

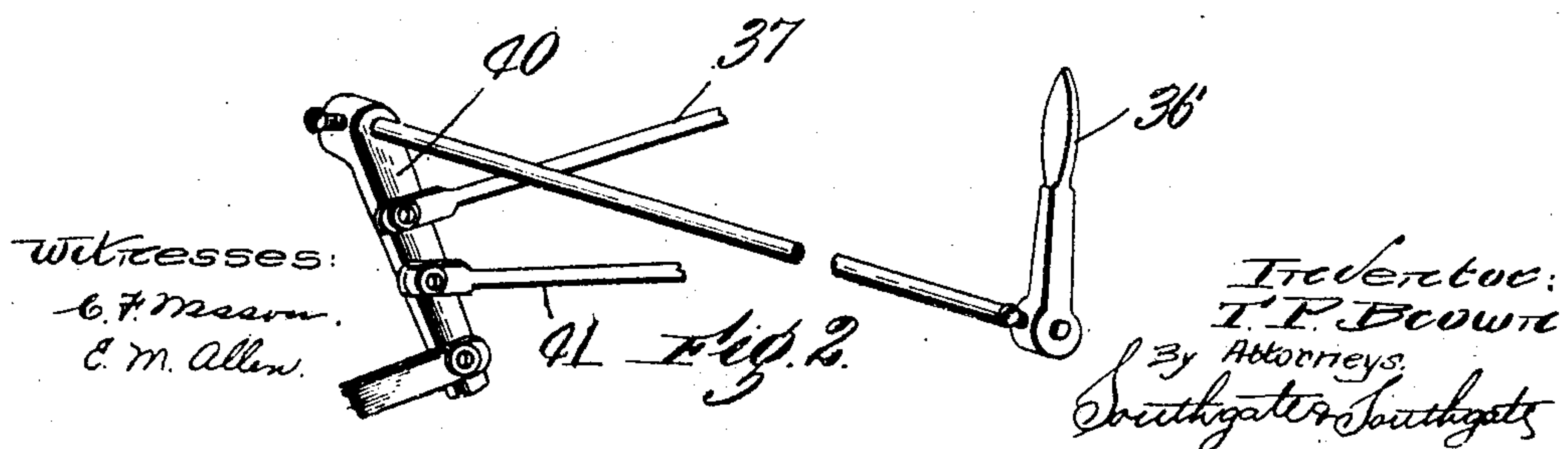
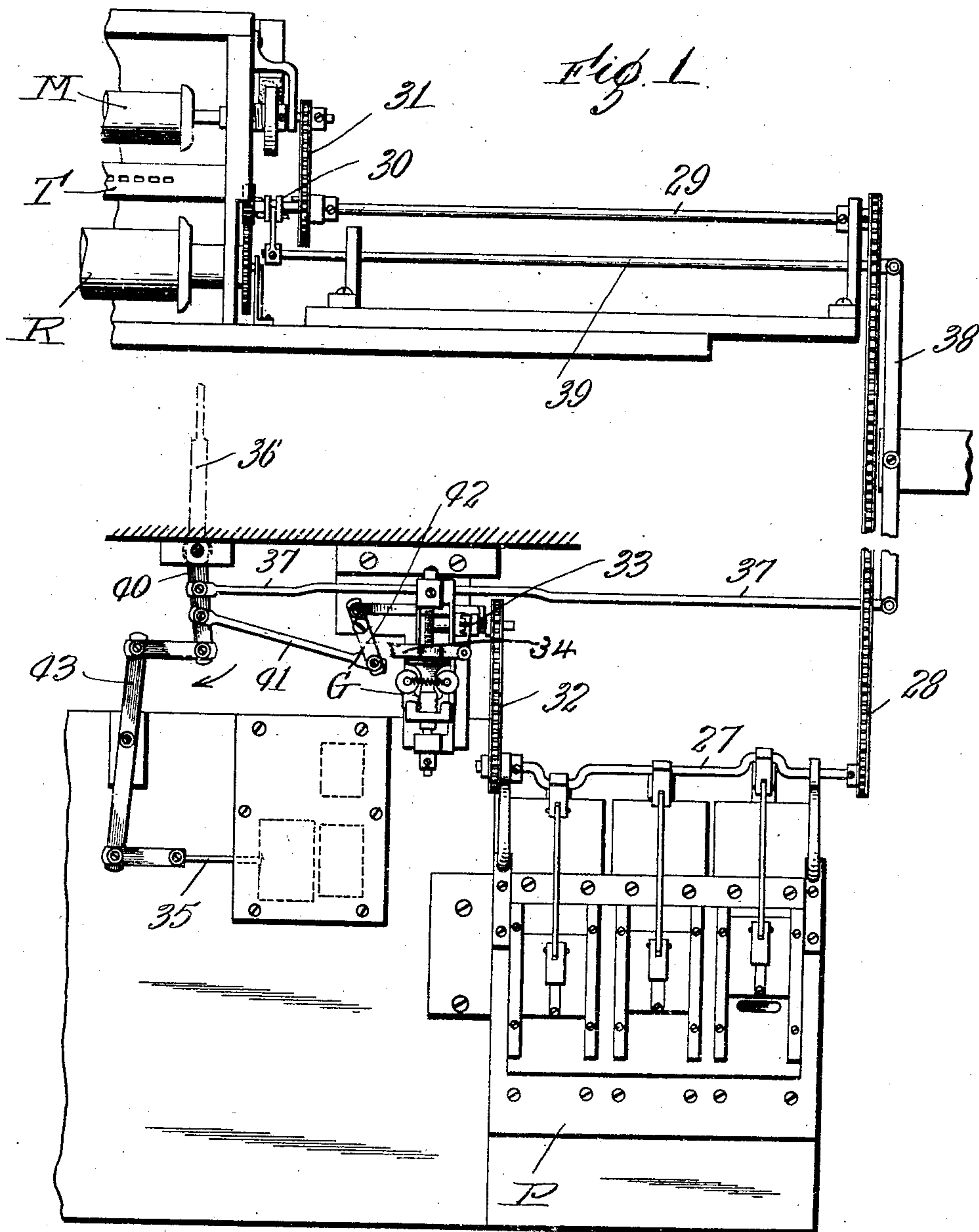
No. 842,072.

PATENTED JAN. 22, 1907.

T. P. BROWN.

REVERSING AND REWINDING MECHANISM FOR AUTOMATIC
MUSICAL INSTRUMENTS.

APPLICATION FILED SEPT. 25, 1905.



UNITED STATES PATENT OFFICE.

THEODORE P. BROWN, OF WORCESTER, MASSACHUSETTS.

REVERSING AND REWINDING MECHANISM FOR AUTOMATIC MUSICAL INSTRUMENTS.

No. 842,072.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed September 25, 1905. Serial No. 279,926.

To all whom it may concern.

Be it known that I, THEODORE P. BROWN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Reversing and Rewinding Mechanism for Automatic Musical Instruments, of which the following is a specification.

This invention relates to that class of automatic musical instruments which are controlled by rolls or strips of perforated paper.

The especial object of this invention is to provide the reversing-lever of an instrument of this class with simple and direct means for connecting the motor to wind the music-sheet over the tracker-board in one direction or to connect the motor to rewind the music-sheet at a higher speed, to throw off the connection of the motor and its governor during rewinding, and to cut off the air tension from the pneumatic action during rewinding.

To these ends this invention consists of the reversing-lever and the connections controlled thereby, as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a front view, partly broken away, of sufficient parts of an automatic musical instrument to illustrate the application of this invention thereto; and Fig. 2 is a perspective view of the reversing-lever and connections operated therefrom.

In that class of automatic musical instruments to which this invention relates whenever a piece of music is played automatically the music-sheet has to be drawn over the tracker-board in one direction, and after the piece is played the music-sheet has to be rewound upon the music-roll. The rewinding may be done at a higher speed than the speed of the paper during playing, and it is desirable that the motor should be relieved from the resistance of its governor during rewinding. It is also desirable when a pneumatic winding-motor is used, that the air tension should be cut off from the playing device during rewinding.

It will be seen that the reversing-lever of an automatic musical instrument has to be operated very frequently when the instrument is in use.

The especial object of my present invention is to arrange the connections controlled from the reversing-lever in such simple and direct way that the reversing-lever will work

easily, while at the same time the connections are so direct and positive that they will not readily become broken or require attention.

Referring to the accompanying drawings for a detail description of an apparatus constructed according to this invention, T designates the tracker-board, which coöperates with the music-sheet. At relatively opposite sides of the tracker-board T are the music-roll M and the winding-roll R. The motor P may be of the ordinary wind-motor type and is provided with the usual crank-shaft 27. Secured at one end of the crank-shaft 27 is a sprocket-wheel connected by a chain 28 to a sprocket-wheel on the shaft 29. Turning with the shaft 29 is a clutch 30, which when shifted in one direction will turn a pinion meshing with the gear of the winding-roll R and when shifted in the opposite direction will connect with the sprocket-wheel having a chain 31 for turning the music-roll at higher speed when the music-sheet is being rewound. Fastened at the other end of the crank-shaft 27 is a sprocket-wheel connected by a chain 32 to a clutch-piece 33, which can be moved out of or into engagement to drive the centrifugal governor G. The speed of the centrifugal governor G is regulated by the adjustment of the stop-lever 34, the raising of said lever permitting the governor to turn more rapidly and the music to be played faster, or the time can be slowed down by lowering said lever.

It is to be understood that in this application for patent I do not claim the combination of the wind-motor with the centrifugal governor, as this subject-matter is claimed in a prior application for patent, Serial No. 227,802, filed by me October 10, 1904.

To cut off air tension from the pneumatic action while still permitting the motor to operate during the rewinding of the music-sheet, I provide a cut-off valve for the pneumatic action, which cut-off valve is controlled by a valve-stem 35.

During rewinding it is desirable that the motor should be relieved of all restraint of the governor, and I have provided connections from the rewinding-lever arranged so that the rewinding-lever not only changes the direction in which the music-sheet is wound over the tracker-board, but also throws the governor out of gear with the motor and cuts off air tension from the pneumatic action.

As herein illustrated, the reversing-lever

36 is connected to a rock-shaft, extending down from which is an arm 40. Connected to the arm 40 is a rod 41, which operates a lever 42 to make or break connection between the motor and its governor. Also connected with the arm 40 is a rod 37, which operates through a lever 38 and rod 39 to shift the clutch-piece 30 to wind or rewind the music-sheet, as required. Also extending from the arm 40 is a rod connected to a lever 43 for closing the cut-off valve.

In the particular construction illustrated it will be seen that the proportions of the gearing are such that the music-sheet will be rewound at comparatively high speed and that the connections from the reversing-lever are arranged in simple and direct way, so that they can be operated with little resistance and will not require frequent adjustment or repairs.

I am aware that changes may be made in applying my invention to different types or makes of automatic musical instruments, and I do not wish, therefore, to be limited to the construction I have herein shown and described; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a music-playing device, the combination of a motor, a tracker-board, winding-rolls, a pneumatic action, a governor for the motor, a reversing-lever, a link operated by said lever for connecting the motor with the winding-rolls to rewind the music-sheet, a second link operated by said lever for cutting off the pneumatic action when the motor is so connected, and a third link operated by said lever for relieving the motor of the restraint of its governor when the lever is in such position as to connect the motor to rewind the sheet.

2. In an automatic playing attachment for a musical instrument, the combination of a motor, a crank-shaft therefor, a winding and rewinding mechanism, a second shaft, a clutch connection between the winding mechanism and second shaft, a sprocket-

chain connection from one end of the crank-shaft to the second shaft for operating the winding and rewinding mechanism, a governor, a reversing-lever, operating means for relieving the motor of the restraint of its governor during the rewinding, a third shaft capable of connection with the governor, and a sprocket-chain connection thereon from the other end of the crank-shaft to the third shaft.

3. In a music-playing device, the combination of a governor, a motor, a crank-shaft for the motor, a second shaft, a sprocket-chain connection from one end of said crank-shaft to said second shaft, a winding and rewinding mechanism, a clutch for connecting said second shaft with the winding and rewinding mechanism, a third shaft, a sprocket-chain connection from the other end of the crank-shaft to the third shaft, a clutch connection between the third shaft and the governor, a pneumatic action, a valve for cutting off the pneumatic action, a reversing-lever, and operating means for closing the valve and relieving the motor of the restraint of its governor during rewinding.

4. In a music-playing device, the combination of a motor, a crank-shaft therefor, a winding and rewinding mechanism, a second shaft, a clutch for connecting the winding and rewinding mechanism with the second shaft, means for transmitting power from the crank-shaft to the second shaft, a governor, a reversing-lever, operating means for relieving the motor of the restraint of its governor during rewinding, a third shaft capable of connection with the governor, and means for transmitting power from the crank-shaft to the third shaft.

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

THEODORE P. BROWN.

Witnesses:

PHILIP W. SOUTHCATE,
MARY E. REGAN