

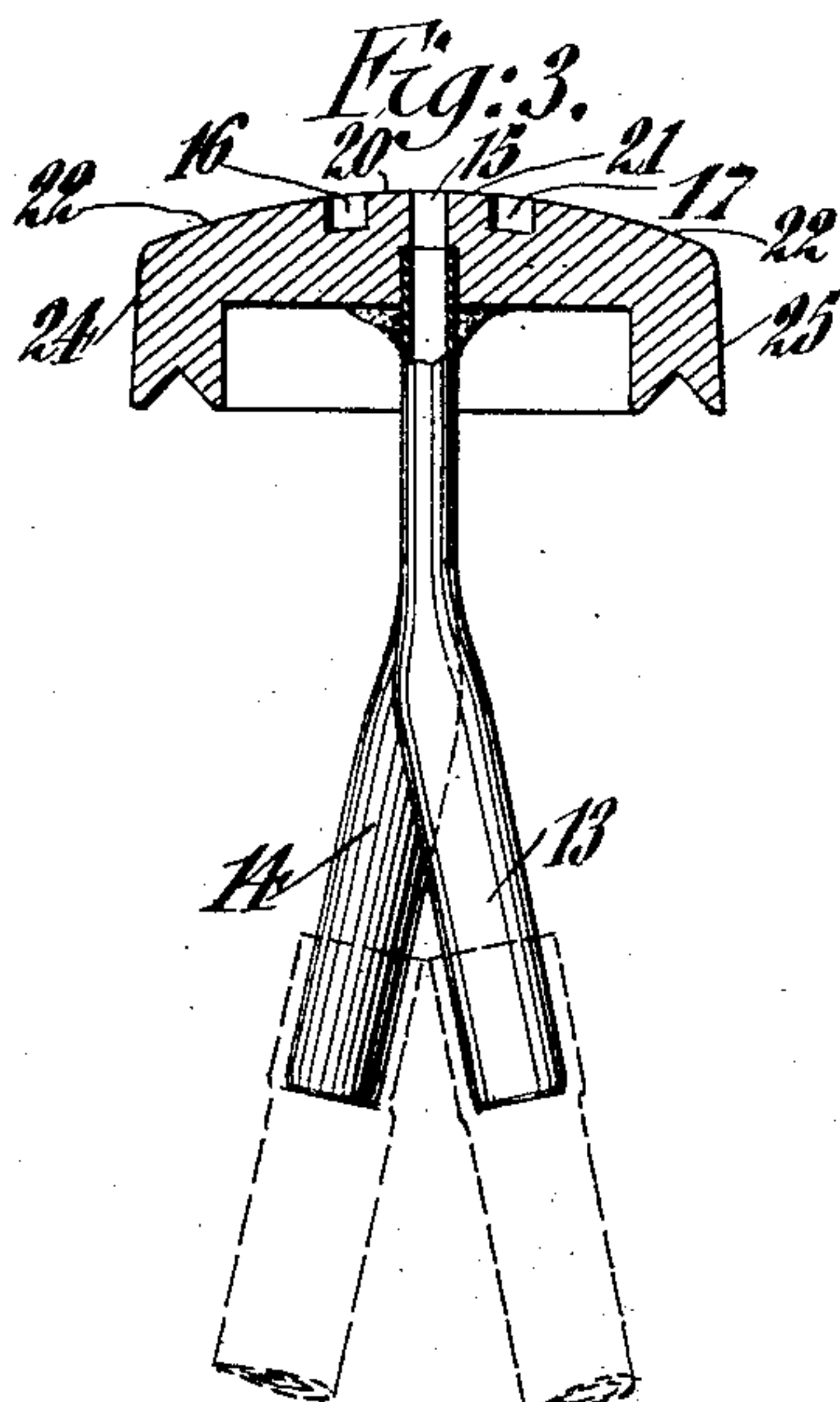
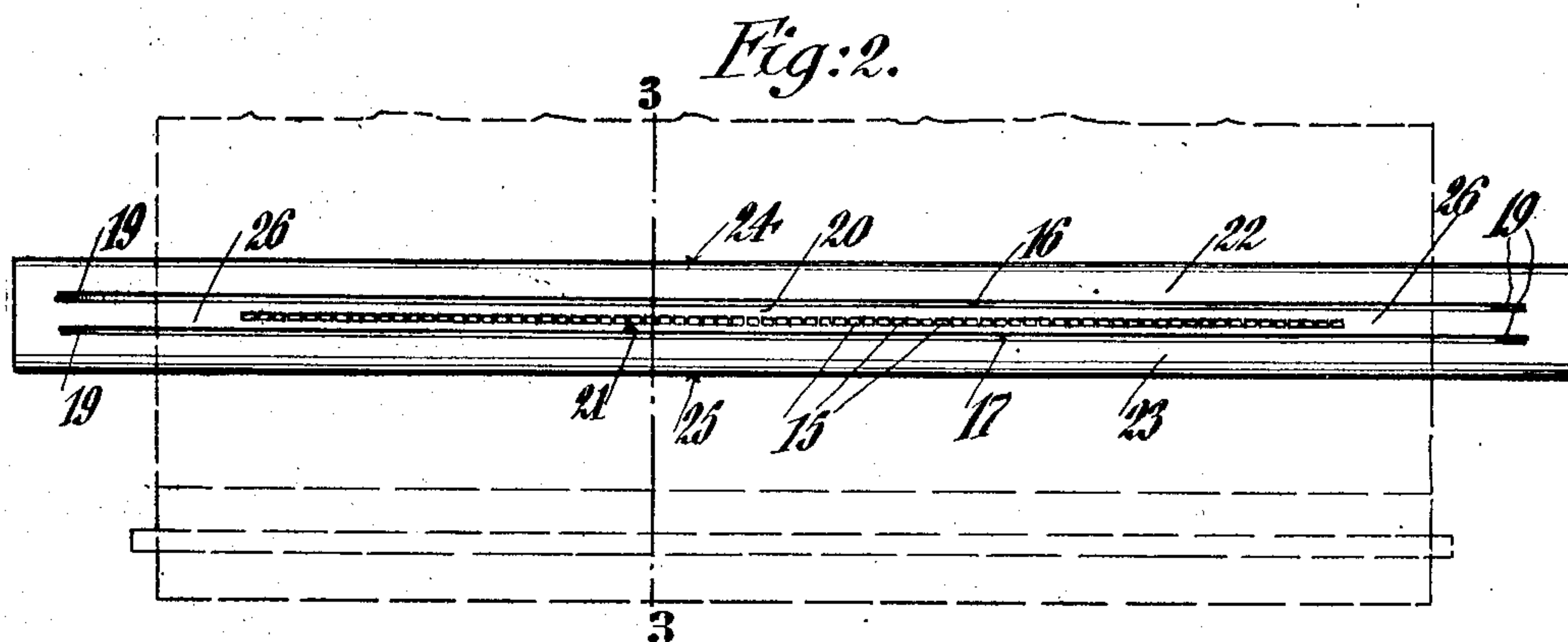
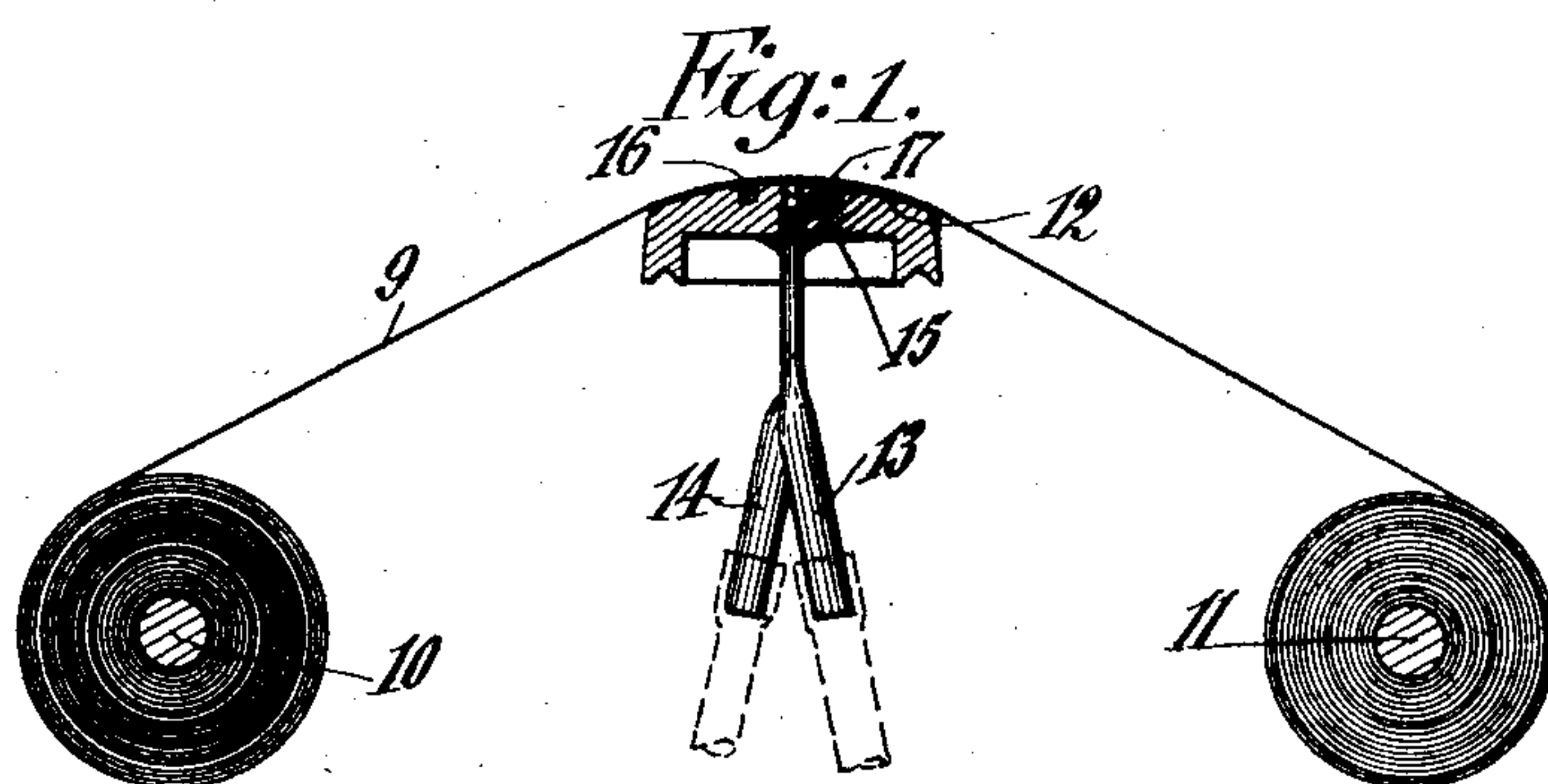
June 19, 1923.

1,459,355

P. H. BILHUBER

TRACKER BOARD FOR PLAYER PIANOS AND ORGANS

Filed March 3, 1922



INVENTOR

Paul H. Bilhuber
BY *C. P. Geipel*
ATTORNEY.

Patented June 19, 1923.

1,459,355

UNITED STATES PATENT OFFICE.

PAUL H. BILHUBER, OF DOUGLASTON, NEW YORK.

TRACKER BOARD FOR PLAYER PIANOS AND ORGANS.

Application filed March 3, 1922. Serial No. 540,722.

To all whom it may concern:

Be it known that I, PAUL H. BILHUBER, a citizen of the United States of America, and a resident of Douglaston, county of Queens, State of New York, have invented certain new and useful Improvements in Tracker Boards for Player Pianos and Organs, of which the following is a specification.

This invention relates to tracker boards and has more particularly for its object to provide an improved tracker board which in its use will not be accompanied by noises or objectionable sounds now generally attending it, when a music roll or strip while being subjected to the action of suction is passed over the duct openings of the tracker board.

A further object of the invention is to provide an improved tracker board which will hold the music roll or strip more securely than heretofore, and in such a manner as at the same time to enable the music roll or strip to respond quickly to the movement desired to be given to it.

For this purpose, my invention consists in reducing to an efficient, cohesive contact the operative contacting surfaces of the music roll and tracker board by limiting such contact to that essential to an operative suction-tension, and destroying such suction-tension beyond the sphere of operative contact between the music roll and the tracker board. As a result of this the suction-tension is concentrated on a decreased area of the music roll. This eliminates noise and permits slower or quicker playing; in other words, a more immediate response. The music roll is gripped harder, and consequently a closer contact between the roll and board is assured because the same suction-tension as heretofore used over a wider or larger area is now used over a smaller area of paper or roll. All these and other advantages are obtained by the introduction of atmosphere under the music roll or other strip in its passage over the tracker board; by the provision of means for utilizing to a greater degree than heretofore the suction-tension on the music roll by decreasing the area under such tension, and the provision of means for reducing friction on the music roll or strip in its passage over the tracker board.

I am aware that it has been proposed to overcome the objectionable noises due to the friction of a music strip in passing over the

tracker board, but such prior devices have been mainly directed to the provision of means for adjusting the music roll, the tracker board, or for changing the key of a composition, in connection with which it was stated that objectionable noises may be overcome. But none of such propositions has succeeded in obviating the essential disadvantages of prior devices and in accomplishing a quickly responsive operation.

My invention will be more fully described hereinafter, an embodiment thereof shown in the drawings and the essential features thereof claimed in the appended claims.

In the accompanying drawings:

Figure 1 is a transverse section of a tracker board and the paper strip rollers;

Figure 2 is a plan view of my improved tracker board, and

Figure 3 is an enlarged transverse section of the tracker board taken on the line 3—3 of Figure 2.

Similar characters of reference indicate similar parts throughout the various views.

Referring to the drawing, which shows a tracker board designed for use in player pianos, and more particularly to Figure 1 thereof, the paper strip or roll 9 is being wound during the operation of the player upon roller 10 and simultaneously unwound from roller 11. Intermediate of these two rollers, the tracker board 12 is arranged in the usual and well known manner in such instruments, and in this embodiment the tracker board is provided with conduits 13 and 14, which are connected with the suction in the well known manner. The tracker board 12 is also provided with the suction ducts 15, which are arranged in series, one next to the other, as is clearly shown in Figure 2, and as is well known. Similarly, it is well known that the paper 9, which is caused to pass transversely across the series of ducts 15 by winding upon one roller and unwinding from the other, is provided with a plurality of apertures which co-ordinate or "register" with the duct openings 15 and are differently spaced and of varying lengths.

My improvement consists in providing a channel 16 at one side of the series of suction ducts 15 which are arranged centrally of the tracker board, and a similar channel 17 extending along the other side thereof.

The length of each of these channels, 16 and 17, is greater than the length of the series of duct openings 15 and is also greater

than the width of the paper or strip 9 that passes over the tracker board so that at all times the ends of the channels 16 and 17 are exposed to the atmosphere. Preferably, the ends of the channels 16 and 17 are provided with beveled or sloping surfaces so as to avoid any sharp angular depressions which might accumulate dust and dirt. These sloping ends are indicated by the numeral 19.

It will be noted that the surfaces 20 and 21 between the series of duct openings 15 and the channels 16 and 17 are very narrow, and that the distances between the duct openings 15 and the channels 16 and 17 is therefore very small. These distances are also relatively small compared to the widths of the surfaces 22 and 23 between the channels 16 and 17 and the edges 24 and 25 of the tracker board 12. It is only along the surfaces indicated by the numerals 20 and 21 that the paper is under the action of the suction-tension, it being understood that the paper as it passes over the surfaces 22 and 23 is not under the action of suction-tension, because the channels 16 and 17 being in communication with the atmosphere destroy the suction-tension at these points. In consequence, the suction-tension is very much increased upon the paper over the surfaces 20 and 21, and over the series of duct openings and the walls 26 intermediate of the ends of the series of duct openings and the side edges of the strip, so that a very tight grip between the paper strip and the part of the tracker board containing the duct openings is obtained. In consequence, the co-ordination or registration between the apertures of the paper strip and the action of the suction tension is increased to a great extent and the rendition of the music very much improved. At the same time, however, due to the fact that the area of suction-tension contact is relatively small, a quick response is obtained when it is desired either to increase or decrease the speed of movement of the paper strip passing over the duct openings. Furthermore, since the action of the suction-tension is concentrated on a small area and the larger areas 22 and 23 remain uninfluenced by the suction-tension, no noises or other objectionable sounds result. The paper passing over the surfaces 22 and 23 is not subjected to pressure due to suction-tension as heretofore, and thus may readily pass thereover without any undue friction.

It will therefore be seen that my improved tracker board provided with suction-tension neutralizing means in the form of channels shown in this particular embodiment has the advantages heretofore pointed out and overcomes the disadvantages of prior devices.

In this embodiment I have shown channels in communication with the atmosphere, but it is clear that instead of channels other equivalent suction-tension neutralizing devices may be used to obtain substantially the same result. Accordingly, I do not wish to limit myself to the particular embodiment herein shown and described and changes may be made therein without departing from the spirit and scope of my invention as defined in the appended claims.

I claim as new and desire to secure by Letters Patent:

1. A tracker board having the usual perforations therein connected to the pneumatic action and provided further with slots extending lengthwise of the board and substantially parallel with the row of perforations, said slots being remote from the side edges of the tracker board and close to the row of perforations whereby to reduce the area of suction pressure contact of the web with the tracker surface, said slots being continuously in communication with the atmosphere whereby to break the vacuum pressure upon the web throughout the greater area of the tracker surface at the outer sides of said slots.

2. A tracker bar for pneumatic instruments having the customary row of perforations extending centrally thereof and being in communication with the pneumatic action, said bar also having a rounded tracker surface for receiving the web and further having relatively large slots extending longitudinally of the bar and at opposite sides of the series of perforations, said slots being arranged close to the row of perforations and remote from the side edges of the bar whereby to reduce the area of the surface of suction contact between the web and the bar, said slots extending outwardly beyond the sides of the web and opening directly to the atmosphere whereby to supply atmospheric air to the under sides of the web close to the row of perforations.

In testimony that I claim the foregoing as my invention, I have signed my name.

PAUL H. BILHUBER.