G. A. GILBERTSON.

ENGINE CYLINDER SUPPORT.

APPLICATION FILED APR. 4, 1916.

1,294,787. Patented Feb. 18, 1919.

Fig. 1.

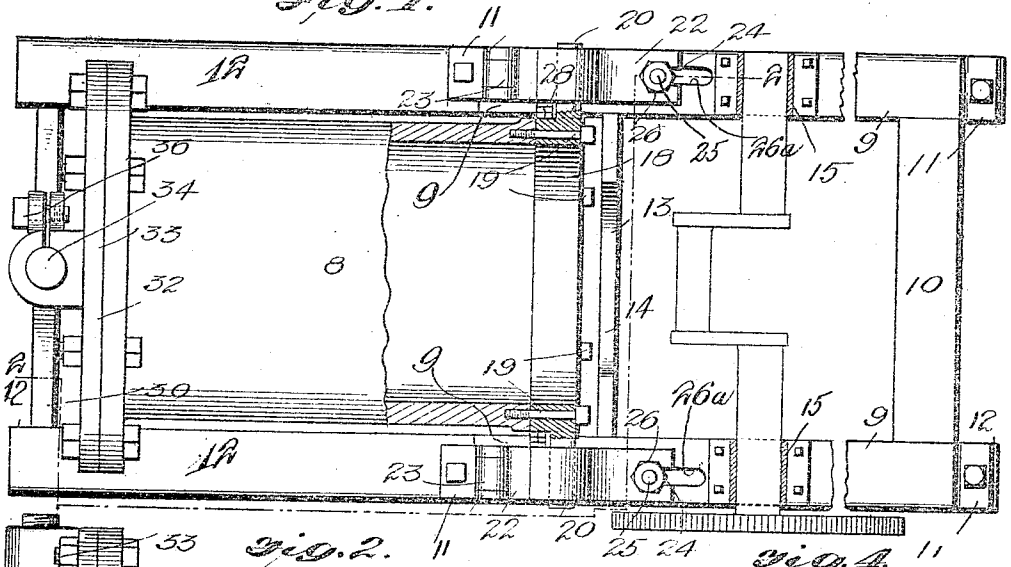


Fig. 2.

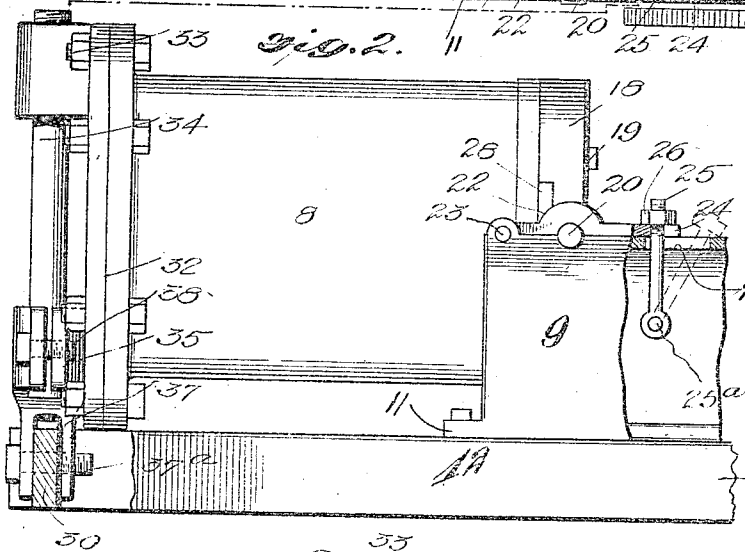


Fig. 4.

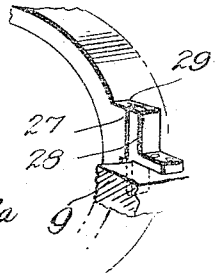


Fig. 6.

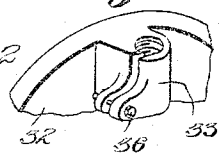


Fig. 3.

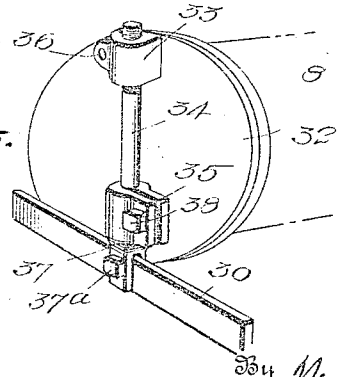
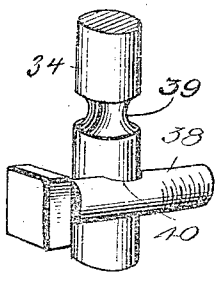


Fig. 5.



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UNITED STATES PATENT OFFICE.

GUSTAV A. GILBERTSON, OF BENSON, MINNESOTA.

ENGINE-CYLINDER SUPPORT.

1,294,787. Specification of Letters Patent. **Patented Feb. 18, 1919.**

Application filed April 4, 1916. Serial No. 88,938.

To all whom it may concern:

Be it known that I, GUSTAV A. GILBERTSON, a citizen of the United States, residing at Benson, in the county of Swift and State of Minnesota, have invented new and useful Improvements in Engine-Cylinder Supports, of which the following is a specification.

The support which is the subject-matter of the present application for patent is designed more particularly for use in connection with internal-combustion engines having one cylinder which is horizontally positioned.

The object of the present invention is to provide a cylinder support which will firmly hold the cylinder, and which is so constructed that the cylinder can be readily leveled up, and also easily and quickly mounted in place and removed.

With the object stated in view, the invention consists in a novel combination and arrangement of parts to be hereinafter described and claimed, and in order that the same may be better understood, reference is had to the accompanying drawing, in which—

Figure 1 is a plan view of the support, partly broken away and in section;

Fig. 2 is a section on the line 2—2 of Fig. 1;

Fig. 3 is a perspective detail showing the support for the rear end of the cylinder;

Fig. 4 is a detail in perspective showing a gage device;

Fig. 5 is a perspective view of a means for locking the supporting device of the rear end of the cylinder, and Fig. 6 is a detail in perspective showing a clamp.

Referring specifically to the drawing, 8 denotes the cylinder of an internal-combustion or other engine. The engine is of the horizontal, single-cylinder type, and the invention, as already stated, relates to the frame or bed which supports the cylinder. As the cylinder construction and other parts of the engine are immaterial to the invention, a description thereof is not deemed necessary.

The cylinder supporting frame or base comprises two laterally spaced stands 9 connected by a front cross rail 10, these being all in one piece and provided with lugs 11 at the ends for attachment to a suitable base or skids 12. The stands are also connected by a cross piece 13 which is recessed, as shown at 14, so that the connecting rod may clear the same. Bearings 15 for the crank shaft are mounted on the stands.

The fastening for the front end of the cylinder 8 comprises a ring 18 bolted to said end, as shown at 19, or integral therewith, and having a connection with the stands 9. This ring has diametrically opposite horizontal trunnions 20, located at the sides and in axial alinement. The top of the stands 9 is formed with seats for the trunnions, and has pivoted cap plates 22 over said seats and trunnions. The cap plate is hinged at one end of the stand, as shown at 23, and the opposite, free end has a slot 24 which receives a bolt 25 pivoted on a stud 25^a projecting from and carried by the stand, said bolt carrying a nut 26 which is screwed down on the cap plate. The rails and cap plates form a bearing for the trunnions, and when the nuts 26 are screwed down tight, the front end of the cylinder will be firmly anchored to the support. For a quick repair, requiring removal of the cylinder, the nuts 26 need be given only one or two turns, after which the bolts 25 may be swung out of the slot 24, leaving the cap plates 22 free to be swung upward to release the trunnions 20. The bolts may be swung to seat in slots 26^a in the stands 9, as shown dotted in Fig. 2, to locate them out of the way of the cap plates.

A means is provided for facilitating leveling up the cylinder. This device comprises lugs 27 and 28, the lug 27 being secured to the side of the ring 18 opposite the lug 28 which latter is secured to one of the stands 9. The tops of the two lugs are at the same level and have cross marks 29, which latter are in alinement when the cylinder is level. As the lug 28 is stationary, and the lug 27 moves with the cylinder, any amount of tilting of the cylinder will bring the cross mark of the lug 27 out of alinement with the cross mark of the lug 28, and thus disclose the fact that the cylinder has tilted from its horizontal position.

The support for the rear end of the cylinder 8 comprises the following parts:

The rear ends of the skids 12 carry a cross beam 30, the stands 9 not extending back this far. The cylinder head 32 has a clamp 33 which is internally threaded to receive the threaded upper end of a vertical rod 34, and the cross beam 30 has a similar clamp 35 for the bottom of said rod. The clamps are in the form of split sleeves, the top

sleeve having a bolt 36 for contracting the same around the rod to grip the latter. The bottom sleeve has a depending furcate extension 37 straddling the beam 30 and fastened thereto by a bolt 37ª. The clamping bolt of the bottom sleeve is shown at 38. After the cylinder is properly leveled up, the bolts 36 and 38 are operated to contract the sleeves to grip the rod 34, and as the latter is stationary the cylinder will be securely held, its front end being supported and held by the devices hereinbefore described. It will, of course, be understood that the nuts 24 of the front fastening must be slightly loosened before the cylinder can be leveled up, after which they are tightened so that both ends of the cylinder are now firmly supported.

The bolt 38 extends transversely of the rod 34, and the latter has an external encircling recess 39. The bolt 38 also has a side recess 40 into which the rod 34 partly extends. The rod can be slid relative to the bolt, and when the recesses register, the bolt, upon being given a half turn, enters the rod recess and thus locks the rod against a sliding movement in the sleeve 35. The purpose of this structure is to make the removal of the cylinder easy at the rear end after the front end has been freed. All that is necessary to free the rear end of the cylinder is to give the bolt 38 a half turn, which will not only loosen the sleeve 35, but will also free the rod 34, so that the cylinder may be lifted off its supporting frame.

The object of having the upper end of the rod 34 threaded into the clamp 33 is to enable a slight adjustment in the leveling of the cylinder to be made by giving the rod a short turn with a wrench, before the bolts 36 and 38 are finally tightened.

It will be understood that, while the novel support has been described in connection with a single cylinder engine, it may be adapted with equal facility to multiple cylinder horizontal engines of suitable construction.

I claim:

1. The combination with a cylinder block and the crank shaft of an engine; of a cylinder block support comprising a base, a trunnion at each side of the cylinder block at one end thereof, bearings on the base for the trunnions and for the crank shaft, and a vertically adjustable support for the other end of the cylinder block.

2. The combination with the cylinder block and the crank shaft of an engine; of a cylinder block support comprising a base, a trunnion at each side of the cylinder block at one end thereof, bearings on the base for the trunnions and for the crank shaft, and a vertically adjustable support removably connected to the other end of the cylinder block.

3. The combination with the cylinder block and the crank shaft of an engine; of a cylinder block support, said support comprising a base, a trunnion at each side of the cylinder block at one end thereof, bearings on the base for the trunnions and for the crank shaft, clamping members on the other end of the cylinder block and on the base, and a vertical stem connecting said clamping members and secured thereby.

4. The combination with the cylinder block and the crank shaft of an engine; of a cylinder block support, said support comprising a base, a trunnion at each side of the cylinder block at one end thereof, bearings on the base for the trunnions and for the crank shaft, and a vertically adjustable support for the other end of the cylinder block, and matching lugs on the cylinder block and on the base, said lugs having index marks to indicate the level position of the cylinder.

5. The combination with the cylinder block and the crank shaft of an engine; of a cylinder block support comprising a base, a trunnion at each side of the cylinder block at one end thereof, bearings on the base for the trunnions and for the crank shaft, and an adjustable independent support for the other end of the cylinder block.

6. The combination with the cylinder block and the crank shaft of an engine; of a cylinder block support comprising a base, a pivotal connection between the base and one end of the cylinder block, bearings on the base for the crank shaft and an adjustable support for the other end of the cylinder block.

In testimony whereof I affix my signature.

GUSTAV A. GILBERTSON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."