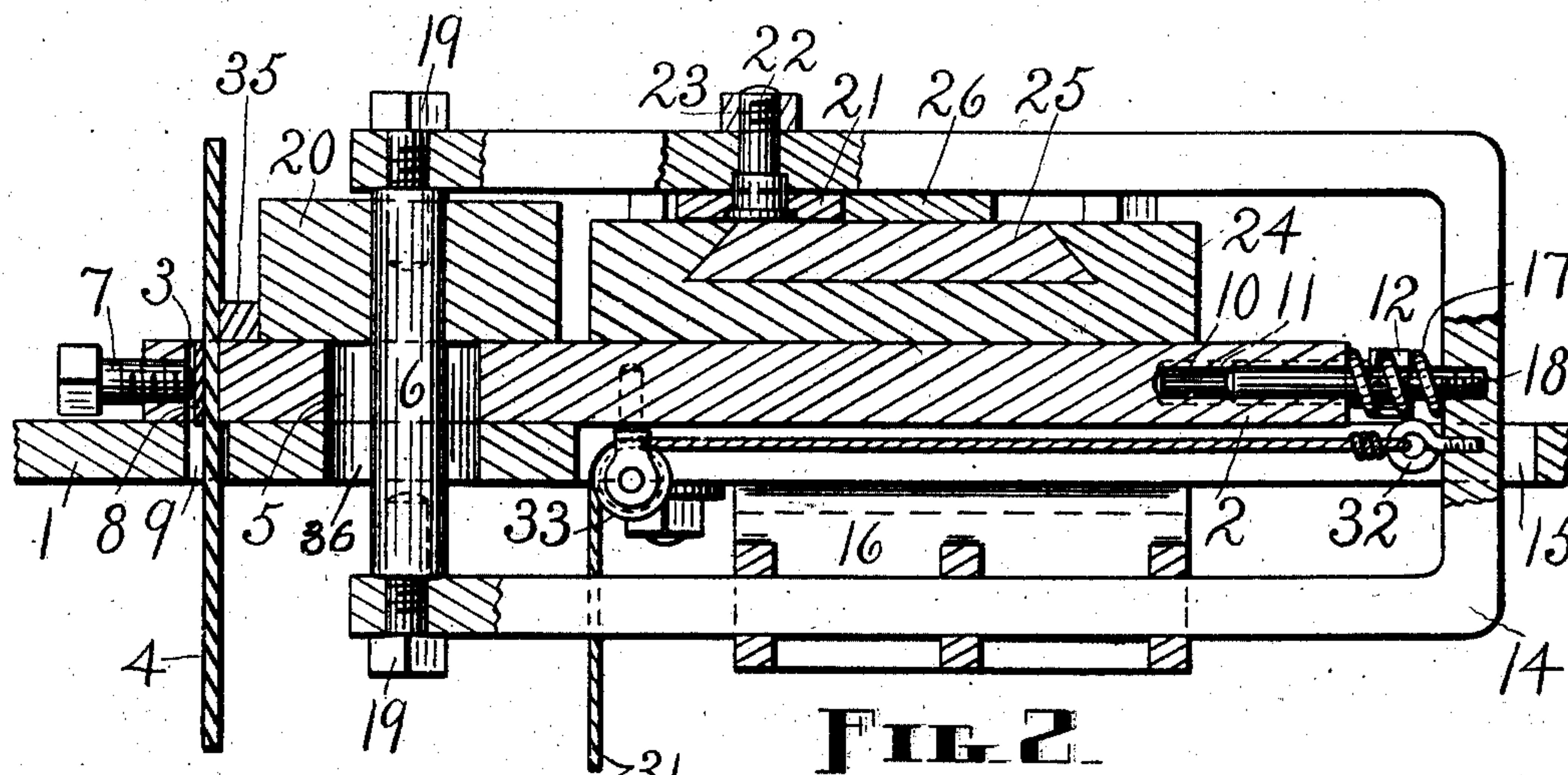
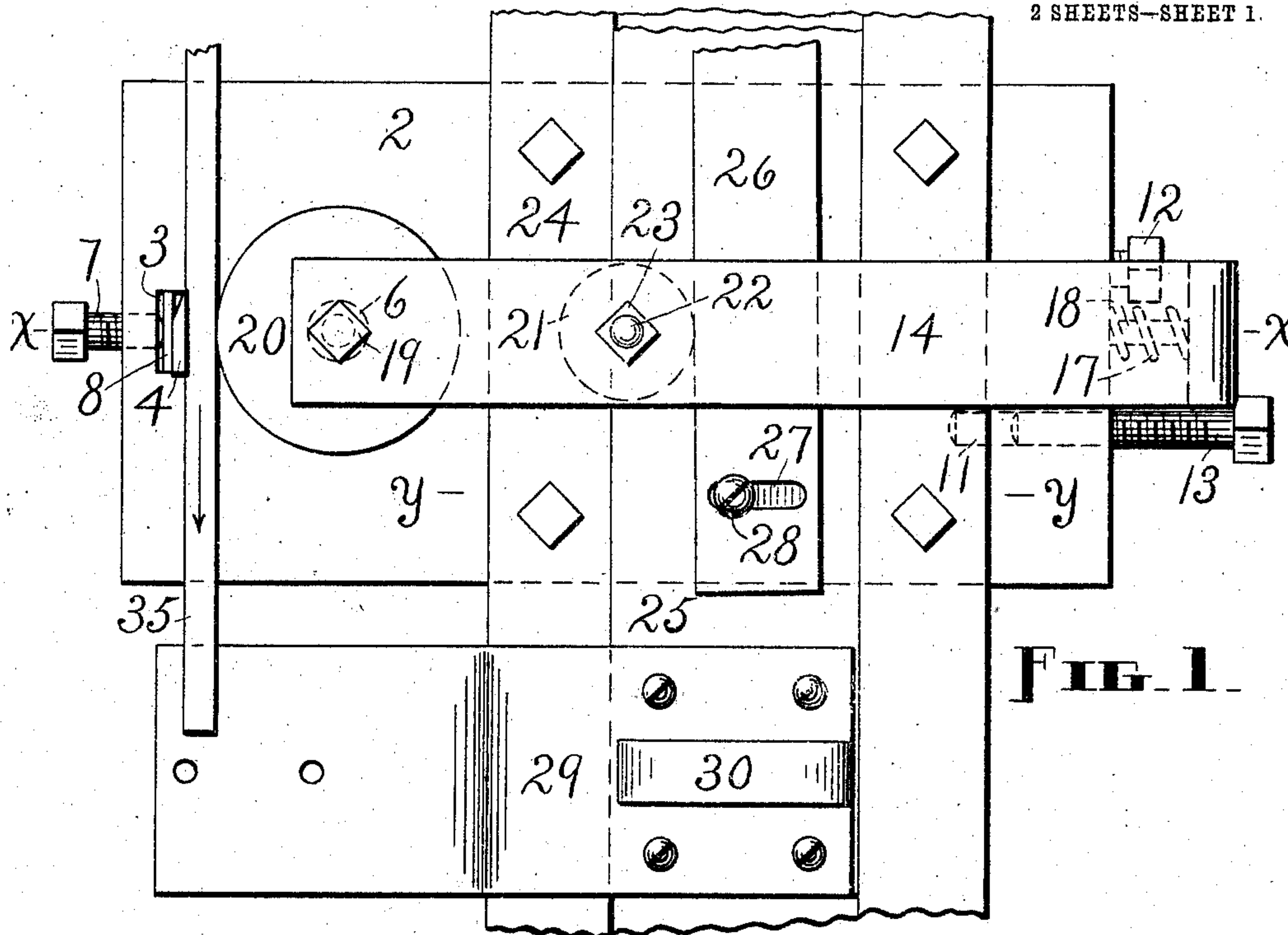


No. 846,458.

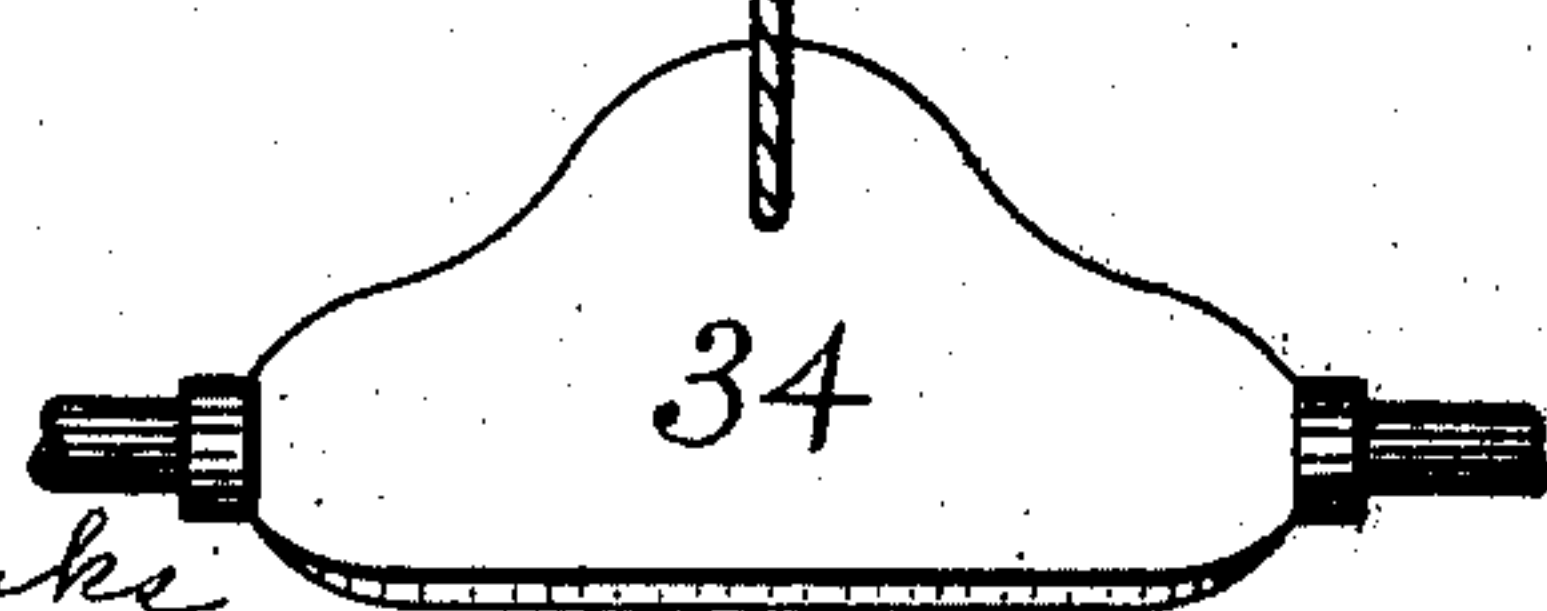
PATENTED MAR. 12, 1907.

J. P. DONOVAN.
STRING TAPERING MACHINE.
APPLICATION FILED MAY 12, 1906.

2 SHEETS—SHEET 1.



Witnesses
J. M. Sterne.
A. C. Fairbanks



Inventor
John P. Donovan,
by Webster & Co.,
Attorneys

No. 846,458.

PATENTED MAR. 12, 1907.

J. P. DONOVAN.
STRING TAPERING MACHINE.

APPLICATION FILED MAY 12, 1906.

2 SHEETS—SHEET 2.

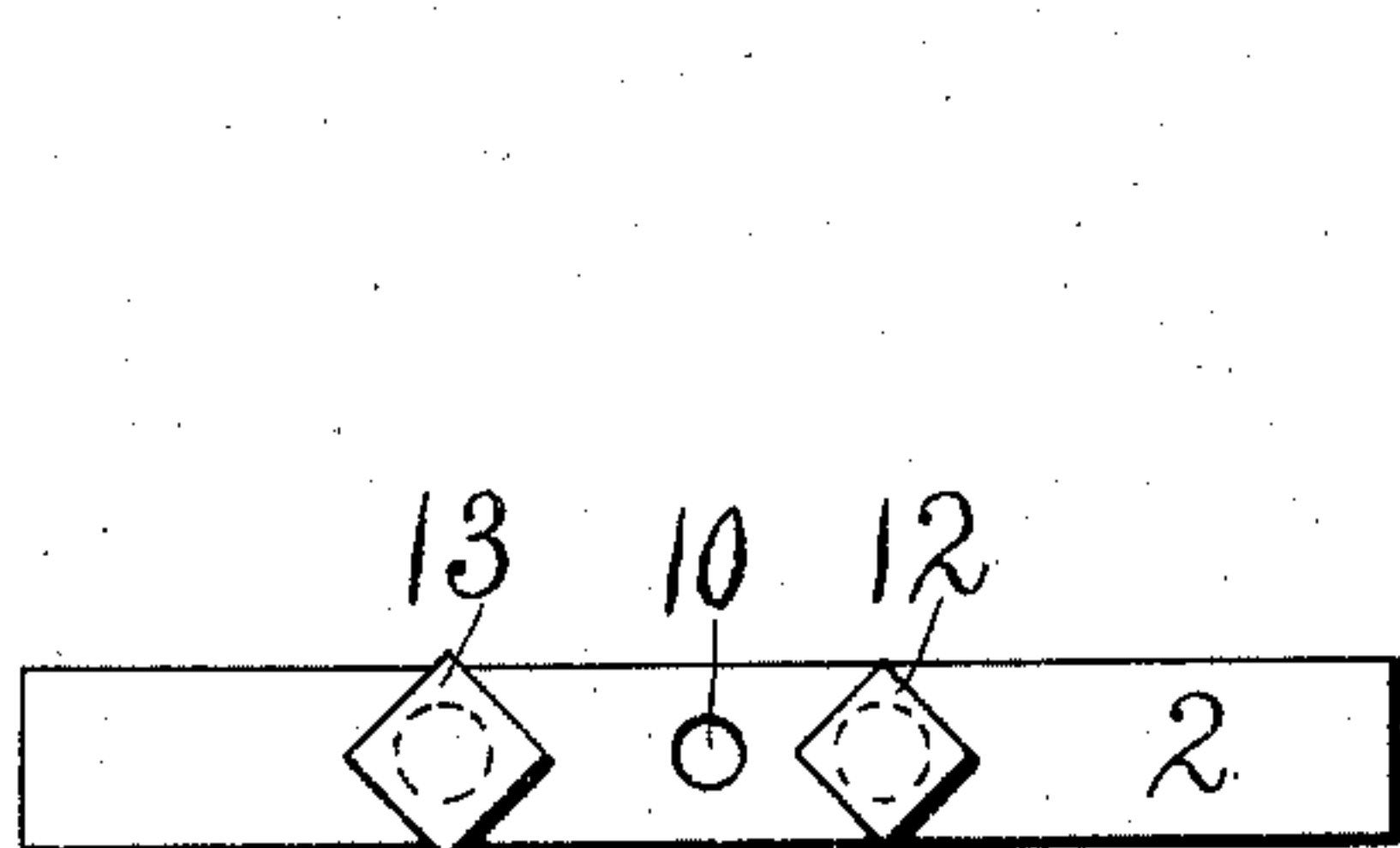


FIG. 3

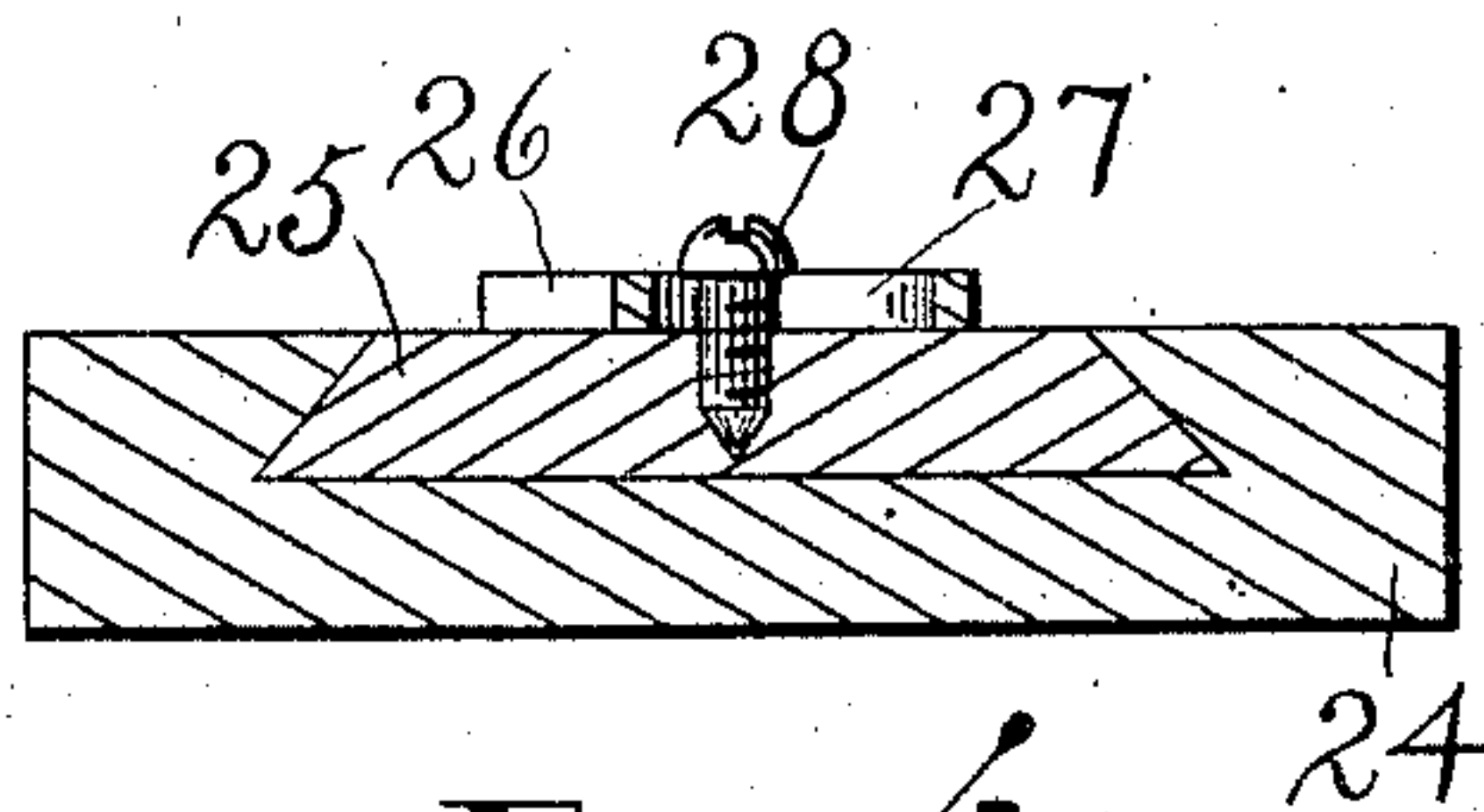


FIG. 4

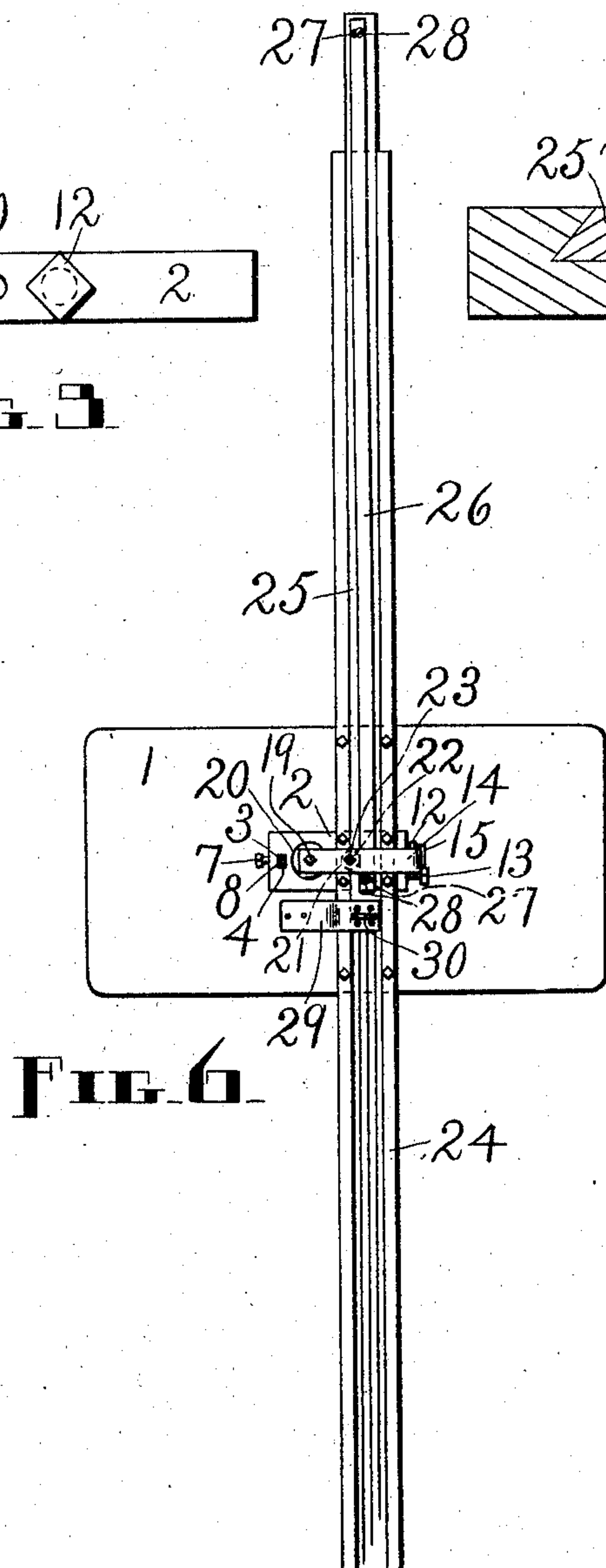


FIG. 6

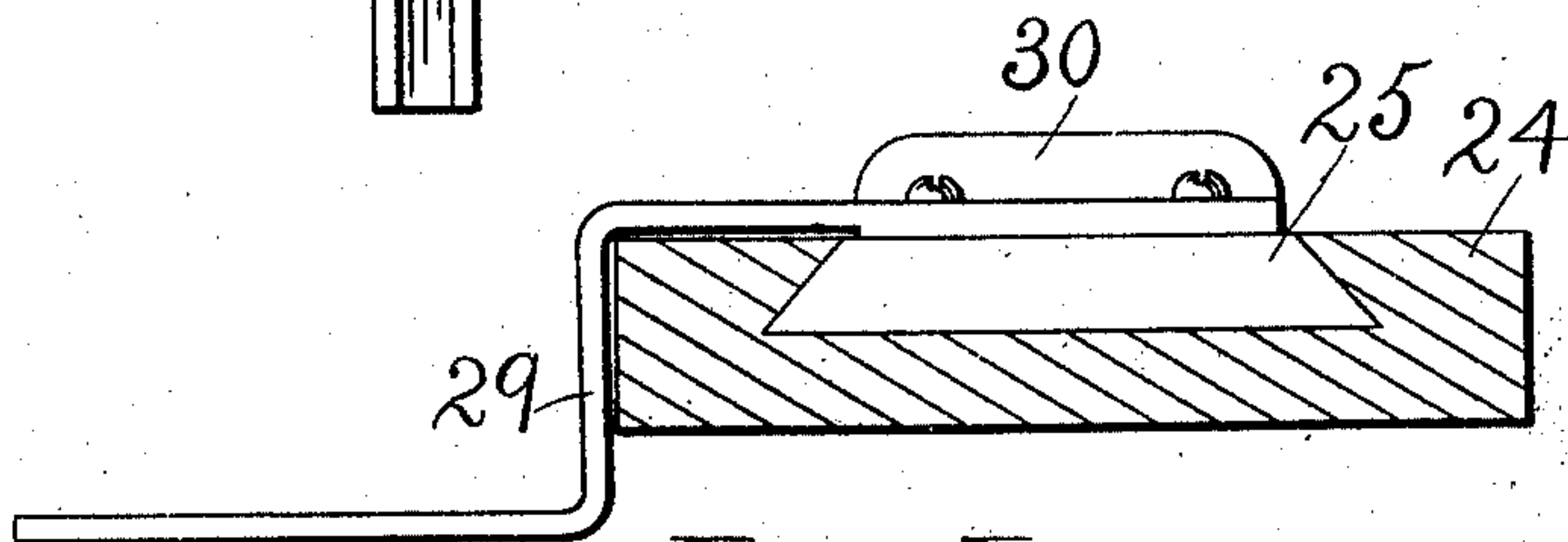


FIG. 5

Witnesses
J. M. Sterne.
G. P. Fairbanks

Inventor
John P. Donovan,
by Webster & Co.,
Attorneys

UNITED STATES PATENT OFFICE.

JOHN P. DONOVAN, OF WESTFIELD, MASSACHUSETTS, ASSIGNOR TO UNITED STATES WHIP COMPANY, OF WESTFIELD, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

STRING-TAPERING MACHINE.

No. 846,458.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed May 12, 1906. Serial No. 316,461.

To all whom it may concern:

Be it known that I, JOHN P. DONOVAN, a citizen of the United States of America, residing at Westfield, in the county of Hampden and State of Massachusetts, have invented a new and useful String-Tapering Machine, of which the following is a specification.

My invention relates to improvements in machines for skiving, tapering, or beveling leather, particularly strips, straps, or so-called "strings" of leather, and comprises combined hand and foot power mechanism for doing the work, such mechanism consisting, essentially, of a suitably-mounted carrier for a follower, tensioned in one direction, and manually-operated means on the one hand and pedally-operated means on the other hand to actuate such carrier, so that its follower is caused to approach a properly-positioned knife, between which and such follower a leather strip may meanwhile be drawn by hand, whereby the same is tapered, together with such supporting, adjusting, and auxiliary parts and members as may be required, all as hereinafter set forth.

The object of my invention is to provide a simple and comparatively inexpensive machine for tapering strings used in the manufacture of whip-lashes and for coach-filling or the like which is adapted to handle strings of any length and to handle them to the best advantage, provision being made for tapering the shorter lengths, where only one hand is required to draw the string between the knife and the advancing follower by manually-operated means, and for tapering the longer strings where both hands are needed to draw a string through the machine by power applied with one of both feet. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is plan view of the mechanism, both terminals of the raceway and all except the front ends of the slide and actuating-bar being broken off; Fig. 2, a section on lines *x x*, Fig. 1; Fig. 3, an end view of the bed-plate; Fig. 4, a cross-section through said raceway, slide, and actuating-bar on lines *y y*, Fig. 1; Fig. 5, a front end view of said

slide, the raceway being in section; and Fig. 6, a reduced plan view of the machine.

Similar figures refer to similar parts throughout the several views.

A suitable bench, stand, or table is furnished, upon which the mechanism is mounted, the top of such table being shown at 1 in Figs. 2 and 6. Upon the table-top 1 is placed a bed-plate or bed 2, having near one end a slot 3 therein for a knife 4, such slot in the present case being at the left and parallel with the adjacent edge of said bed. The bed is also slotted at 5 to accommodate a vertical spindle 6, as will presently be explained. The knife 4, which has its beveled or cutting edge toward the rear, is held in an upright position by means of a bolt 7, inserted in a threaded opening in the adjacent end of the bed and a plate 8 in the slot 3. By loosening this bolt the knife can be adjusted to bring into play an unused portion after another portion has become dulled, or said knife may be removed and a new one substituted. The knife 4 extends through an opening 9 in the table-top 1 below the slot 3. In the opposite end or edge of the bed 2 is a bore 10, on each side of which is a screw-threaded bore 11. Bolts or stops 12 and 13 project from the bores 11.

A reciprocating frame or carrier 14, comprising two horizontal arms connected by a vertical part, is so arranged relative to the bed 2 that one of said horizontal arms is above said bed and the other horizontal arm is below the bed and below the table-top 1, the latter being recessed at 15 for said vertical part, and said carrier is supported in any convenient manner, as by a bracket or hanger 16, fastened to the under side of said top, the lower horizontal arm being slidably mounted in said hanger. The movement of the carrier 14 is longitudinal of the bed 2 and toward and away from the knife 4. A spring 17 on a pin 18, extending from the vertical part of the carrier 14 into the bore 10 in the bed, tensions said carrier to the right, or away from the knife. The spindle 6 is located between the free ends of the carrier, to which it is securely attached by bolts 19, and a follower or roll 20 is loosely mounted on said spindle, resting on the bed 2, below

the upper arm of the carrier. A second follower or roll 21 is loosely mounted on a vertical stud 22, held in place in the top of the carrier by a nut 23. The follower or roll 20 is designed to act upon the strings inserted between it and the knife, while the follower or roll 21 is for the purpose of actuating the carrier.

A raceway 24 is supported on the bed 2 and from the table-top 1 and projects a considerable distance in front of and behind such top, both the raceway and the bed being securely fastened to the table by means of bolts or in any other suitable manner. Mounted to reciprocate in this raceway is a slide 25, provided with an actuating-bar 26, having a transverse slot 27 at each end for a screw 28. The left-hand edge of the bar 26 is adapted to bear against the roll 21, and by setting said bar on a slant so that such edge is at the left of and forms an angle with a line drawn backward from the front end thereof and parallel with the sides of the raceway 24, which the adjustment afforded by the slots 27 and the screws 28 permits to be done, provision is made for reciprocating the carrier 14 whenever the slide 25 is reciprocated, said carrier, with the roll 20, being moved toward the knife 4 when said slide is drawn forward through the medium of said bar and said roll 21, and away from said knife when the slide is pushed backward through the medium of the spring 17, the roll 21 always following the adjacent edge of the bar at such times. A holder 29 for a bundle of strips or strings to be tapered is provided, one end of which is attached to the top of the front end of the slide 25, while the other end projects downward and to the left in line with the knife and the adjacent roll. A handle 30 on top of the right-hand end of the holder 29 affords a hold for the hand of the operator while actuating the slide. The screws 28 after passing through the slots 27 enter into threaded engagement with the slide.

The amount of taper to be given the strings is determined by regulating or limiting the travel of the carrier, which is done either by adjusting the bar 26 or the stops 12 and 13. When the former is used, the latter should be so arranged as not to interfere with the carrier unless the adjustment of both the bar and stops be alike, in which event no change is necessary, and when, on the other hand, dependence is to be placed on said stops said bar must be positioned out of the path of the roll 21, except at the extreme end of its travel to the right. Attention is here called to the fact that the stop 12 is between the inside of the vertical part of the carrier and the adjacent end of the bed and limits the movement of said carrier to the left, and that the head of the stop 13 receives the outside of such

part and limits the movement of the carrier to the right.

A cord 31 has one end attached to a screw-eye 32 in the vertical part of the carrier below the pin 18, passes through the recess 15 in the table-top to and over an idler 33, mounted beneath the bed, and thence passes downward to the treadle 34 of the machine. Hence it will be seen that said carrier can be reciprocated by rocking or oscillating said treadle with the feet—that is, a downward pressure on the back part of the treadle will cause the carrier to be actuated to the left and the return motion of the treadle releases the carrier to the spring 17, which restores it to normal position.

The foot-power can of course be employed when short strings are being drawn through the machine; but I prefer to taper such strings, if under six feet or thereabouts in length, by hand power exclusively. In this case—that is, with short lengths—the bar 26 having been properly set or adjusted for the right amount of taper, the operation consists simply in introducing with the left hand a string 35 near what is to become its butt-end between the knife 4 and the roll 20 while the slide 25 is at the rearward end of its travel and then drawing both the string and the slide forward, the right hand being used for the slide. Next push back the slide, throw in another string, and repeat the forward movement, and so on indefinitely. The advance of the slide causes the roll 20 to approach the knife, and so produce the taper as the string is drawn between the advancing roll and the stationary knife.

With strings over six feet long the operation is the same as that described above except that the slide is not used. Instead, the carrier and the roll 20 are caused to approach the knife 4 each time a string is placed in position through the medium of the treadle 34, operated by the feet, and the cord 31, which leaves both hands of the operator free to draw the strings through the machine. Here the stops 12 and 13 are required to limit the stroke of the carrier in both directions and must be so adjusted as to insure the proper taper being given the strings.

The movement either of the hand or of the feet should be so timed as to finish the active stroke of the carrier when the free end of the string arrives at the knife.

The spindle 6 moves to left and right in the slot 5 in the bed 2, also in a slot 36 in the table-top 1, through both of which slots said spindle extends.

Either one or both of the followers 20 and 21 might be stationary relative to the carrier instead of rotary; but generally too much friction would attend the use of non-rotary members.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a string-tapering machine, with a fixed knife, of a horizontally-movable string-follower adapted to bear on the string and a reciprocating carrier for said follower, such knife and follower forming a passage through which to draw the string, means to normally withdraw said carrier with its follower from close proximity to said knife, and means to forcibly actuate the carrier and follower toward the knife and thus contract such passage.

2. The combination, in a string-tapering machine, with a fixed knife, of a horizontally-movable string-follower adapted to bear on the string and a reciprocating carrier for said follower, such knife and follower forming a passage through which to draw the string, means to normally withdraw said carrier with its follower from close proximity to said knife, and manually-operated means for forcibly actuating the carrier and follower toward the knife to contract such passage.

3. The combination, in a string-tapering machine, with a fixed knife, of a horizontally-movable string-follower adapted to bear on the string and a reciprocating carrier for said follower, such knife and follower forming a passage through which to draw the string, means to normally withdraw said carrier with its follower from close proximity to said knife, and pedally-operated means for forcibly actuating the carrier and follower toward the knife to contract such passage.

4. The combination, in a string-tapering machine, of a fixed knife, a horizontally-movable string-follower adapted to bear on the string and a reciprocating carrier for said follower, such knife and follower forming a passage through which to draw the string, an actuating-follower connecting with the carrier, means to normally withdraw said carrier with the string-follower from close proximity to said knife, and a reciprocating member arranged crosswise of the carrier and adapted to engage said actuating-follower and when moved in one direction cause said string-follower to approach the knife and contract such passage.

5. The combination, in a string-tapering machine, of a suitably-supported knife, a string-follower and a reciprocating carrier therefor, an actuating-follower connected with the carrier, means to normally withdraw said carrier and the string-follower from close proximity to said knife, a slide and a suitably-supported raceway therefor arranged crosswise of the carrier, and an adjustable member on said slide adapted to engage said actuating-follower and when moved in one direction cause said string-follower to approach the knife.

6. The combination, in a string-tapering machine, with a suitably-supported knife, of a string-follower and a reciprocating carrier therefor, means to normally withdraw said carrier with its follower from close proximity to said knife, means to forcibly actuate the carrier and follower toward the knife, and stops in the path of travel of the carrier to limit its movement in both directions.

7. The combination, in a string-tapering machine, with a fixed knife, of a horizontally-movable string-follower adapted to bear on the string and a reciprocating carrier for said follower, such knife and follower forming a passage through which to draw the string, means to normally withdraw said carrier with its follower from close proximity to said knife, a treadle, and connecting means between said treadle and carrier for forcibly actuating the latter toward the knife to contract such passage.

8. The combination, in a string-tapering machine, with a suitably-supported knife, of a string-follower and a reciprocating carrier therefor, means to normally withdraw said carrier with its follower from close proximity to said knife, a treadle, connecting means between said treadle and carrier for forcibly actuating the latter toward the knife, and stops in the path of travel of the carrier to limit its movement in both directions.

9. The combination, in a string-tapering machine, of a suitably-supported knife, a string-follower and a reciprocating carrier therefor, an actuating-follower connected with the carrier, means to normally withdraw said carrier with the string-follower from close proximity to said knife, a reciprocating member arranged crosswise of the carrier and adapted to engage said actuating-follower and when moved in one direction cause said string-follower to approach the knife, and a holder for strings attached to the front of said member.

10. The combination, in a string-tapering machine, of a slotted bed and a support therefor, a vertical knife fastened to said bed, a carrier-frame comprising two horizontal arms arranged above and below the bed and adapted to be reciprocated toward and away from said knife, a vertical spindle connecting the free ends of said frame, such spindle extending through the slot in the bed, a roll mounted on said spindle above the bed, means to tension the frame with its roll away from the knife, and means to forcibly actuate the frame and roll toward the knife.

11. The combination, in a string-tapering machine, with a reciprocating carrier provided with an actuating-follower, and tension means for said carrier, of a slide and a raceway therefor arranged crosswise of the carrier, an actuating-bar mounted on said

slide and having slots in its ends, said bar being adapted to bear against said follower and actuate the carrier against its tension means, and screws passing through said slots
5 into the slide to provide adjustment for the bar.

12. The combination, in a string-tapering machine, with a bed, and adjustable stops projecting therefrom, of a reciprocating car-

rier mounted in operative relation with said stops and adapted to have its movement in both directions limited thereby, tension means for said carrier, and means to actuate the carrier against such tension means.

JOHN P. DONOVAN.

Witnesses:

F. A. CUTTER,

J. M. STERNS.