

(No Model.)

2 Sheets—Sheet 1.

J. S. DETRICK.
METAL PLANER.

No. 475,543.

Patented May 24, 1892.

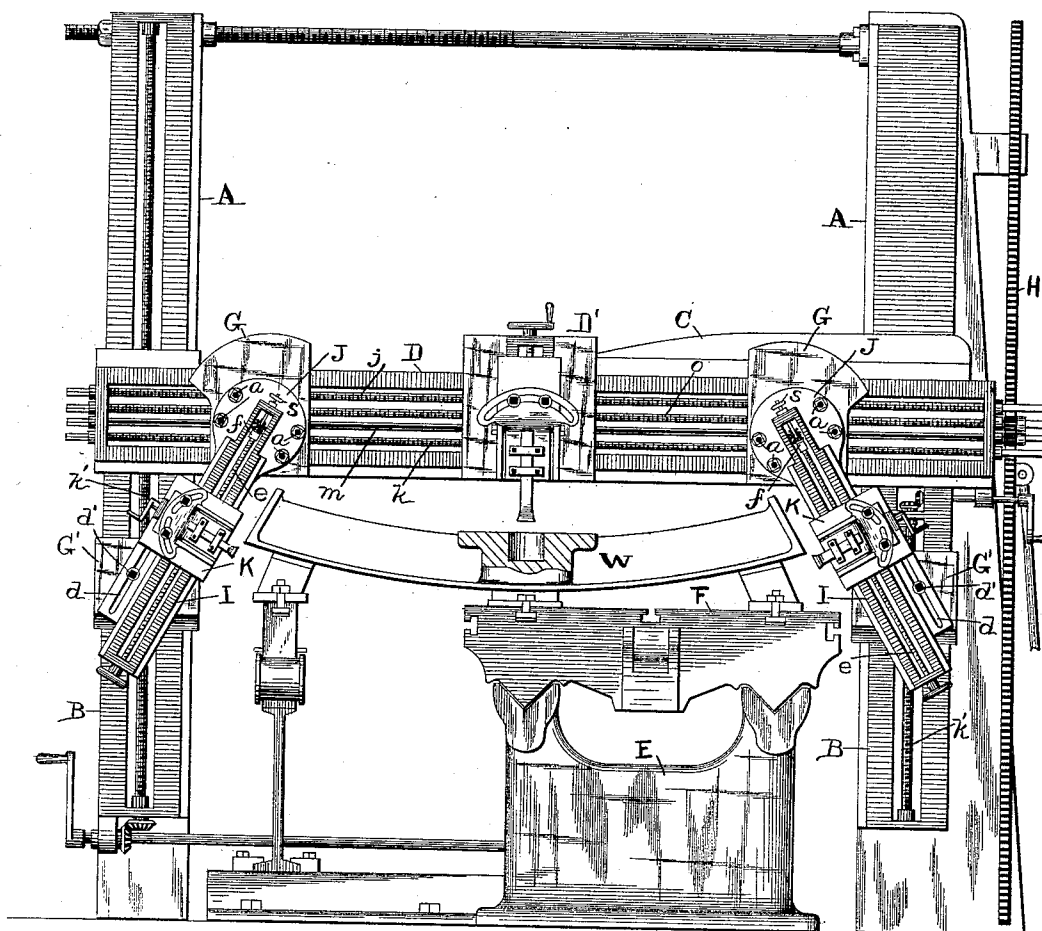


Fig. 1.

Witnesses:

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Frank J. Davis

Inventor:

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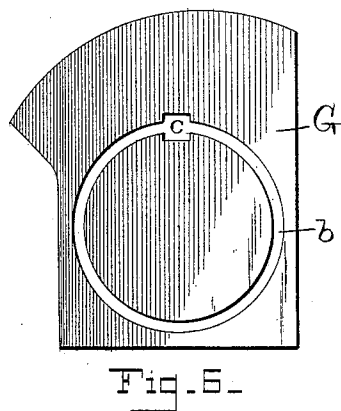
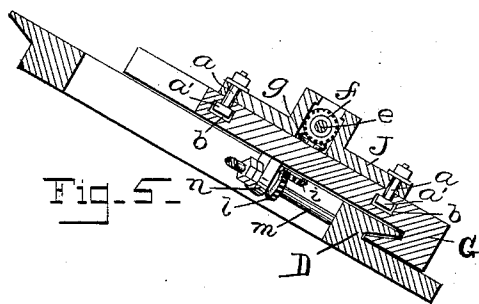
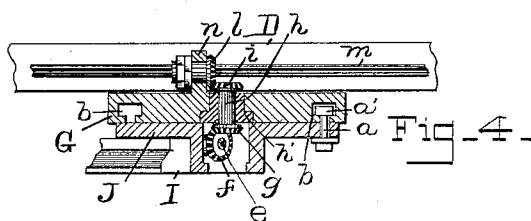
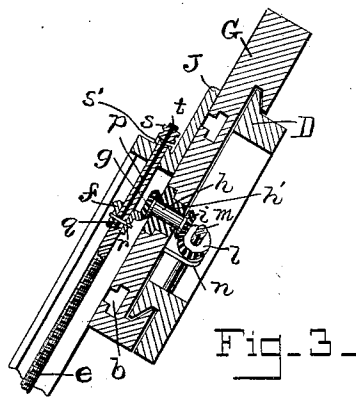
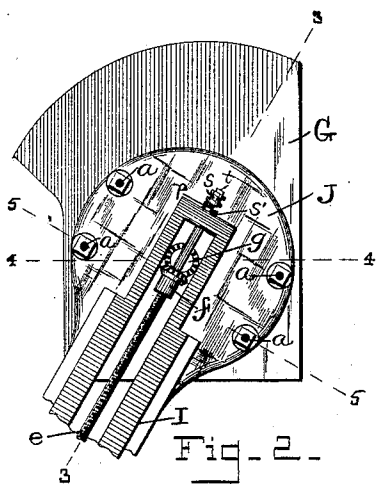
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JACOB S. DETRICK, OF BALTIMORE, MARYLAND.

METAL-PLANER.

SPECIFICATION forming part of Letters Patent No. 475,543, dated May 24, 1892.

Application filed October 14, 1891. Serial No. 408,651. (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 is to provide improved means for planing inclined surfaces.

To this end the invention consists in the novel features of construction and combinations of parts hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 represents a front elevation of the complete machine; Fig. 2, an enlarged detail of the upper portion of the inclined tool-head, slideway, and head; Fig. 3, a section on line 3 3 of Fig. 2, also showing the horizontal slideway in section; Fig. 4, a similar section on the line 4 4 of Fig. 2; Fig. 5, a similar section on the line 5 5 of Fig. 2; Fig. 6, a face view of the head, which carries the upper end of the inclined slideway.

The letter A designates the upright posts, which have vertical slideways B; C, the cross-beam supported by said posts and having the horizontal slideway D; D', the tool-head on said slideway; E, the bed, and F the reciprocating platen. Beside the horizontal and vertical slideways I arrange an inclined or angular slideway at each side of the platen, as follows: A head G is fitted and moves on the horizontal slideway and a similar head G' on the vertical slideway, and these two heads carry the inclined slideway I, which extends from one to the other and is connected with both. At the upper end of this inclined slideway is a partly-circular plate J, which fits against the head G and is connected therewith by bolts *a*, the heads *a'* of which are confined in a circular groove *b* in the said head G, as illustrated in Fig. 5. The bolt-heads are entered through an enlargement *b'*. (Shown in Fig. 6.) These bolts extend through the said plate J and have suitable nuts and washers to tighten them. The lower end of the inclined slideway is connected to the head G' by a longitudinal slot *d*, and a bolt or stud *d'*

projects from the said head through the slot and has a suitable nut and washer.

By sliding the heads G G' on their respective slideways the slideway I may be brought to any inclination or angular position desired and fixed in such position by tightening the nuts on the bolts *a* and *d'*. It will be obvious that the groove *b* and slot *d* allow free movement of the inclined slideway over the faces of the heads G G' while the latter are being adjusted on their slideways B and D. This adjustment of the said head G G' is accomplished by the screw-shafts *j k* on the horizontal slideway D and similar shafts *k'* on the vertical slideways.

The slideway I receives a tool-head K, the feed of which is through the following-described mechanism: A screw-shaft *e* runs through the tool-head lengthwise of the slideway and carries a miter-pinion *f* at its upper end, which pinion gears into a similar pinion *g* on the outer end of a stud *h*, extending transversely through the head G in a suitable bearing *h'*. This stud has on its opposite or inner end another miter-pinion *i*, which gears into a similar pinion *l* on a spline-shaft *m*, extending lengthwise of the horizontal slideway D, said pinion, however, being carried by the head G in a bearing *n* on the rear side of the latter.

Through the gearing above described the turning of the spline-shaft *m* actuates the screw-shaft *e* to feed the tool-head, and it will be observed that the relation of this gearing remains the same to whatever position the head G may be moved, the pinion *l* sliding on the spline-shaft, but always turning therewith, owing to the spline.

The tool-head D on the horizontal slideway is fed by the usual screw-shaft *o*, and the latter and also the spline-shaft *m* are actuated by a reciprocating rack H in the well-known way.

The screw-shaft *e* may be thrown out of gear as follows: A rod *p* enters its upper end to the point where the pinion *f* is located, and at this point the shaft is slotted transversely, as at *q*. A pin *r* extends through this slot and also through the rod *p* and pinion *f*, the latter being free to slide on the screw-shaft. The rod at its upper end has a knob *s*, with

an inclined cam-like under surface, which engages a corresponding surface on a tubular projection *s'* from the upper end portion of the slideway. It will be seen that upon turning the knob *s* it rides up on the projection *s'* and draws the pinion *f* into gear, the said knob being held on the rod *p* by a nut *t*, and upon turning said knob in the opposite direction the said pinion will slide down on the screw-shaft and out of gear, the slot *q* being of sufficient length to permit this movement.

In Fig. 1 a piece of work *W* is shown in the machine, which serves to illustrate the kind of surfaces designed to be planed by the employment of my new arrangement as herein described.

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 horizontal slideway, a vertical slideway, a slideway having its ends suitably connected with the horizontal and vertical slideways, respectively, so as to admit of its adjustment to different inclined positions, and a tool-head on said latter slideway.

2. In a metal-planer, the combination of a horizontal slideway, a vertical slideway, a head on said horizontal slideway, a head on said vertical slideway, an inclined slideway carried by said two heads and adjustable to different angles by moving the heads on their respective slideways, and a tool-head on the inclined slideway.

3. In a metal-planer, the combination of a horizontal slideway, a vertical slideway, a head on said horizontal slideway, a head on said vertical slideway, an inclined slideway carried by said two heads and adjustable to different angles by moving the heads on their respective slideways, said inclined slideway connected to said heads by means of bolts which engage suitable slots, whereby such adjustment may be had, and a tool-head on the inclined slideway.

4. In a metal-planer, the combination of a horizontal slideway, a vertical slideway, a head on said horizontal slideway, a head on

said vertical slideway, an inclined slideway carried by said two heads and adjustable to different angles by moving the heads on their respective slideways, the upper end of said inclined slideway being connected to the head on the horizontal slideway by bolts which engage in a circular slot in the said head and the lower end being connected to the head on the vertical slideway by a bolt which projects from said head and engages a slot in the inclined slideway, and a tool head on the inclined slideway.

5. In a metal-planer, the combination of a horizontal slideway, a vertical slideway, a head on said horizontal slideway, a head on said vertical slideway, an inclined slideway carried by said two heads and adjustable to different angles by moving the heads on their respective slideways, a tool-head on the inclined slideway, a spline-shaft in the horizontal slideway, a screw-shaft in the inclined slideway engaging the tool-head thereon, and suitable connecting-gear between the two, whereby the screw-shaft is actuated by the turning of the spline-shaft.

6. In a metal-planer, the combination of a horizontal slideway, a vertical slideway, a head on said horizontal slideway, a head on said vertical slideway, an inclined slideway carried by said two heads and adjustable to different angles by moving the heads on their respective slideways, a tool-head on the inclined slideway, a spline-shaft in the horizontal slideway, a screw-shaft in the inclined slideway engaging the tool-head thereon, a pinion on the spline-shaft carried by the head on the horizontal slideway, a pinion on the screw-shaft, and a stud extending through said head and having pinions on its opposite ends which gear into the two pinions aforesaid, respectively.

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

JACOB S. DETRICK.

Witnesses:

JNO. T. MADDOX,
CHAS. B. MANN.