

No. 625,968.

Patented May 30, 1899.

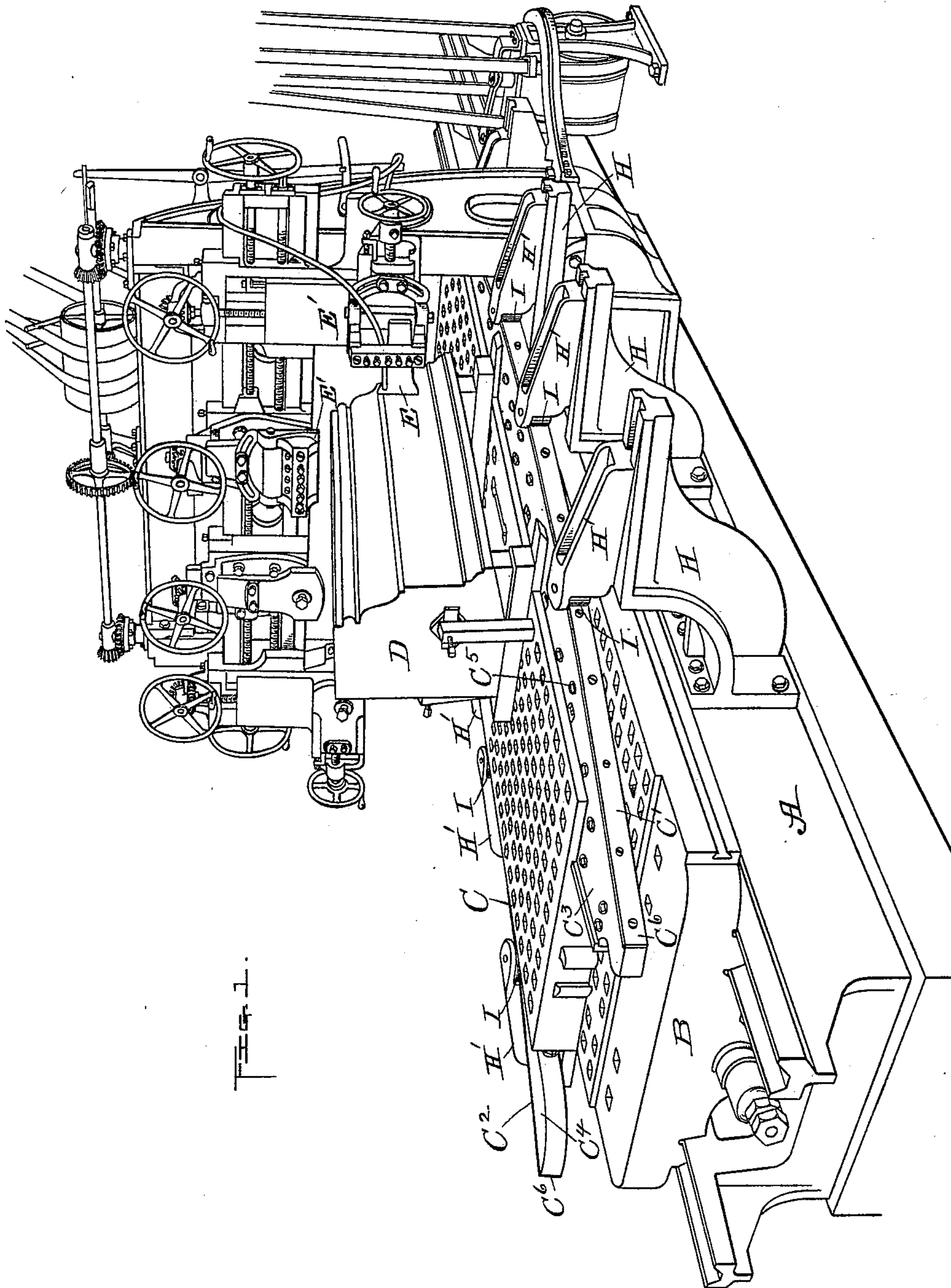
J. N. DURKEE.

STONE PLANER FOR PLANING CURVED SURFACES.

(Application filed Oct. 5, 1898.)

(No Model.)

4 Sheets—Sheet 1.



Witness,

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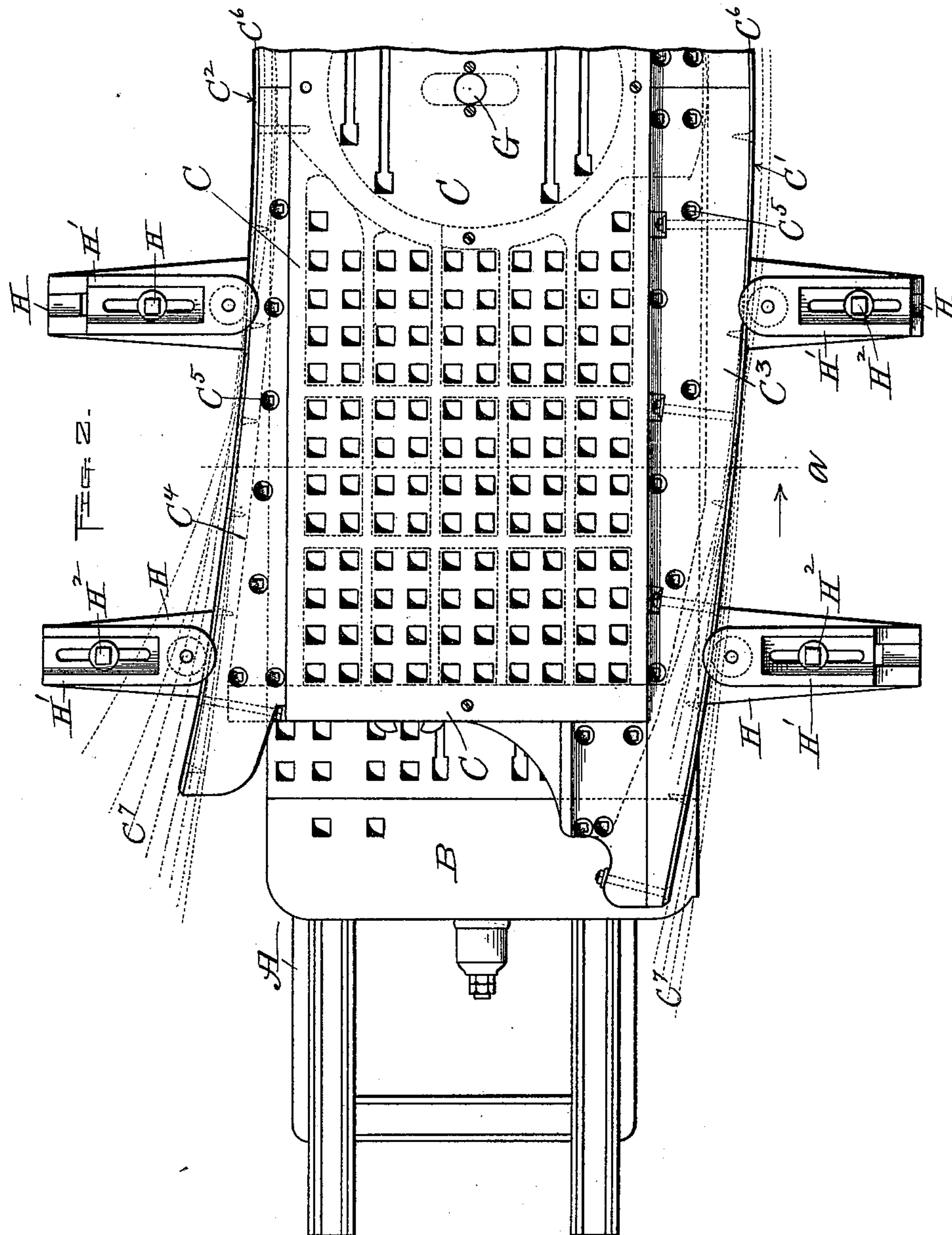
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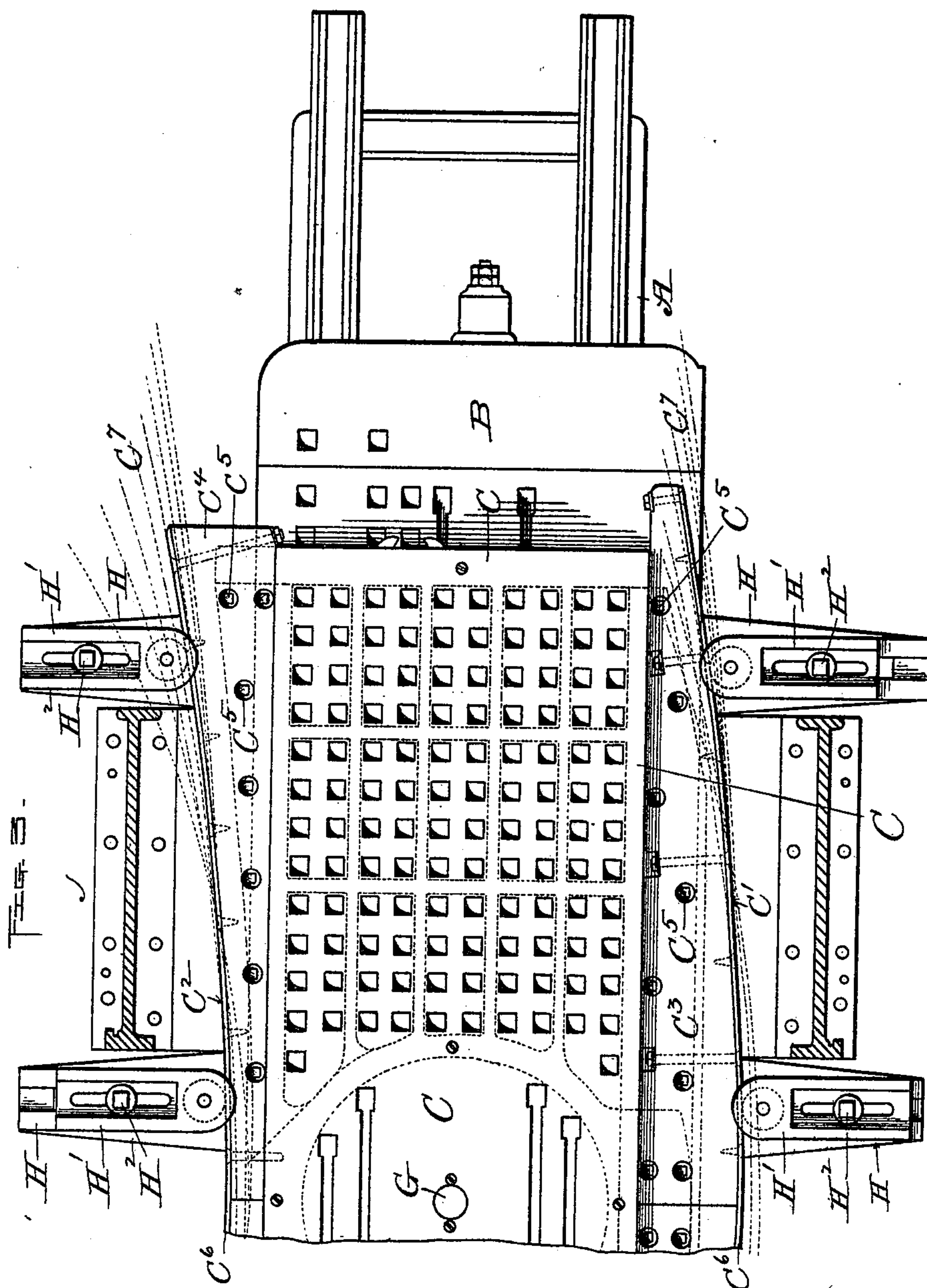
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**4 Sheets—Sheet 3.**



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4 Sheets—Sheet 4.

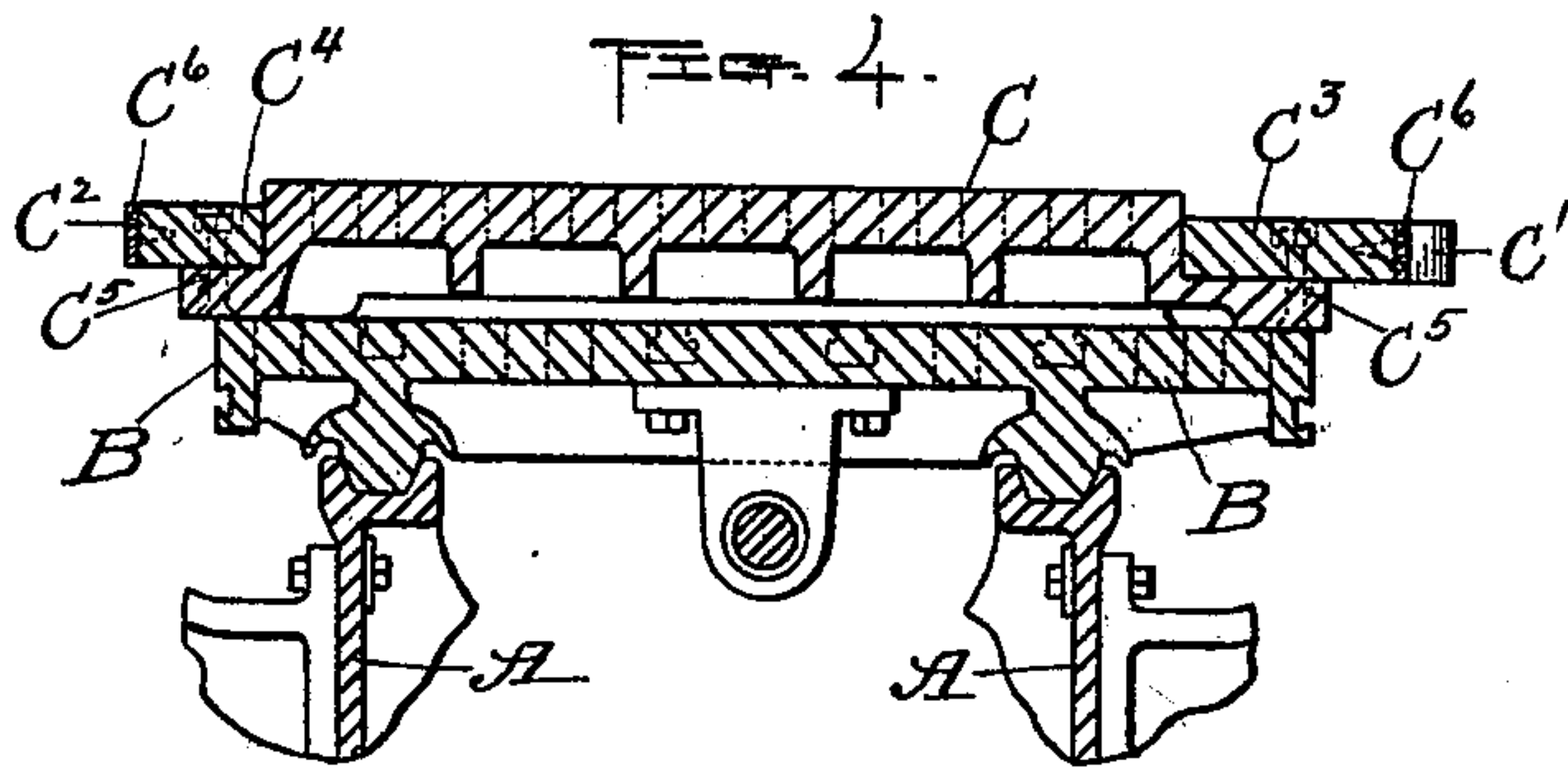


Fig. 5.

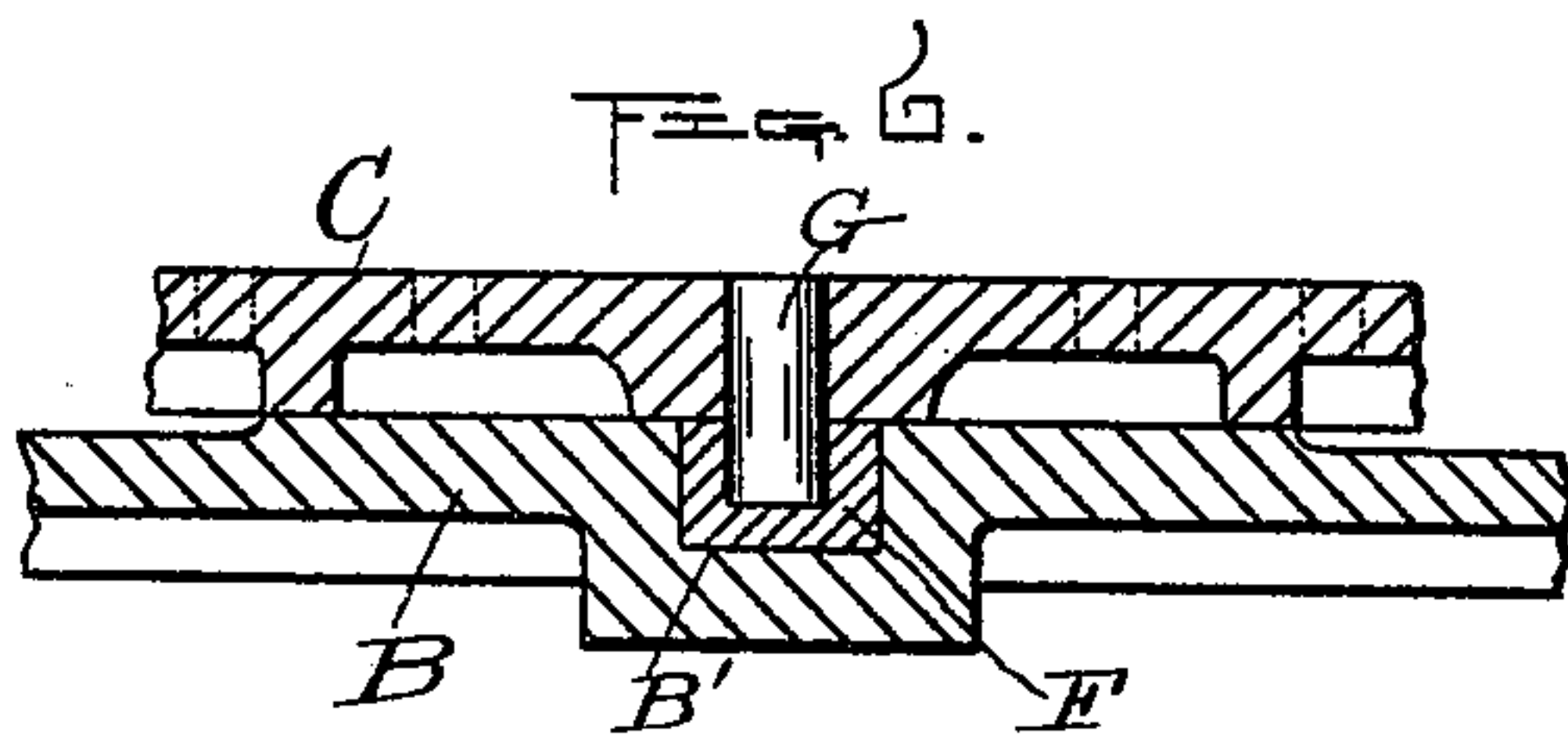
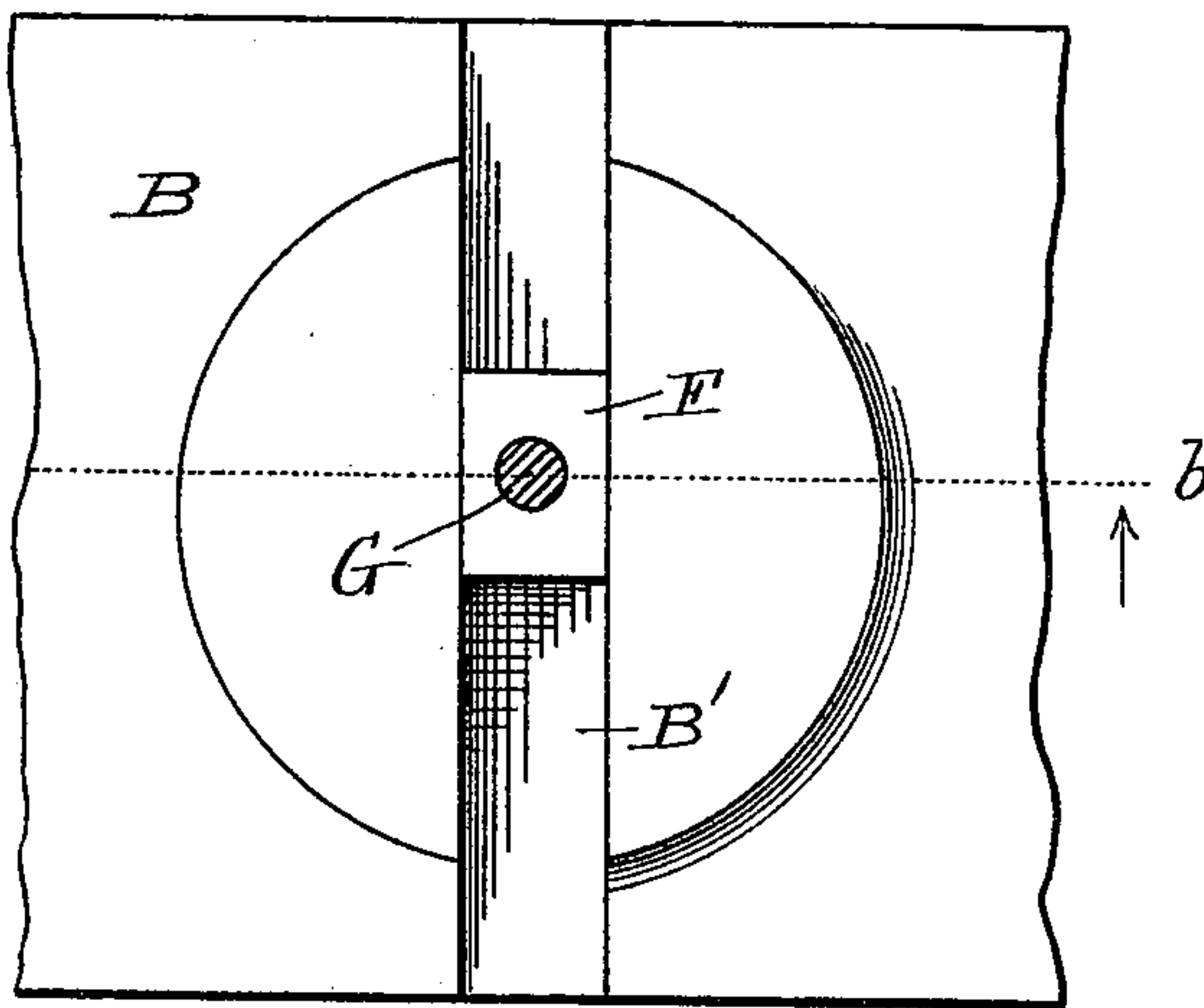
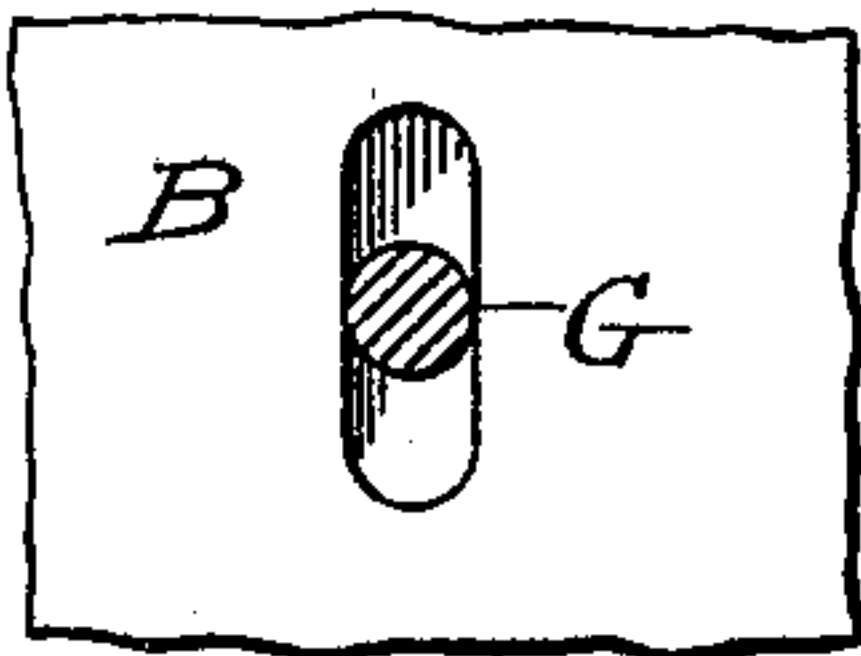


Fig. 7.



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# UNITED STATES PATENT OFFICE.

JERRY N. DURKEE, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF ONE-HALF TO ORLANDO W. NORCROSS, OF WORCESTER, MASSACHUSETTS.

## STONE-PLANER FOR PLANING CURVED SURFACES.

SPECIFICATION forming part of Letters Patent No. 625,968, dated May 30, 1899.

Application filed October 5, 1898. Serial No. 692,698. (No model.)

*To all whom it may concern:*

Be it known that I, JERRY N. DURKEE, of the city and county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Stone-Planers for Planing Curved Surfaces; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a perspective view of a stone-planing machine with my improvements applied thereto. Fig. 2 represents, upon an enlarged scale, a top or plan view of the left-hand half of the bed of the planer with my improved swivel bed-plate and its guides arranged thereon, as will be hereinafter described. Fig. 3 is a similar view of the right-hand half thereof on the same scale. The following figures are also upon the same scale as Figs. 2 and 3. Fig. 4 is a vertical transverse section on line *a*, Fig. 2, through the two movable bed-plates and part of the stationary bed of the machine. Fig. 5 is a plan of the central part of the usual movable bed of the planer with my improved swivel bed-plate left off. Fig. 6 is a vertical section taken at the point indicated by line *b*, Fig. 5, showing the central part of the swivel bed-plate pivoted to the transverse slide-block in the said movable bed of the planer, as will be hereinafter more fully described; and Fig. 7 is a modification of the construction shown in Figs. 5 and 6, which will also be hereinafter more fully described.

In order that others skilled in the art to which my invention appertains may better understand the nature and purpose thereof, I will now proceed to describe it more in detail.

The object of my said invention is to provide an attachment for ordinary stone-planers whereby without materially altering the construction a straight planer, or, in other words, a planer whose movable top bed-plate has only longitudinal reciprocating movements for planing straight surfaces, may be converted into a planer for planing curved surfaces.

Said invention consists in combining with the usual longitudinally-operating bed, hav-

ing a central transverse groove or slot formed in its top surface and the stationary bed of a stone-planer, a swivel bed-plate resting loosely on top of said longitudinally-operating bed and centrally pivoted to a movable block fitted to slide in said transverse groove or slot, a series of stationary brackets projecting up from each side of the stationary bed, and a series of horizontally-arranged antifriction-rolls mounted and fitted to turn in the upper ends of said brackets, against which the side edges of the top pivoted swivel bed-plate are adapted to bear, one of said side edges being made convex and the other concave in shape, whereby when the usual movable bed-plate is reciprocated back and forth longitudinally said pivoted swivel bed-plate is caused to move laterally and in curved lines by contact with said antifriction-rolls, thereby moving the stone or other material mounted thereon in corresponding curved lines against the usual stationary cutters, and in consequence planing the surfaces thereof likewise in curved lines, as will be hereinafter more fully set forth.

Referring to the drawings, A represents the stationary bed, and B the longitudinally-operating bed-plate, of an ordinary stone-planer. The construction and arrangement of said stationary bed and movable bed-plate, also the mechanism for operating said bed-plate longitudinally with reciprocating movements, as well as the construction and arrangement of the mechanism for supporting and adjusting the usual cutters E, being the same as on other stone-planers and plainly illustrated by the perspective view shown in Fig. 1 it is deemed unnecessary to describe the same in detail.

The pivoted swivel bed-plate C, which constitutes the main feature of my invention, is made about the same width and length as the bed-plate B, upon which, as before stated, it loosely rests, and takes the place of said bed-plate B when applied to the machine for supporting and holding the block of stone, marble, or other material D while being planed by the cutters E. Said cutters are held stationary in adjustable supports E', which latter are moved vertically and horizontally by



means of screw-shafts and hand-wheels, as is shown in Fig. 1 of the drawings, to adjust the cutters to the stock being operated upon, said stock being planed by moving it against said cutters.

The swivel bed-plate C is carried back and forth with reciprocating longitudinal movements on the usual bed-plate B, and in addition to said longitudinal movements lateral and curve or circular movements are imparted thereto in the following manner:

The top of bed-plate B is provided with a central transverse groove or slot B', and in said groove or slot is fitted a loose block F, which freely slides therein. To said block is centrally pivoted, by means of a vertical pin G, the bed-plate C. By this construction it is obvious that said bed-plate C may have circular and also lateral movements imparted to it. To effect this result, the two sides of bed-plate C are made with curved edges C' C<sup>2</sup>, the edge C' being convex in shape and the edge C<sup>2</sup> of concave form, and upon each side of the stationary bed A are secured a series of stationary brackets H, having antifriction-rolls I, mounted and fitted to turn in their upper ends, said rolls being arranged to turn horizontally and adapted to receive the aforesaid edges C' C<sup>2</sup> against their peripheries when the bed-plate C is reciprocated back and forth longitudinally with bed-plate B, as previously described. In this instance the antifriction-rolls I are mounted in adjustable slide-blocks H', fitted in suitable guideways in the tops of brackets H and fastened after adjustment by means of bolts H<sup>2</sup>, so that said antifriction-rolls may be adjusted toward or from the bed to suit different sizes and shapes of stock being operated upon and to conform to the curves desired to be cut thereon. Although I prefer to employ said adjusting-blocks H', since they may be dispensed with by making the brackets of different shapes for different kinds of work, I reserve the right to use the same or not, as desired.

The stock D to be operated upon is placed upon the bed-plate C and fastened in like manner to placing and fastening it upon the usual bed-plate B, and it is planed by the cutters as it is moved forward and back against them in precisely the same manner to that heretofore employed in planing straight surfaces by the old form of planers to which my improvements are applied, with the exception that the stock is moved in curved lines against the cutters instead of straight lines, and therefore the surfaces are correspondingly planed in curved lines, the shapes of the curves being governed by the radius of the curved edges C' C<sup>2</sup> and the position of the antifriction-rolls I against which they impinge.

In order that the machine may be easily and expeditiously adjusted to plane stock of any curve or radius, it is preferable to employ removable narrow side plates C<sup>3</sup> C<sup>4</sup> on each side of the bed-plate C, upon which are

formed the curved edges C' C<sup>2</sup>, previously described. Said removable side plates are preferably made of hard wood and secured to the bed-plate proper, C, by means of bolts C<sup>5</sup>. Wearing-plates C<sup>6</sup> are also preferably employed on the curved edges C' C<sup>2</sup>, but I do not limit myself thereto. The dotted curved lines C<sup>7</sup>, Figs. 2 and 3, represent different radii for the curved edges of bed C.

Although I have described my invention as being employed for planing only stone, marble, and similar materials of a mineral nature, it may be applied to a metal-planer for planing iron, steel, and other metals, and I therefore do not limit myself to any special application thereof in practice.

From the foregoing description it will be apparent that by the application of said invention to an ordinary straight planer the latter may be converted into a combined straight and curved planer, which may be easily changed from one to the other by simply applying or removing the loose bed-plate C, as circumstances may require. When used as a straight planer, the brackets H and their rolls may be removed or not, as preferred.

In Fig. 7 I have shown how the pivot-pin of bed-plate C may be fitted to freely slide laterally in a transverse groove or slot formed in the bed-plate B instead of in a block fitted to slide in a transverse groove or slot, as previously described. I reserve the right to employ either construction in practice or to reverse the last-described construction and provide the bed-plate C instead of the bed-plate B with the transverse groove or slot, as is shown by dotted lines in Fig. 2.

I am aware that a curved planer is not broadly new, and I therefore limit my invention to substantially the principle and construction herein set forth.

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

1. In a machine for planing stone, and other materials, the combination of the usual stationary, and longitudinally-reciprocating bed thereof—the latter having a central transverse groove or slot therein; with a loose block fitted to slide in said groove or slot; a bed-plate, resting loosely on top of the aforesaid longitudinally-reciprocating bed, having curved side edges, and pivoted to said loose slide-block; a series of stationary brackets projecting up from the stationary bed and antifriction-rolls, mounted and fitted to turn in said brackets and adapted to receive said curved edges of said pivoted, bed-plate against their peripheries to impart the desired curved movements to the loose bed-plate, substantially as and for the purpose set forth.

2. In a machine for planing stone and other materials, the combination of the usual stationary, and longitudinally-reciprocating beds thereof, the latter having a central transverse groove or slot therein, with a loose block



fitted to slide in said groove or slot; a bed-plate resting loosely on top of the aforesaid longitudinally-reciprocating bed, pivoted to said loose slide-block and having removable  
5 side pieces provided with curved outer edges; a series of stationary brackets projecting up from the stationary bed and having adjustable slide-blocks in their upper ends, provided with means for fastening them after adjust-  
10 ment, and antifriction-rolls, mounted and fitted to turn in said slide-blocks and adapted to receive the aforesaid curved edges of the side pieces on the pivoted bed-plate against their peripheries substantially as and for the  
15 purpose set forth.

3. In a machine for planing stone and other materials, the combination of the usual sta-

tionary, and longitudinally-reciprocating beds thereof, with a bed-plate, resting loosely  
on top of said longitudinally-reciprocating 20 bed, loosely pivoted thereto so that it may freely slide in lateral, curved directions on the main bed, and provided with curved side edges; a series of antifriction-rolls, mounted  
on suitable stationary bearings and adapted 25 to receive the said curved edges of the pivoted bed-plate against their peripheries, to impart the aforesaid lateral curved movements to said loose bed-plate, substantially as and for the purpose set forth.

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Witnesses:

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