

No. 795,675.

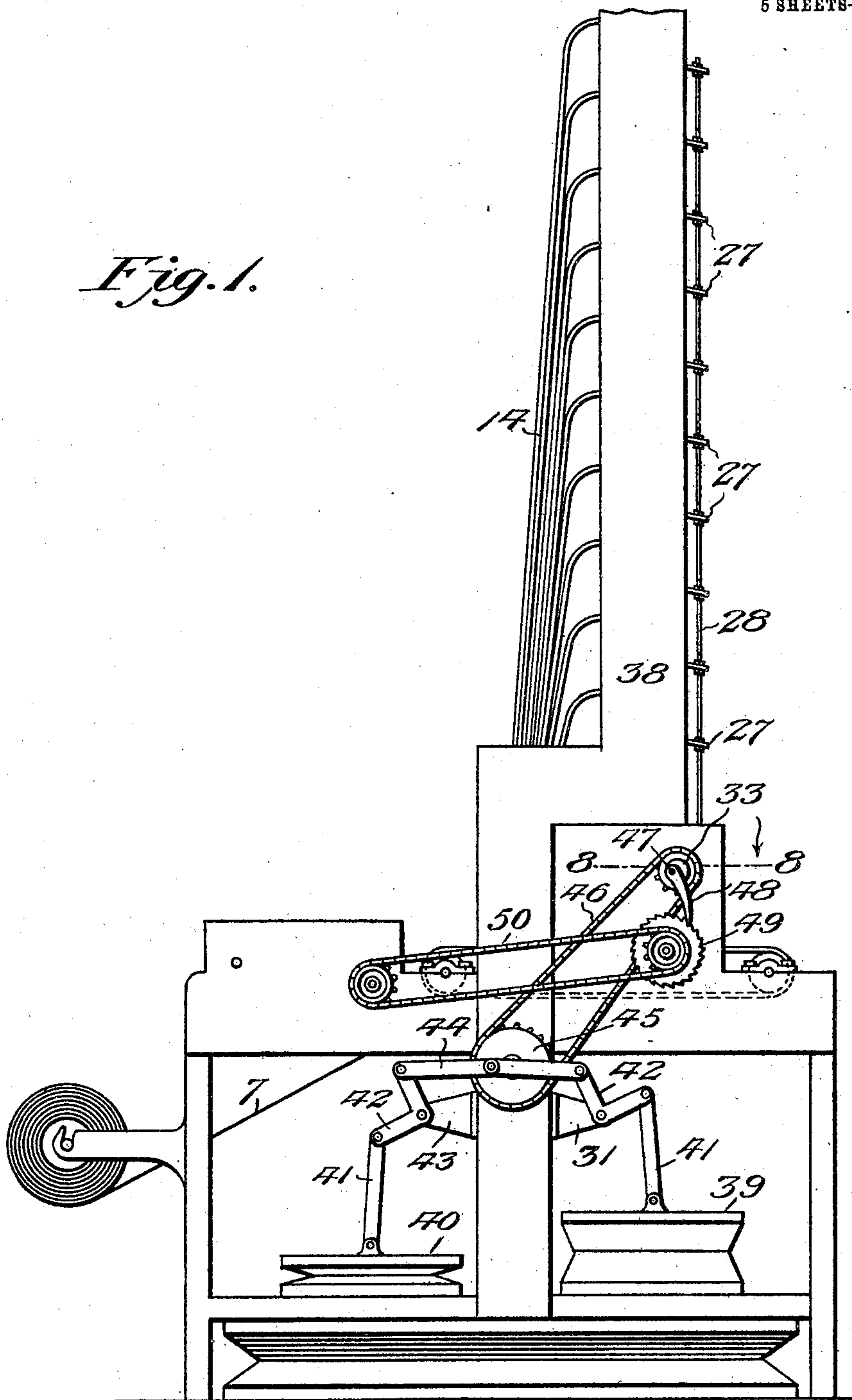
PATENTED JULY 25, 1905.

P. ALBANESE.
APPARATUS FOR PERFORATING RECORD SHEETS.

APPLICATION FILED JAN. 16, 1905.

5 SHEETS—SHEET 1.

Fig. 1.



Inventor

Witnesses

Edwin L. McKee

W. H. Clarke

By

Pietro Albanese

Victor J. Evans

Attorney

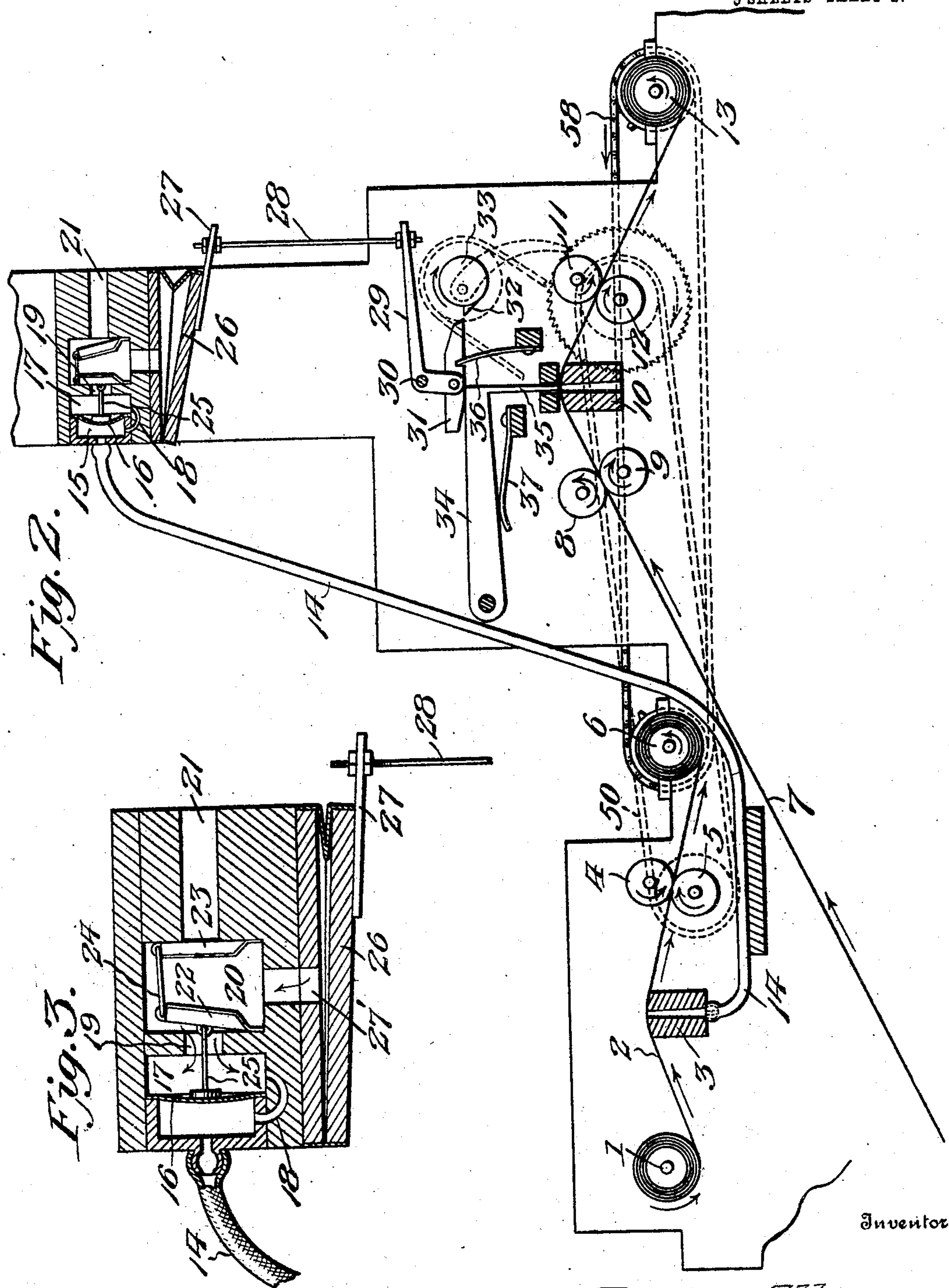
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5 SHEETS—SHEET 2.



Inventor

Pietro Albanese
Victor J. Evans
Attorney

Witnesses

Edwin L. McKee
W. H. Clarke

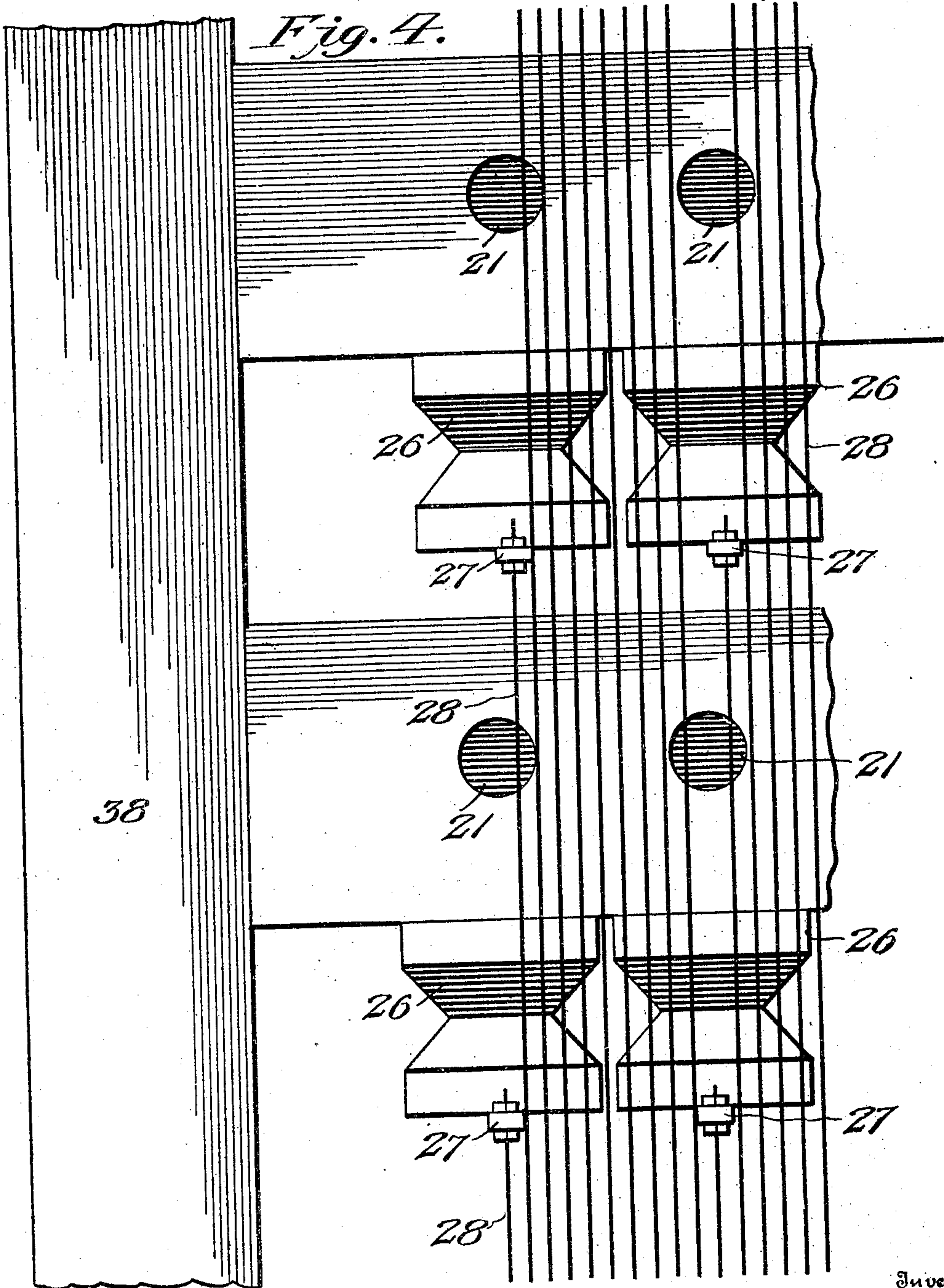
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5 SHEETS—SHEET 3.



Inventor

Pietro Albanese

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Edwin G. McKee

W. H. Clarke

By

Victor J. Evans

Attorney

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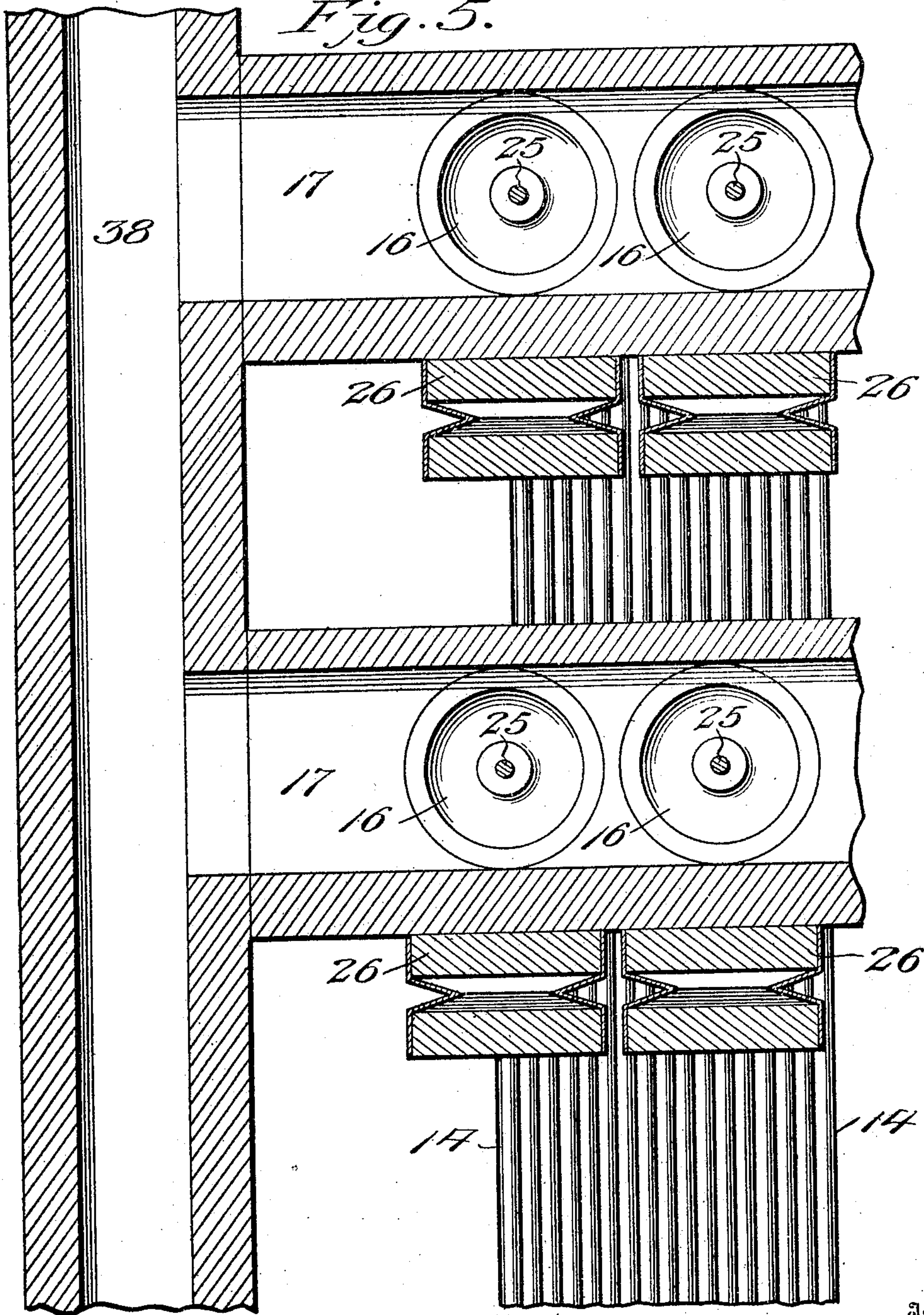
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5 SHEETS—SHEET 4.

Fig. 5.



Inventor

Pietro Albanese

Witnesses

Edmund G. McKee

W. H. Clarke

By

Victor J. Evans

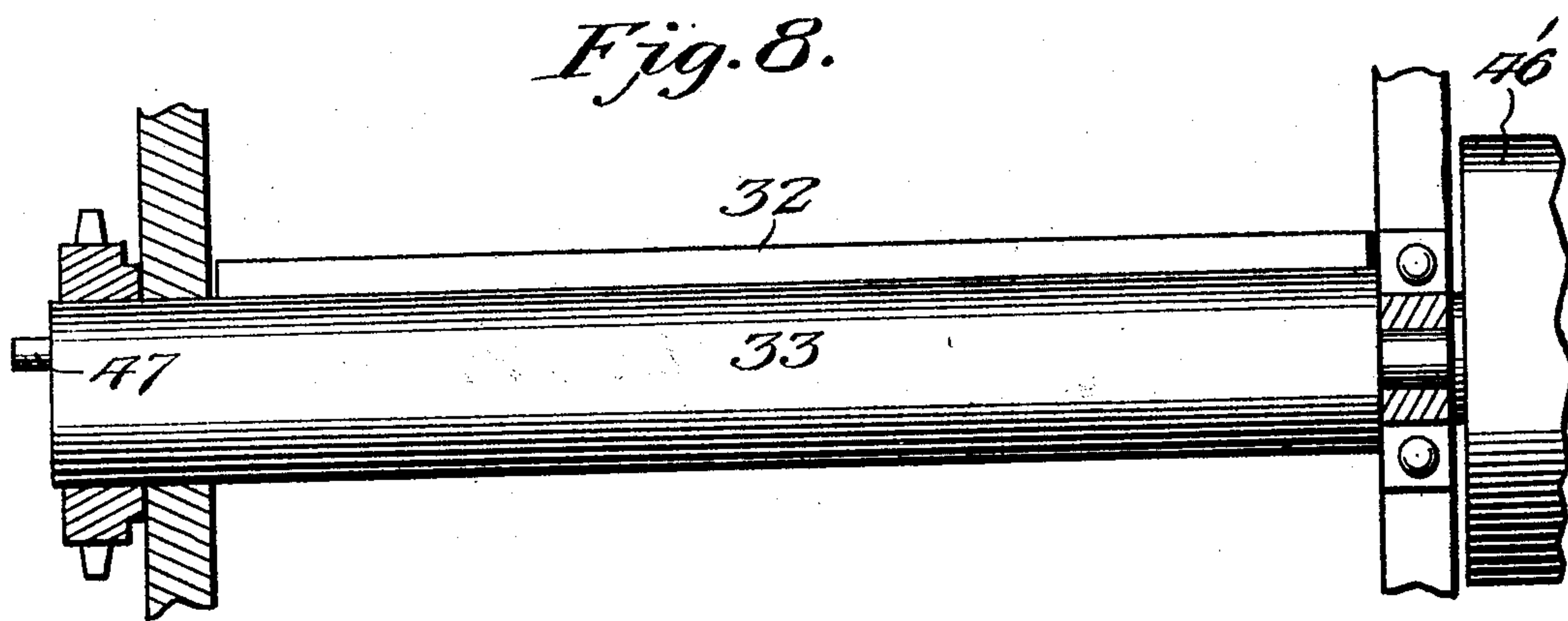
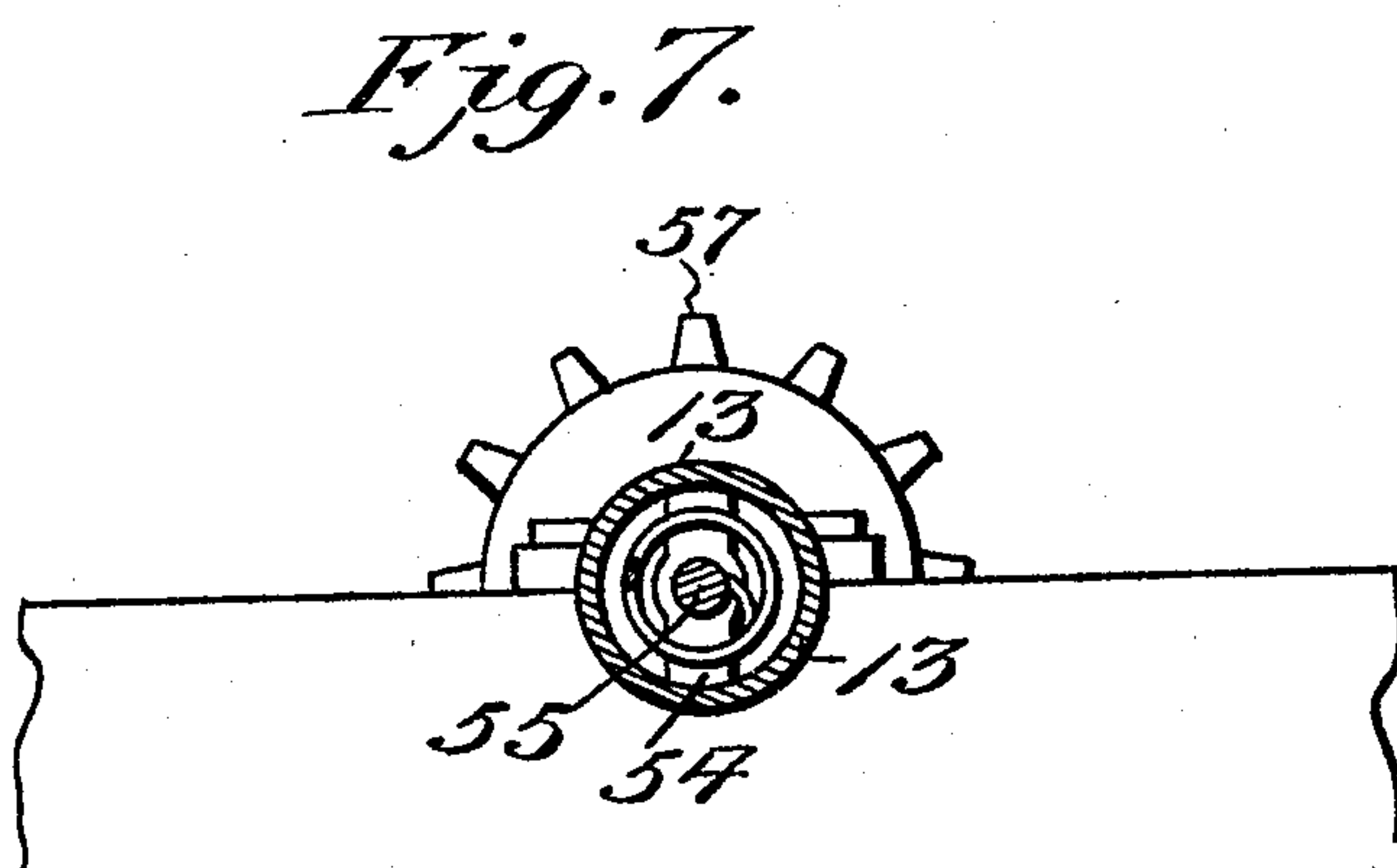
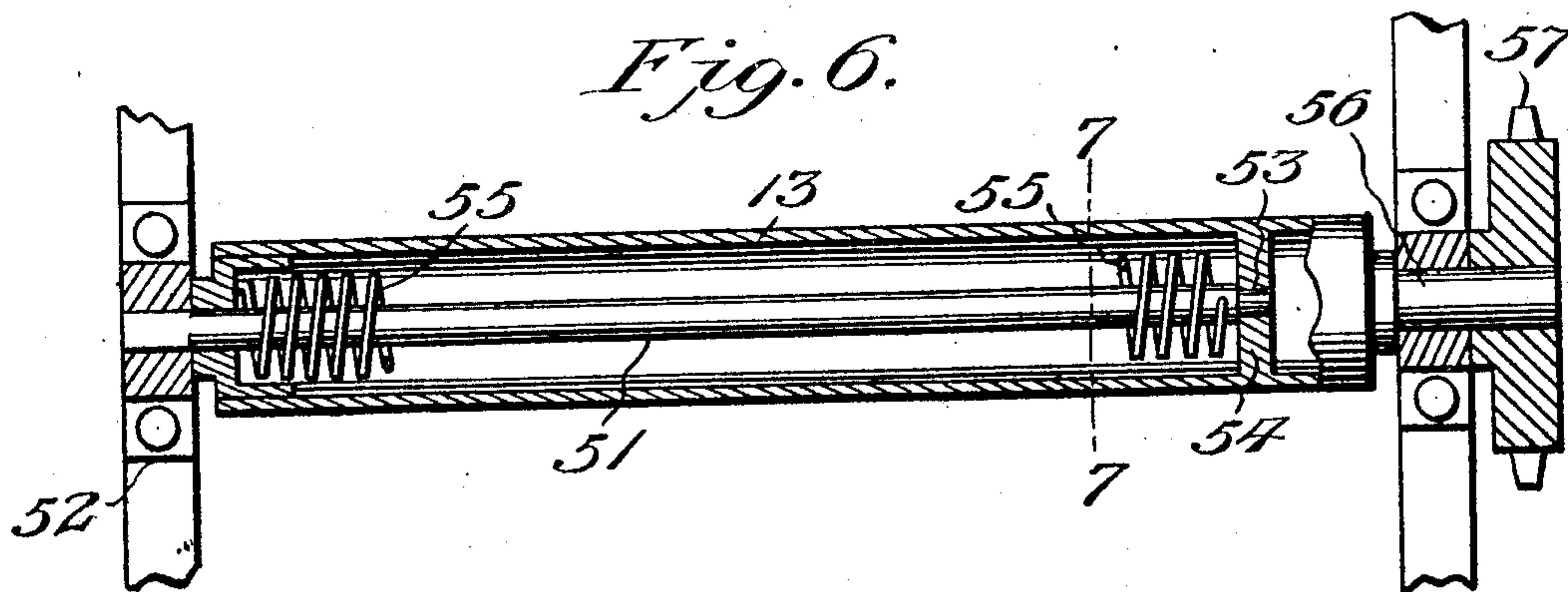
Attorney

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5 SHEETS—SHEET 5.



Inventor

Pietro Albanese

Witnesses

Edwin G. McKee

W. H. Clarke

By

Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

PIETRO ALBANESE, OF NEW YORK, N. Y.

APPARATUS FOR PERFORATING RECORD-SHEETS.

No. 795,675.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed January 16, 1905. Serial No. 241,320.

To all whom it may concern:

Be it known that I, PIETRO ALBANESE, a citizen of the United States, residing at 240 Elizabeth street, New York, in the county of New York and State of New York, have invented new and useful Improvements in Apparatus for Perforating Record-Sheets, of which the following is a specification.

This invention relates to apparatus for perforating record-sheets by the aid of a pattern-sheet which determines the extent and location of the perforations to be produced in the record-sheets.

The invention is primarily intended for the production of record-sheets such as are used in automatic or mechanically-operated musical instruments, although it may be used for the production of perforated sheets to determine patterns or systems for other purposes.

The objects of the invention are to improve and simplify the construction of such apparatus.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the precise combination and arrangement of parts and in the exact details of construction hereinafter described and claimed as a practical embodiment thereof.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of an apparatus constructed in accordance with the invention. Fig. 2 is a longitudinal section. Fig. 3 is a detail section. Fig. 4 is an end elevation. Fig. 5 is a section at right angles to Fig. 3. Fig. 6 is a longitudinal section through one of the take-up rolls. Fig. 7 is a transverse section on the line 7 7 of Fig. 6. Fig. 8 is a plan view, partly in elevation, of the punch-operating shaft.

Like reference-numerals indicate corresponding parts in the several views.

Referring to Fig. 2, numeral 1 indicates a roll on which is wound the pattern-sheet 2. After leaving the roll 1 the pattern-sheet 2 passes over a tracker-board 3 and between a pair of friction feed-rolls 4 and 5. The friction-rolls 4 and 5 may be operated in any suitable manner, as hereinafter described. After passing between the friction-rolls 4 and 5 the pattern-sheet 2 is wound upon a take-up roll 6, which is operated in any suitable manner.

The duplicate sheet or sheets 7, it being understood that two or more of such sheets

may be superimposed upon each other, passes between a pair of guide or stretching rollers 8 9, after which it extends over a punching-die 10 and between a pair of friction-rollers 11 12, which are operated in any suitable manner, as hereinafter described. After passing between the friction-rollers 11 and 12 the duplicate sheet or sheets 7 is wound upon a take-up roller 13, which is operated in any suitable manner. It will be understood, of course, that the duplicate sheet 7 is to be perforated in a manner exactly similar to the pattern-sheet 2, which has already been perforated in any suitable manner.

Leading from the tracker-board 3 is a plurality of pipes 14, which communicate with a chamber 15, having a flexible diaphragm 16 at one side thereof. The chamber 15 communicates with an exhaust-chamber 17 by means of a small duct or passage 18. A passage 19 leads from the exhaust-chamber 17 to a valve-chamber 20, which communicates with the atmosphere by means of a passage 21. Pivotaly mounted in any suitable manner within the valve-chamber 20 is a pair of valves 22 23, which are connected with each other by means of a link 24. The valve 22 is connected with the diaphragm 16 by means of a link 25. Leading from the valve-chamber 20 into a pneumatic 26 is a passage 27. Connected with the pneumatic 26 is an arm 27, to which is removably secured a rod 28, connected at its lower end with an angle-lever 29, pivoted at 30. Upon the lower end of the angle-lever 29 is pivotally mounted an auxiliary lever 31, which when the pneumatic 26 is operated in the manner hereinafter described is thrown into the path of a longitudinally-extending rib 32 upon an operating-shaft 33, which is rotated in any suitable manner, as hereinafter described. When the auxiliary lever 31 is struck by the rib 32, it serves to depress a lever 34, which carries a punch 35, adapted to form a perforation in the duplicate sheet 7 as it passes over the die-block 10. The lever 31 is maintained normally out of the path of the rib 32 by a spring 36, and the lever 34 is maintained normally in raised position by a spring 37.

The operation of the mechanism thus far described is as follows: It will be understood that air is exhausted from the chamber 17 in any suitable manner. Each time a perforation in the pattern-sheet 2 passes over one of the inlets in the tracker-board air is permitted to enter the chamber 15 through the

pipe 14, and the consequent movement of the diaphragm 16 causes the valve 22 to open and the valve 23 to close. The exhaust-chamber 17 then causes a suction of air from the valve-chamber 20 and pneumatic 26, thus causing said pneumatic to collapse and to operate the rod 28 and levers 29, 31, and 34 in the manner previously described. After the pneumatic 26 has been operated the air in the chamber 15 passes through the passage 18 into the exhaust-chamber 17, and the resilient diaphragm 16 resumes its normal position, thus causing the valve 22 to close and the valve 23 to open. As soon as the valve 23 is opened communication is permitted between the atmosphere and pneumatic 26, for which reason said pneumatic expands by gravity.

It will be understood that the pneumatics and the punches operated thereby in the manner described are duplicated many times over, as indicated in Fig. 5, and that a plurality of exhaust-chambers 17 are employed, said chambers communicating with a passage 38, which is connected in any suitable manner with the exhausting-bellows 39-40, which, as shown in Fig. 1, are operated by links 41, connected with angle-levers 42, mounted upon supporting-brackets 43, and having links 44 connected with their upper ends, said links being in turn eccentrically connected with a gear-wheel 45, which is operated by means of a sprocket-chain 46 from the operating-shaft 33. Rotation may be imparted to the operating-shaft in any suitable manner, as by means of a crank-handle or belt-wheel 46', as shown in Fig. 8.

While any suitable mechanism may be employed for operating the friction-rolls 4, 5, 11, and 12, the preferred mechanism for accomplishing this result is illustrated in Figs. 1 and 2 as comprising a pin 47 eccentrically disposed upon the end of the operating-shaft 33, a pawl 48 being mounted upon said pin 47 and being adapted to engage a ratchet-wheel 49, mounted on the friction-roll 12. The friction-roll 12 is connected with the friction-roll 5 in any suitable manner, as by means of a sprocket-chain 50, so that all of the rolls 4, 5, 11, and 12 will rotate in unison.

While any suitable mechanism may be employed for operating the take-up rolls 6 and

13, the preferred mechanism for accomplishing this result is illustrated in detail in Fig. 6. As shown in said figure, the roll 13 preferably is hollow and is journaled upon a stationary shaft 51, which is rigidly mounted in the support 52 and is formed with a reduced end 53, terminating in a partition 54, formed in the hollow roll 13. A coil-spring 55 is connected at one end with the shaft 51 and at the other end with the roll 13, so as to provide automatic means for rotating said roll after the spring has been placed under proper tension. The roll 13 is provided with a stem 56 with which is connected a sprocket-wheel 57. The sprocket-wheel 57 is connected, by means of a sprocket-chain 58, with the take-up roll 6, so that both take-up rolls 6 and 13 are operated in unison by means of coil-springs 55.

Having thus described the invention, what is claimed as new is—

1. In a machine for perforating record-sheets means for moving a duplicate sheet or sheets, a tracker-board, a pipe leading from said tracker-board, a chamber communicating with said pipe, a diaphragm in said chamber, an exhaust-chamber, a valve-chamber, a pair of pivotally-mounted valves in said valve-chamber, a link connecting said valves, a link connecting one of said valves with said diaphragm, a pneumatic controlled by said valve-chamber, an angle-lever connected with said pneumatic, an auxiliary lever pivotally mounted on one of the arms of said angle-lever, an operating-shaft for actuating said auxiliary lever, and perforating means operated by said auxiliary lever.

2. A machine for perforating record-sheets having a pneumatic, means for operating said pneumatic, an angle-lever connected with said pneumatic, an auxiliary lever pivotally mounted on one of the arms of said angle-lever, an operating-shaft for actuating said auxiliary lever, and a punch-carrying lever operated by said auxiliary lever.

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

PIETRO ALBANESE.

Witnesses:

NICOLA BLAYO,
DOMENICO SPINETTI.