

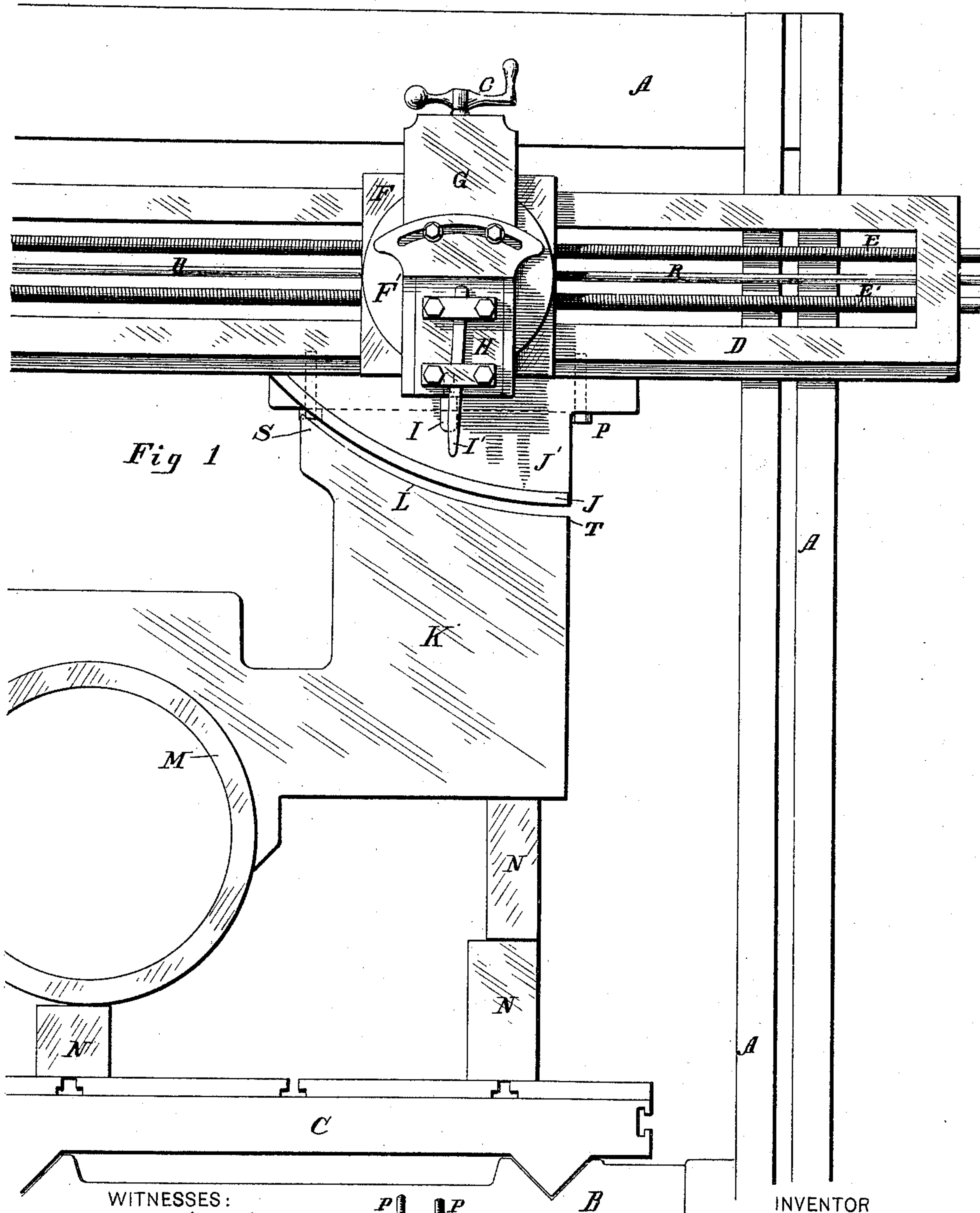
(No Model.)

G. M. GRIFFITHS.

PLNER ATTACHMENT FOR PLANING CURVED SURFACES.

No. 390,294.

Patented Oct. 2, 1888.



WITNESSES:

Pr. B. Shepherd.
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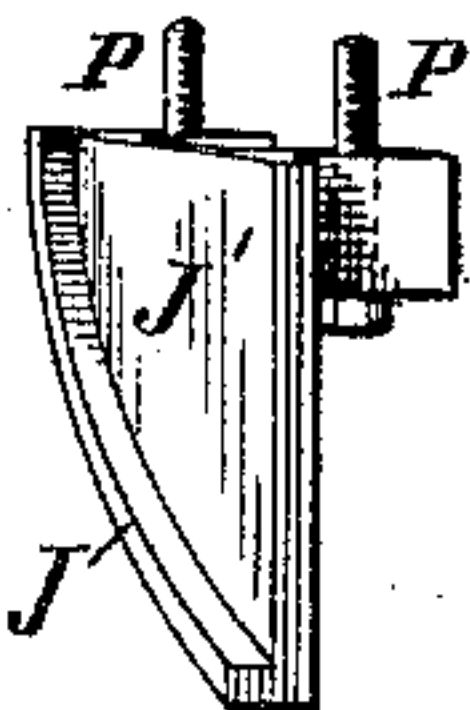


Fig 2

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PLANER ATTACHMENT FOR PLANING CURVED SURFACES.

SPECIFICATION forming part of Letters Patent No 390,294, dated October 2, 1888.

Application filed August 31, 1887. Serial No. 243,358. (No model.)

To all whom it may concern:

Be it known that I, GRIFFITHS M. GRIFFITHS, a citizen of the United States, and a resident of Altoona, Pennsylvania, have invented certain new and useful Improvements in Machines for Planing Curved Surfaces, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part hereof.

Heretofore after the cast of a device having a curved surface was made—for instance, a smoke-box saddle of a locomotive—it has been customary to finish and “true” it by means of cold-chiseling. This method of finishing is slow and laborious, and depends entirely upon the eye and judgment of the workman for its accuracy. The object of my device is to accomplish the work with unerring accuracy and uniformity and in an expeditious manner.

The nature of my invention will be apparent from the following specification and claims.

In the drawings, Figure 1 is a partial front view or elevation of a double-headed planing-machine with my device attached thereto, only one head of the machine being shown; Fig. 2, a small detached perspective view of the templet for the tool-holder.

The general construction of the planing-machine is that in ordinary use, well known to mechanics, and will therefore require no special description.

A is the frame of the machine; B, the bed upon which the “platen” or traversing-table C moves in guides backward and forward, upon which table the device to be planed is locked or set; D, the cross-frame which carries the laterally-moving heads F G and right-and-left-screw-threaded rods E E', which by their revolution impart motion to the heads to change the lines of cut of the tools. The plate F of the head shown is geared in its rear to screw-threaded rod E' in the ordinary way, and by the latter is made to shift its line of cut. The plate G slides vertically upon the round plate F, which latter is pivoted so that it can be moved when angular sides are to be planed.

H is the ordinary hinged flap or apron which carries the tool.

All the parts above mentioned and their operation are old and well known to machinists.

I is a downwardly-projecting pin, shoulder, or lug, with rounded end attached to the lower part of the vertically-moving plate G.

I' is the tool provided with a rounded cutting end, which tool is always rigged or set in line with the pin I.

J is a curved templet. This guide is a flanged edge of the plate J', which latter is stationary, and is attached to the cross-frame D by bolts P P. (See Fig. 2.) The templet is so curved as to guide the tool to make an even cut throughout upon the curved surface being planed. This is illustrated in Fig. 1 of the drawings, where the curve of the templet is the same as that of the surface to be planed; but the circle of which it is an arc is described from a center slightly above that of the arc of the curved surface to be planed, whereby the two arcs would intersect if carried out.

K is the half of the “saddle” to be planed. This saddle and the cylinder M are cast in one piece, but the latter has nothing to do with my invention.

L designates the curved surface of the saddle to be planed.

N N N are mere supporting-blocks for the mass of casting.

O is the crank-handle of the vertical screw, which, engaging with a female screw-thread on the back of plate G, lowers the latter so as to rest the pin I upon the templet J.

R is a rod provided with a spline or feather which passes through the hub of a beveled gear-wheel behind plate G. This beveled gear-wheel engages with a beveled gear-wheel upon the vertical screw-threaded rod, of which O is the handle, and when rod R is turned by a crank or wheel from one of its ends it turns the screw-threaded rods by means of their gears and thus lowers or raises the plate G. Thus this plate can be raised or lowered by the operative by means of handle O or rod R; but these devices are old and well known and require no further description.

The cross-frame D forms part of the frame of the machine.

The operation is as follows: The cut begins at the point lettered S and terminates at that lettered T. Thus, looking at the drawings, the traverse of the plate F on the screw-threaded rod E' is from left to right. The plate G is

kept depressed by the operative, so as to hold the lower edge of the round-ended pin I down upon the templet J. After the carrying-plate C has carried the saddle under the tool I' for the whole length of the saddle the plate C is returned to the starting-point and the tool is automatically shifted to the right for the next line of cut, in the usual way. This operation is repeated, the operative keeping the pin I down to its place on the templet J until the whole width of the curved surface is planed. If it is found that one traverse of the whole curved surface is not sufficient, the operation can be repeated until sufficient metal has been removed to suit all requirements.

As stated above, I have not entered into a full description of the main working parts of the planer, because they are old and well-known. My templet and the pin or shoulder I, which rests upon it, can be removed at will, and the machine can be used for ordinary planing purposes.

The plate G has sufficient vertical play for planing any ordinary curved surface; but if a particularly-curved line of work is required to be performed a special head will have to be constructed to enable the cutting-tool I' to reach to the greatest depth of the curve.

The tool in my device strikes the object to be planed in a vertical line, and if the arc of the curve of the templet J were concentric with that of the curved surface to be cut it will be apparent that the point of pin I would gradually approach closer to the surface to be cut as it progressed from point S to point T, thus deepening the cut as the head traversed to the right. For this reason the curved line of the templet is so directed as gradually to widen the space toward the right between it and the curve of the surface to be planed. The two curves are differential, thus keeping the vertically-acting pin I at a uniform distance from the surface L for the whole width of the said surface and restraining the rigidly-set tool I from making an uneven cut. The whole surface is thus planed evenly.

If the plate G were pivoted to or swung from the center from which the arc of curve L may be described and were held rigidly for each cut, beginning at point S, and then swung

to the right for each successive cut, the arc of the templet could be made concentric with that of the curved surface to be planed.

It is evident that the pin I may form an integral part of plate G if the head is designed for use in planing curved surfaces only. It is screwed into the lower part of plate G in my device.

My invention relates, of course, to metal-planing machines.

While the tool is directly attached to apron H, this apron and plate G may be said to constitute the tool-carrying parts of the machine.

It will be observed that although I plane a curved surface my cutting-tool makes a regular and straight cut in the ordinary way. By so shaping the guide I can raise and lower the tool as it traverses laterally across the object being cut, so as to adapt my machine to so plane any object that its surface in transverse section will conform to the shape of the guide.

What I claim as new is—

1. In combination with a planing-machine, the curved templet J, supported from the frame of the machine, the pin I, attached to the vertically-movable tool-carrying part of the machine and resting upon the templet, whereby a curved surface may be developed by the cutting-tool, substantially as described.

2. In combination with a planing-machine, the templet J, supported from the frame of the machine, the pin or shoulder I, attached to the vertically-movable tool-carrying part of the machine and resting upon the templet, and the round-nosed cutting-tool I, substantially as and for the purposes described.

3. In combination with a planing-machine, the detachable templet J, supported from the frame of the machine, the pin or shoulder I, attached to the vertically-movable tool-carrying part of the machine and resting on the curved templet, whereby a curved surface may be developed by the cutting-tool, substantially as described.

In witness that the above is my invention I have hereunto set my hand.

GRIFFITHS M. GRIFFITHS.

Witnesses:

GEORGE E. BUCKLEY,
H. V. BUCKLEY.