

No. 860,109.

PATENTED JULY 16, 1907.

J. SIMMONS.  
STAVE JOINTING MACHINE.  
APPLICATION FILED NOV. 1, 1906.

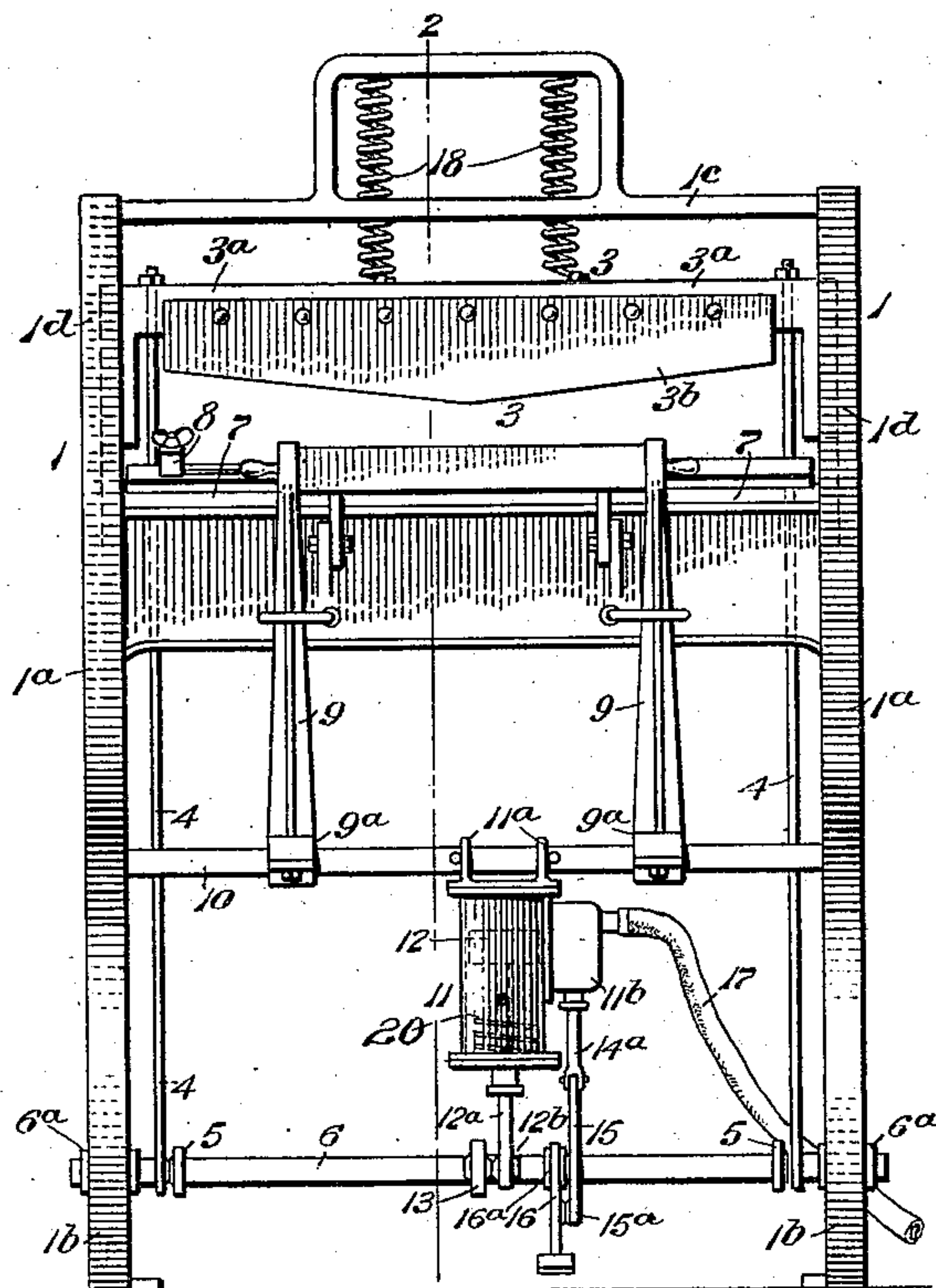


Fig. 1.

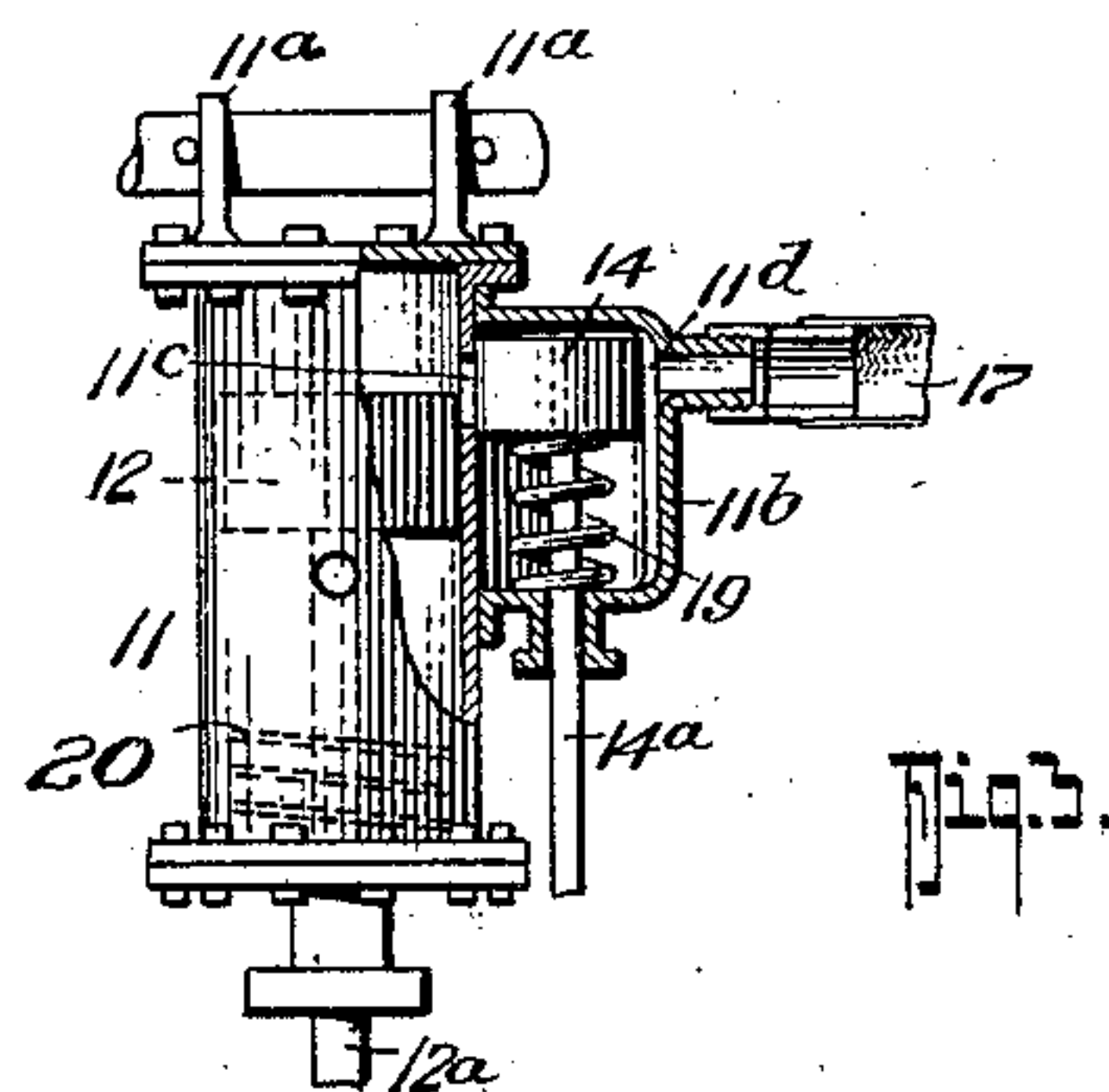
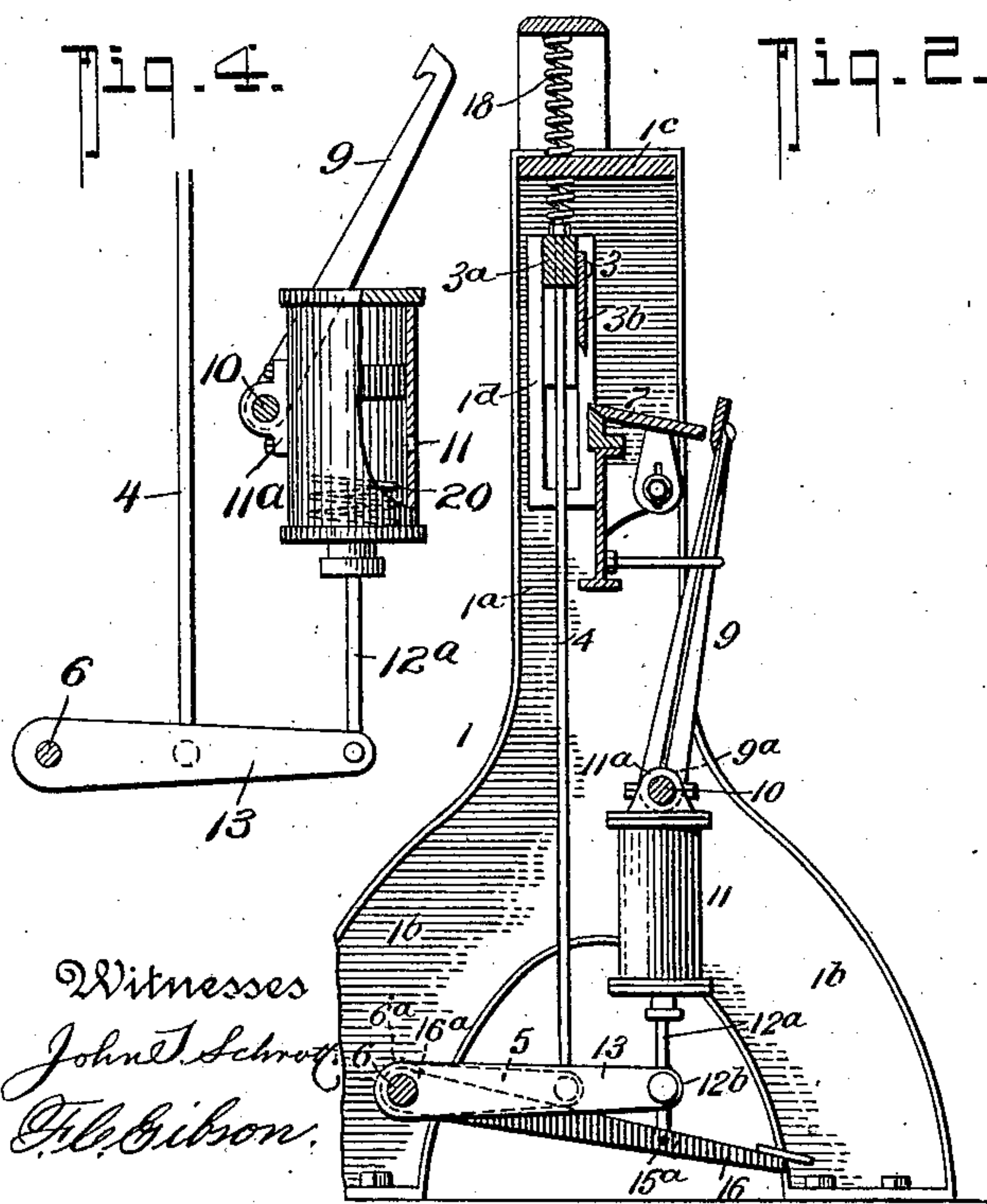


Fig. 3.

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# UNITED STATES PATENT OFFICE.

JOHN SIMMONS, OF BURDETTE, ARKANSAS.

## STAVE-JOINTING MACHINE.

No. 860,109.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed November 1, 1906. Serial No. 341,599.

*To all whom it may concern:*

Be it known that I, JOHN SIMMONS, residing at Burdette, in the county of Mississippi and State of Arkansas, have invented certain new and useful Improvements in Stave-Jointing Machines, of which the following is a specification.

My invention relates to certain new and useful improvements in stave jointing machines and it particularly relates to that class of stave jointing machines having a reciprocating cutter knife and in its generic nature my invention comprises a stave jointing machine of the character in which mechanical means are provided for reciprocating the cutter knife, which means are under the control of the operator at all times.

In its more detail nature, my invention comprises a compressed air or steam cylinder coöperatively connected with the operating rods of the cutter knife for reciprocating the cutter knife and means operable by the foot of the operator for controlling the operation of the knife operating means.

In its more detailed nature, my invention comprises certain novel construction, combination and arrangement of parts all of which will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which:—

Figure 1, is a front view of my improved stave jointing machine. Fig. 2, is a vertical section on the line 2—2 of Fig. 1. Fig. 3, is an enlarged detail section of the knife operating cylinder and piston showing the arrangement of the valve. Fig. 4, is a detail view of a modification of my invention.

Referring now to the accompanying drawings in which like numerals and letters of reference indicate like parts in all of the figures, 1 designates the supporting frame-work of the machine and includes the vertical braces 1<sup>a</sup>, the supporting legs 1<sup>b</sup> and the top bar 1<sup>c</sup> from which the supplemental frame projects upwardly.

Within guides 1<sup>b</sup> the cutter knife mechanism 3 reciprocates, the knife mechanism including the knife supporting beam 3<sup>a</sup> and knife 3<sup>b</sup>, as shown. From the beam 3<sup>a</sup> a pair of downwardly projecting operating rods 4 pass and these rods 4 are pivotally connected to levers 5 that are secured to a shaft 6 mounted in bearings 6<sup>a</sup> at the bottom of the machine.

The bed plate 7 is arranged conveniently with respect to the knife 3<sup>b</sup> and carries a longitudinal gage member 8, as shown, the usual hand evening devices 9 are provided and they are pivotally mounted at 9<sup>a</sup> to any suitable part of the machine so as to swing freely to and from the bed plate 7.

10 designates a transverse beam connecting the standards 1<sup>a</sup> to which beam, the air cylinder 11 is pivotally mounted through the medium of the ears 11<sup>a</sup>, so as to

be susceptible of a limited pivotal movement for a purpose presently explained.

The cylinder 11 incloses a piston 12 whose piston rod 12<sup>a</sup> is pivotally mounted at 12<sup>b</sup> to a lever 13, carried by the shaft 6 before referred to, and the cylinder 11 includes a valve casing 11<sup>b</sup> within which the sliding valve 14 is mounted, the valve 14 has its valve stem 14<sup>a</sup> pivotally secured to an actuating rod 15 which is in turn pivotally secured at 15<sup>a</sup> to the foot control lever 16, that is loosely mounted on the shaft 6 between spaced collars 16<sup>a</sup>, as indicated.

The valve casing 11<sup>b</sup> has a port 11<sup>c</sup> that communicates with the cylinder between the head thereof and the piston 12 and a port 11<sup>d</sup> to which the hose connection 17 from the source of working agent supply, is joined.

Suitable springs 18 are provided for moving the knife 3<sup>b</sup> to its elevated position as will be clearly understood by reference to the drawings and to return the valve 14 to its normal position, to close the port 11<sup>c</sup>, I provide a coil spring 19 within the valve chamber 11<sup>b</sup> and mount on the valve stem 14<sup>a</sup> so as to normally hold the valve 14 to close the port 11<sup>c</sup>, as stated.

So far as described, it will be seen that the operation of my invention is as follows:—A stave is placed upon the bed plate or table 7 and adjustably secured in place in the usual manner by the members 8 and 9, after which, the operator places his foot upon the lever 16 to open communication between the port 11<sup>d</sup> and the port 11<sup>c</sup> to permit compressed air to enter from the pipes 17 into the cylinder 11 to force the piston 12 outwardly, thus turning the shaft 6 and through the medium of the cranks 5 and the rods 9 lower the knife 3<sup>b</sup> to make the proper cut in the stave.

By reason of the pivotal connection of the cylinder 11 with its support, all tendency of jamming the piston rod 12<sup>a</sup>, and hence interfering with the operation of the machine, is avoided. By having the foot control lever 16, by means of which the function of the air cylinder and piston can be regulated, the operator is enabled to use his hands in manipulating the stave at all times and by moving the lever 16 to a more or less degree a greater or less movement of the knife 3<sup>b</sup> and pressure thereon is obtained.

A buffer spring 20 is provided in the air cylinder to absorb the shock of the piston on its down stroke.

In Fig. 4, I have shown a slightly modified form of my invention in which the air cylinder is mounted centrally instead of at its end.

From the foregoing description taken in connection with the accompanying drawings, it is thought the complete construction, operation and numerous advantages of my machine will be readily understood by those skilled in the art to which it appertains, and I desire to say that numerous slight changes in the de-

tailed construction, combination, and arrangement of parts may be had without departing from the spirit of the invention or the scope of the appended claims.

What I claim is:—

- 5 In a machine of the class described, the combination with a supporting frame work, the bed plate, the hand guides and the reciprocating cutter knife, spring devices for holding the cutter knife normally elevated, of a rock shaft mounted in bearings in the supporting frame work, 10 arms secured to said shaft and operable therewith, knife operating rods connecting said cutter knife with said arms, an air cylinder pivotally secured to said supporting

frame work, a piston and piston rod operable within said air cylinder, a supplemental arm secured to said shaft and pivotally secured to said piston rod, a piston controlling 15 valve mechanism carried by said cylinder, means for controlling the said valve mechanism by the foot of the operator, said last named means comprising a treadle member pivoted and loosely mounted on said shaft and a rod connecting said treadle member with said valve mechanism 20 substantially as shown and described.

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