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MOVABLE FOURDRINIER SUCTION BOX ASSEMBLY

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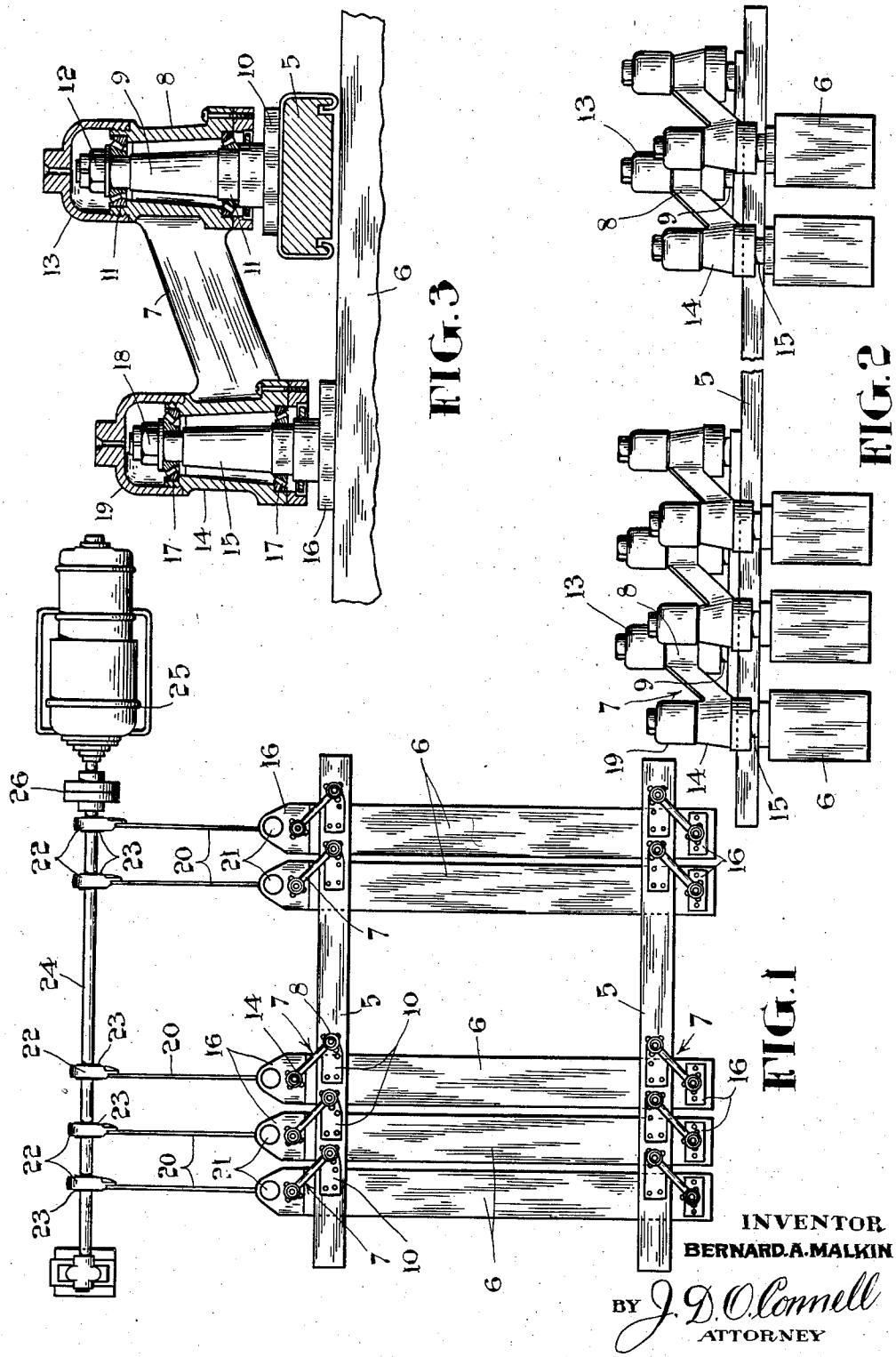


FIG. 3

FIG. 2

FIG. 1

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MOVABLE FOURDRINIER SUCTION BOX ASSEMBLY

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4 Claims. (Cl. 92—51)

This invention relates to Fourdrinier machines and particularly to improved means for moving the suction boxes back and forth across the wire and simultaneously imparting an oscillating or lateral motion to the boxes whereby the wear on the engaging surfaces of the wire and boxes is distributed in a very desirable manner.

According to this invention, each box is suspended from the suction box rails by two horizontally swinging links which serve to impart opposite lateral or oscillating motion to the ends of the box as it is moved across the wire. In the embodiment selected for illustration the top of each box is provided, near its ends, with vertical pivots rotatably supported in vertical bearings provided at the box supporting ends of the links, the remaining ends of the links being provided with similar bearings fitted to vertical pivots rising from the upper surface of the box supporting rails. In order to impart the desired lateral or oscillating motion to the ends of the box, the supporting links are oppositely inclined so that the distance between the pivots connecting the links to the box supporting rails is less than the distance between the pivots connecting the links to the box, the latter pivots being located outside the rails and being spaced therefrom when the box is at right angles to the longitudinal axes of the rails. The means provided for moving the boxes back and forth across the wire is preferably such that no two adjacent boxes need be moving in the same direction at any given time. The magnitude of oscillation as well as the relation between the cross and the oscillating or lateral motion imparted to each box may also be varied without affecting the remaining boxes.

Proceeding now to a more detailed description, reference will be had to the accompanying drawing wherein—

Fig. 1 is a plan view of a suction box assembly provided in accordance with this invention.

Fig. 2 is a side view of the assembly appearing in Fig. 1. In this view the operating means appearing in Fig. 1 is omitted.

Fig. 3 is an enlarged detailed view of one of the box supporting links with the pivot bearings of the links shown in vertical section.

Referring more particularly to the drawing, 5 designates the suction box rails from which the suction boxes 6 are suspended by horizontally swinging links 7. The rail ends of the two links supporting each box are provided with bearing housings 8 rotatably mounted on suitable vertical pivots 9 rising from plates 10 attached to the upper surface of the rails. The housings 8 are rotatably secured on the pivots 9 by anti-friction bearings 11 and clamping nuts 12, the latter being covered by suitable caps 13 screwed upon the upper ends of the housings. The box supporting ends of each pair of links are provided with similar bearing housings 14 receiving vertical pivots 15 rising from plates 16 secured to the top or cover of the suction box. The pivots 15 are rotatably supported in the housings 14 by the anti-friction bearings 17 and the clamping nuts 18, the latter being concealed by caps 19 threaded onto the upper ends of the housings.

As shown more particularly in Figs. 1 and 2, the two links supporting each box are oppositely inclined so that the distance between the two pivots 9 is less than the distance between the pivots 15, the latter being located outside the rails 5 and being spaced therefrom when the boxes are in the position shown. Due to this arrangement of the links, the ends of each box are given an oscillating or lateral motion about the pivots 9 as the box is moved back and forth across the wire.

Each box is moved back and forth across the wire by a pitman rod 20 having one end connected to the box as indicated at 21 and the other end connected to an eccentric strap 22 surrounding an eccentric 23 fixed on an operating shaft 24. Shaft 24 is driven by motor 25 through a flexible or other suitable coupling 26.

One advantage of the invention described herein is that, in most cases, it can be adapted to existing machines with very little structural alteration. Another advantage is that the relation between the cross and the oscillating or lateral movement imparted to each box may be easily changed by changing the angle of the box supporting links.

Another advantage is that, by altering the throw of the eccentric, the magnitude of oscillation of each box may be varied without affecting the remaining boxes. The setting of the various eccentrics may also be such that no two adjacent boxes will be moving in the same direction at any given time.

Having thus fully described what I now conceive to be the preferred embodiment of this invention it will be understood that various modifications may be resorted to within the scope and spirit of the appended claims.

Having thus described my invention, what I claim is:—

1. A suction box assembly comprising stationary suction box rails disposed in spaced parallel relation, a series of suction boxes extending trans-

versely beneath said rails and means for suspending said boxes from said rails comprising a plurality of pairs of horizontally swinging suspension links, the links of each pair having their outer ends pivoted to opposite ends of one of said boxes and their inner ends directly pivoted to the adjacent rails, the links of each pair being set to lie at an angle to said rails so that the box supporting ends of the links lie outside said rails and are spaced apart a greater distance than the rail ends of the links.

2. A suction box assembly as set forth in claim 1 including a rotary shaft lying outside of but parallel with one of said rails, a plurality of eccentrics carried by said shaft, an eccentric strap surrounding each eccentric and pitman rods connected between said straps and said boxes, there being one rod for each box.

3. A suction box assembly as set forth in claim 1 including means for imparting reciprocating movement to said boxes, said means comprising a shaft, a plurality of eccentrics fixed to said shaft, an eccentric strap surrounding each eccentric and a plurality of pitman rods each having one end connected to one of said eccentric straps and the other end connected to one of said boxes, the relative angular displacement of the eccentrics being such that no two adjacent boxes are reciprocated in the same direction at any given time.

4. A section box assembly comprising stationary suction box rails disposed in spaced parallel relation, a series of suction boxes extending transversely beneath said rails with the ends of the boxes projecting beyond the outer sides of the rails and means for suspending each box so that it may be moved back and forth across the rails independently of the remaining boxes, said means comprising a pair of opposed horizontally swinging suspension links each having one end directly pivoted to the box and the other end directly pivoted to one of said rails, said links being set at an angle to the rail so that the box supporting ends of the links lie directly opposite each other outside said rails and are spaced apart a greater distance than the remaining or rail ends of the links, a power driven shaft extending along one of said rails and spaced outwardly therefrom, and connections between the shaft and the boxes whereby the boxes are reciprocated in response to rotation of said shaft, said connections comprising a plurality of connecting rods each having one end directly pivoted to one of said boxes and the other end operatively connected to said shaft to be actuated thereby.

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