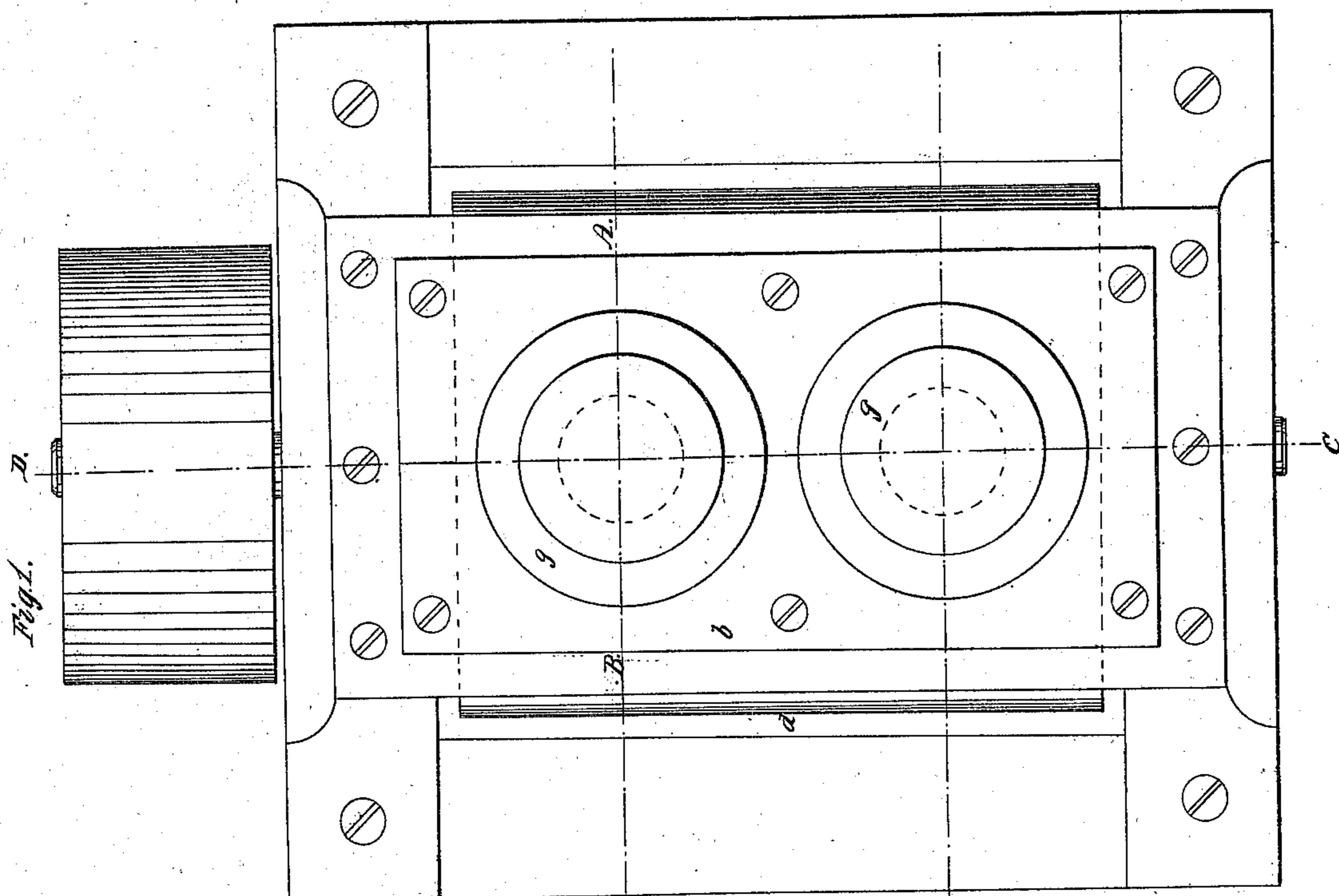
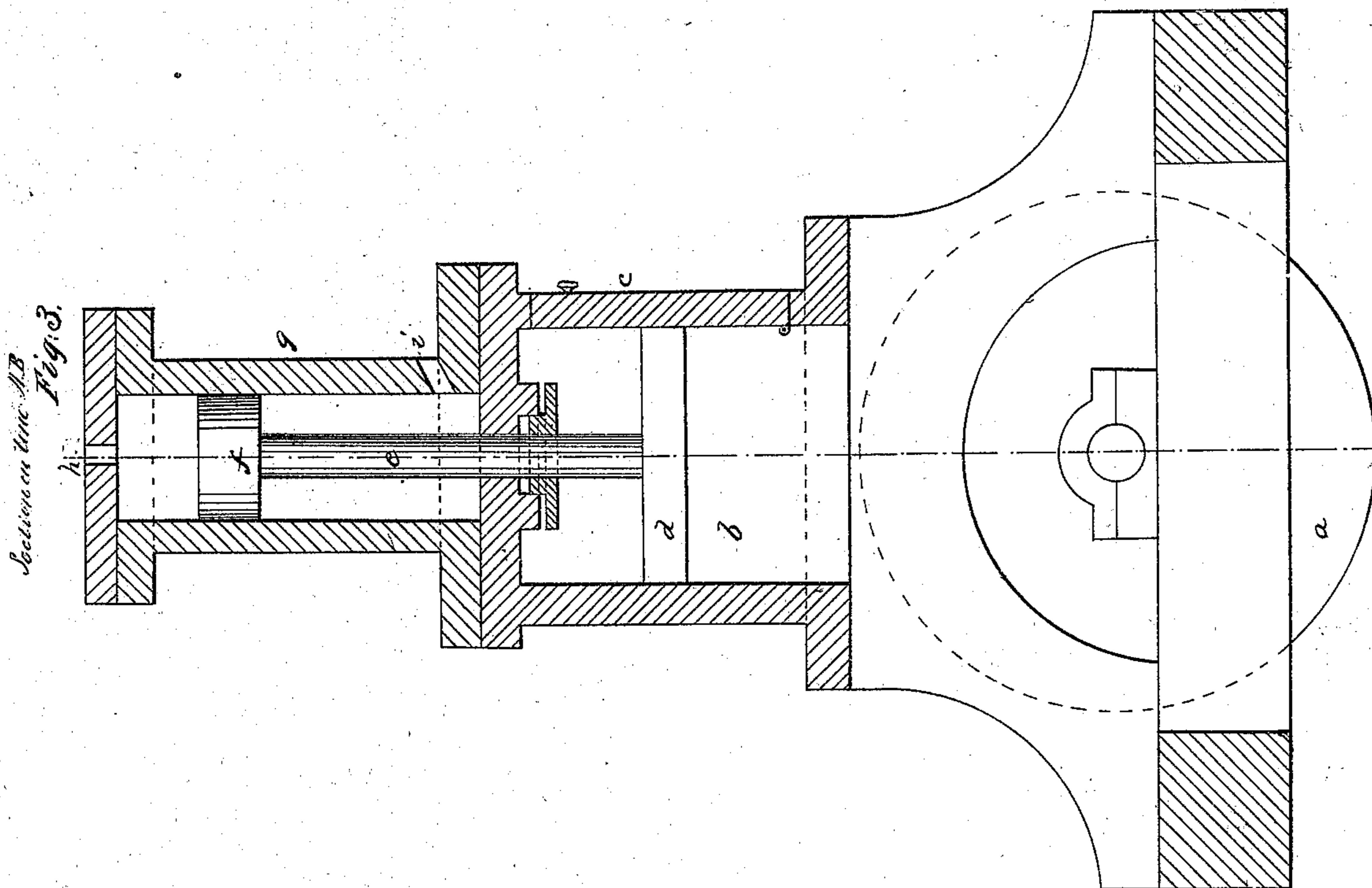


Sheet 1, 2 Sheets.

G. Ames.
Wood Pulp Apparatus.
N^o 105,622. Patented Jul 26, 1870.

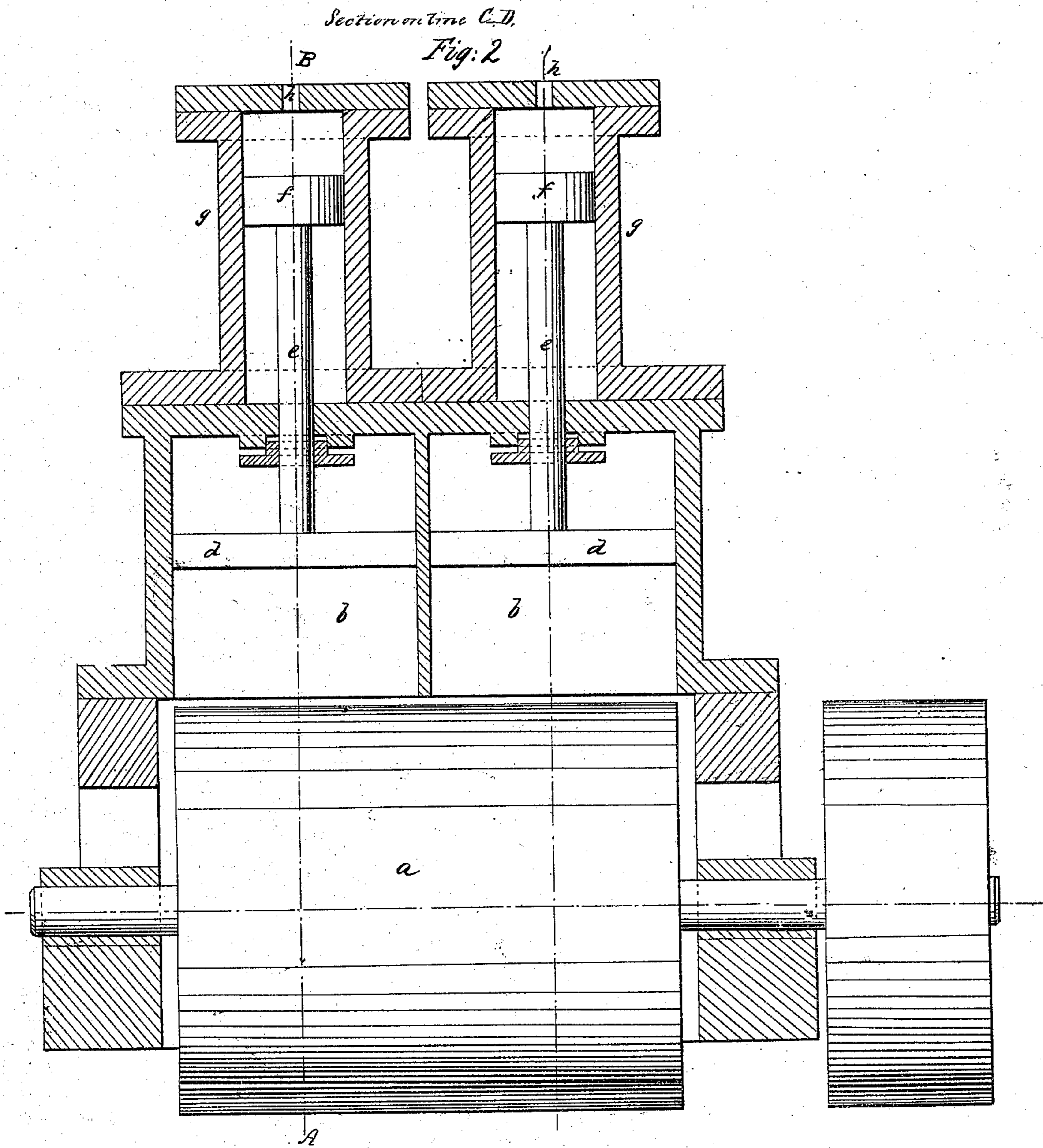


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Sheet 2, 2 Sheets.

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N^o 105,622. Patented Jul 26, 1870.



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UNITED STATES PATENT OFFICE.

GUSTAVUS AMES, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND
WILLIAM H. CILLEY, OF NORTHFIELD, NEW HAMPSHIRE.

IMPROVEMENT IN APPARATUS FOR REDUCING WOOD TO PULP.

Specification forming part of Letters Patent No. 105,622, dated July 26, 1870.

To all whom it may concern:

Be it known that I, GUSTAVUS AMES, of the city, county, and State of New York, have invented a new and useful Improvement in Machinery for Reducing Wood to a Condition Suitable to be Made into Pulp for the Manufacture of Paper; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a plan view, Fig. 2 a longitudinal vertical section, and Fig. 3 a cross vertical section, of my said improvement.

The same letters indicate like parts in all the figures.

In machinery for reducing wood, as heretofore and now generally made, the blocks of wood to be reduced are placed in hoppers, with the grain parallel with the axis of the cylinder which acts on and reduces the wood to the condition required, and the blocks of wood so placed are fed or pushed against the periphery of the reducing-cylinder by followers operated by mechanical gearing.

Such mode of operation is complicated, liable to derangement, and is not well adapted to the purpose, because the blocks of wood to be reduced vary considerably in texture, and, by reason of their form, present a variable extent of surface to the reducing action of the cylinder, and hence it follows that at times the feeding motion is too fast for the capacity of the cylinder, and at other times too slow, and if the feeding motion be properly adjusted to be suitable for the hardest wood and the maximum amount of surface to be acted upon by the reducing-cylinder, then much time and power will be wasted when less surface is presented and the wood is softer.

It has been attempted to overcome this defect by means of springs to act against the follower; but as the springs gradually decrease in tension such method was really more defective.

The object of my invention is to feed the blocks to the surface of the reducing-cylinder by the elastic pressure of air or other gaseous body; and to that end my said invention consists in combining with the reducing cylinder and hopper and follower a piston and cylinder, into which air or other gas can be introduced to act against the piston, and, by its elastic

force, press the blocks of wood against the periphery of the reducing-cylinder with a motion which shall be self-adapting and easily regulated.

In the accompanying drawings, *a* represents the reducing-cylinder, the surface of which is to be suitably formed for the purpose of reducing wood, and driven in the usual way, as is well known to persons familiar with this class of machines.

Above the said cylinder there are two hoppers, *b b*, into which the blocks of wood to be reduced are placed, the said hoppers being formed with doors *c c* for that purpose. (Only one door shown in the drawings.) To these hoppers are loosely fitted followers *d d* on the lower ends of the rods *e e* of two pistons, *f f*. These pistons are fitted to work air-tight in two cylinders, *g g*, mounted on the hoppers.

The piston-rods must be provided with suitable stuffing-boxes where they pass through the bottom of the cylinders. Both ends of the cylinders, as at *h* and *i*, are to be connected by suitable pipes and valves or stop-cocks with an air-pump.

After the blocks of wood have been placed in the hoppers and compressed air introduced into the upper end of the cylinders, the elastic force of the compressed air, acting on the pistons, will cause the followers to press the wood against the periphery of the reducing-cylinder by an elastic force which will yield to any undue resistance. When the pistons reach the bottom of their range of motion the air is discharged from above the pistons and introduced below, to lift the followers for the introduction of fresh blocks of wood into the hoppers.

In the accompanying drawings two hoppers and appendages are represented; but it will be obvious that one only or more than two may be used.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the air-cylinder and piston with the hopper, follower, and reducing-cylinder, substantially as and for the purpose specified.

GUSTAVUS AMES.

Witnesses:

WM. H. BISHOP,
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