

(No Model.)

A. FOWLER.  
Mechanical Musical Instrument.  
No. 238,102.  
Patented Feb. 22, 1881.

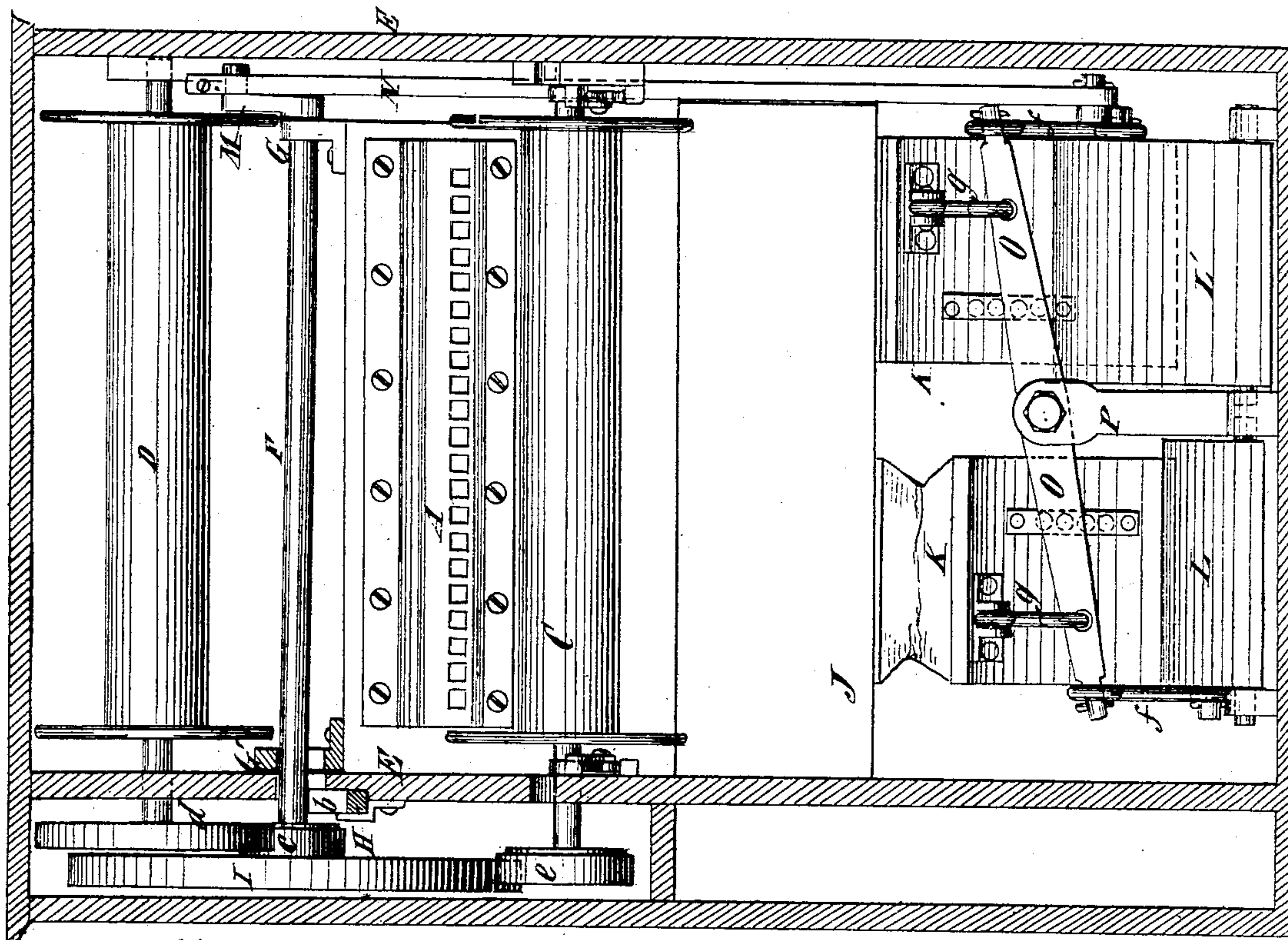
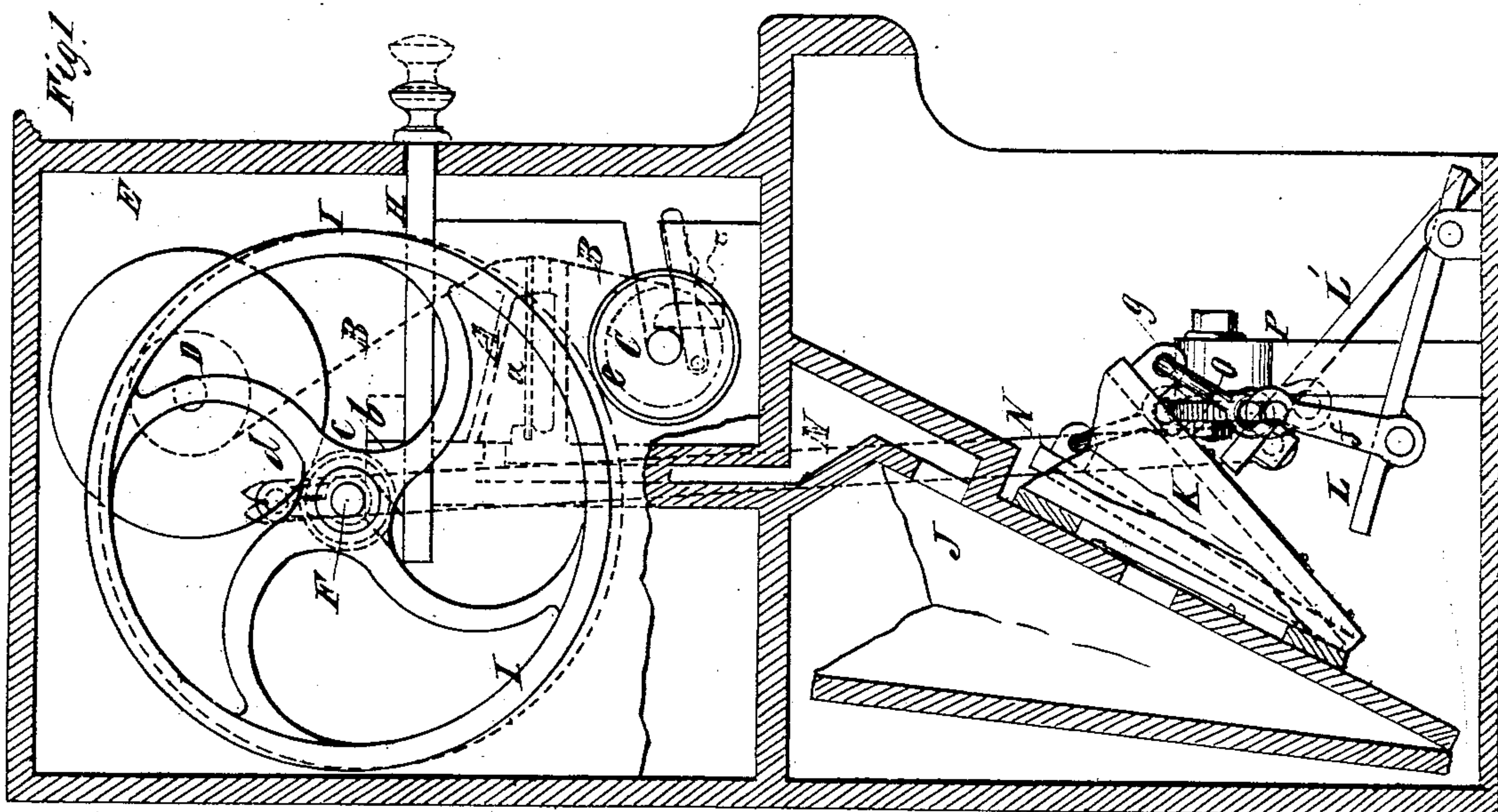


Fig. 2.



Witnesses  
John Becker.  
Oscar H. Hewlett.

Inventor  
A. Fowler



# UNITED STATES PATENT OFFICE.

AZRO FOWLER, OF NEW YORK, N. Y.

## MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 238,102, dated February 22, 1881.

Application filed June 10, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, AZRO FOWLER, of the city of New York, in the county and State of New York, have invented certain new and  
5 useful Improvements in Mechanical Musical Instruments, of which the following is a specification.

My invention relates to musical instruments in which a traveling music-sheet is employed  
10 as a means of operating or controlling the operation of sound-producing devices. In such instruments the music-sheet is first wound upon a roller, which may be called the "music-roller," and in the process of playing is drawn  
15 therefrom and wound upon a second roller, which may be called the "take-up roller." After the piece is played the music-sheet is rewound upon the music-roller.

My invention consists in the combination,  
20 in a mechanical musical instrument to be operated by a traveling music-sheet, of a music-roller, a take-up roller, a driving-shaft, and bearings for said shaft which permit a transverse movement of one end thereof, whereby  
25 motion may be transmitted from said driving-shaft to one of said rollers, and the other simultaneously freed from said shaft.

It also consists in the combination, in a mechanical musical instrument to be operated by  
30 a traveling music-sheet, of a music roller and a wheel attached thereto, a take-up roller and a wheel attached thereto, a driving-shaft carrying a wheel or wheels, a bearing at one end thereof which will permit of a slight transverse  
35 movement of the shaft, and mechanism whereby the end of the shaft may be moved to bring its wheel or wheels into engagement with the wheel on the music-roller or the wheel on the take-up roller, so that either of said rollers  
40 may be conveniently rotated independently of the other.

It also consists in the combination, with such driving-shaft, of a crank mounted on one end thereof, two treadles, a working beam or lever  
45 to which said treadles are connected, and a rod connected to one treadle and to the crank, whereby motion may be imparted to the shaft from both of said treadles through a single crank and connecting-rod.

50 It also consists in details of construction to be hereinafter explained.

In the accompanying drawings, Figure 1

represents a vertical section through a musical instrument embodying my invention, and Fig. 2 represents a front view and partial section  
55 thereof.

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

The sound-producing devices here shown consist of reeds *a*, arranged in cells in a reed-  
60 board, A, constructed so as to form a seat or rest for a traveling perforated music-sheet, B, which controls the operation of the reeds. Preparatory to playing, the music-sheet is wound upon a roller, C, which may be termed a  
65 "music-roller," and after passing over the reed-board A is wound upon a second roller, D, which may be termed a "take-up roller." These rollers are mounted in suitable bearings in the case E of the instrument, in which they are  
70 free to rotate, and they derive motion alternately from a driving-shaft, F. This driving-shaft is supported at one end in a bearing, G, in which it is free to rotate, but which holds it securely against other movement, and at the  
75 other end in a bearing, G', which is movable, or which is so constructed as to permit of a slight transverse movement of one end of the shaft. As here represented, the bearing is fixed, and is slotted or has an elongated hole,  
80 as shown clearly in Fig. 2, to permit of the transverse movement of the shaft.

The means here shown for raising the driving-shaft consists of a draw-pull, H, having upon it an incline, *b*, which bears upon the  
85 said shaft, and by which the latter may be raised when the draw-pull is moved in one direction. When the draw-pull is moved in the reverse direction the shaft is allowed to fall by its own weight, or may be impelled back  
90 by a spring or otherwise.

When it is desired to rotate the take-up roller D to draw the music-sheet B from music-roller C over the reed-board A, the shaft F is raised so as to bring a wheel, *c*, arranged upon it in en-  
95 gagement with the take-up roller or a wheel, *d*, upon the take-up roller; but when it is desired to rotate the music-roller C, to cause the re-winding of the music-sheet upon it, the shaft F is lowered so that the periphery of a fly-  
100 wheel, I, mounted thereon engages with the music-roller or a wheel, *e*, attached to the music-roller C.

It will be observed that the wheel *c*, from



which the take-up roller derives motion, is much smaller than the wheel *d*, with which it engages, and that therefore the rotation of the take-up roller is much slower than the driving-shaft, while the music-roller derives its motion from the large fly-wheel, and is therefore rotated rapidly to rewind the music-sheet. The reed-cells, in which the reeds *a* are placed, communicate with a wind-chest, J, which is exhausted of air by two bellows, K, operated by treadles L L'.

Inasmuch as one end of the driving-shaft is adapted to be moved as above described, motion can be most conveniently transmitted to the fixed end thereof. This end carries a crank, M, which is connected to the treadle L' by a connecting-rod, N, and in order to transmit motion from the treadle L, I connect the two treadles, by links *f*, to a working-beam, O, which is pivoted to a standard, P. This beam is also connected, by links *g*, with the bellows K.

By my invention I provide in a simple manner for adjusting the driving-shaft so as to transmit motion either to the take-up roller or music-roller and simultaneously freeing the other roller from the driving-shaft, and the arrangement with the treadles and bellows of the working-beam and connections affords provision for transmitting motion from the two treadles to a single crank upon one end of the driving-shaft.

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

1. The combination, in a mechanical musical instrument adapted to be played by a traveling music-sheet, of a music-roller, a take-up roller, a driving-shaft, and bearings for said driving-shaft, which permit a transverse movement of one end thereof, all arranged to operate as described, whereby motion may be imparted from said driving-shaft to one of said rollers and the other simultaneously freed from said shaft, substantially as specified.

2. The combination, in a mechanical musical instrument adapted to be operated by a traveling music-sheet, of a music-roller and a wheel attached thereto, a take-up roller and a wheel attached thereto, a rotary driving-shaft provided with a wheel or wheels, bearings for said shaft, which permit of a transverse movement of one end of the shaft, and mechanism for moving said shaft to cause its wheel or wheels to engage with the wheel on the take-up roller or the wheel on the music-roller, substantially as specified.

3. The combination of the music-roller C and its wheel *e*, the take-up roller D and its wheel *d*, the driving-shaft F, carrying the fly-wheel I and wheel *c*, the slotted or elongated bearing G', and the draw-pull H, having an incline, *b*, all arranged substantially as and for the purpose specified.

4. The combination, in a mechanical musical instrument, of a reed-board, a traveling music-sheet for controlling the operation of the reeds, a music-roller, and a take-up roller, each having an attached wheel, a driving-shaft carrying a wheel or wheels, a bearing for said driving-shaft which permits a transverse movement of one end of said shaft, and mechanism for moving said shaft to bring its wheel or wheels into engagement with the wheel of the music-roller or the wheel of the take-up roller, substantially as and for the purpose specified.

5. The combination, in a mechanical musical instrument, of a driving-shaft, a crank mounted upon one end thereof, two treadles, a working-beam connecting said treadles, and a connecting-rod connected to one of said treadles and to said crank, substantially as and for the purpose specified.

6. The combination, in a mechanical musical instrument, of a driving-shaft and bearings therefor which permit a transverse movement of one end of the shaft, a crank mounted upon the other end of the shaft, two treadles, a working beam or lever connecting said treadles, and a connecting-rod connected to one treadle and to the crank, substantially as specified.

7. The combination, in a mechanical musical instrument, of a driving-shaft, a crank mounted upon one end thereof, two treadles, a working-beam connected to said treadles, two bellows, links connecting said bellows to said working-beam, and a rod connecting one of said treadles with said crank, substantially as specified.

8. The combination of the shaft F, the slotted or elongated bearing G', crank M, treadles L L', connecting-rod N, working-beam O, and links *f*, connecting said treadles with said working-beam, substantially as specified.

AZRO FOWLER.

Witnesses:

O. H. HEWLETT,  
C. A. NEEDHAM.