

No. 860,199.

PATENTED JULY 16, 1907.

C. M. EMERSON.
FILE SHARPENING MACHINE.
APPLICATION FILED MAY 25, 1906.

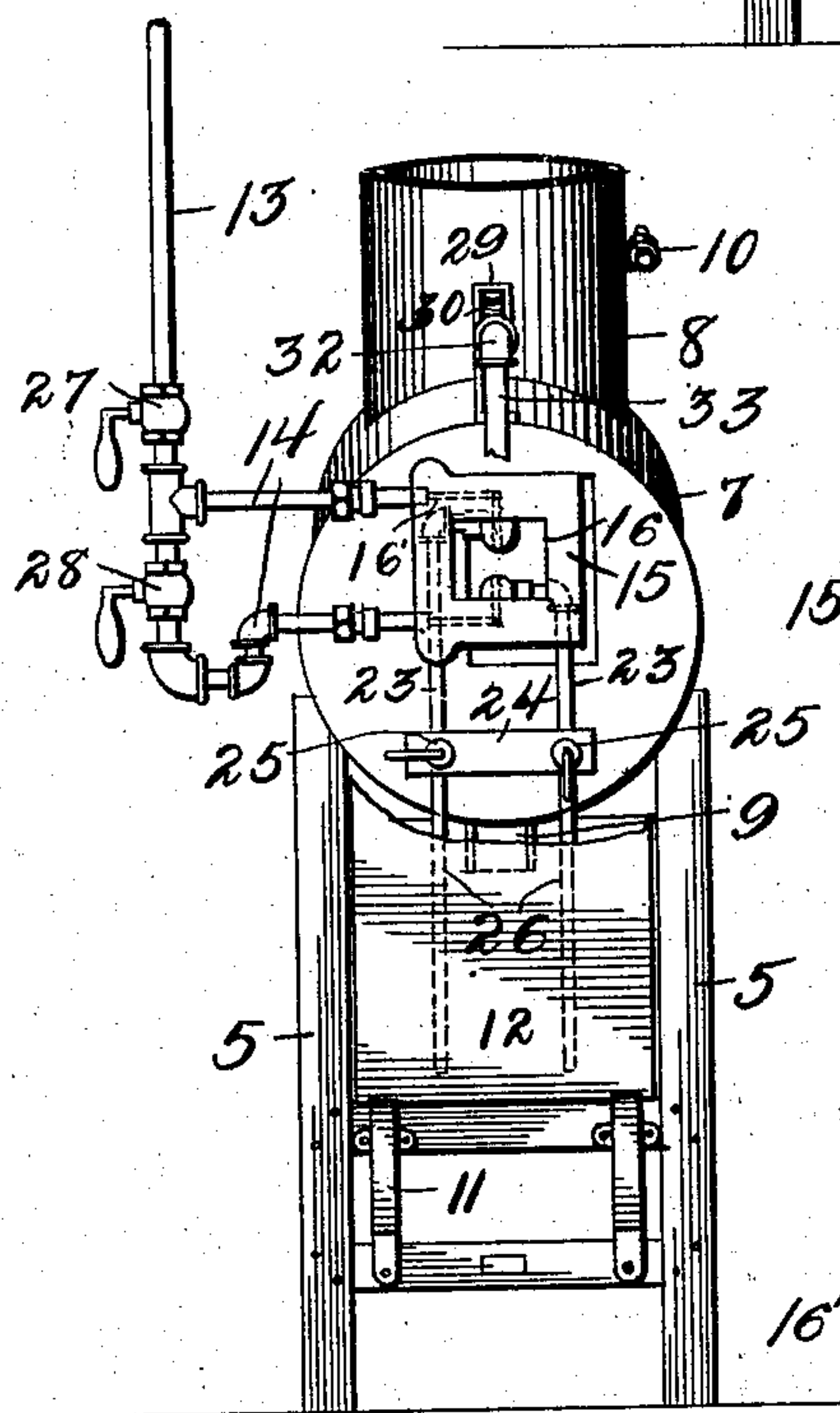
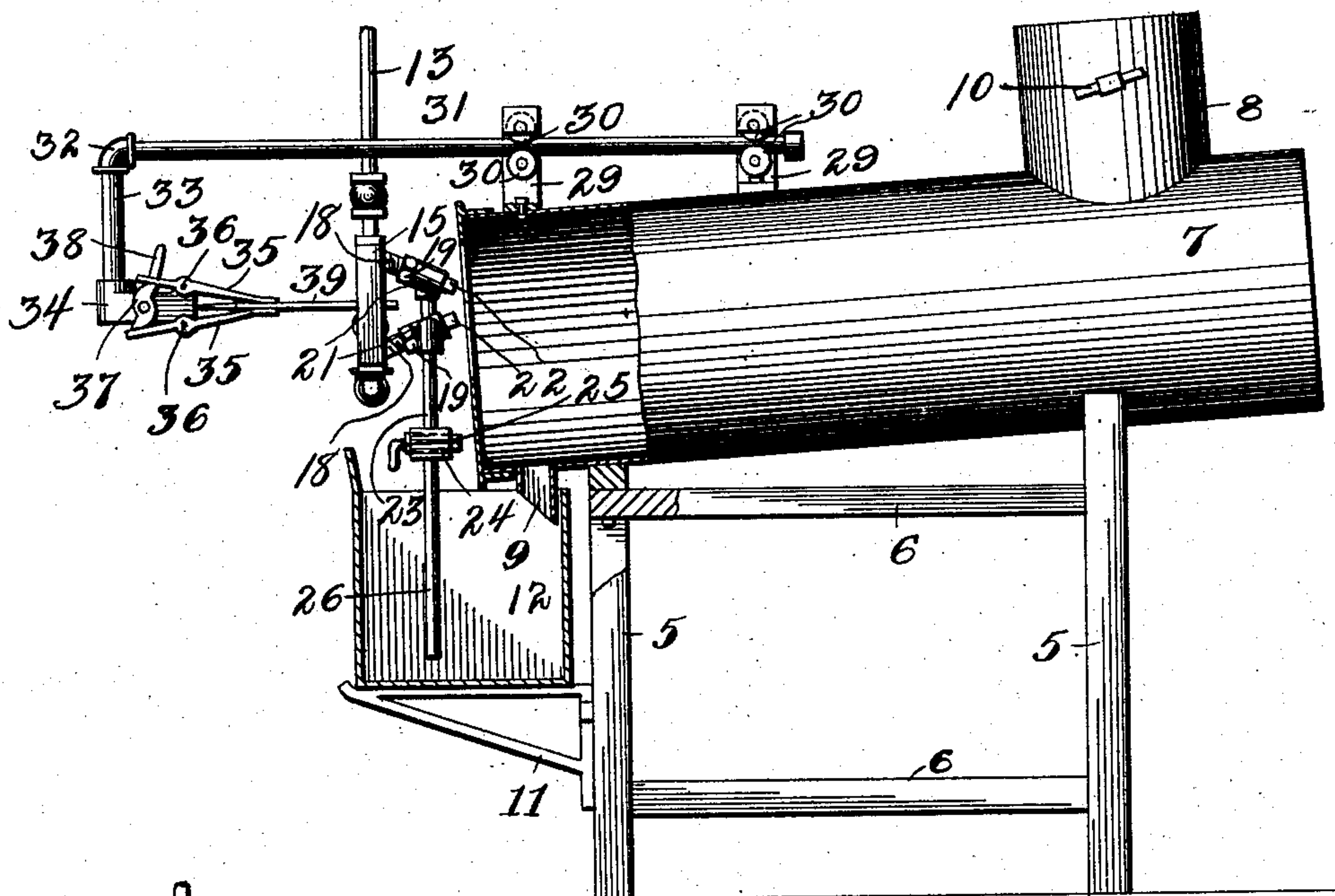


Fig. 2.

Witnesses
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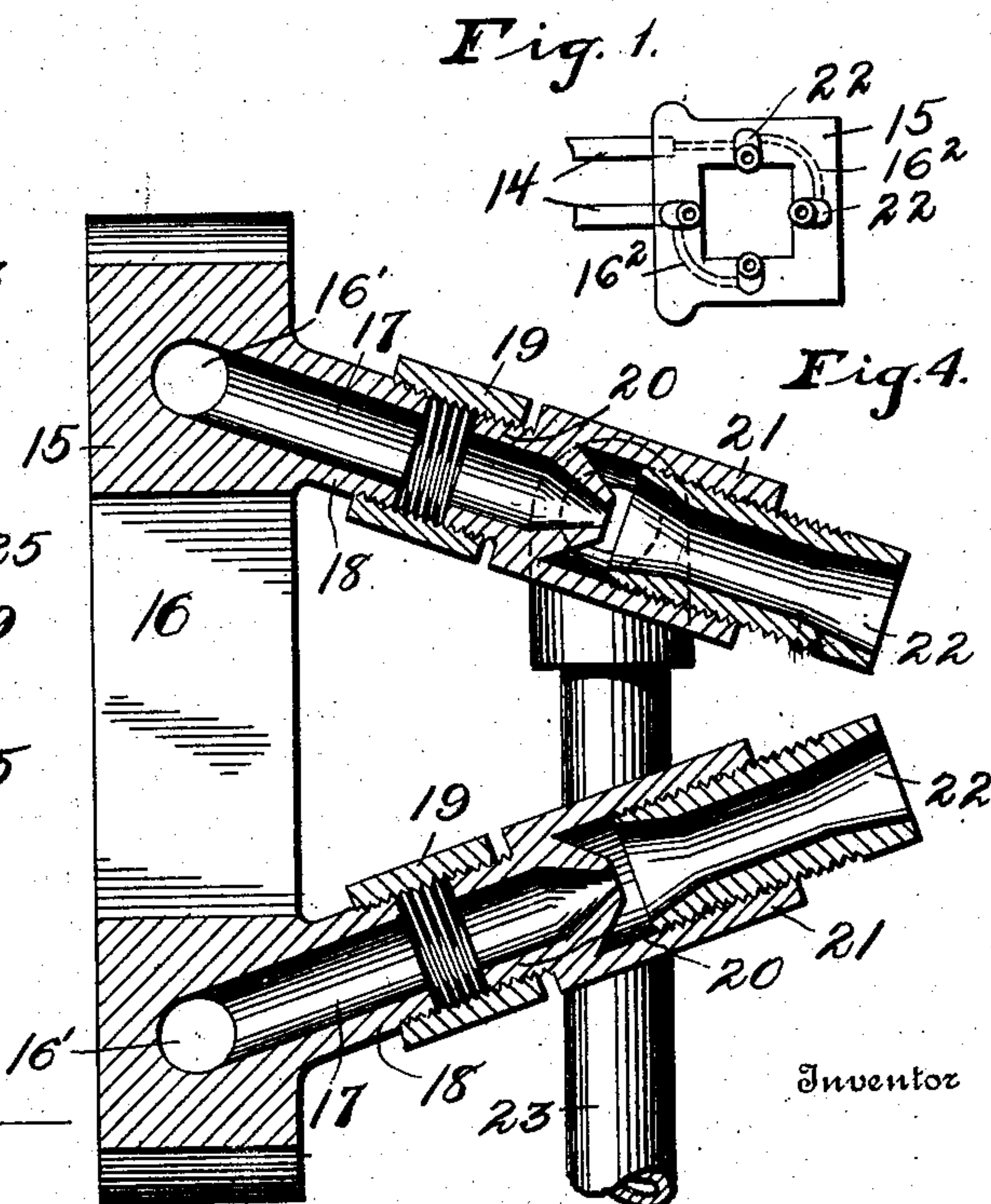


Fig. 3.

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FILE-SHARPENING MACHINE.

No. 860,199.

Specification of Letters Patent.

Patented July 16, 1907.

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To all whom it may concern:

Be it known that I, CHARLES M. EMERSON, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in File-Sharpening Machines, of which the following is a specification.

My invention relates to file sharpening machines of the class which sharpen files by means of a sand blast. The efficiency of machines of this character depends largely upon the angle at which the blast is directed toward the file. A variation of a few degrees in the angle at which this blast is directed, will result in stripping the teeth from the file instead of sharpening said file.

One of the objects of the present invention, therefore, is to provide a nozzle supporting block having channels formed therein adapted to conduct fluid under pressure to said nozzles, said block having integral lugs cast upon its face and at such an angle thereto that when the nozzles are secured to said lugs, the blast from said nozzles will be directed at the proper angle against the file.

A further object of the invention is the provision of improved means for supporting the file holding mechanism to travel longitudinally of the machine.

A further object of the invention is the provision of mechanism controlling the blast from the nozzles and arranged in such manner that the front of the machine is unobstructed leaving a clear space for the operator.

Further objects and advantages of the invention will be set forth in the detailed description which now follows:

In the accompanying drawing: Figure 1 is a side elevation partially in section of a file sharpening machine constructed in accordance with my invention, Fig. 2 is a front end elevation of said machine with a portion of the sand and water box broken away, Fig. 3 is a detail view of the nozzle supporting block, and, Fig. 4 is a detail front elevation of a modified form of nozzle supporting block.

Like numerals designate corresponding parts in all of the figures of the drawing.

Referring to the drawing, the numerals 5 designate a pair of supporting standards, which together with horizontally disposed cross bars 6 form a framework for the support of a drum 7. This drum 7 is provided with an exhaust pipe 8 for the escape of the steam from said drum and a discharge pipe 9 to permit the sand and water which has been discharged into the drum through the nozzles to return to the sand box as will be herein-after described. As is best illustrated in Fig. 1, the drum 7 has its outer end elevated in order that the contents of the drum may more effectually flow to the discharge pipe 9. A damper 10 is located in the exhaust pipe 8 and is of the usual and well known construction. Brackets 11 secured to the front of the

drum supporting frame, support a sand and water box 12. A steam supply pipe 13 conducts steam through branch pipes 14 to a block 15. This block is best illustrated in Figs. 2 and 3 and by referring to said figures, it will be seen that the block has an opening 16 formed entirely therethrough. The branch pipes 14 communicate with channels 16' formed in the block 15 and these channels in turn communicate with channels 17 which lie partly in the block and partly in integral lugs 18 which lie at an angle to the face of the block. Female nipples 19 are threaded upon these lugs. The reduced portions 20 of nipples 21 are threaded into the nipples 19. The nozzles proper 22 are threaded into the nipples 21. Pipes 23 lead from the nipples 21 to a block 24. This block 24 carries valves 25 adapted to cut off or establish communication between the pipes 23 and pipes 26 which lead from the block 24 and terminate a little short of the bottom of the sand and water box 12. Throttle valves 27 and 28 control the flow of steam to either of the pipes 14.

Carried by brackets 29 which are secured to the top of the drum 7, are rollers 30 between which a pipe 31 is mounted to travel. This pipe is connected by a coupling 32 to a downward extension 33. Secured to the lower end of this extension 33 is a block 34 to which clamps 35 are pivoted as at 36. A cam 37 is mounted between the outer ends of these clamps and is adapted to be actuated by a handle 38. When this is done the inner ends of the clamps are caused to firmly grasp the file 39.

The operation of the device is as follows: The box 12 having been filled with sand and water and the valves 25 opened to establish communication between the pipes 23 and 26, steam is admitted through the steam pipe 13 and branch pipes 14 to the nozzles. The rush of steam through the nozzles creates a vacuum in the pipes 23 and causes the sand and water contained in the box 12 to be drawn up through said pipes 23 and discharged from the nozzles along with the steam. The operator by grasping the extension 33 and shoving the parts connected thereto bodily inward, causes the file to pass through the opening 16 and block 15 and to travel between the nozzles, while the blast acts upon the file to sharpen the same, said blast being discharged to the interior of the drum 7 through an opening 7' formed in front of said drum.

The adjustment of the nozzles to the proper angle has proved a source of considerable difficulty in machines of this character and it is desirable that after this angle has once been ascertained, that means should be provided for again finding said angle without difficulty. This I accomplish by the integral angularly disposed lugs 18 which are cast with the block and which consequently cannot change their position when the parts are disassembled.

Fig. 4 illustrates a block having four nozzles instead

of two, by virtue of which construction all of the sides of a square file may be sharpened simultaneously. The same reference numerals have been applied to these nozzles, the block and the steam supply pipes 5 leading to said block. It will be seen that ports 16'' conduct steam from the nozzles which are supplied direct from the pipes 14, to the nozzles which are not so supplied.

From the foregoing description, it will be seen that 10 simple and efficient means are herein provided for accomplishing the objects of the invention, but while the elements shown and described are well adapted to serve the purposes for which they are intended, it is to be understood that the invention is not limited to the 15 precise construction set forth, but includes within its purview such changes as may be made within the scope of the appended claims.

What I claim, is:

1. In a machine of the character described, a nozzle sup- 20 porting block having an opening formed entirely there- through, angularly disposed lugs carried by one of the faces of said block, nozzles carried by said lugs, and means for supplying fluid under pressure to said nozzles.

2. In a machine of the character described, a nozzle sup- 25 porting block having an opening formed entirely there-

through, angularly disposed lugs carried by one of the faces of said block, nozzles carried by said lugs, means for supplying fluid under pressure to said nozzles, and means for supplying an abrading substance to said nozzles.

3. In a machine of the character set forth, the combina- 30 tion with a block having an opening formed entirely there- through, of angularly disposed lugs formed upon one of the faces of said block, pipes entering at the side of the block and communicating with channels formed in the block, said channels also communicating with channels 35 formed in the lugs, nozzles carried by said lugs, means for supplying an abrading material to said nozzles, and means for supplying fluid under pressure to said pipes.

4. In a machine of the character set forth, the combina- 40 tion with a drum having an opening formed in one end thereof, of a block disposed in alignment with said opening, said block having an opening formed entirely therethrough, means for supporting a file for longitudinal movement through said opening, nozzles disposed at an angle with 45 relation to each other and carried upon the inner face of the block, and means for admitting fluid under pressure from the side of said block to said nozzles.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES M. EMERSON.

Witnesses:

FRANK G. CAMPBELL,
A. L. PHELPS.