

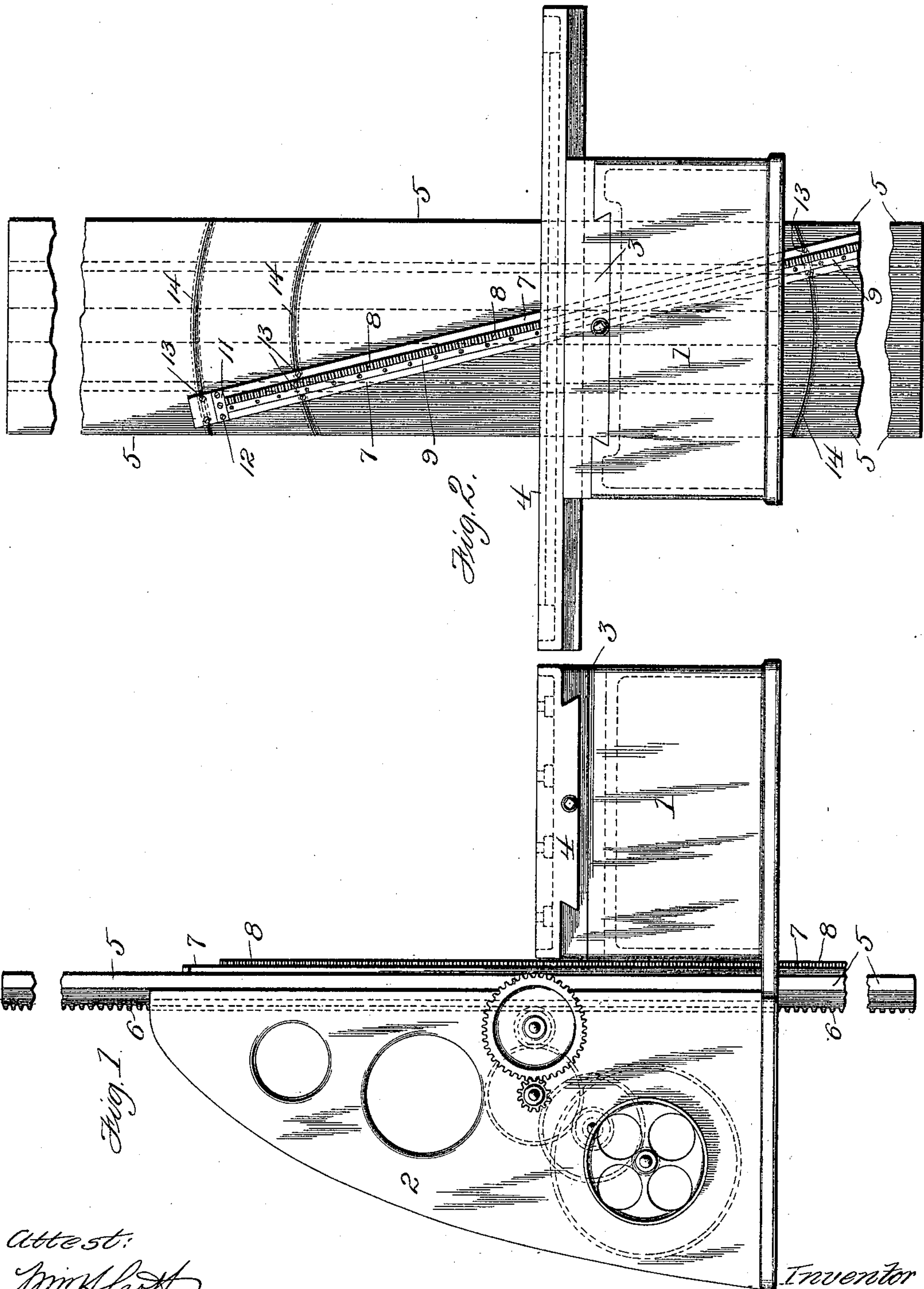
(No Model.)

2 Sheets—Sheet 1.

W. H. CHAPPELL.
MACHINE FOR PLANING METALS.

No. 594,065.

Patented Nov. 23, 1897.



Attest:
Wm. H. Chappell
James Ravallin

Inventor
Wm. H. Chappell
by *Robert Burns Atty.*

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

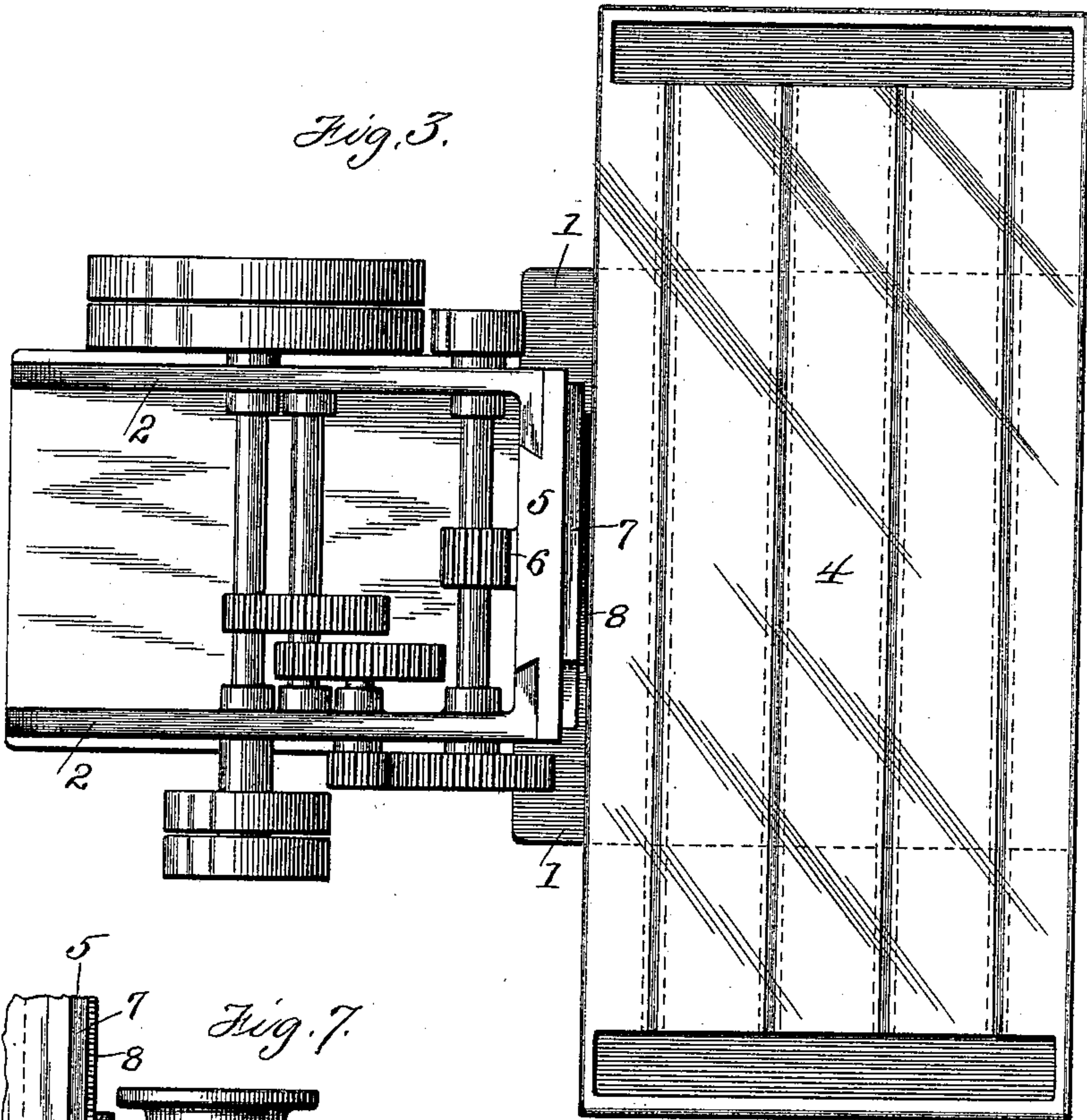


Fig. 7.

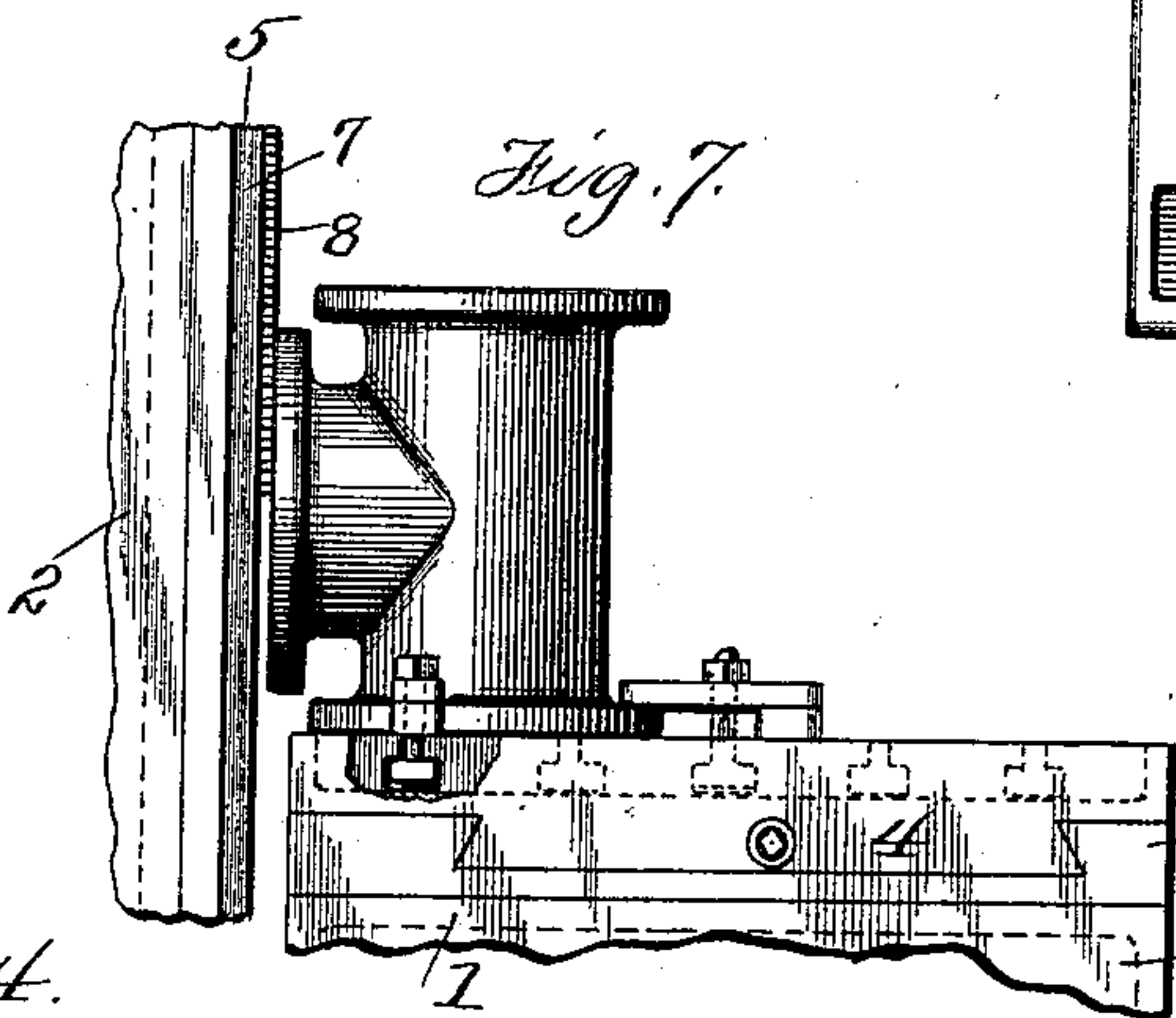


Fig. 6.

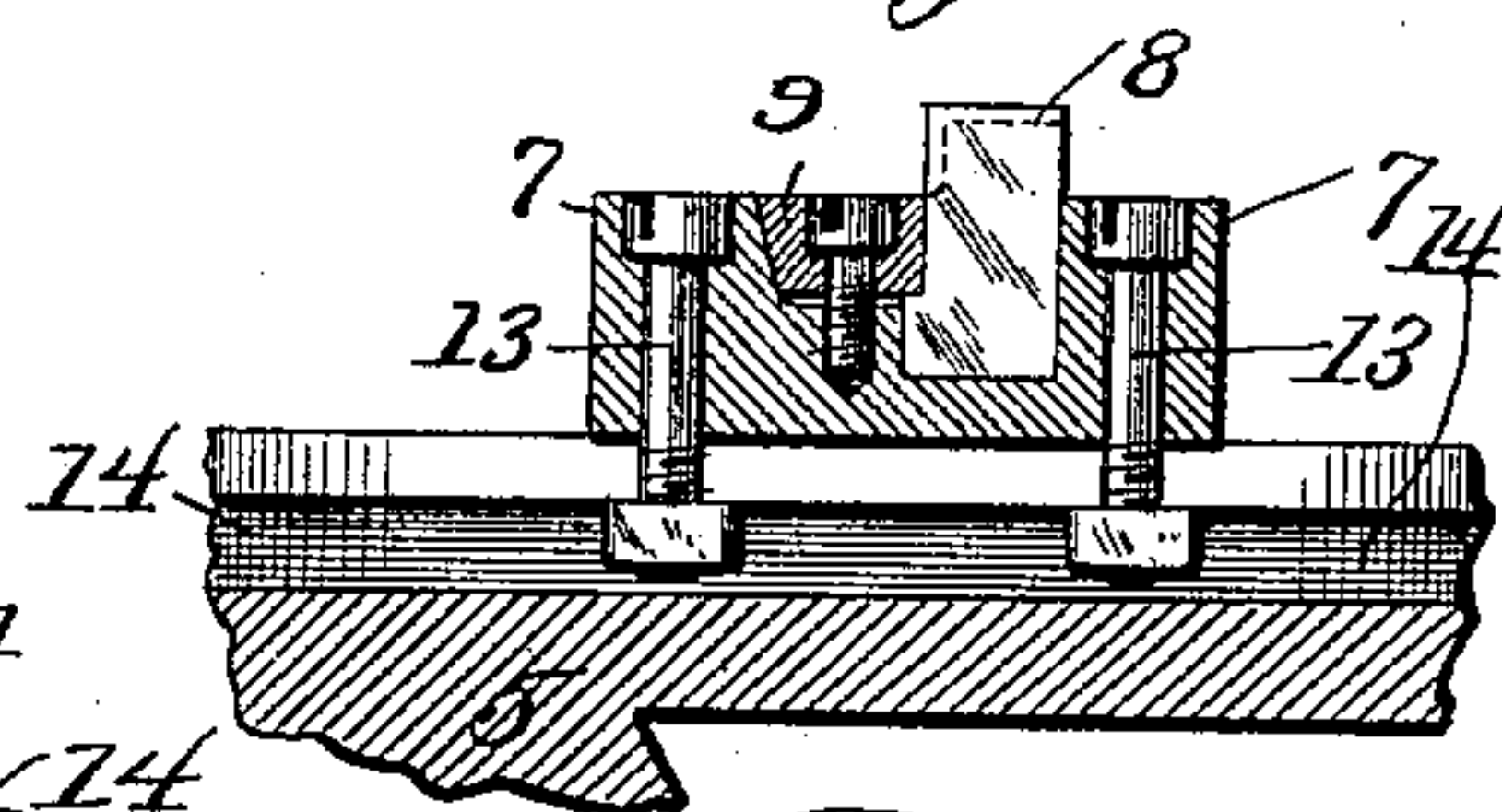


Fig. 4.

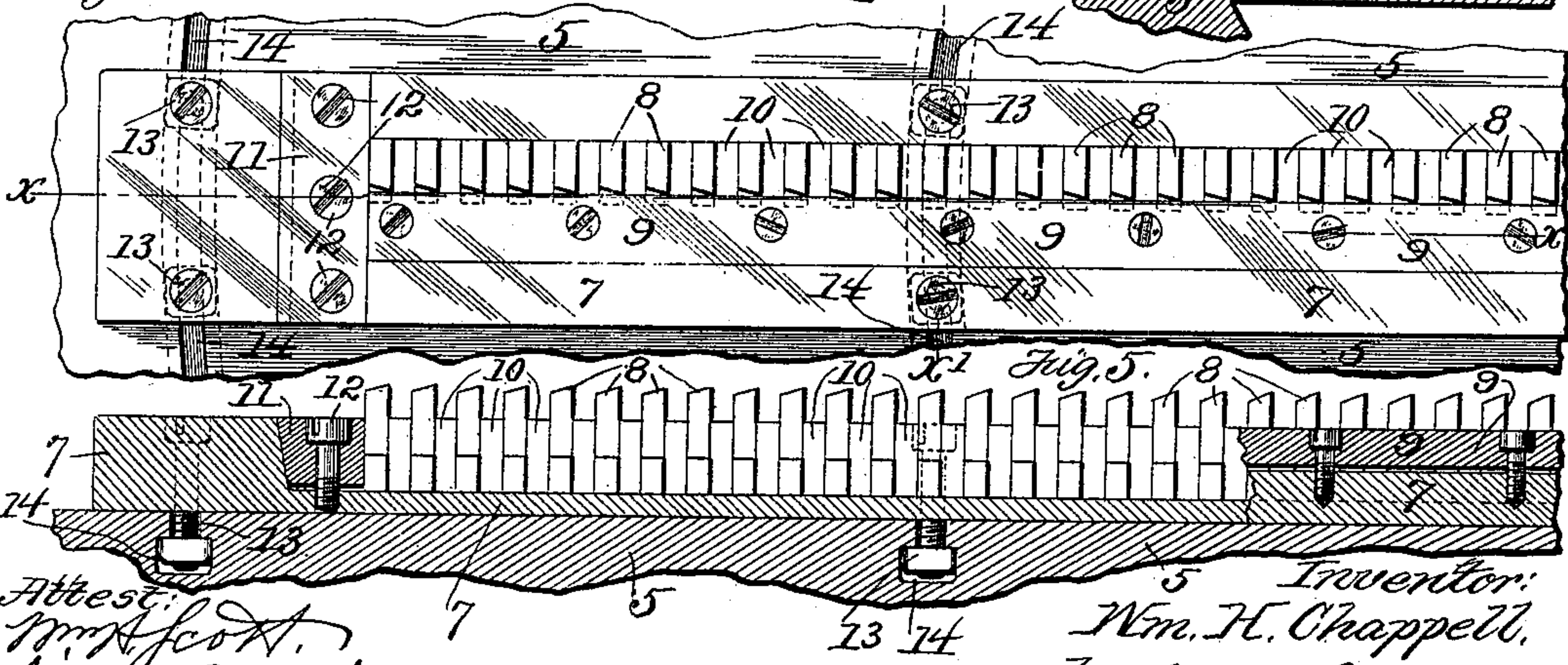


Fig. 5.

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UNITED STATES PATENT OFFICE.

WILLIAM H. CHAPPELL, OF CHICAGO, ILLINOIS.

MACHINE FOR PLANING METALS.

SPECIFICATION forming part of Letters Patent No. 594,065, dated November 23, 1897.

Application filed January 22, 1897. Serial No. 620,240. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. CHAPPELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Planing Metals; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to machines for planing and shaping metals by means of cutters and in which either the metal or the cutter has a rectilinear movement with relation to the other.

The objects of the present improvements are to provide a simple, durable, and efficient arrangement and combination of parts in such metal planing or shaping machines with which the work can be effected in an extremely rapid, efficient, and perfect manner, and so impart great capacity to the machine, and which, in addition, can be readily changed and adapted for planing or shaping a curved or cylindrical surface, as well as a flat surface or recess, all as will hereinafter more fully appear, and be more particularly pointed out in the claims. I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a planing or shaping machine for metals constructed in accordance with my present invention; Fig. 2, a front elevation of the machine; Fig. 3, a top plan of the same; Fig. 4, an enlarged detail front elevation of the multiple cutter-bar of the present invention; Fig. 5, a detail longitudinal section of the same at line xx , Fig. 4; Fig. 6, a detail transverse section of the same at line $x'x'$, Fig. 4; Fig. 7, a detail side elevation of the machine, illustrating the arrangement for planing or shaping flat or plane surfaces.

Similar numerals of reference indicate like parts in the several views.

In the accompanying drawings I have illustrated my invention as applied to a metal-planing machine in which the work-holding table or bed is arranged in a horizontally-adjustable manner upon the stationary sup-

porting frame or base, while the rectilinearly-moving cutter-bar of the present invention is arranged to move in a vertical direction in suitable guides on the main frame, the multiple series of tools or cutters carried by said cutter-bar being adapted to effect a cutting or planing action upon the face of the work held upon the machine bed or table in the downward stroke of the cutter-bar, such arrangement being preferred in view of the fact that the weight or gravity of the heavy cutter-bar employed will be utilized to aid in the cutting or planing operation. It is, however, within the province of the present invention to cause said cutter-bar to have a rectilinear movement in a plane other than the vertical one described, as particular uses may suggest, and in some cases to hold the cutter-bar in a stationary condition, while the work is caused to have the required rectilinear movement.

In the construction illustrated in the drawings, 1 represents the stationary supporting-frame of the machine of a substantially right-angle formation, as shown, the main or horizontal portion thereof being formed with suitable guides for the longitudinally-adjustable member of the work-supporting bed, while the vertical members or extensions 2 of said main frame constitute guides for the rectilinearly-moving cutter-bar of the present invention.

3 is the longitudinally-adjustable intermediate member of the work-supporting bed or table, arranged to slide in guide-grooves in the main frame 1, as usual in the present class of machines. 4 is the transverse adjustable member of said work-supporting table or bed, arranged to slide in guide-grooves in the intermediate member 3. The top surface of this member 4 is formed with the usual L-shaped grooves, by means of which the work to be operated upon is firmly secured in place upon such bed member 4.

Any usual means will be employed to impart the required longitudinal and transverse movement or adjustment to the above-described bed members—such, for instance, as the ordinary endless screw-feed for the slide-rests of lathes and the like—such adjusting means forming no part of the present invention.

5 is a vertically-moving slide for carrying

the cutter-bar of the present invention, which slide is guided in suitable guide-grooves in the vertical extensions 2 of the main frame and receives positive motion from a suitable train of driving-gearing journaled on the main frame of the machine and which have operative connection with a rack-bar 6 on the back of the slide, as shown in Figs. 1 and 3. Such driving mechanism is one of the ordinary and usual forms of such type of driving mechanisms employed in reciprocating metal-working machines and to which no claim is made in the present case.

7 is the cutter-bar of the present invention, which in the construction shown in Figs. 4, 5, and 6 of the drawings is formed with a longitudinally-extending recess or socket, in which the multiple series of tools or cutters 8 are firmly secured in any usual and suitable manner, preferably by means of the longitudinally-extending clamping-bar 9, that engages the enlarged butts of the tools or cutters, as shown in Figs. 4 and 6.

10 are intermediate blank or distance pieces of a less height than the tools or cutters 8, that are inserted between said cutters, so as to properly space the same and preserve them in the proper separated relation to each other.

11 is a tapering end clamping-piece that is adapted to be inserted at one end of the tools or cutters 8 and between the same and the beveled end of the longitudinal tool-receiving slot of the cutter-bar 7.

12 are screws passing through the tapering clamping-piece 11 and screwing into the cutter-bar 7, so that by the turning of said screws the clamping-piece 11 will be forced inward, so as to cause the whole series of tools or cutters 8 and their intermediate distance-pieces 10 to closely fit against each other before the final clamping operation of the series of tools in place is effected by the longitudinal clamping-bar 9, heretofore described.

The cutter-bar 7, above described, will be adjustably secured to the vertically-moving slide 5 of the machine, so that the degree of its obliquity thereon will be capable of adjustment in order that each succeeding tool or cutter 8 of the series carried by the cutter-bar 7 will take the proper amount or width of cut upon the article operated upon, and such oblique adjustment of the cutter-bar may be attained by any usual and well-known means, usually, however, by means of a series of attaching-bolts 13, passing through the cutter-bar and having enlarged heads that engage in L-shaped slots 14, formed in a transverse direction in the vertically-moving slide 5 of the present construction, as illustrated in Figs. 2, 4, 5, and 6.

In use the degree of the oblique arrangement of the cutter-bar 7 upon the slide 5 of the machine will usually be great enough so that with a single downward rectilinear movement of the slide and cutter-bar the whole face of the article operated upon will be planed, each succeeding cutter 8 taking a cut

proportionate to the width of the surface planed. Such operation is illustrated in Fig. 7 of the drawings, in which the face of one of the flanged necks of a pipe-coupling is adapted to be faced off at a single stroke of the cutter-bar. In this use of the present invention the pipe-coupling or other article will be secured directly to the bed member 4 of the machine.

It is within the province of the present invention to cause the work to have a rectilinear movement, while the series of obliquely-arranged tools or cutters 8 are held in a stationary position.

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

1. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed carried by said frame, a cutter-bar carried by said frame, and a series of independent tools or cutters secured in said cutter-bar the cutting-points of said tools being arranged in a common and rectilinear plane and obliquely to the line of movement so that each cutting-point will remove an independent and simultaneously successive cut of the full depth required, substantially as set forth.

2. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed carried by said frame, a cutter-bar carried by said frame, means for effecting an oblique adjustment of said cutter-bar, and a series of independent tools or cutters secured in said cutter-bar, the cutting-points of said tools being arranged in a common plane and obliquely to the line of movement, so that each cutting-point will remove an independent and successive cut of the full depth required, substantially as set forth.

3. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed, arranged adjustably thereon, a vertically-moving slide arranged in suitable guides on the main frame, means for imparting a rectilinear reciprocation to said slide, and a cutter-bar secured to said slide and carrying a series of tools or cutters, that have an oblique arrangement, substantially as set forth.

4. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed arranged adjustably thereon, a vertically-moving slide arranged in suitable guides on the main frame, means for imparting a rectilinear reciprocation to said slide, a cutter-bar adjustably secured to said slide and carrying a series of tools or cutters, and means for adjusting and securing the cutter-bar in an oblique position on the slide, substantially as set forth.

5. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed arranged adjustably thereon, a vertically-moving slide arranged in suitable guides on the main frame, means for imparting a rectilinear reciprocation to said slide, a

5 cutter-bar adjustably secured to said slide, and carrying a series of tools or cutters, and means for adjusting and securing the cutter-bar in an oblique position on the slide, the same comprising attaching-bolts, and transverse slots in the slide, substantially as set forth.

10 6. In a metal planing or shaping machine, the combination of a main frame, a work-supporting bed arranged thereon, a frame secured to said bed and provided with journal-bearings in which to support a curved article in a vertical manner, means for pivotally moving said article, a vertically-moving slide ar-

ranged in guides on the main frame, means 15 for imparting a rectilinear reciprocation to said slide, a cutter-bar adjustably secured to said slide and carrying a series of tools or cutters, and means for adjusting and securing the cutter-bar in an oblique position on the 20 slide, substantially as set forth.

In testimony whereof witness my hand this 18th day of January, 1897.

WILLIAM H. CHAPPELL.

In presence of—

ROBERT BURNS,
JAMES LAVALLIN.