

Dec. 19, 1939.

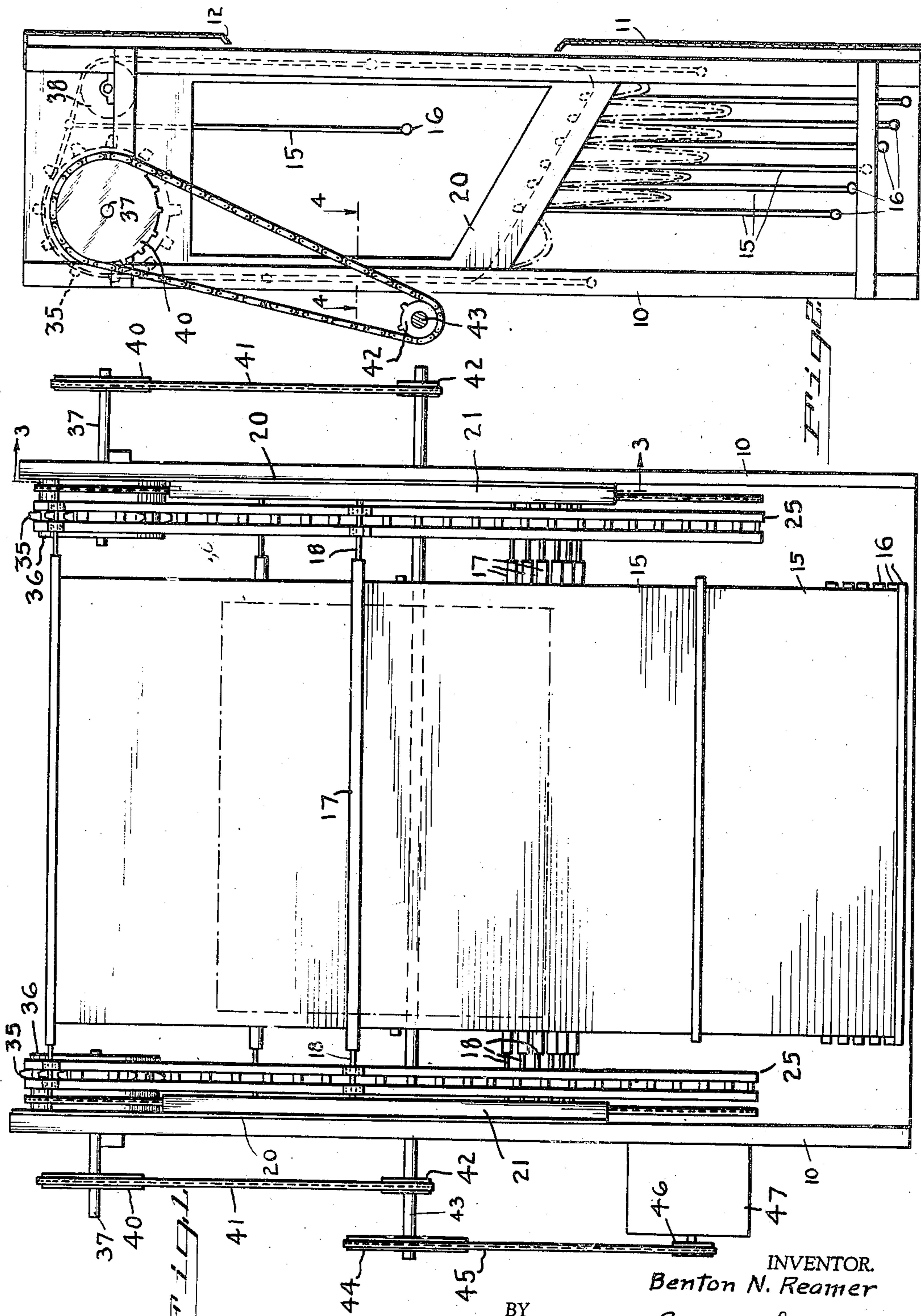
**B. N. REAMER**

2,183,942

DISPLAY SIGN

Filed March 11, 1939

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

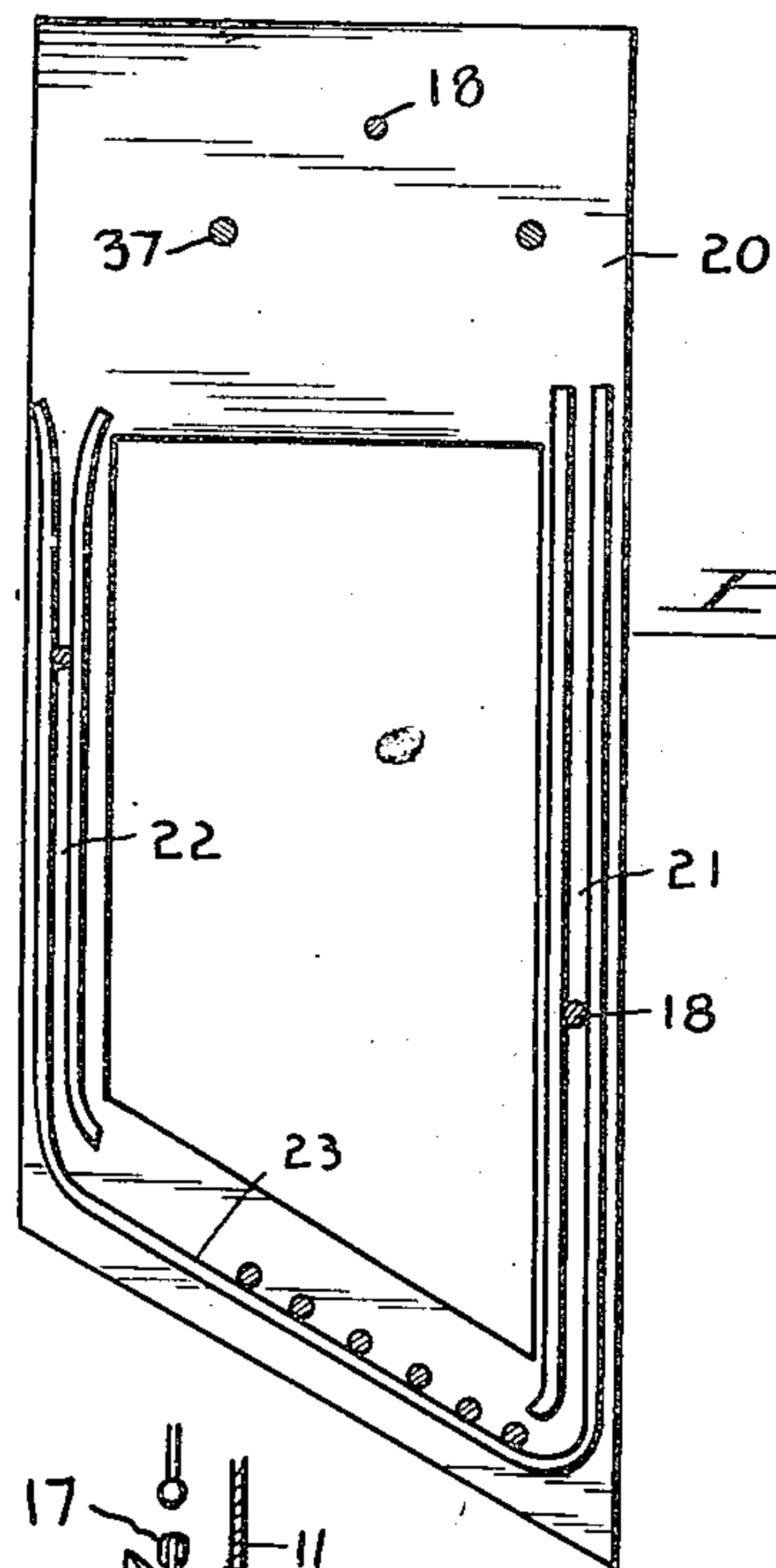


Fig. 3.

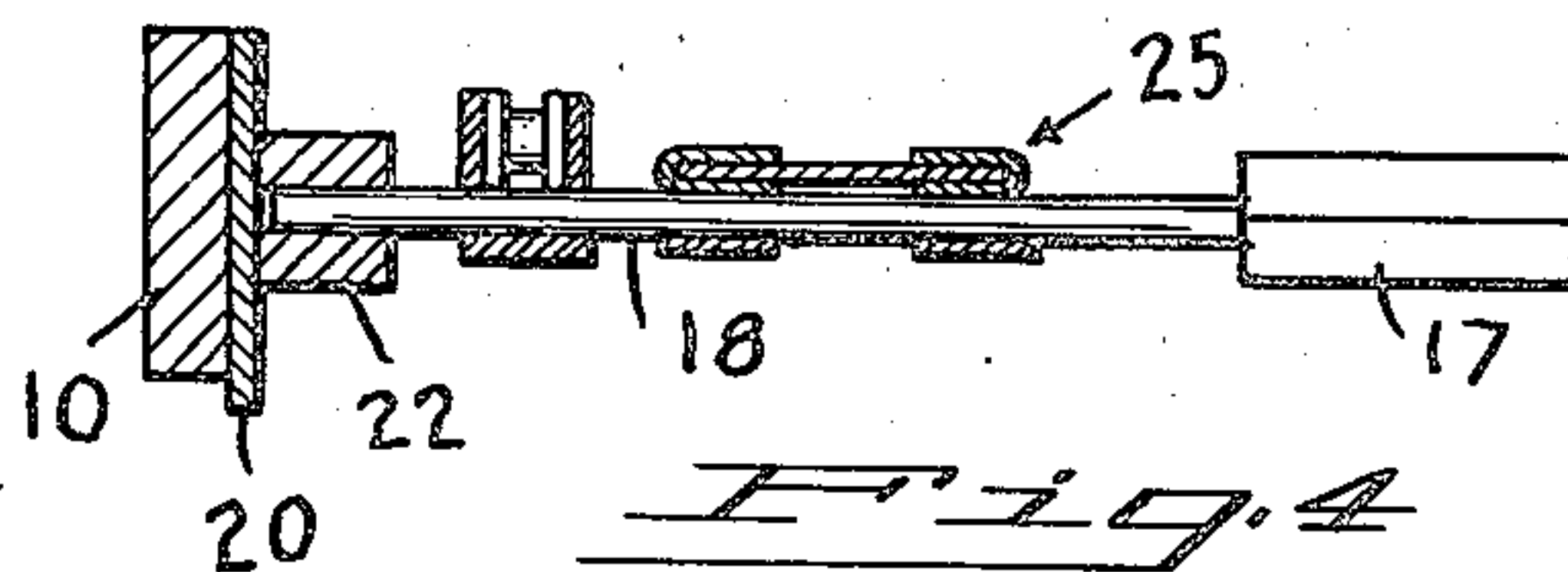


Fig. 4.

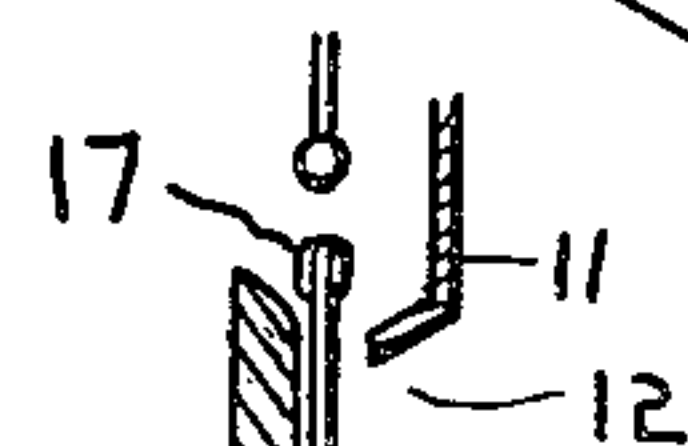


Fig. 5.

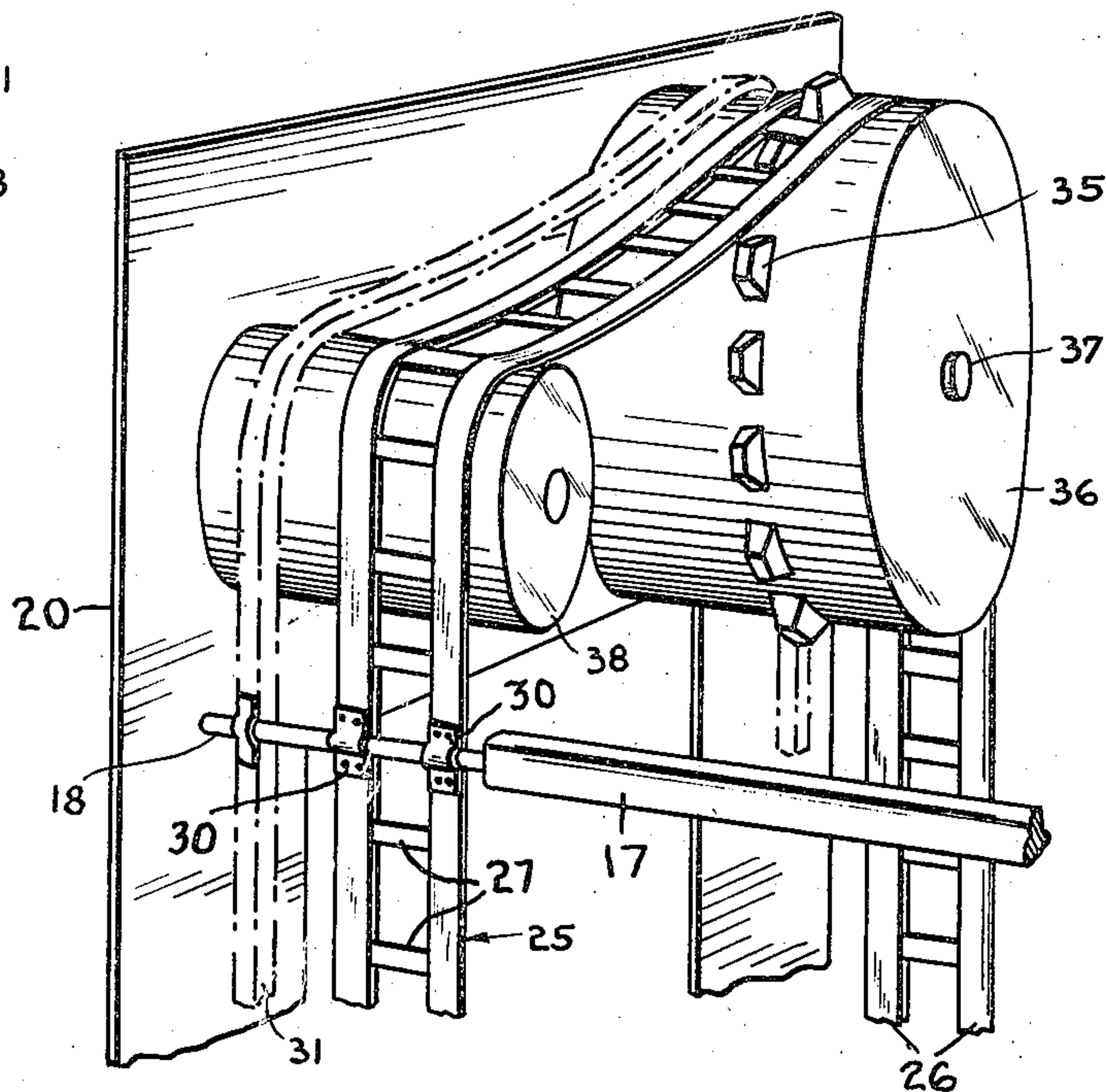
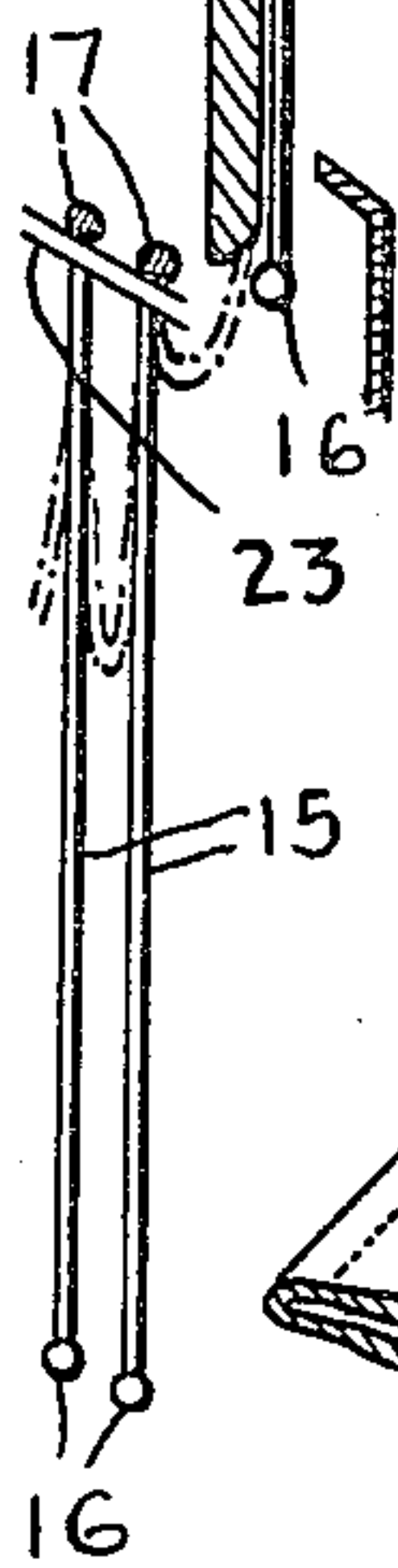


Fig. 6.

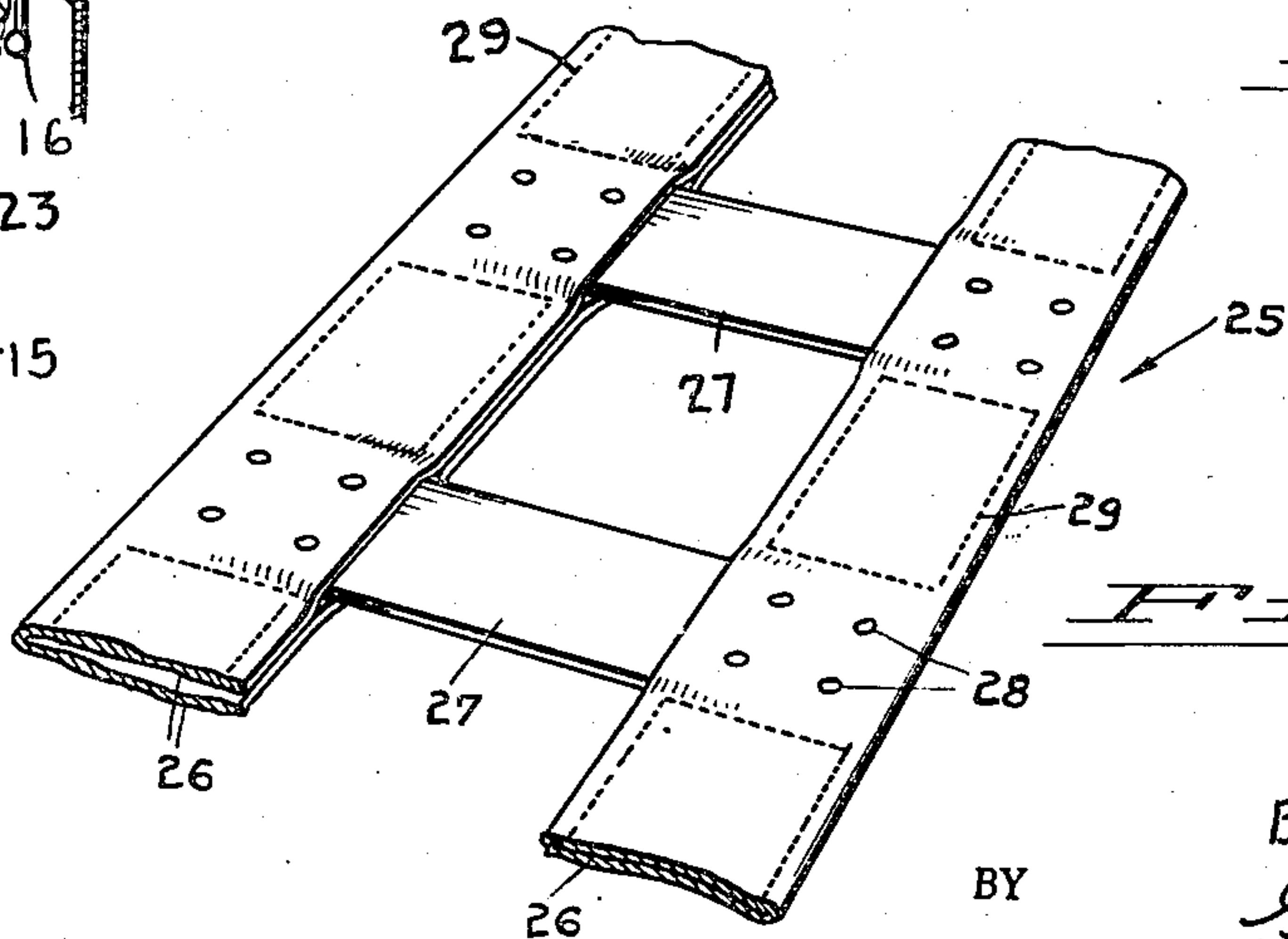


Fig. 7.

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## UNITED STATES PATENT OFFICE

2,183,942

## DISPLAY SIGN

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Application March 11, 1939, Serial No. 261,189

8 Claims. (Cl. 40—101)

The invention relates to display signs of the animated type, that is a sign in which a series of co-related pictures or cartoons are intermittently displayed.

5 The present invention contemplates improvements and changes in that type of sign shown in my prior Patent No. 2,132,970 dated October 11, 1938.

10 As the display sign is primarily intended for outdoor use, is built of a substantial size and must run continuously without an attendant it is essential the parts be simple and rugged in construction, particularly the driving elements. One of the principal objects of the invention is to provide a drive which is of long life, practically cannot get out of order and which will accurately position the display panel in the opening through which it is viewed.

15 Numerous other objects will become apparent as this specification proceeds. Referring to the drawings forming a part thereof and in which a preferred embodiment of the invention is illustrated:

Fig. 1 is a front elevation;

25 Fig. 2 is an end view part of the casing being shown diagrammatically in section;

Fig. 3 is an elevational sectional view taken on line 3—3 of Fig. 1;

30 Fig. 4 is a fragmentary sectional plan view taken on line 4—4 of Fig. 2;

Fig. 5 is a fragmentary sectional view taken on line 5—5 of Fig. 4, the panel being shown in display position;

35 Fig. 6 is a fragmentary perspective view of the drive; and

Fig. 7 is a fragmentary perspective view of the fabric driving belt.

40 Referring again to the drawings, parts of the structural work supporting the sign are more or less schematically indicated but numerous other parts are omitted as forming no part of the invention and for simplicity of illustration.

45 The main supporting frame is generally indicated by the reference numeral 10. Secured in any conventional or convenient manner to the supporting frame is the casing 11 diagrammatically shown in Figs. 2 and 5 and this casing is provided with a display opening 12 through which one of the panels, hereinafter described, may be viewed.

50 The sign proper comprises a series of panels 15. These panels may be rigid in construction or may be formed of a flexible or semi-flexible material such, for instance, as heavy canvas. Unless the material from which the panels are formed is very substantial it is desirable to weight them at their lower edges, as indicated at 16. The upper edges of the panels are secured in any desired manner to supporting rods 17.

60 The supporting rods 17 extend beyond the sides

of the panels and are preferably provided with ends 18 of smaller diameter than the rods proper. The ends of the supporting rods engage plates 20 which are continuous for the entire circuit of travel for the panels and prevent any endways or lateral movement of the panels and their supporting rods.

5 Guides are provided for the ends of the supporting rods throughout the larger part of their course of travel. The guides comprise tracks 21 secured adjacent the front edges of the plates 20, other tracks 22 secured adjacent the rear edges of the plate 20, and gravity tracks 23 connecting the front and rear tracks (see Fig. 3). The panels at all times maintain a vertical position and the tracks prevent any substantial forward or rearward displacement of the panels.

10 It has been found with the use of ordinary sprockets and chains that in operating the sign there is a tendency of the chains to jump the sprockets thus causing damage and putting the mechanism temporarily out of commission. A novel form of driving belt has been devised to which the ends 18 of the supporting rods are secured. This belt is generally indicated by the reference numeral 25 and as seen particularly in Fig. 7 comprises two strips 26 of fabric such as heavy canvas or other suitable material. The strips of fabric are folded over on themselves and at equally spaced intervals cross-strips 27 of hard wood, metal or composition are secured in place by rivets or other means 28. The layers of fabric are preferably sewed together between the cross-strips as indicated at 29.

15 As particularly shown in Fig. 6 the ends 18 of the supporting rods are secured to the fabric sprocket belt by clips 30. If desired, the ends 18 of the supporting rods may displace one of the cross-strips 27. In addition the ends of the supporting rods are secured to metal sprocket chains 31. These sprocket chains are the same length as the belts 25 and act as spacers to maintain the exact distance between the rods if the fabric belts should stretch slightly, thus insuring the accurate positioning of the panels in the display opening.

20 The fabric sprocket belts are driven by sprockets 35 formed on drums 36 which are mounted on short shafts 37 having suitable bearings in the upper part of the frame. The teeth on the sprockets are tapered and are of substantial size to engage the large openings in the fabric belt and may be formed of hard wood suitably attached to the drums 36. The teeth 35 being tapered on all sides will readily mesh with the large openings in the fabric belt and the possibility of the belt jumping the sprockets is practically eliminated. The surface of the drums 36 is substantially tangent to the rear track 22 so that as the ends of the panel support rods



leave the sprockets they will readily enter the guides.

5 Idler drums or rollers 38 are positioned in the upper forward part of the housing and their surfaces are substantially tangent to the front guides 21 so that as the ends of the supporting rods leave the guides they will pass over the idler rollers. The sprocket chains 31 pass idly over the drums 36—36 and 38—38. It will be noted 10 the entire inside of the housing is open so as to provide a clear space and permit the panels to pass from the front of the housing to the rear and maintain their vertical position without interference.

15 The shafts 37 have mounted thereon sprockets 40—40 which are connected by sprocket chains 41—41 to sprockets 42—42 on a countershaft 43. The countershaft 43 is a driven shaft and, as shown in Fig. 2, is mounted in the rear of the housing. It is obviously essential that both sides 20 of the panels be driven at exactly the same speed and that as the shafts 37—37 cannot extend across the housing the foregoing construction provides a simple means of synchronizing the drive on both sides of the machine.

25 The countershaft 43 is intermittently driven and the means for accomplishing this may be widely varied. As illustrated, the countershaft 43 has a sprocket 44 mounted thereon and a sprocket chain 45 passes over this sprocket and another sprocket 46 which is intermittently driven by suitable mechanism mounted in the housing 47.

35 The housing is provided with a wind shield 50, see Figs. 1 and 5, which is substantially the same area as the display opening 12. As the structure is primarily for outdoor use and the panels are of a substantial size the wind shield plays an important part in acting as a backing for the panels in their display position and insuring 40 against damage by the elements.

In lieu of the canvas sprocket belt a sprocket chain having links with large openings might be used. In this event the spacer sprocket chains 45 31 might be eliminated.

Changes in details of construction and arrangements of parts such as would occur to one skilled in the art are to be considered as coming within the spirit of the invention as defined in 50 the appended claims.

I claim:

1. A display sign having in combination a plurality of panels, supporting rods for said panels, means for moving said panels toward and 55 away from a display opening, end plates which engage the ends of the supporting rods to prevent lateral movement of the rods and their panels, tracks carried by said end plates, said tracks cooperating with the ends of the supporting rods so as to guide the panels in their upward 60 and downward movement, and a rigid plate against which said panels are supported in their display position.

2. An intermittently operated display sign 65 having in combination a plurality of panels, supporting rods for said panels, fabric sprocket belts to which the ends of said supporting rods are secured, sprockets for driving said fabric belts, and means for driving said sprockets.

70 3. An intermittently operated display sign having in combination a plurality of panels, supporting rods for said panels, fabric sprocket belts

to which the ends of said supporting rods are secured, said fabric sprocket belts being formed of a pair of fabric strips folded over on themselves and having cross strips of rigid material, secured to said fabric strips and equidistantly 5 spaced from each other, sprockets for driving said fabric sprocket belts, and means for driving said sprockets.

4. An intermittently operated display sign 10 having in combination a plurality of panels, supporting rods for said panels, fabric sprocket belts to which the ends of said supporting rods are secured, sprockets for driving said fabric sprocket belts, means for driving said sprockets, and sprocket chains to which the ends of said sup- 15 porting rods are secured.

5. An intermittently operated display sign 20 having in combination a plurality of panels, supporting rods for said panels, fabric sprocket belts to which the ends of said supporting rods are secured, sprockets for driving said fabric sprocket belts, said sprockets being independently mounted in relation to each other on short shafts on either side of the display sign, and means for 25 synchronizing the movement of said sprockets and for driving them.

6. An intermittently operated display sign 30 having in combination a plurality of panels, supporting rods for said panels, fabric sprocket belts to which the ends of said supporting rods are secured, sprockets for driving said fabric sprocket belts, said sprockets being independently mounted in relation to each other on short shafts on either side of the display sign, means 35 for synchronizing the movement of said sprockets and for driving them, other sprockets secured to said shafts, a counter-shaft extending across the display sign, sprockets secured to said counter-shaft, sprocket chains engaging said second mentioned sprockets on the short shafts and said 40 sprockets on the counter-shaft, and means for driving said counter-shaft.

7. An intermittently operated display sign 45 having in combination a plurality of panels, supporting rods for said panels, end plates which engage the ends of the supporting rods to prevent lateral movement of the rods and their panels, fabric sprocket belts to which the ends of said supporting rods are secured, sprockets for driving said fabric sprocket belts, and means for 50 driving said sprockets.

8. An intermittently operated display sign 55 having in combination a plurality of panels, supporting rods for said panels, end plates which engage the ends of the supporting rods to prevent lateral movement of the rods and their panels, tracks carried by said end plates, said tracks cooperating with the ends of the supporting rods so as to guide the panels in their upward and downward movement, a rigid plate against which 60 the panels are supported in their display position, fabric sprocket belts to which the ends of the supporting rods are secured, sprocket chains to which the ends of said supporting rods are secured, sprockets for driving said fabric sprocket belts, said sprockets being independently 65 mounted in relation to each other on short shafts on either side of the display sign, and means for synchronizing the movement of said sprockets and for driving them. 70

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