

A. WOOD.
 PLATE PLANER.
 APPLICATION FILED JUNE 23, 1909.

963,348.

Patented July 5, 1910.

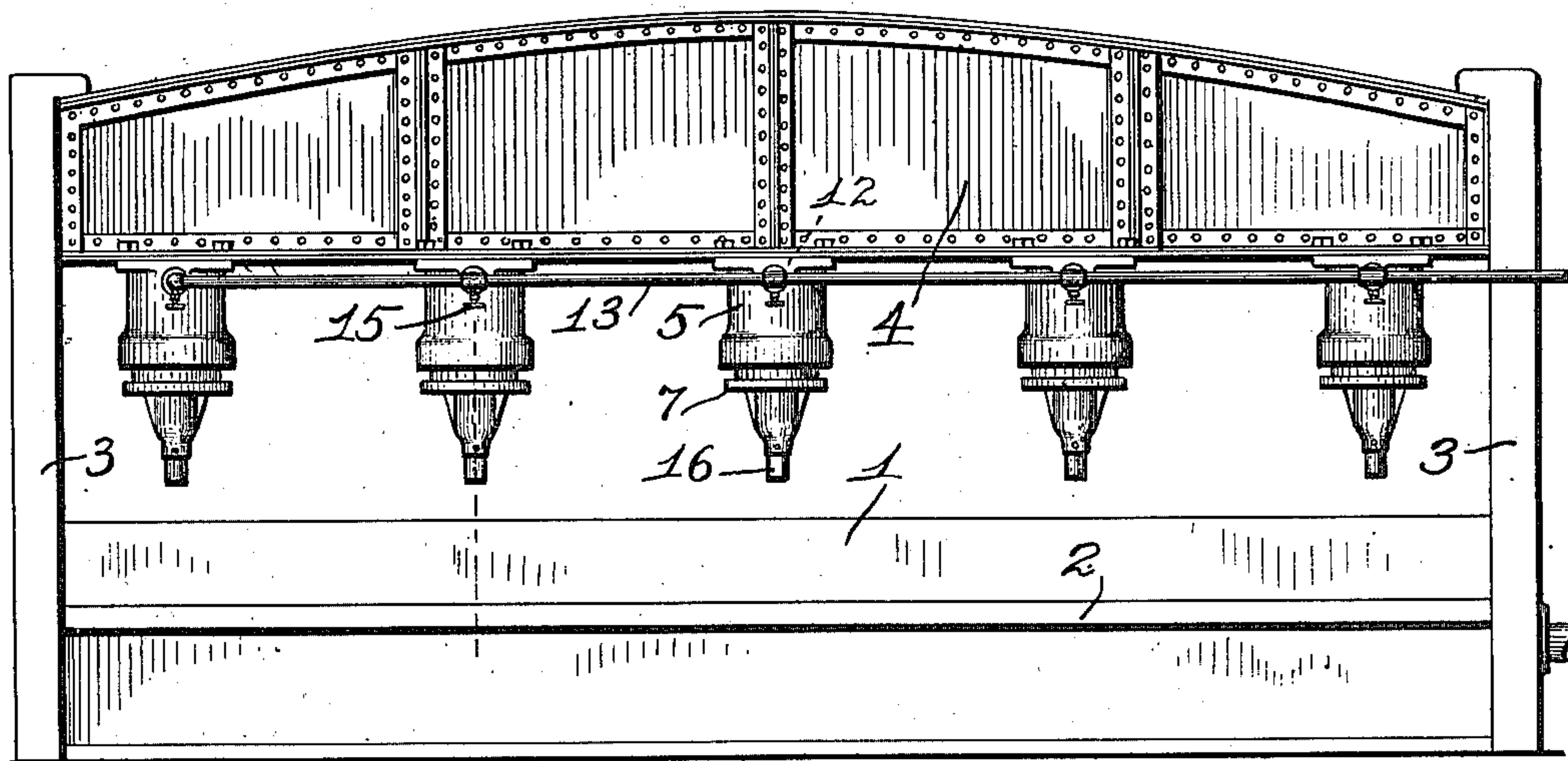


Fig. 1.

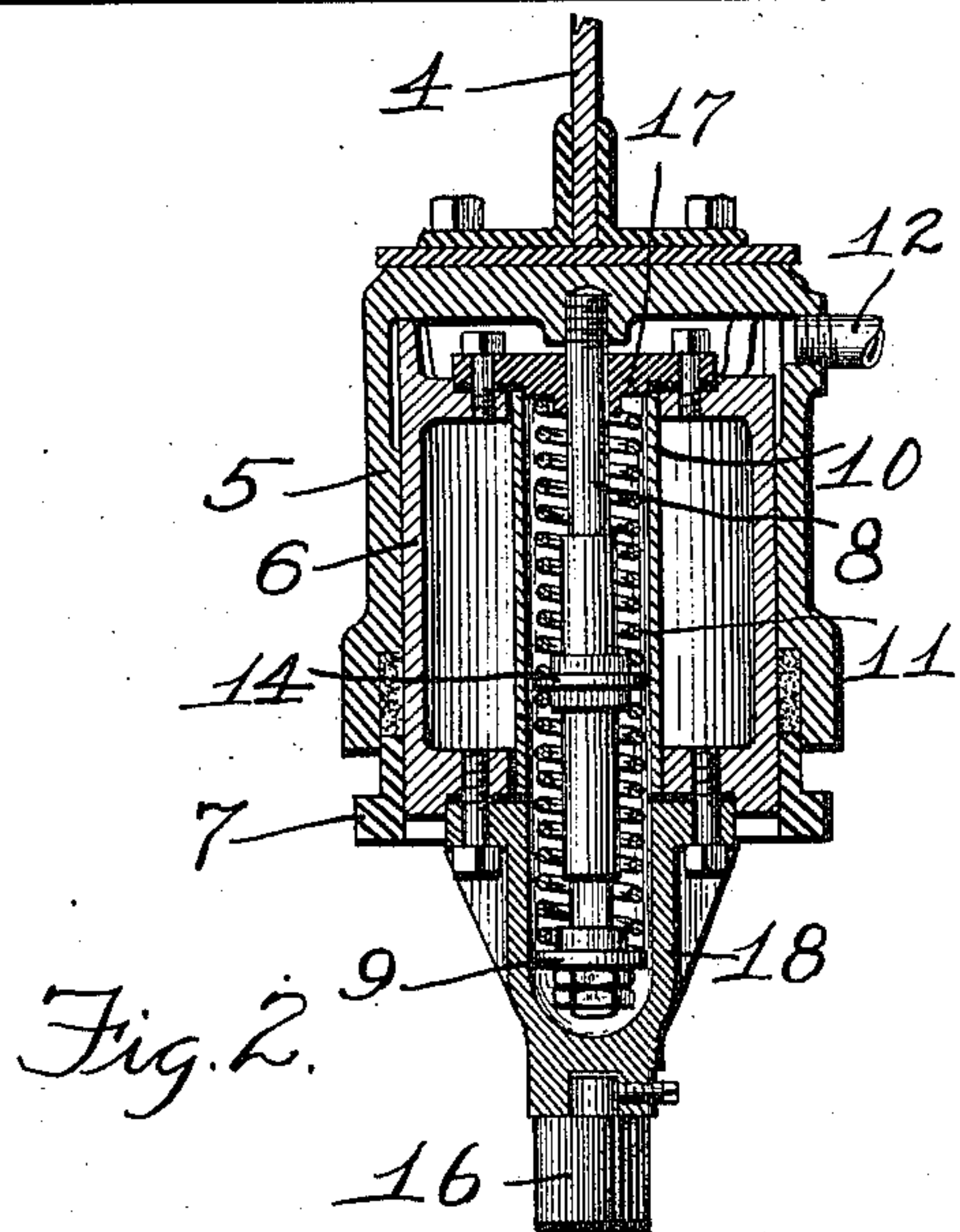
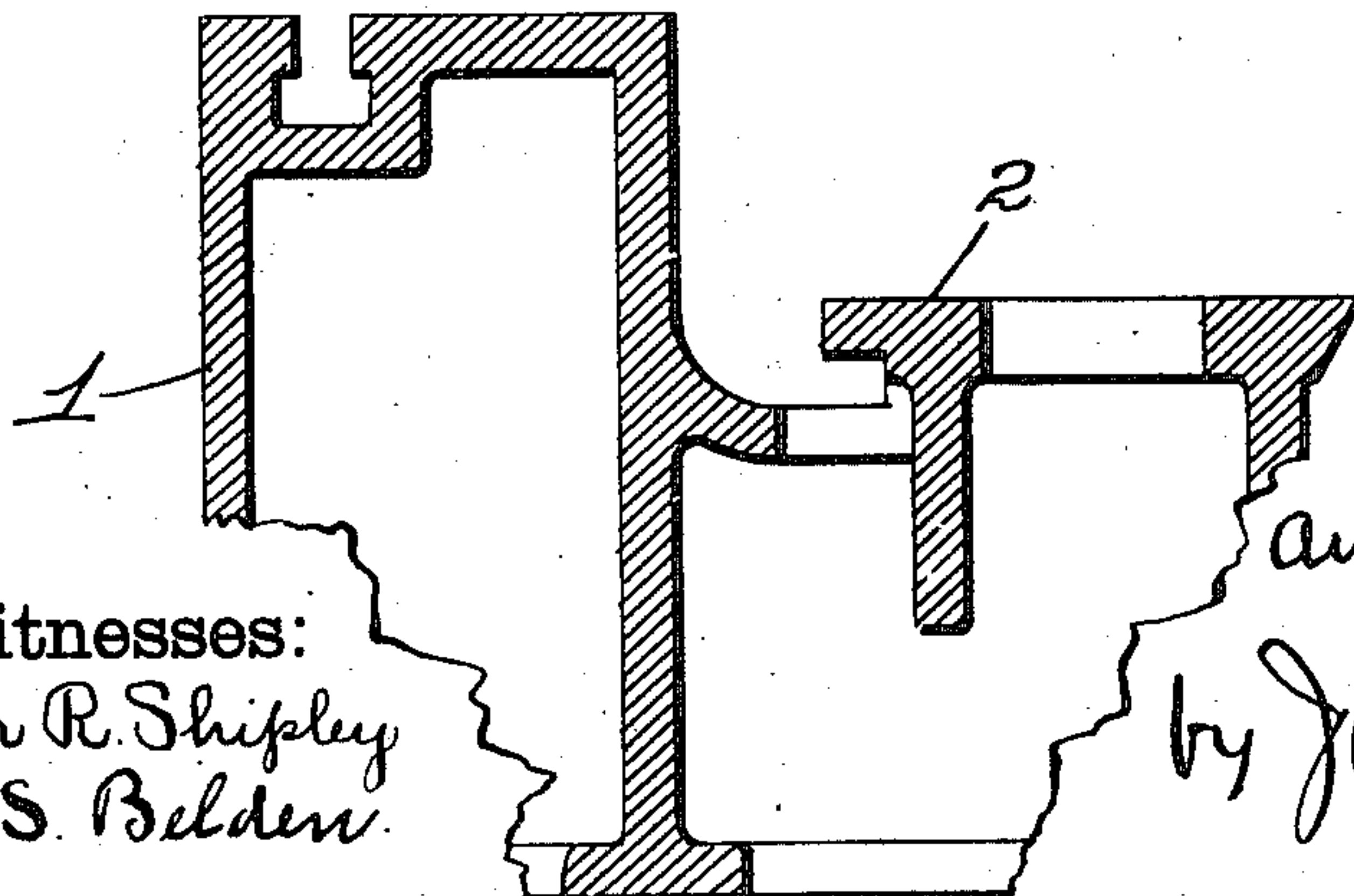


Fig. 2.



Witnesses:
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AUGUSTUS WOOD, OF HAMILTON, OHIO, ASSIGNOR TO NILES-BEMENT-POND COMPANY,
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PLATE-PLANER.

963,348.

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To all whom it may concern:

Be it known that I, AUGUSTUS WOOD, a citizen of the United States, residing at Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in Plate-Planers, of which the following is a specification.

This invention pertains to planers for planing the edges of metal plates, and it relates to improved means for clamping to the table the plate to be planed.

The invention will be readily understood from the following description taken in connection with the accompanying drawing, in which:—

Figure 1 is a front elevation of a plate planer exemplifying my invention, and Fig. 2 a vertical transverse section of the same.

In the drawing:—1, indicates the usual bed of a plate planer, the top of which bed forms the plate receiving table: 2, that portion of the bed forming the guideway for the usual tool carrying saddle: 3, the usual housings: 4, the usual top-brace supported by the housings and disposed over the table to carry the plate-clamping devices: 5, a series of cylinders rigidly secured to the lower edge of the top-brace and having their upper ends closed, the axis of the cylinders being vertical, the cylinders and their adjuncts being hereinafter described in the singular, as all are alike: 6, a piston working in the cylinder: 7, a packing-gland at the lower end of the cylinder, the piston being illustrated as of uniform diameter throughout its length, and in the form of a plunger longer than the cylinder: 8, a guide-rod axially disposed in the cylinder and rigidly secured in the top of the cylinder: 9, a collar on the lower end of this rod and adjustable thereon by nuts: 10, a tube axially secured in the piston, which is hollow: 11, a helical spring disposed within tube 10 around the guide-rod, and compressed between collar 9 and the upper end of the piston, whereby the tendency of the spring is to push the piston up into the cylinder: 12, an inlet pipe communicating with the top of the cylinder, to supply pressure-fluid: 13, a pressure-main communicating with all of the inlet pipes and adapted to be connected with a source of supply of fluid under pressure through some suitable valve or valves, by means of which the main may be placed in communication with the source

of pressure or with the atmosphere: 14, a collar slidable on the guide-rod at an intermediate portion of its length, and serving to divide the spring into two sections, whereby two short springs instead of one long one may be employed: 15, a valve in the inlet pipe of each cylinder, whereby any given cylinder may be cut off from the source of fluid pressure: 16, a pressure-foot carried by the piston, and removable therefrom, and adapted to go down and forcibly bear on a plate on the table when the piston is forced down: 17, a plate secured to the top of the piston around the guide-rod and over the top of tube 10 and serving as the upper abutment for the spring: 18, a nose bolted to the lower end of the piston and carrying in its lower end the pressure-foot 16, this nose having a central cavity to receive the lower end of the guide-rod and the spring, whereby the spring structure may have a length considerably in excess of that of the piston and cylinder.

The tube prevents the spring or springs from buckling sidewise; the removability of the nose 18 permits the springs and rod to be readily assembled and removed.

When a plate is placed on the table, and fluid under pressure admitted to the cylinder, the pistons instantly and forcibly descend, and the pressure-feet clamp the plate firmly to the table, and, upon the pressure being relieved, the springs instantly elevate the pistons and pressure-feet and leave the plate free.

Such cylinders as may not be wanted in action, may be cut out of service by closing their appropriate valves 15. The trunk form for the pistons avoids the use of piston rods, and results in a structure of a great lateral stiffness.

I claim:—

1. A plate planer comprising, a cylinder supported in vertical position by the top-brace of the planer and having its lower end open, a hollow piston fitting the cylinder, a nose projecting from the lower end of the piston, a pressure-foot carried by the nose, means for controlling the flow of pressure-fluid to and from the upper end of the cylinder over the piston therein, and a spring disposed within said hollow piston and connected therewith and with the roof of the cylinder and serving to normally support

the piston in upward position with the piston reaching substantially to the roof of the cylinder, combined substantially as set forth.

2. A plate planer comprising, a cylinder supported in vertical position by the top-brace of the planer and having its lower end open, a hollow piston fitting the cylinder, a nose projecting from the lower end of the piston, a pressure-foot carried by the nose, means for the control of fluid pressure above the piston, a guide-rod axially disposed within the cylinder and having its upper end secured in the top of the cylinder and having its body projecting down through the roof of the piston, a collar on the lower end of the guide-rod, and a coiled spring disposed upon the guide-rod and compressed between said collar and the roof of the piston, combined substantially as set forth.

3. A plate planer comprising, a cylinder supported in vertical position by the top-brace of the planer and having its lower end open, a hollow piston fitting the cylinder, a nose projecting from the lower end of the piston, a pressure-foot carried by the nose, means for the control of fluid pressure above the piston, a guide-rod axially disposed within the cylinder and having its upper end secured in the top of the cylinder and having its body projecting down through the roof of the piston, a collar on the lower end of the guide-rod, a coiled spring disposed upon the guide-rod and compressed between said collar and the roof of the piston, and a collar slidably engaging said guide-rod and dividing said spring into upper and lower portions, combined substantially as set forth.

4. A plate planer comprising, a cylinder supported in vertical position by the top-brace of the planer and having its lower end open, a hollow piston fitting the cylinder, a hollow nose projecting from the lower end of the piston, a pressure-foot carried by the nose, means for the control of fluid pressure above the piston, a guide-rod axially disposed within the cylinder and having its upper end secured in the top of the cylinder and having its body projecting down through the roof of the piston and through the piston and into the hollow of the nose, a collar on the lower end of the guide-rod, and a coiled spring disposed upon the guide-rod and compressed between said collar and the roof of the piston, combined substantially as set forth.

5. A plate planer comprising, a cylinder supported in vertical position by the top-brace of the planer and having its lower end open, a hollow piston fitting the cylinder, a removable hollow nose projecting from the

lower end of the piston, a pressure-foot carried by the nose, means for the control of fluid pressure above the piston, a guide-rod axially disposed within the cylinder and having its upper end secured in the top of the cylinder and having its body projecting down through the roof of the piston and through the piston and into the hollow of the nose, a collar on the lower end of the guide-rod, and a coiled spring disposed upon the guide-rod and compressed between said collar and the roof of the piston, combined substantially as set forth.

6. A plate planer comprising, a cylinder supported in vertical position by the top-brace of the planer and having its lower end open, a hollow piston fitting the cylinder, a removable hollow nose projecting from the lower end of the piston, a pressure-foot carried by the nose, means for the control of fluid pressure above the piston, a guide-rod axially disposed within the cylinder and having its upper end secured in the top of the cylinder and having its body projecting down through the roof of the piston and through the piston and into the hollow of the nose, a collar on the lower end of the guide-rod, a coiled spring disposed upon the guide-rod and compressed between said collar and the roof of the piston, and a tube surrounding the spring and having its ends engaged by the nose and by the roof of the piston, combined substantially as set forth.

7. A plate planer comprising, a cylinder supported in vertical position by the top-brace of the planer and having its lower end open, a hollow piston fitting the cylinder, a removable hollow nose projecting from the lower end of the piston, a pressure-foot carried by the nose, means for the control of fluid pressure above the piston, a guide-rod axially disposed within the cylinder and having its upper end secured in the top of the cylinder and having its body projecting down through the roof of the piston and through the piston and into the hollow of the nose, a collar on the lower end of the guide-rod, a coiled spring disposed upon the guide-rod and compressed between said collar and the roof of the piston, a tube surrounding the spring and having its ends engaged by the nose and by the roof of the piston, and a removable plate forming the portion of the roof of the piston which engages said tube, combined substantially as set forth.

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Witnesses:

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