

No. 749,956.

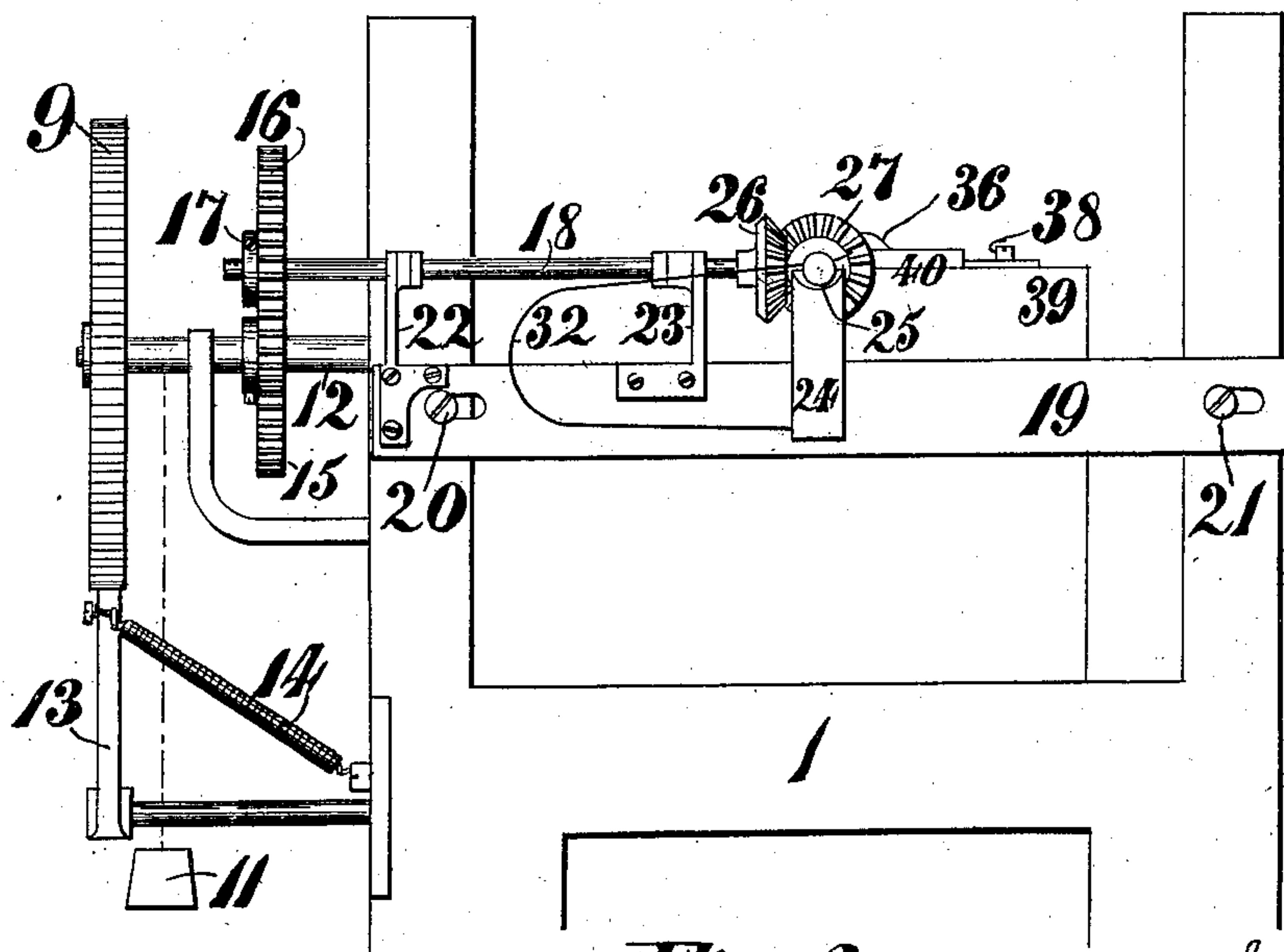
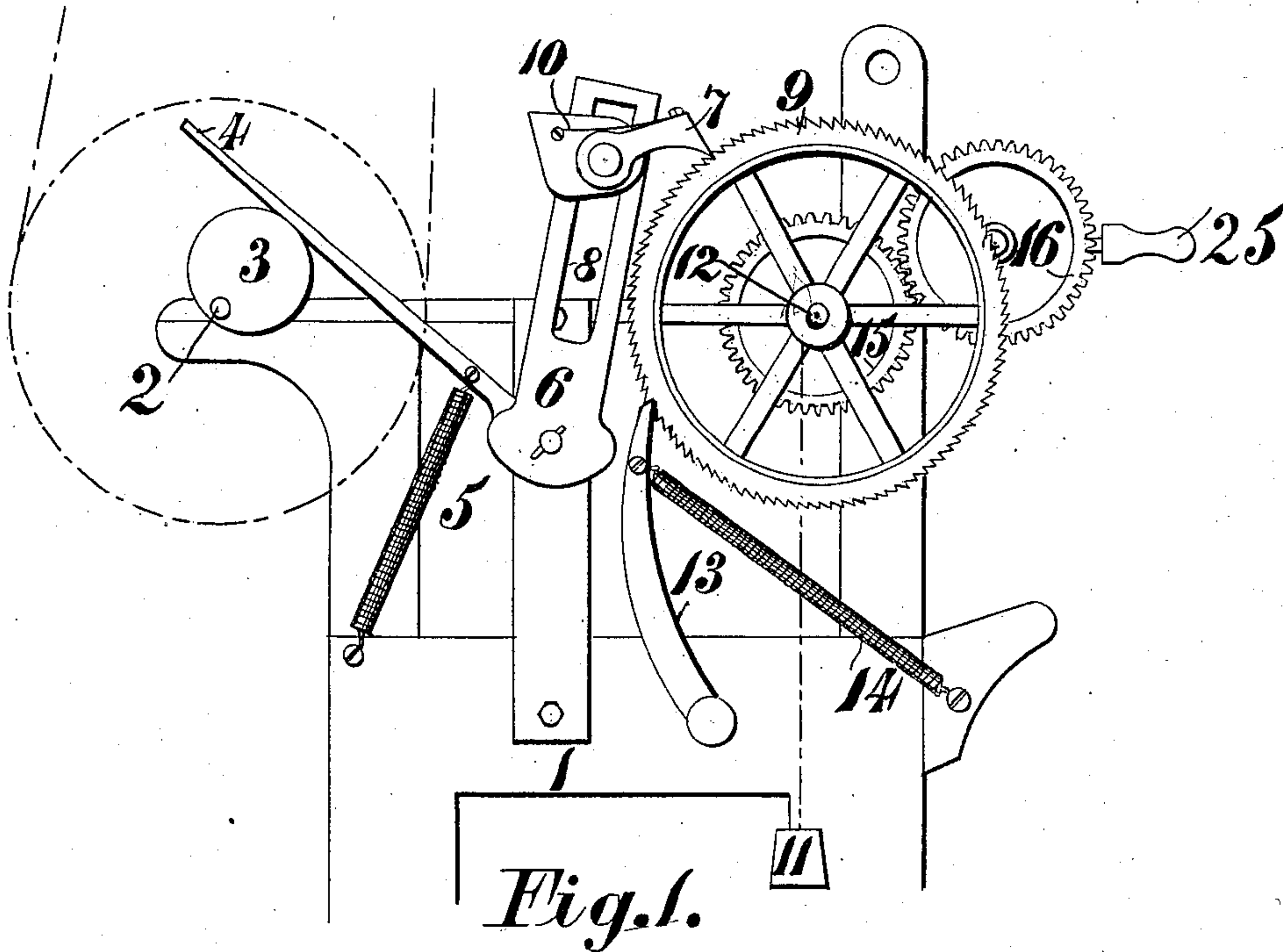
PATENTED JAN. 19, 1904.

C. H. WILKINSON.
MACHINE FOR SETTING STAPLES, NAILS, &c.

APPLICATION FILED MAY 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
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Fig. 2.

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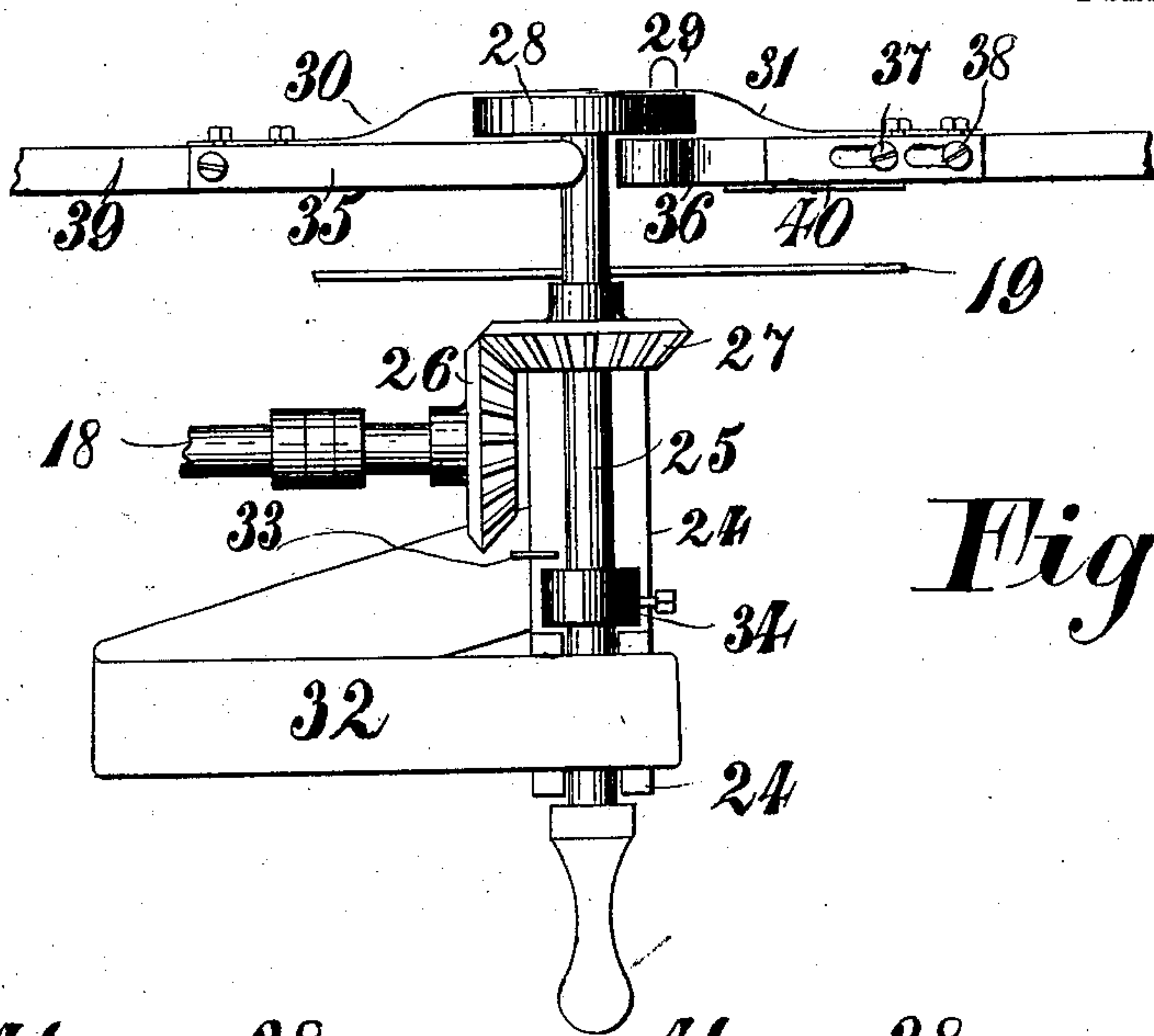


Fig. 3.

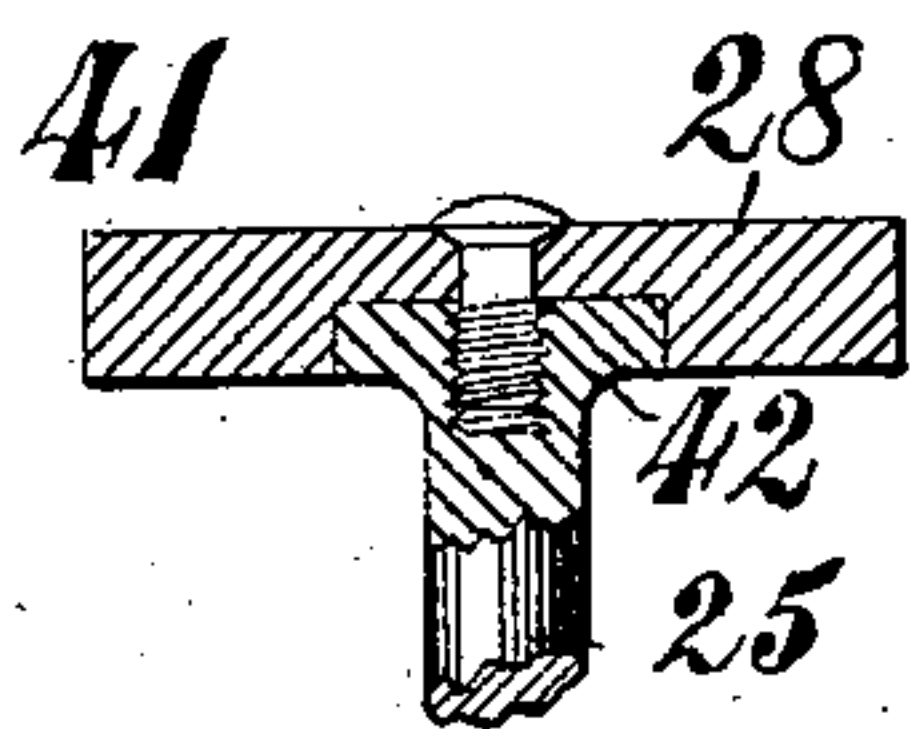


Fig. 4.

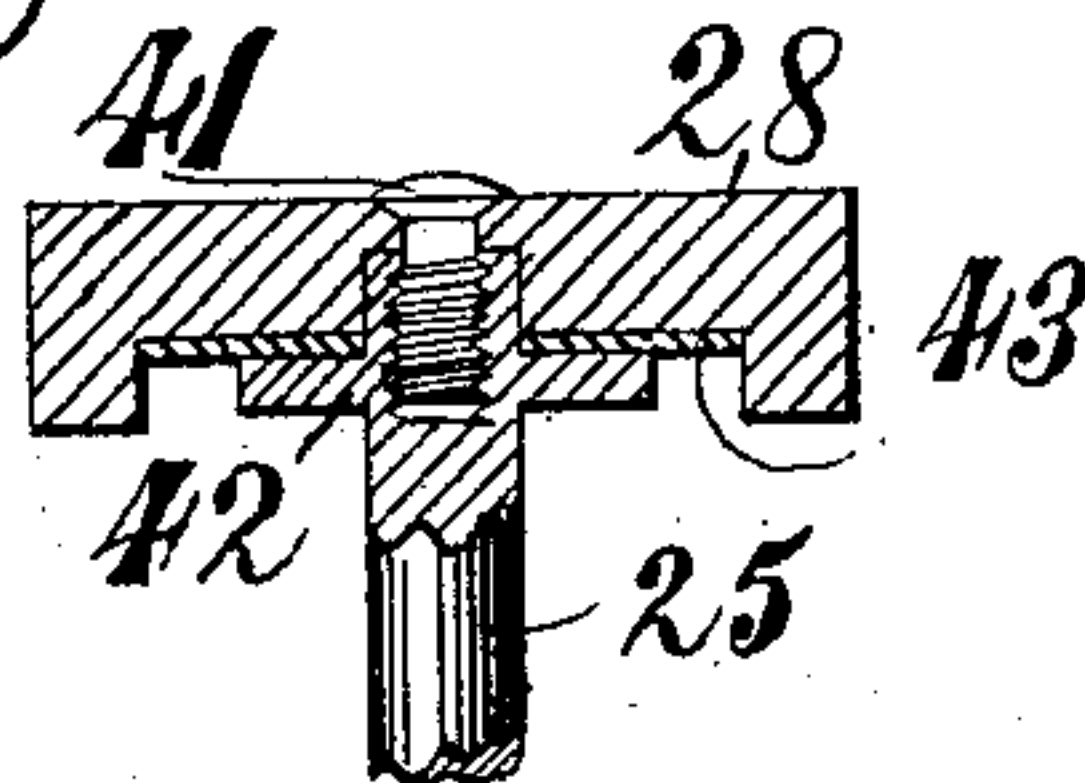


Fig. 5.



Fig. 6.

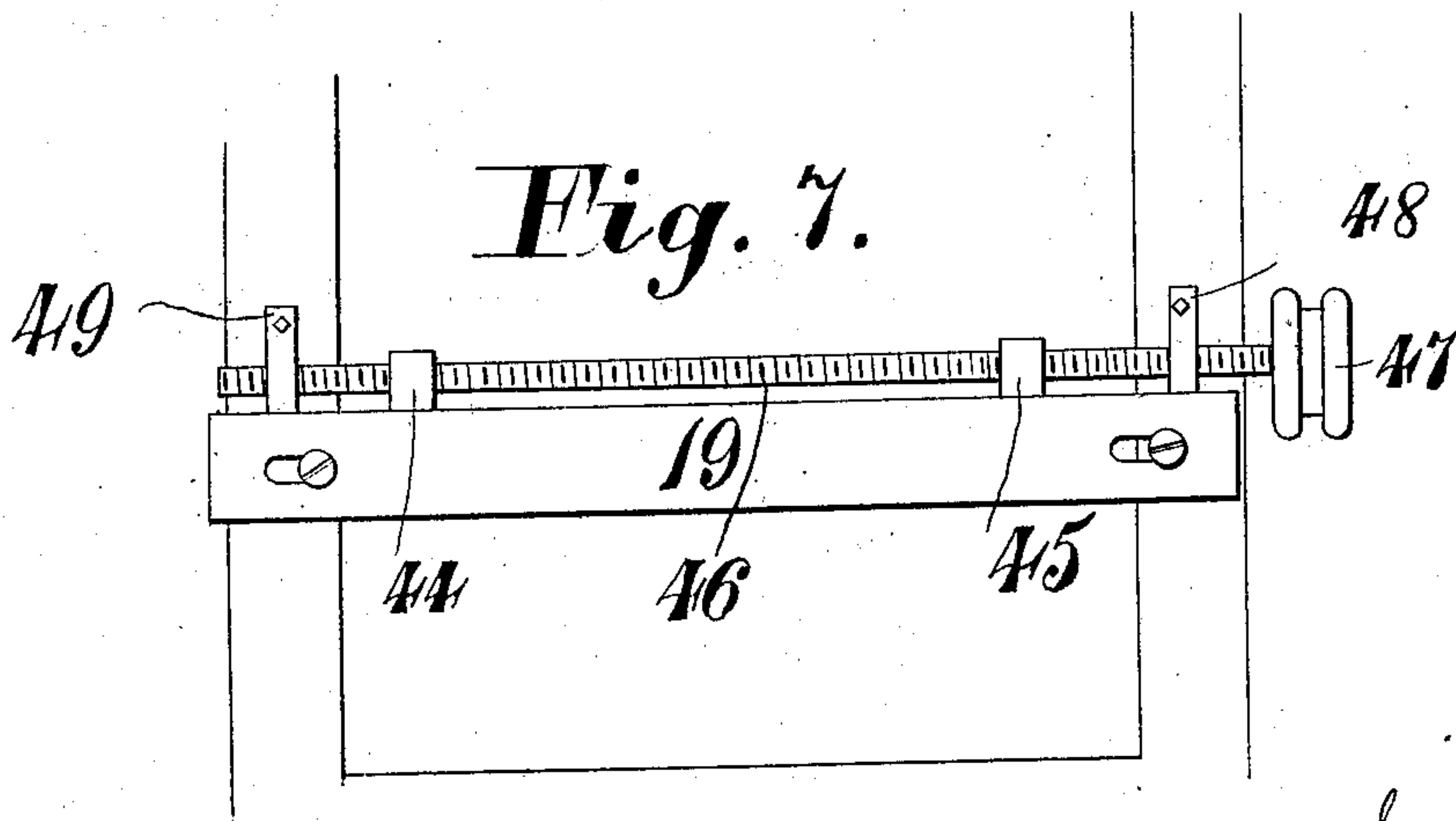


Fig. 7.

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UNITED STATES PATENT OFFICE.

CHARLES HENRY WILKINSON, OF HUDDERSFIELD, ENGLAND.

MACHINE FOR SETTING STAPLES, NAILS, &c.

SPECIFICATION forming part of Letters Patent No. 749,956, dated January 19, 1904.

Application filed May 23, 1903. Serial No. 158,528. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HENRY WILKINSON, residing at East Parade, Huddersfield, in the county of York, England, have invented
 5 certain new and useful Improvements in Machines for Setting Staples, Nails, Card-Teeth, and the Like; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to
 10 make and use the same.

The object of my invention is to set wire staples and the like in a circular or spiral arrangement, and this I accomplish by attaching
 15 the work to an adjustable revolving spindle in such manner as to bring different parts of the work successively opposite the stapling or tooth-setting device.

In applying my invention to, for example,
 20 an ordinary or other card-setting machine such as is used for fixing the wire staples to card-clothing to form the teeth therein, as employed in textile manufactures, I may mount a revolving spindle, to which the work is attached, in a bracket on a slotted sliding bar
 25 held in position on any convenient part of the machine-frame by set-screws or the like. The spindle may be caused to rotate by bevel-gearing or other suitable means driven, preferably, by spur-gearing from the front shaft
 30 or other convenient shaft of the machine.

Such being the nature and object of my said invention, I will now explain how the same may be carried into practical operation,
 35 referring to the accompanying sheets of drawings, forming a part of this specification.

Figure 1 is an elevation of such parts of the driving end of an ordinary card-setting machine as are necessary to illustrate the application of my invention thereto. Fig. 2 is an
 40 elevation of my improved apparatus, taken at the front of such a machine. Fig. 3 is a plan of a portion of same on an enlarged scale. Figs. 4, 5, 6, and 7 are details hereinafter referred to.
 45

Referring first to Figs. 1 and 2, which represent the simplest form of the invention for setting staples radially in circles, number 1 indicates the framework of the machine, 2
 50 the main driving-shaft, which operates the

usual well-known mechanism (not shown) for feeding, cutting, shaping, and delivering the wire staples into holes pricked into the work, the driving-pulley and strap being indicated by dotted lines. Number 3 is an eccentric, 55 tappet, or cam rotating with the shaft 2 and rocking the lever 4 against the resistance of the spring 5. The other arm, 6, of the lever 4 carries a pawl 7, the position of which in relation to the slot 8 in the lever-arm 6 is adjustable, 60 so that the pawl 7 may move the ratchet-wheel 9 one or more teeth, as desired. The pawl 7 is kept down to its work by a flat spring 10. The ratchet-wheel 9 is braked or kept steady by a weight 11, suitably connected to its shaft 65 or stud 12, and is prevented from running back by the lower pawl or catch 13, pressed into its teeth by spring 14. On the shaft or stud 12 is a spur-wheel 15, which drives another spur-wheel 16. The latter wheel 16 is 70 simply secured by a set-screw 17 onto the spindle 18, Fig. 2, and the wheel 15 is similarly secured onto its shaft 12. The slotted bar 19 is retained in the desired position on the machine-frame by screws 20 21 passing through 75 its slots, which allow of lateral adjustment, and this bar 19 supports brackets 22, 23, and 24, the two former carrying the spindle 18, while bracket 24 forms at its upper extremity a cup, saddle, or socket for the work-spindle 80 25 to rest upon, all these three brackets and parts in connection therewith being of course moved along with the said bar 19. Motion is communicated from the spindle 18 to the work-spindle 25 by means of bevel-pinions 26 27, 85 whereby the work, which may be, for example, a disk of india-rubber 28, Fig. 3, is rotated so as to present a fresh portion of its surface to each fresh staple 29 delivered to it by the well-known setting mechanism. In 90 machines of this type a pair of needles prick holes in the work and retire, when a wire staple is brought to the same place and inserted into the holes so pricked; but to prevent the rubber being dragged or "plucked" or following after the pricking-needles I may employ springs 30 and 31, which cover up a portion of the face of the rubber disk and offer resistance to such plucking action. The bar 39 supports the back of the disk 28 against 100

the impact of the needles. Also to prevent the work-spindle 25 from dancing I may employ a curved spring 32, pressing said spindle down into the groove or hollow formed in the socket at the top of the bracket 24, on which it rests, a small flat spring 33 projecting up from the bottom of the said bracket 24 and capable of pressing against the collar 34 on the spindle 25 if the said spindle moves forward, a flat spring 35 pressing down on the other end of the spindle, and a sliding guard-piece 36 capable of being moved to the left to bring it in contact with the spindle and there fixed by screws 37 38, (or by a wing-nut or thumb-screw,) which enter a convenient bar or plate 39, extending above the table of the machine, a guide 40 being provided at the side of said sliding piece 36. The rubber disk 28 may be attached to the work-spindle 25 by the means shown in Figs. 4 and 5—namely, a screw 41, entering the end of the spindle, which may have a small metal disk 42 at or near the end thereof, and, if necessary, a washer 43 may be added to support the rubber.

The mode of operation is as follows: The work being secured on the end of the spindle 25, the said spindle is slipped under the springs 32 and 35 till it rests in its socket with its bevel-pinion 27 in gear with bevel-pinion 26 on spindle 18. The guard-piece 36 is slid up to the spindle and fixed by its screw or screws. The bar 19 is so adjusted that the axis of the disk and spindle is at the desired distance from the point at which the staples are to be inserted. The spur-wheel 16 is adjusted on the spindle 18 so as to be in gear with the spur-wheel 15. The pawl 7 is adjusted in the slot in the lever-arm 6 so as to move the ratchet-wheel 9 one, two, three, or four teeth to each revolution of the main shaft 2 in accordance with the speed of rotation intended to be conveyed to the work-spindle 25, this depending upon the distance apart at which it is desired to set the staples, and the machine started, rotating the work so that successive parts thereof are brought opposite the setter. When the circle of staples in the disk is completed, the guard 36 can be drawn back and the work-spindle 25 slipped out from under its springs and the disk taken off. Where inner and outer rings of staples are required to be set on the same piece of work, this can also be done by the adjustment of the bar 19, as before mentioned, bringing the axis of the work-spindle nearer to or farther from the point of setting. If it be desired to set the staples following the circumference of the circle, forming chords of small arcs instead of radially, as above described, the top or bottom of the disk instead of one side will require to be brought opposite the staples, which are delivered in a horizontal position, and therefore the slots for the adjustment of the bar 19 will require to be vertical, as shown in Fig. 6, instead of horizontal. Should the

vertical movement be sufficient to interfere with the proper engagement of the wheels 15 and 16, the latter can easily be removed from its spindle 18 and replaced by a slightly larger or smaller wheel, as may be necessary. 70

Fig. 7 shows another modification. To set the teeth or staples in a spiral or helical arrangement, the bar must be slowly moved while the setting is proceeding, this of course necessitating at least one of the wheels 15 or 16 being sufficiently broad to drive at all points of the movement of the latter. In this case the bar 19 is provided with eyes 44 45, through which passes a screw-threaded rod 46, operated by a pulley 47, and working through screw-threads in bearings 48 and 49 on the machine-frame, so that, the screws 20 21 being slackened, by turning slowly the said pulley the bar can be traversed in either direction. The eyes 44 45 may, if preferred, be screw-threaded, and the bearings 48 49, with the portion of the rod 46 passing through them, may be plain, so that the rod 46 keeps the same position and the bar travels along the rod. The pulley 47 may be turned by hand or be automatically driven by a strap from any convenient rotating part of the machine, the size of the pulley 47 and of its driver being so arranged as to obtain the necessary slowness of motion. 80 85 90 95

This invention is especially useful in setting wire staples in boot-heels, washers, and the like, but can also be used for setting nails and other metallic fastening or strengthening devices to various articles. 100

I claim as my invention—

1. In a machine for setting or fixing staples, nails, card-teeth, and the like, the combination therewith of a revolving spindle to which the work is attached, such spindle being carried on a slotted bar capable of moving endwise and of being adjusted when the axis of rotation of the work-spindle is at the required horizontal distance from the point of setting, for purposes described. 105 110

2. In a machine for setting or fixing staples, nails, card-teeth, and the like, the combination therewith of a revolving spindle to which the work is attached, such spindle being carried on a slotted bar capable of moving vertically and of being adjusted when the axis of rotation of the work-spindle is at the required distance above or below the point of setting, for purposes described. 115

3. In a machine for setting or fixing staples, nails, card-teeth and the like, the combination therewith of a revolving spindle to which the work is attached, and means for traversing such spindle gradually during setting, for purposes described. 120 125

4. In a machine for setting or fixing staples, nails, card-teeth and the like, the combination therewith of a revolving work-spindle 25, and means for rotating such spindle, comprising eccentric 3, lever-arms 4 and 5, pawl 7, ad- 130

justable in lever-arm 6, ratchet-wheel 9, spur-wheels 15, 16, and bevel-pinions 26, 27, for purposes described.

5 In a machine for setting staples, the combination, with a work-spindle provided with a work-holder, of a support for the said spindle, means for adjusting the said support to place the axis of the said spindle at the required distance from the point of setting, and
10 driving mechanism which revolves the said spindle step by step.

6. In a machine for setting staples, the combination, with a work-spindle provided with a work-holder, of a support provided with a

cup-shaped socket in which the said spindle 15 rests, a spring for holding the said spindle in engagement with the said socket, means for adjusting the said support to place the axis of the said spindle at the required distance from the point of setting, and driving mechanism 20 which revolves the said spindle step by step.

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

CHARLES HENRY WILKINSON.

Witnesses:

ERNEST PRIESTLEY NEWTON,
ERNEST LOCKWOOD.