April 10, 1934. M. O. FROST ET AL 1,954,124

DISTRIBUTION SYSTEM FOR SHOE FACTORIES

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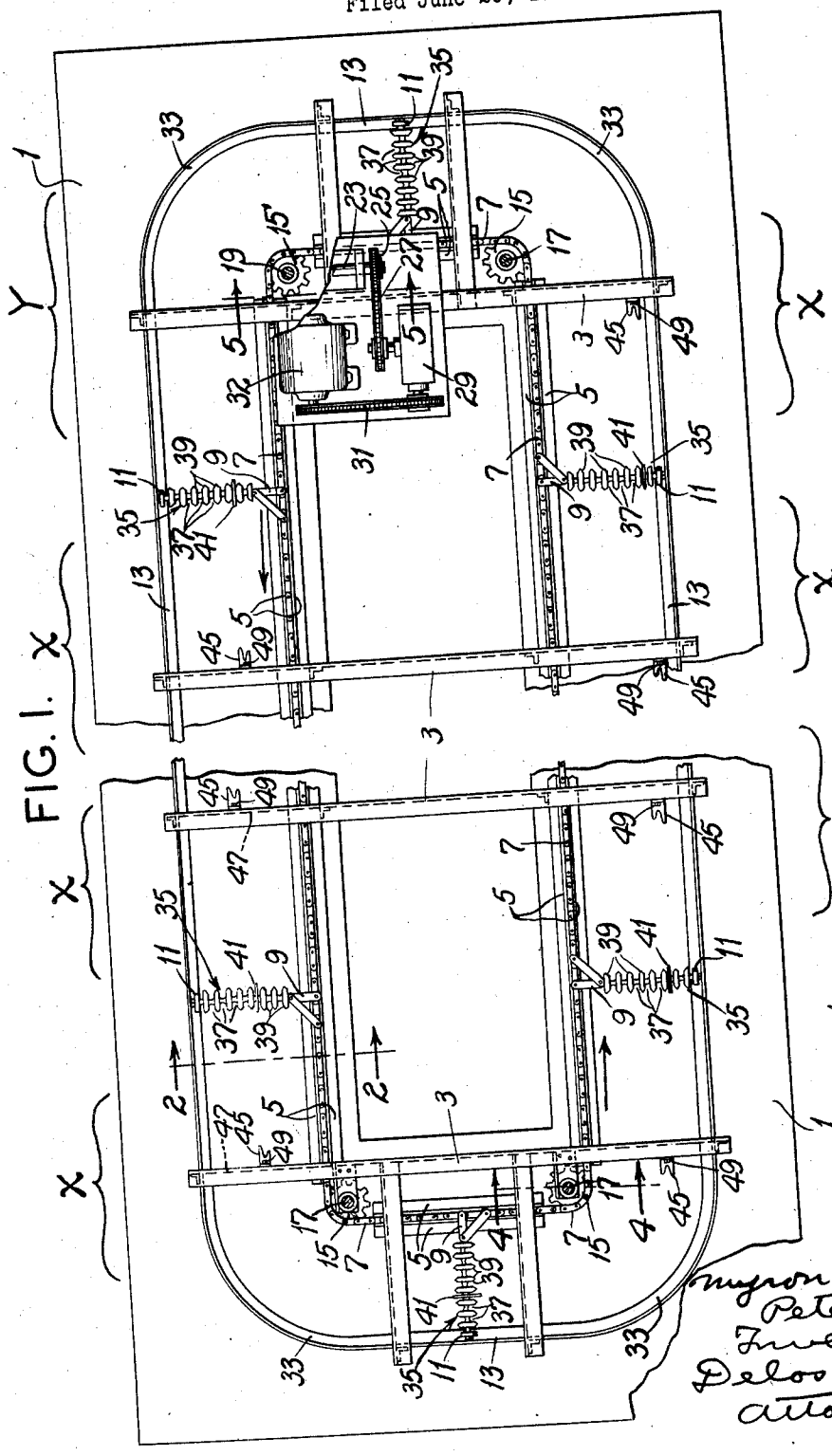


FIG. 1.

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FIG. 2.

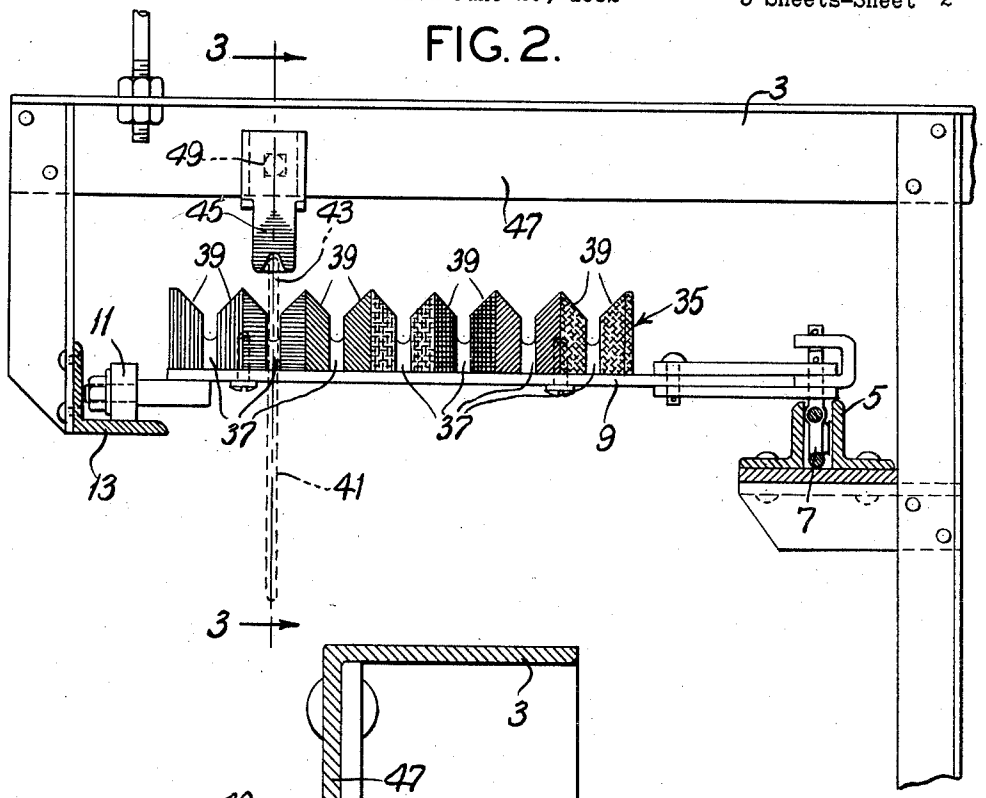
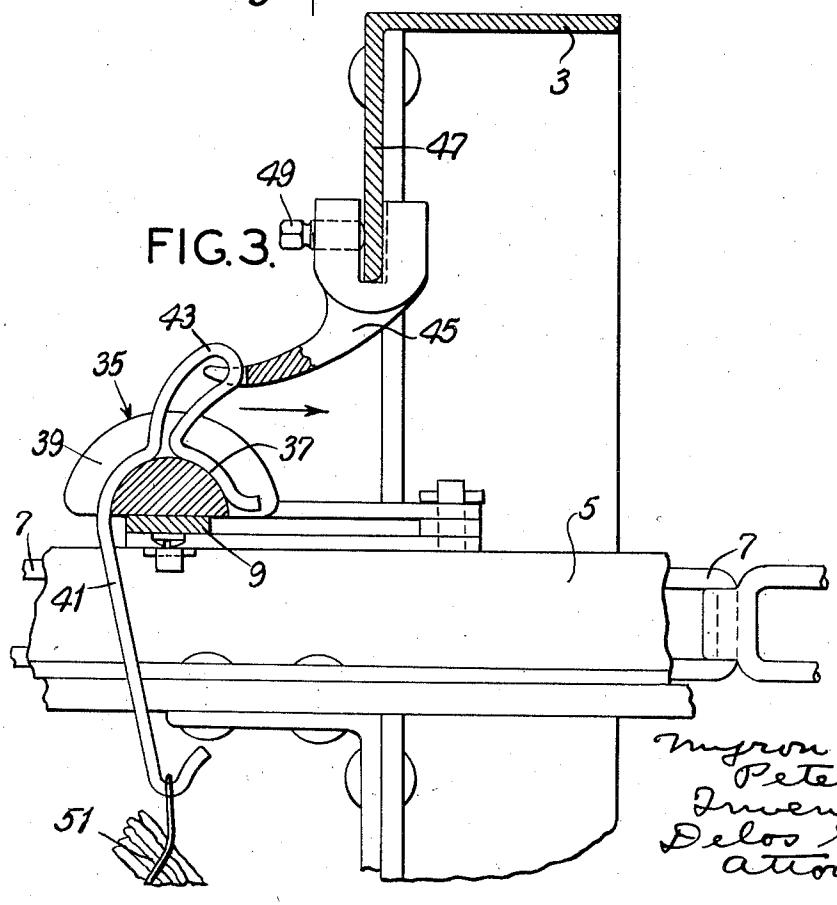


FIG. 3.



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FIG.4.

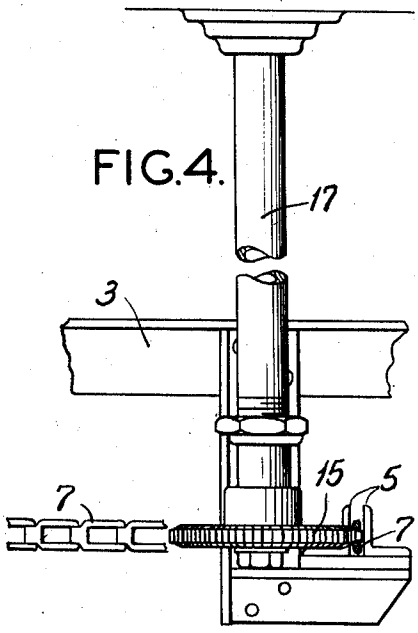


FIG.5.

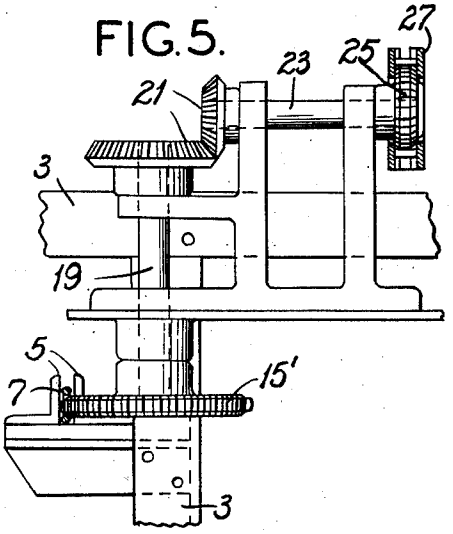


FIG.6.

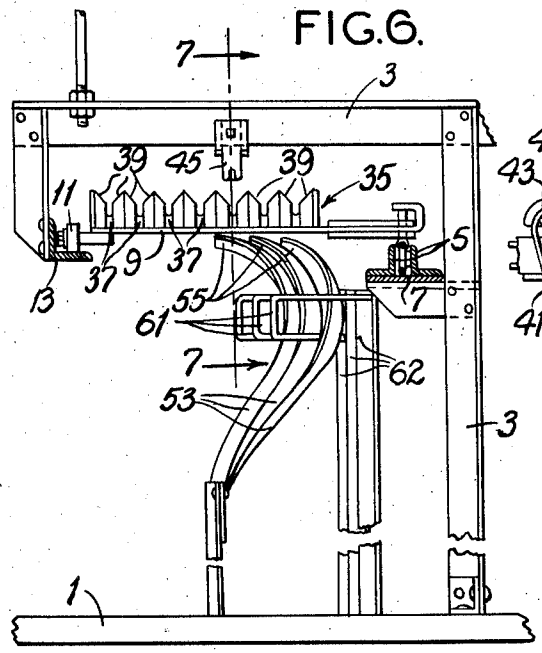
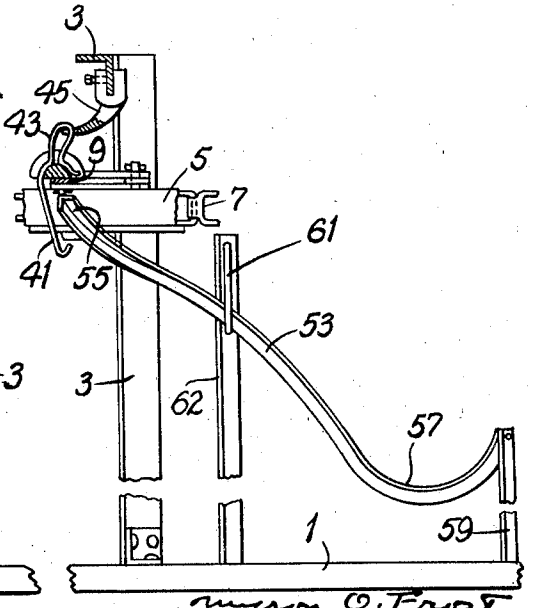


FIG.7.



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UNITED STATES PATENT OFFICE

1,954,124

DISTRIBUTION SYSTEM FOR SHOE FACTORIES

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Application June 20, 1932, Serial No. 618,251

6 Claims. (Cl. 198—42)

This invention relates to distribution systems for shoe factories and with regard to certain more specific features to selective distribution systems for such factories.

Among the several objects of the invention may be noted the provision of a selective distribution system for shoe factories wherein different units of work or bundles of elements may be made up and placed upon a conveyor for distribution to selected points; the provision of apparatus of the class described wherein a given operator may determine the manner of distribution according to the requirements of other operators or according to other variables; the provision of apparatus of the class described in which said other operators may indicate to the distributing operator that more work is required if this should be the case; the provision of apparatus of the class described which shall be operative upon individual pieces or aggregates of numbers of pieces; and the provision of improved apparatus for carrying out the above ends. Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which are illustrated three of various possible embodiments of the invention,

Fig. 1 is a plan view of one form of the invention,

Fig. 2 is an enlarged view showing a carrier arm;

Fig. 3 is an enlarged cross section taken on line 3—3 of Fig. 2;

Fig. 4 is a cross section taken on line 4—4 of Fig. 1;

Fig. 5 is a cross section taken on line 5—5 of Fig. 1;

Fig. 6 is a view similar to Fig. 2 but somewhat reduced so as to show certain coordinated features; and,

Fig. 7 is a cross section taken on line 7—7 of Fig. 6.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now more particularly to Fig. 1, there is shown at numeral 1 a table about which shoe operators are seated at stations such as at points X, for example, said operators performing with or without machines or the like, operations in connection with the manufacture of shoes, such as for example, the assembling of various pieces to form uppers, liners or the like. The operators require to have material distributed to them and it is the purpose of this invention to effectively and efficiently make such a distribution.

The above is accomplished by arranging overhanging, L-shaped supports 3 on the table 1, a pair of angle irons providing a channel 5 for guiding a conveyor chain 7 to which chain are attached at intervals outwardly extending, braced arms 9. The ends of the arms 9 are provided with supporting rollers 11, riding on outer, overhanging angle irons 13, the latter also being supported by said frame 3.

The chain 7, which is endless, is rectangularly arranged by travel over corner sprockets 15, 15' these being rotatably mounted on suitable depending brackets 17 where necessary (Fig. 4).

As shown in Figs. 1 and 5, the supporting shaft 19 of the sprockets 15' is provided with a bevel gear drive 21 driven by a shaft 23 and sprocket 25, the latter being driven by a chain 27 reaching from a speed reducer 29. The speed reducer is driven by a chain 31 from an electric driving motor 32.

Thus, it will be seen that the chain 7 is driven in the direction of the arrow, whereby said arms 9 are driven along the guides or tracks 5, 13. The tracks 13 are suitably curved at the corners as indicated at numerals 33 so that arms 9 are at all times properly supported as they travel.

Attached to the respective arms 9 are hangers 35, each hanger comprising a series of adjacent grooves 37 having beveled sides 39. Each groove 37 has a pair of such beveled sides, each pair of said sides 39 for a given groove being distinctively colored such as for instance, red, blue, green, yellow, black, brown and orange, as shown in Fig. 2, these comprising indicia. It is to be understood that letters, numbers and like symbols may be used as indicia.

Each groove 37 is adapted to receive and support a wire carrier hook 41, the same being easily guided into the grooves by reason of the bevelled side 39. Each hook (of which one is shown) remains in its respective groove, due to the action of gravity only. The hook has an upwardly extending finger 43 adapted to be engaged by a predetermined dog 45 adjustably attached to a cross member of the frames 3, the adjustable attachment being effected by means of a set screw 49 (Fig. 3). At each station X is a dog 45, prede-

terminately positioned in the plane of one of the grooves 37.

Each hook 41 carries a bundle of parts or material 51 which it is desired to send to one of the operators at X and moves with respect to the dog 45 in the direction shown in Fig. 3. It will be understood that the hooks 41 are loaded with the bundles 51 by the distributing operator who also applies the respective hook 41 to its proper groove 37, the groove being chosen which has a color corresponding to the color of the dog 45 of the station X to which the material is to be sent. It will be seen that the distributing operator at station Y can see the colors of the dogs 45 at the various stations X and thus be governed in choosing the color on hangers 35 at which to attach the carriers.

Each of the operators, such as at X, being designated by a predetermined color or like index, such color or index is applied to that operator's dog 45 and said dog is adjusted in position to be in the plane of the groove 37 having the corresponding color or index (see Fig. 2). Thus in Fig. 2, the dog 45 is colored blue, as is the respective slot 37 in the plane of said dog. They have corresponding indicia.

The distributing operator who may be located at a point such as Y, either memorizes the colors belonging to the respective operators, or if the operator does not care to do this, may each time view the dogs 45 from said point Y. Thus, when the distributing operator desires that the operator whose designation is "blue" shall receive a bundle, the bundle is attached to a hook 41 and the hook is attached in the blue groove 37. There is arranged only one blue dog 45 in the plane of the path of the blue hook 41 so attached. Thus as the designated blue hook approaches the blue dog 45, the conditions of Figs. 2 and 3 obtain. A slight further movement from Fig. 3 results in the finger 43 being held back as the hanger 35 proceeds from thereunder, thereby dropping the hook 41 with its burden 51.

It is clear that the burden may be dropped directly on the table 1 and in this event, the operator who is to receive the bundle is seated at the table at or near the respective dog 45. This method is not always desirable, however, inasmuch as the table may become cluttered with bundles.

In order to obviate cluttering, we provide near each dog 45 a chute 53, the end 55 of which lies parallel to the lengths of the arms 9 (Figs. 6 and 7). The ends of the chutes 53 come under the curved portions of the carriers 41 which are fitted into the grooves 37 (Fig. 7). Thus, when the respective hook 41 is released by the respective dog 45, it drops down and hooks over said end 55 and thereafter gravitationally slides down the chute 53 to a curved portion 57 at the other end thereof, said curved portion being supported by an upright 59. It is apparent that a plurality of the hooks may slide down the chute 53, one after the other and collect at the saddle, without cluttering the said table 1. The advantage of this also is that the operator always reaches to one certain region for all work.

As indicated in Figs. 6 and 7, the chutes are further supported by arms 61. Figure 6 shows how the chutes appear in end elevation. This figure also shows how the ends of the chutes 53 are arranged so as not to interfere with the bundles 51 which are destined to go to other stations. Any portions of chutes which have parts which would interfere with the travel of predetermined carriers and bundles are placed subsequently to the point at which said carriers and bundles drop. Also, the arms 61 at the open portions 62 permit passage of the hooks 41 which depend.

It will be understood that other indicia besides colors may be used, such as numerals or the like, but colors are more easily seen and compared from a distance.

The invention provides a main distributing station where a distributing operator makes up a supply of work such as bundles of fittings or cuttings or baskets full of material to be worked upon, this operator predetermining by mechanical movement where said work shall proceed. The motion of the material is continuous.

The distributing operator determines the point of delivery and makes a mechanical setting and thereafter, may dismiss the matter, so far as further control of the delivery of the particular carrier is concerned.

The operators at the station X may re-apply the materials operated upon to the conveyor system with a new setting to cause a dropping off at a subsequent point, if desired; or, they may make a resetting to cause a return of the material and/or holders therefor back to the distributing operator. It will be understood that the operators at X may pass the material to chutes or conveyors or the like for delivery to other points.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. Distributing means for a shoe factory comprising continuously moving means, hook shaped carriers, said continuously moving means having different locations for applying said carriers at a distributing station, and knock-off means at receiving stations adapted to selectively remove predetermined carriers, said knock-off means and the carriers having corresponding means to indicate cooperation, the knock-off means and their respective receiving stations being visible from the distributing station and chutes adapted to receive the respective carriers to deliver them to predetermined points.

2. Distributing means for shoe factories comprising continuously moving means, carrier hooks, said continuously moving means having a plurality of predetermined grooved locations for said carrier hooks, and knock-off means adjustable along the range of said predetermined grooved locations, adapted to be selectively engaged by a predeterminately positioned carrier hook whereby the carrier hook is removed as the said moving means advances.

3. Distributing means for shoe factories comprising continuously moving means, carrier hooks, said continuously moving means having a plurality of predetermined grooved locations at which said hooks are adapted to be attached, and knock-off means adjustable along the range of said predetermined locations adapted to be selectively engaged by a predeterminately positioned carrier hook to detain and remove the hook from the moving means, said knock-off means and the

grooved locations having corresponding indicia to indicate their cooperation.

4. In apparatus of the class described for shoe factories, an overhanging support, a guide channel supported thereby, a moving means in said channel, a parallel guide, arms reaching from said moving means to said parallel guide, said arms having means effecting a plurality of recesses, carriers adapted to be supported at said recesses, and laterally positioned means on said support adapted to engage said carriers for removal according to the recesses in which they are located.

5. In apparatus of the class described for shoe factories, an overhanging support, a channel supported thereby, a moving means in said channel, a parallel guide, arms reaching from said chain to said parallel guide, said arms having means effecting a plurality of recesses, carriers adapted to be supported at said recesses, and laterally adjustable means on said frame adapted to engage said carriers according to the recesses in which they are located, and chutes arranged beneath the arm to receive the removed carriers without interfering with carriers which have not been removed.

6. In apparatus of the class described for shoe factories, an overhanging support, a channel supported thereby, a chain in said channel, a parallel guide, arms reaching from said chain to said parallel guide, said arms having means effecting a plurality of recesses, carriers adapted to be supported at said recesses, and laterally adjustable means on said frame adapted to engage said carriers according to the recesses in which they are located and indicating means for indicating cooperating correspondence between predetermined recesses and predetermined ones of said adjustable means.

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