

No. 671,276.

Patented Apr. 2, 1901.

A. FRITSCH.
ORE CONCENTRATOR.

(Application filed Sept. 13, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

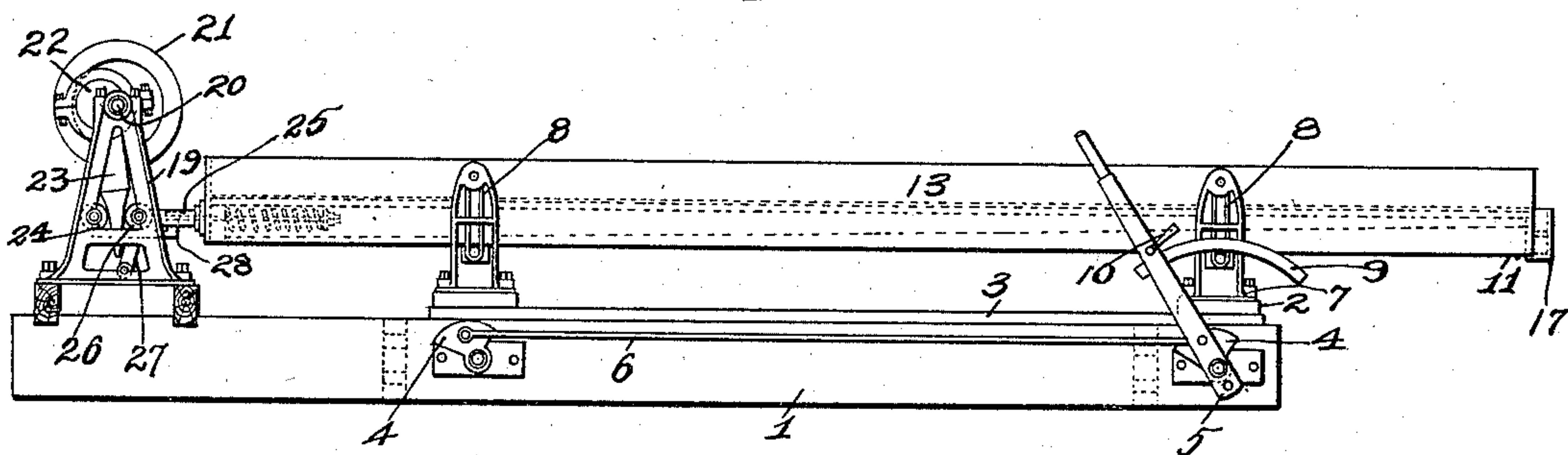


Fig. 2.

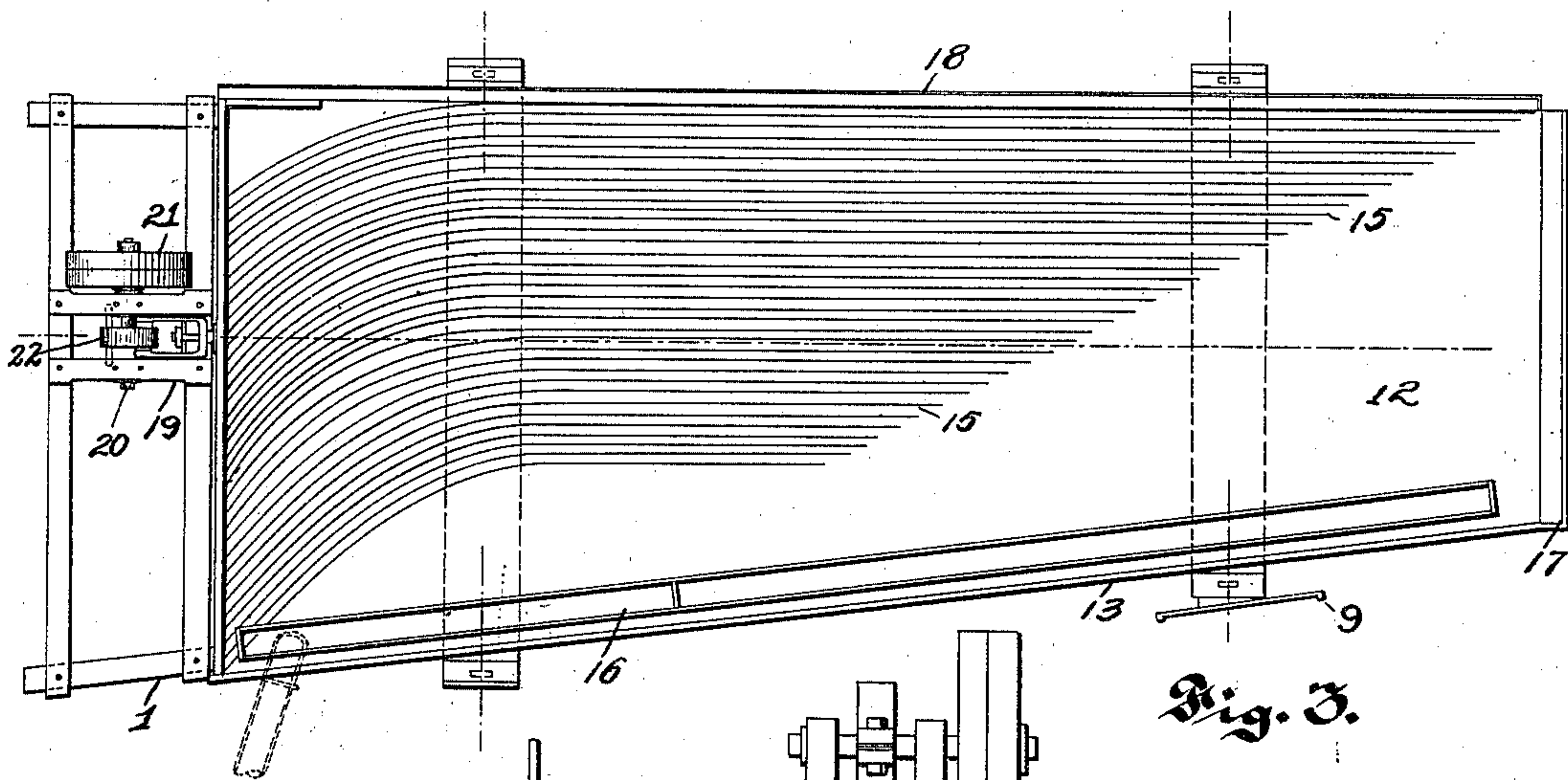
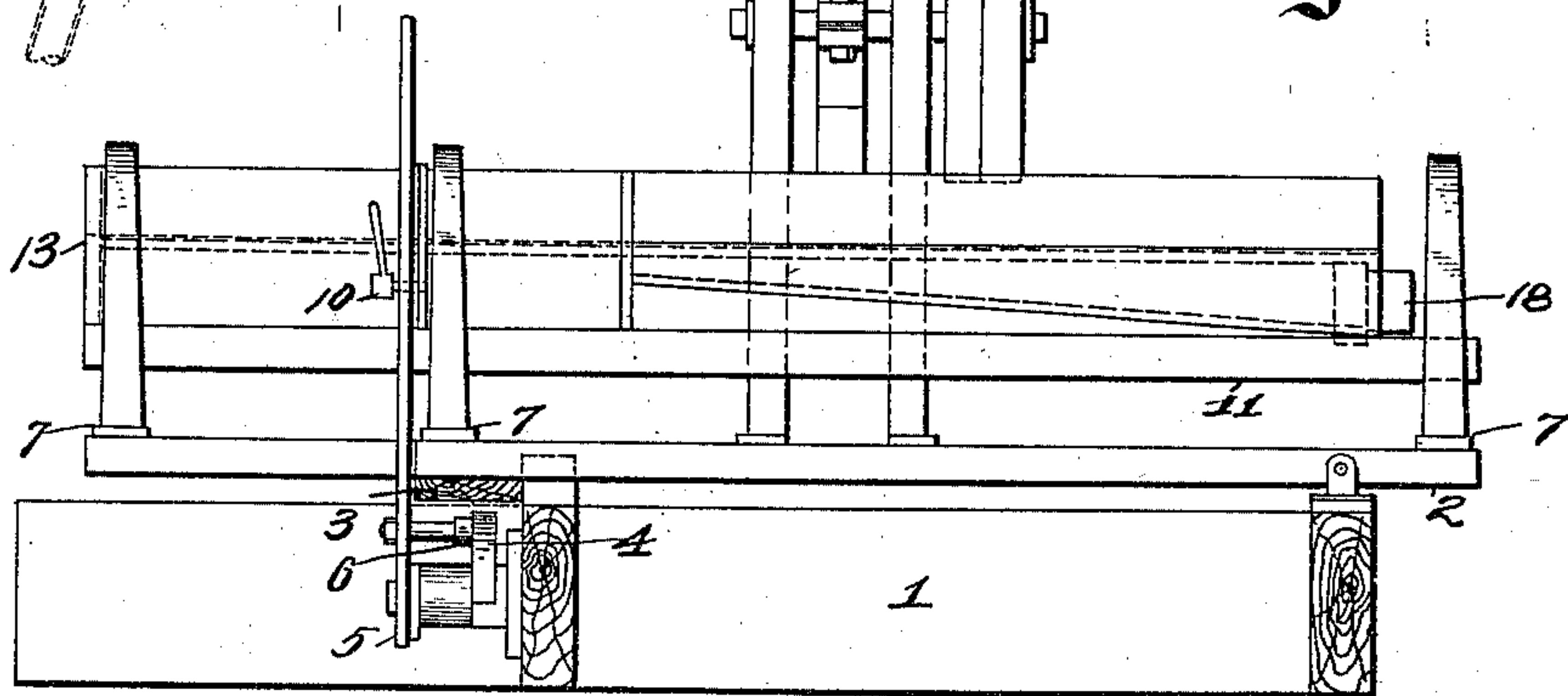


Fig. 3.



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Fig. 4.

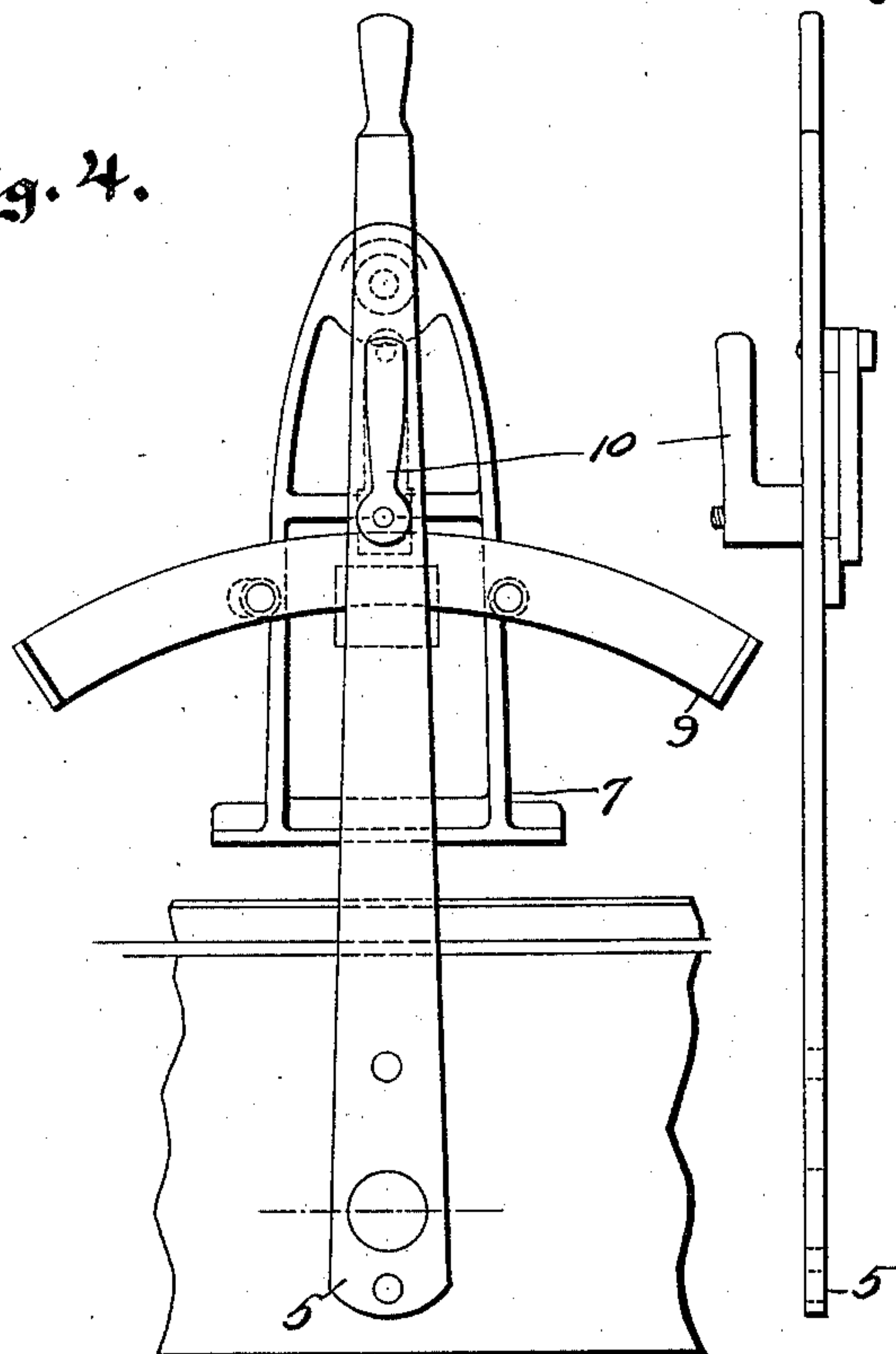


Fig. 5.

Fig. 6.

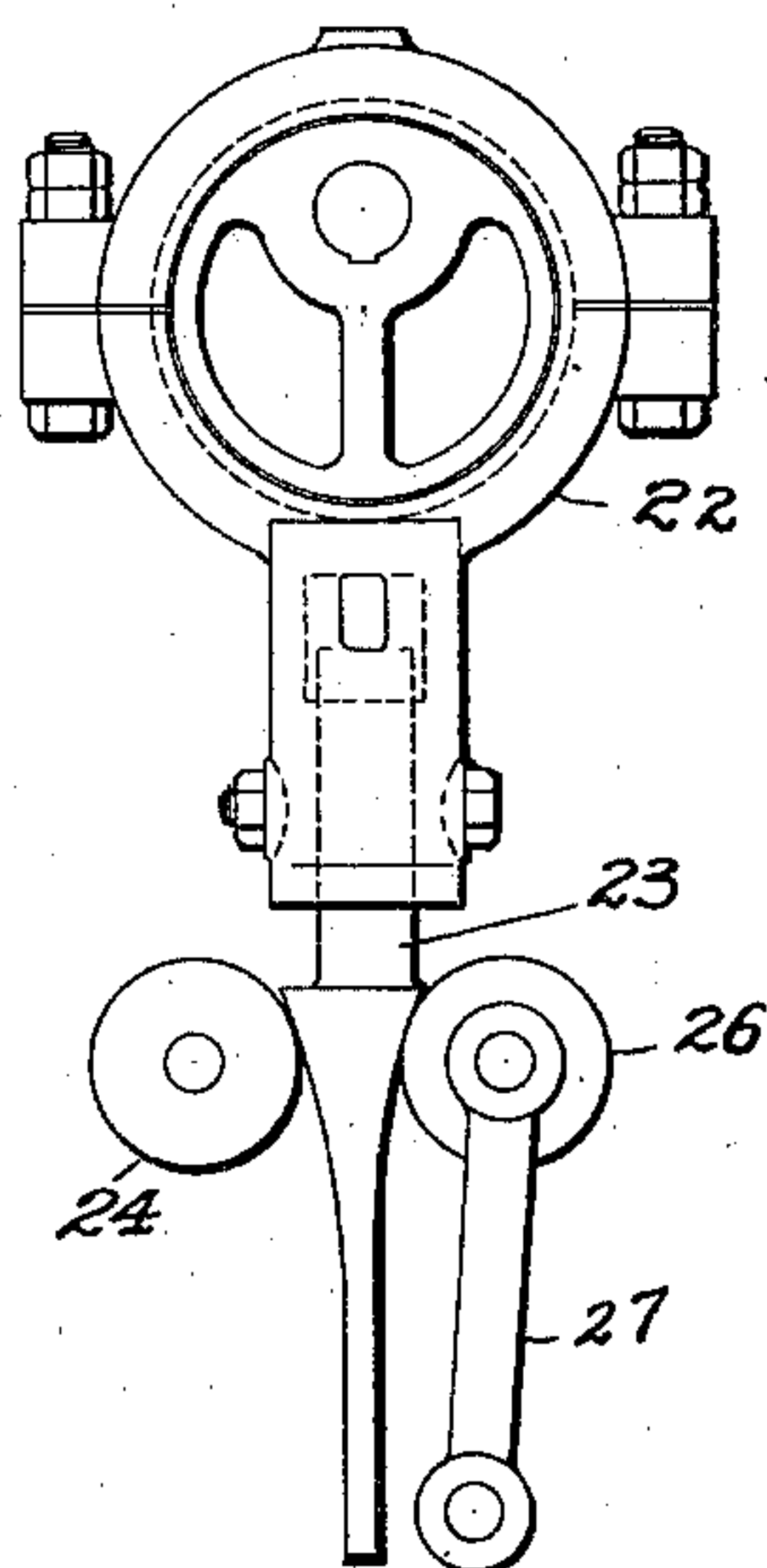
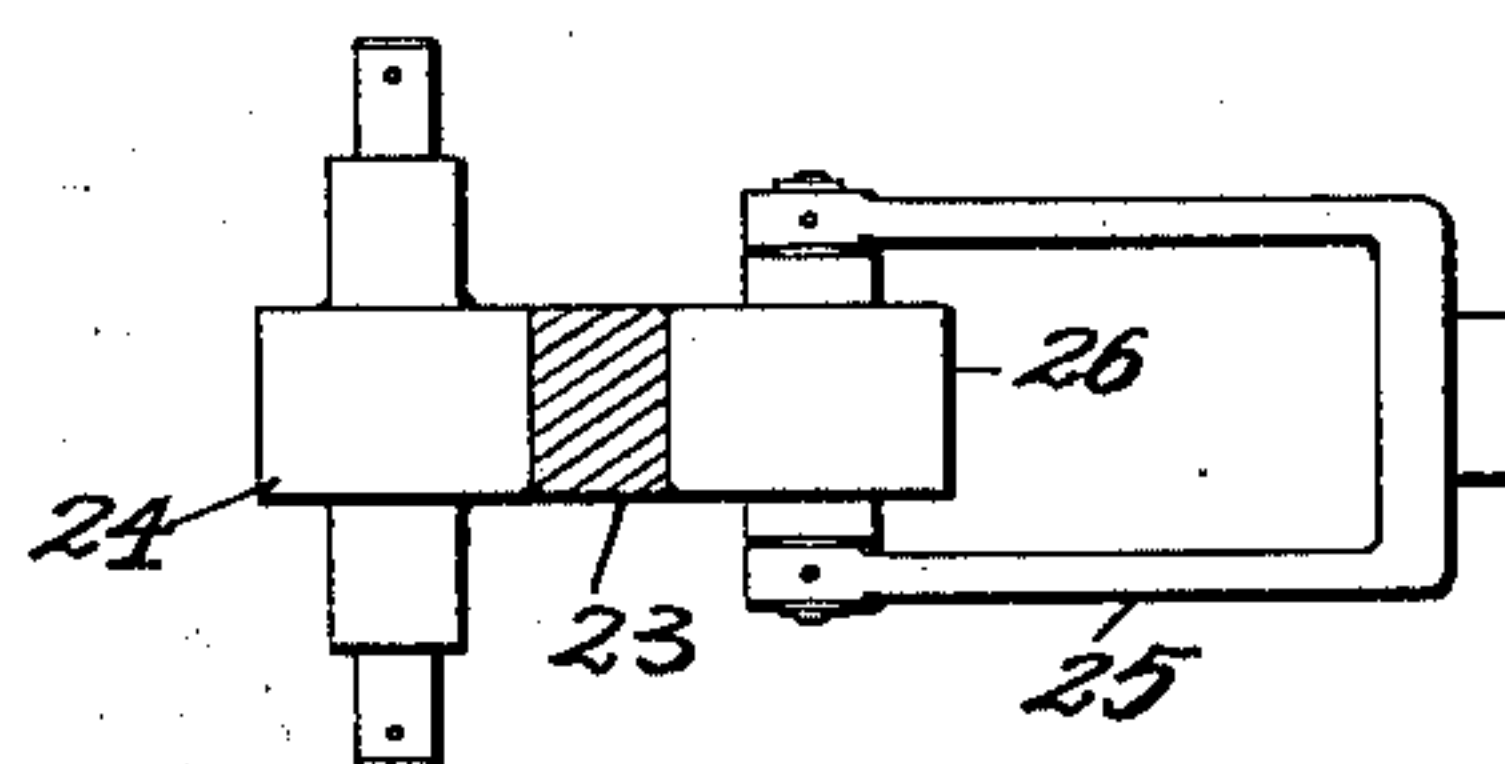


Fig. 7.



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3 Sheets—Sheet 3.

Fig. 8.

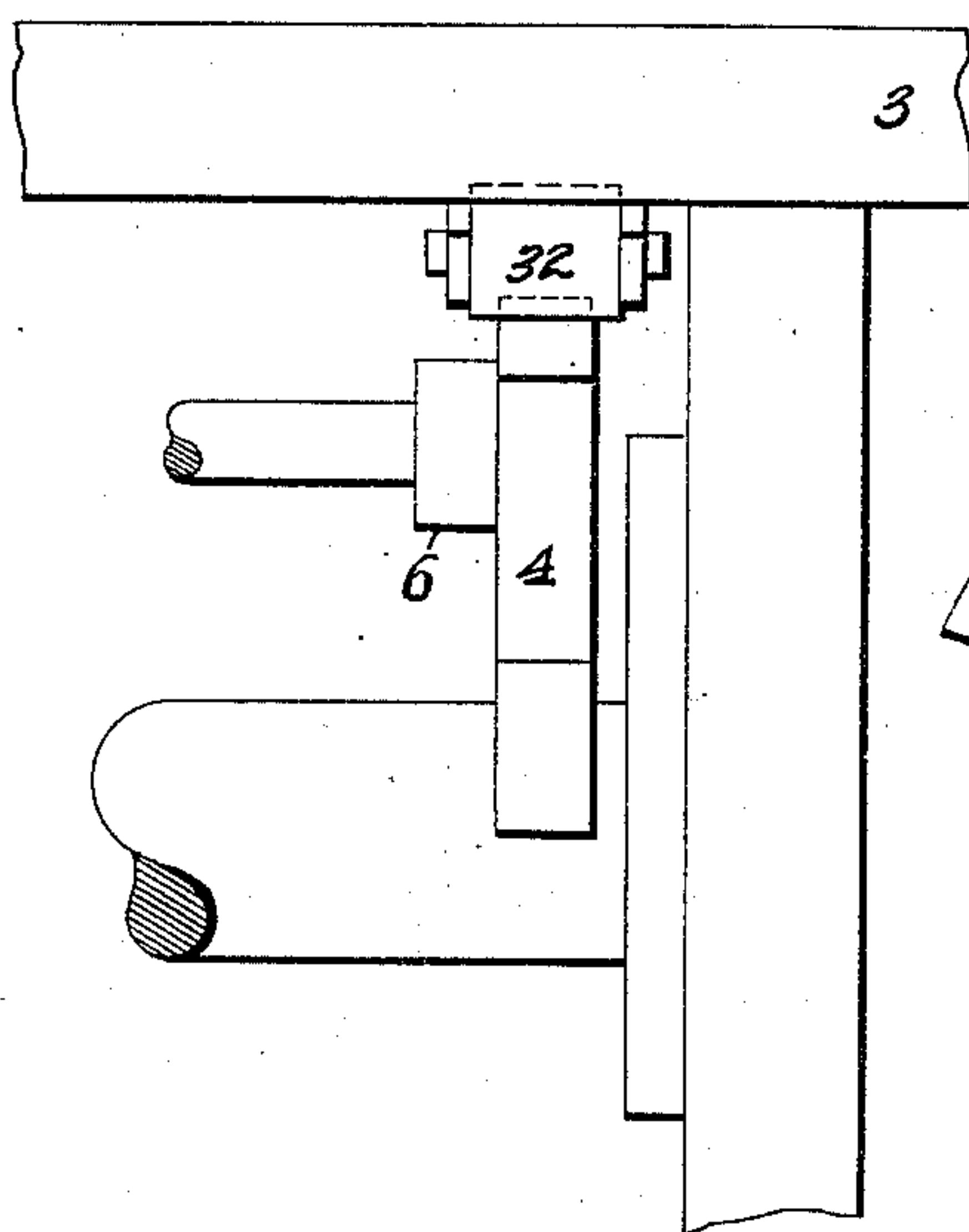


Fig. 9.

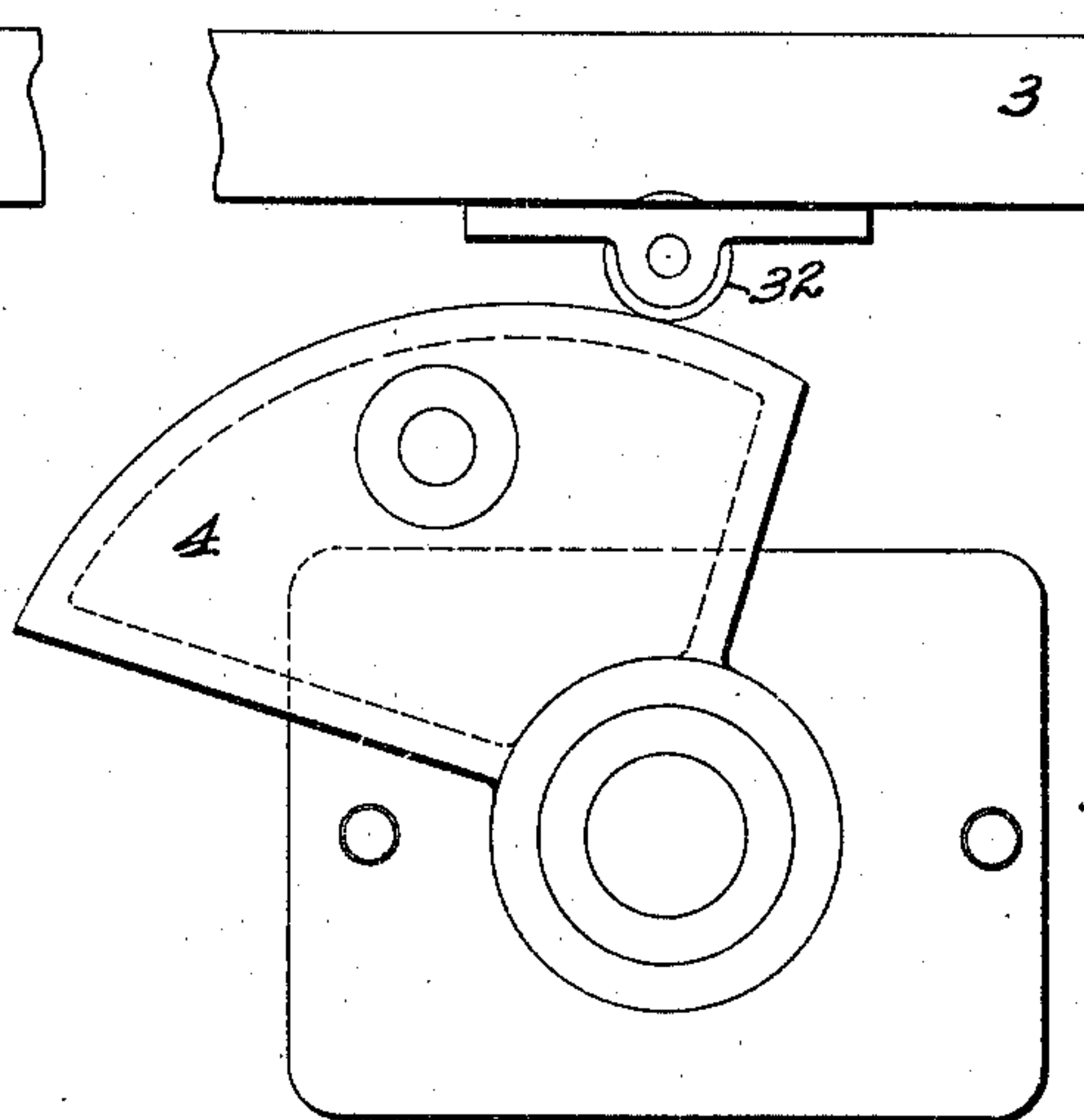


Fig. 10.

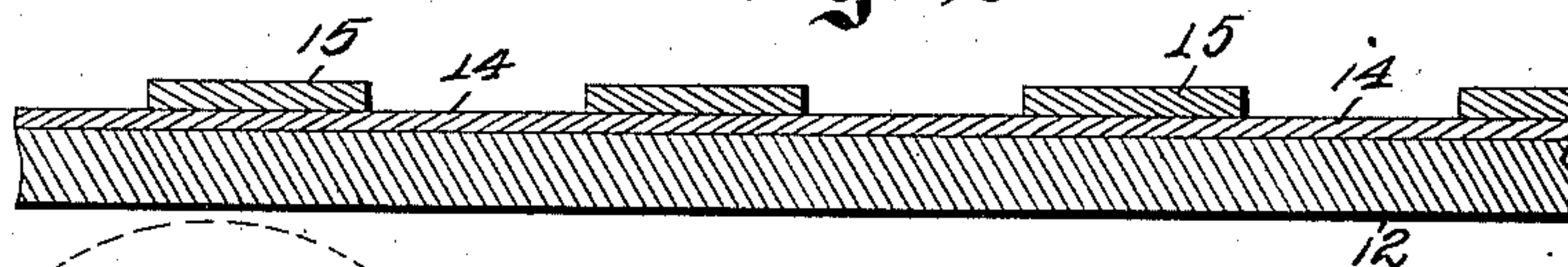
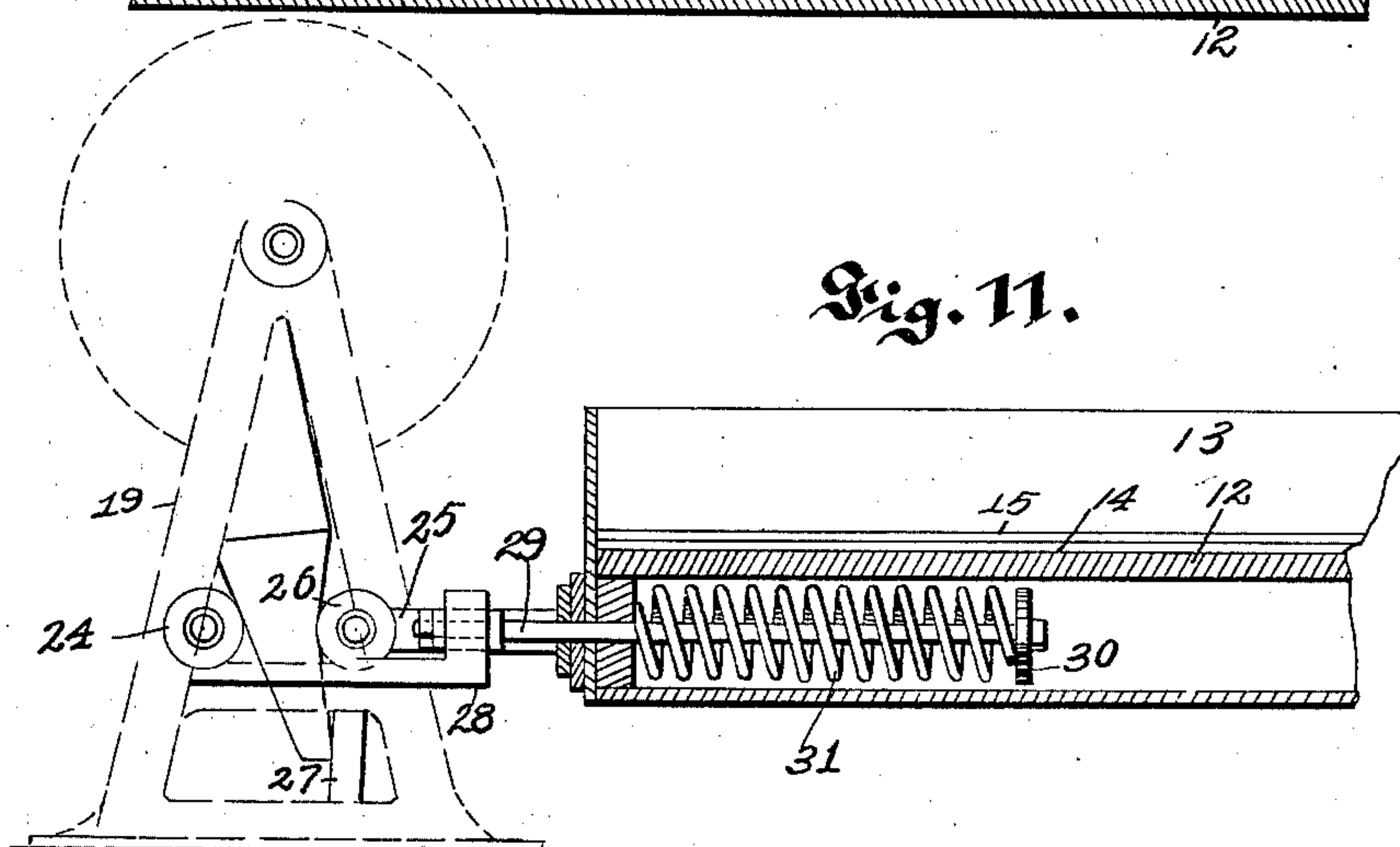


Fig. 11.



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UNITED STATES PATENT OFFICE.

ARTHUR FRITSCH, OF ST. LOUIS, MISSOURI.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 671,276, dated April 2, 1901.

Application filed September 13, 1900. Serial No. 29,931. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR FRITSCH, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Ore-Concentrators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to ore-concentrators; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

Figure 1 is a side elevation showing my improved ore-concentrator. Fig. 2 is a plan view. Fig. 3 is an end view. Fig. 4 is a detail view of a standard and adjusting-lever made use of in carrying out the invention. Fig. 5 is a view showing the adjusting-lever and the parts carried thereby. Fig. 6 is a detail view showing a portion of the operating mechanism. Fig. 7 is a view showing the means by which the table is operated. Figs. 8 and 9 are detail views showing the adjusting device made use of in carrying out the invention. Fig. 10 is a sectional view showing a portion of the table. Fig. 11 is a detail view showing the devices made use of to reciprocate the table.

In the construction of this invention I provide a base-frame 1 of any preferred construction, and pivoted to one side of which are transverse bars 2, the opposite ends of the bars being connected by the member 3. Pivotaly carried by the base-frame 1 on the side opposite from the pivoted ends of the bars 2 are cams 4, upon which the member 3 rests and by means of which the free ends of the bars 2 may be raised or lowered. Rigidly connected to one of the cams 4 is an operating-lever 5, by means of which the cam may be turned on its pivot, thereby raising or lowering the ends of the bars 2. The cams are made to operate simultaneously by means of a connecting-rod 6, thereby causing the free ends of both the bars to stand at a uniform elevation.

Secured to the ends of the bars 2 are the upright standard-frames 7, pivotally carried within which are the suspending-links 8, the upper ends of the said suspending-links being pivoted to the said standard-frames and the lower ends of which support the table.

A segment 9 is supported by one of the standard-frames 7, adjacent to the lever 5, and the locking-cam 10, carried by the lever, operates upon the said segment, thereby holding the lever and the cams 4 in any adjustment in which they are placed.

Supported by the lower ends of the links 8 are transverse bars 11, upon which is mounted the bottom of the table. The said table is constructed in the form of a receptacle and comprises the top 12 and the upwardly-projecting sides 13, whereby the material is retained on the table. As shown, the rear end of the table is broader than the forward end, the purpose of which will hereinafter appear. Secured upon the top of the table is a section 14 of linoleum, and secured upon the linoleum covering are strips 15 of wood, the rear ends of which, as shown in Fig. 2, being curved, the purpose of which is to guide the ore toward the forward end of the table when the machine is in operation. The rear ends of the strips 15 are thicker than the forward ends, and said strips gradually taper toward their termination, and the forward ends are arranged in graduated form, those toward the left of the table becoming gradually shorter than those to the right, whereby the ore as it is separated is guided toward the forward end of the table.

16 indicates a trough into which the material is delivered and out of which it is allowed to gradually pass onto the top of the table as the machine operates. Upon the forward end of the table is carried a trough 17, into which the ore is received as it is separated and from which it may be delivered to any suitable receptacle. 18 indicates a corresponding trough carried by the side of the table into which the sludge is delivered after the ore has been removed therefrom.

Supported above the rear end of the base 1 are brackets 19, carried by which is an operating-shaft 20, and keyed upon one end of the said shaft is a belt-pulley 21. Carried by the shaft 20 between the brackets 19 is an eccentric 22, suspended from which is a wedge-shaped member 23, the function of which is to operate the table. Carried between the brackets 19 is a roller 24, and extending rearwardly from the table between the brackets 19 is a U-shaped frame 25, carried by which is a roller 26, corresponding to the roller 24.

The lower end of the wedge 23 operates between the said rollers, and whenever the drive-shaft 20 is rotated the said wedge is reciprocated vertically, thereby operating the table 5 out of its normal position, into which it will again be thrown in the manner presently described.

27 indicates a suitable guide secured to the frame 25 and to the brackets 19, whereby the 10 rear end of the table is prevented from moving laterally. Carried by the brackets 19 below the rollers 24 and 26 is an integral member 28, and connected to the forward end of the said member is a rod 29, which projects 15 forwardly into a suitable opening in the rear end of the table and carries on its forward end a washer 30. A coil-spring 31 is arranged around the rod 29 within the table, the ends of the said coil-spring bearing against the 20 washer 30 and the end of the table, respectively. By this means the table will be thrown back toward the brackets 19 after the wedge 23 is raised from between the rollers 24 and 26. In operation the shaft 20 is rotated by applying motive power to the belt 25. This alternately raises and lowers the wedge 23, causing it to pass between the rollers 24 and 26, whereby the table will be operated forwardly, as above described. As 30 the shaft is continually rotated and the wedge 23 is raised from between the rollers 24 and 26 the tension of the spring 31 serves to throw the table again toward the brackets 19, thereby imparting a continuous reciprocatory 35 movement to the table. The material during the operation is fed into the trough 16,

from which it passes gradually onto the top of the table and is guided therefrom by means of the strips 15, the ore being gradually led into the trough 17 and the gangue and sludge 40 passing into the trough 18.

One side of the table may be raised or lowered in order to facilitate the movement of the ore and sludge by manipulating the lever 5, and thereby operating the cams 4 in the 45 manner described. The small rollers 32, carried by the under side of the bar 3, operate upon the cams 4, thereby causing their operation to be free and without friction.

I claim— 50

An ore-concentrator, comprising a base, standard-frames supported above it, cams under certain of said frames for raising and lowering them, a lever for operating said cams, a lock for retaining the lever and thereby the 55 cams in the adjustment in which they are placed, a table supported to swing between the said frames, means for passing the material onto the said table in a thin stream, a series of curved and tapering guides for regulating the movement of the ore, an operating-shaft, means operated by the shaft for forcing the table rearwardly whenever it is rotated, and a separate means for drawing the 60 table to the front, substantially as specified. 65

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

ARTHUR FRITSCH.

Witnesses:

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JOHN D. RIPPEY.