

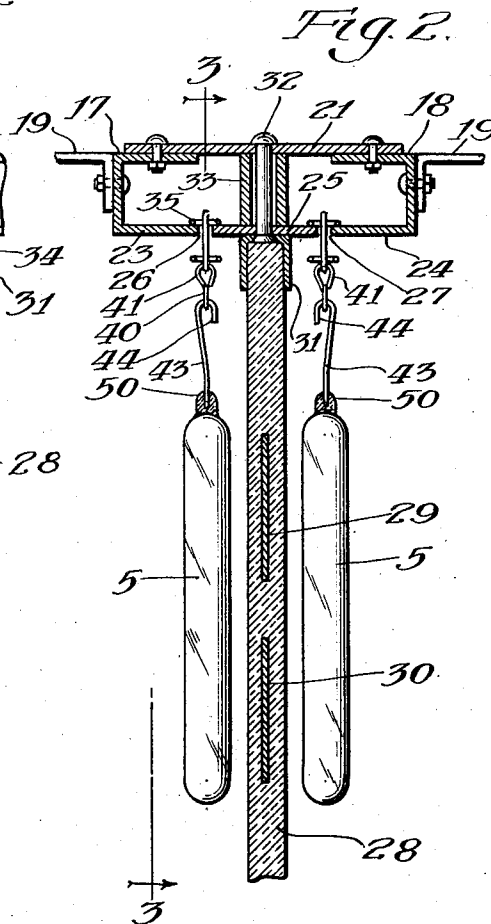
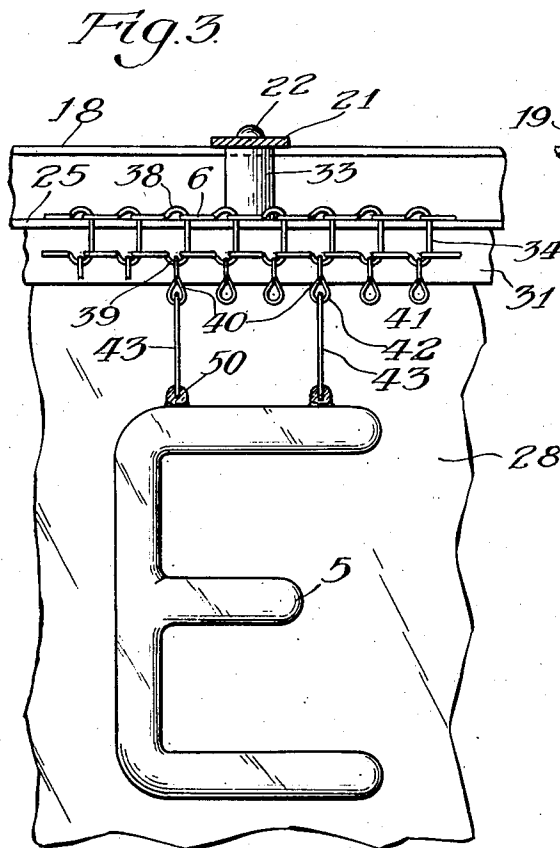
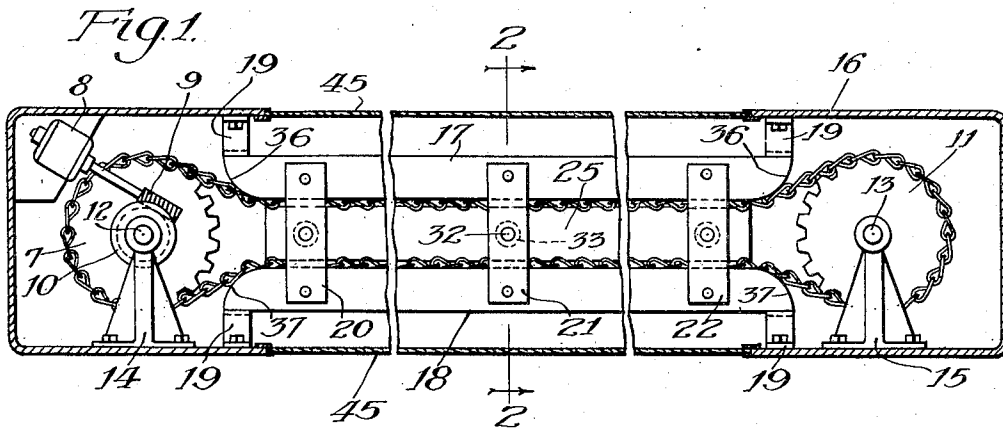
Aug. 15, 1939.

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2,169,409

CHANGEABLE SIGN

Filed May 9, 1938



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UNITED STATES PATENT OFFICE

2,169,409

CHANGEABLE SIGN

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Application May 9, 1938, Serial No. 206,891

7 Claims. (Cl. 40—130)

The present invention relates to changeable signs and is particularly directed toward improvements in signs of the character disclosed in the application of Robert L. Pioso and myself, Serial No. 167,258, filed October 4, 1937, for Sign. It is the principal purpose of the present invention to provide a device of this character, of simple construction, whereby gaseous conduction tubes may be attached to and removed from a flexible conveyor with facility and may be carried by said flexible conveyor around the drive means therefor without danger of breaking the tubes. The invention embodies certain improvements in the attachment of suspension means to the tubes, whereby support of the tubes may be accomplished without injury to the outline of the character represented by the tube and without weakening the tube structure.

The invention also contemplates certain improvements in the manner of attachment of the tube expansion means to a flexible conveyor, whereby to eliminate danger of subjecting the tube itself to strains that might break it when the flexible conveyor is bent around a short radius, such, for example, as around a drive wheel or gear for the conveyor.

The features and advantages of the invention will appear more fully as the description proceeds, reference being had to the accompanying drawing wherein a preferred form of the invention is shown. It is to be understood, however, that the drawing and description are illustrative only, and are not to be taken as limiting the invention, except insofar as it is limited by the claims.

In the drawing, Fig. 1 is a plan sectional view of a changeable sign embodying the invention;

Fig. 2 is a sectional view taken substantially on the line 2—2 of Fig. 1, and

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Referring now to the drawing, the present invention is embodied in a changeable sign of the type wherein sign characters may be carried along a path adjacent to an energizing device and caused to be illuminated as they pass the energizing device. A sign of this character is disclosed in the prior application mentioned hereinbefore.

In the device disclosed herein a plurality of sign characters 5 are carried by a flexible endless conveyor 6. The conveyor 6 may be driven in any suitable fashion such, for example, as by a drive sprocket wheel 7, which is driven by a motor 8 by means of a worm 9 and a gear 10. At

a distance from the sprocket wheel 7 there is a second sprocket wheel 11 around which the conveyor 6 travels, as will be readily understood. The sprocket wheels 7 and 11 are carried upon suitable shafts 12 and 13 which are supported upon brackets 14 and 15. Brackets 14 and 15 are mounted in a housing 16 which houses the entire sign construction.

Between the sprocket wheels 7 and 11 a framework is provided for guiding the conveyor 6. This framework is composed of a pair of channel bars 17 and 18 which are supported from the housing 16 by suitable brackets 19 bolted to the channel bars and to the housing. These channel bars 17 and 18 are connected together in spaced relation by means of a plurality of tie plates 20, 21 and 22 which may be bolted or otherwise secured to the channel bars. Between the lower flanges 23 and 24 of the channel bars 17 and 18 a plate 25 is fixed in spaced relation to the adjacent edges of the flanges 23 and 24. This provides longitudinally running grooves 26 and 27 in which the conveyor 6 is guided between the sprocket wheels 7 and 11.

The plate 25 is situated on top of a panel 28 which is desirably constructed of insulating material such as will be capable of enclosing a plurality of radiator strips 29 and 30 by which high frequency radiations of electric energy may be communicated to the adjacent sign elements 5. The sign elements 5, as shown, are the well-known gaseous conduction tubes having therein a filling of one of the rare gases such as neon or other suitable gas which may be excited by high frequency radiations of electric energy, as explained in the prior application referred to before. A binding channel member 31 is mounted on top of the panel 28. The channel 31, the plate 25 and the cross bars 20, 21 and 22 are secured together by rivets 32. Spacing sleeves 33 are employed between the plate 25 and the cross bars to align properly the angular bars 17 and 18 and the plate 25.

The construction of the flexible conveyor 6 is such that it has vertical running portions 34 which ride in the slots 26 and 27 and horizontally extending portions 35 which are adapted to rest upon the flanges 23 and 24 and the plate 25 to prevent sagging of the conveyor as it travels from one sprocket wheel to the other. The flanges 23 and 24 are rounded at their opposite ends, as indicated at 36 and 37 so as to guide the conveyor through the slots 26 and 27. The conveyor shown herein is a linked chain wherein the links are of U-shape with the legs of the U-shaped link

being bent over upon themselves to form loops through which the base portion of the next adjacent link passes. The portions 35 therefore are the loops in the upper leg of the links, while the portions 34 form the base portions of the links. The links are also bent outwardly as indicated at 38 and 39 adjacent the base, so as to facilitate the turning of the loops of one link about the base of the adjacent link.

The outwardly bent portions 39 are utilized in the present construction in providing a very flexible means for attaching the tubes 5 to the conveyor 6. At close intervals along the conveyor 6 the portions 39 have suspended therefrom a plurality of links 40. Each of the links 40 is made up of a wire having an upper loop 41 passing around the portion 39 of a link in the conveyor 6 and a lower loop 42 turned at right angles to the loop 41 and adapted to receive a hanger 43 which is fixed to the tube 5. Each tube 5 has two such hangers 43 fixed thereto.

The hangers 43 are preferably made of a fine wire which is quite stiff and which is turned back upon itself at the free end to provide a hook 44. The hanger 43 is fixed to the tube 5 by a clear glass globule 50 which is first formed on the end of the hanger 43 and then brought in contact with the wall of the tube 5 which is maintained at the proper temperature so that the globule will adhere thereto; the globule, of course, being maintained in a molten condition. The hanger 43 when thus attached to the tube 5 may be hooked through the links 40 and carried by the conveyor 6, as will be readily understood.

The links 40 may be applied to each link of the conveyor, or spaced farther apart, as necessity in any particular installation may dictate. The function of the links 40 is to provide for adjustment between the hangers 43, which are somewhat rigid with the tubes 5, and the conveyor 6. For example, when the conveyor is passing around one of the sprocket wheels 7 or 11, or around any other short radius, the distance between points of attachment of two links 40 which are supporting the tube by means of hangers 43, may be materially less than the actual length of the conveyor. If the hooks 44 were directly hooked into the portion 39 of the conveyor, then the hangers 43 would have to bend in order to equalize this difference in length. The flexibility provided by the links 40 avoids any strain upon the hangers 43 that would tend to break their connection with the tubes 5. These links furthermore provide a very simple and effective method by which the tubes 5 may be removed from the conveyor 6. It is thus possible to very quickly change any sign that is carried by the conveyor 6 merely by changing the tubes suspended therefrom.

The device as shown is constructed to produce a double faced sign. The housing 16 which may take any suitable shape and be constructed of

any desirable materials is constructed with transparent panels 45 and 46. The energizing means (not shown) for the radiator strips 29 and 30 is also preferably housed in the housing 16.

It is believed that the nature of the present invention and the manner of its use will be apparent to those skilled in this art. Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a changeable sign, a flexible conveyor means for driving said conveyor, links suspended from said conveyor at points spaced lengthwise of said conveyor, said links being swingable with respect to said conveyor, and a sign character comprising a gaseous conduction tube having spaced hangers fixed thereon, said hangers and links having cooperating portions for suspending the hangers from the links.

2. In a changeable sign, a flexible conveyor means for driving said conveyor, links suspended from said conveyor at points spaced lengthwise of said conveyor, said links being swingable with respect to said conveyor, and a sign character comprising a gaseous conduction tube having spaced hangers fixed thereon, said hangers and links having cooperating hooks and eyes for suspending the hangers from the links.

3. In a changeable sign, a sign character comprising a gaseous conduction tube, a pair of wire hangers, and glass globules enclosing one end of each hanger and adhering to said tube whereby to fix the hangers to the tube.

4. In a changeable sign, a sign character comprising a gaseous conduction tube, a pair of wire hangers, and glass globules enclosing one end of each hanger and adhering to said tube whereby to fix the hangers to the tube, said hangers having hooks at their free ends.

5. In a changeable sign, a sign character comprising a gaseous conduction tube, a pair of wire hangers, and clear glass globules enclosing one end of each hanger and adhering to said tube whereby to fix the hangers to the tube.

6. In a changeable sign, an endless conveyor, rotatable driving and guide wheels therefor, vertical shafts mounting said wheels, means providing guide slots between said wheels, said conveyor having portions riding on said means, links suspended from said conveyor below said slots and wheels, and mounted for swinging movement longitudinally of said conveyor, and sign characters having spaced hangers detachably connected to said links.

7. Means for suspending rigid sign characters from an endless conveyor which comprises a sign character, wire hangers rigidly attached to the sign character, links spaced longitudinally of the conveyor and pivotally mounted thereon to swing longitudinally and transversely of the conveyor, said hangers and links having hooks and eyes for detachably mounting the hangers on the links.

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