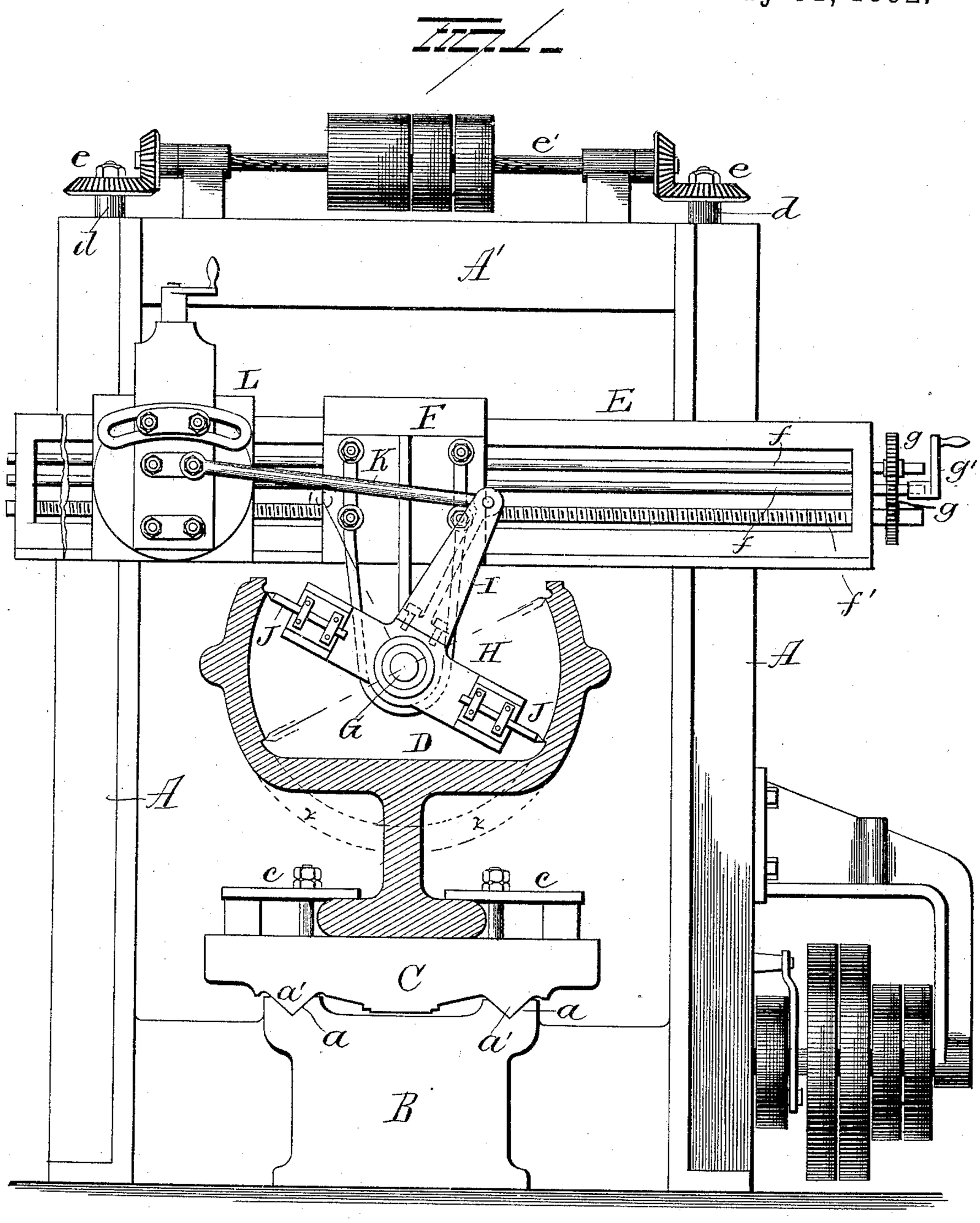
(No Model.) 2 Sheets—Sheet 1.

H. HABERLIN.

MACHINE FOR PLANING CIRCULAR GUIDES FOR ENGINE BEDS.

No. 475,939. Patented May 31, 1892.



Witnesses
G. F. Whittaghan
G. F. Downing.

Inventor
Herman Haberlin.
By Church & Simmons.
Attorney

(No Model.) 2 Sheets—Sheet 2.

H. HABERLIN.

MACHINE FOR PLANING CIRCULAR GUIDES FOR ENGINE BEDS.

No. 475,939. Patented May 31, 1892.

Fig. 2.

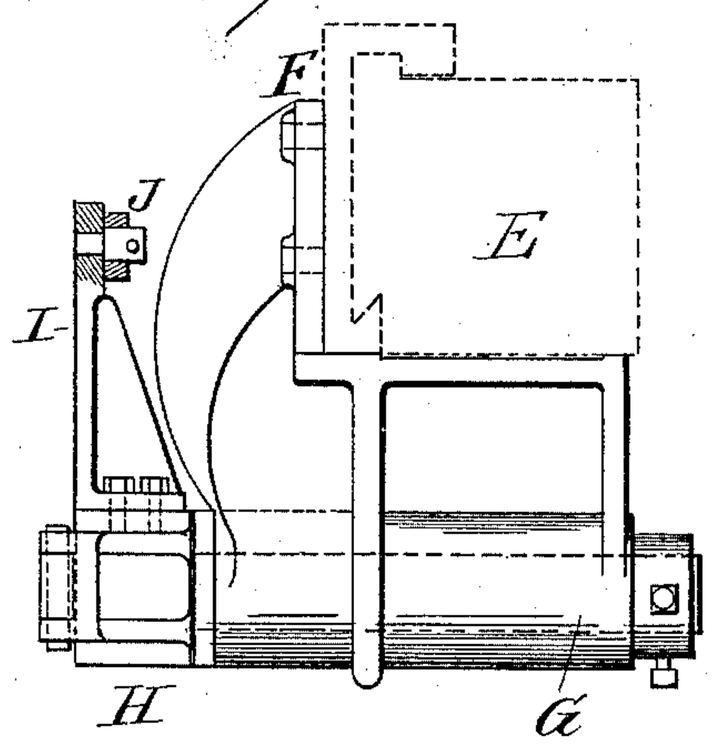
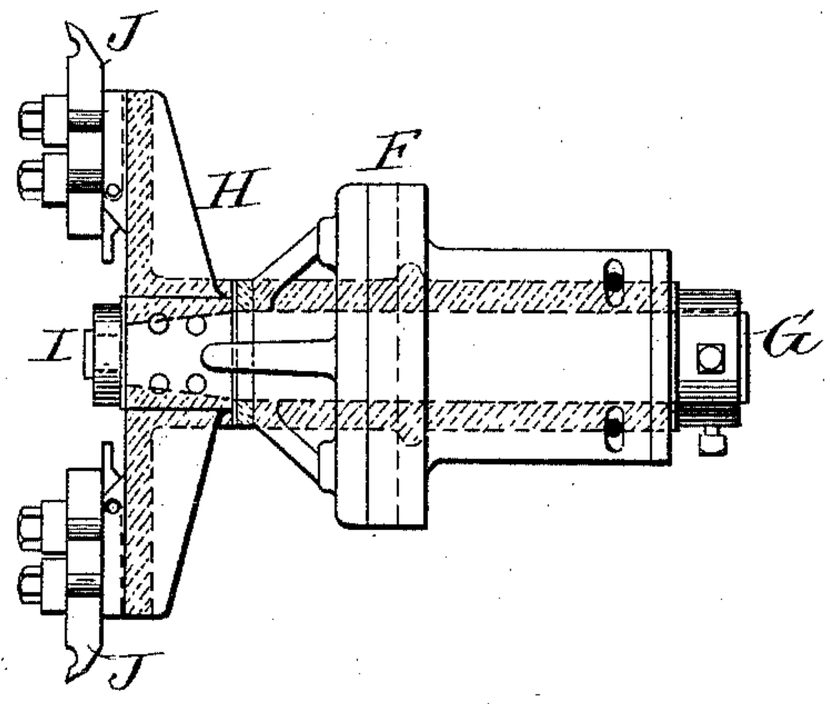


Fig. 3.



Witnesses
C. F. Hottinghaus
G. F. Downing.

Inventor
Herman Haberlin
By H. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

HERMAN HABERLIN, OF AKRON, OHIO, ASSIGNOR TO THE WEBSTER, CAMP & LANE MACHINE COMPANY, OF SAME PLACE.

MACHINE FOR PLANING CIRCULAR GUIDES FOR ENGINE-BEDS.

SPECIFICATION forming part of Letters Patent No. 475,939, dated May 31, 1892.

Application filed September 26, 1891. Serial No. 406,920. (No model.)

To all whom it may concern:

Be it known that I, HERMAN HABERLIN, a citizen of Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Machines for Planing Circular Guides for Engine-Beds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in machines for planing circular guides of engine-beds. Heretofore engine-beds of this particular form have been finished by the process of boring, which has been accompanied by numerous objections, such as the consumption of considerable time and the employment of a larger amount of metal than is really necessary.

It is the object of my invention to overcome these objections and to produce a planing-machine whereby the curved guides of an engine-bed may be easily, quickly, and economically made with the employment of a comparatively small amount of material, or at least a smaller amount than when the process of boring is employed.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation of a planing-machine, showing my improvements and the relation of the cutting-tool to the engine-bed and guides being operated upon. Fig. 2 is a side elevation of the planing attachment. Fig. 3 is a plan view of the same.

A A represent suitable uprights or housings connected at their top by a cross-beam A′. Located between the uprights or housings A A and at the base thereof is a bed B, having grooves or ways *a* for the reception of the flanges or ribs *a′* of a reciprocating carriage C, which carriage may be of any preferred construction and driven in any suitable manner. The carriage is provided on its top with a series of clamps *c*, whereby to secure the engine-bed D to be operated on, as presently explained, to the table or carriage C.

Mounted in the housings A A are worm-shafts *d d*, carrying pinions or bevel-gears *e e* at the upper ends, which gears are adapted to mesh with similar gears on the ends of a transverse shaft *e′*, mounted on the cross-beam A′, said shaft being driven in any suitable manner. Located across the uprights A A is a cross timber or rail E, constructed in a manner to receive screw-threaded perforations for the accommodation of the worm-shafts *d d*, whereby the rail E may be raised or lowered relatively to the engine-bed to be operated upon. The rail E is made in the form of an open frame and has mounted therein and extending longitudinally thereof a series of shafts *f f f′*, the latter being made in the form of a worm. The shafts *f f* carry pinions *g g*, adapted to mesh with each other, and on one of said shafts a handle *g′* is secured, whereby motion may be imparted to the worm-shaft *f′*.

The planing attachment consists, mainly, of a saddle F, a shaft G, a cross-head H, and an arm I. The saddle F of the attachment is screwed firmly to the cross-rail E of the planer. The center of the shaft G, which has its bearing in the lower part of the saddle F, is set concentric with the circle which marks the curved guides of the engine-bed. The cross-head H is firmly fastened to one end of the shaft G and carries at its two outer ends the cutting-tools J, which are secured thereto in any suitable manner. If desired, two or more cutting-tools J may be secured to each end of the cross-head H. The arm I, although made separate and bolted to the cross-head H, forms, practically, one piece with the cross-head H and the shaft G. At the upper end of the arm I a rod K is pivotally connected, the other end of said rod being pivotally connected to an adjustable head L. The head L is provided with a screw-threaded perforation for the accommodation of the worm *f′* and also with perforations for the passage of the shafts *f f*, which serve as guides to insure the proper movement of the head L.

The planer table or carriage C having its ordinary reciprocatory motion on the guides or flanges *a′*, the work of finishing the guides in the engine-bed is done by the cutting-tools, while the feeding of these tools in the arc of

a circle is performed by the head L moving along the cross-rail H of the planer.

An important advantage gained by this means of finishing the curved guides of an engine-bed over the old way of boring the guides is a considerable increase of strength and stiffness of the engine-bed itself, since an engine-bed to be finished by boring must necessarily have a cross-section through the guides, as shown by dotted lines *x x* in Fig. 1, in order to make room for the revolving boring-tool. My new method of finishing these guides allows the back rib of the bed to be brought nearer to the center line of the engine, in which the strain takes place, therefore increasing the strength of the bed with a smaller quantity of metal.

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

1. In a planing-machine, the combination, with a suitable support and a cutter-head, of a movable head, means for adjusting the last-mentioned head, and a rod or link connecting said heads, substantially as set forth.

2. In a planing-machine, the combination, with a cutter-head, of an arm projecting from said cutter-head, a movable head, means for moving said movable head, and a rod or link connecting said movable head with the said arm, substantially as set forth.

3. In a machine for planing circular guides of engine-beds, the combination, with a cross beam or rail, of a saddle secured thereto, a shaft mounted in said saddle, a cross or cutter head carried at one end of said shaft, an arm projecting from said cross or cutter head, a movable head carried by the cross beam or rail, a rod or link connecting the movable head with the arm projecting from the cutter-head, and means for moving said movable head, substantially as set forth.

4. In a machine for planing circular guides of engine-beds, the combination, with a cross beam or rail, of a saddle secured thereto, a shaft mounted in said saddle, a cross or cutter head carried at one end of said shaft, an arm projecting from said cross or cutter head, a movable adjustable head carried by the cross beam or rail, a rod or link connecting the movable adjustable head with the arm projecting from the cutter-head, means for adjusting said movable head, and means for moving said movable adjustable head, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HERMAN HABERLIN.

Witnesses:

FRANKLIN MOELLER,

CHAS. TOENSE.