

No. 630,619.

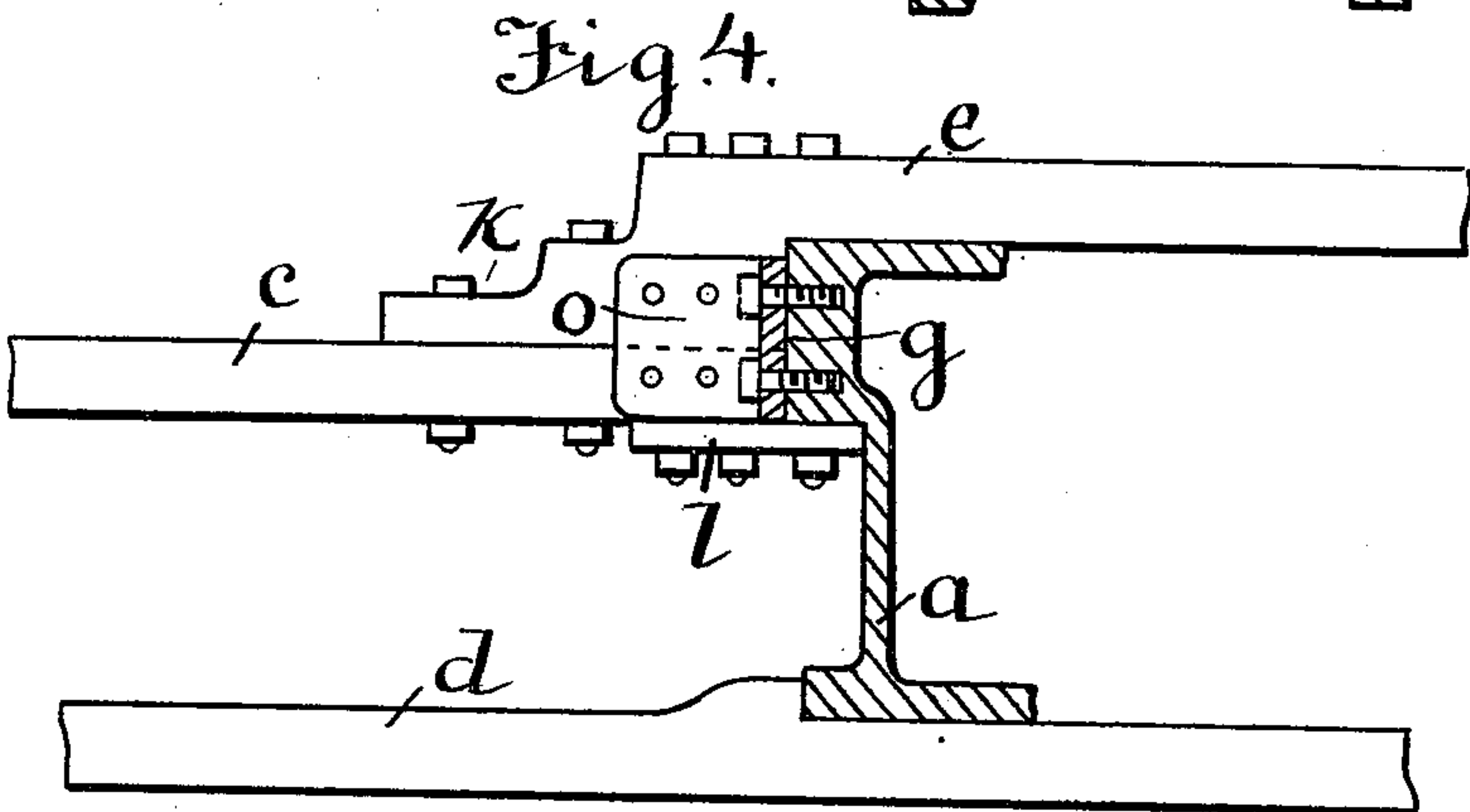
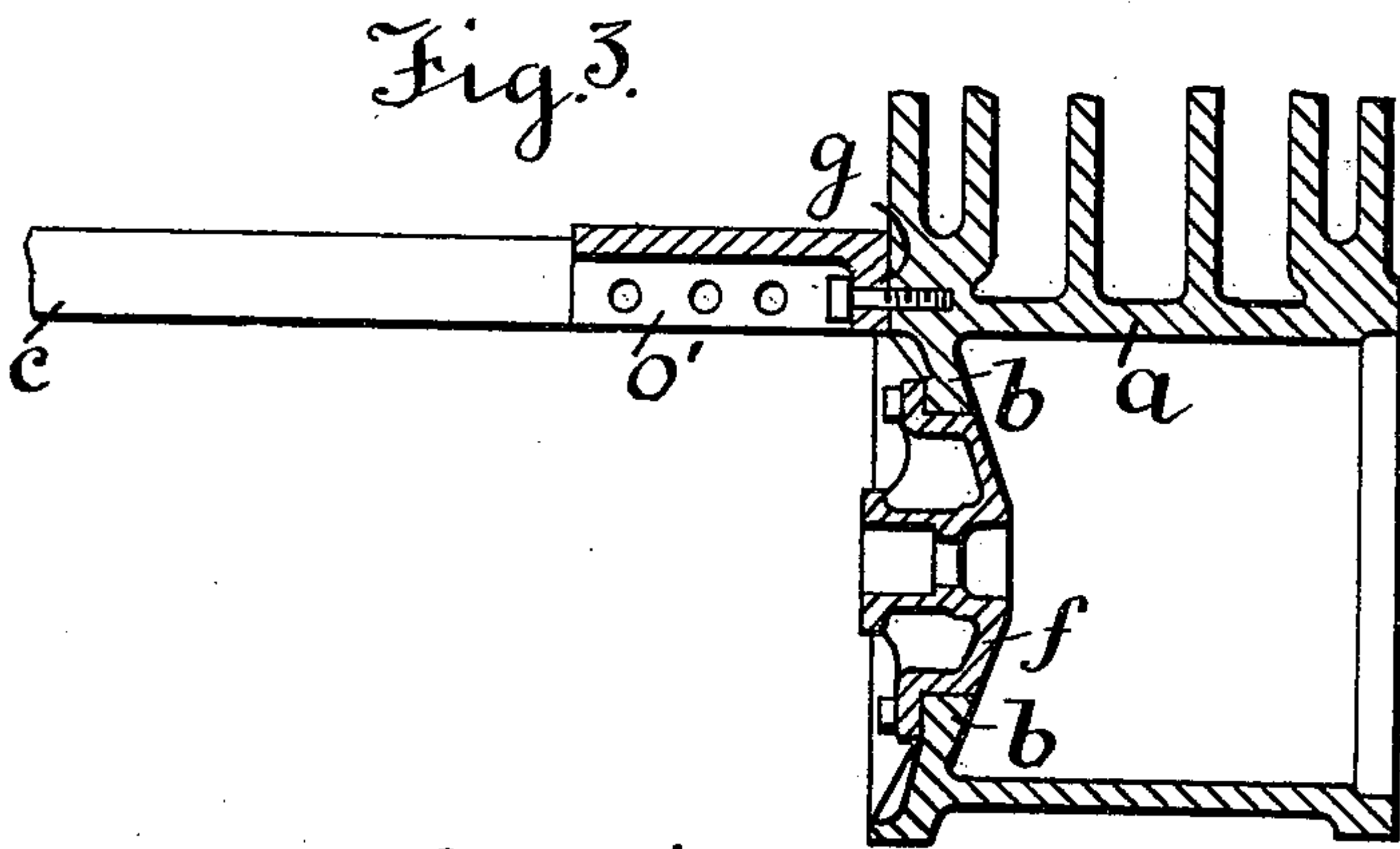
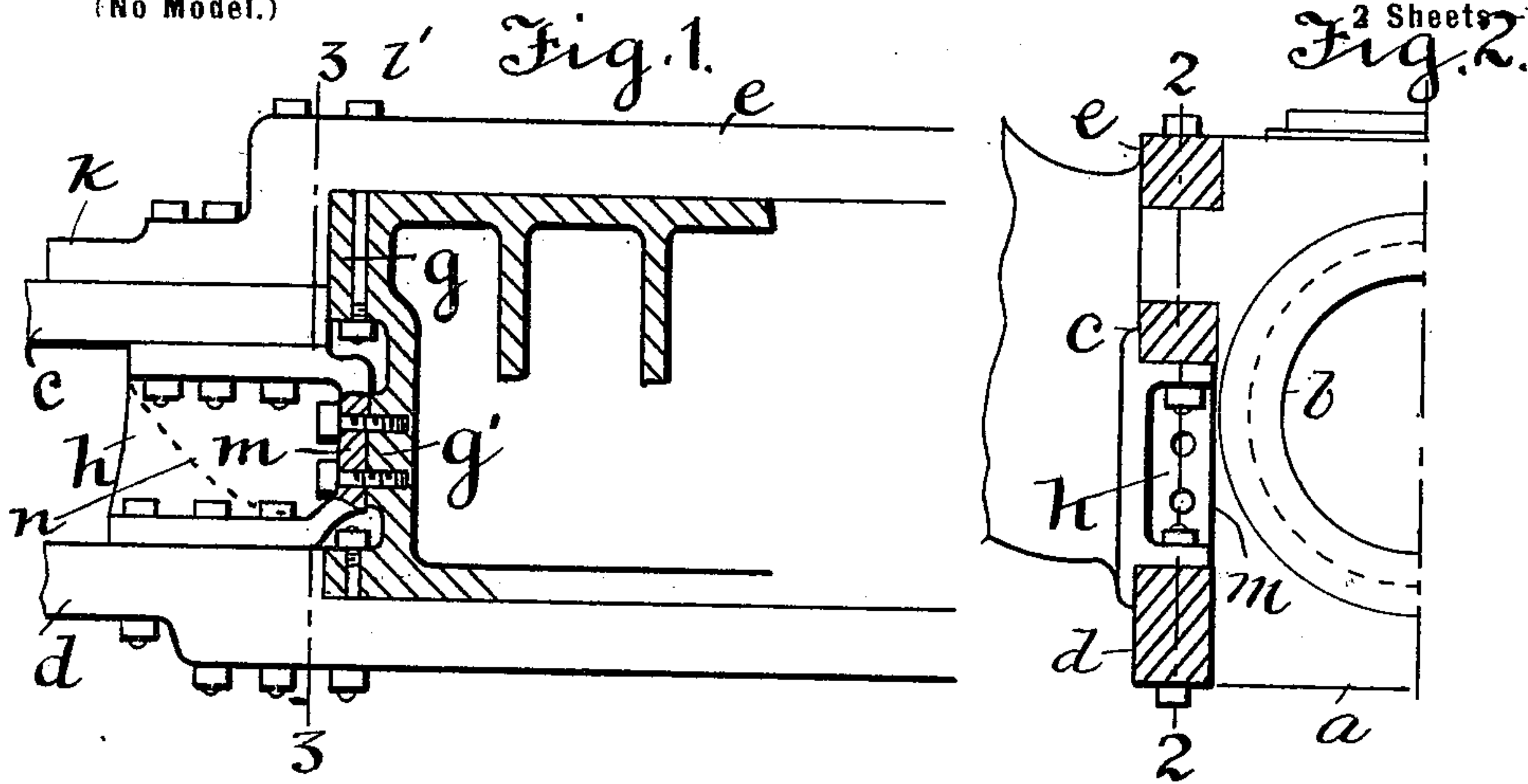
Patented Aug. 8, 1899.

C. J. MELLIN.
LOCOMOTIVE ENGINE.

(Application filed Apr. 23, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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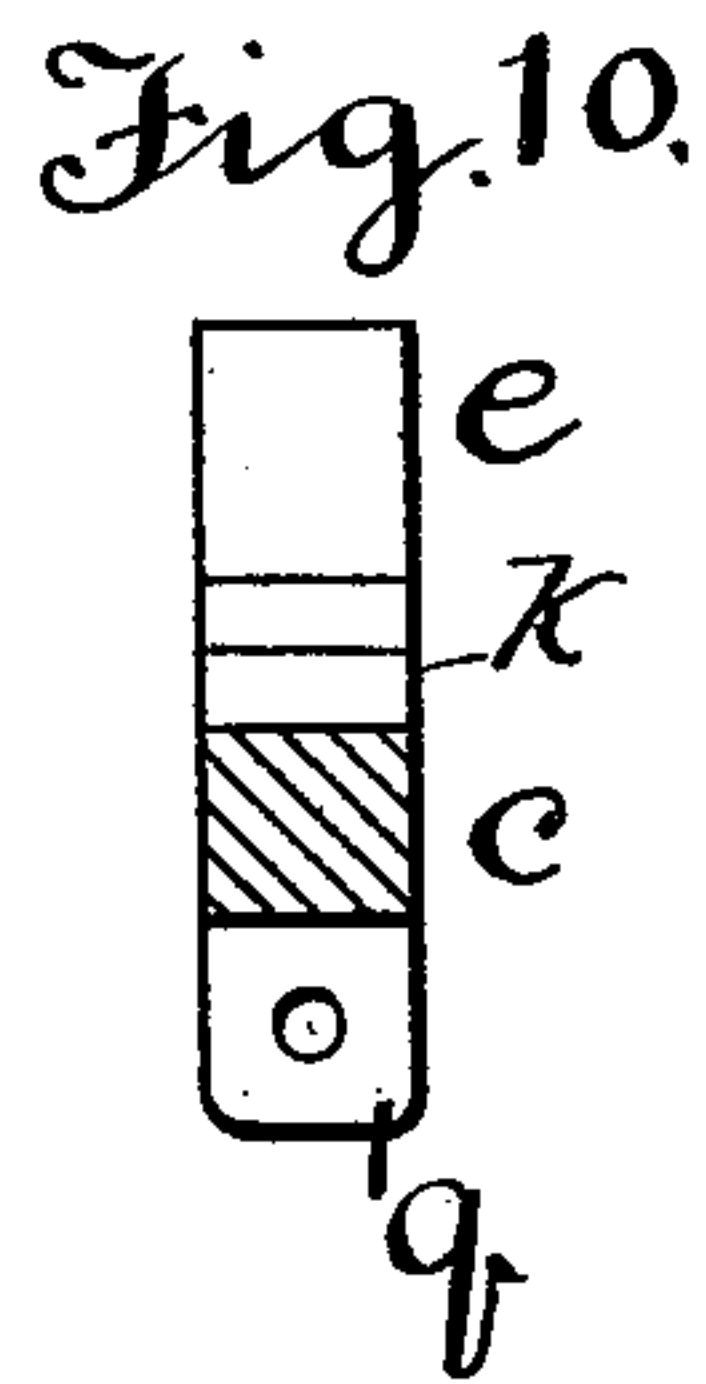
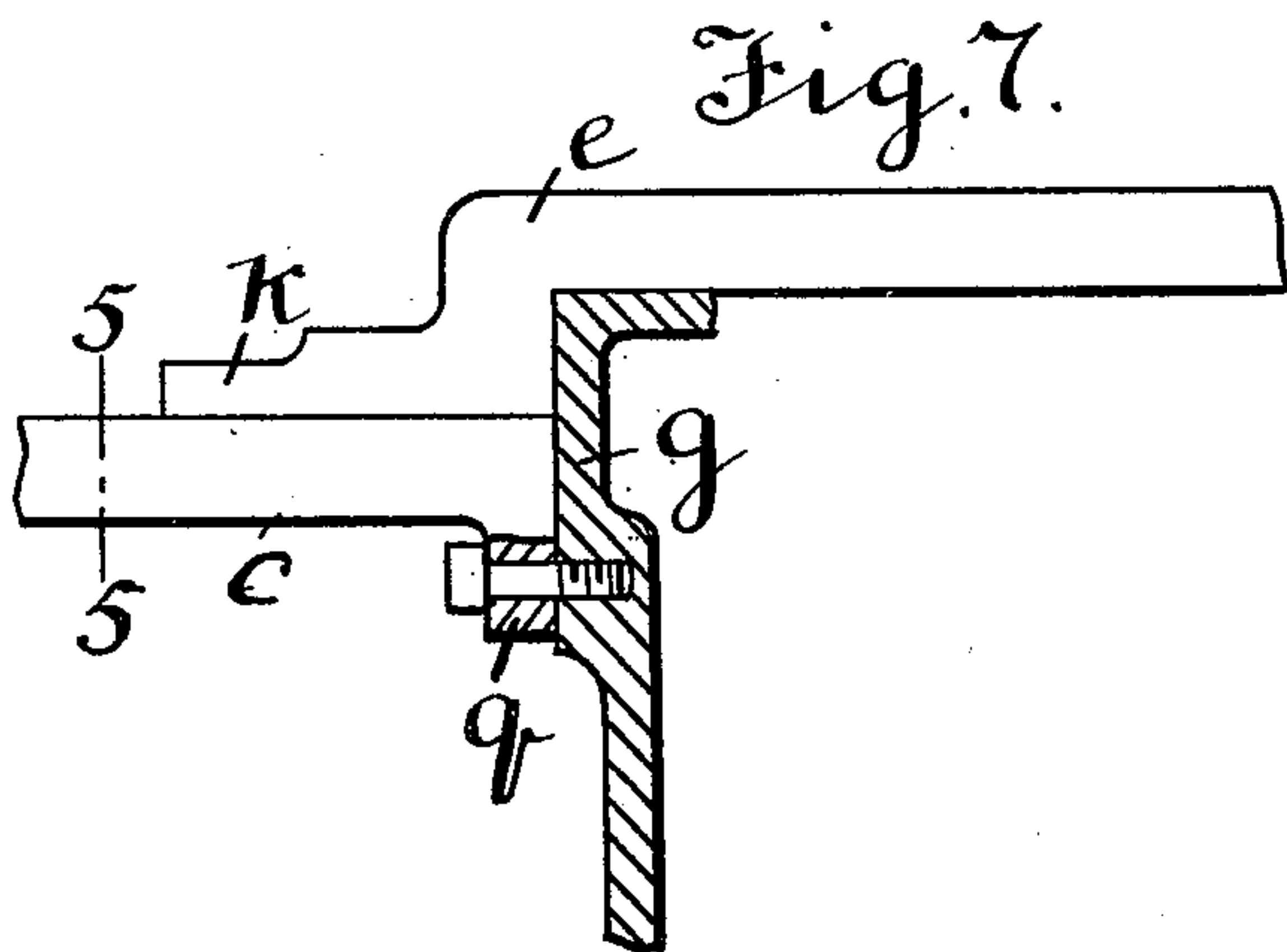
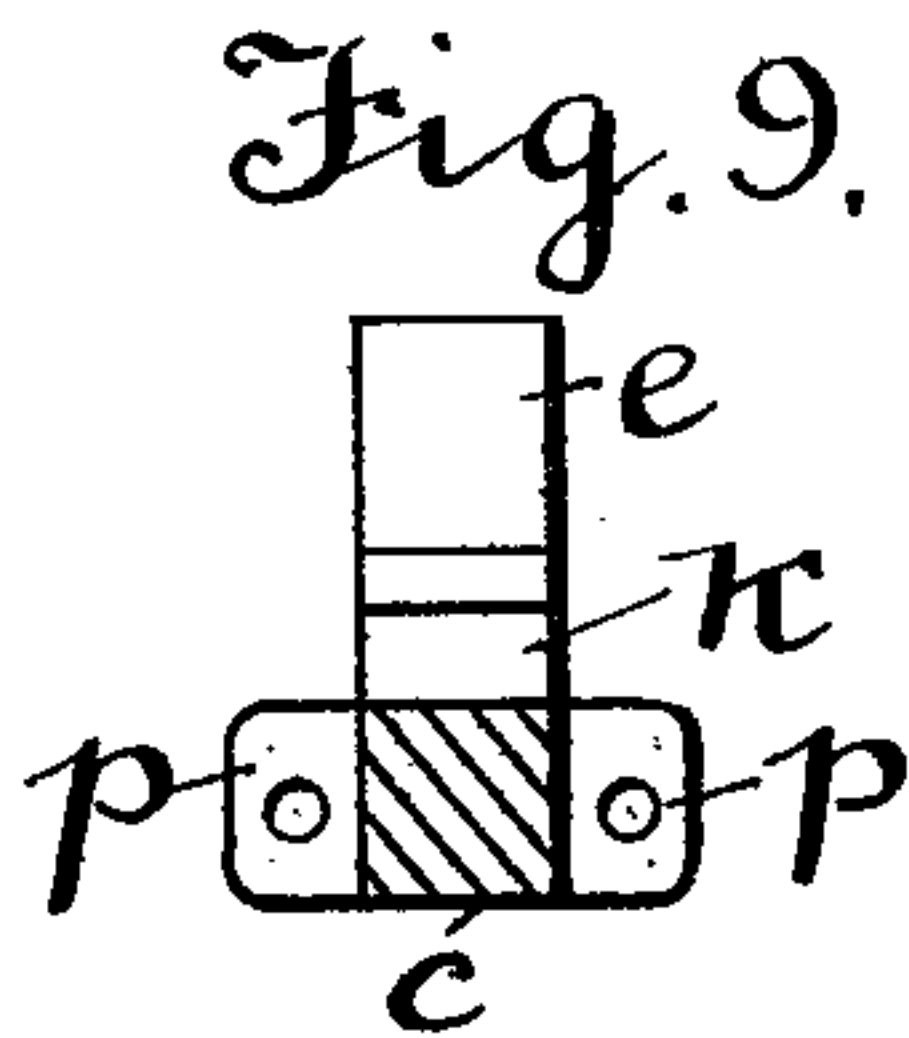
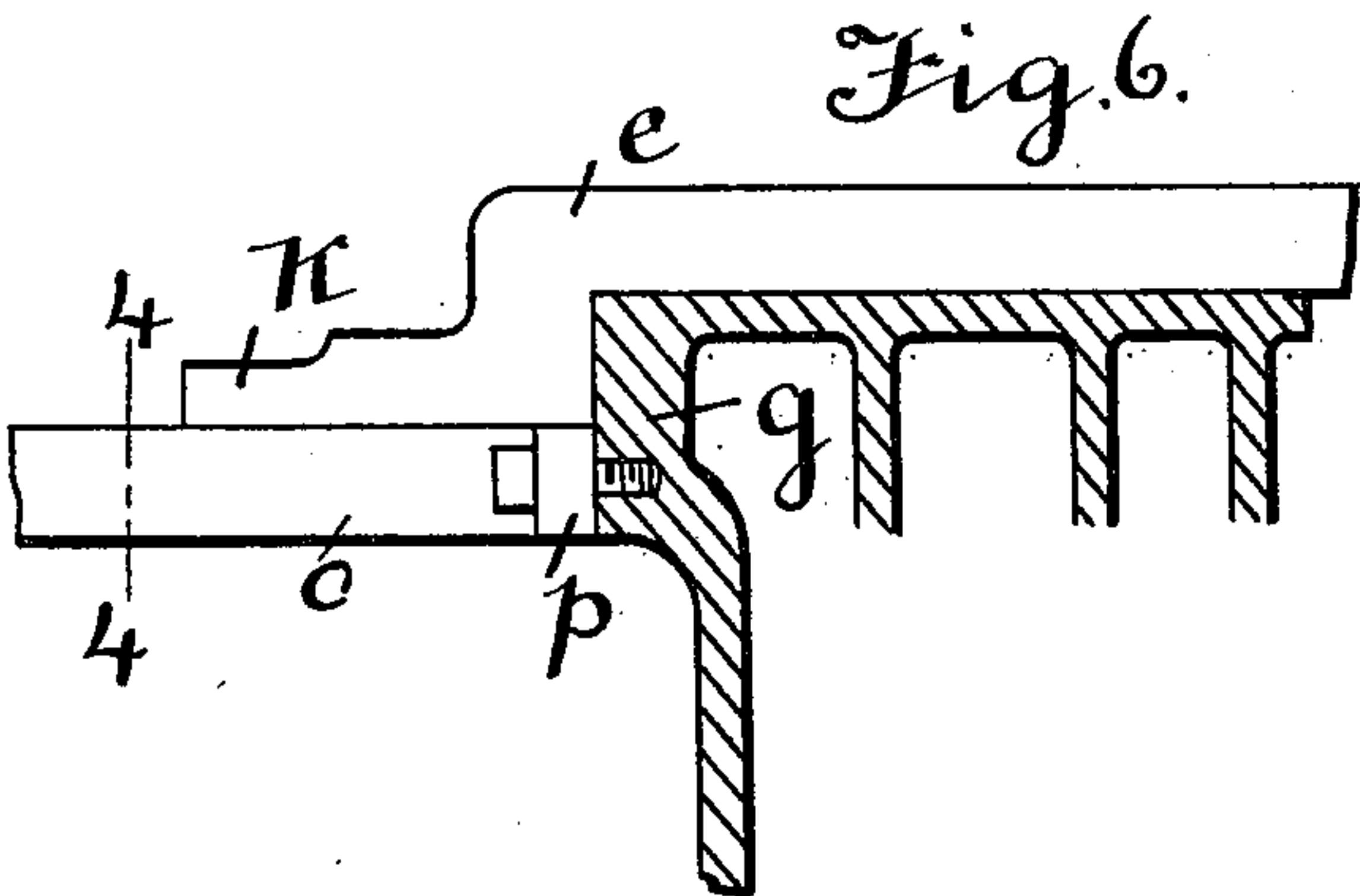
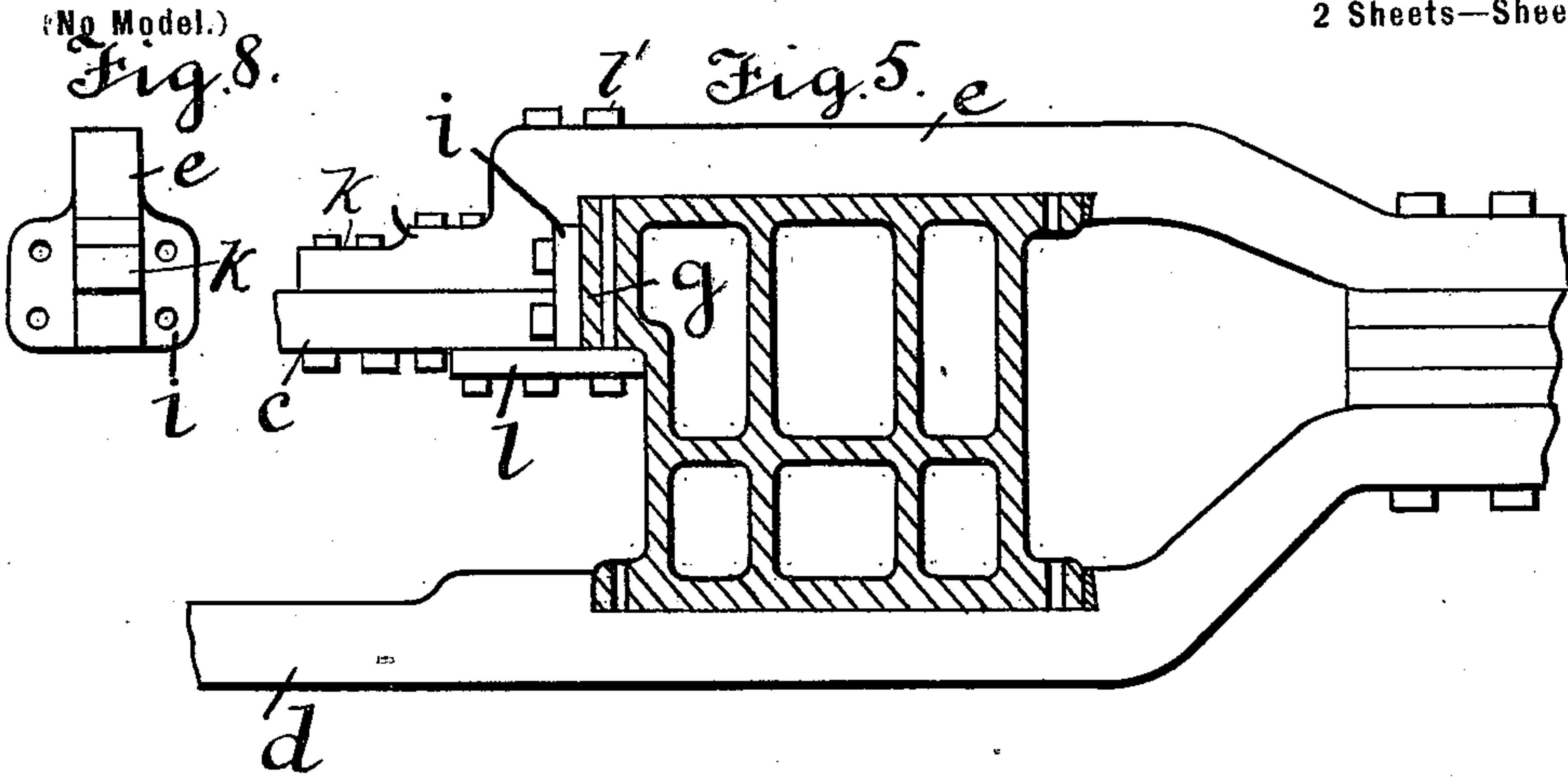
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UNITED STATES PATENT OFFICE.

CARL J. MELLIN, OF RICHMOND, VIRGINIA, ASSIGNOR TO THE RICHMOND
LOCOMOTIVE AND MACHINE WORKS, OF SAME PLACE.

LOCOMOTIVE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 630,619, dated August 8, 1899.

Application filed April 23, 1898. Serial No. 678,575. (No model.)

To all whom it may concern:

Be it known that I, CARL J. MELLIN, a citizen of the United States, and a resident of Richmond, in the county of Henrico and State of Virginia, have invented certain new and useful Improvements in Locomotive-Engines, of which the following is a specification.

My invention relates to mounting and securing the cylinders on the frames, particularly the low-pressure cylinders, the large size of which as they are now made making it more difficult than when not so large, particularly as it is desirable to use practically the same designs and dimensions of frames as formerly; and it consists of the improvements of devices and combinations of devices as hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation of part of a frame and a longitudinal sectional elevation of part of a cylinder-casting, illustrating my invention to some extent, the section of the cylinder-casting being taken on line 2 2 of Fig. 2. Fig. 2 is a transverse section of the frame on line 3 3, Fig. 1, and an end elevation of part of the cylinder. Fig. 3 is a side elevation of part of the upper frame-bar, a section of a connecting-bracket, and a longitudinal section of the cylinder, mainly through the center of the same. Fig. 4 is a view similar to the view of Fig. 1, but showing a modification of the attaching device. Figs. 5, 6, and 7 are also views similar to the view of Fig. 1, showing other modifications of attaching devices. Fig. 8 is an end elevation of the top splice-bar of Fig. 5. Fig. 9 is a section of the upper bar of the main frame on line 4 4 of Fig. 6 and an end view of the upper splice-bar, and Fig. 10 is a section of the upper main frame-bar on line 5 5 of Fig. 7 and an end view of the upper splice-bar.

The cylinder *a* is cast with an annular integral rear head or bottom portion *b*, covering an annular portion of the bore of the cylinder, to reinforce the rear end for substantial attachment of the frame-bars *c* and *d* and splice-bar *e* and is provided with a cover *f* smaller than the bore of the cylinder and duly fitted therein and being independent of the frame attachments. Besides reinforcing the

strength of the cylinder the integral head portion *b* affords a broader facing, as *g*, for the attaching-base than can be had without such head, which is desirable for most of the forms of attachment which I employ. (See Figs. 1 and 4 to 7, inclusive.) In Fig. 1 there is also another facing *g'* for the bearing of the "gusset-bracket" *h*. The end of the upper bar *c* of the main frame abuts against the facing *g* or against the flange *i* of the splice-bar *e* when the bar is made with such flange, as in Figs. 5 and 8, and the foot-piece *k* of the splice-piece is bolted on the upper side of the said bar *c*, with or without a strap or plate *l*, and the splice-bar *e*, also said plate *l* when used, is bolted to the cylinder-casting through the extra thickness of the reinforcing part of the annular head, as by bolt *l'*.

Instead of the plate *l* the two-faced gusset-bracket *h*, adapted to bolt on the under side of the upper main bar *c* and the upper side of the lower bar *d*, may be used, said bracket having a head *m* to bolt onto the facing *g'*, or only a knee consisting of the upper part and the head may be used, if preferred, the bracket being made without the part below the dotted line *n*.

Instead of constructing the splice-bar *e* with the flange *i* the knee or angle bracket *o*, Fig. 4, may be used, said bracket being bolted on the side of main bar *c* and the foot-piece *k* of the splice-piece and onto the facing *g*, (such a bracket may be put on each side,) or, being of less width, said bracket may be constructed as at *o'* in Fig. 3 and bolted to the main bar only and to the facing *g'*. In Figs. 6 and 9 the main bar *c* is made with lateral flanges *p* of the head to bolt on the facing *g*, and in Figs. 7 and 10 it has a single downwardly-extending flange *q*. These flanges may be bolted on instead of being integral.

It will be seen that the reinforcement of the cylinder by the integral annular head affords means of bolting the frame-attaching brackets of various different forms with bolts set in lengthwise of the cylinder, in which arrangement they are much stronger for opposing the pull of the cylinder on the frame when steam is admitted to the forward end of the cylinder than when set in transversely, and it will be seen that where the bolts connecting the

frame-bars and the brackets to the frame-bar have to be set laterally to the pull of the steam there is ample space for as many bolts as may be necessary when set that way for
 5 opposing the stresses, and the reinforcement of the integral head also enables the splice-piece to be bolted on laterally in addition to the bolts set lengthwise.

The invention is applicable to both the high
 10 and low pressure cylinders, but is more particularly necessary for the low-pressure cylinders, the great size of which prevents the use of continuous frame-bars, especially in the case of the upper frame-bar.

15 I claim—

1. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head of the rear end covering an annular portion of the cylinder-bore and adapted for a
 20 facing to receive frame-attaching devices, and said devices bolted thereto with bolts set lengthwise of the cylinder substantially as described.

2. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head of the rear end covering an annular portion of the cylinder-bore and adapted for a
 25 facing to receive frame attachments bolted laterally to the frame-bars, said attaching devices being bolted to said facing with bolts
 30 set lengthwise of the cylinder substantially as described.

3. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head of the rear end covering an annular portion of the cylinder-bore and adapted for a
 35 facing to receive frame attachments bolted thereto with bolts set lengthwise of the cylinder, and said frame also bolted vertically
 40 through the facing reinforcement substantially as described.

4. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head of the rear end covering an annular portion of the cylinder-bore and adapted for a facing
 45 to receive frame attachments, and a knee-

bracket secured laterally to the upper frame-bar and bolted to the facing with bolts set lengthwise of the cylinder substantially as described.

5. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head of the rear end covering an annular portion of the cylinder-bore and adapted for a facing to receive frame attachments, and a
 50 double knee or gusset bracket secured laterally to the upper and lower frame-bars, and bolted to the facing with bolts set lengthwise of the cylinder substantially as described.

6. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head of the rear end covering an annular portion of the cylinder-bore and adapted for a facing to receive frame attachments, the upper splice-piece of the frame provided with
 65 lugs or flanges and said lugs or flanges bolted to the facing with bolts set lengthwise of the cylinder substantially as described.

7. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head at the rear end covering an annular portion of the cylinder-bore and adapted for a facing to receive frame attachments, the upper frame-bar abutting at the end against
 70 said facing and having lugs or flanges bolted thereto with bolts set lengthwise of the cylinder substantially as described.

8. In a locomotive-engine, a steam-cylinder having an integral annular reinforcing-head at the rear end covering an annular portion of the cylinder-bore and adapted for a facing to receive frame attachments, said frame attachments bolted thereto with bolts
 80 set lengthwise of the cylinder, and reinforced with a plate bolted to the under side of the frame-bar and the facing-lug substantially as described.

CARL J. MELLIN.

Witnesses:

A. P. THAYER,
 C. SEDGWICK.