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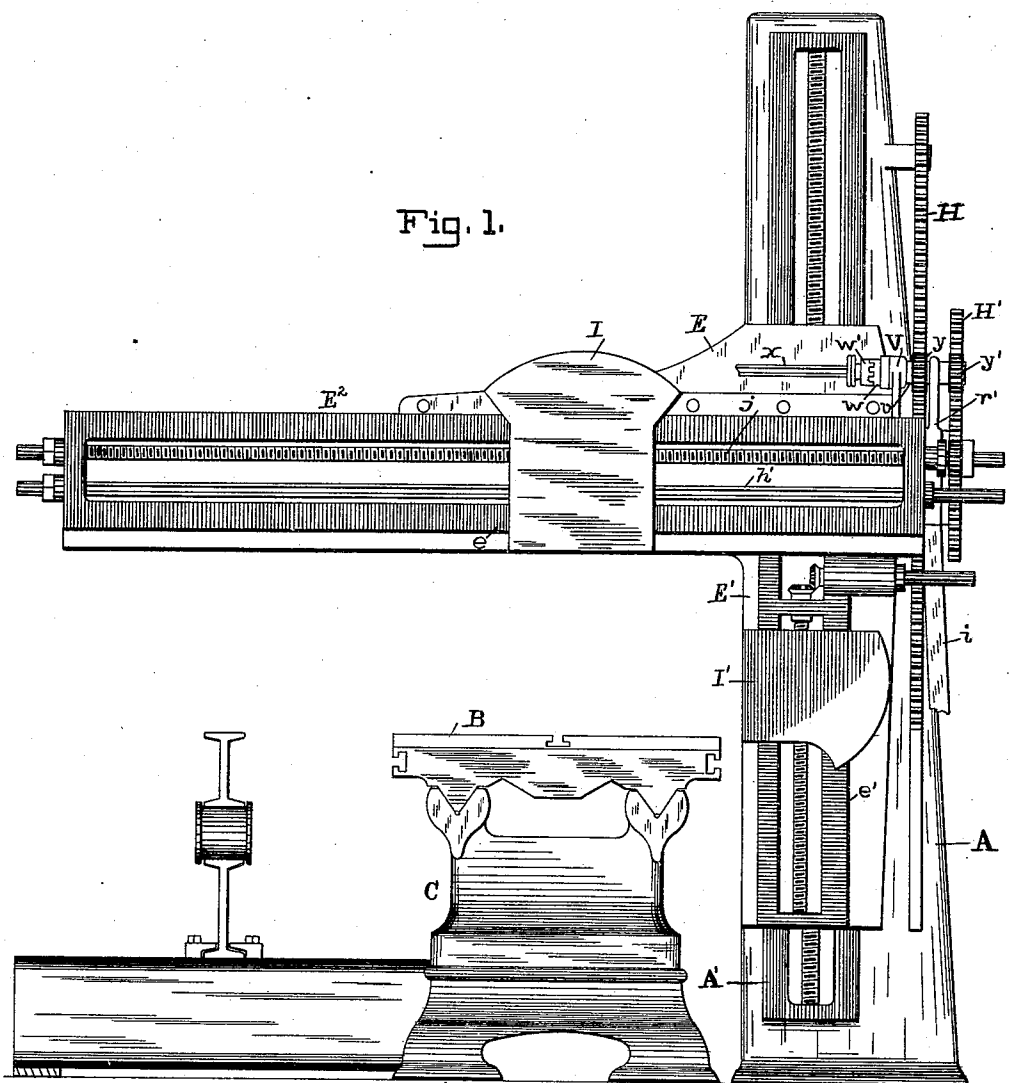
2 Sheets—Sheet 1.

J. S. DETRICK.
METAL PLANER.

No. 475,542.

Patented May 24, 1892.

Fig. 1.



WITNESSES:

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J. P. Davis.

INVENTOR:

Jacob S. Netrick,

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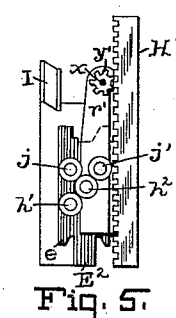
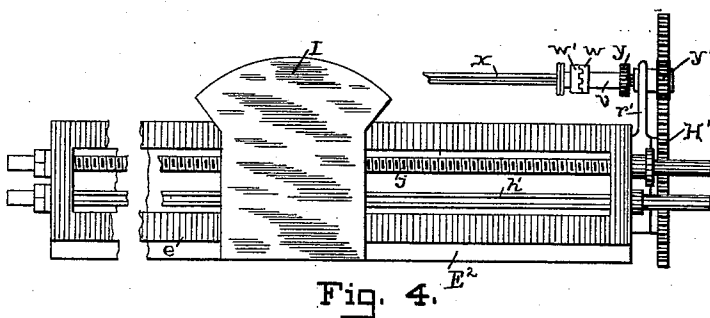
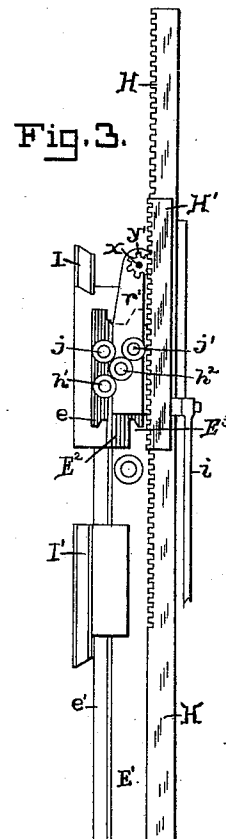
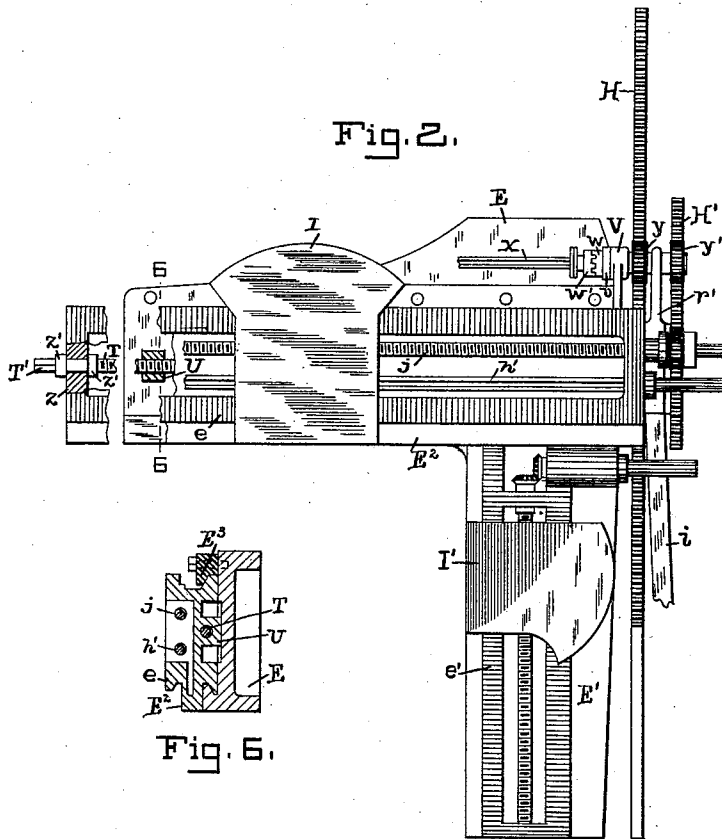
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JACOB S. DETRICK, OF BALTIMORE, MARYLAND.

METAL-PLANER.

SPECIFICATION forming part of Letters Patent No. 475,542, dated May 24, 1892.

Original application filed February 5, 1891, Serial No. 380,264. Divided and this application filed October 1, 1891. Serial No. 407,384. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. DETRICK, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Metal-Planers, of which the following is a specification.

This invention relates to an improvement in metal-planers; and the object of the same is to provide for an extension of the cross-beam to obtain a greater range of lateral movement of the tool-head, whereby much broader pieces of work can be planed in the machine.

With this end in view the invention consists in certain novel features of construction and combinations of parts, which will be described hereinafter, and pointed out in the claims.

In the accompanying drawings, which illustrate the invention, Figure 1 shows a side elevation of a metal-planer embodying my invention. Fig. 2 shows a similar view of the cross-beam detached. Fig. 3 shows an end view of the same. Fig. 4 shows a side view of the movable tool-saddle slide or extension detached from the cross-beam. Fig. 5 is an end view of the same. Fig. 6 is a vertical cross-section on the line 6 6 of Fig. 1.

The letter A designates the fixed side post of the planer, which has the usual vertical slideway A' for the cross-head, and B the platen supported on a suitable base C.

The cross-beam E in the present instance is provided with a laterally-movable slide E², which travels in a slideway E³ on the said cross-beam E, and has a tool-head slideway *e* and screw-shafts *j h'*. The tool-head I is mounted and is laterally movable on said slideway *e* instead of directly on the cross-beam E, as usual, and is actuated by said screw-shafts. The movable slide just mentioned is made much longer than the cross-beam and forms an extension for it, as illustrated in Fig. 1. The object of constructing the cross-beam with a separate extension slide E² is to provide for a greater range of lateral movement of the tool-head I than is obtained by mounting the same directly on the cross-beam E. It will thus be seen that by mounting the tool-head on the movable slide, as de-

scribed, much broader pieces of work can be planed than when it is mounted directly on the cross-beam.

The horizontal feed of the head I on the movable slide is accomplished by the screw-shafts *j h'*. These screw-shafts, as heretofore mentioned, are now mounted on the movable slide instead of on the cross-beam and receive motion indirectly from the rack H, as will be hereinafter described.

A standard V is mounted on the upper portion and at one end of the cross-beam. A sleeve *v* turns in the standard and is provided on one end with a clutch *w* and at the other end with a pinion *y*, which intermeshes with the rack H. Passing through the sleeve just mentioned is a spline-shaft *x* of any suitable length, which carries a clutch *w'*, feather-keyed thereto. This clutch *w'* is movable on the shaft and can be made to engage with the other clutch *w*, previously mentioned. It will now be seen that when the two clutches *w* and *w'* are in engagement any vertical movement of the rack H will produce a corresponding rotary movement in the spline-shaft *x*. This shaft has one end passing through a standard *v'*, projecting up from one end of the movable slide E². On this end of the spline-shaft is fixed a pinion-wheel *y'*, which meshes with a vertically-movable supplemental rack H', fastened to the movable slide E². This supplemental rack H' is connected by means of pinions *j' h'* with the pinions on the ends of the screw-shafts *j h'*, which impart motion to the said shafts and thereby produce the horizontal feed of the tool-head I. It will now be seen that when the clutches *w* and *w'* are in engagement any vertical movement of the rack H will produce a corresponding movement of the supplemental rack H', which operates the feed-screws *j h'*. It matters not what position the movable slide may have, the above action is the same if the two clutches *w w'* are in engagement, for the reason that in moving the slide E² the supplemental rack H' and its pinion are moved correspondingly and the spline-shaft *x* drawn through the clutches a corresponding distance without altering the relation between the clutches and the relation between the rack H and the pinion *y* on the sleeve engaging it. The

movable slide E^2 is shifted laterally on the cross-beam by means of a screw-shaft T, (shown in cross-section in Fig. 6 and in Fig. 2,) where the movable slide E^2 is broken away at one end, said screw-shaft extending lengthwise of the movable slide and through one end z of the same. This screw-shaft T is free to turn; but two collars z' , one on either side of the end portion z of the movable slide, prevent it from moving laterally independent of said movable slide. A half-nut U, fastened rigidly in the cross-beam and near its free end, engages the said screw-shaft. The screw-shaft T can be turned by suitable means attached to its end T', which projects beyond the end z of the movable slide E^2 . It will now be seen that when the screw-shaft is turned in the half-nut U the movable slide E^2 will be shifted laterally on the cross-beam either to one side or the other, as the case may be.

The letter E' designates the downwardly-extending part of the cross-beam, which has a vertical slideway e' and a tool-head I' on said slideway with suitable actuating mechanism operated by the rack H. The construction and operation of this vertical tool-head, &c., are the same as that shown and described in my companion application, filed February 5, 1891, Serial No. 380,264, of which this is a divisional application, and forms no part of my present invention.

The letter z designates the rod connecting the rack H and the driving mechanism.

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

1. In a metal-planer, the combination of a cross-beam provided with a horizontal slideway, a laterally-adjustable extension-slide fitting said slideway and itself having a horizontal slideway, said extension-slide to occupy a fixed position during the operation of the machine while planing, a tool-head on the extension-slideway, and driving mechanism connected with said tool-head to move it over the said extension-slideway.

2. In a metal-planer, the combination of a cross-beam provided with a horizontal slideway, a separate extension-slide fitting said slideway and provided with a horizontal tool-head slideway, a screw-shaft for adjusting

the extension-slide on the cross-beam and holding it thereon in a fixed position during the operation of the machine while planing, a tool-head on the extension-slideway, and driving mechanism connected with said tool-head to move it over said extension-slideway.

3. In a metal-planer, the combination of a cross-beam provided with a horizontal slideway, a laterally-adjustable extension-slide fitting said slideway and itself having a slideway, a tool-head on said latter slideway, screw-shafts carried by the slide for actuating the said tool-head, a supplemental rack, also carried by the slide, for directly actuating said screw-shafts, and a vertically-reciprocating main rack connected by gearing with the said auxiliary rack and imparting motion thereto.

4. In a metal-planer, the combination of a cross-beam provided with a horizontal slideway, a laterally-adjustable extension-slide fitting said slideway and itself having a slideway, a tool-head on said latter slideway, screw-shafts carried by the slide for actuating the said tool-head, a supplemental rack, also carried by the slide, for directly actuating said screw-shafts, a vertically-reciprocating main rack, and a spline-shaft extending through a sleeve which carries a pinion meshing with the main rack and itself carrying a pinion meshing with the auxiliary rack.

5. In a metal-planer, the combination of a fixed post having a vertical slideway, a cross-beam fitting the latter and adjustable thereon and provided with a horizontal slideway, a laterally-adjustable extension-slide fitting said slideway and itself having a slideway, a tool-head on said latter slideway, screw-shafts carried by the slide for actuating the said tool-head, a supplemental rack, also carried by the slide, for directly actuating said screw-shafts, a vertically-reciprocating main rack, a spline-shaft extending loosely through a sleeve which carries a pinion meshing with the supplemental rack, and a sliding clutch on the said spline-shaft for engaging the said loose sleeve.

In testimony whereof I affix my signature in the presence of two witnesses.

JACOB S. DETRICK.

Witnesses:

F. P. DAVIS,

JNO. T. MADDOX.