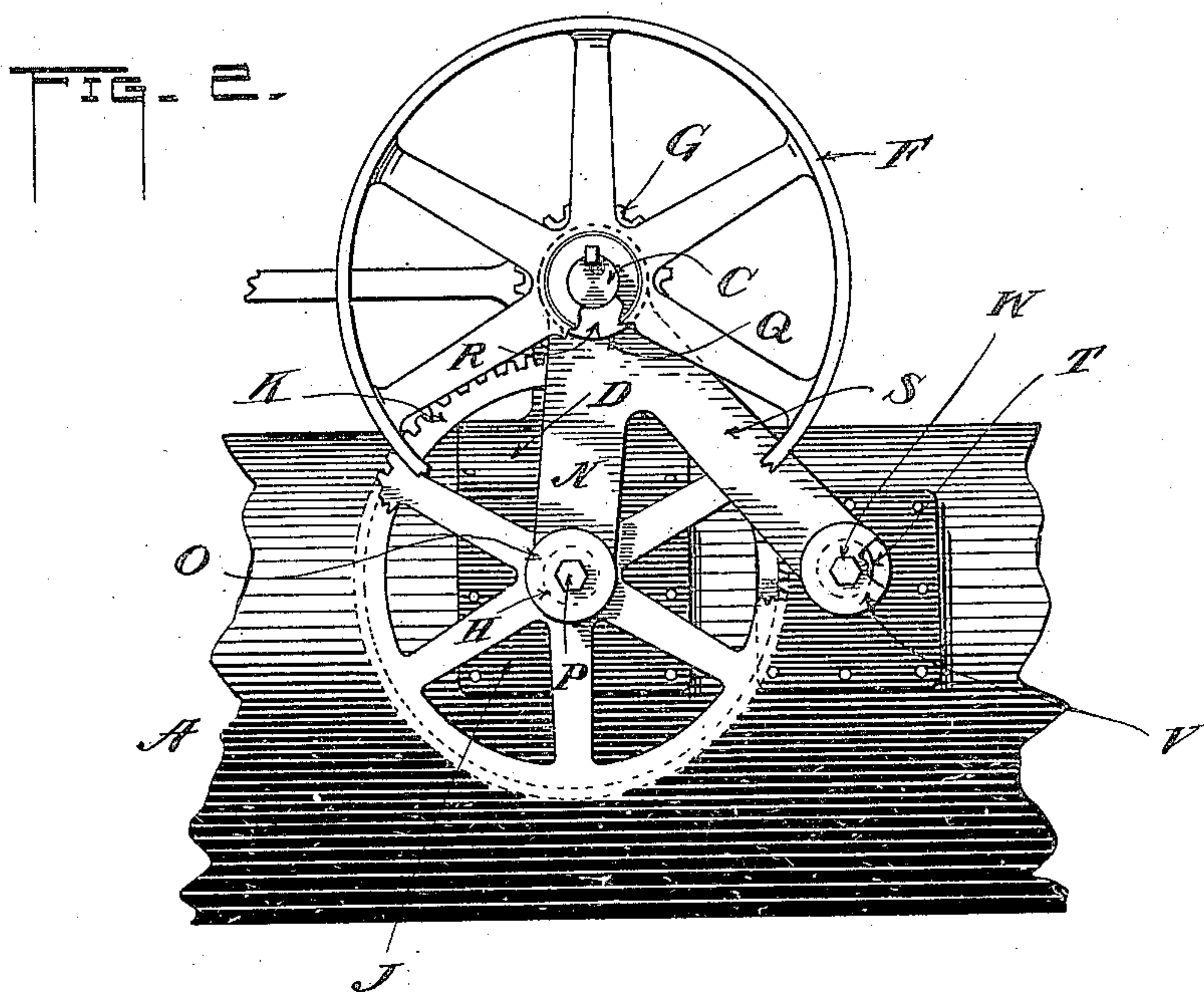
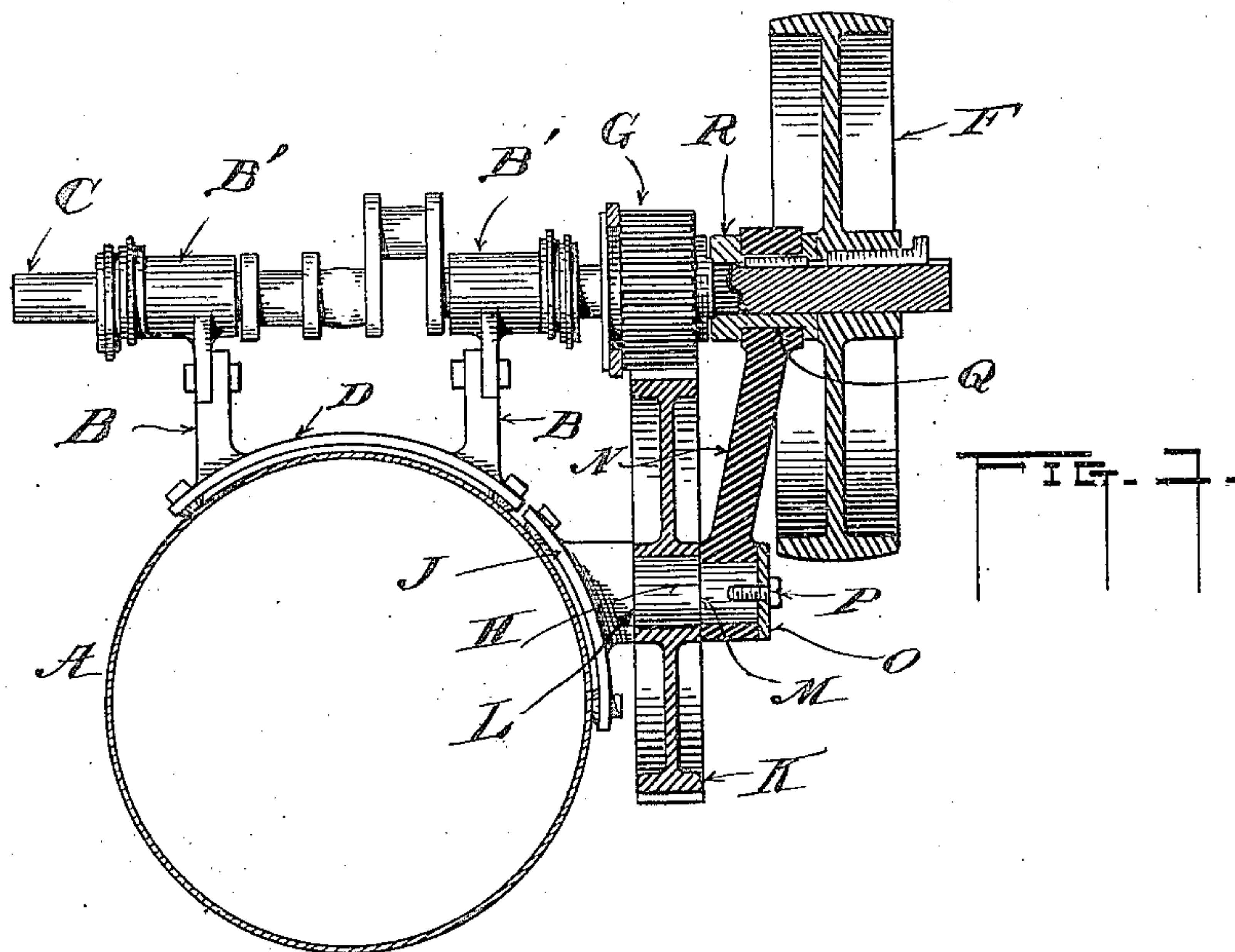


No. 875,324.

PATENTED DEC. 31, 1907.

W. H. COLEAN.  
TRACTION ENGINE CONSTRUCTION.  
APPLICATION FILED JULY 2, 1906.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

WILLIAM HENRY COLEAN, OF PEORIA, ILLINOIS.

## TRACTION-ENGINE CONSTRUCTION.

No. 875,324.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed July 2, 1906. Serial No. 324,347.

*To all whom it may concern:*

Be it known that I, WILLIAM HENRY COLEAN, citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Traction - Engine Construction; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention pertains to engine construction and particularly to the improvement of engines of that type known as "threshing engines," but such invention is applicable also to engines of other kinds as well.

The primary object of the present invention is to provide a peculiar construction and arrangement of parts for rigidly supporting and bracing the shaft of an engine.

Another object is to provide a form of bracing for the shafts of an engine of the class mentioned so that there can be no lateral shake and that they will be held in perfect alinement.

A further object is to improve traction engine construction over that ordinarily employed.

Another object consists in providing bracing means for shafts on which wheels are carried and designed to intermesh, said means firmly holding the shafts a fixed distance apart so as to prevent any spring therein.

A further object is to provide auxiliary bearings near the ends of the shafts where the most strain comes to prevent springing thereof and the cutting out of their bearings caused by lateral motion due to said springing.

The invention consists further in important details of construction as will be hereinafter described and pointed out in the appended claims.

In the accompanying drawing, Figure 1 is a transverse section of the boiler of a traction engine showing the usual engine shaft and a stub shaft, and a brace interposed between the two shafts and having bearings for the latter members. Fig. 2 is a side elevation of a portion of the boiler of an engine and its shafts showing my invention in connection therewith.

In the figures the letter A indicates the boiler, upon the top of which are two supports B which carry the bearing B' for the engine shaft C, said supports being formed

integral with or secured to a plate D securely bolted to the boiler in substantially the position shown. The said engine shaft extends beyond the boiler for some distance as is customary, and carries at its extremity the usual belt pulley F, while inward therefrom and adjacent to one of the bearings just mentioned, is a pinion gear G carried on said shaft. Below the shaft C just mentioned is a stub-shaft H formed integral with a plate J bolted to the side of the boiler substantially as shown, said stub-shaft H carrying a large gear K adapted to mesh with the pinion gear G just described.

Since the construction of traction engines is well known and understood by those familiar with such implements, I will not go further into the various details entering thereinto, but will confine myself to my invention after first making a statement of conditions as they exist at this time.

It will be noted that in Fig. 1 the cranks of the engine shaft are immediately above the boiler and between the bearings B' B', the said cranks being located between the latter for obvious reasons, while the end of the shaft carrying the driving pinion G and the belt pulley F are outside the bearings. This construction is usually found in traction engines, the shaft having an extension outside the usual bearing to avoid the boiler or other support so as to receive the necessary power-imparting wheels which could not otherwise be positioned so as to drive other wheels either by meshing therewith or by driving them by means of belts. In thus having the great weight of the wheels F and G, and in fact, the weight of the free end of the shaft itself far out from the bearing B' it is evident that when revolving at high speed there will be considerable springing motion to the shaft due to centrifugal force. Opposed to this force is that of the pull exerted upon the belt pulley in performing its work in driving the separator or other machine. In addition to this also, is the tendency of the shaft and its pinion G to spring away from the large gear K in driving it. The gear K is connected to the driving mechanism used in moving the engine from place to place, said gear setting up considerable resistance to the force employed in driving it and in consequence the said shaft naturally springs in the attempt of the pinion to leave said gear.

The various strains upon the shaft result in "cutting out" the bearings and the shaft



is finally out of alinement. It is with a view to preventing this and making a longer lived machine that the arrangement illustrated is produced, and it is desired to make it known  
 5 that the idea is adaptable to other arts and for supporting and bracing a plurality of shafts as well as the one single shaft for engines as herein described.

The stub-shaft or stud H hereinbefore described has a shoulder at L against which the  
 10 hub of the gear K bears and outside the hub the shaft is reduced in diameter leaving a shoulder M. Upon the reduced end of the shaft is slipped the lower end of a brace N  
 15 bored to fit said reduced end, the brace being followed by a retaining plate O secured upon the end of the shaft by a set screw P or like arrangement. The brace N described is  
 20 bored at its upper extremity at Q and surrounds, in the present case, a clutch member R used as a driving connection from the shaft through the pinion G to the gear K. However, the brace may form the bearing  
 25 for the shaft instead, and in fact, any other arrangement may be used so long as the outer end of this shaft is given a proper bearing and support. Made integral with or bolted to the brace N is an auxiliary brace member S  
 30 extending away from the former at an angle substantially as shown, the same being secured to a stud, the end of which is indicated by T in dotted lines in Fig. 2 being formed  
 35 with a plate U bolted to the boiler, said stud and plate being in all respects similar to the stud or stub-shaft H, the said stud T not being shown in detail since the said stud H answers as will be understood. The lower end  
 40 of the brace T is bored to fit over the end of its stud and a plate V corresponding to O holds said brace in position by the use of a bolt W.

By this construction and arrangement it is at once seen that the shaft C is given a  
 45 bearing near its end to support the weight of the members which it carries and also that there can be no spring thereof in any direction due to any cause. It is also noted that in employing the auxiliary brace portion S movement of the shaft in directions  
 50 other than in the direction of a line passing through the stud H and the said shaft, is prevented. It is however, possible to make the outer end of the said stud H of a form other than round and have the hole  
 55 in the brace N to correspond to prevent rocking motion between the said brace and stud and thus also prevent any shaft movement. Thus the auxiliary brace S could easily be dispensed with. It is seen that a bearing is  
 60 provided in an engine that is detachable so that any of the parts can be removed for repairs or renewal. The stub-shaft H being short a very substantial support for the shaft C is provided. A special stud could be used  
 65 instead of the stub-shaft H since it is not

absolutely necessary to secure the brace to the latter; although this method is preferred.

Heretofore so far as is known, a construction for the purposes herein described has not been used on traction engines, nor in  
 70 fact, in other lines of machinery that is to say, the art does not disclose, in the class to which my device applies, a shaft having a heavy pulley-wheel or a gear-wheel the outer end of which shaft is supported by an aux-  
 75 iliary bearing for preventing the shaft from springing due to the forces hereinbefore named. There is, however, in this class, a device of which I am apprised, whose shaft carries certain wheels to constitute a fric-  
 80 tion-device but these wheels must necessarily revolve at a slow rate of speed to be of any use for the purpose for which they are intended and there can be no springing in the  
 85 shaft due to centrifugal force nor to direct thrust on the shaft at right angles thereto. But it is my purpose to provide a bearing outside the main bearing which will support the shaft-end, both to prevent springing  
 90 thereof caused by such centrifugal force and also because of the tendency of the pinion G to separate from the gear K thus springing the shaft rather than to drive said gear and therefore,

What I claim and desire to secure by  
 Letters Patent is;

1. The combination in a traction engine of the usual engine shaft and its wheels, the usual bearings for the shaft, an auxiliary bearing for supporting that end of the shaft  
 100 which carries the wheels, a stud on the engine, and a wheel carried thereon to be driven by one of the wheels on the shaft, the auxiliary bearing being detachably secured to the stud and supported by said  
 105 stud for the uses and purposes set forth.

2. The combination in a traction engine of the engine shaft, the usual bearings therefor, a wheel carrying stud on the engine the wheel adapted to be driven from the shaft, a  
 110 member detachably secured to the stud and providing a bearing for supporting the shaft at its end for the purposes described.

3. The combination in a traction engine of the engine shaft and its usual bearings, of  
 115 the auxiliary bearing for supporting and carrying the wheel-weighted end of the shaft, the same having two extensions, the stub-shaft on the engine to which one of such extensions is attached, and a stud also on the  
 120 engine to which the remaining extension is attached for the uses and purposes described.

4. The combination in a traction engine of the engine shaft, bearings therefor, a stub-shaft on the engine, a stud also on the en-  
 125 gine; auxiliary bearings for the outer end of the engine shaft, said bearing having depending extensions, the same being attached to the said stub-shaft and stud as described and means for retaining the extensions upon  
 130



the last described members and for permitting their removal for the purposes described.

5 5. In a traction or other engine, the engine-shaft and bearing for carrying it, a wheel carried on said shaft outside the bearings, and an auxiliary bearing and support adjacent to such wheel the same being detachable for the purposes stated.

10 6. In a traction or other engine, the engine-shaft and bearings therefor, two wheels on an extension of the shaft outside the first said bearings, and an auxiliary bearing between said wheels for supporting such extension.

15 7. The combination in a traction or other engine of bearings mounted thereon, a shaft

journaled therein, and having an extension beyond such bearings and extending also beyond the engine, power-imparting wheels carried on the extension, a wheel carried by the engine with which one of the said power-imparting wheels is in engagement, a shaft for the said wheel, and means for holding the two shafts relatively rigid for the purposes set forth. 20 25

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

WILLIAM HENRY COLEAN.

Witnesses:

R. H. JAMISON,  
JOHN J. ARNOLD.