

No. 755,950.

PATENTED MAR. 29, 1904.

J. D. SMITH.

AUTOMATIC NOTE SHEET GUIDE MECHANISM.

APPLICATION FILED NOV. 7, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.

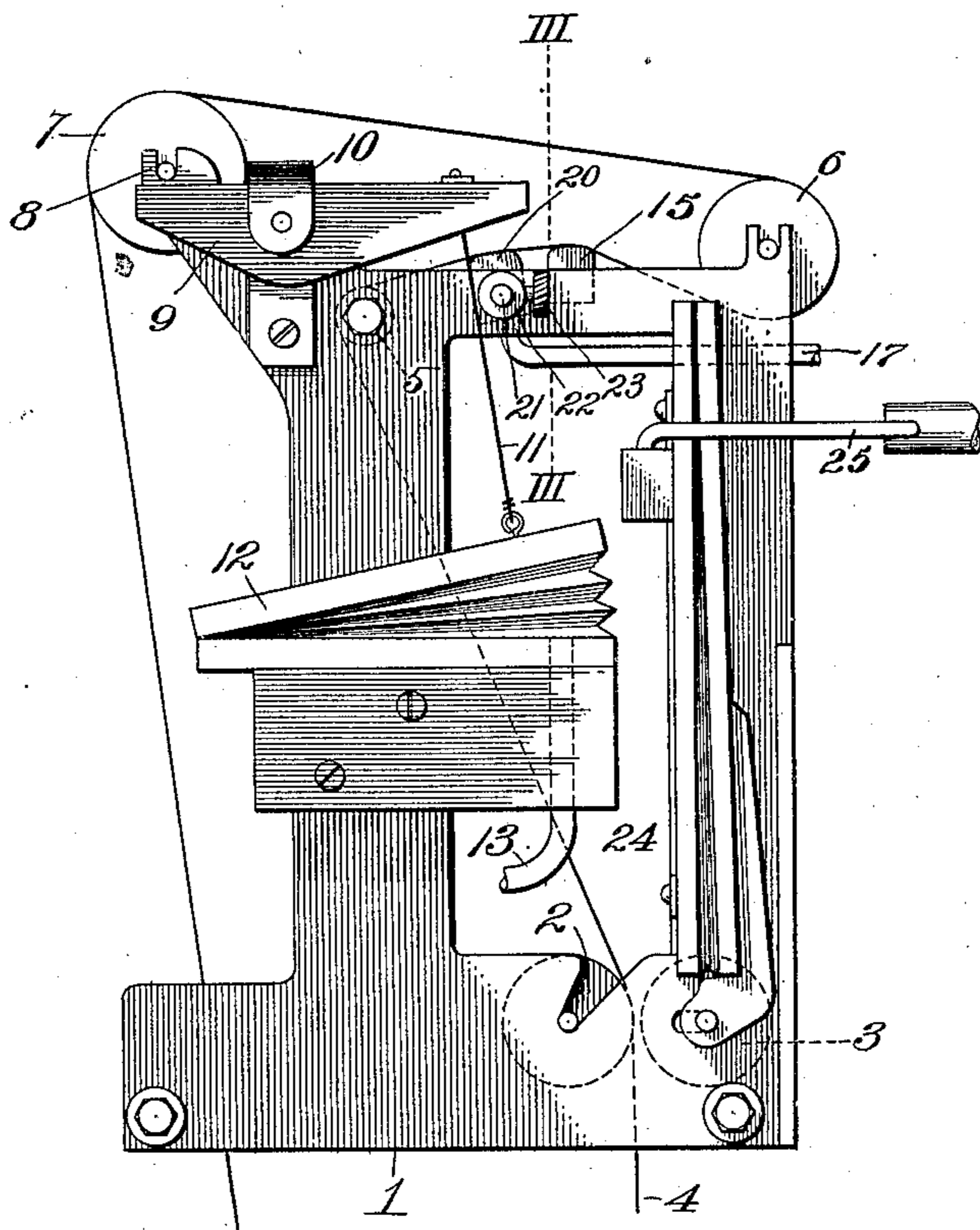
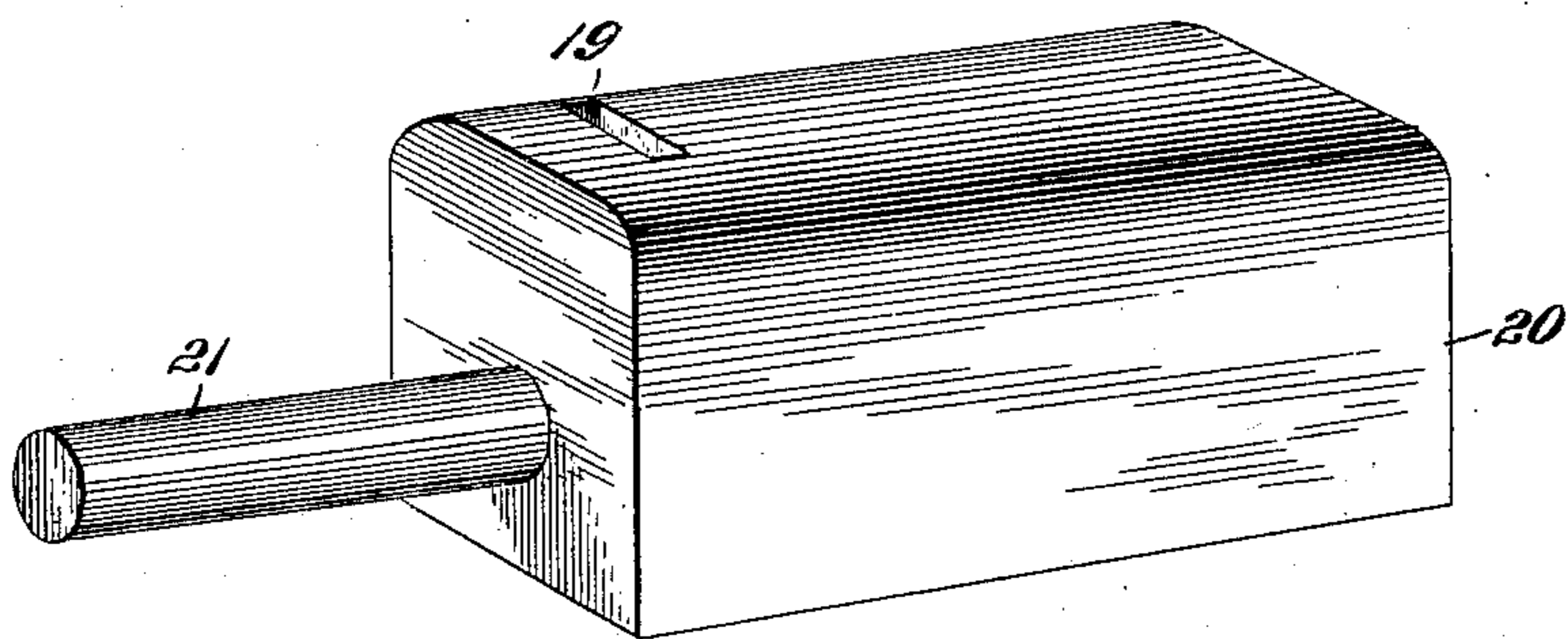


FIG. 5.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2

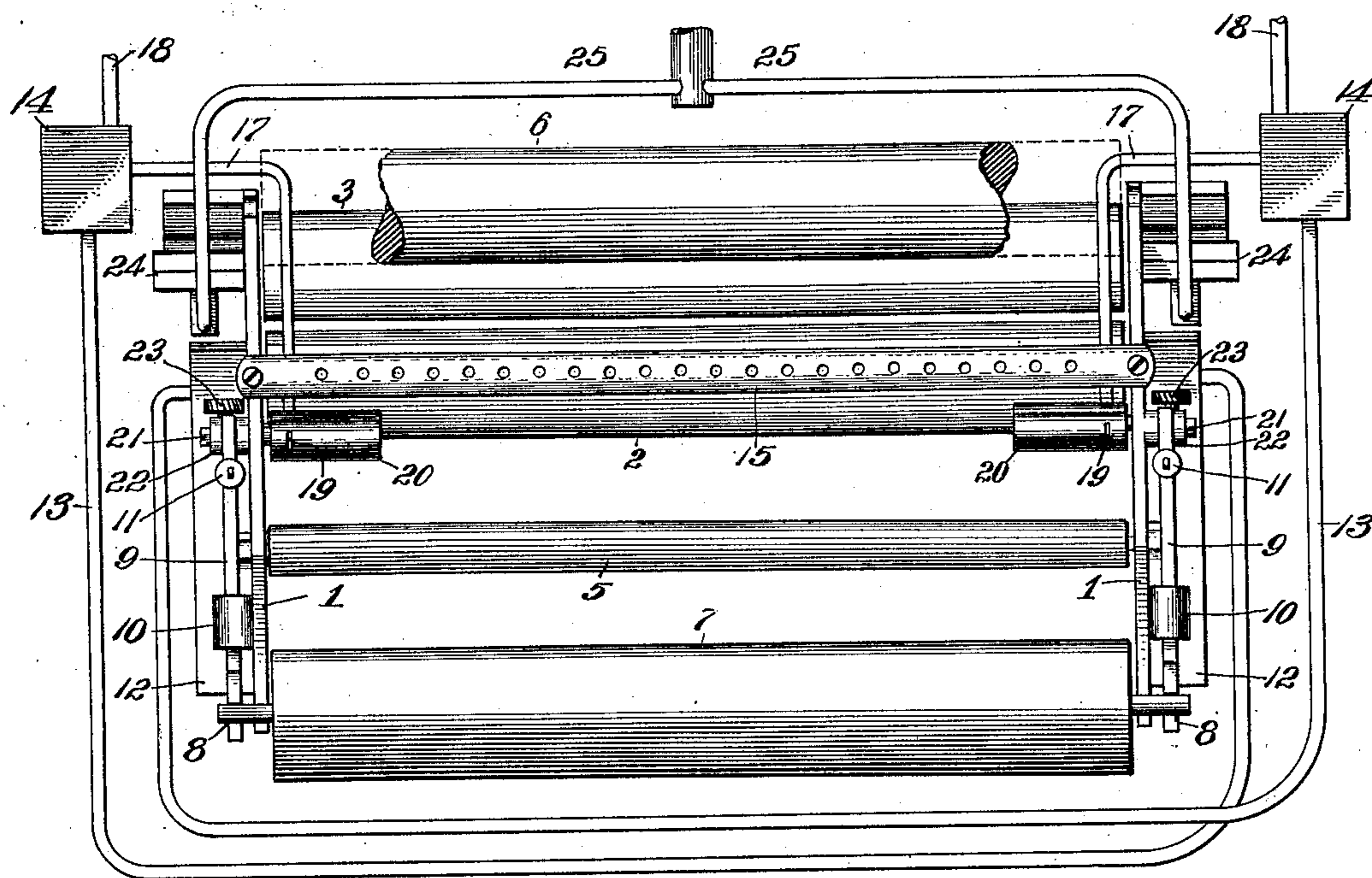


Fig. 3.

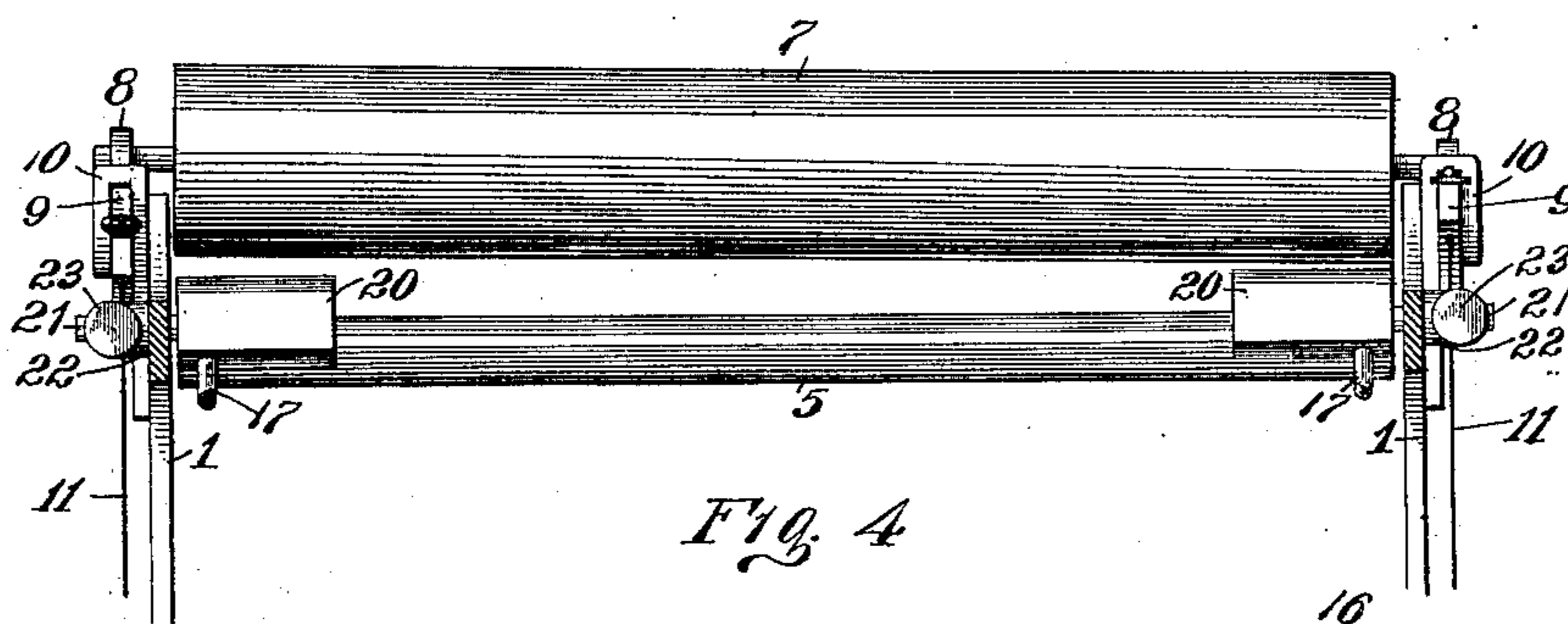
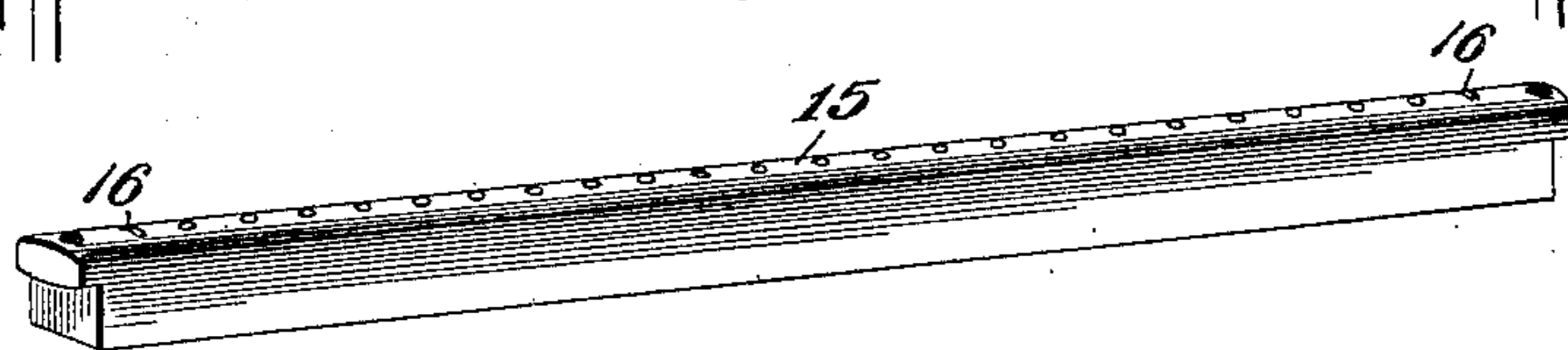


Fig. 4



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AUTOMATIC NOTE-SHEET GUIDE MECHANISM.

SPECIFICATION forming part of Letters Patent No. 755,950, dated March 29, 1904.

Application filed November 7, 1903. Serial No. 180,161. (No model.)

To all whom it may concern:

Be it known that I, JAMES D. SMITH, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Automatic Note-Sheet Guide Mechanism, of which the following is a specification.

This invention relates to automatic note-sheet guide mechanism for musical-instrument players, and has for its object to produce mechanism of this character by which the note-sheet is caused to follow a comparatively direct course, so as to insure a perfect rendition of the music and guard against injury to the note-sheet.

With this general object in view the invention consists in certain novel features of construction and organization, as hereinafter described and claimed, and in order that it may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a side elevation of an automatic note-sheet guide mechanism embodying my invention. Fig. 2 is a top plan view of the same with parts broken away. Fig. 3 is a section taken on the line III III of Fig. 1. Fig. 4 is a detail perspective view of the tracker-bar as equipped with two extra openings. Fig. 5 is a detail perspective view, on a greatly-magnified scale, of one of the tracker-bar blocks adjustable to accommodate note-sheets of varying widths.

Referring now to the drawings in detail, where like reference-numerals designate corresponding parts in all the figures, 1 1 designate brackets rigidly connected in any suitable manner and constituting a skeleton framework.

2 designates a horizontal feed-roller journaled in the lower part of the framework and adapted, in conjunction with a similar roller 3, to feed the paper 4 in the direction indicated by the arrow, Fig. 1, it being understood that said rollers are driven in any suitable manner. From between the rollers 2 3 the note-sheet extends over guide-roller 5, journaled in the framework, and from said roller around roller

6, journaled at the upper front corner of the framework. From said roller the note-sheet extends around roller 7 and then down to a magazine. (Not shown.) The spindles of roller 7 are journaled in bearings 8 at the rear ends of oscillatory levers 9, mounted to work vertically in brackets 10, secured to or formed with the framework. The front ends of the levers are connected by wires 11 to the pneumatics 12, carried by the framework, said pneumatics being connected by tubes 13 to the valve-chambers 14 of any well-known type for operation, as hereinafter explained.

15 designates the usual tracker-bar or duct-bridge, bridging the framework at a point between guide-rollers 5 and 6 and at such a height that the note-sheet passing over it will be arched somewhat between the rollers, so as to insure a wider and better contact between the note-sheet and said bar, to the end that the openings of the latter shall be effectually closed except when in register with note-sheet openings.

Where the device is to be used in connection with note-sheet paper of a certain gage or width, this tracker-bar may be provided near each end with an extra opening 16, as in the modified form, Fig. 4, said openings being formed at such distance apart that the edges of the note-sheet will just cover them when said sheet is in its proper position on the tracker-bar—that is, when it is running true. These extra openings are connected, where used by tubes 17, with the valve-chambers 14, the latter in turn being connected by tubes 18 with air-pumps, (not shown,) it being understood, of course, that the valves of the valve-chambers normally close communication between the pneumatics 12 and the suction-pumps.

In the preferred construction, as illustrated in Figs. 1, 2, and 3, the tracker-bar is not provided with the extra openings 16 mentioned. In lieu thereof I connect the tubes 17 with the openings 19 of tracker-blocks 20, arranged slightly rearward of the tracker-bar and longitudinally adjustable in order that note-sheets of variable width may be accommo-

dated—that is, so that the openings of said blocks can be so disposed with reference to the note-sheet that the edges of the latter just barely cover said openings in order that the slightest swerve of the sheet to the right or left shall uncover the left or right hand opening for a purpose which hereinafter appears. Any method of adjustably supporting the tracker-blocks may be used, though my preferred construction is to provide each block with outwardly-projecting stems 21 to extend through the contiguous portions of the framework and through the bosses 22 formed thereon for the purpose of obtaining a wider bearing on the stems, set-screws 23, mounted in said bosses and impinging on said stems, serving to secure the blocks at the desired position of adjustment. By forming stems 21 cylindrical, as shown, the block can be rotatably adjusted and secured at an angle to the vertical position of the tracker-bar (see Fig. 1) in order that a wider bearing and contact may be obtained with the note-sheet than if said blocks were vertically disposed.

The roller 3 has its spindle journaled in bearings attached to the lower ends of pneumatics 24, which pneumatics are connected to the air-pump by tubes 25, the arrangement being such that when the air-pump is not in action the roller is held out of contact with the roller 2 by the expansion of the pneumatics, and thus enables the operator to easily thread the note-sheet between the rollers. When the air-pump starts, it exhausts the air from the pneumatics 24, and the atmospheric pressure upon them causes roller 3 to be pressed and held firmly against the roller 2 and the interposed note-sheet as long as the instrument is in operation. The chief advantage of employing the pneumatics 24 for throwing roller 3 to operative position when the pump is in action and to inoperative position when the pump action ceases is that there is no pressure on the stationary note-sheet and roller 2 when the pump is not in action, which would tend to flatten the said roller if of resilient material.

The general operation is as follows: The note-sheet travels in the direction indicated by the arrow, with its edges just covering the extra openings of the tracker-bar or the openings of the tracker-blocks, so that any swerve of the note-sheet to the right will instantly expose the left-hand opening and admit air to the left-hand valve-chamber and open the valve of the same, this action resulting in establishing communication between the air-pump and the right-hand pneumatic 12. Said pneumatic collapses and by pulling down upon wire 11 raises the right-hand end of the roller 7, hereinafter called the “tilting” roller. This raising of the tilting roller inclines the contiguous portion of the note-sheet and moves it bodily to the left to its original or normal position. Should it slip too far to the left, it

will uncover the right-hand opening of the tracker or the opening of the right-hand tracker-bar block and thereby cause the left-hand end of the tilting roller to be raised in the manner described by the action of the left-hand pneumatic 12. It will thus be seen that the slightest exposure of either of said extra openings results in the instant operation of the sensitive pneumatics and of the tilting roller.

From the above description it will be apparent that I have produced a device of the character described which embodies the features of advantage enumerated as desirable in the statement of invention and which is obviously susceptible of modification in various particulars without departing from its principle and scope or sacrificing any of its advantages.

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

1. In a device of the character described, a note-sheet, a tracker-bar and roller over which the note-sheet travels, and means to shift the note-sheet laterally with respect to the tracker-bar by causing said roller to press against the note-sheet at one side or the other of its longitudinal center.

2. In a device of the character described, a note-sheet, a tracker-bar and roller over which the note-sheet travels, and pneumatic-actuated means to shift the note-sheet laterally with respect to the tracker-bar by causing said roller to press against the note-sheet at one side or the other of its longitudinal center.

3. In a device of the character described, means provided with openings, a note-sheet traveling over said means and normally covering said openings, a tilting roller over which the note-sheet passes, and means for automatically tilting said roller so as to shift the note-sheet laterally to its original position whenever it swerves and uncovers one or the other of said openings.

4. In a device of the character described, the combination of a suitable framework, a roller, means mounted on said framework and provided with openings, and adjustable to vary the distance between said openings, a note-sheet to engage the roller and also engage and operate transversely of said means, and normally cover the openings thereof, and pneumatic-actuated means connected to said openings for tilting said roller so as to shift the note-sheet laterally to its original position whenever it swerves and uncovers one or the other of said openings.

5. In a device of the character described, a note-sheet, means provided with openings closed by the note-sheet as long as the latter runs true, a tilting roller over which said sheet also passes, and connections whereby the exposure of one or the other of said openings by

the note-sheet shall cause the roller to tilt and restore the sheet to its original relation with said openings.

5 6. In a device of the character described, the combination of a note-sheet, and a roller, with means for pressing either end of said roller against the note-sheet, means provided with openings normally closed by the note-sheet traveling over said means, and means for con-
10 necting one of said openings to the roller-pressing means.

7. In a device of the character described, the combination of a roller with a movable supporting-bearing therefor, means provided
15 with openings, a note-sheet engaging said means and normally closing said openings, means for moving the bearing at one end or the other of the roller, and pneumatic means for connecting one of said openings to said
20 bearing-moving means.

8. In a device of the character described, the combination with means provided with openings, and a note-sheet normally closing said openings, of a tilting roller over which the

note-sheet must pass, and pneumatic devices 25 controlled by lateral motion of the note-sheet for tilting said roller.

9. In a device of the character described, the combination of a suitable framework, a tracker-bar therein, tracker-blocks having 30 openings, and also mounted in the framework and adjustable to vary the distance between their openings, a roller mounted in the framework, a note-sheet traveling over said roller and over said tracker-bar and tracker-blocks 35 and normally covering said openings, and pneumatic-actuated means connected to said openings for tilting said roller so as to shift the note-sheet laterally to its original position whenever it swerves and uncovers one or the 40 other of said openings.

In testimony whereof I affix my signature in the presence of two witnesses.

JAMES D. SMITH.

Witnesses:

H. C. RODGERS,
G. Y. THORPE.