

C. E. MERRILL.
MECHANISM FOR HOLDING AND DRIVING MUSIC CARRYING ROLLS
FOR MECHANICAL MUSICAL INSTRUMENTS.

APPLICATION FILED AUG. 10, 1904.

920,075.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

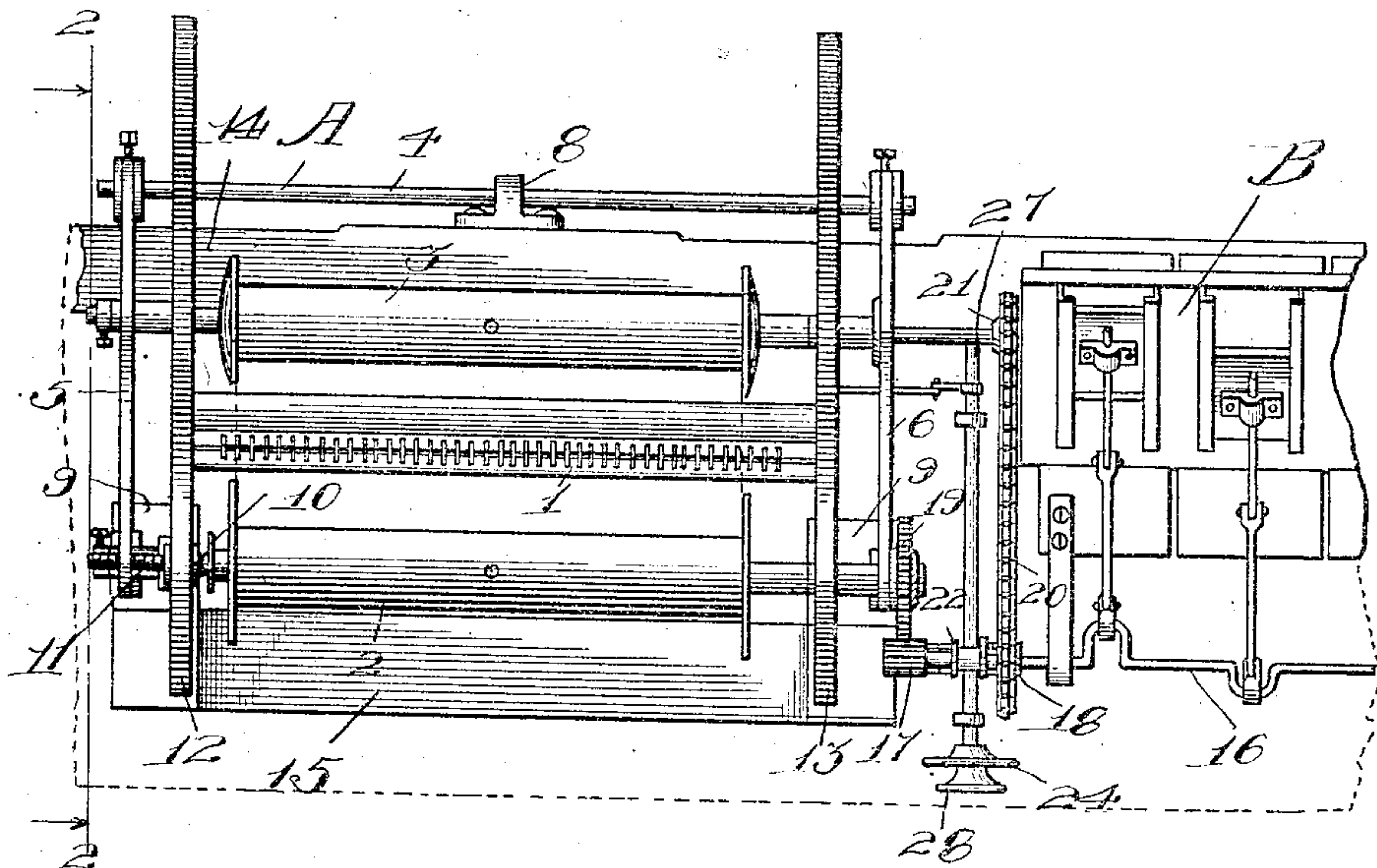


Fig. 2.

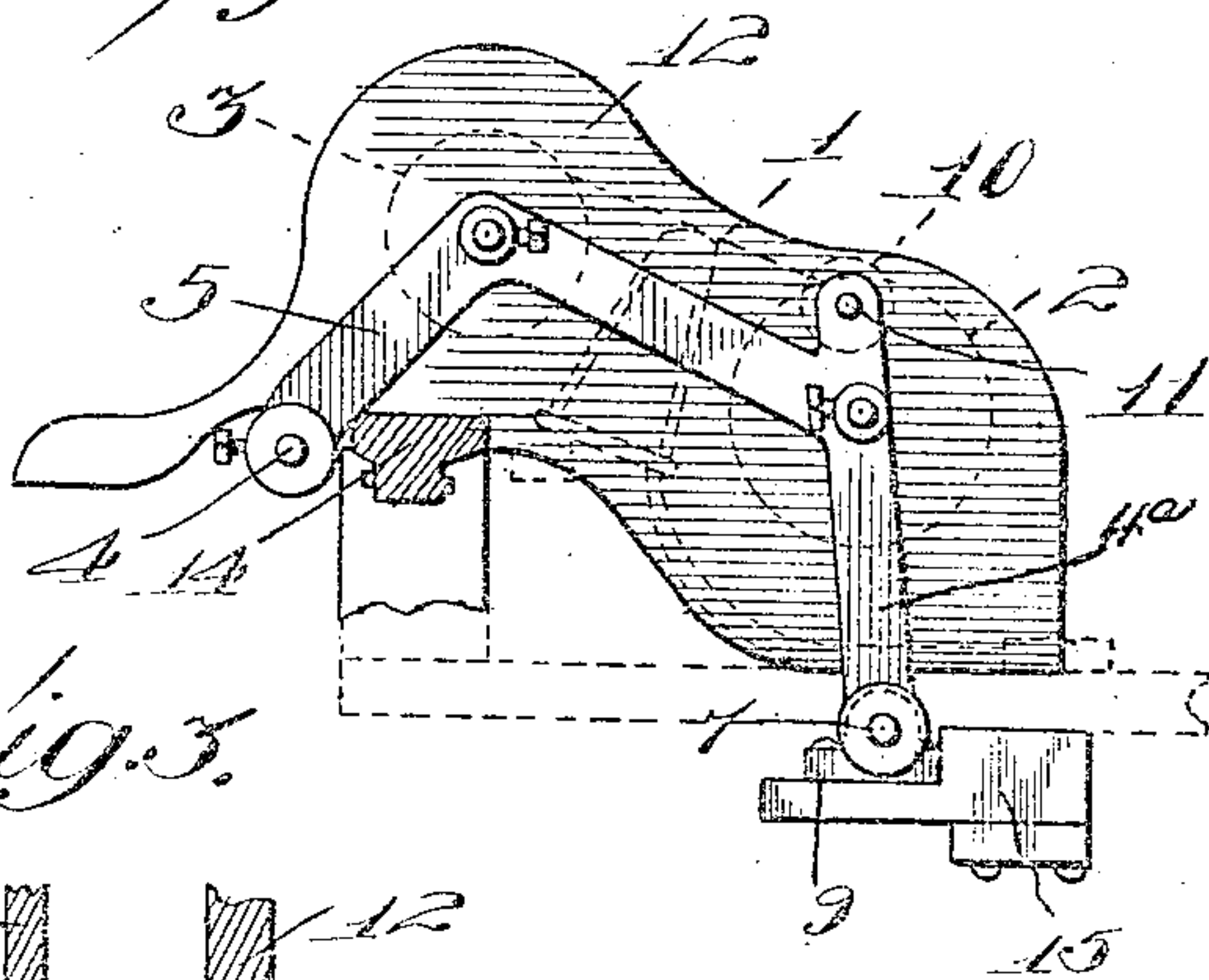
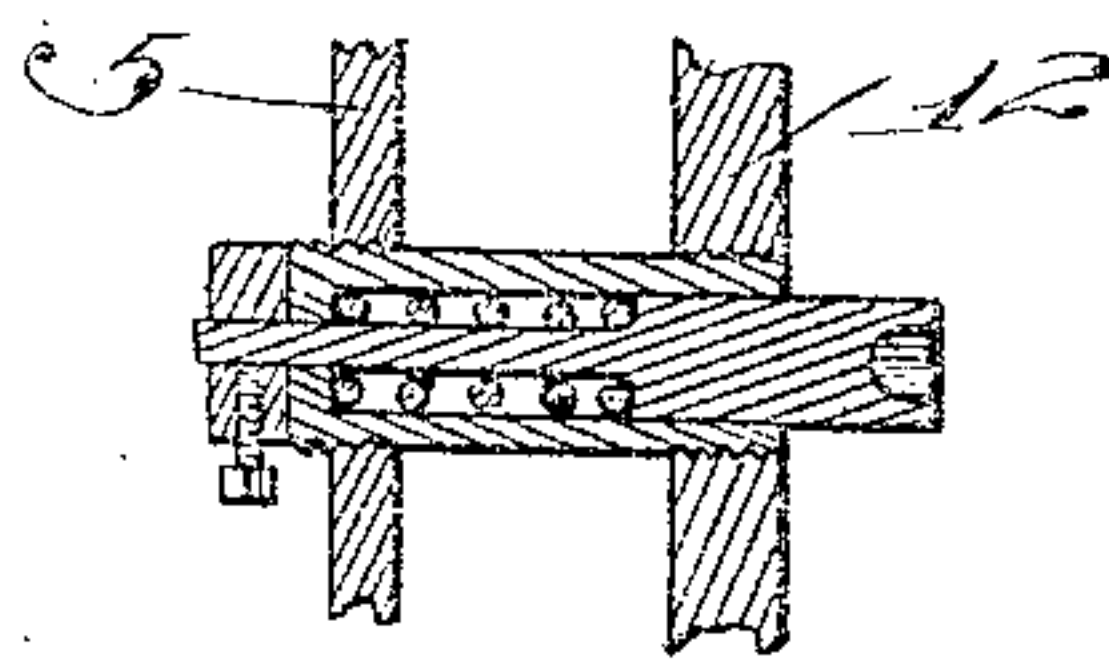


Fig. 3.



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2 SHEETS—SHEET 2.

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Fig. 4.

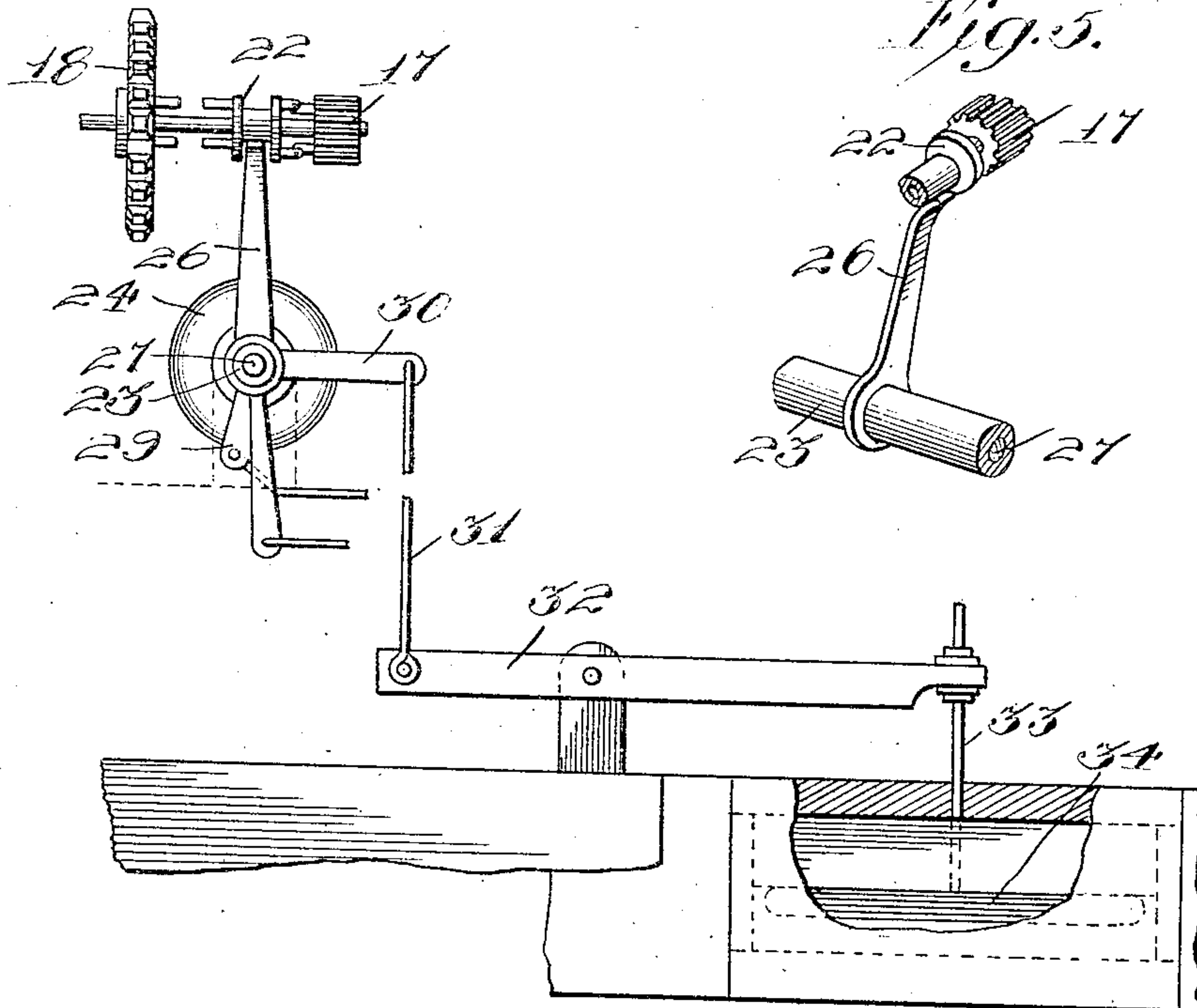


Fig. 5.

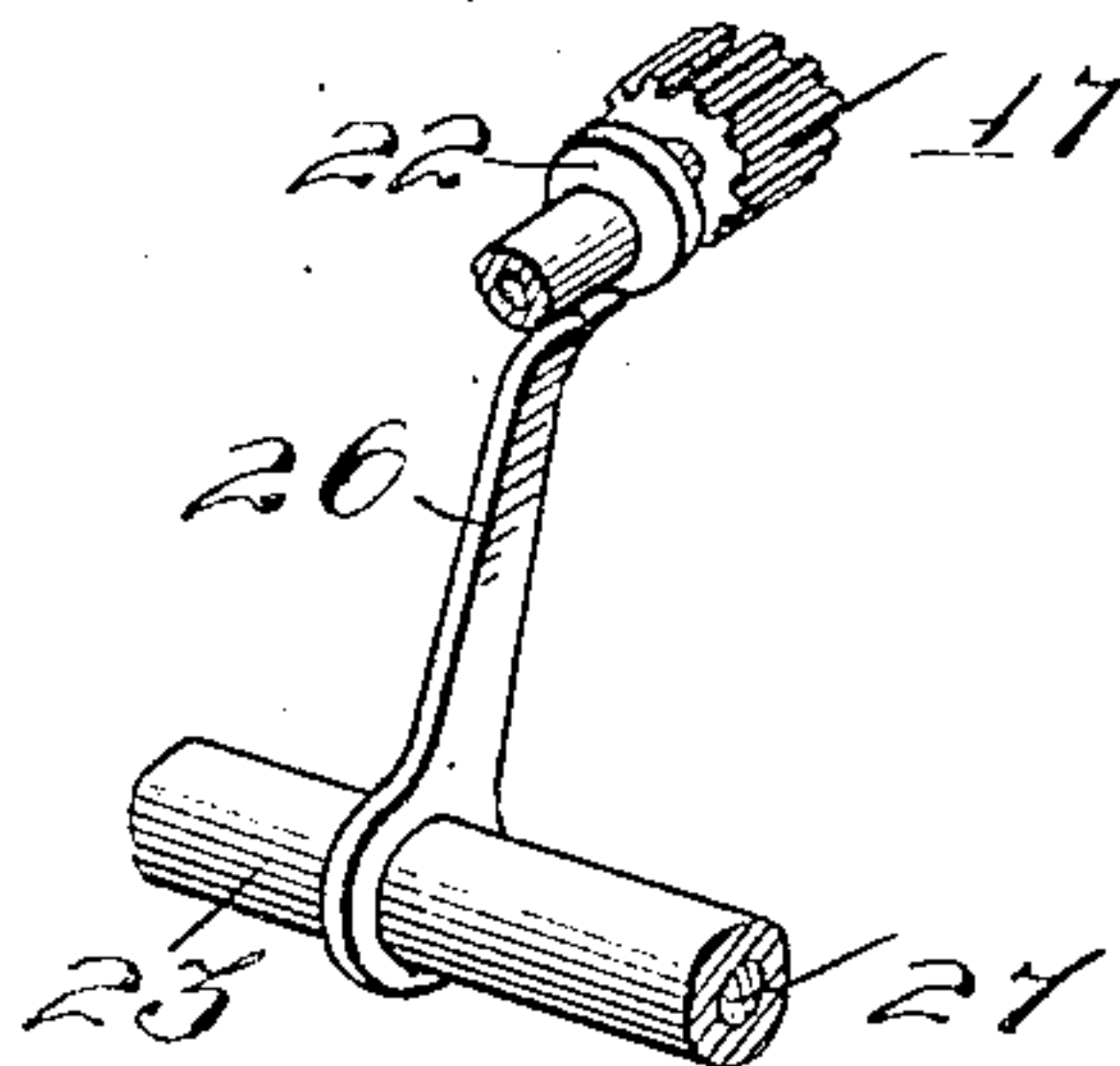
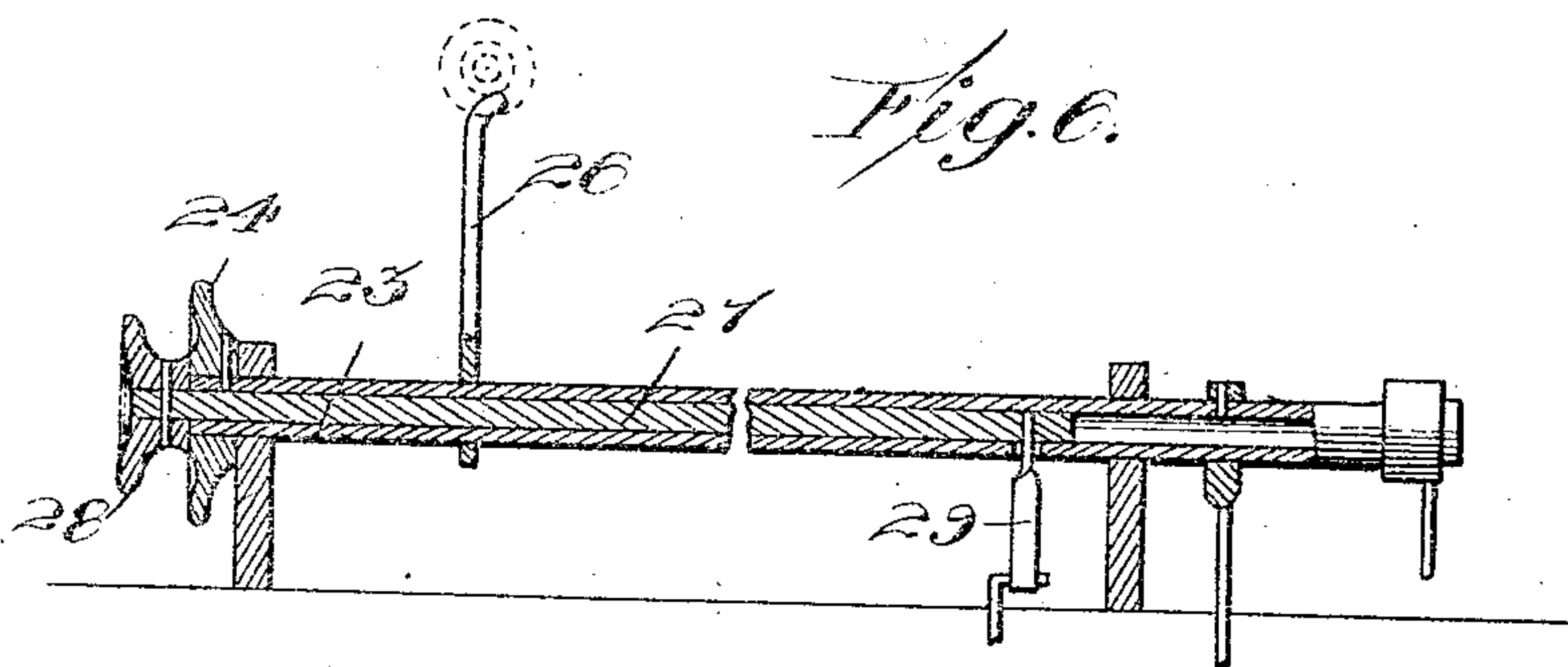


Fig. 6.



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UNITED STATES PATENT OFFICE.

CLYDE E. MERRILL, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AUTOPIANIST CO., OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MECHANISM FOR HOLDING AND DRIVING MUSIC-CARRYING ROLLS FOR MECHANICAL MUSICAL INSTRUMENTS.

No. 920,075.

Specification of Letters Patent.

Patented April 27, 1909.

Original application filed July 27, 1903, Serial No. 167,210. Divided and this application filed August 10, 1904. Serial No. 220,257.

To all whom it may concern:

Be it known that I, CLYDE E. MERRILL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Mechanism for Holding and Driving Music-Carrying Rolls for Mechanical Musical Instruments, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to pneumatically operated musical instruments, and especially to such instruments as are operated by a traveling music sheet passing over a tracker board.

Prominent objects of the invention are to provide a simple, practical, inexpensive and efficient arrangement for supporting or carrying the rolls which carry the music sheet; and also for driving said rolls in either direction as desired to move the music roll in opposite directions.

In the accompanying drawings, Figure 1 is a plan view of a spool-carrying and driving mechanism embodying my present invention; Fig. 2 is an end view taken on line 2—2 in Fig. 1; Figs. 3 to 6 inclusive are views of details of construction.

Referring first to Fig. 1, 1 is a tracker board such as is commonly employed in pneumatic musical instruments such as mechanical piano players; and in front of it is the take-up spool 2 and behind it the rewind or reroll spool 3. The spools 2 and 3 are carried by a metal frame A consisting of a rear rod 4, uprights 4^a, 4^a, side bars 5 and 6 and a front rod 7. This frame is arranged to slide lengthwise of the tracker board; and to such end is supported by bearings 8 and 9, 9. By moving the frame A in one direction or the other relatively to and lengthwise of the tracker board, the music carried by the rolls 2 and 3 is shifted so as to secure perfect registration of the perforations in the music with the ports of the tracker board 1, and also to shift the music perforations relatively to the tracker board ports so as to secure the playing of the composition in a different key. This shifting movement of the frame A is secured by a thumb screw 10 whose threaded end 11 engages the upper end of one of the

uprights 4^a. The screw 10 is supported and held by a vertical wall or partition 12 which, with a similar partition 13 on the other side of the tracker board, forms a space or compartment for the tracker board and the music rolls. By turning the thumb wheel 10 in one direction or another, the frame A is shifted to one side or the other as desired. It will be understood that the partitions 12 and 13 form a part of the frame of the piano player or other instrument, and are properly supported by other portions of the frame; and also that the bearings 8 and 9, 9, are properly supported as for example by cross-pieces 14 and 15 respectively.

A motor B is arranged at one side of the mechanism previously described. This motor can be of any suitable or preferred type of pneumatic motor used in instruments of this kind. It has a rotary shaft 16 which is conveniently rotated by its pneumatic mechanism. This shaft carries a loose pinion 17 and a loose sprocket wheel 18. The pinion 17 meshes with a gear 19 carried by the spindle of the take-up roll 2, and a sprocket chain 20 extends from the sprocket wheel 18 to and over a second sprocket wheel 21 on the spindle of the roll 3. Between the pinion 17 and sprocket wheel 18 is a clutch 22 which is arranged to slide lengthwise of the shaft 16 and provided with a clutch or engaging members adapted to engage with similar members on the pinion 17 and sprocket 18. The clutch 22 is fast to the shaft 16 for rotative purposes, however, as for example by being arranged to slide upon a feather or spline on said shaft, so that said clutch is always rotated by the shaft. As an arrangement for shifting the clutch 22 to engage either the pinion 17 or sprocket 18, a sleeve 23 having a thumb wheel 24 is provided and is supplied with an arm 26 which engages the clutch 22 as shown in Fig. 6. Thus by turning the thumb wheel 24 the clutch 22 is thrown into engagement with either the pinion 17 or sprocket 18.

The sleeve 23 is shown containing a spindle 27 having a thumb wheel 28 and provided with an arm 29. The sleeve 23 is also provided with an arm 30 (Fig. 4) connected with a rod 31 which is in turn connected with a lever 32 attached to a valve spindle 33 carrying a valve 34. This valve is situated in a

wind passage controlling the supply of wind to the pneumatics or pneumatic action of the instrument.

The operation of the device is as follows.

- 5 The motor B being operated so as to cause the rotation of the shaft 16, and the perforated sheet of music being on the spool 3 and ready to be drawn across the tracker board and wound upon the take-up spool 2, the
- 10 thumb wheel 24 is turned so as to throw the clutch 22 into engagement with the pinion 17 whereupon said pinion will be rotated thereby rotating the gear 19 and turning the spool 2 and driving the music across the
- 15 tracker board. After the music is rolled upon the spool 2 and it is desired to reroll it upon the spool 3, the thumb wheel 24 is turned so as to throw the clutch 22 into en-
- 20 gagement with the sprocket 18, whereupon said sprocket will be turned and the spool 3 rotated by means of the sprocket chain 20 so as to rewind the perforated sheet upon the spool 3. When it is desired to turn either
- 25 the spools 2 or 3, the wheel 24 is turned so as to place the clutch 22 into position between, and out of engagement with, the pinion 17 and sprocket 18. When the wheel 24 is
- 30 turned so as to cause the engagement of the clutches 22 and sprocket 18 to rewind the music sheet, the valve 34 is elevated by the sleeve 23 and intermediate mechanism, so as to close the passage controlled by said
- 35 valve, and cause the air to be shut off from the pneumatics or pneumatic action, and thereby prevent any playing or operation of the instrument while the music sheet is being
- 40 drawn backwardly from the tracker board. If it is desired to shift the music sheet relatively to the tracker board so as to secure proper registration or effect a change of key, this is done by turning the thumb wheel 10
- 45 in one direction or the other as required. This shifting movement can be secured either before the advance of the music sheet over the tracker board has commenced, or
- 50 during such advance movement. It is permitted by the pinion 17 being somewhat elongated to permit the gear 19 to slide along it, and by the fact that the sprocket chain 20 will take up or operate properly when the sprocket wheel 21 is shifted slightly to one side or the other.

The thumb wheel 28 controls the mechanism for varying the motor speed, which is

55 not shown or described herein. It will be understood that changes and modifications can be made in the arrangement herein set forth, without departing from the spirit of the invention.

60 This application is a division of an application filed July 27, 1903, in the name of

Walter Lane, Martin Nystrom and myself, Serial No. 167,210.

What I claim is:—

1. The combination of a shifting frame, 65 comprising side pieces, front and rear rods to which the side pieces are secured, bearings for the front and rear rods, holders for the spools, carried by the said frame, and means for engaging and shifting said frame, 70 substantially as described.
2. The combination with a shifting frame for carrying the music spools, of side walls on the instrument, said walls being arranged inside of the ends of the frame, substantially 75 as described.
3. The combination of a shifting frame for carrying the music rolls having two vertical ends, vertical walls or partitions on the musical instrument, located inside of the 80 two vertical ends of the frame, bearings for the frame, and an adjusting device engaging one of said walls and the frame, for shifting the latter, substantially as described.
4. The combination of a shifting frame 85 for carrying the music rolls, vertical side walls on the instrument, located inside of the ends of said frame and provided with apertures for the spool holders and spindles, bearings for the upper and lower portions of 90 the frame, and a threaded bolt engaging the frame and one of said side walls, for shifting the frame, substantially as described.
5. The combination of a shifting frame 95 for carrying the music rolls, said frame having transverse end members extending between the music rolls, walls on the instrument at the ends of the rolls, and between the same and the transverse end members of the frame, and means for shifting the frame, 100 said means being extended from the frame to an accessible part of the instrument intermediate of said walls so as to be exposed to permit manual operation.
6. The combination of a shifting frame, 105 having two sets of spindles for two music rolls, and also having transverse end members extending between said spindles, walls on the instrument at the ends of the rolls and between the same and the transverse 110 end members of the frame, and means for shifting the frame, said means being extended through one of the walls into the space between it and the other wall so as to be exposed for manual operation. 115

In witness whereof, I hereunto subscribe my name this 2d day of August A. D., 1904.

CLYDE E. MERRILL.

Witnesses:

A. MILLER BELFIELD,
J. C. LEE.