

No. 881,981.

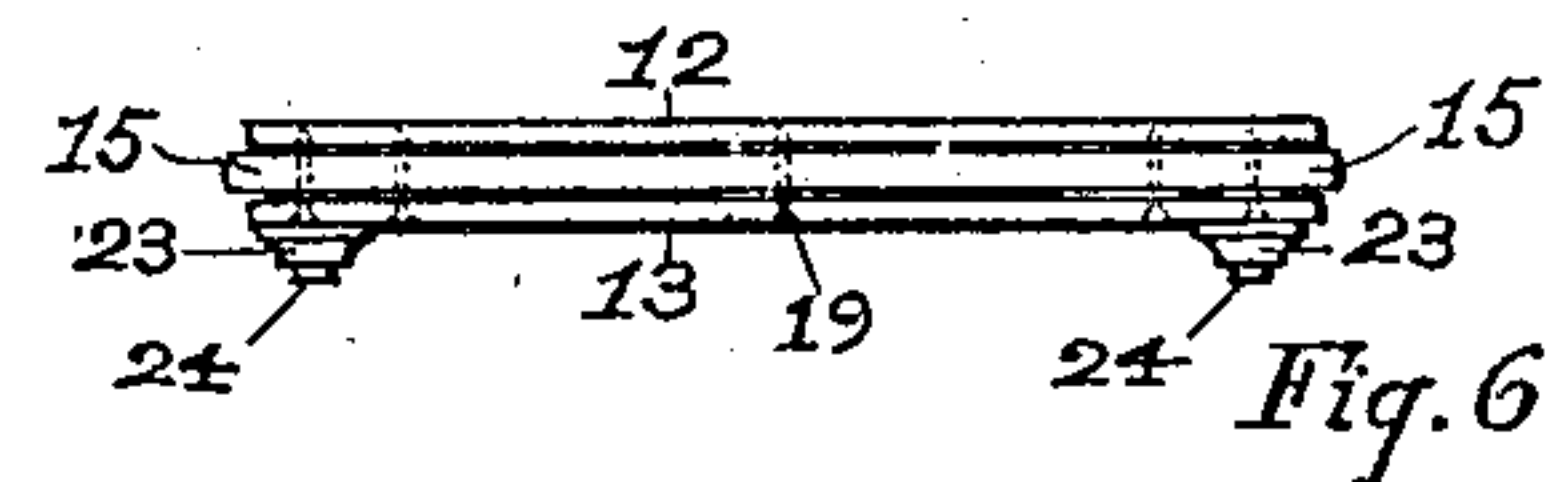
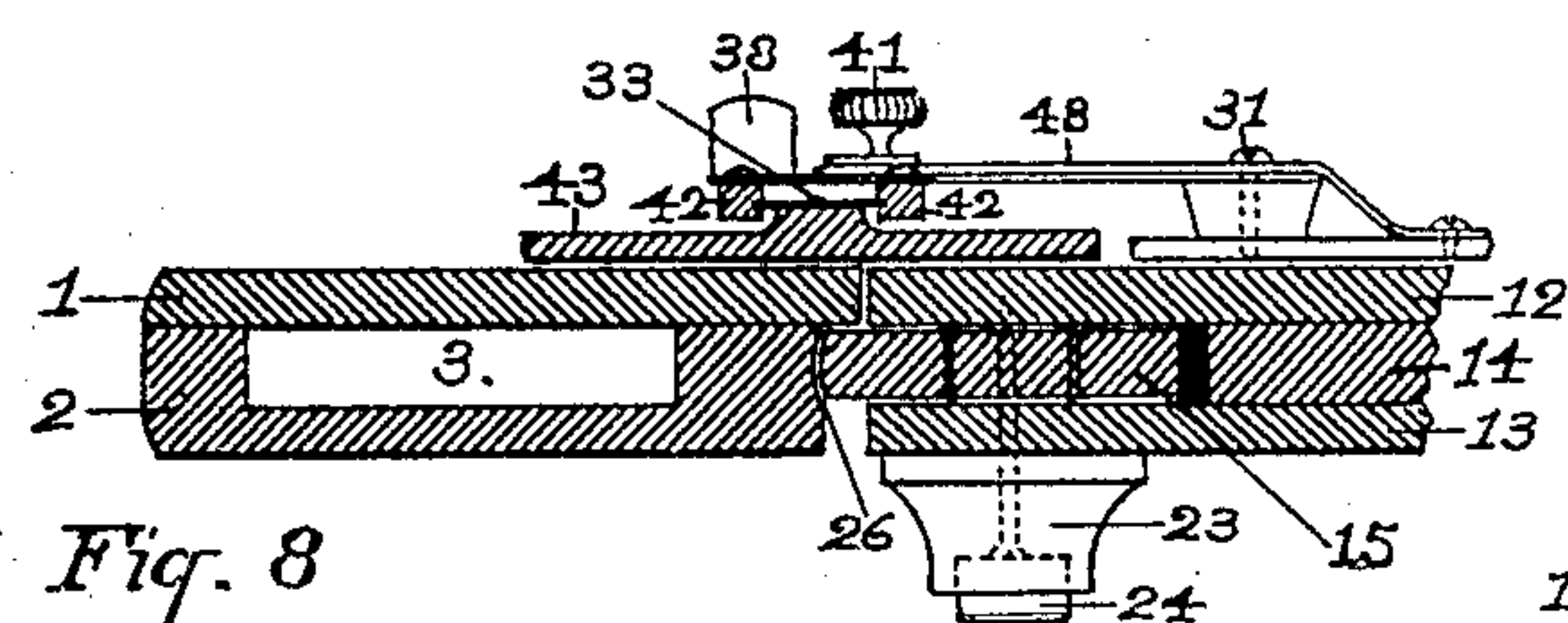
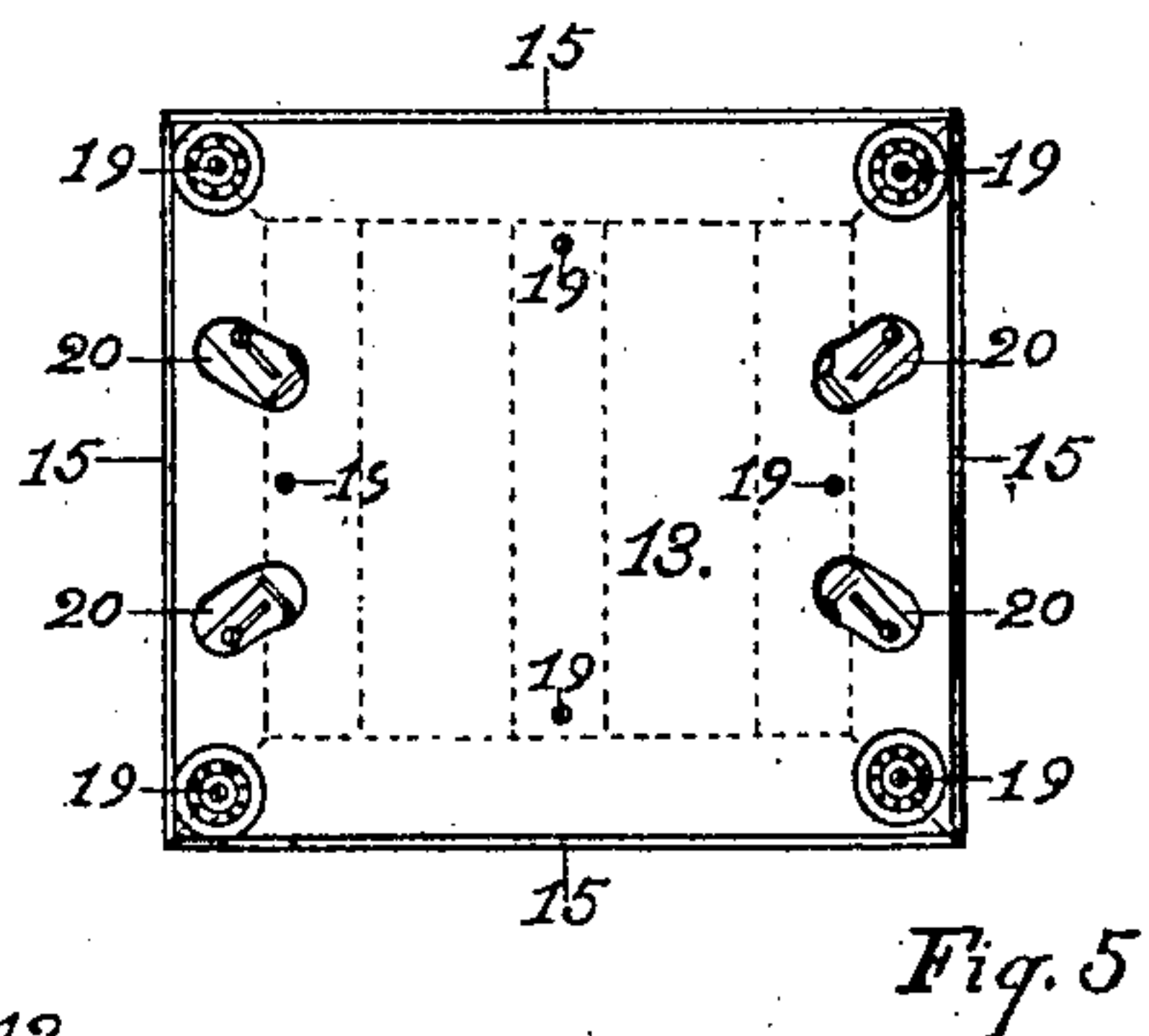
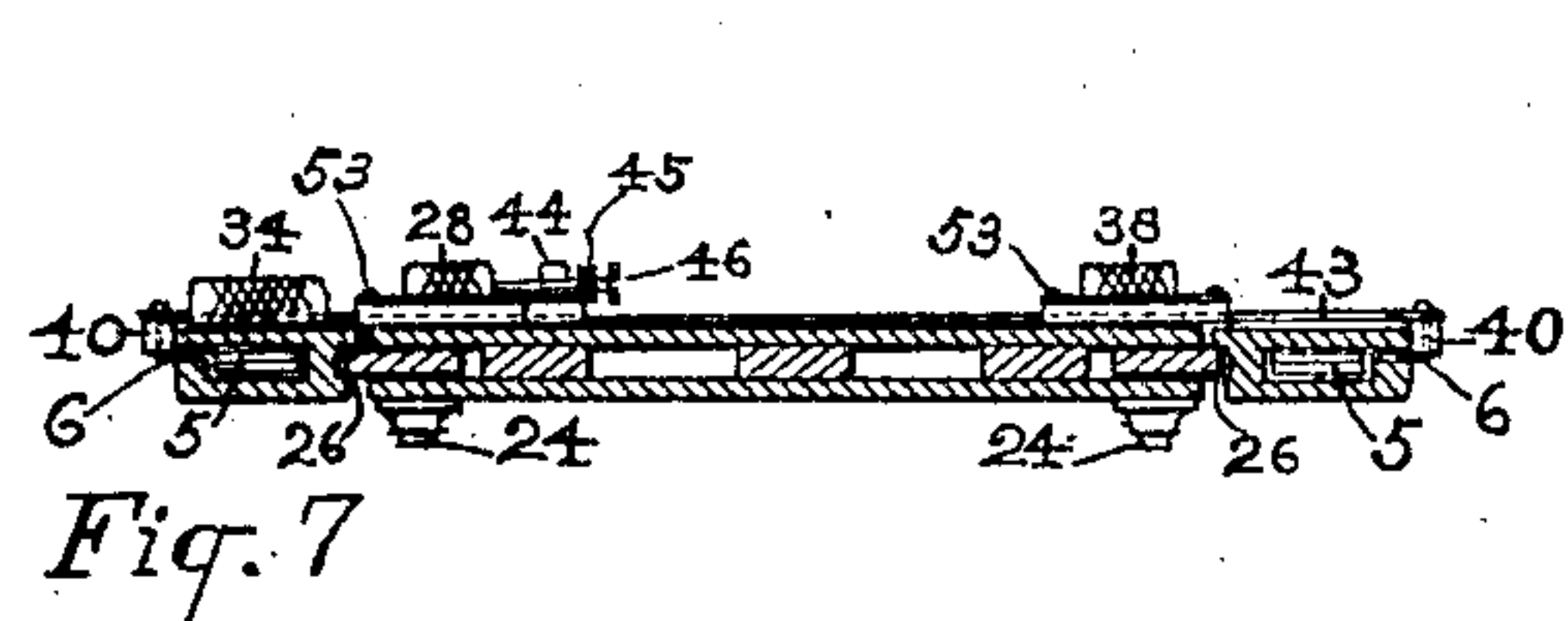
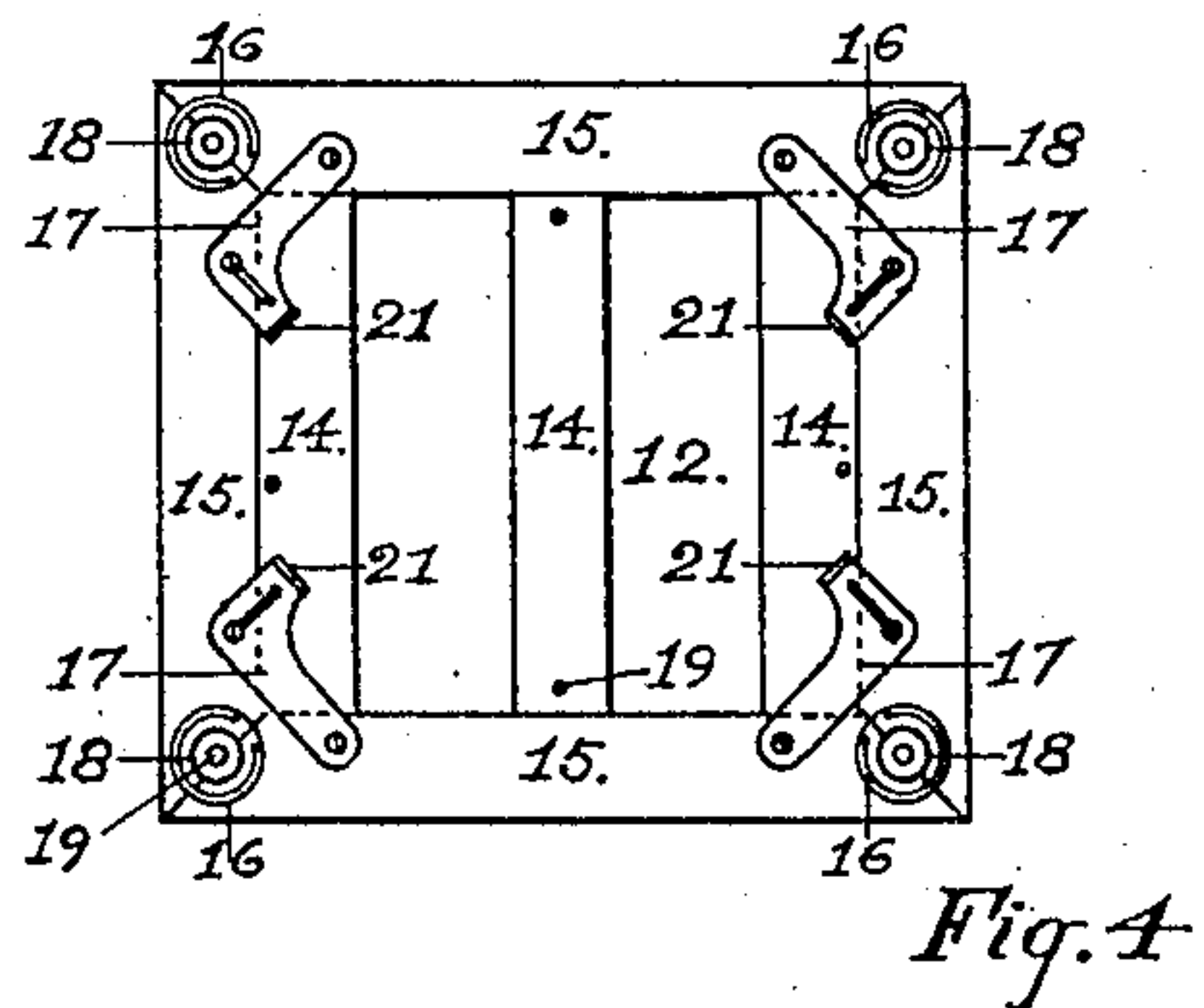
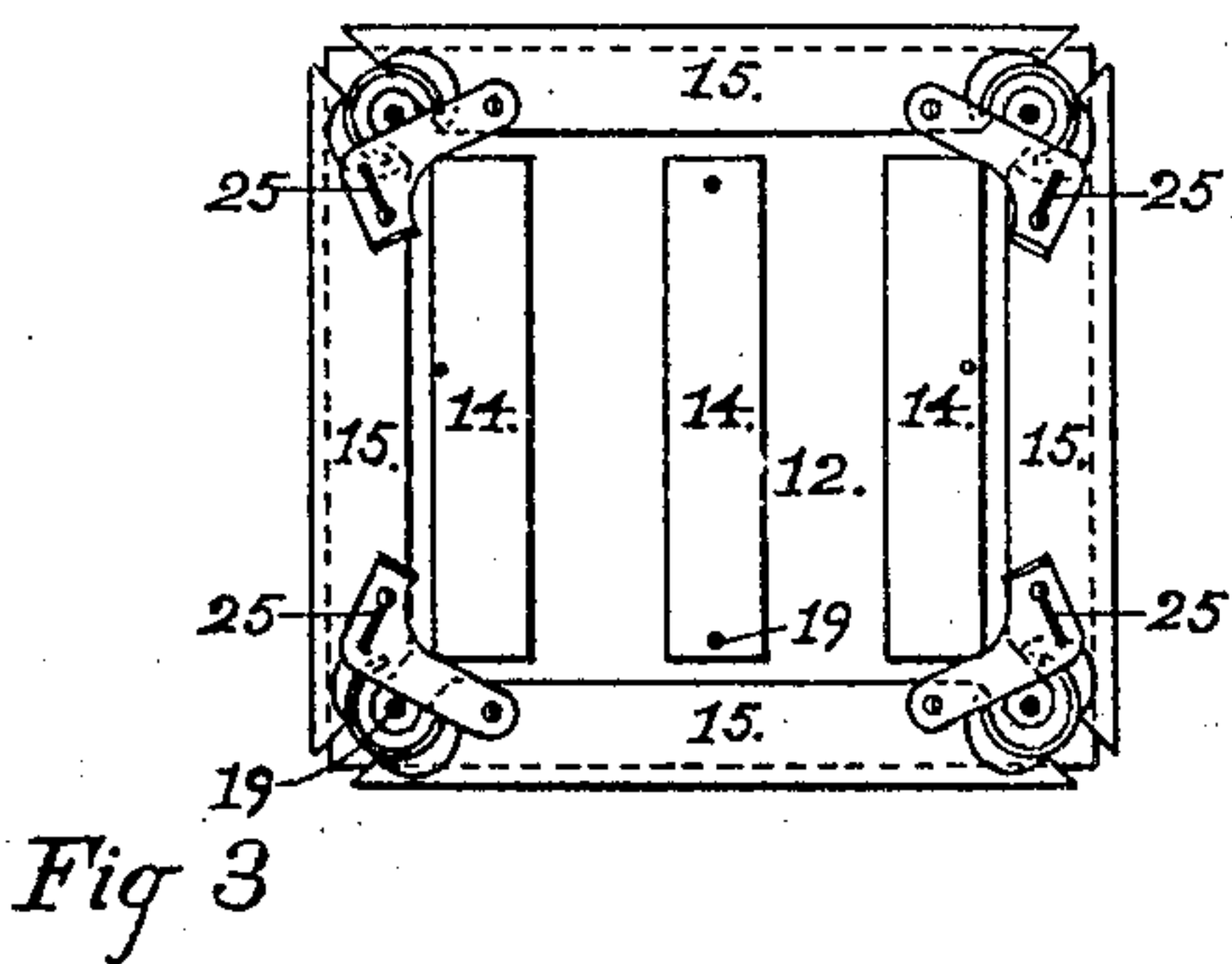
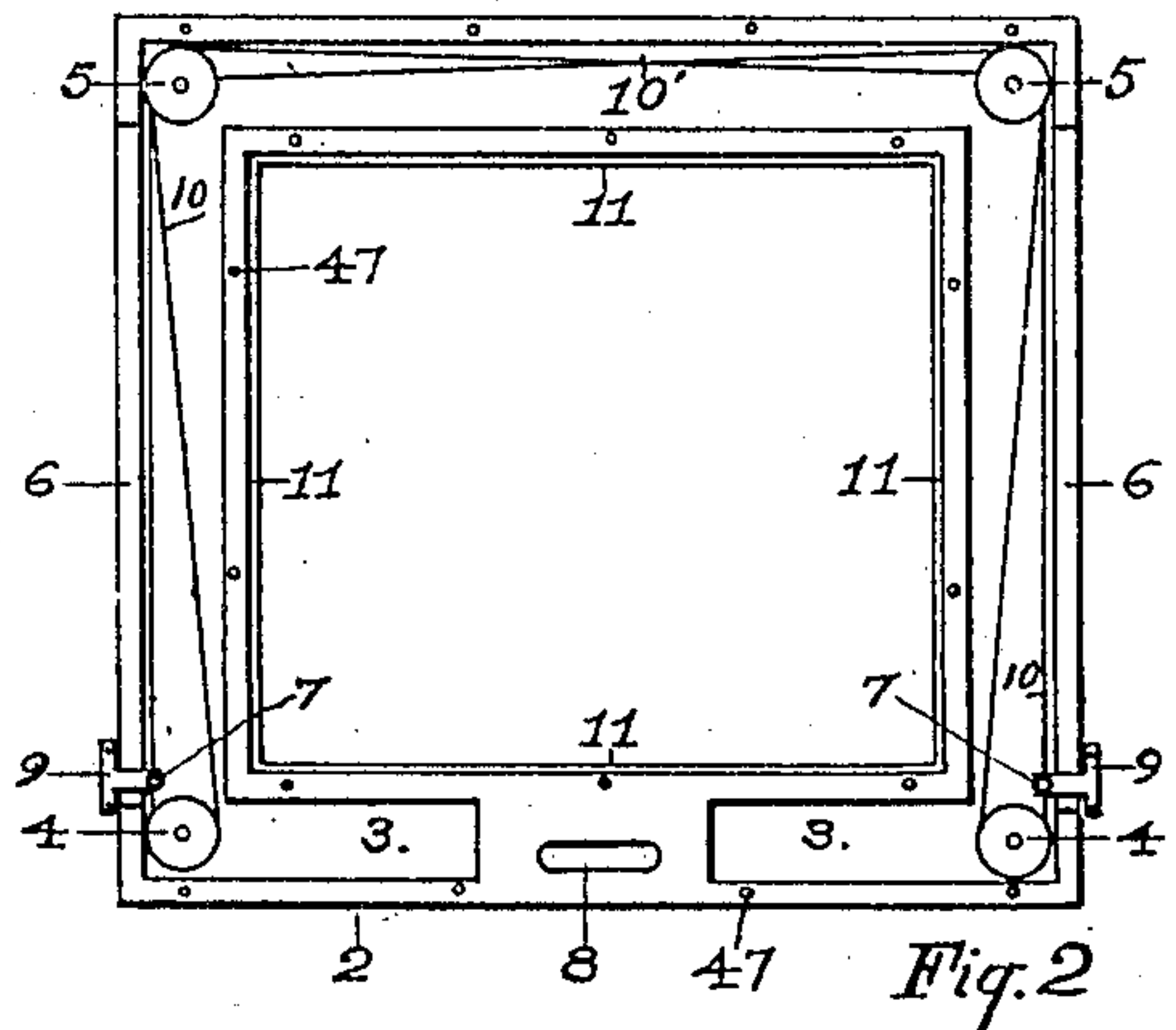
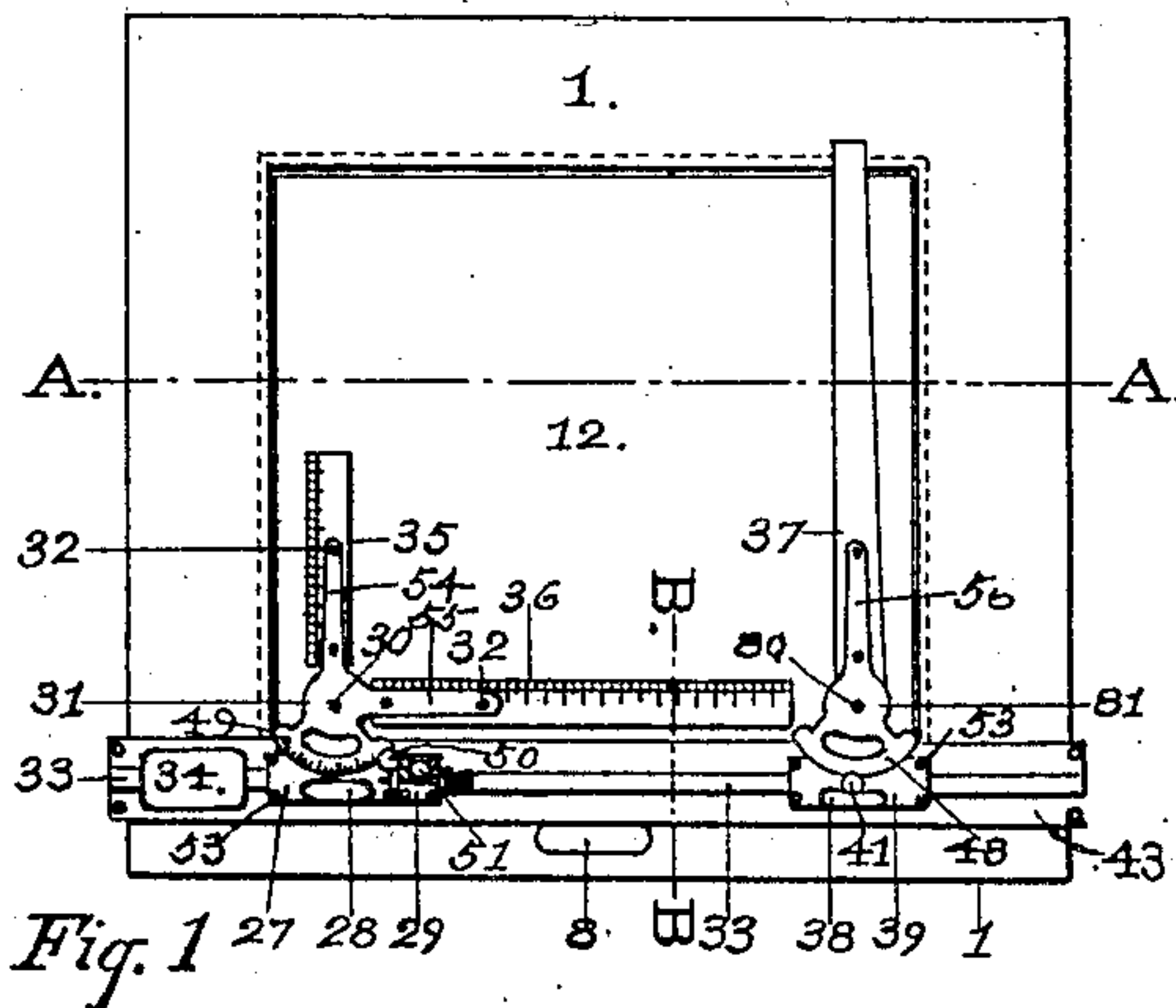
R. D. WATSON.

PATENTED MAR. 17, 1908.

DRAFTING DEVICE.

APPLICATION FILED MAY 21, 1906.

2 SHEETS—SHEET 1.



Witnesses

Robert B. Wilson
Geo. P. Greenhalgh

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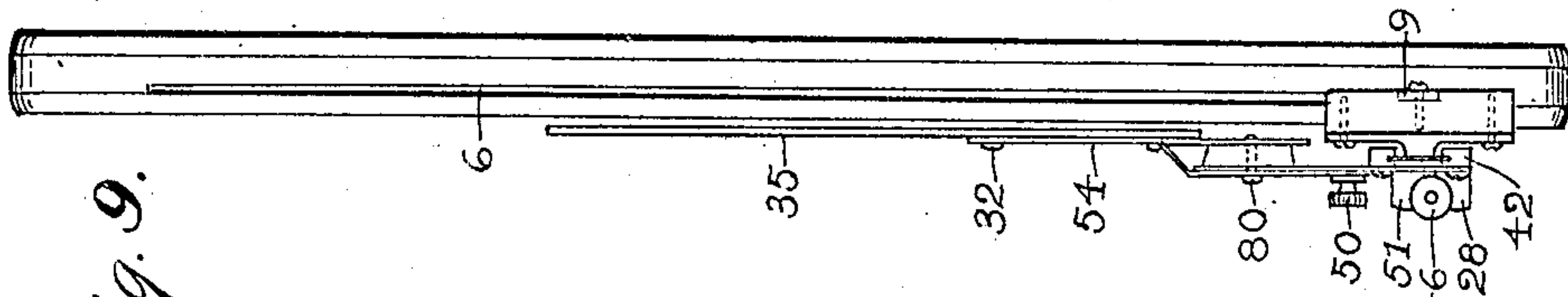


Fig. 9.

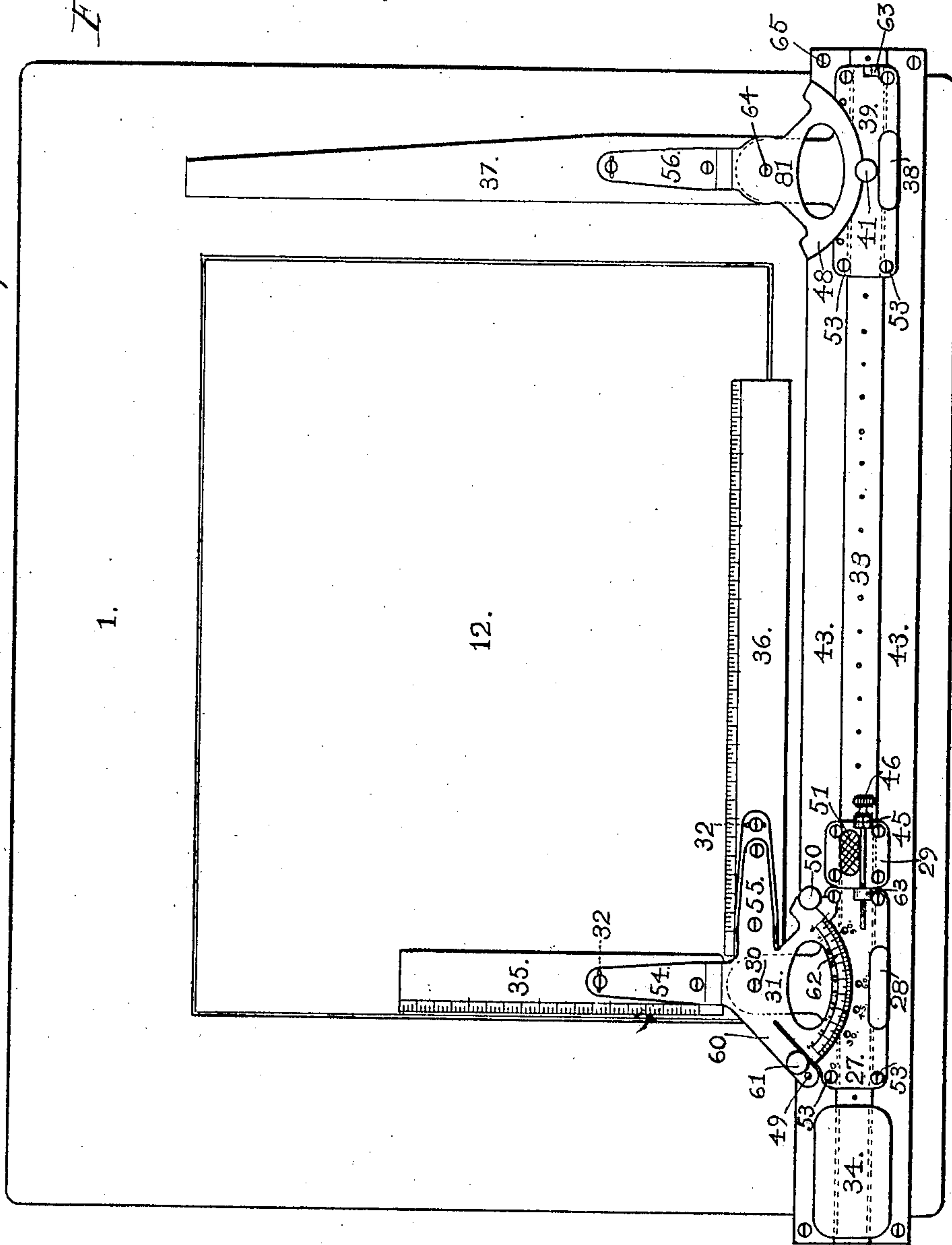


Fig. 10.

Witnesses.
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UNITED STATES PATENT OFFICE

RICHARD DAVID WATSON, OF TOLEDO, OHIO.

DRAFTING DEVICE.

No. 881,981.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed May 21, 1906. Serial No. 317,880.

To all whom it may concern:

Be it known that I, RICHARD DAVID WATSON, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented a new and useful Improvement in Drafting Devices, set forth in the annexed specification.

My invention relates to drafting devices in which is a combination of parts into a unit device, and the objects of my invention are: first, to provide the means to stretch the fabric without the use of paste or thumb tacks and in a better and easier manner than by their use; second, that the drafting board shall be the means; and third, to provide a positively horizontal and movable straight-edge combined with all the needed appliances to measure, space and draw all straight lines, either horizontal, vertical or at any angle, purposely to eliminate the delays and annoyances of picking up and laying down, as is necessary in handling separate parts. I attain these objects by the mechanism shown in accompanying drawings, in which;

Figure 1, is a plan view of the entire device, Fig. 2, is a plan view of the inside construction of the outer frame; Fig. 3, is a plan view of the inside construction of the combined drafting board and fabric stretcher as when expanded; Fig. 4, is the same as when contracted; Fig. 5 is a back of same when completed by the assembling of housing-board; Fig. 6, is an edge view of same; Fig. 7, is a sectional view on line "A A." Fig. 8, is a partial section on line "B B." (enlarged scale); Fig. 9, is an edge view of the entire device on enlarged scale; Fig. 10 is a plan view of entire device on enlarged scale.

Similar numerals refer to similar parts throughout the several views.

The outer frame consists of top section 1 and bottom section 2, (see Fig. 2) hollowed at 3 to contain single pulleys 4 and double pulleys 5. Over pulleys 5 and around pulleys 4, is stretched continuous cable 10, which is crossed at point 10' to cause a travel in the same direction at opposite points 7—7, where connections 9—9 are securely fastened to cable. A portion of the outer flange 6 is cut away to provide a clear passage in which 9—9 can travel back and forth when 1 is screwed to 2 at points as 47, and with the hand hold 8 cut through completes the outer frame.

The expansible and contractible frame 15 with the springs 16 seated therein and the

take-up locks 17 adjusted thereon is placed on drafting-board 12, as shown in Fig. 4. The separating strips 14 and the bosses 18 are a little thicker than frame 15 and are securely fastened to 12. The housing-board 13 with the openings 20 cut therein is placed squarely with 12 resting on strips 14 and bosses 18 and screwed thereto at points as 19 and with the rests 23 and the projecting cork, leather or other soft material plugs 24 completes the combined drafting-board and fabric stretcher.

The straight-edge 43 is fastened to connections 9 by screws 65 at a position parallel with the horizontal edges of 12; centrally its entire length is a raised portion on which is securely fastened thin metal guide track 33 projecting laterally (see Fig. 8) sufficient to insure clearance of the guides 42 from the straight edge 43 to insure easy and regular movement horizontally. The guides 42 are grooved to receive the edges of 33 and are secured to 27 by screws 53 through slotted holes to admit of adjustment to wear and to prevent lateral play. Pivoted to 27 at 30 is extension 31 consisting of arms 54, 55, 60 and graduated quadrant 62; and to the arms 54—55 are screwed the graduated drafting rules 35, 36, the holes 32 being slotted to admit of alinement of 36 with 43 and adjustment of 35—36 at right angles to each other. The arm 60 is flexible vertically and can be raised by knob 61 thus disengaging the pin 49, which is rigid in said arm, from holes in 27 marked "0, 30, 45, 60 and 90 degrees", which are the common angles at which stops are thus automatically secured; other angles are read at register mark at right and secured by thumb screw 50. Carrier 27 is handled by 28; 63 is securely fastened to 27 and is threaded to receive micrometer screw 46.

29 has a finger rest 51, by which it is operated, also guides similar to 42 differing in that they rest upon the straight-edge 43 to cause friction under pressure.

45 securely fastened to 29 has a hole centrally, through which freely passes the micrometer screw 46 the head of which registers quarter turns with register mark on 45 and when screwed up to bring 27 and 29 to contact register marks read "0" which is the normal position.

To operate the spacer; from the normal position, as described, unscrew the screw 46 as many fractional or whole turns as equals the required space, that is to say in case

screw 46 has 24 threads to one inch and it is desired to draw lines one-twelfth of an inch apart, then two whole turns of the screw equals the required space; now bring the drawing rule in position and with the weight of the hand resting on handle 28 draw line one, now move stop plate 29 to the right that is, away from plate 27, as far as connecting screw 46 will permit, now with the weight of the hand with the index finger resting on finger-rest 51 move 27 to contact with stop plate 29 which will bring drawing rule in position and with the weight of the hand again resting on 27 draw line two, and repeat until the whole number of required lines are spaced and drawn. Again suppose the desired space is one quarter of one inch; from the normal position unscrew 46 six whole turns, which equals the required space, and proceed as described. Again suppose the required space in one half of one inch, then with the adjustment as for quarters of an inch, as described, it is only necessary to draw a line at every other spacing, and for three quarters of one inch spacing, to draw a line at every third movement, and so on with any desired number of spaces to one inch that are a multiple of 12. A micrometer screw of multiple of twelve threads to the inch, would be used for architectural and mechanical drafting and with a multiple of ten to the inch for engineers. Carrier 27 with its equipment is used to do the drafting in pencil, and can be moved from 33 by sliding off at either end and substituted by 39 for use in inking all vertical and angular lines; 43 is used in inking all horizontal lines and is handled by 34 which is grooved to slide on and along guide track 33 to any desired point. Carrier 39 with handle 38, guides 43, extension 81 pivoted at 64 and having arm 56 to which is screwed plain drawing blade 37, and with plain quadrant 48 secured at vertical and angular positions by thumb screw 41 and threaded portion 63 to receive micrometer screw 46 is used for inking all vertical and angular lines.

The initial step in operating is stretching the fabric, and is as follows: Cut the fabric one inch larger all around than the drafting-board 12 and cut one inch square from each of its corners and wet its entire surface in the usual manner, and with the drafting-board in position as shown in Fig. 6 and expansible and contractible frame 15 contracted as shown in Fig. 4, place the fabric evenly upon and projecting equally over the edges of 12. Bend the projections down, forming a crease and place the outer frame opening registering with the crease, press it down until stopped by the edge of frame 15, push the take-up locks 17 outward, which allows springs 16 to spread and expand frame 15, seating its rounded edge into the hollowed seat in the outer frame 2 which holds and

clamps the fabric in the form of the joint 26 Fig. 8. To release the outer frame, contract the frame 15 by pushing the take-up locks 17 inward and lift the outer frame from the fabric; when, if a tracing is desired, cut and place the tracing fabric the same and over the drawing fabric; replace the outer frame, expand the flexible frame 15 as before, when the two fabrics will be clamped and held in the proper relative position for the purpose of tracing.

My device may be mounted on a pedestal and in that way, the bearings 23—24 would be dispensed with.

What I claim as new and desire to secure by Letters Patent is:—

1. In a drafting device, the combination of a hollow drafting board, a mitered frame loosely mounted partly within and partly projecting beyond the edges of the hollow frame, expanding springs connecting the corners of and adapted to expand the mitered frame, take-up locks secured across the joints of the mitered frame adapted to contract, lock or release the springs, and an outer frame adapted to be mounted on and around the drafting board, and to be engaged and held or disengaged by the mitered frame, substantially as set forth.

2. In a drafting device, the combination of a drafting board, comprising the board 12, the members 15, the springs 16, the take up locks 17, and the housing board 13, with an outer frame adapted to be engaged and disengaged by the drafting board, substantially as and for the purpose set forth.

3. In a drafting device, the combination of a hollow outer frame provided with slotted side edges, pulleys secured and housed within the hollow outer frame, a continuous cable mounted on the pulleys, and housed within the outer frame, said cable having side portions adapted to move in unison back and forth within the outer frame parallel with the slotted side edges, connectors fixedly and oppositely secured to the parallel side portions of the cable and projecting outward through the slotted side edges of the frame, a straight edge fixedly secured to the connectors across the outer frame at right angles to the slotted side edges, and a drafting board adapted to be mounted within and engage and hold or disengage the outer frame, substantially as set forth.

4. The combination in a drafting device of a horizontally controlled straight edge with a centrally raised part, a thin flat metal strip permanently fastened upon the raised part and projecting over the edges of the same parallel with the edges of the straight edge, a carrier movably mounted upon the metal strip with guides adjustable to wear and adapted to engage the projecting edges of the metal strip and move thereon free from contact with the straight edge with a

minimum of friction without lateral play and in a straight line by the guidance of the metal strip, an extender permanently pivoted to the carrier plate, drawing rules adjustably secured to the extender and means to set and secure said rules from one to any other desired position relative to the straight edge substantially as set forth.

5
10
15
20
5. The combination in a drafting device, of a horizontally controlled straight edge with a centrally raised part, a thin flat metal strip permanently fastened upon the raised part and projecting over the edges of the same parallel with the edges of the straight edge, a carrier plate movably mounted upon the metal strip with guides adjustable to wear and adapted to engage the projecting edges of the metal strip and move thereon free from contact with the straight edge with a minimum of friction without lateral play and in a straight line by the guidance of the metal strip, an extender permanently piv-

oted to the carrier plate, drawing rules adjustably secured to the extender and means to set and secure said rules from one to any desired position relative to the straight edge, a stop plate having adjustable guides for wear and alinement by the projecting edges of the metal strip said guides resting on the straight edge to cause sufficient friction under downward pressure to prevent slipping when carrier plate is brought to contact with stop plate, a screw adapted to connect the carrier and stop plates and determine and regulate the distance of movement of the drawing rules substantially as and for the purpose set forth. 25 30 35

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses, this 18th day of May, 1906.

RICHARD DAVID WATSON.

In presence of—

ROBT. B. WILSON,

GEORGE P. GREENHALGH.