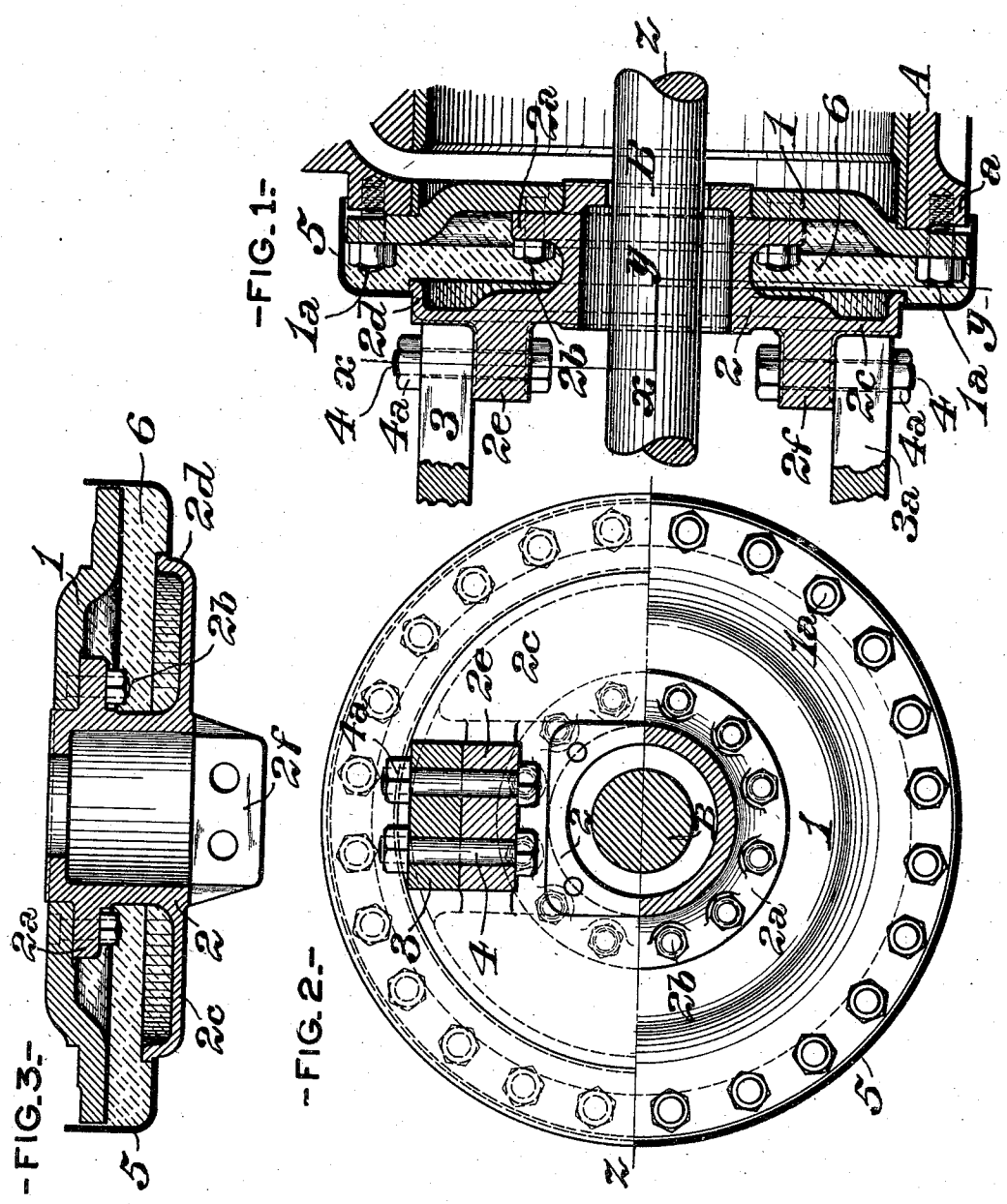


W. L. REID.
 STEAM ENGINE CYLINDER HEAD.
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1,066,321.

Patented July 1, 1913.



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UNITED STATES PATENT OFFICE.

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STEAM-ENGINE CYLINDER-HEAD.

1,066,321.

Specification of Letters Patent.

Patented July 1, 1913.

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To all whom it may concern:

Be it known that I, WILLIAM L. REID, of Schenectady, in the county of Schenectady and State of New York, have invented a certain new and useful Improvement in Steam-Engine Cylinder-Heads, of which improvement the following is a specification.

My invention more particularly relates to the back heads of locomotive engine cylinders, and its object is to provide a cylinder head of strong and simple construction; in the manufacture of which, reduction of cost will be effected by the avoidance of the necessity of changing patterns, or making new ones, for cylinders of different diameters; by the capability of using a standard stuffing box for heads of varying diameters; by exemption from loss of castings by blow holes frequently formed in those of the present forms; and by reduction of weight and economy of production, attained by pressing the major portion of the head, in quantities, from wrought metal, and fitting the pressed blanks with any specific form of stuffing box and guide supporting lugs that may be desired or specified for particular designs of locomotives.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawing: Figure 1 is a vertical central section through a locomotive cylinder head embodying my invention; Fig. 2, a transverse section, the upper half being taken on the line *x x* of Fig. 1, and the lower half on the line *y y* of the same figure; and Fig. 3, a similar section on the line *z z* of Figs. 1 and 2.

In the practice of my invention, I provide a head for a locomotive engine cylinder, A, comprising a circular main cover plate section, 1, which is dished or depressed toward its inner side throughout a diameter less than the bore of the cylinder to which it is to be attached, and is secured, adjacent to its periphery, to the cylinder, by a plurality of studs, 1^a, tapped into the ordinary flange, *a*, on the rear end of the cylinder, and a supplemental stuffing box and guide support section, indicated, as an entirety, by the numeral, 2, fitting steam tight, at its inner end, in a central opening in the main cover plate section, 1, and secured thereto, by a plurality of bolts, 2^b, passing through a circular bolting flange, 2^a, cast on the section, 2, adjoining the fit thereof in the section, 1. For the purpose of reducing weight and cost of

manufacture, the main cover plate section, 1, is preferably made of wrought boiler sheet plate, pressed into proper form, but it may, if preferred, be a steel or iron casting. It is bored out centrally to receive the inner end of the section, 2, and faced off on its inner side, adjacent to its rim, to make a tight joint with the end of the cylinder.

The central portion of the stuffing box and guide support section, 2, is of tubular form, surrounding the piston rod, B, which passes freely through its inner end, its bore being such as is proper to receive the packing which is inserted, in the ordinary manner, to maintain a steam tight joint with the piston rod. A circular plate, 2^c, is cast on the outer end of the section, 2, said plate having an annular rim, 2^d, and upper and lower horizontal guide support lugs, 2^e, 2^f, projecting from its outer side, to which the upper and lower cross head guide bars, 3, 3^a, are secured by bolts, 4, and nuts, 4^a. In certain designs of locomotives, an upper guide bar only is used, and in such case, the lower guide support lug, 2^f, is, of course, not required.

The plate, 2^c, is reinforced by being materially increased in thickness between the guide support lugs and the central stuffing box portion of the section, 2, throughout the width of the lugs, and an annular casing plate, 5, is fitted around the rim, 2^d, and around the main cover plate section, 1, and the adjacent portion of the cylinder flange, *a*. The space surrounding the stuffing box, between the section, 1, and the plate, 2^c, of the section, 2, is fitted with any suitable non-conducting material, as a body of plaster, 6, indicated by the conventional representation of such material in Figs. 1 and 3.

It will be seen that by the provision of an independent main cover plate section as herein set forth, the loss of the entire head structure, and of labor put on it in finishing it, when defects, such as blow holes, are developed in the casting, and when these are not discovered until after work has been done, which very frequently occurs in locomotive works, are fully obviated, and the advantages of using a single stuffing box pattern for heads of different diameters, and of economizing in weight and cost by pressing the main cover plate sections from wrought metal plates, in quantities, will be appreciated by those skilled in this department of locomotive engine manufacture.

I claim as my invention and desire to secure by Letters Patent:

1. In a steam engine cylinder head, the combination of a main cover plate section
5 having a central opening, a section comprising a stuffing box fitting in said opening and an integral plate having a guide support lug, and bolts securing said section to the main cover plate section.
- 10 2. In a steam engine cylinder head, the combination of a pressed metal main cover plate section having a central opening, a cast metal section comprising a stuffing box fitting in said opening and an integral plate
15 having a guide support lug, and bolts securing said section to the main cover plate section.
3. In a steam engine cylinder head, the combination of a main cover plate section
20 having a central opening, a section comprising a stuffing box fitting in said opening, and an integral plate having an annular rim and a guide support lug, an annular casing plate fitting over said rim, and bolts securing said section to the main cover plate section.
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4. In a steam engine cylinder head, the

combination of a main cover plate section having a central opening, a section comprising a stuffing box fitting in said opening 30 and an integral plate having an annular rim and a guide support lug, an annular casing plate fitting over said rim, bolts securing the stuffing box and guide support section to the main cover plate section, and a 35 filling of non-conducting material inclosed within the casing plate.

5. In a steam engine cylinder head, the combination of a main cover plate section having a central opening, a section comprising a stuffing box fitting in said opening 40 a bolting flange adjacent to its inner end abutting on the main cover plate section, and a plate on its opposite end having a guide support lug, said plate being reinforced in thickness between the lug and the stuffing box, and a plurality of bolts passing through, and securing together, the bolting flange and the main cover plate section. 45

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Witnesses:

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