

P. J. DREHER.
WINDING AND CONTROLLING MECHANISM FOR BELTS AND THE LIKE.
APPLICATION FILED APR. 6, 1911.

1,002,569.

Patented Sept. 5, 1911.

2 SHEETS—SHEET 1.

Fig. 1

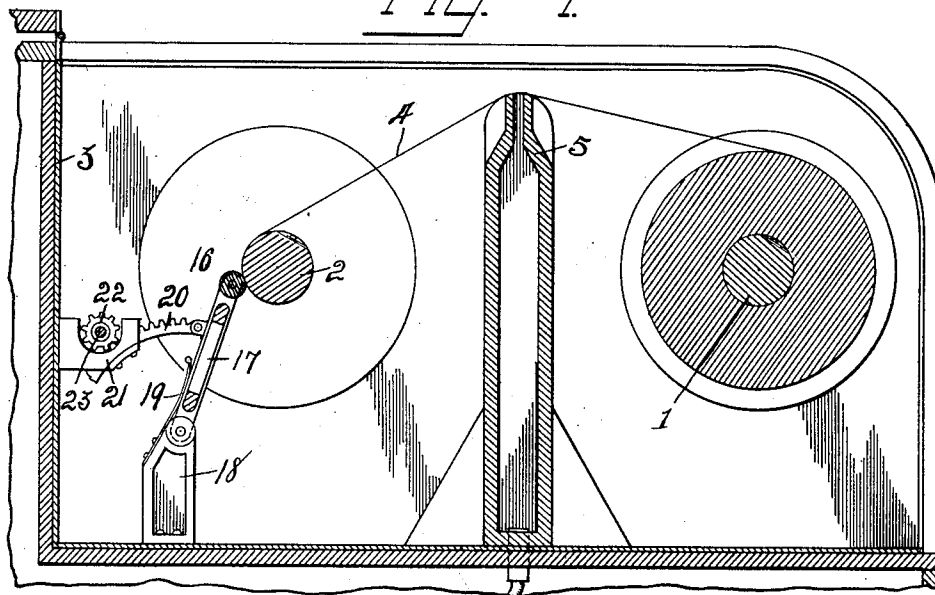
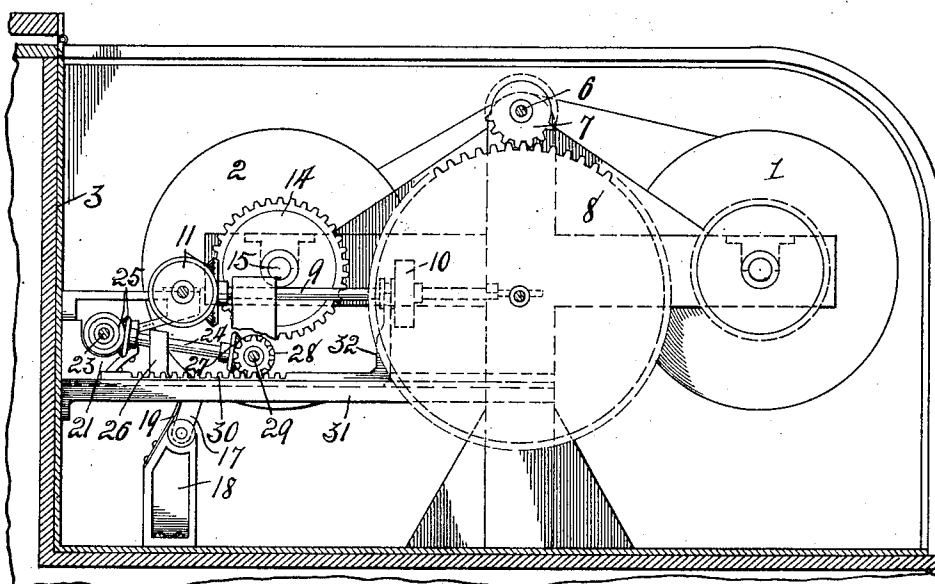


Fig. 2.



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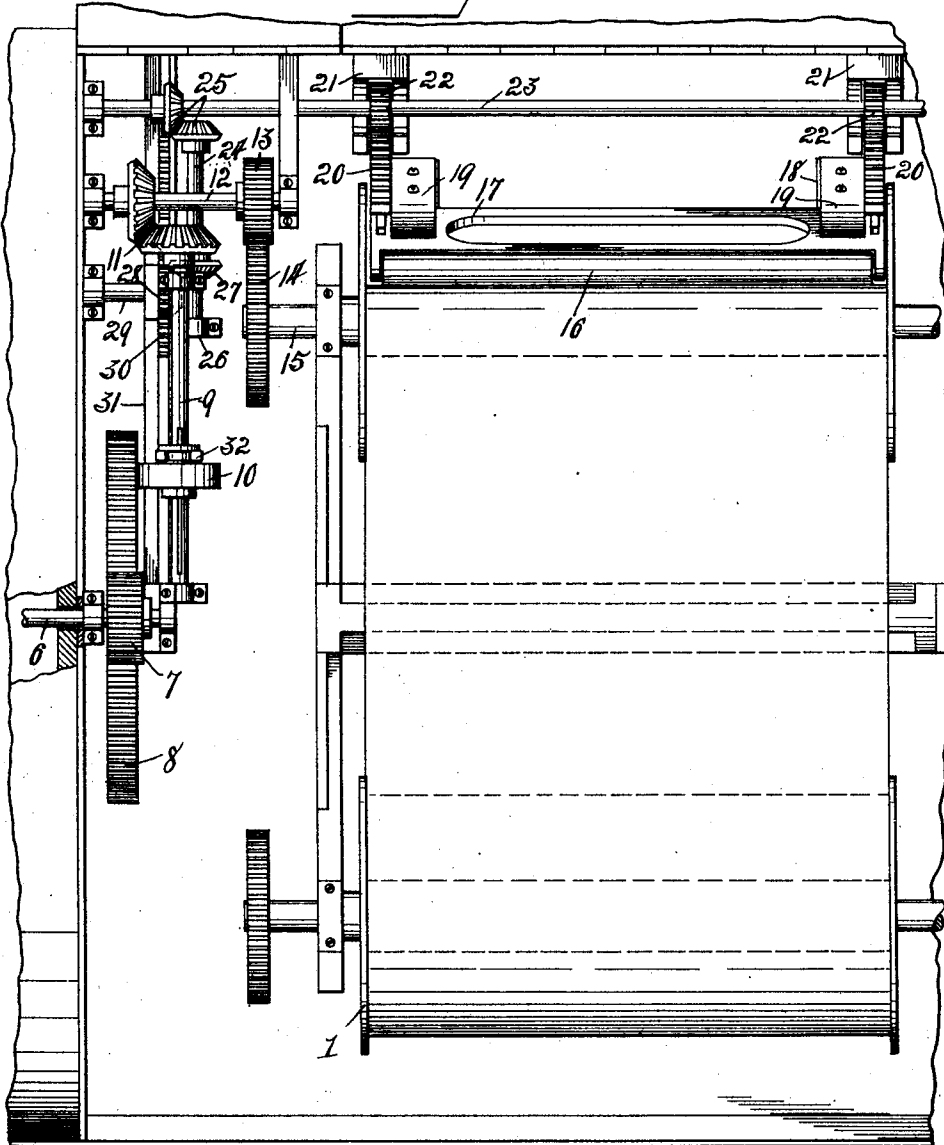
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2 SHEETS—SHEET 2.

Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

PHILLIP JACOB DREHER, OF TOLEDO, OHIO.

WINDING AND CONTROLLING MECHANISM FOR BELTS AND THE LIKE.

1,002,569.

Specification of Letters Patent.

Patented Sept. 5, 1911.

Original application filed February 10, 1911, Serial No. 607,877. Divided and this application filed April 6, 1911. Serial No. 619,433.

To all whom it may concern:

Be it known that I, PHILLIP JACOB DREHER, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Winding and Controlling Mechanism for Belts or the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to winding devices for the note sheets of musical instruments, belts, aprons or the like. In the use of apparatus of this class, especially those for winding the note sheets of musical instruments, it is important that the note sheet or belt pass over the tracker-board or pneumatic mouth-piece of the instrument at uniform speed during the playing of a piece or until the sheet or belt has entirely wound upon the receiving roll.

The object of my invention is the provision of a simple, improved and efficient mechanism for use in connection with apparatus of this character for effecting an automatic gradual change of the speed rotation of the roll upon which the note sheet or belt is winding to compensate for the gradually increasing thickness of the roll as the sheet or belt winds thereon.

The invention is fully described in the following specification and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a central vertical section of an apparatus comprising my invention. Fig. 2 is a side elevation thereof with the casing side removed, and Fig. 3 is a plan view of the mechanism.

This application is a division of my application for U. S. Letters Patent Serial No. 607,877, filed Feb. 10, 1911.

Referring to the drawings, 1 and 2 designate the belt or note-sheet holding rolls of a musical instrument with which my invention is shown in the present instance as being associated; 3 a case in which said rolls are mounted; 4 a belt or note-sheet which

winds from one to the other of said rolls, and 5 the tracker board or pneumatic mouth-piece of the instrument over which the belt 4 passes as it winds from one to the other of the rolls. The belt 4 is shown in the present instance as having its opposite ends attached to different ones of said rolls and as winding upon the roll 2 from the roll 1.

While the winding roll 2 may be driven in numerous ways, a simple means for accomplishing the same consists in projecting a drive shaft 6 through one side of the case 3 and mounting a gear 7 thereon in mesh with a large disk gear 8, which is suitably journaled within the case adjacent one side thereof. At one side of the gear 8 is mounted a horizontally disposed shaft 9 which has a friction wheel 10 feathered thereto and in driving contact with the associated side of the disk gear 8, whereby rotation may be communicated from the latter to the former thereof. A set of beveled gears 11 communicates rotation from the shaft 9 to a counter shaft 12, which in turn carries a gear 13 in mesh with a gear 14 mounted on a trunnion or shaft end 15 of the winding roll 2.

In order to automatically reduce the speed of driving of the roll 2 upon which the belt is winding to compensate for the gradually increasing thickness of the roll as the belt winds thereon, I mount a pressure roll 16 in a swinging frame 17 in position to bear against the belt as it winds upon the roll 2. The frame 17 is fulcrumed in bearing standards 18 beneath the roll 2, and springs 19 act on the frame to hold the pressure roll in yielding contact with the roll 2 or belt winding thereon. A segmental rack 20 pivotally projects from each end portion of the frame 17, preferably from the side thereof opposed to the roll 2, and works in an associated guide 21, by means of which it is held in mesh with a pinion 22 carried by a shaft 23, thus causing rotation to be communicated to such shaft from oscillatory movements of the frame 17. The shaft 23 is journaled in suitable bearings within the case 3, and rotation is communicated therefrom to a shaft 24 through a set of beveled gears 25. The shaft 24 is journaled in suitable bearings 26 and carries a beveled gear 27 at the end thereof adjacent to the disk gear 8, which gear 27 meshes with a

similar gear 28 carried by a shaft 29. The beveled gear 28 has a set of spur teeth thereon in mesh with the teeth of a rack 30, which has reciprocatory movements communicated thereto by a rotation of said gear and is guided for such movements by a guide part 31 in which it works. An arm 32 projects from the end portion of the rack 30 which is adjacent to the gear 8 and has its upper end in forked engagement with a grooved hub portion of the friction wheel 10 to slide such wheel longitudinally of its shaft upon a movement of said rack-bar. As the axis of the friction wheel 10 is radially disposed relative to the axis of the gear 8, the wheel 10 will be caused to move toward or away from the axis of the gear 8 when being shifted.

The gearing and parts of the connection between the pressure roll 16 and the rack bar 30 are so proportioned that the friction wheel 10 is caused to move toward the axis of the gear 8 as the size of the belt roll increases and to gradually decrease the speed of driving of the winding roll 2 so as to compensate for the increasing size of said roll as the belt winds thereon whereby to cause the belt or note sheet 4 to have a movement at constant or uniform speed across the tracker board 5 or other part, as will be apparent.

It is evident that I have provided a simple and efficient mechanism for changing the speed of driving of the winding roll 2 as the belt or music sheet 4 winds thereon whereby the speed of movement of such belt is made constant.

I wish it understood that my invention is not restricted to use in any particular connection, and also that it is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

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

1. In combination, a roll, a belt for winding thereon, means for driving the roll hav-

ing a set of frictional coacting drive parts which are relatively shiftable to change the speed of driving of the roll, an oscillatory member in yielding contact with a portion of the roll upon which the belt winds, rack-bars projecting from said member, a shaft, pinions mounted on said shaft with which said rack-bars mesh, and connection between said shaft and one of said drive parts for communicating reciprocal movements to the latter to relatively shift the parts when the shaft is rotated by an oscillatory movement of said member.

2. In combination, a roll, a belt for winding thereon, means for driving the roll having a set of frictionally coacting drive parts which are relatively shiftable to change the speed of driving of the roll, a rack-bar having an arm in engagement with one of said parts, and mechanism having a member in movable contact with said roll and being operable by a movement of said member by a changing of the size of the diameter of said roll to effect a movement of said bar to shift the same.

3. In combination, a roll, a belt for winding thereon, means for driving said roll, said means having a drive disk and a driven wheel in shiftable frictional contact with a side thereof, a reciprocatory bar in engagement with said shiftable wheel, an oscillatory member in yielding contact with a portion of the roll upon which the belt winds, rack-bars projecting from said member, a shaft, pinions mounted on said shaft with which said rack bars mesh and connection between said shaft and reciprocatory bar for communicating reciprocal movements to the latter when the shaft is rotated by an oscillatory movement of said member.

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

PHILLIP JACOB DREHER.

Witnesses:

C. W. OWEN,
E. E. THOMAS.