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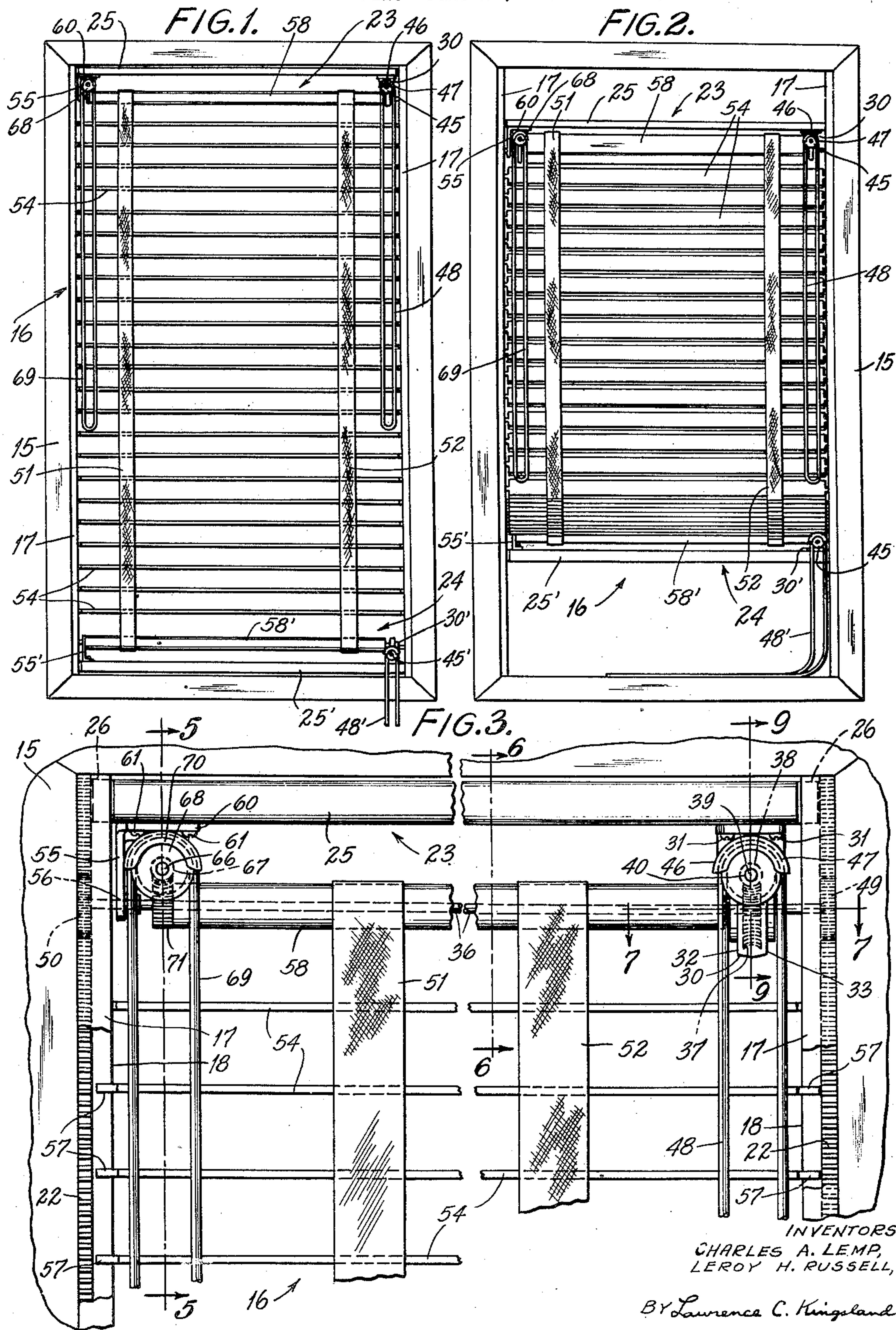
C. A. LEMP ET AL

2,184,098

VENETIAN BLIND

Filed June 24, 1937

2 Sheets-Sheet 1



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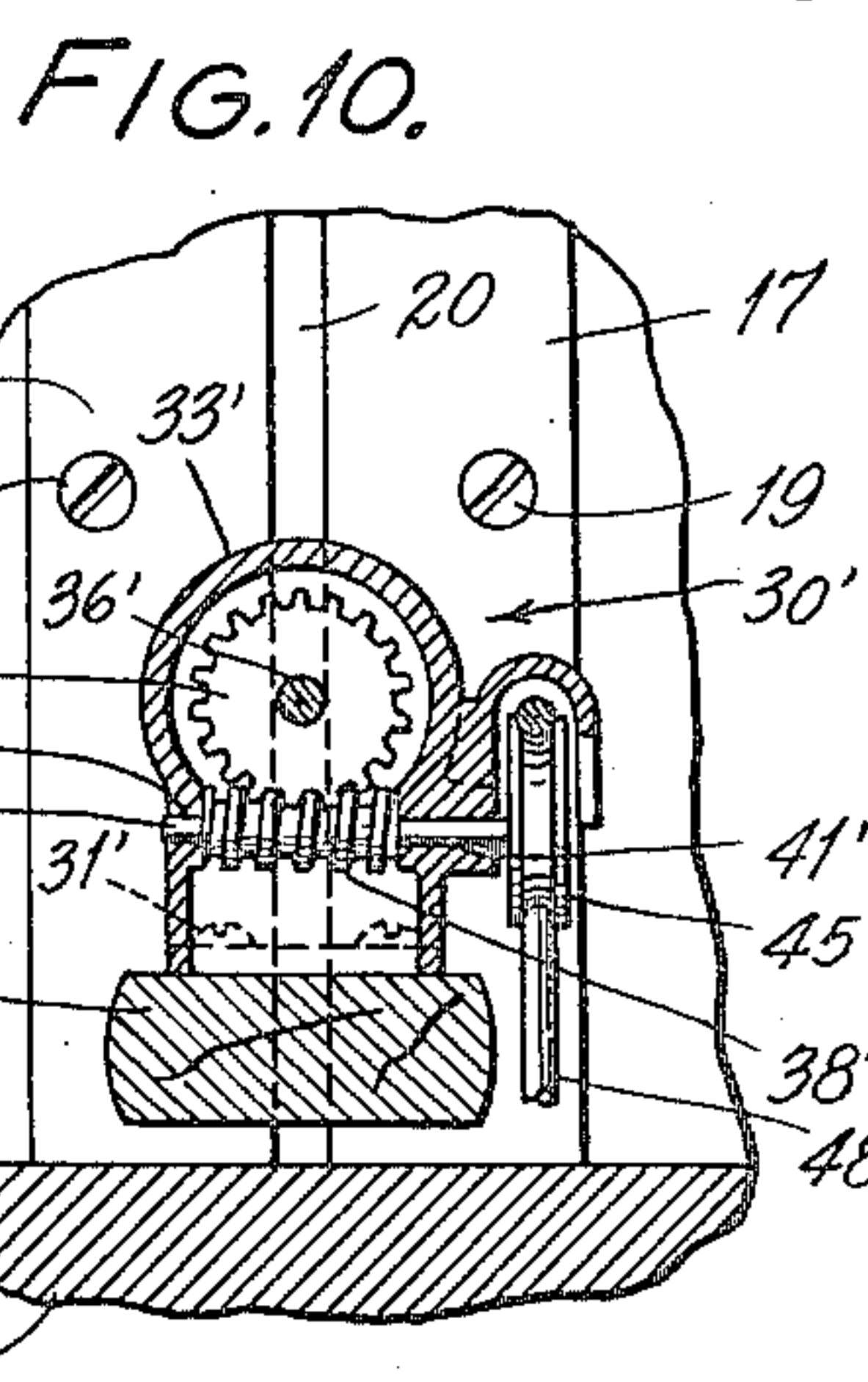
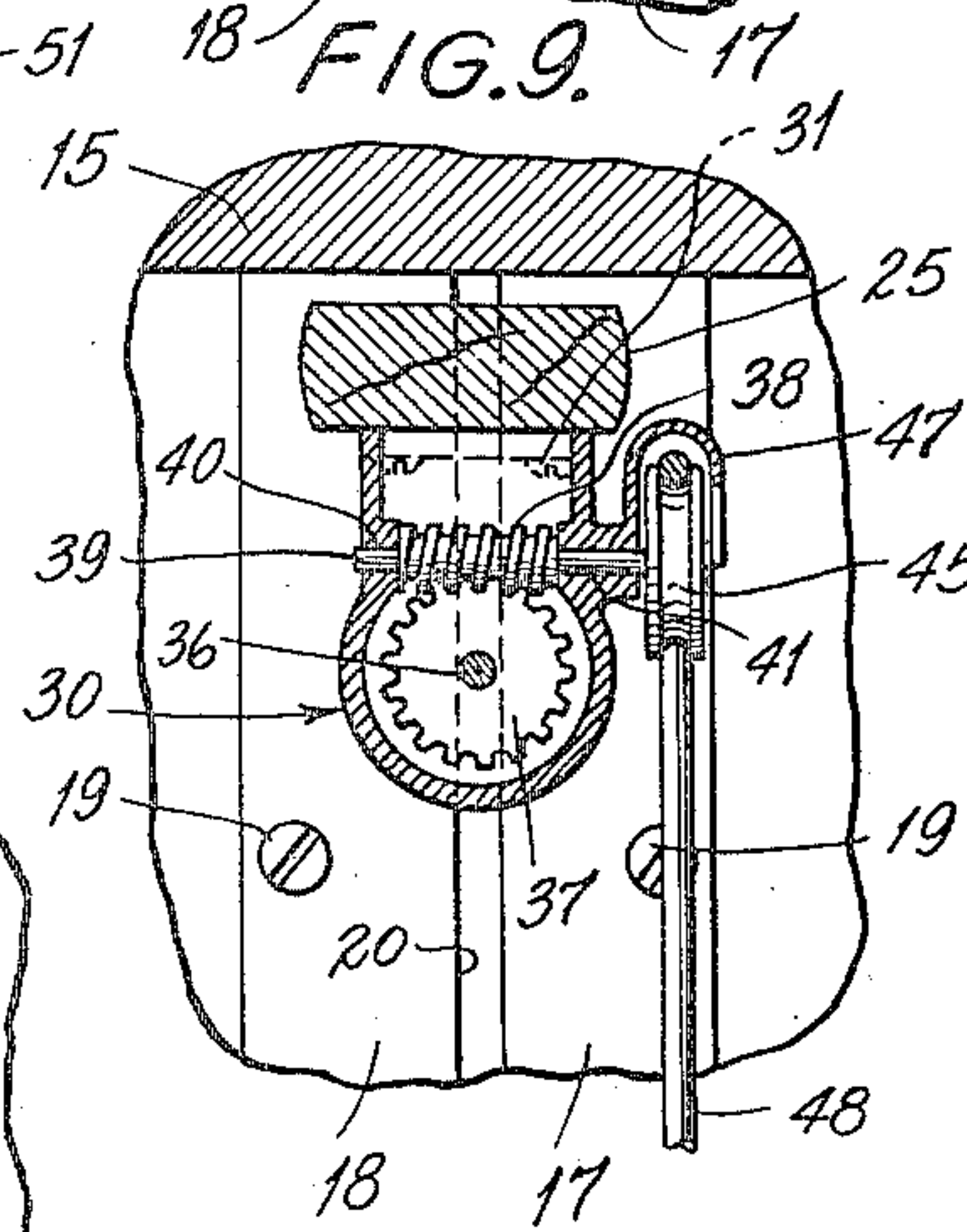
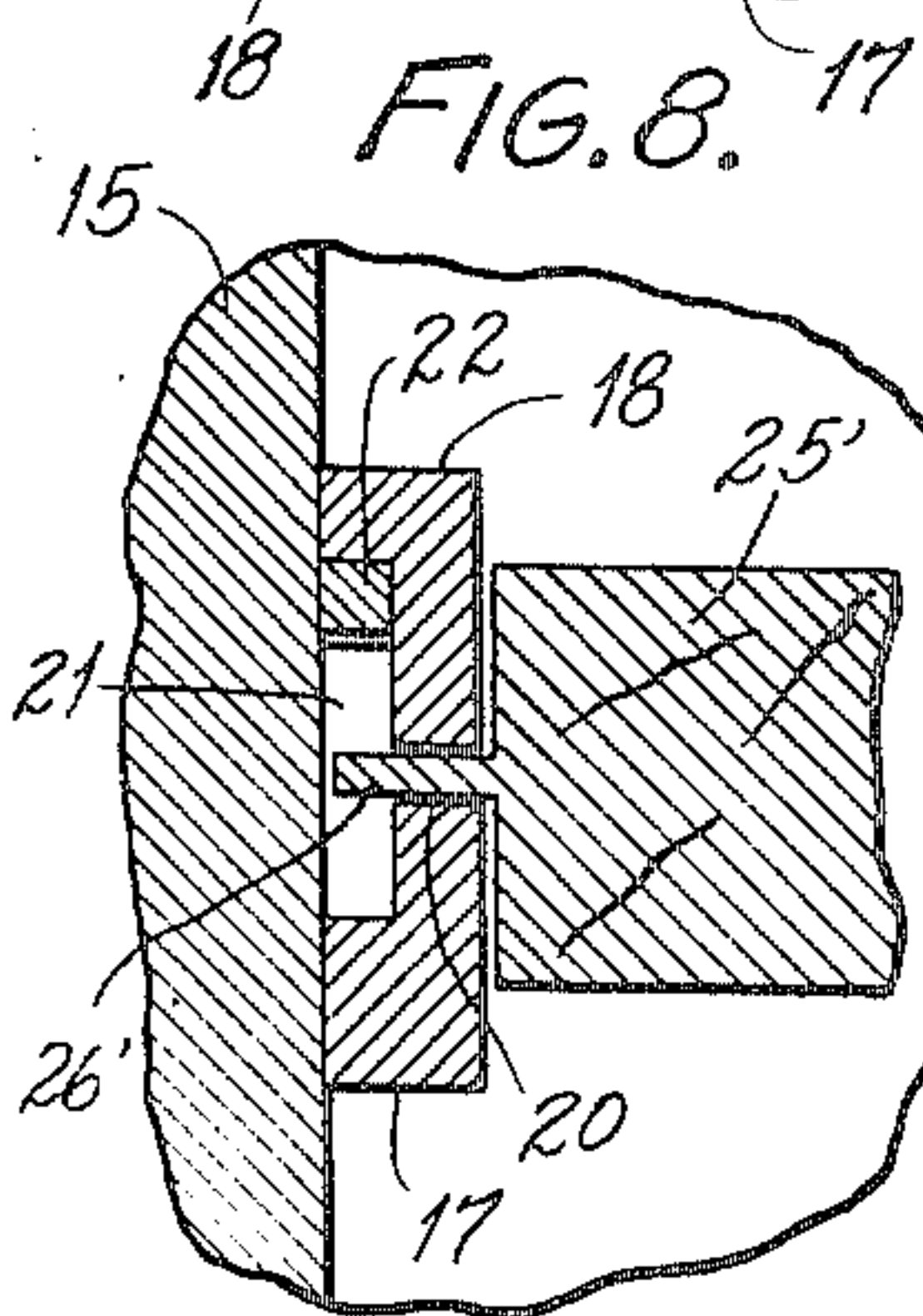
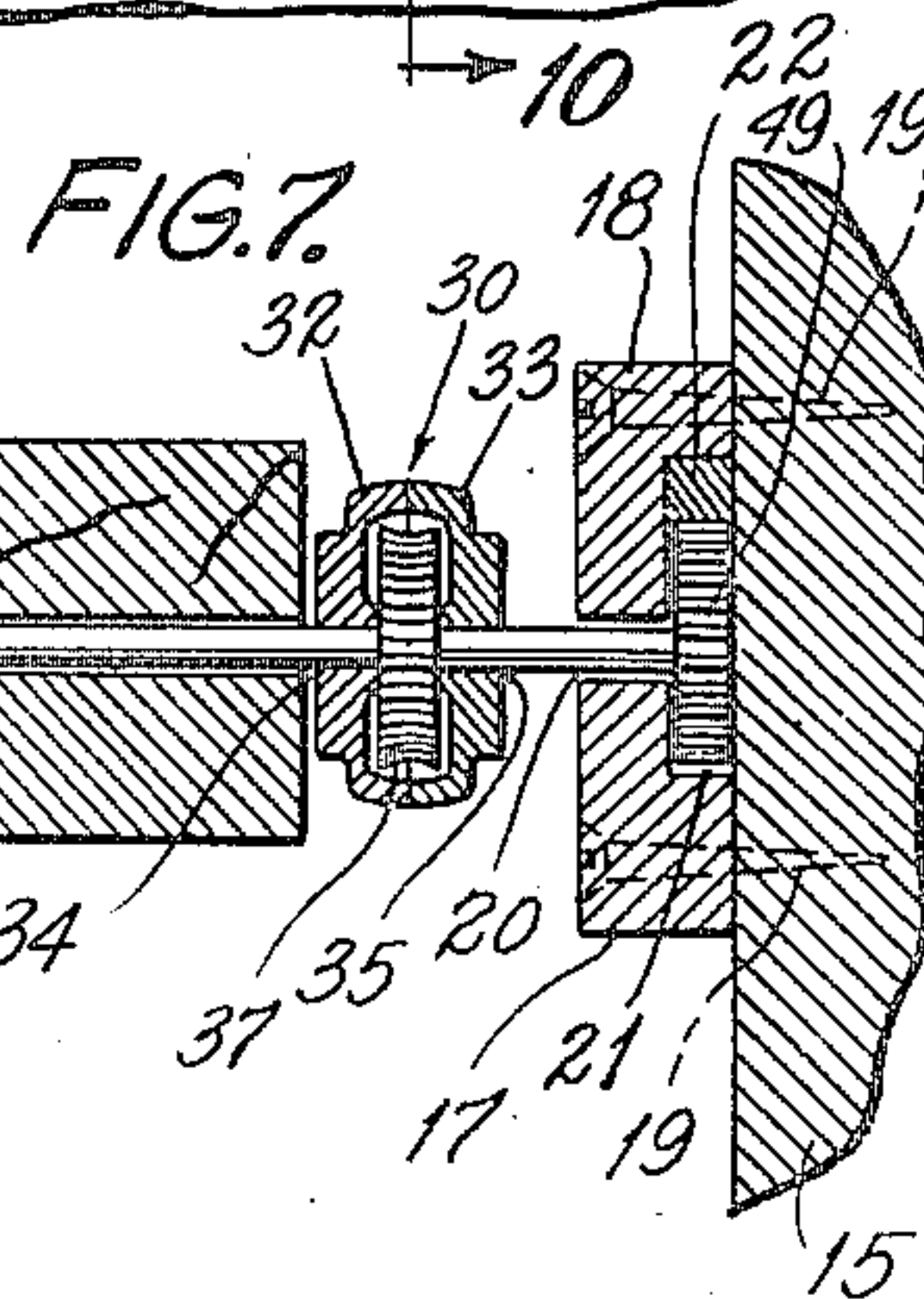
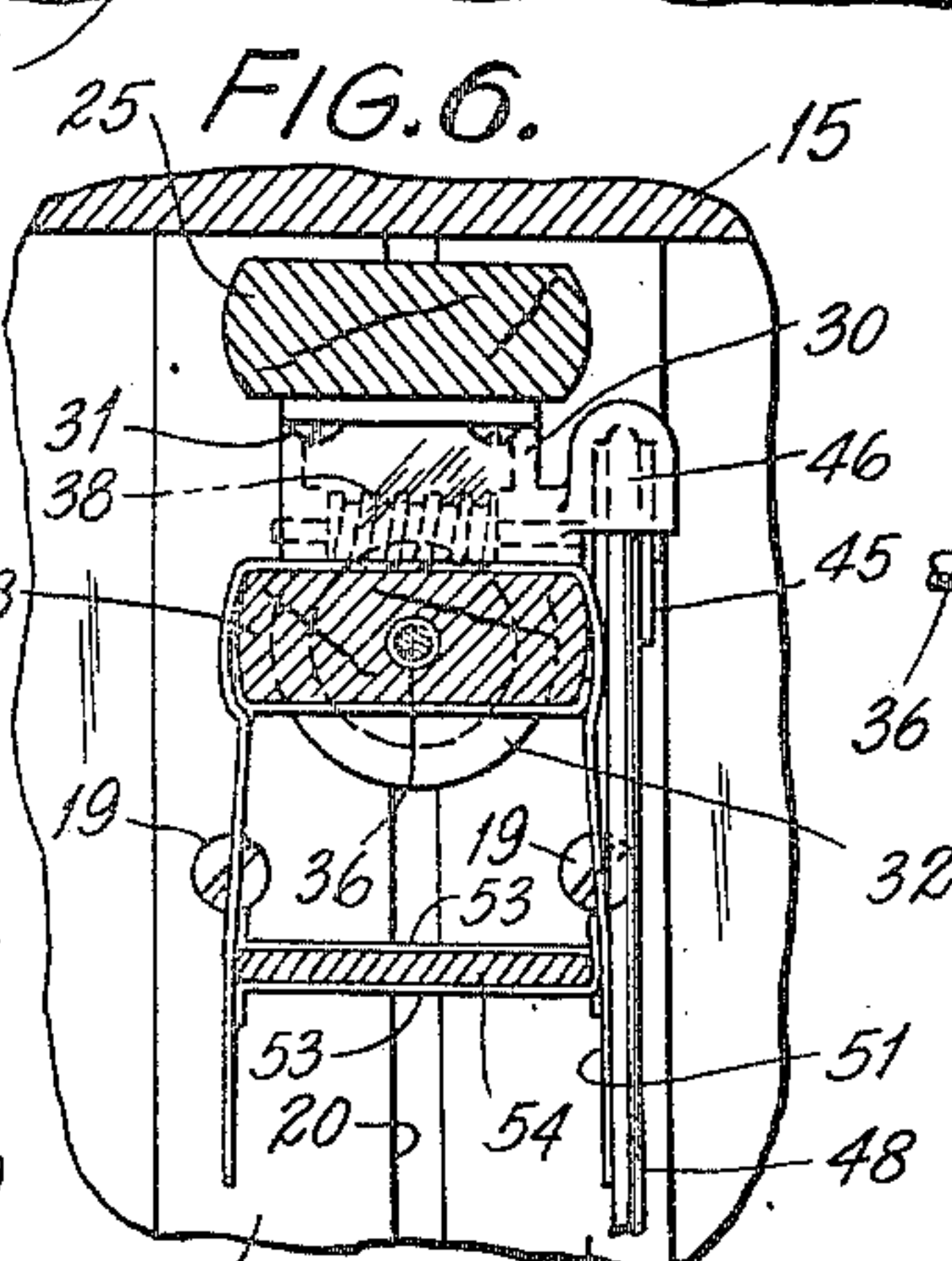
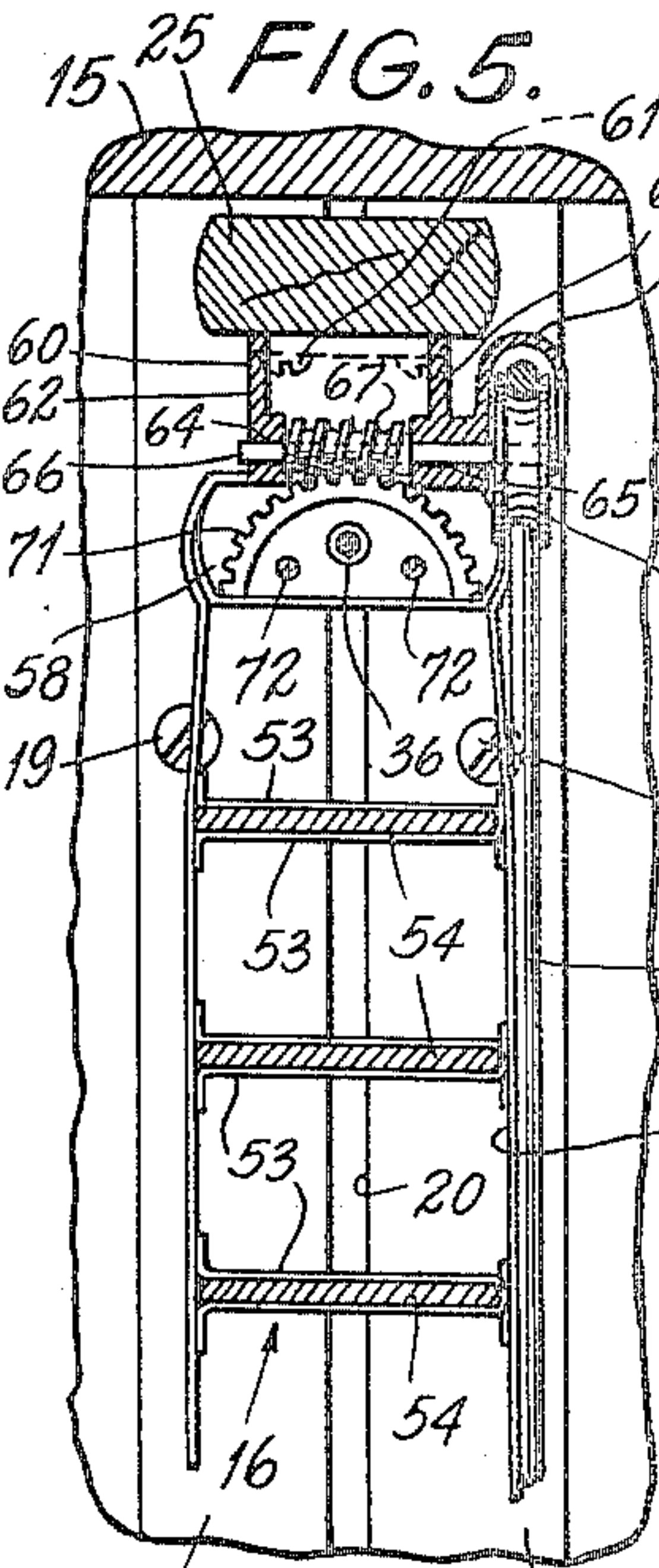
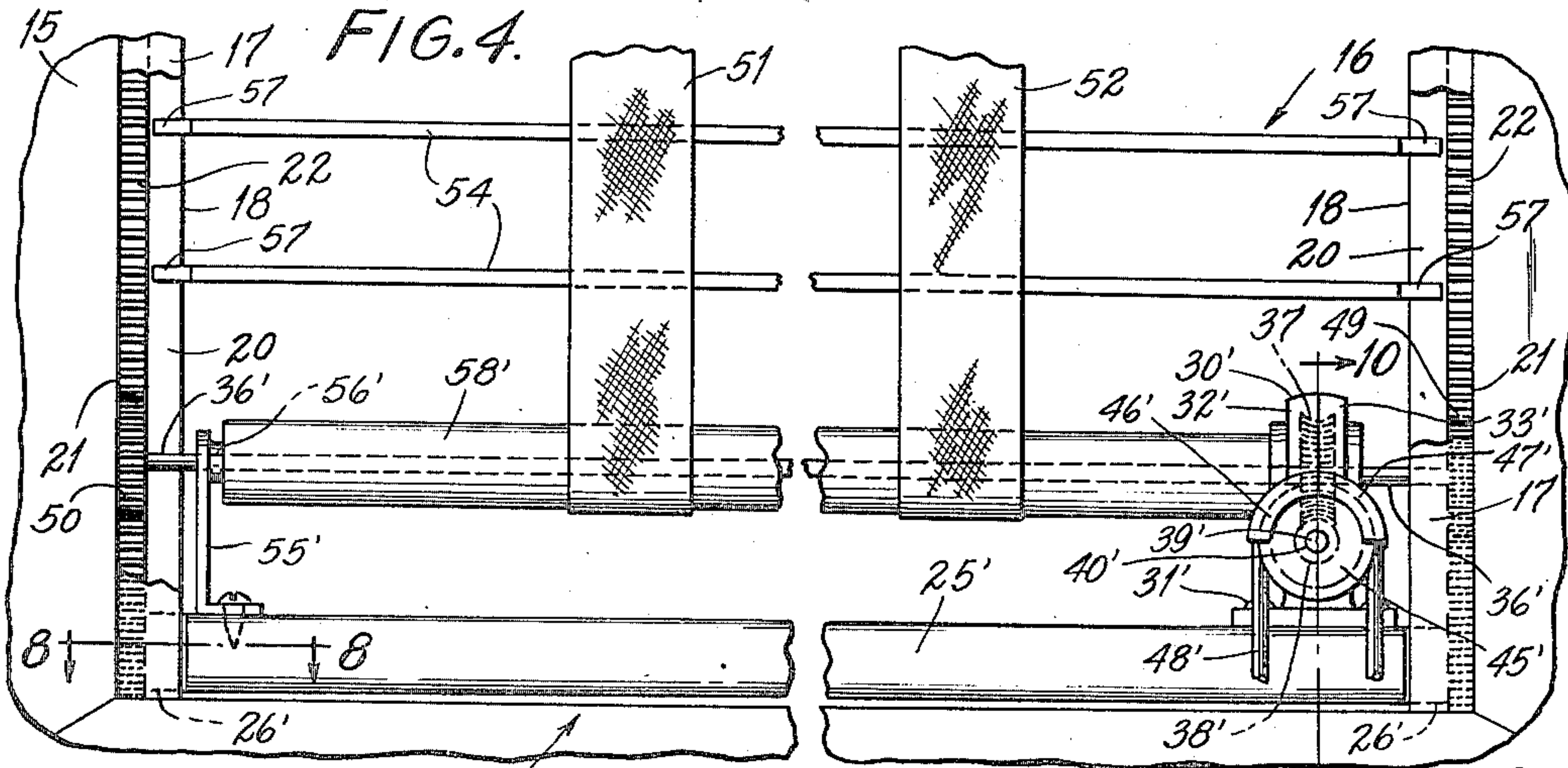
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VENETIAN BLIND

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2 Sheets-Sheet 2



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VENETIAN BLIND

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Application June 24, 1937, Serial No. 150,018

5 Claims. (Cl. 156—17)

The present invention relates generally to constructions used to regulate ventilation and the passage of light through windows, doors, and the like, and more particularly to a novel Venetian blind construction which includes mechanism for independently dropping the upper header bar or raising the lower header bar.

It is, therefore, an object of the present invention to provide a Venetian blind construction which includes a mechanism for lowering the upper header bar independently of any movement on the part of the lower header bar.

Another object is to provide a Venetian blind which includes means for lowering the upper portion thereof to provide full ventilation and light passage at the upper portion of a window or door.

Another object is to provide a Venetian blind which includes an upper carriage construction which is adapted to be bodily moved to stack the slat elements to provide a clear opening at the top of the window, and a lower carriage construction which is adapted to be bodily moved to stack the slat elements to provide a clear opening at the bottom of the window.

Another object is to provide a blind construction which is adapted to fully regulate the passage of light and the circulation of air through a window.

Another object is to provide a blind construction which includes means for lowering the same from the top towards the bottom, which facilitates cleaning thereof, and the like.

Another object is to provide a blind construction of the Venetian type which includes floating slats that may be individually removed for cleaning, or the like, at any time without affecting the remaining blind construction.

Another object is to provide a blind construction which is easy to install and is simple in operation.

Other objects and advantages will be apparent from the following description, taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a front elevation of a blind constructed in accordance with the present invention installed in a window casement;

Fig. 2 is a front elevation of the blind and casement shown in Fig. 1, the slats being shown disposed substantially vertically, the upper carriage being shown in a lowered position, and the lower carriage being shown in a raised position;

Fig. 3 is an enlarged view of the upper carriage construction and associated elements, cer-

tain portions being broken away for clearer illustration;

Fig. 4 is a view similar to Fig. 3 showing the lower carriage construction and associated elements;

Fig. 5 is a section on the line 5—5 of Fig. 3;

Fig. 6 is a section on the line 6—6 of Fig. 3;

Fig. 7 is a section on the line 7—7 of Fig. 3;

Fig. 8 is a section on the line 8—8 of Fig. 4;

Fig. 9 is a section on the line 9—9 of Fig. 3; and

Fig. 10 is a section on the line 10—10 of Fig. 4.

Referring to the drawings more particularly by reference numerals, there is shown in Figs. 1 and 2 a window casement 15 having installed therein a blind 16 of the Venetian type. A pair of vertically disposed opposed guide members 17 and 18 (Figs. 7 and 8) are fixed to each side of the casement 15 by screws 19, or the like. The members 17 and 18 are of L-shaped cross-section and are disposed to provide a vertical opening 20 between the ends of the long legs and a rectangularly shaped space 21 between the casement 15 and the inner sides of the said long legs. A rack bar 22 is disposed against the short leg of each of the members 18.

The blind 16 includes an upper carriage generally designated 23 and a lower carriage generally designated 24. Inasmuch as the construction of the lower carriage 24 is the same as that of the upper carriage 23, only the upper carriage 23 will be described in detail, the corresponding elements of the lower carriage 24 being accorded the same reference numerals primed as those in the upper carriage 23.

The upper carriage 23 includes a horizontally disposed bar 25 which is of substantially rectangular cross-section (Fig. 6). The bar 25 is reduced at its ends to provide narrow projections 26 which are of the same thickness as the bar 25 (Fig. 3). The projections 26 extend through the opening 20 into the space 21, and fit snugly within the opening 20 yet permit free vertical movement of the member 25.

A housing generally designated 30 is dependent from the lower side of the bar 25 adjacent one end thereof by screws 31, or the like. The housing 30 includes two identical sections 32 and 33 which have aligned apertures 34 and 35, respectively, therein. The apertures 34 and 35 provide bearing surfaces in the walls of the sections 32 and 33 to receive a shaft 36 which extends longitudinally of and parallel to the bar 25.

Within the housing 30 and fixed to the shaft

36 is a worm gear 37. Likewise within the housing 30 is a worm 38, which is fixed to a shaft 39 rotatably mounted in bearing apertures 40 and 41 formed in the housing 30 above and at right angles to the apertures 34 and 35 (Fig. 9). In the present illustration, the bearing apertures 40 and 41 are formed by opposed semi-circular troughs or grooves in the identical sections 31 and 32. A pulley 45 is fixed to an end of the shaft 39 and is disposed exteriorly of the housing 30. Guide elements 46 and 47 are formed integrally with the housing sections 32 and 33 and are of a configuration to overlap the pulley 45 (Fig. 9) to maintain an endless rope 48, or the like, in engagement with the pulley 45. Pinions 49 and 50 are fixed to the ends of the shaft 36 and are disposed within the spaces 21 in cooperative engagement with the rack bars 22, the shaft 36 extending through the openings 20 (Figs. 3 and 7).

An upper header bar 58 is freely mounted upon the shaft 36. Pairs of hanger straps 51 and 52 are fixed by tacks, or the like, (not shown) to the upper side of the header bar 58. Between each pair of hanger straps are pairs of cross straps 53, each pair receiving in individually removable floating engagement therewith a slat 54 (Fig. 5). Each slat 54 has a projection 57 at each end which extends into the openings 20 to retain the slats 54 in a vertical plane. Clips may be used in place of the projections if preferred. The slats 54 are removable through flexing an individual slat 54, or raising a section of slats 54 to an angle to the horizontal.

At the end of the bar 25 remote from the housing 30 is a bracket 55 having a bearing aperture 56 through a depending leg thereof which receives the shaft 36.

As is stated above, all of the foregoing construction of the upper carriage and associated elements is duplicated in the lower carriage and associated elements, although, of course, the lower carriage 24 and its associated elements are disposed in opposed relation to the upper carriage 23 and its associated elements.

There is provided suitable mechanism for changing the ventilative and light passage positions of the slats 54. A bracket 60 is fixed by screws 61, or the like, to the lower side of the bar 25 adjacent the bracket 55. The bracket 60 includes opposed depending walls 62 and 63 which have bearing apertures 64 and 65, respectively, therethrough (Fig. 5). A shaft 66 has bearing support in the bearing apertures 64 and 65 and has fixed thereto a worm 67 which is disposed between the walls 62 and 63. A pulley 68 is fixed to an end of the shaft 66 exteriorly of the wall 63 and supports an endless operating cord 69. A guard 70 is fixed to or is integral with the wall 63 and extends over the upper portion of the pulley 68 to maintain the cord 69 thereon. A worm segment 71 is fixed by screws 72, or the like, to the end of the header bar 58 in a position to cooperatively underlie the worm 67 (Fig. 3).

Operation

The operation of the blind is apparent from the foregoing description, taken in conjunction with the accompanying drawings. As is set forth above, the blind is adapted to be either lowered from the top downwardly or raised from the bottom upwardly. When it is desired to lower the blind from the top, the cord 48 is rotated in the proper direction which sets in motion the gear

chain comprising the pulley 45, the worm 38, and the worm gear 37 to rotate the shaft 36 and the pinions 49 and 50 fixed to the shaft 36. The pinions 49 and 50 move along the rack bar 22 to lower the carriage 23 and to stack the slats 54 upon the lower header bar 25'. Movement of the cord 48 in the opposite direction, of course, effects an upward movement of the upper carriage 23 to close the top window space. The lower carriage 24 is moved up and down in the same way that the upper carriage 23 is moved down and up.

Adjustment of the angle of the slats 54 is effected through manipulation of the cord 69 which sets in motion the pulley 68, the worm 67 and the worm segment 71 to move the upper header bar 58 and the pairs of hanger straps 51 and 52 with their associated cross straps 53 and slats 54.

Many advantages reside in the foregoing blind construction. When it is desired to clean the upper part of the blind the upper carriage 23 can be lowered to a position to facilitate this operation. When an unobstructed passage of light and air is desired at the upper part of the window, door, or the like, it is only necessary to lower the upper carriage 23. In providing a lower carriage 24 which is maintained in lateral fixed relation to the window casement, flapping of the blind in a breeze, or the like, is prevented at all stages of adjustment. Other advantages are inherent in the blind construction provided.

It is to be understood that the foregoing description and accompanying drawings have been given by way of illustration and explanation and not by way of limitation, the invention being limited only by the following claims.

What is claimed is:

1. A blind comprising an upper carriage, said carriage including a non-rotatable member and a rotatable member suspended from said non-rotatable member, slats suspended from said rotatable member, and means for vertically lowering or raising said carriage.

2. A blind comprising an upper carriage, said carriage including a horizontally disposed member, a housing depending from said member adjacent one end, a bracket depending from said member adjacent the other end, a shaft extending through said housing and said bracket in longitudinally parallel relation to the member, gearing within the housing, a pulley operatively connected to said gearing and disposed exteriorly of the housing, a pinion fixed to each end of the shaft, and a header bar disposed between said housing and said bracket and loosely rotatable upon said shaft.

3. In combination, a blind and a window casement, vertically disposed rack bars fixed to said window casement, said blind including an upper carriage and a lower carriage, each carriage having a rotatable member and a non-rotatable member, slats supported between said rotatable members and suspended from the upper rotatable member, said carriages being disposed in said casement for vertical movement, each of said carriages including a pinion cooperatively engaging each rack, means for positively rotating the pinions of the upper carriage, and means for positively rotating the pinions of the lower carriage, each of said positive rotating means including gearing supported by the respective carriage and being movable vertically with the said respective carriage, whereby said blind may be

optionally lowered from the top or raised from the bottom.

4. In combination, a blind and a window casement, vertically disposed rack bars fixed to said
5 window casement, said blind including an upper carriage and a lower carriage, said carriages being disposed in said casement for vertical movement, each of said carriages including a horizontally disposed member, a housing depending from
10 said member adjacent one end, a bracket depending from said member adjacent the other end, a shaft extending through said housing and said bracket in longitudinally parallel relation to the member, gearing within the housing, a pulley
15 operatively connected to said gearing and dis-

posed exteriorly of the housing, a pinion fixed to each end of the shaft, and a header bar disposed between said housing and said bracket and loosely rotatable upon said shaft.

5. A blind comprising an upper carriage and
5 a lower carriage, each carriage including a non-rotatable member, a rotatable member attached to each non-rotatable member, slats disposed between and connected to the rotatable members,
10 means for rotating the rotatable members, means for raising or lowering the upper carriage, and
15 means for raising or lowering the lower carriage.

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