

No. 757,308.

PATENTED APR. 12, 1904.

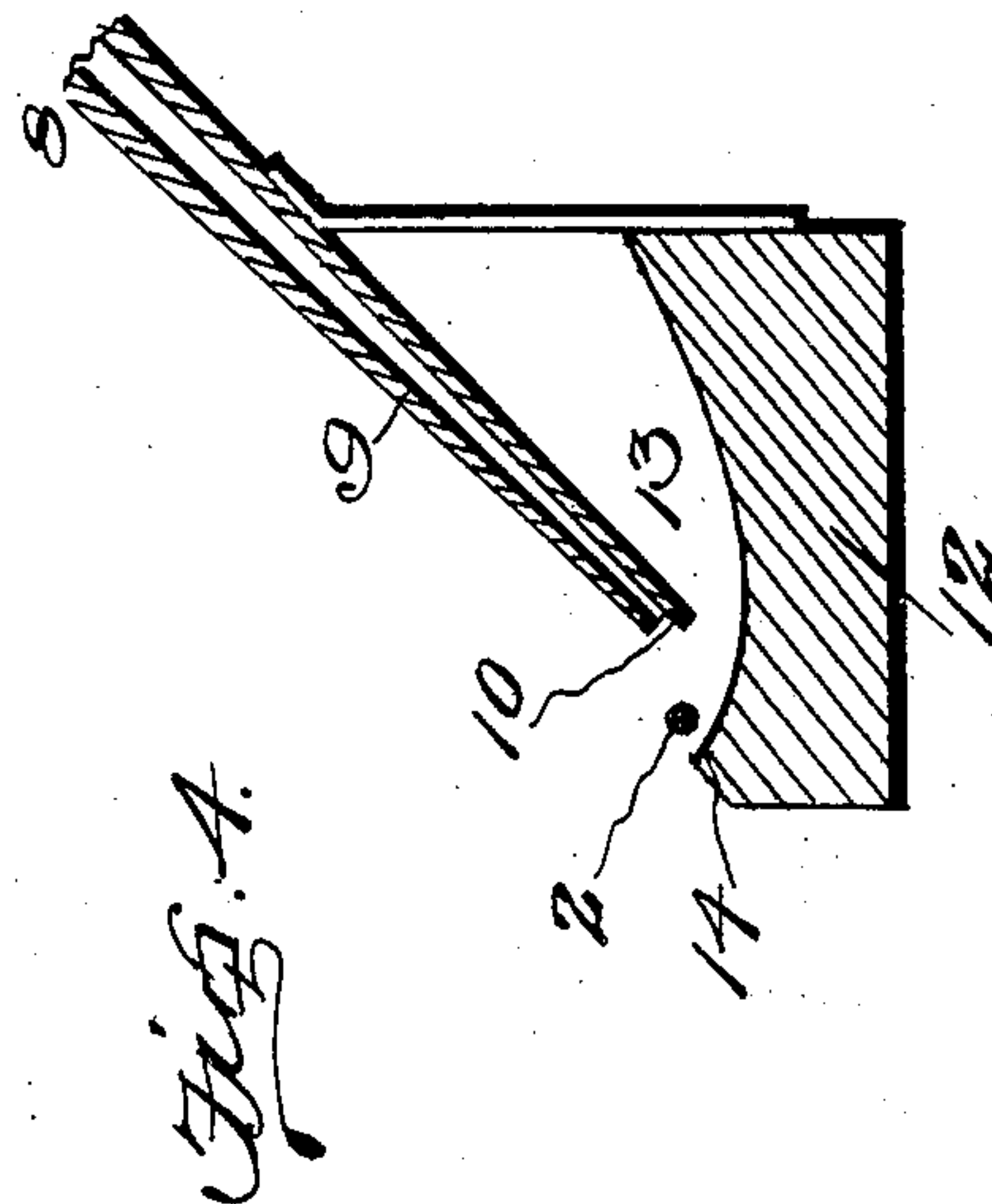
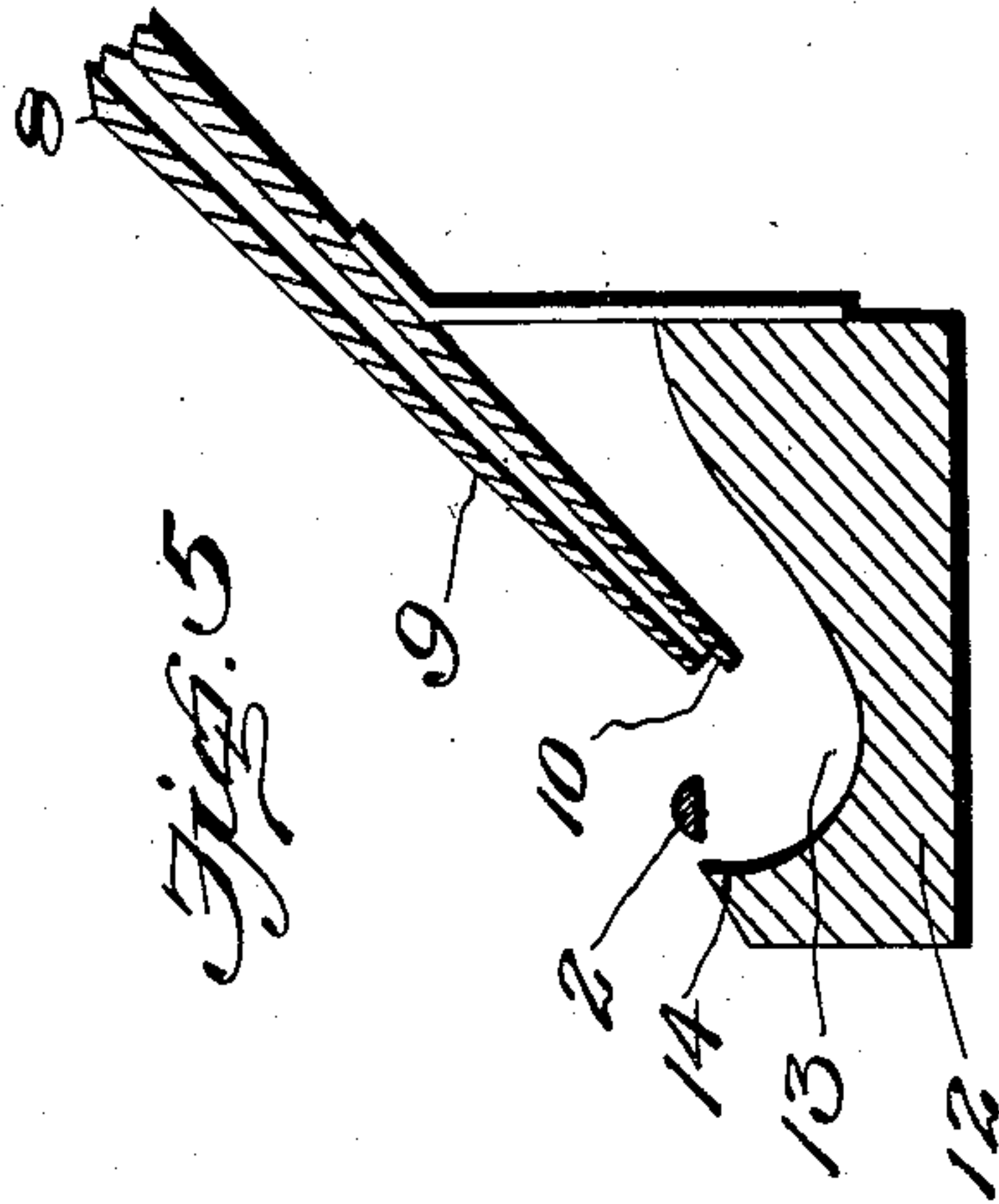
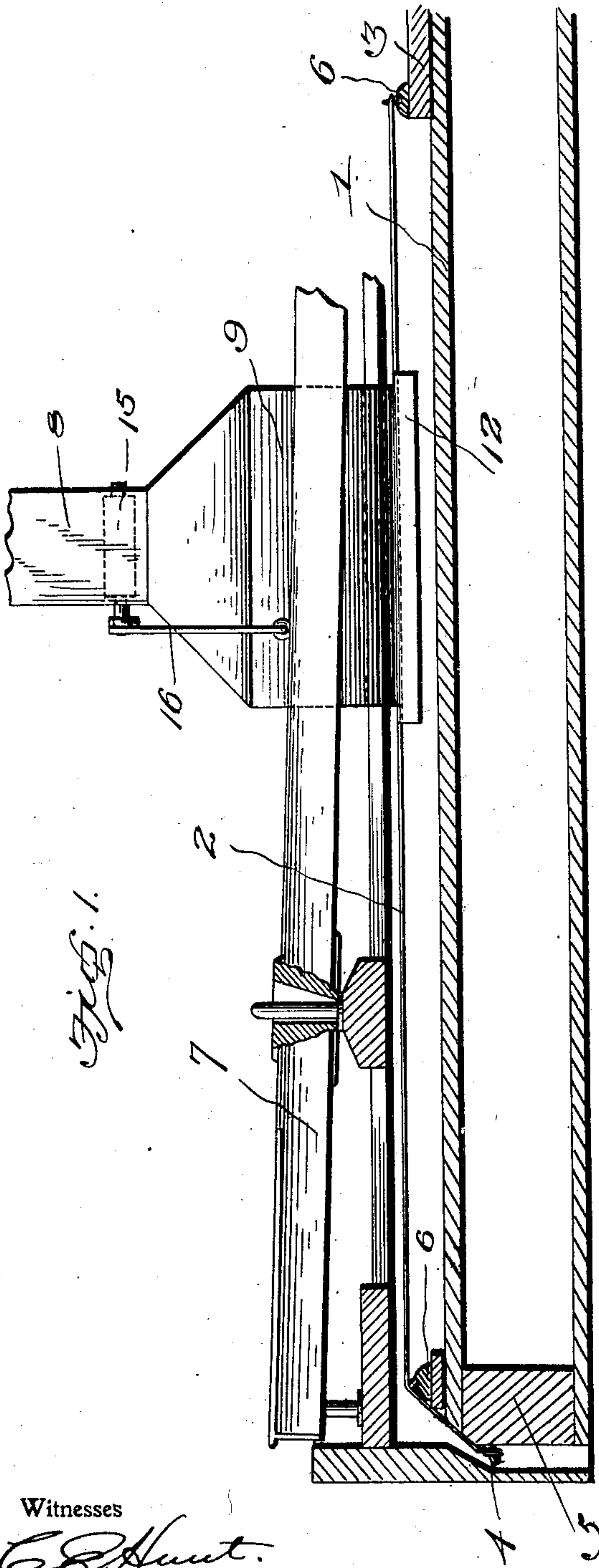
S. A. HUNT.

SOSTENUTO DEVICE FOR STRINGED INSTRUMENTS.

APPLICATION FILED DEC. 7, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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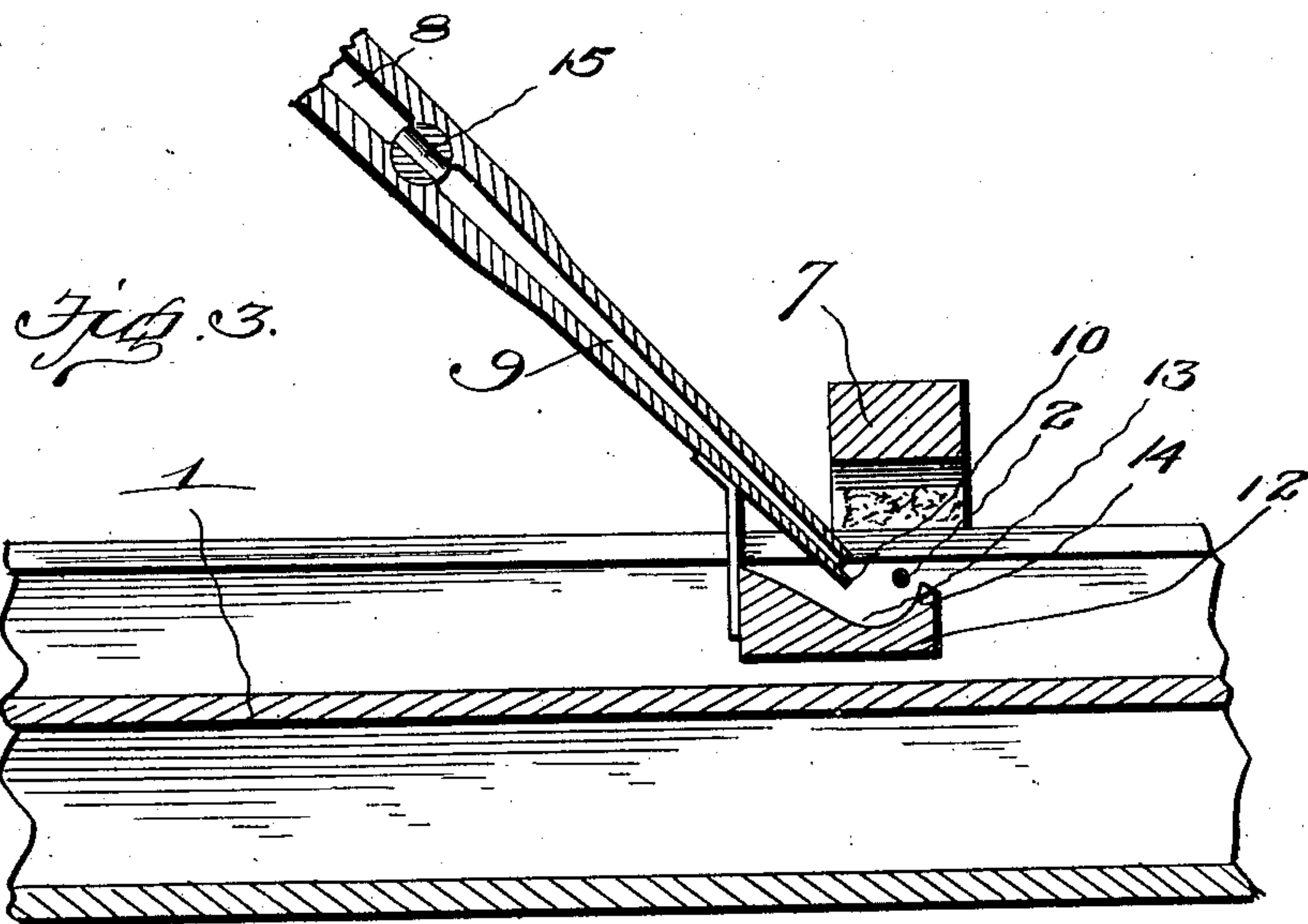
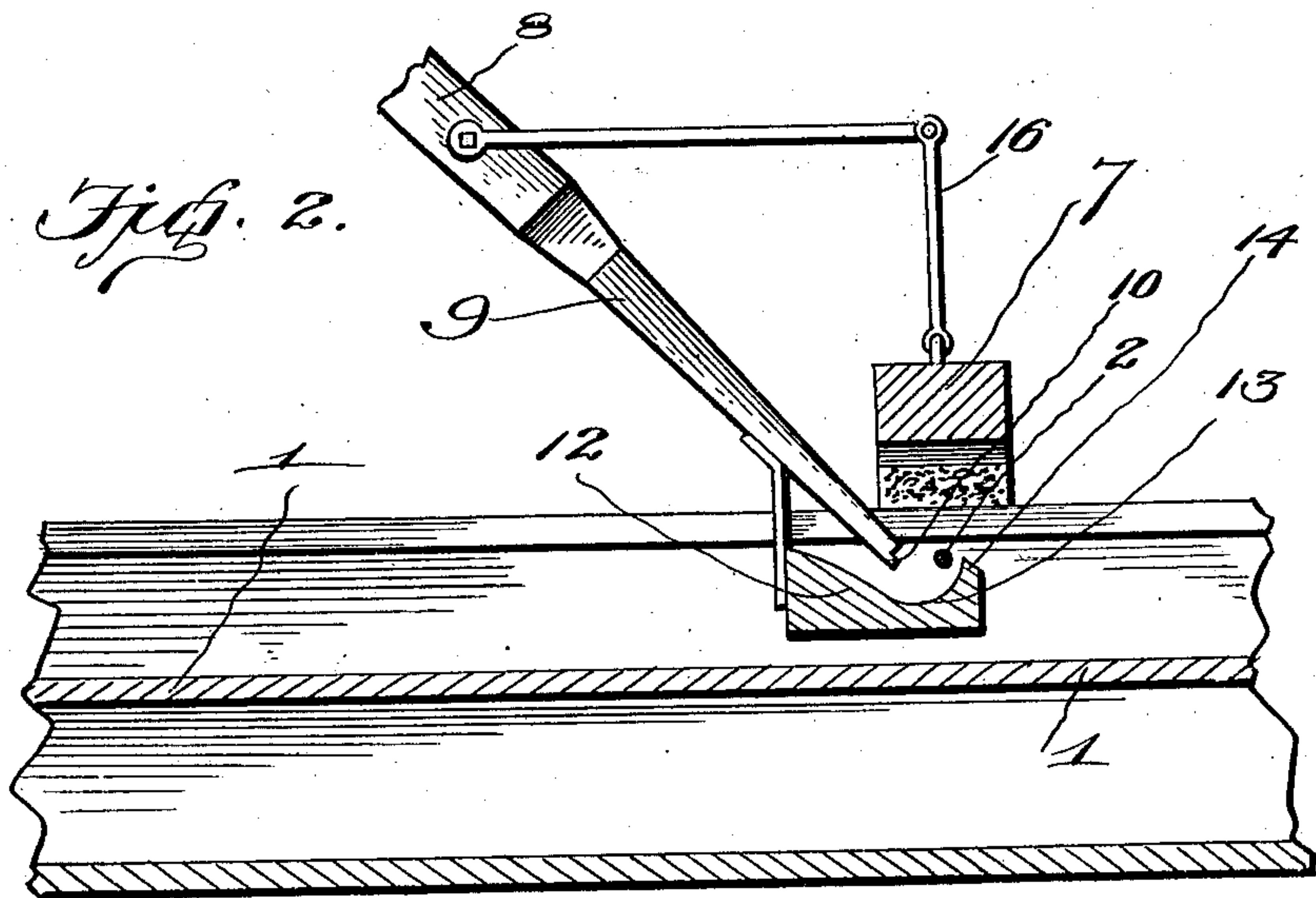
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2 SHEETS—SHEET 2.



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Witnesses

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UNITED STATES PATENT OFFICE.

SILAS ARTHUR HUNT, OF CHICAGO, ILLINOIS.

SOSTENUTO DEVICE FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 757,308, dated April 12, 1904.

Application filed December 7, 1903. Serial No. 184,120. (No model.)

To all whom it may concern:

Be it known that I, SILAS ARTHUR HUNT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sostenuto Devices for Stringed Instruments; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is an improved sostenuto device for pianos and other stringed instruments; and it consists in the construction, combination, and arrangement of devices herein described and claimed.

In the accompanying drawings, Figure 1 is a sectional view through the sounding-board of a piano, illustrating the application of the invention. Fig. 2 is a sectional view taken at right angles to Fig. 1. Fig. 3 is a similar view taken through one of the air-pipes. Fig. 4 is a detail sectional view showing a modified construction of the device. Fig. 5 is a similar view showing a string flattened on its lower side for the purpose hereinafter stated.

Referring more particularly to the drawings, 1 denotes the sounding-board of a piano. 2 denotes one of the strings of the same fixed at one end to the base-block 3 and connected at its opposite end to a tuning-pin 4, projecting from the pin-block 5, the usual bridges or frets 6 being arranged near each end of the strings. 7 denotes the key, pivotally mounted above the string 2, as shown. These parts may be of the usual or any suitable construction.

The invention consists in providing for each string, or for as many of the same as may be desired, air-conducting pipes 8, having wide flattened and tapering discharge-nozzles 9, the width of said nozzles being preferably one-fourth the length of the string. The width of the discharge-opening or mouth of the nozzle is preferably one-half the diameter or size of the string on which it discharges. The lower

side of the pipe-nozzle projects a slight distance beyond the end of the upper side, as shown at 10. This distance is preferably equal to the width of the discharge-opening of the nozzle. The distance between each string and the opening in its discharge-nozzle is equal to about four times the size of the string, and therefore varies according to the size of the strings. This distance, as well as the size and construction of the discharge end of the air-pipe, has been found after much experimenting to be necessary for the production of the best results.

Below the end of each nozzle and the string adjacent thereto is arranged a stop strip or block 12, in the upper side and near the forward edge of which is formed a channel or groove 13. The front wall of this groove is substantially straight and abrupt, and the outer edge of the block is beveled upwardly to meet this wall, thereby forming a sharp edge or corner 14. Adjacent to but spaced from the corner 14 is arranged the string or wire 2. The rear wall of the groove slants gradually upward to the rear corner of the strip or block at an angle of about twenty-two and one-half degrees or about midway between the pipe and the base of the block or strip, the pipes being preferably disposed at an angle of forty-five degrees to the strings and to the base of the strip or block.

The wires or strings 2 are disposed at about the level of the edge or corner 14 and spaced therefrom, as hereinbefore described. The discharge-opening of the nozzle is so disposed with relation to the string or wire that the current of air is not discharged directly onto the same, but below it and onto the bottom and forward wall of the groove in the stop block or strip and by said wall is directed around the wire and between the same and the corner 14, which causes the strings to vibrate with a loud tone as long as the current of air is applied to the same. The force of the current of air in passing from the discharge-nozzle will cause an induced current

of air to pass in between the lower side and end of the nozzle and the inclined rear wall of the groove 13 in the block 12, thereby increasing the volume of air forced between the string and the corner 14, which will produce a louder and better tone. If it is desired to produce an extremely-loud or intensified tone, the strings or wires 2 may be flattened on their lower sides where they pass over the discharge-nozzle, as shown in Fig. 5 of the drawings. Should it be desired to produce very soft tones from the strings, the stop-block is provided with a very shallow groove or channel and no abrupt corner or edge. Therefore the air passes around the string smoothly and evenly and is not forced against it, as when the groove is deep and abrupt. This form of block is shown in Fig. 4 of the drawings.

In order that the air may be discharged from the nozzle at the proper time, a valve 15 is arranged in each of the pipes, as shown, and the stem or handle of the valve is connected to the pivoted key 7 by a rod or link 16, so that when said key is pressed to operate the hammers the valve 15 will be opened, thereby permitting a current of air to be discharged, as hereinbefore described. This discharge may be continued as long as the valve is held open by the pressed key, thereby prolonging or sustaining the vibrations of the string and producing a sostenuto tone similar to that produced by a pipe-organ. As soon as the key is released the same will close the valve and cut off the current of air.

The discharge-nozzle and stop-block may be arranged at any suitable point in the length of the string or wire, and it has been found in practice that the nearer the center of the string these parts are arranged the milder and softer is the tone produced, while when arranged near the bridge a louder tone is acquired, and when arranged too close to the bridge an overtone is heard.

While the application of the invention is here shown in connection with the strings of a piano, it will be understood that the same may be made applicable to any form of stringed instrument.

In the description of the invention air has been described as the operative agent; but it will be obvious that gas, steam, or other fluids under pressure may be substituted for air to accomplish the same result.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a stringed musical instrument, pipes arranged adjacent to the strings thereof, to discharge currents of air or other fluid to said strings, and means for carrying said currents around the string, substantially as and for the purpose described.

2. In a stringed musical instrument, pipes having broad, flattened and tapered discharge-nozzles, to discharge a current of air to said strings, means for directing said currents around said strings and means for admitting an induced current of air to the same, substantially as and for the purpose described.

3. In a stringed musical instrument, inclined pipes having broad, flattened and tapering discharge-nozzles, to discharge a current of air to said strings, a stop-block, having a groove or channel formed in the same to receive said current of air and direct it around said string and between the same and the forward wall of said groove, substantially as and for the purpose described.

4. In a stringed musical instrument, inclined pipes having broad, flattened and tapering discharge-nozzles, to discharge a current of air to said strings, a stop-block, having a groove or channel formed in the same to receive said current of air, said groove having an abrupt front wall and an inclined rear wall to direct said current of air around said string and between the same and said abrupt front wall, an inlet-passage formed below said inclined pipe-nozzle to admit an induced current of air, substantially as and for the purpose described.

5. The combination with the strings of a stringed instrument, of air-pipes having broad, flattened and tapered discharge-nozzles, discharge-openings arranged in said nozzles adjacent to said strings, the width of said openings being one-half the diameter of its adjacent string, stop-blocks arranged below said strings, longitudinal grooves formed in said blocks to receive a current of air from said nozzles, and direct the same around said string, and means for controlling the discharge of air from said nozzles, substantially as and for the purpose described.

6. The combination with the strings of a stringed instrument, of air-pipes having discharge-nozzles arranged adjacent to said strings, valves arranged in said pipes, means, actuated by the keys of said instrument, whereby said valves are opened and closed upon the pressing and releasing of said keys, to admit and cut off a current of air to said strings, a stop-block arranged beneath each of said strings and discharge-nozzles, a groove formed in said block to direct said current of air around said string and to admit an induced

air-current below said nozzle, substantially as and for the purpose described.

5 7. In a stringed musical instrument, means by which a current of air or other fluid is directed to the individual strings of the same, said strings being flattened on one side where acted on by said air-current, to intensify the tone or sound emitted by said vibrating strings,

and means whereby said air-current is carried around said strings, substantially as described. 10

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SILAS ARTHUR HUNT.

Witnesses:

JACOB SCHUTTLE,
RICHARD O. RILEY.