

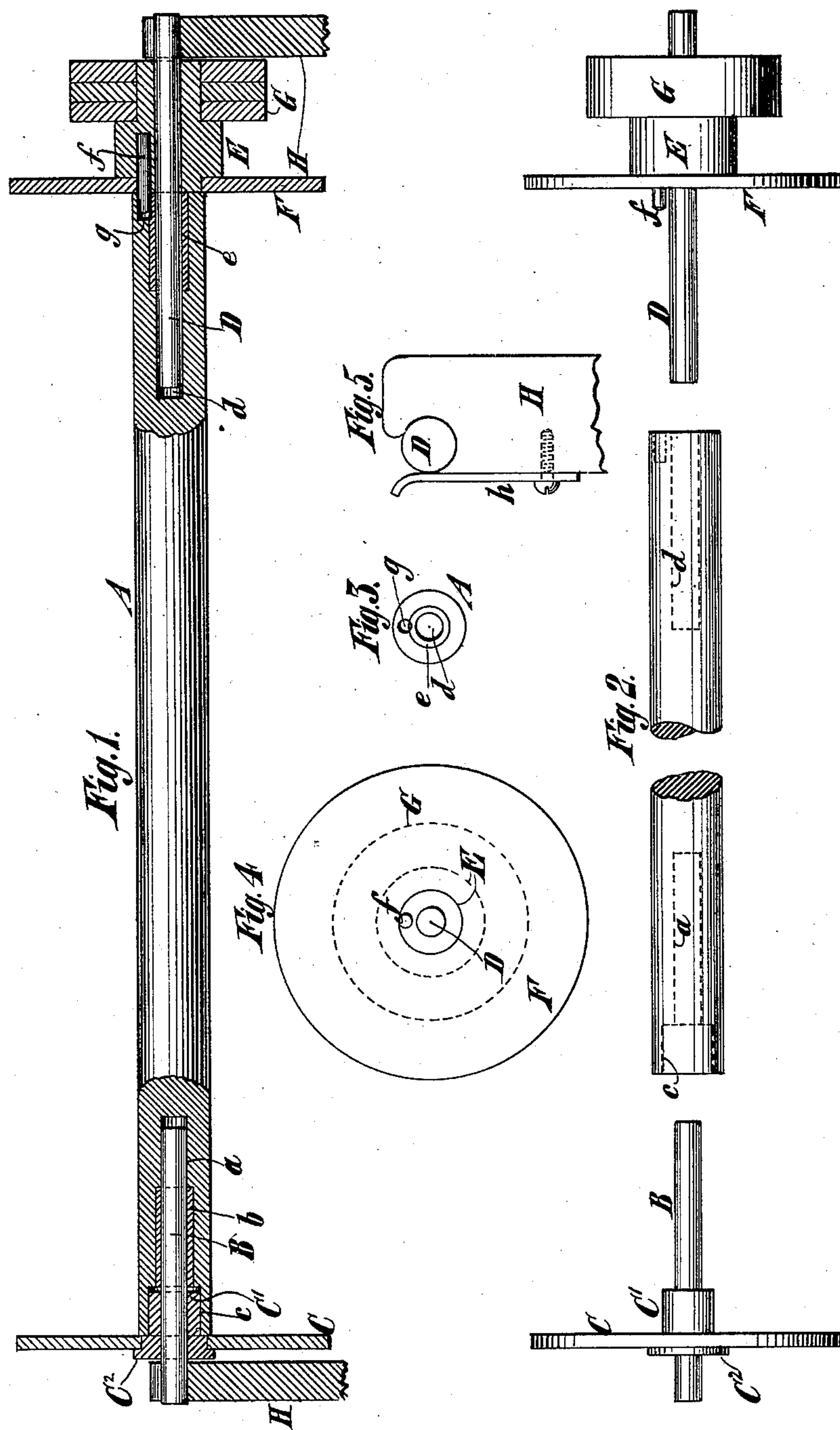
(No Model.)

J. MAXFIELD.

MUSIC ROLLER FOR MECHANICAL MUSICAL INSTRUMENTS.

No. 308,619.

Patented Dec. 2, 1884.



Witnesses
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UNITED STATES PATENT OFFICE.

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MUSIC-ROLLER FOR MECHANICAL MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 308,619, dated December 2, 1884.

Application filed January 5, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN MAXFIELD, of London, England, have invented a certain new and useful Improvement in Music-Rollers for Mechanical Musical Instruments, of which the following is a specification.

My improvement relates to mechanical musical instruments wherein is employed a traveling music-sheet for controlling the speaking of the sound-producing devices. The traveling music-sheet for such an instrument is generally wound from one roller to another during the playing of the instrument. It has been found most convenient to guide the music-sheet in its transit by means of flanges or heads on the rollers; but in shipment these flanges or heads have proved very objectionable not only on account of their bulk but also on account of their liability to breakage.

It is the object of my invention to provide a simple and convenient means for connecting flanges or heads and journals to a roller of the kind named, so that they may be readily detached from the roller when desirable and re-attached when needed.

The improvement consists in a novel combination of parts for accomplishing this, and in the combination of such parts with bearings that will limit the endwise movement of the journals.

In the accompanying drawings, Figure 1 is a sectional side view of a roller, journals, flanges, or heads and bearings embodying my improvement. Fig. 2 is a side view of the roller with the middle part broken away to economize space, and a side view of flanges or heads and journals therefor. Fig. 3 is an end view of the roller. Fig. 4 is a view of the adjacent side or end of the flange or head that fits the end of the roller which is shown in Fig. 3, and Fig. 5 is a view of one of the bearings and an end view of one of the roller-journals.

Similar letters of reference designate corresponding parts in all the figures.

A designates a roller, preferably made of wood and of cylindrical form. In one end it is provided with a cavity, *a*, in which is fitted a journal, B. I may make this journal of iron. The cavity *a* near its outer end has a bushing, *b*, of hard wood or other material that will

not readily wear away. When made of hard wood this bushing may, if necessary, be secured in place by glue or other adhesive substance; but it may, when made of any material, be merely driven in. At the outer end the cavity *a* opens into a larger cavity, *c*, that extends to the extreme end of the roller.

C designates a flange or head which may be made of wood, but preferably will be made of binder's board or leather-board, as such material is light and cheap and will not split off like wood. This flange or head is provided with a hub, C', which has a flange, C², at the outer end, and is made sufficiently small at the inner end to be capable of fitting in the cavity *c*. This hub may advantageously be made of wood. The flange or head will preferably be secured to it by glue or otherwise, and the journal B is fixedly secured to it by being driven in, or in any other suitable manner. This journal extends beyond each end of the hub. The journal, hub, and flange or head are secured together as one structure, and the inner ends of the journal and hub are made of such sizes relatively to the sizes of the cavities *a* and *c*, respectively, that they may be inserted into and removed from the same at pleasure, and when inserted will be held by friction.

D designates another journal, which I may make of iron. It is fitted into a cavity, *d*, in the roller. This cavity *d* is preferably fitted with a bushing, *e*, of hard wood or other durable material. Such bushing may be secured in place in the same manner as the bushing *b*. The journal D has affixed to it a hub, E, which preferably will be made of wood. Onto this hub is fitted a flange or head, F, which I prefer to make of such material as I have mentioned as applicable to the construction of the flange or head C. This flange or head F is preferably secured by glue or otherwise to the hub E.

On the hub E is affixed a pulley, G, made, as here shown, of three pieces of wood. These three pieces of wood will have the grain reversed to obviate splitting, and will be glued together and secured to the hub E by glue or otherwise. The journal D extends beyond the hub E at both ends. This journal D, the hub E, and the flange or head F form in effect

one structure. The pulley G is used for the transmission of motion to the roller. A pin, *f*, extending from the inner end of the hub E, enters a hole, *g*, in the adjacent end of the roller when the journal D is inserted in the cavity *d*, and locks this journal and the roller together, so that when the journal is rotated through the agency of the pulley G the roller will turn also. This journal D and the pin *f* can, however, easily be withdrawn from the roller when desirable. It will be seen that the journals and flanges or heads are detachable from the roller at will.

H designates bearings in which the journals B D are fitted and supported. They consist, as here shown, of blocks fitted with springs *h*, into and out of which the journals may be moved in directions transverse to their axes. These bearings are so arranged that they will prevent the journals from becoming detached from the roller even if they had any tendency to do so.

It will be seen that by my improvement I produce a roller which can have heads or flanges and journals readily attached when the roller is to be used, and detached when the roller is to be transported or put away. The roller will take up much less room and will be very much lighter when its heads or flanges are detached.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a roller, of hubs,

one of which enters said roller, journals permanently attached to the hubs and entering through and beyond the hubs at both ends, and their inner ends fitting in cavities of the roller beyond the inner ends of the hubs, and detachable heads or flanges upon said hubs, the hubs, the journals to which they are respectively connected and the said heads or flanges being capable of being together detached from said roller and reattached, and when attached to be held by friction in said roller, substantially as specified.

2. The combination, with the roller A, provided with the cavities *a c*, of the journal B, hub C', and head or flange C, substantially as specified.

3. The combination, with the roller A, provided with the cavity *d*, of the bushing *e*, the detachable journal D, provided with a detachable head or flange, F, and pin *f*, substantially as specified.

4. The combination, with a roller, A, of detachable journals B and D, secured in said roller by friction, hubs C' and E, permanently secured to said journals, detachable heads or flanges C and F on said hubs, and bearings H, provided with springs *h*, substantially as specified.

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Witnesses:

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