

H. H. JUELGE.

INTERCHANGEABLE ROLL FOR MECHANICAL MUSICAL INSTRUMENTS.

APPLICATION FILED AUG. 12, 1903.

NO MODEL.

Fig. 1.

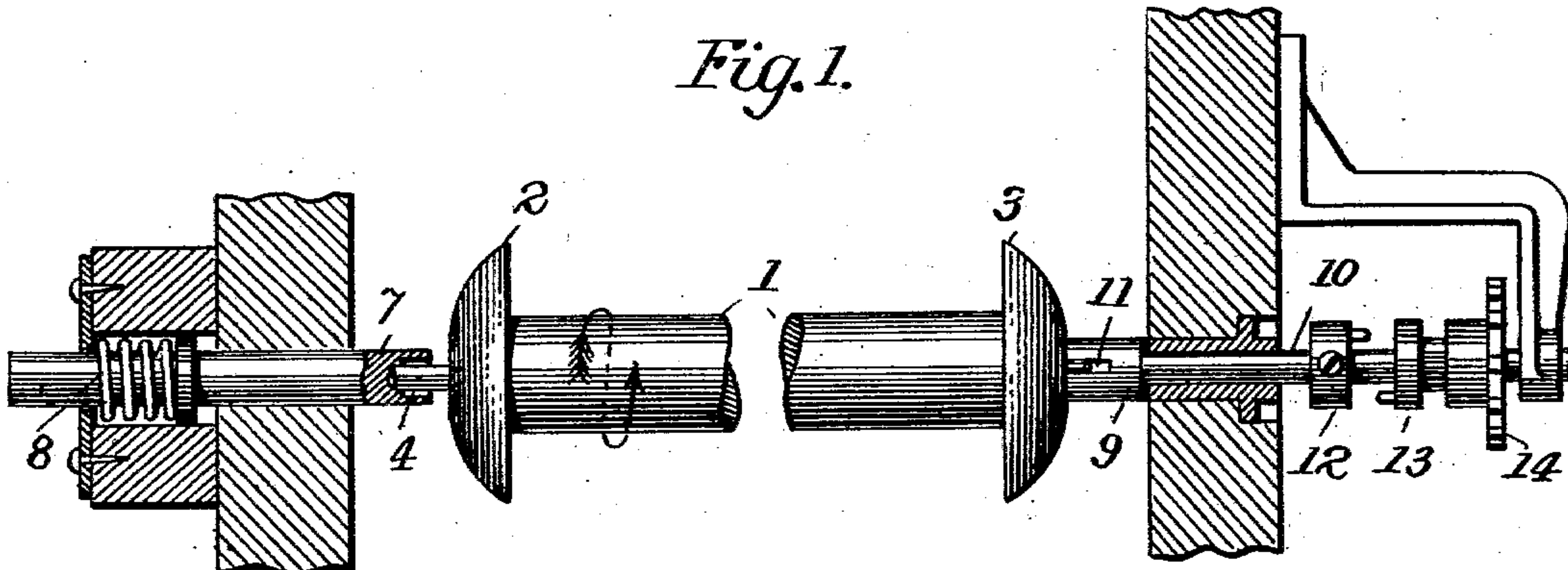


Fig. 2.

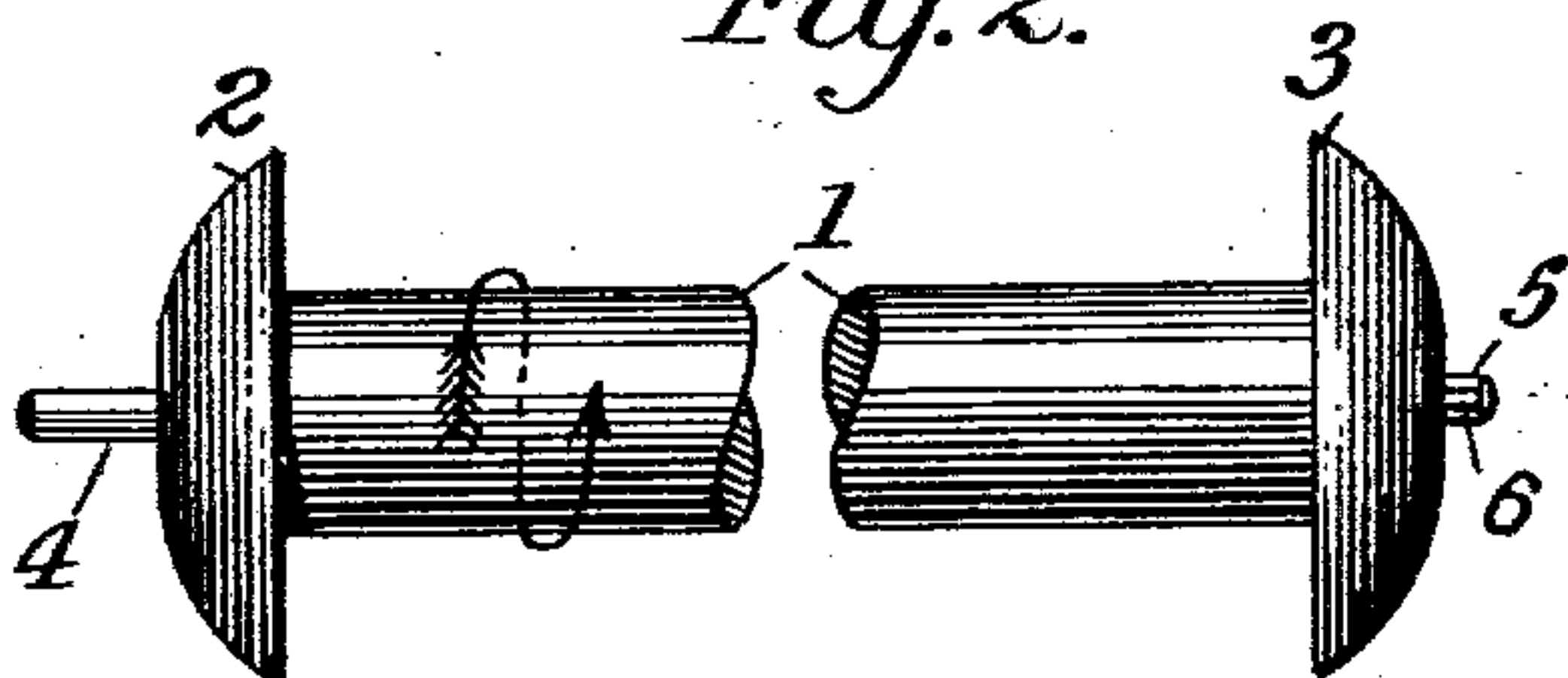


Fig. 3.

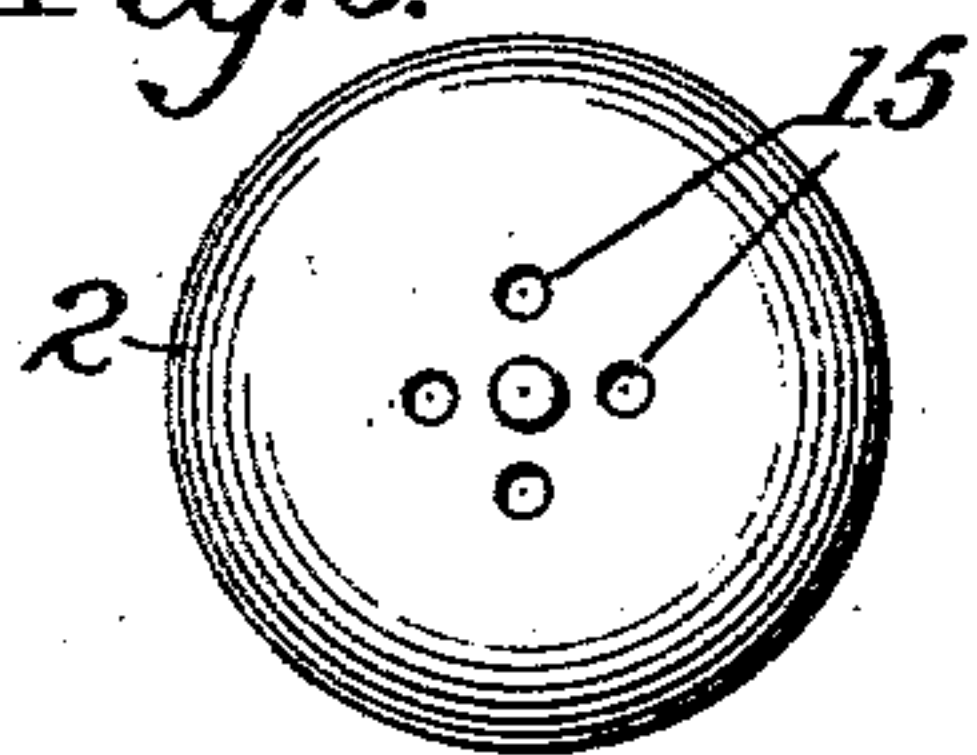


Fig. 4.

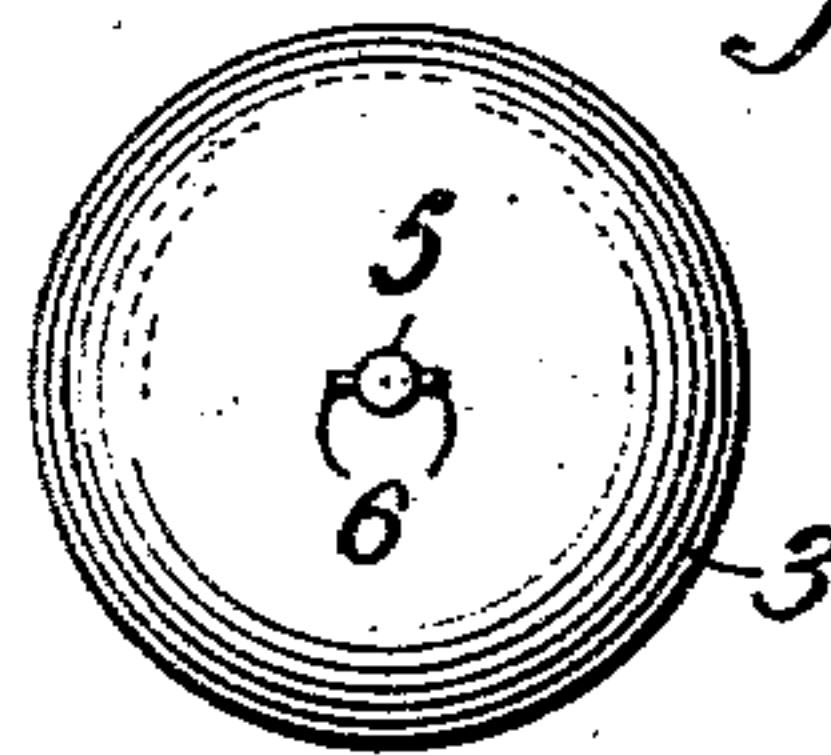


Fig. 5.

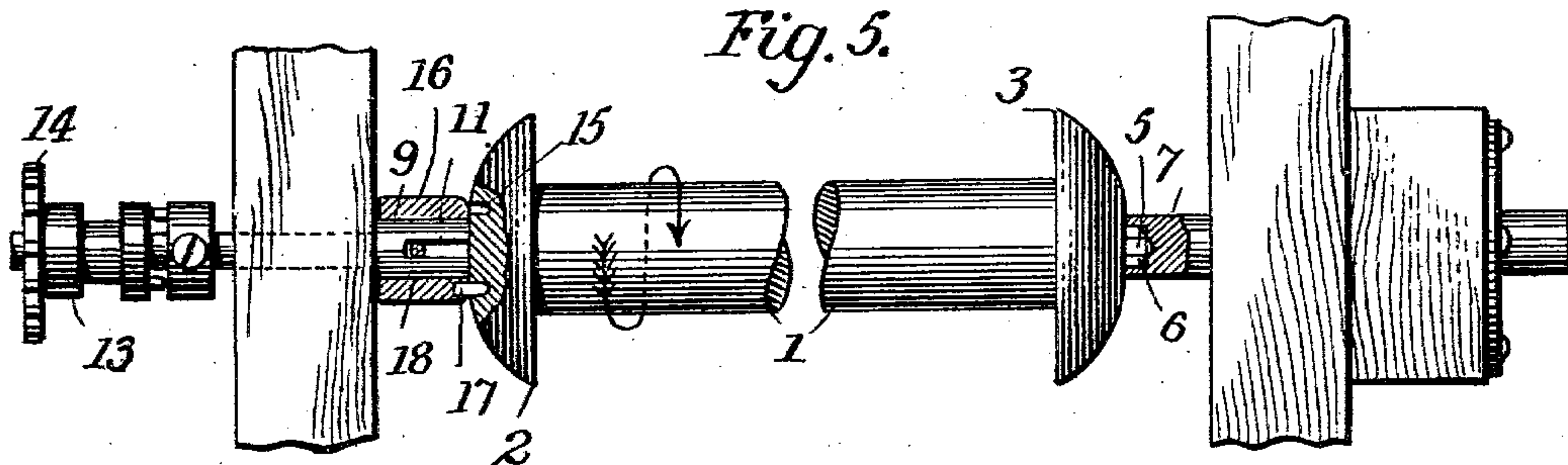


Fig. 6.

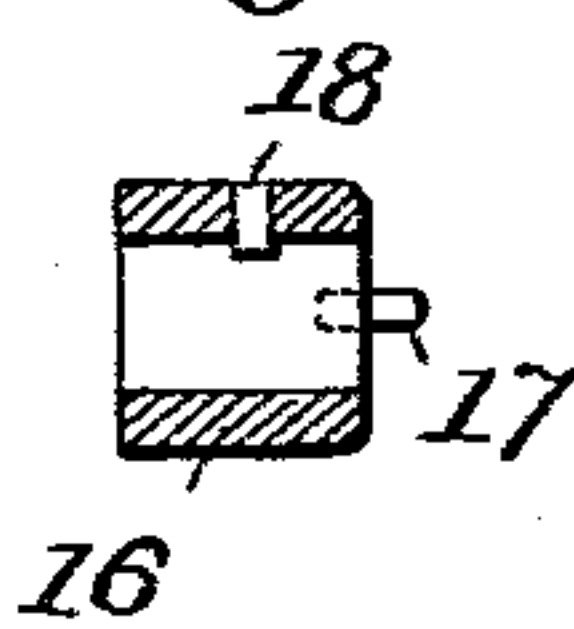


Fig. 7.

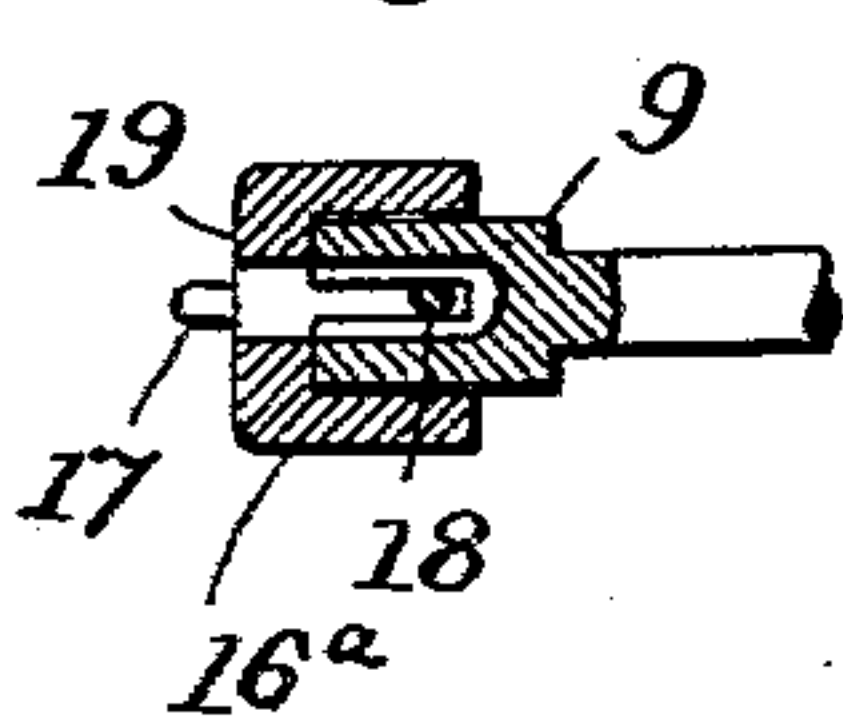


Fig. 8.

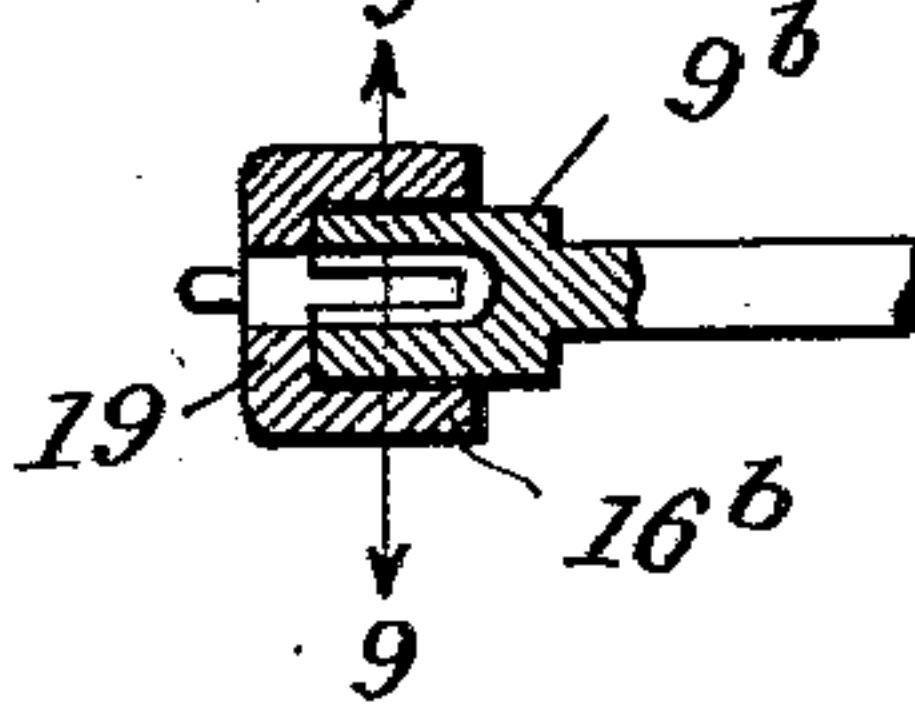
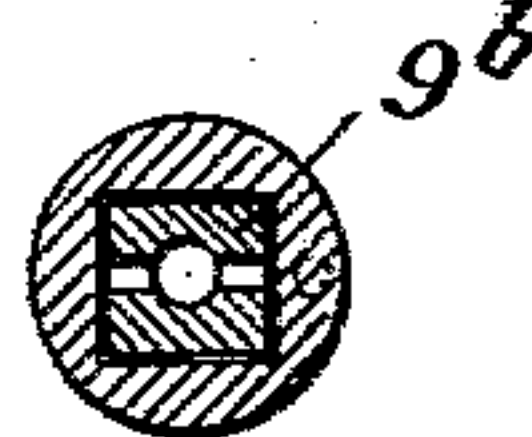


Fig. 9.



Witnesses
J. S. Stinkel
H. J. Gillman

334

Inventor
Harry H. Juelge
Foster Furman Watson
Attorneys

UNITED STATES PATENT OFFICE.

HARRY HENRY JUELG, OF WASHINGTON, DISTRICT OF COLUMBIA.

INTERCHANGEABLE ROLL FOR MECHANICAL MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 745,500, dated December 1, 1903.

Application filed August 12, 1903. Serial No. 169,259. (No model.)

To all whom it may concern:

Be it known that I, HARRY HENRY JUELG, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Interchangeable Music-Rolls for Mechanical Musical Instruments, of which the following is a specification.

In mechanical musical instruments such as piano-players which are operated by perforated music-sheets the music sheets or ribbons are wound on rolls or spools. The music-rolls prepared for certain instruments have not heretofore been usable upon other instruments requiring the same width of music-sheet, owing to the construction of the spools and the cooperating parts of the instrument. Thus, for instance, a music-roll for the well-known "Angelus" piano-player has not been adapted for use in the "Pianola," and vice versa, although these machines are capable of playing the same music when it is mounted upon their respective spools.

The object of my present invention is to provide devices whereby any roll of music may be played upon any machine to which the perforations in the music-sheet are adapted.

The invention will be described in detail in connection with the accompanying drawings, in which—

Figure 1 is a side view of a music-roll in playing position in one form of machine. Fig. 2 is a similar view of the same roll removed from the machine. Figs. 3 and 4 are views of the left and right ends of the roll, respectively. Fig. 5 is a view of the same roll in playing position in another form of machine. Fig. 6 is a sectional view of the supplemental coupling shown in Fig. 5. Figs. 7 and 8 are sectional views of other forms of supplemental coupling. Fig. 9 is a section on the line 9 9 of Fig. 8.

Referring to Figs. 1 to 4, inclusive, 1 indicates the body of the spool of a music-roll; 2 3, the ends of the spool; 4, the plain pin at the end 2, and 5 the coupling-pin at the end 3, which coupling-pin has, as shown, wings 6. The body of the spool is a solid integral bar or rod, and the ends 2 3 are also solid, although they may not be integral with the body. The plain pin 4 fits in a sliding bearing 7, which is normally pressed toward the

spool by a spring 8. The coupling-pin 5 fits in a coupling-head 9 on a spindle 10, the head 9 being provided with a central bore to receive the pin and with lateral slots 11 to receive the wings. The spindle 10 is free to rotate while the music is being played, the music-sheet being drawn over the tracker-board and unwinding from the spool. On the spindle 10 is fixed a coupling member 12, which coöperates with a second coupling member 13, free to slide and turn on said spindle. The coupling member 13 is driven by a sprocket wheel or gear 14. When it is desired to reroll the music-sheet on the spool, the coupling 13 is moved to the position shown in Fig. 5, in which it engages the coupling 12 and rotates the spindle. The spindle in turn rotates the spool through the coupling members 5 and 9.

The spool shown in Fig. 1 is a spool especially adapted for use in the machine illustrated, which corresponds, for instance, to the construction of the pianola. Music-rolls for some other instruments, such as the angelus, have the pins 4 and 5 reversed, or if the spools be considered the same the music-sheet is wound on the pianola-spool in one direction and on the angelus-spool in the other direction. If, therefore, an angelus-spool were placed in a pianola as now constructed, the music-sheet could not be rewound, as the rewinding devices would turn the spool in the wrong direction. Furthermore, the angelus-spool would not assume a proper position in the pianola to cause the music-sheet to register with the tracker-board.

By my present invention I am enabled to use any music-roll in any machine, provided the music-sheet is adapted to the machine. To accomplish this, I construct the spool with a coupling member on the end having the plain pin 4, and I provide the rewinding mechanism with a supplemental coupling member adapted to coöperate with that end of the spool.

As shown in Figs. 3 and 5, I have transformed the head 2 of the spool into a coupling member by providing it with one or more holes 15, and I have provided a supplemental coupling member 16, preferably in the form of a sleeve adapted to slip over the head 9,

and having one or more pins 17 to cooperate with the holes 15. The coupling 16 also has an internal transverse pin 18, which cooperates with the openings 11 and positively engages the member 16 with the head 9. It will be seen that the spool is thus adapted to be driven from either end. Thus in Fig. 1 it is driven in the normal way by the coupling members 5 and 9, while in Fig. 5 the coupling member 5 runs freely in the socket in the spring-spindle 7, which socket is so large that the wings 6 may turn freely in it, while the spool-head 2 is connected with the coupling member 9 by means of the supplemental coupling 16. In some machines the music-sheet runs on and off the under side of the roll, while in other machines it runs on and off the upper side of the roll. In Figs. 1 and 5 the arrows are intended to indicate the direction in which the spools turn in rewinding the music.

The supplemental coupling should be so constructed as to cause the spools to which it is adapted to register with the tracker-board. The spool illustrated in Fig. 5 bears directly against the spindle-head 9, the coupling-sleeve being flush with the inner end of the head 9. If, however, the spool is required to be moved farther to the right, referring to Fig. 5, to cause it to register, the pin 18 will be so arranged that it will prevent the supplemental coupling from registering with the end of the coupling-head 9. In other words, it will cause the coupling 16 to project beyond the coupling-head 9. This may be accomplished also by forming the supplemental coupling with an inturned lip to bear against the end of the head 9, as shown in Fig. 7, in which the supplemental coupling 16^a is formed with the inturned lip 19.

In Figs. 8 and 9 I have shown a supplemental coupling 16^b, similar to that shown in Fig. 7, with the exception that the transverse pin 18 is omitted. In these figures the head 9^b is angular in cross-section, and the coupling has a socket of similar cross-section adapted to fit over the head. The lip 19 determines the space between the head 9^b and the head of the spool, while the angular formation of the head 9^b causes it to drive the coupling, and thus drive the spool.

One of the objects of this invention is to enlarge the usefulness of libraries, through which this class of music is largely distributed. In most cities and towns there are one or more circulating libraries from which the owners of piano-players are supplied with music, which is exchanged occasionally as books are exchanged in other libraries. By means of my invention herein described a roll of music carried in a library may be used by a number of customers provided with different instruments without making any change in the spool or the music constituting the "roll." The value and usefulness of the collection of music constituting the library is

thus very largely increased and the danger of furnishing customers with music unsuited to their instruments is obviated, as each piece of music can be played in any instrument, the owner of the instrument being provided with the proper supplemental coupling to adapt the music of the library to his instrument.

It will be evident that my invention may be embodied in a number of specific forms, and I therefore do not care to limit myself to the particular construction and arrangement illustrated and described. The invention has a wide range of use and has been found in practice to be very valuable, as it largely increases the usefulness of any particular machine and adapts any roll of music to a plurality of different machines.

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

1. A music spool or roll having a solid integral body and having the usual coupling member at one end, and a plain pin at the opposite end, said opposite end having a coupling member to cooperate with a supplemental coupling, for the purpose set forth.

2. A music spool or roll having a solid integral body and having the usual coupling member at one end, and having in its other end one or more indentations or openings constituting a coupling member to cooperate with a supplemental coupling member, for the purpose set forth.

3. A music spool or roll having a solid integral body and having the coupling member 5 at one end, a plain pin 4 at the opposite end, and a plurality of indentations or openings in its head adjacent to said plain pin, said indentations constituting a coupling member, for the purpose set forth.

4. In a mechanical musical instrument adapted to be operated by a perforated music-sheet, the combination with the rewinding-spindle and its coupling-head, of a supplemental coupling member adapted to be removably secured to said coupling-head, and a music-spool having a coupling member at one end to cooperate with said coupling-head and a coupling member at the other end to cooperate with said supplemental coupling.

5. In a mechanical musical instrument adapted to be operated by a perforated music-sheet, the combination with the rewinding-spindle and its coupling-head, of a supplemental coupling having means for engaging the coupling-head and a projecting pin for engaging the end of the spool, whereby the movement of the coupling-head is transmitted to the spool.

6. In a mechanical musical instrument of the class described, the combination with the rewinding-spindle and its coupling-head, of a supplemental coupling mounted on said head, means whereby the said supplemental coupling is rotated by said coupling-head, a projection on said supplemental coupling adapted to

engage a depression in the end of the spool, and a spool having the usual coupling member at one end and a depression in its other end forming an additional coupling member.

5 7. A mechanical musical instrument of the class described, having the usual rewinding-spindle and coupling member 9, in combination with a supplemental coupling comprising a sleeve fitting over said coupling member 9 and having its inner end flush with the

inner end of said coupling 9, for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY HENRY JUELG.

Witnesses:

JAMES A. WATSON,
BENJ. F. EDWARDS.