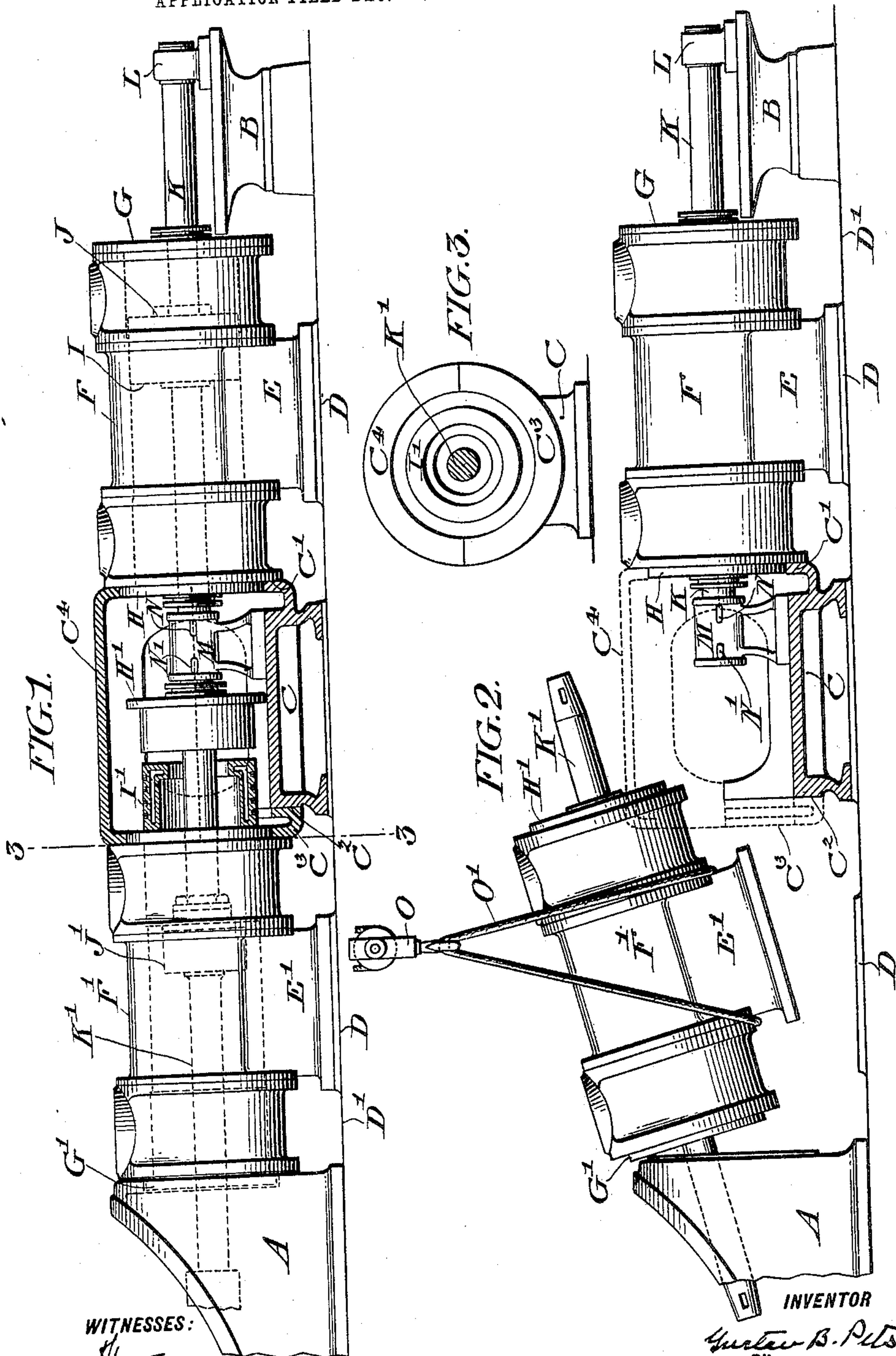


No. 822,387.

PATENTED JUNE 5, 1906.

G. B. PETSCHÉ.  
ENGINE CONSTRUCTION.

APPLICATION FILED DEC. 30, 1904. RENEWED MAR. 12, 1906.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## ENGINE CONSTRUCTION.

No. 822,387.

Specification of Letters Patent.

Patented June 5, 1906.

Application filed December 30, 1904. Renewed March 12, 1906. Serial No. 305,566.

*To all whom it may concern:*

Be it known that I, GUSTAV B. PETSCHÉ, a subject of the German Emperor, residing in the city and county of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Engine Construction, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to engines in which two cylinders are set tandem to each other and, as is usual with such constructions, separated by a distance-piece.

The object of my invention is to so construct and combine the cylinders and distance-piece that the inner cylinder can be readily removed when necessary without requiring the displacement of the outer cylinder, and I accomplish this by making the distance-piece of the engine separable into sections which are removable without requiring the displacement of either cylinder and which when removed will permit the inner cylinder to be lifted out of position without interfering with the outer cylinder or the stationary parts of the distance-piece.

The nature of my improvements will be best understood as described in connection with the drawings, in which they are illustrated, and in which—

Figure 1 is a side elevation of the engine-cylinders with the frame and distance-piece shown in connection therewith, the distance-piece being shown in central vertical section, as is also the bull-ring of the piston of the inner cylinder, which is shown as shifted out into the distance-piece. Fig. 2 is a similar elevation showing the removable sections of the distance-piece in dotted lines and the inner cylinder in the act of being lifted out of position. Fig. 3 is a cross-section on the line 3 3 of Fig. 1.

A indicates the engine-frame, which, together with the cylinders and center piece, rest on a bed-plate, the position of which is indicated by the line D', D D indicating upward extensions of the bed-plate on which the pedestals E and E' of the cylinders rest. B is a cross-head guide for the rear end of the piston-rod, and C is the center piece, which is horizontally divided, so that the upper half C<sup>4</sup> is removable and formed so that while one

segmental end C', which fits against the outer cylinder end, is permanently attached to the center the other segmental end C<sup>3</sup> is made separable on the line indicated at C<sup>2</sup>. F is the outer cylinder, fitting against the end C' of the center piece, and F' the inner cylinder, which fits against the end of the bed-piece A and against the removable segment C<sup>3</sup> of the center piece. G is the outer head of the cylinder F, and H its inner head, which fits in the segmental part of the center piece. G' is the outer head of the cylinder F', fitting in the center of the bed-piece A, and H' is the cylinder-head, fitting in a recess C<sup>3</sup> of the segment-piece and of the top part C<sup>4</sup>. J and J' indicate piston centers of the two cylinders I, and I' bull-rings of these pistons, the center piece being so constructed, as shown in Fig. 1, that the head of the abutting cylinder can be removed and retracted in it and the bull-ring drawn out into the center piece for repacking or repair. K is the piston-rod, the outer end being supported on a cross-head L, moving in the guide B, while the intermediate part is supported on a cross-head N, moving on the center piece C. N N' indicate keys for holding the end of the piston-rods in the cross-head M. O, Fig. 2, is a pulley, and O' a rope connected thereto, (shown as in use for lifting the inner cylinder.)

When it is desired to remove the inner cylinder, the removable top portion C<sup>4</sup> of the center piece is unfastened and withdrawn and the removable segment C<sup>3</sup>, attached to the lower segment of the center piece, also unfastened and drawn downward. The key N' is withdrawn, liberating the piston-rod section K' from the cross-head M, which is then moved out to disengage the end of the piston-rod, and, obviously, under these conditions the inner cylinder F' can be shifted sufficiently to the right to disengage the frame A and permit the cylinder to be raised, as shown in Fig. 2, or without in any way disturbing the cylinder F.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an engine having two cylinders arranged in line with each other, and an engine bed-piece against which one of said cylinders abuts, the combination therewith of a distance-piece set between said cylinders and

having portions thereof which abut against the cylinder nearest to the bed-piece removable to permit an endwise movement of the cylinder away from the bed-piece and the  
5 elevation thereof.

2. In an engine having two cylinders arranged in line with each other, and an engine bed-piece against which one of said cylinders abuts, the combination therewith of a distance-piece set between said cylinders and  
10 having a portion thereof removable so as to give the cylinder which abuts against the bed-piece freedom to move away therefrom and also to move upward.

3. In an engine having two cylinders arranged in line with each other and an engine bed-piece against which one of said cylinders abuts, the combination therewith of a distance-piece C, set between said cylinders and having a removable top C<sup>4</sup>, and bottom segment C<sup>3</sup>, whereby the removal of the cylinder which abuts against the bed-piece is facilitated.

GUSTAV B. PETSCHER.

Witnesses:

ARNOLD KATZ,  
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