on the beams, and sole-plates, for the generator, or other machine, and for an outer bearing, secured to the beams.

4. A foundation for an engine and generator, or other machine to which the engine may be connected, directly, or by belting, comprising a masonry foundation, beams bedded therein and secured thereto, an engine frame or subbase resting on and secured to the beams, and sole-plates, for the generator, or other machine, and for an outer bearing, secured to the beams.

5. A subbase, for an engine and generator, or other machine to which the engine may be connected, comprising beams grouted in on a masonry foundation and having an engine frame or subbase rigidly secured thereto, sole-plates for a generator, or other machine, secured to the beams, and a sole-plate for a bearing also secured to the beams.

6. A subbase for a direct-connected engine and generator, or other machine to which the engine may be connected, comprising beams grouted in on a masonry foundation and having an engine frame or subbase resting thereon, sole-plates for a generator, or other machine, secured to the beams, and a sole-plate for a bearing also secured to the beams.

7. A masonry foundation, I-beams bedded thereon and grouted in, an engine frame or subbase extending transversely of and secured to the beams, sole-plates, for a generator, or other machine, and for a bearing, also secured to the beams, and means whereby the beams and the engine frame are secured to the masonry foundation.

8. A masonry foundation, I-beams bedded thereon and grouted in, an engine frame or subbase extending transversely of and resting on the beams, sole-plates, for a generator, or other machine, and for a bearing, secured to the beams, and means whereby the beams

and the engine-frame are secured to the masonry foundation.

5 9. A rigid subbase structure for an engine, comprising two beams, a main frame, or subbase for the engine resting on and secured thereto, and a sole-plate for a bearing secured to the extension of the beams on one side of the engine frame or subbase.

10 10. A rigid subbase structure for a connected engine and generator, or other machine to which the engine may be connected, comprising two I-beams, a main frame or subbase, for the engine resting on and secured thereto, sole-plates for the generator secured
15 to the extension of the beams on one side of the engine frame or subbase, and a sole-plate for a bearing, secured to the beams outside of the generator sole-plates.

11. A rigid subbase structure for a direct-

connected engine and generator, or other machine to which the engine may be connected, 20 comprising two I-beams, a horizontal main frame, or subbase, for the engine resting on and secured thereto, sole-plates for the generator, or other machine, secured to the extension of the beams on one side of the engine frame or subbase, a sole-plate for an 25 outer bearing, secured to the beams outside of the sole-plates of the generator, or other machine, and a masonry foundation in which the I-beams are embedded and grouted in. 30

In testimony whereof I have hereunto set my hand.

JOHN DICK.

Witnesses:

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J. D. SAYER.