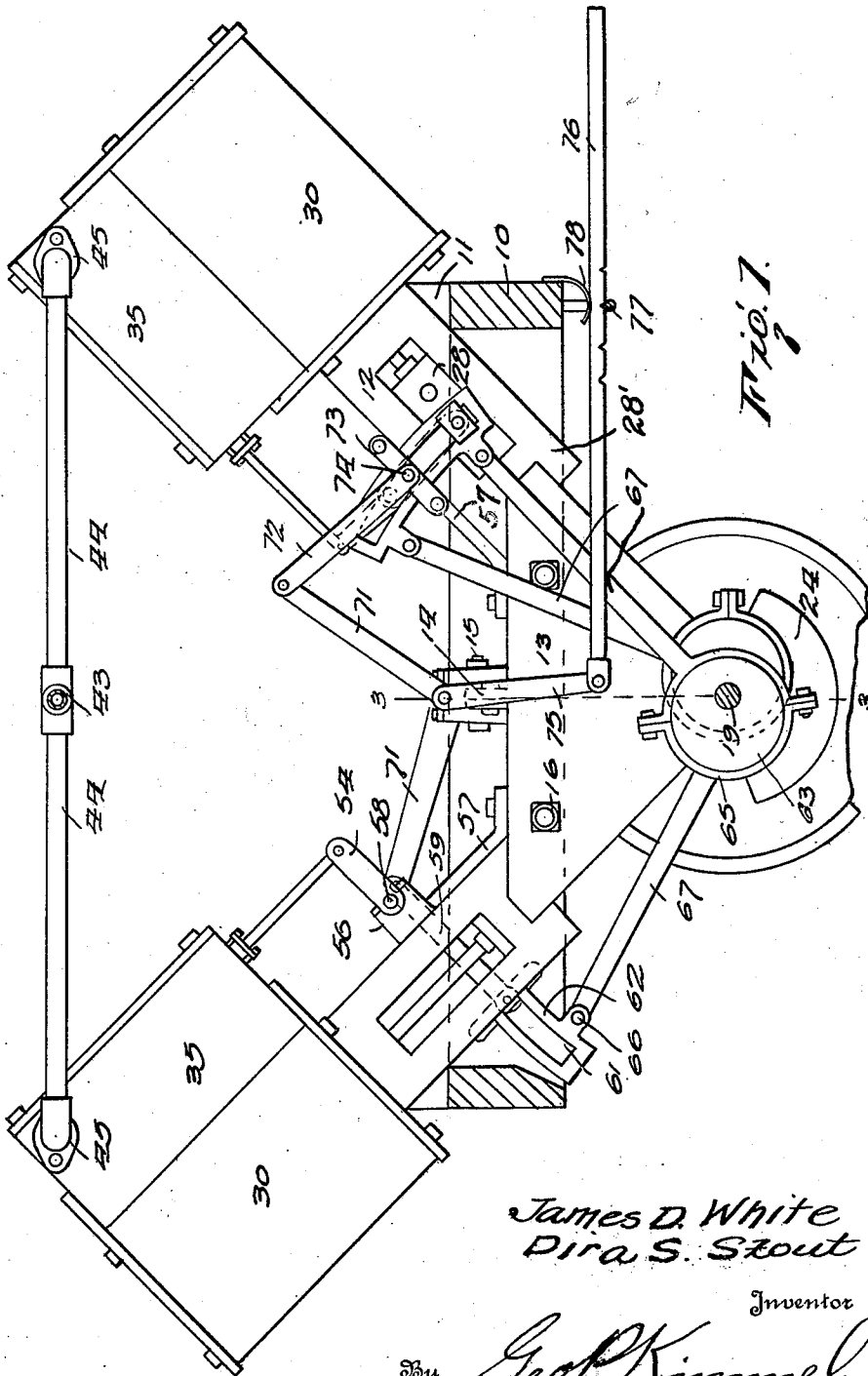


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STEAM ENGINE.
APPLICATION FILED JULY 6, 1918.

1,428,464.

Patented Sept. 5, 1922.

3 SHEETS—SHEET 1.



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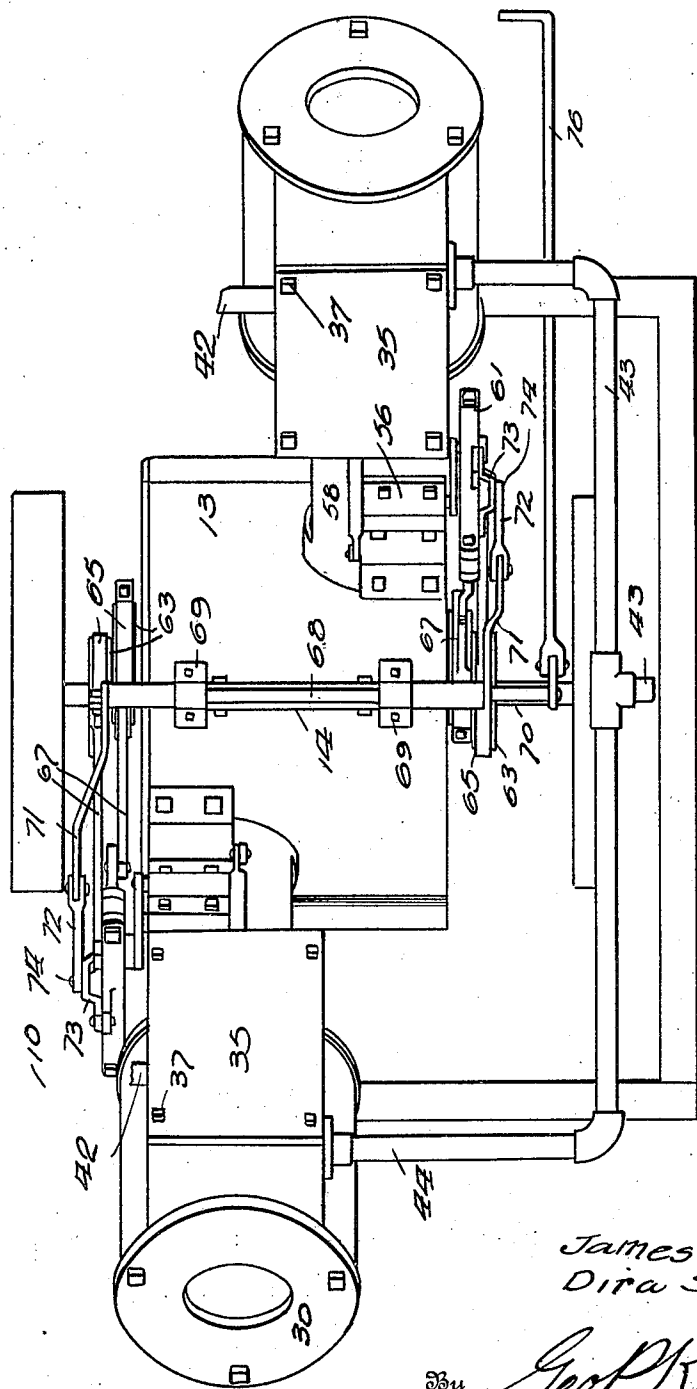


Fig. 2.

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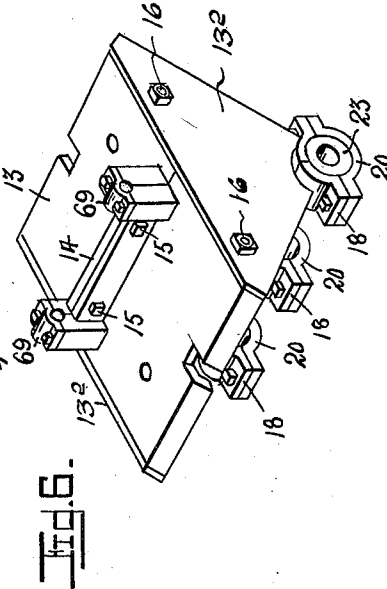
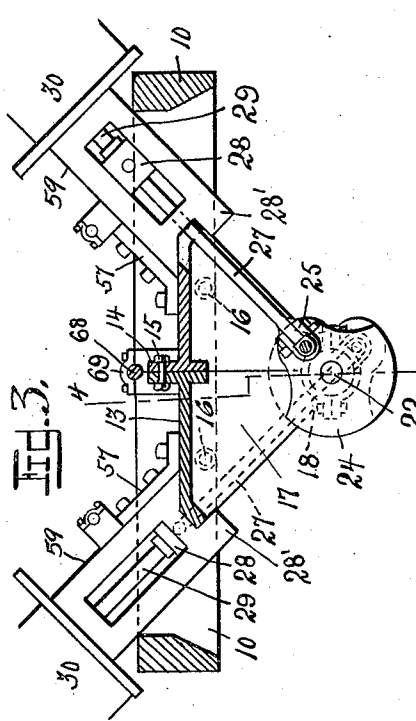
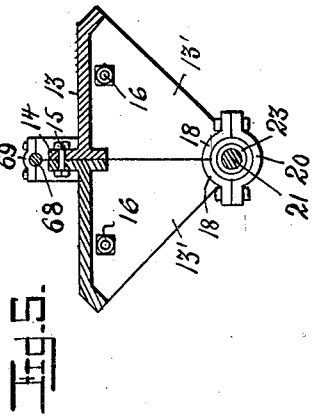
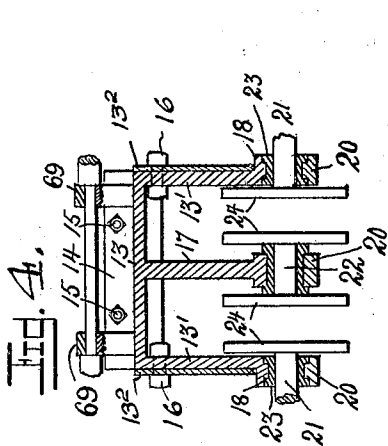
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Inventors,

J. D. WHITE,
D. S. STOUT,

By *Geo. Kimmel*
Attorney

UNITED STATES PATENT OFFICE.

JAMES D. WHITE AND DIRA S. STOUT, OF NALLEN, WEST VIRGINIA.

STEAM ENGINE.

Application filed July 6, 1913. Serial No. 242,590.

To all whom it may concern:

Be it known that we, JAMES D. WHITE and DIRA S. STOUT, citizens of the United States, residing at Nallen, in the county of Fayette and State of West Virginia, have jointly invented certain new and useful Improvements in a Steam Engine, of which the following is a specification.

This invention relates to steam engines and more particularly to those especially adapted for use in connection with locomotives of the geared type, the primary object of the invention being to provide an improved steam engine and gear mechanism which will result in greater efficiency, particularly when the locomotive is going up and down grades or moving around short curves.

With the above and other objects in view, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described herein and set forth with particularity in the claims appended hereto.

Reference is had to the accompanying drawings forming a part of this application, in which like reference characters indicate the corresponding parts throughout the several views, in which—

Figure 1 is an end elevation partly in section, of the improved steam engine.

Fig. 2 is a plan view thereof.

Fig. 3 is a longitudinal section on a reduced scale of the improved apparatus.

Fig. 4 is a transverse section on the line 4—4 of Fig. 3.

Fig. 5 is a sectional detail of a part of the supporting body or frame.

Fig. 6 is a perspective view of the supporting platform and its attachments.

The improved engine is designed more particularly for use in connection with the class of geared locomotives used in large manufactories where special railway tracks are employed for carrying material from place to place, and in which short and sharp curves or grades are encountered. These locomotives are usually equipped with twin cylinders operating on a single crank shaft supported longitudinally of the boiler and frame, and coupled to the driving axles of the track wheels by suitable gearing, and thus called "geared locomotives."

The present invention is for certain improvements on this class of locomotives, and

comprises a crank casing or support including a platform or upper horizontal portion 13 and a plurality of outer vertical webs 13' and an intermediate vertical web 17. The platform and webs are in coacting sections engaging at their confronting edges, the platform sections having upwardly directed flanges 14 connected by bolts 15, and the outer webs supported by clamp plates 13" with bolts or other fastening devices as shown at 16.

The supports 13' and 17 thus produce the supporting structure and crank case in which the crank shaft is journaled.

The outer edges of the webs 13' and 17 are inclined inwardly and downwardly and terminate in shaft bearings 18, each bearing having a bushing or the like 23 to receive the crank shaft, which is formed in three sections, an intermediate section 22 supported in the bearing of the intermediate web 17, and outer sections 21 supported in the bearings of the outer webs 13'.

The confronting terminals of the shaft sections are provided with crank or face plates 24 being thus arranged in pairs, and each pair coupled by a wrist pin to respectively receive the straps 25 of connecting rods 27 of the engines.

The wrist pins are arranged at diametrically opposite sides of the pairs of face plates, so that the engines will be prevented from stopping on the center, as will be obvious.

The bearings for the crank shaft sections include suitable holding caps as shown at 20.

The cylinders are represented at 30 and are arranged in divergent relation as shown. Each cylinder is provided with an extension 59 having openings to form guides for the cross heads 28.

Each extension 59 is formed with a projection 28' extending beneath the adjacent edge of the platform 13, and coacting with an angular strap or bracket 57 attached to the extension 59 and to the platform, as shown. By this means the cylinders, the extension and the platform are firmly united and held from displacement under the severe strains to which they are subjected when in use.

The coupled cylinders and the crank shaft support, are mounted upon a suitable bed frame, a portion of which is represented at 10, the extensions 12 being connected to the frame by brackets indicated at 11.

The preferred embodiment of the inven-

tion is disclosed in the drawings and set forth in the specification, but it will be understood that any modifications within the scope of the claimed invention may be
5 made in the construction without departing from the principle of the invention or sacrificing any of its advantages.

What is claimed is:—

1. In a motor, a crank shaft support including coacting sections formed of upper platform members and a plurality of supporting webs including outer webs in spaced relation depending from the platform members and engaging edge to edge and with
10 bearings for the crank shaft at their lower ends, clamp members connected to the outer webs to bind the sections together, ribs extending upwardly from said platform members and engaging face to face, fastening
15 devices operating through said ribs, cylin-

ders in diverging relation, and cross head guides between said cylinders and supporting sections and connected thereto.

2. In a motor, a crank shaft support comprising a platform and a plurality of supporting webs depending from the platform in spaced relation and having crank shaft bearings at their ends, cylinders in diverging relation to said support, and cross heads guides between said cylinders and support,
25 each cross head guide being provided with a projection bearing beneath the supporting webs, and angular clamp plates connecting the cross head guides to the platform members at points opposite to the projection.
30

In testimony whereof, we affix our signatures hereto. 35

JAMES D. WHITE.
DIRA S. STOUT.