J. T. COWLEY.

CONVEYER.

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1,276,724. Patented Aug. 27, 1918.

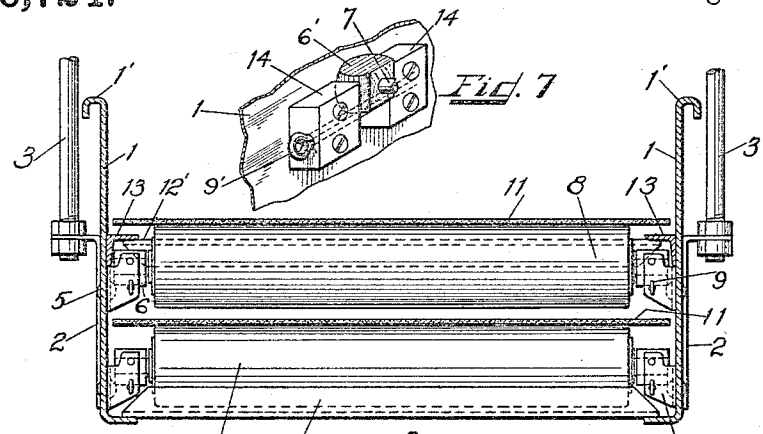


Fig. 7

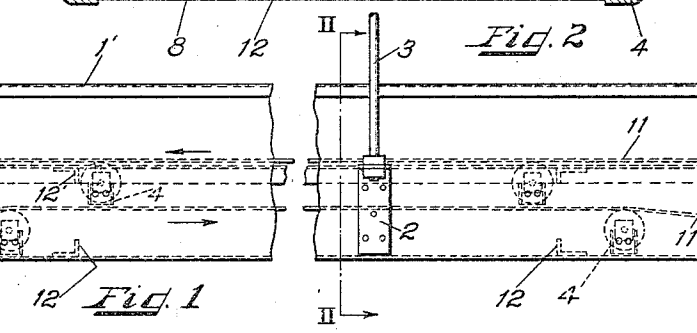


Fig. 2

Fig. 1

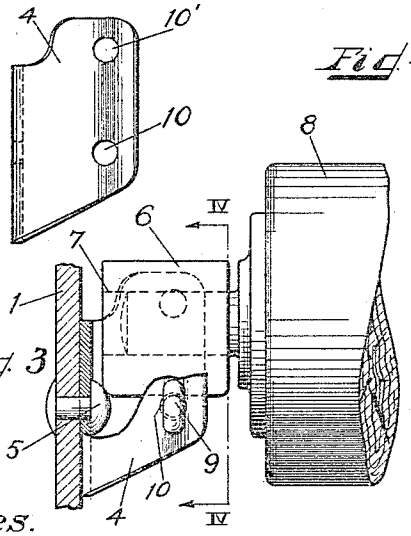


Fig. 6

Fig. 3

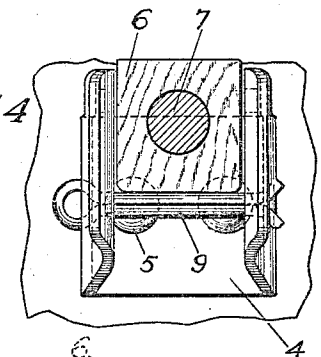


Fig. 4

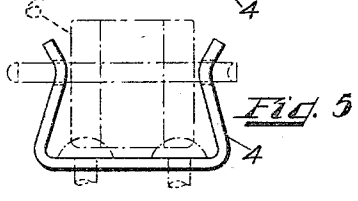


Fig. 5

Witnesses.

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CONVEYER.

1,276,724. Specification of Letters Patent. Patented Aug. 27, 1918.

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To all whom it may concern:

Be it known that I, JAMES T. COWLEY, a citizen of the United States, residing at Minot, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Conveyers, of which the following is a specification.

This invention relates to conveyers and more particularly to conveyers having rollers therein, which may carry, for example, a belt, or the like; one of the principal objects of said invention being to so construct said conveyer as to facilitate the removal from or emplacement between the sideboards or supports at the sides of said conveyer, of said rollers.

A further object of my invention is to simplify conveying apparatus of this general description, so that it may be constituted by the smallest possible number of parts or elements; while preferably at the same time keeping the cost of manufacture of such parts down to a minimum.

These and other objects of my invention will be hereinafter referred to and the novel combination of means and elements whereby said objects may be attained will be more particularly pointed out in the claims appended hereto.

In the accompanying drawing which forms a part hereof, and in which like reference characters designate like parts throughout the several views, I have exemplified preferred constructions; but as I am aware of various changes and modifications which may be made herein without departing from the spirit of my invention, I desire to be limited only by the scope of said claims.

Referring to the drawings:—

Figure 1 is a side elevation of a conveyer which constitutes the preferred embodiment of my invention.

Fig. 2 is a vertical cross section of said conveyer, the section being taken on the line of II—II on Fig. 1; said section being drawn to an enlarged scale.

Fig. 3 is a detail side elevation, partly broken away, of one of the novel bearings used in my improved conveyer construction.

Fig. 4 is a section taken on line IV—IV of Fig. 3.

Fig. 5 is a bottom view of a socket-clip, shown in end elevation in Fig. 4.

Fig. 6 is a side elevation of said socket-clip; and

Fig. 7 is a perspective view of a modification of said socket-clip and its bearing block.

The conveyer shown in Figs. 1 and 2, comprises sideboards 1 of sheet metal or the like; each sideboard being supported in any suitable manner as by means of angle brackets 2 connected to hanger rods 3. This mode of supporting the sideboards is to be preferred in many cases; since it enables the placing of the conveyer at a relatively high level to permit of walking thereunder in a store or the like; the hanger rods 3 being supported from the ceiling or in any other suitable manner.

The upper edges of the sideboards 1 may be flanged over as at 1′, to give finish to the conveyer, and also to prevent parcels and the like, being conveyed thereby, from coming into contact with the relatively sharp or thin edges of the metal plates which preferably constitute the sideboards. These overturned edges 1′ also afford convenient points of attachment, whereby to support the conveyer therefrom, if it be not desired to use hangers 3 or the like.

Attached to the inner side of each sideboard 1, at suitable intervals, are socket-clips 4 or some equivalent thereof; which may be fastened to the sideboards by means of rivets 5, or the like; such attachment of the socket-clips to the sideboards being preferably effected in the shop or factory, so that a sideboard together with its socket-clips may be shipped as one piece.

These rivets or equivalent attaching devices, are, in the preferred construction illustrated, also caused to co-act with the corresponding bearing blocks 6 to aid in properly locating the latter in their clips. Thus, as shown in Fig. 3, the outer, lower edge of the block 6 in which is journaled a trunnion 7, or the equivalent thereof, of a roll or roller 8, bears against the heads of the rivets

5 in such fashion as to hold the block out from the wall of the side support 1, to permit said block to freely swivel upon a supporting pin 9 upon which said block preferably rides.

This pin may be a split pin, and the lateral wings of the corresponding clip, may be perforated or apertured as at 10 to receive and support said pin. The said wings of the clip, especially when the latter is made of sheet metal, may be convexly curved with respect to the block, to permit the latter to swivel in a horizontal plane.

Owing to the fact that it may be sometimes desired to use the clip in an inverted position, an extra set of perforations 10′ may be provided in said wings, so that the clip shown for example in Fig. 6, may be used up side down, in which case the pin 9 would be inserted into the apertures 10′, to provide a support for the bearing block 6, substantially as before.

The bearing blocks 6, which receive the trunnions 7 of the roll, are preferably of wood, treated or impregnated with oil or some other suitable lubricant; although of course I do not desire to be limited to wood bearing blocks; since these blocks may be of any suitable material. By making said blocks of impregnated wood, however, and especially when sheet metal clips such as those illustrated in the drawing are employed, the cost of construction is reduced substantially to a minimum, and a very efficient, self-lubricating bearing is provided, which is admirably adapted to accommodate itself to deviations from the horizontal, and further to more or less oblique dispositions of the roll 8 or equivalent rotary member, with respect to its supporting side plates, the normal axis of said roll being preferably, but of course not necessarily, substantially at right angles to said side supports or plates.

As the rollers 8 are preferably also of wood, the conveyer construction as a whole is very light, and yet strong.

The rolls 8 may support a canvas belt 11 or the like, and are preferably disposed at different levels, as indicated in Fig. 1, to support the forward and return runs of said belt.

The bottoms of the side boards or plates 1, may be in-turned, as shown in Fig. 2, and spacers 12 of angle iron or other suitable material, may be connected to such in-turned portions, to form a rigid frame for the conveyer. Where the frame-work is very light, as shown in the drawing, it is also preferable to provide spacing bars 12′; and these are preferably attached at their respective extremities to angle irons 13, which are fastened to the respective inner side of the sideboards 1, preferably in such fashion as to overlie the bearing blocks 6 of the upper or forward run of the conveying belt, to provide means for preventing said blocks from inadvertently riding up out of their clips.

In order to remove a roll from the conveyer, if such roll be one which supports the forward run of the belt, the pins 9, corresponding to said roll, are withdrawn from their clips, which permits of the downward movement of such roll, together with its bearing blocks, until one or both of the latter are free from the corresponding clip or clips, whereupon the roll may be raised, together with belt thereabove, until said roll can be drawn endwise out of the conveyer. In placing a roll in position in the conveyer a reverse operation is employed.

The rolls which support the lower side or run of the belt, are preferably staggered with respect to the rolls which support the forward run, so that it is not necessary to even withdraw the supporting pins for such a lower roll, if it be desired to remove the same; but said roll, together with its bearing blocks, is simply lifted up until said blocks clear their respective clips, after which the roll can of course be readily removed.

In Fig. 7 I have illustrated a modified form of clip and bearing block. In this case the clip may be composed of two small blocks of wood 14, screwed fast to the sideboards 1, so as to provide a space therebetween; and the bearing block 6′ may have its lateral and rear wall convexly curved as shown, to permit of said block swiveling upon its supporting pin 9′, either laterally in a horizontal plane, or vertically, as may be necessary.

Many forms of supporting clips and bearing blocks will of course suggest themselves to those skilled in the art, and I hence do not desire to be limited to the particular constructions shown, except where in the appended claims, such limitations are specifically indicated.

Having thus described my invention what I claim is:

1. In belt conveyer mechanism comprising imperforate side boards, an endless belt running within the space defined by the side boards, and rollers for supporting the belt, bearing means for the axes of the belt comprising perforate bearing blocks, clips attached to the side boards forming surfaces adapted to receive the blocks between them and to permit the blocks to rock on vertical axes, and removable means for holding the blocks against falling out of the clips having surfaces on which the blocks can rock in a horizontal sense, whereby the bearing blocks are universally supported, but upon re-

moving said holding means the blocks are free to be removed downwardly from or inserted upwardly in the clips.

2. In a belt conveyer, the combination of a belt with two sets of trunnioned rollers therefor, the rollers of one set supporting the upper run of the belt while the rollers of the other set support the return run of said belt, side supports, clips connected to said side supports, self-alining journal blocks in said clips for receiving the trunnions of the respective sets of rollers and for holding said rollers at their respective levels, each of said clips having a socket to receive and retain a journal block while permitting the latter to swivel in accordance with the direction of the axis of the roller trunnion journaled therein, said sockets being open at their upper sides, means attached to said side supports for retaining the journal blocks of the upper set of said rollers in place in their respective sockets and the return run of the belt being held by its rollers adjacent the upper rollers to enable the lower run of said belt to co-act with said upper rollers to normally prevent the journal blocks of the lower rollers from riding up out of their sockets.

3. In a belt conveyer, the combination of a belt with two sets of trunnioned rollers therefor, the rollers of one set supporting the upper run of belt while the rollers of the other set support the return run of said belt, side supports, clips connected to said side supports, and self-alining journal blocks in said clips for receiving the trunnions of the respective sets of rollers and for holding said rollers at their respective levels, each of said clips having a socket to receive and retain a journal block while permitting the latter to swivel in accordance with the direction of the axis of the roller trunnion journaled therein, and including a removable supporting element for said journal block, against which said block bears and upon which said block may swivel, said sockets of said clips each being open upon its under side, except for the removable supporting element thereof, to permit of the removal of its journal block therefrom together with the roller journaled therein, while leaving the belt substantially undisturbed.

4. The combination of a rotary member with journal blocks therefor, side supports and opposed socket-clips attached to said side supports into which said blocks, when operatively disposed with respect to said rotary member, may be inserted from below while disposing said rotary member in its operative position immediately between said supports, and removable pins in said clips to hold said blocks in place in said clips.

5. The combination of a rotary member with side supports therefor, U-shaped, sheet-metal clips attached to said side supports, and self-alining journal blocks in said clips for receiving the bearing parts of said member, each of said clips having a socket to receive and retain a journal block while permitting said block to swivel in accordance with the changes in direction of said axis.

6. The combination of a rotary member with side supports therefor, U-shaped clips attached to said side supports, and self-alining impregnated-wood journal blocks in said clips for receiving the bearing parts of said member, each of said clips having a socket to receive and retain a journal block while permitting said block to swivel in accordance with the changes in direction of said axis.

7. The combination of a rotary member with side supports, clips attached to said side supports, and self-alining journal blocks in said clips for receiving the bearing parts of said member, each of said clips having a socket, to receive and retain a journal block, while permitting said block to swivel in accordance with the changes in the direction of the axis of rotation of said member, and including a separable support for the journal block upon which the latter may swivel.

8. The combination of a sheet-metal, substantially U-shaped clip, with a support for said clip to which the latter is attached, an impregnated-wood bearing block in said clip, and a pin through said clip to support said block, said block being adapted to swivel in a vertical plane upon said pin and also to swivel in a horizontal plane within its clip and while in engagement with said pin.

9. The combination of a sheet-metal, substantially U-shaped clip, with a support for said clip to which the latter is attached, an impregnated-wood bearing block in said clip, and a split-pin through said clip to support said block, said block being adapted to swivel in a vertical plane upon said split-pin and also to swivel in a horizontal plane within its clip and while in engagement with said split-pin.

10. The combination of an impregnated-wood bearing block journaled to receive a rotary element, with a pin to support said block, and means to support said pin and to retain said block against undue lateral displacement of said block with respect to said pin in the direction of the length of the latter, said block being free to swivel upon said pin to accommodate itself to changes in the direction of the axis of rotation of said element.

11. The combination of an impregnated-

wood bearing block journaled to receive a rotary element, with a split-pin to support said block, and means to support said split-pin and to retain said block against undue lateral displacement of said block with respect to said split-pin in the direction of the length of the latter, said block being free to swivel upon said split-pin to accommodate itself to changes in the direction of the axis of rotation of said element.

In testimony whereof I have affixed my signature, in the presence of two witnesses.

JAMES T. COWLEY.

Witnesses:

R. S. CLARKE,

C. O. LAURIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."