

(No Model.)

R. W. PAIN.

DEVICE FOR ATTACHING MUSIC ROLLS TO MECHANICAL MUSICAL INSTRUMENTS.

No. 601,161.

Patented Mar. 22, 1898.

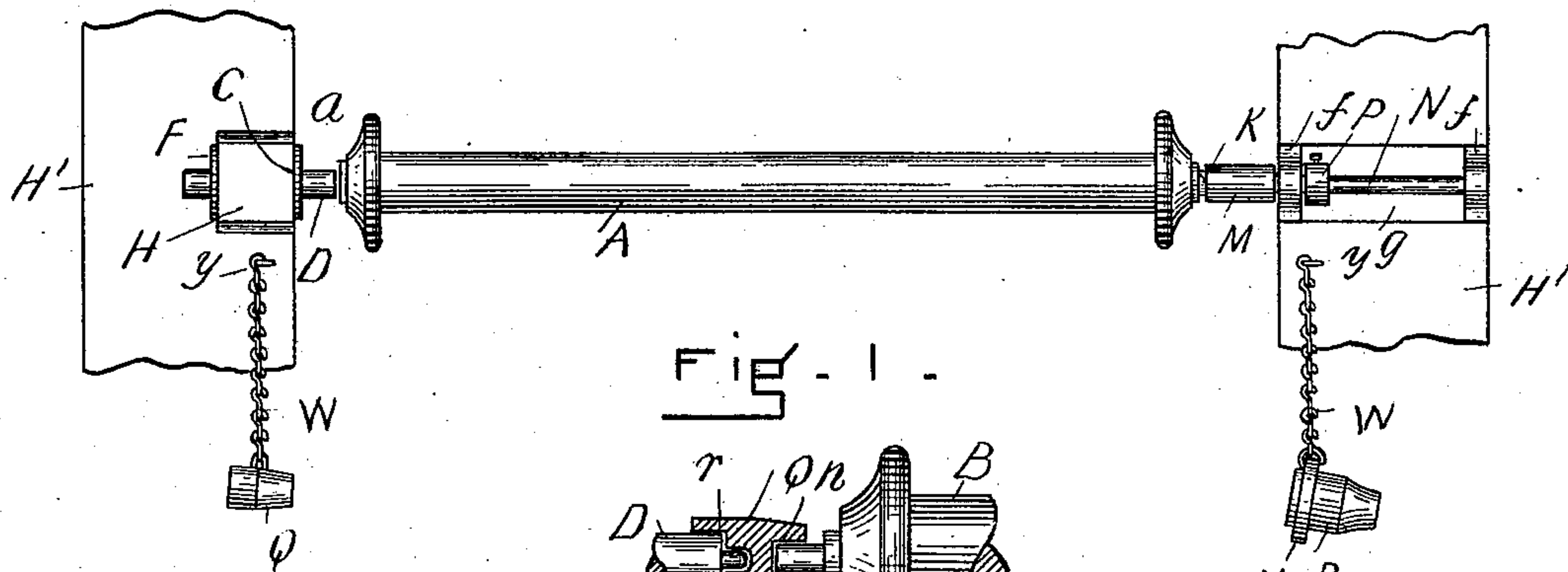


Fig. 1.

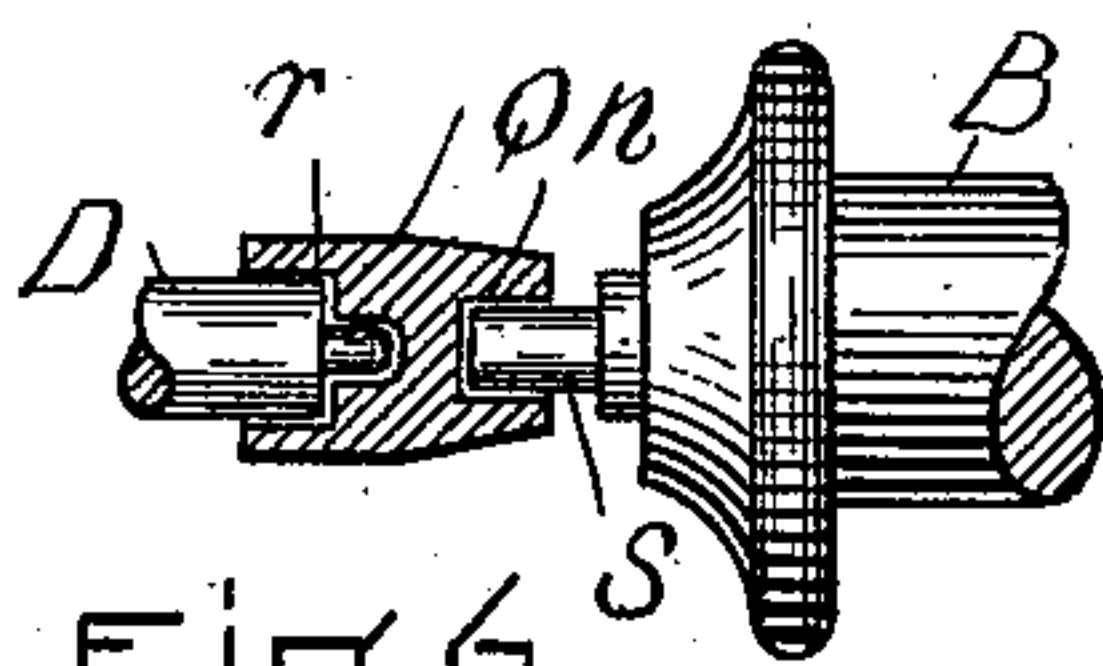


Fig. 6.

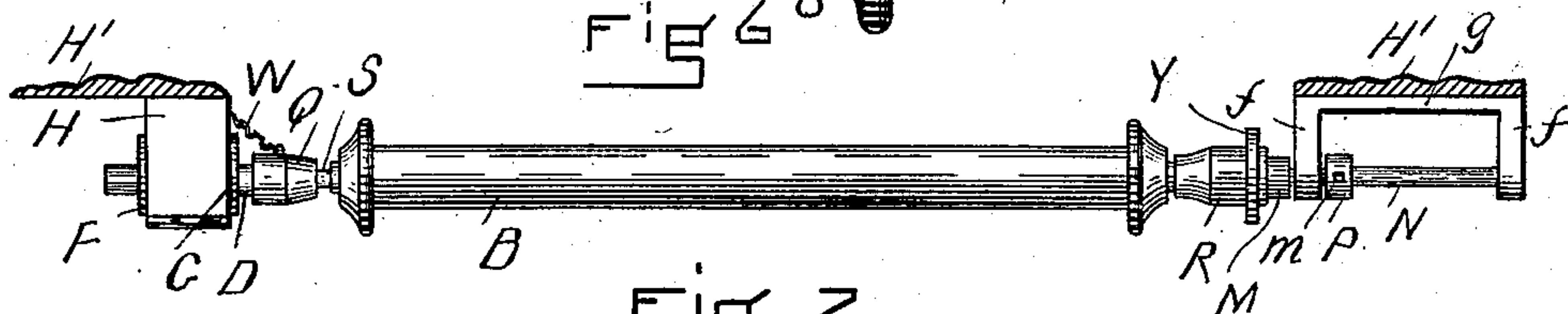


Fig. 2.

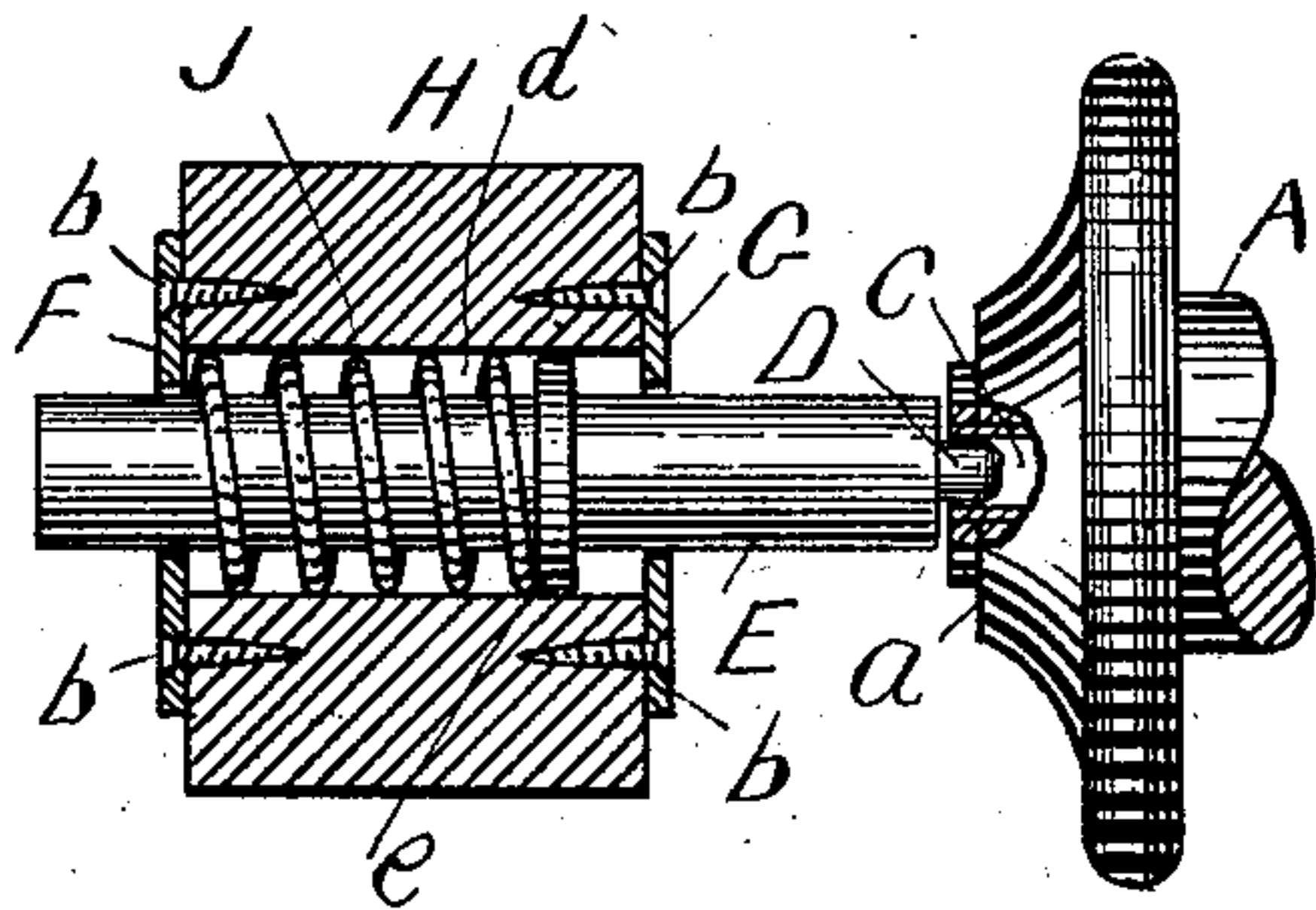


Fig. 3.

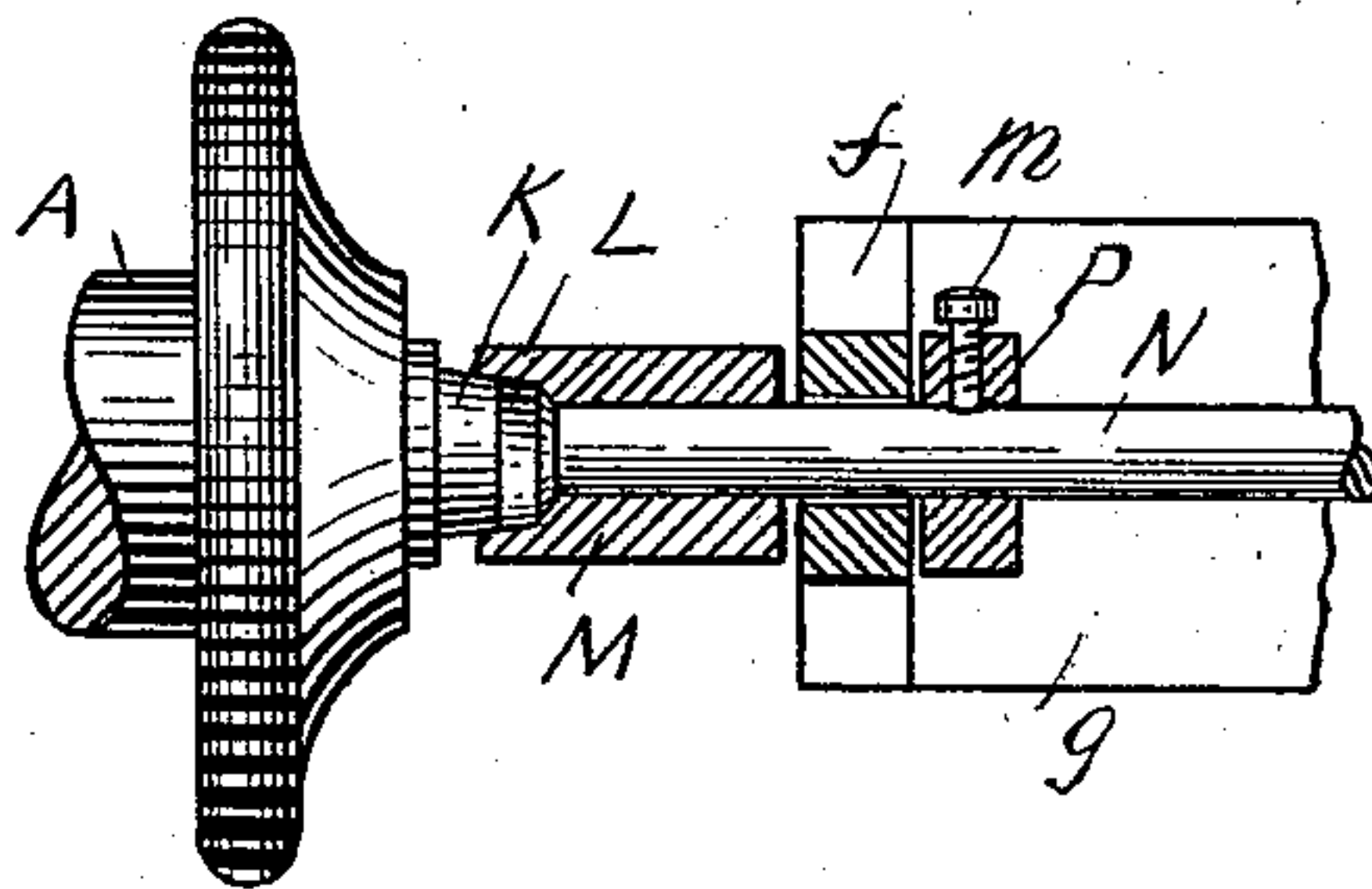


Fig. 4.

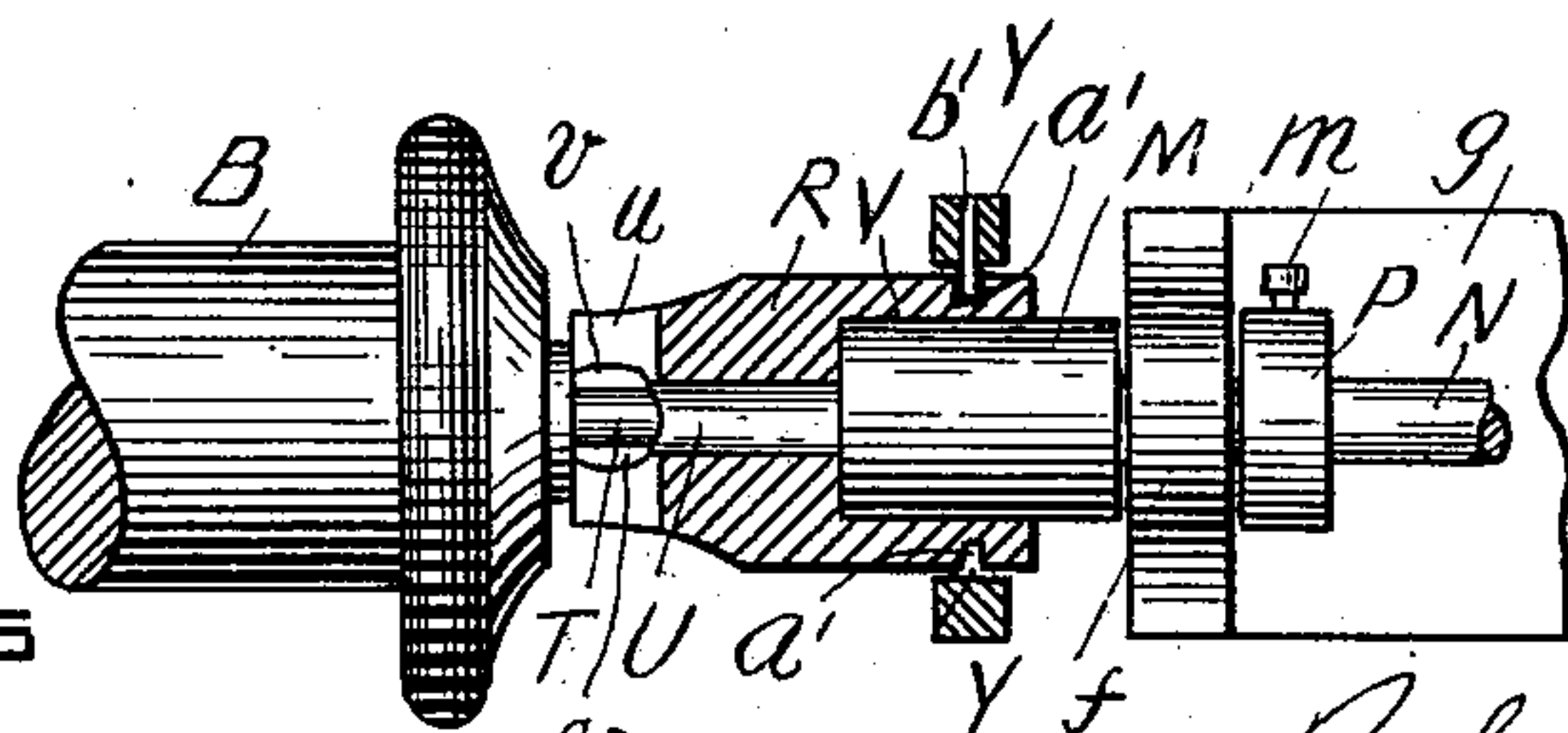


Fig. 5.

WITNESSES

*W. H. Wentworth*  
*Frederic J. Garrett*

INVENTOR

*Robert W. Pain,*  
*Per Edwin M. Brown,*  
*Attorney.*



# UNITED STATES PATENT OFFICE.

ROBERT W. PAIN, OF NEW YORK, N. Y., ASSIGNOR TO THE ÆOLIAN COMPANY, OF MERIDEN, CONNECTICUT.

DEVICE FOR ATTACHING MUSIC-ROLLS TO MECHANICAL MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 601,161, dated March 22, 1898.

Application filed March 31, 1897. Serial No. 630,113. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT W. PAIN, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Devices for Attaching Music-Rolls to Mechanical Musical Instruments, of which the following is a full, clear, and exact description.

The length of a music-roll for a mechanical musical instrument is the distance between the flanges or two heads of the music-roll, which distance is determined by the width of the perforated music-sheet, as it is preferable and necessary for the practical and satisfactory guiding and winding of the perforated music-sheet upon the roll that the flanges be only a sufficient distance apart to freely receive between them the music-sheet as it is wound thereon; and the object of this invention is to adapt the parts which support and operate the music-roll in a mechanical musical instrument so that different lengths of music-rolls having wound thereon corresponding widths of perforated music-sheets can be applied to and operated by the same parts; and the invention consists of certain construction and arrangement of parts for supporting and operating a music-roll for a perforated music-sheet in a mechanical musical instrument so that different lengths of music-rolls can be supported and operated by the same parts, all substantially as hereinafter fully described, reference being had to the accompanying sheet of drawings, in which are represented two music-rolls of different length and showing the manner of supporting and operating the two rolls in the same instrument.

Figure 1 is a side view of a long music-roll as supported in a mechanical musical instrument. Fig. 2 is a side view of a short roll supported on the same parts, but which are turned half round, but otherwise in the same position as the long roll. Fig. 3 is a detail longitudinal section of part of Fig. 1, showing the manner of supporting the left-hand end of the long music-roll in that figure. Fig. 4 is a detail longitudinal section of part of Fig. 1, showing the manner of supporting the other end of the music-roll in said figure. Fig. 5 is a detail longitudinal section of part

of Fig. 2, showing the manner of supporting the right-hand end of the shorter music-roll. Fig. 6 is a detail longitudinal section of part of Fig. 2, showing the other end of the short music-roll and its manner of support.

In the drawings, Figs. 1 and 2, A and B represent, respectively, a long and a short music-roll for a perforated music-sheet in a mechanical musical instrument, the long one, A, for a music-sheet having perforations representing, say, sixty-five notes and the short one, B, for a music-sheet having perforations representing fifty-eight notes in the compass of the instrument.

The roll in Fig. 1 has in one end a central socket C, (see Fig. 3,) adapted to fit freely over a journal-pin D, arranged by an enlarged portion E to move back and forth in two bearings in plates F G, secured on the sides of a block H at b, which block is supported in any suitable manner by the frame H' of the instrument, a spiral spring J encircling the larger portion in the enlarged space d in the block and bearing against the plate F, and a shoulder e on the pin D to act by its tension to force the pin outward, the shoulder also serving to limit such movement. The other end of the roll in Fig. 1 has a journal-pin K, (see Fig. 4,) which is preferably of larger diameter, and it tapers toward its outer end and is adapted to fit in a tapering socket L in a head M, secured to a shaft N, which shaft is arranged to turn in bearings in arms f of a bracket g, secured to a support H' of the frame, and prevented from longitudinal movement by the head M and a collar P, secured by a set-screw m to the shaft.

In placing the music-roll in position its end a is placed on the journal-pin D and the pin pressed back by it sufficiently for the tapering pin K at the other end to be inserted in the socket L in the shaft-head M, when the spring J on the pin D presses against the end of the roll and holds it firmly in position between the two supports. The tapering pin K fits closely in the head-socket L, creating by its taper sufficient friction between the two for the shaft N when turned to also cause the roll to turn.

In the instrument the shaft is free to turn independently of the motive power when the



music-roll is turned by the music-sheet as it is unwound therefrom in playing the instrument; but when the music is rewound upon the music-roll preparatory to playing the tune over again or removing the roll and substituting another then the driving power is connected to the shaft for such purpose, all as in such instruments, and which turns the roll connected thereto by the friction of the tapering pin rewinding the music-sheet thereon, and when the tune is to be again played or a tune from another music-roll the motive power is cut off from the shaft N, leaving the music-roll free to turn in operating the instrument.

In Fig. 2 is shown a means for placing a shorter music-roll and connecting it with the same supports at each end and operating-shaft shown in Fig. 1. In this figure Q and R are respectively two cylindrical blocks or sleeves Q R, the block or sleeve (see Fig. 6) having a central open socket  $n$  to place it over the journal-pin S of the music-roll B and in its other end a central open socket  $r$  for it to freely fit over the spring-pin D in the block-support H, these blocks or sleeves carrying the bearings for the music-roll journal-pins in a longitudinal central line farther from their supports H and H', as shown in Fig. 2. The journal-pin T on the other end of the music-roll B (see Fig. 5) freely fits in a central open socket U in the other block or sleeve R, the end of the block having two radial grooves  $u$  opposite to each other, in which is arranged to freely fit, respectively, two short ribs of the roll-pin T, making a clutch by which the music-roll is turned when the block is turned. This block R has a central open socket V in its other end, by which it is adapted to fit over the shaft-head M, as shown more particularly in Fig. 5. These blocks Q R make the bearings for the music-roll journals centrally longitudinally nearer together, so that a short roll can be inserted in the instrument and operated as well as the long roll.

When desirous of replacing the long roll, the blocks Q R are removed and the long roll inserted, as before. Each block is connected by a short chain W, respectively secured to the support at  $y$ , so they will always be in convenient position ready for attachment as described, as shown in Fig. 1 more particularly.

By having socket-blocks of varying lengths various shorter lengths of music-rolls can be placed in the machine for use as conveniently as the long one.

The tapering journal and tapering socket connection by its friction, as described, makes a very simple and effective way of securing the music-roll to its operating-shaft for operation thereof in rewinding the perforated music-sheet upon the roll and the blocks or sleeves make an exceedingly simple arrangement for adapting various lengths of music-rolls to the

same musical instrument for different widths of perforated music-sheets.

If desired, one socket-block can be longer than the other in case it is necessary to have the music-sheet at one side or the other; also, only one end of the music-rolls need have a socket-block.

Both music-rolls can have tapering journal-pins, and the sockets in the blocks can be made tapering correspondingly for the reception of the tapering journals.

The chain W, connected to the block R, is connected directly to a ring  $y$ , freely surrounding the block, the block having a circumferential groove  $a'$ , into which a pin  $b'$  of the ring projects and along which it can freely move, so that the chain will not prevent the turning of the block by the shaft to turn the music-roll when desired. In the other block the journal-pin of the roll turns freely in its bearing in its block independent of the block. The block R fits over the shaft-head M sufficiently tight for the block to be turned by the shaft in its operation.

This invention, when tunes having small compass are arranged on the music-sheet, enables a narrower music-sheet to be used, consequently a shorter music-roll, which can be as easily attached by the use of the present invention, whereby quite a saving is made in the expense of preparing the music sheets and rolls.

The bearings for the journals of the rolls as well as the roll-journals can be constructed and arranged to be connected together in any suitable manner otherwise than as herein particularly shown and described to make the proper bearing and connection for operation, the invention not being limited to any particular manner of making such connection.

Having thus described my invention, what I claim is—

1. In combination, a music-roll for a mechanical musical instrument, a rotating shaft, a block detachably secured to said shaft, and adapted to revolve with it, a socket in said block adapted to receive the journal of the music-roll, a ring secured to a support freely surrounding said block and secured thereto but allowing the block to turn with the shaft.

2. In combination, a music-roll for a mechanical musical instrument, a rotating shaft, a block detachably secured to said shaft, and adapted to revolve with it, a socket in said block adapted to receive the journal of the music-roll, a ring freely surrounding said block and secured thereto, but allowing the block to turn with the shaft and a chain or cord attached to said ring and a suitable support.

3. In combination, a music-roll for a mechanical musical instrument, a block having a socket adapted to receive the journal of the music-roll and revolve with it, a ring freely surrounding said block, a pin projecting from the inner side of the ring, a circumferential



groove in said block in which said pin is freely disposed, and a chain or cord attached to said ring and a support.

4. In combination, a music-roll, a block or sleeve having a socket for the reception of the journal-pin of the music-roll detachably secured and adapted to revolve with it, and a ring freely surrounding said block or sleeve and held from movement and prevented from escape therefrom.

5. In combination, a music-roll, a block or sleeve having a socket for the reception of the journal-pin of the roll, detachably secured

and adapted to revolve with it, a ring freely surrounding said block and held from movement, a pin projecting from the inner side of the ring and disposed in a circumferential groove in said block preventing the escape of the ring.

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

ROBERT W. PAIN.

Witnesses:

OWEN WARD,  
C. R. COMÉS.