Aug. 30, 1932. L. G. BLEYER 1,874,736

ENDLESS TRAVELING WATER SCREEN

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Fig. 1.

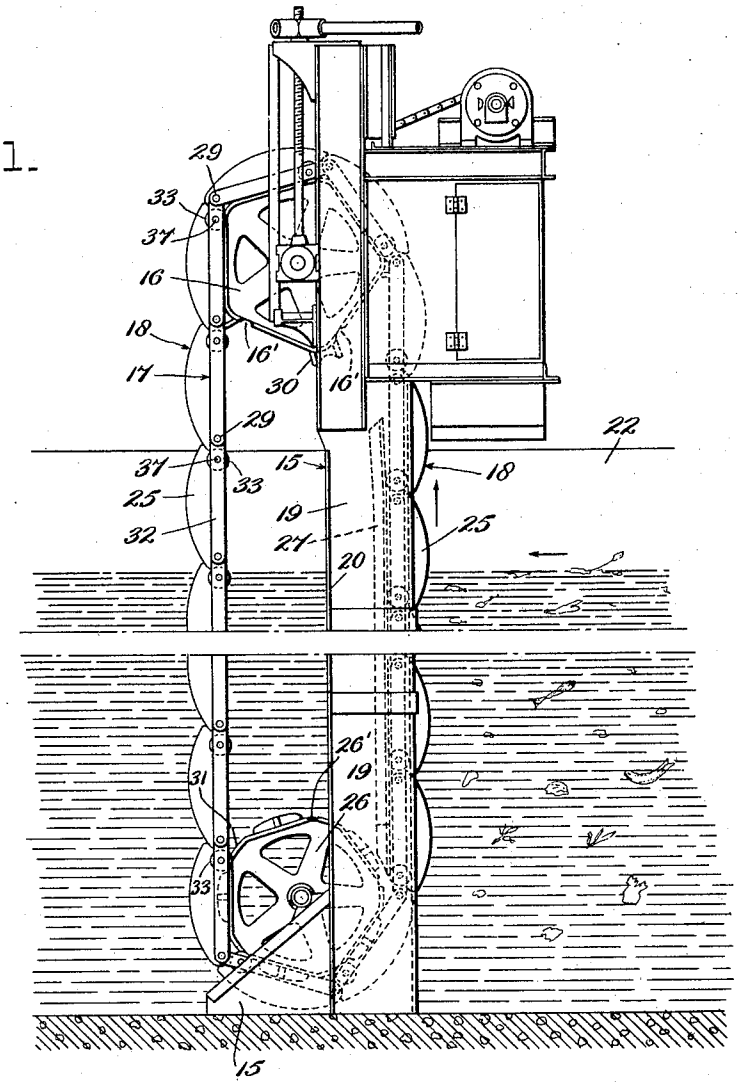
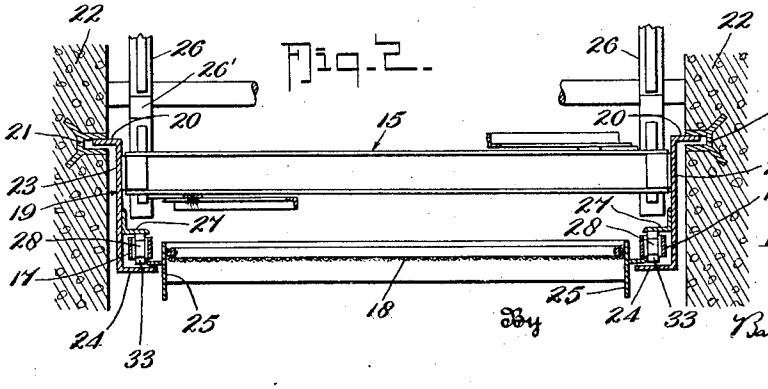


Fig. 2.



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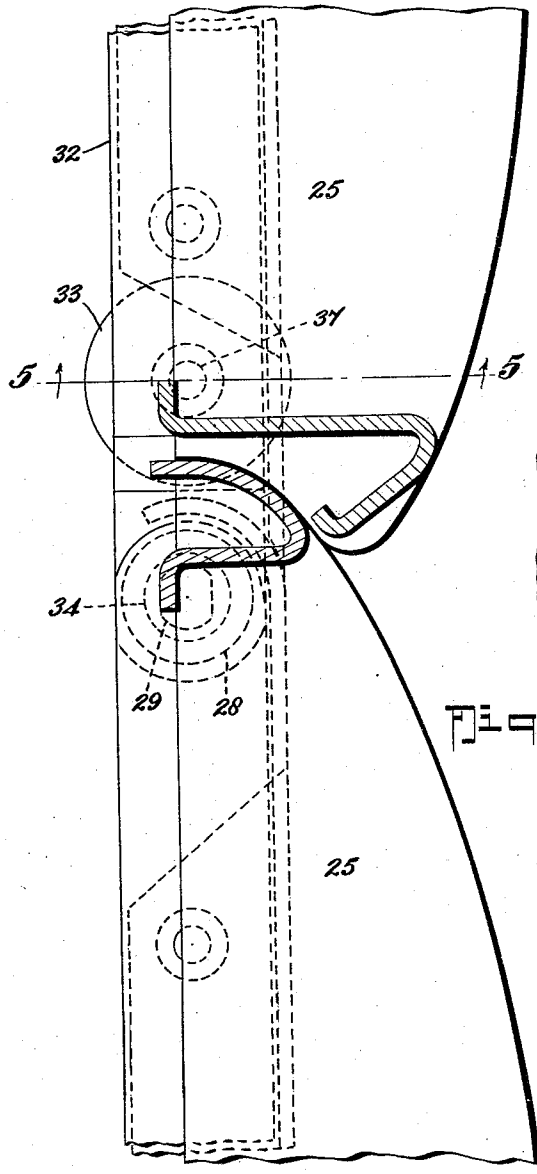


Fig. 3.

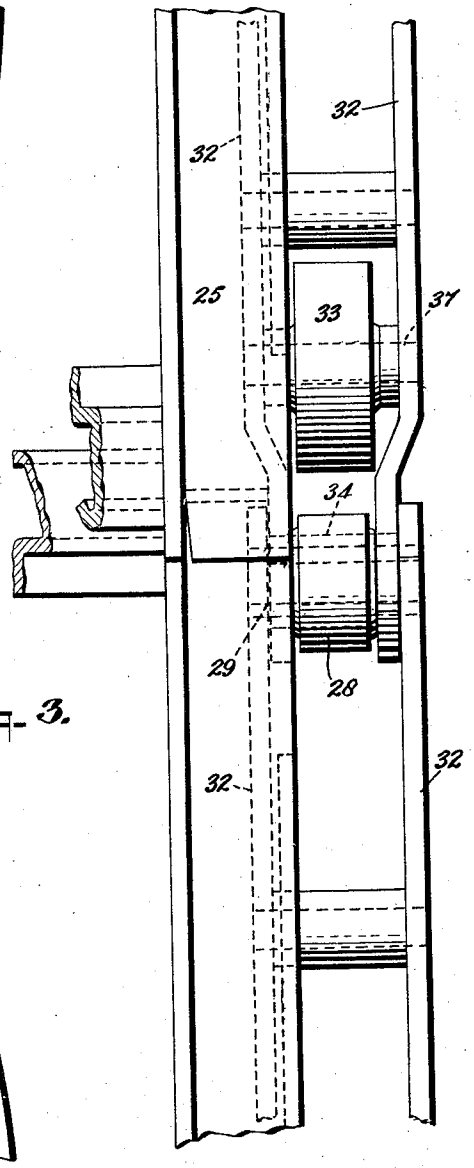


Fig. 4.

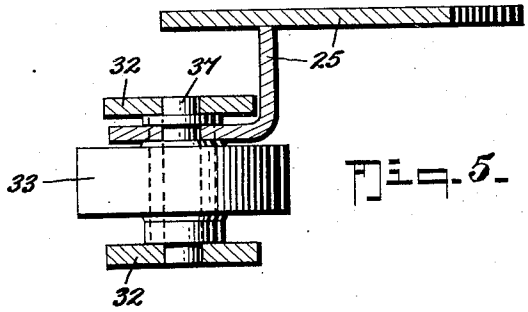


Fig. 5.

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ENDLESS TRAVELING WATER SCREEN

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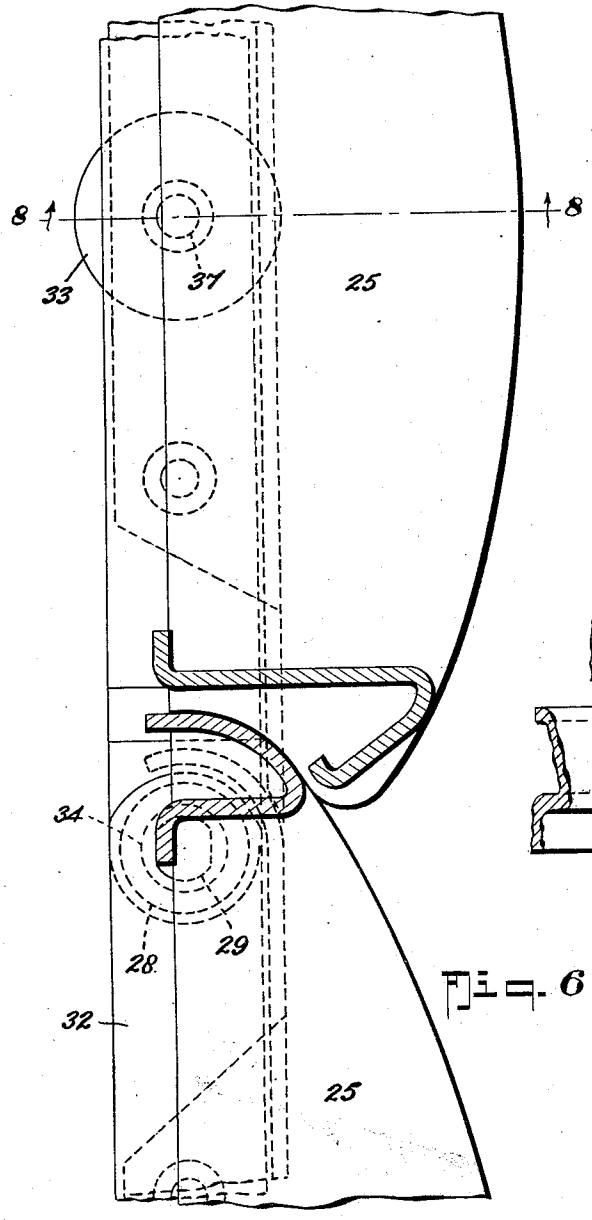


Fig. 6.

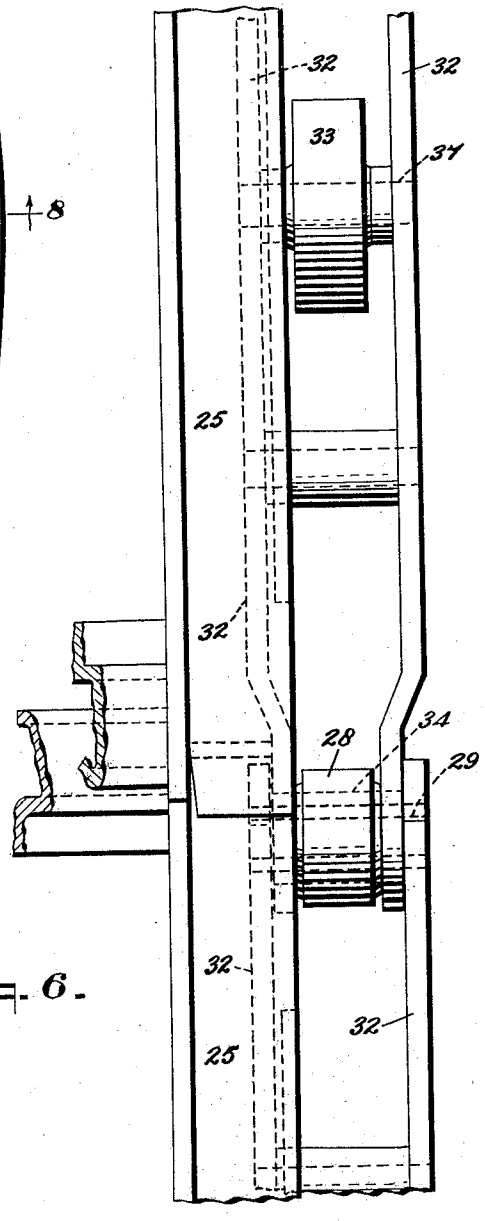


Fig. 7.

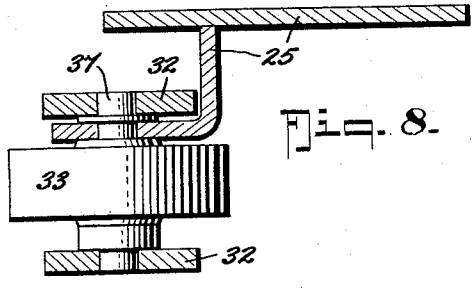


Fig. 8.

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UNITED STATES PATENT OFFICE

LLOYD G. BLEYER, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO CHAIN BELT COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN

ENDLESS TRAVELING WATER SCREEN

Application filed March 15, 1930. Serial No. 436,212.

This invention relates to endless traveling water screens and has for one of its objects to improve the construction of prior devices of this character whereby they may be rendered more efficient in use and less expensive in maintenance.

The invention relates more particularly to endless traveling water screens of the type which comprises a pair of laterally spaced endless chains, which pass around vertically spaced sprockets, each link of which chains has secured to it a screen basket through which the water passes in order that the refuse carried thereby may be separated out upon the screen surface. It has been found in the actual operation of such screens, especially where the water contains relatively large amounts of harsh abrasive substances, such as foundry slag, coal cinders and the like that excessive wear occurs upon the pintle rolls of the chains, necessitating frequent removal and renewal of these rolls. Inasmuch as these pintle rolls are usually mounted intermediate the spaced side bars of the chain links and since the screen baskets are secured to said side bars, it has heretofore been necessary to disconnect the chain bars from the baskets and to dismantle the chain in order to remove worn pintle rolls.

Traveling water screens of this character are usually provided, in addition to the head and tail sprockets around which the chains pass, with intermediate vertical guide members with which the pintle rolls engage during the vertical up-run of the screen and it is the travel of the rolls along these vertical guides which results in the greatest wear on the said rolls, since they do not ordinarily contact with the boot sprocket wheels. Therefore, if provision is made to eliminate the engagement of the pintle rolls with the vertical intermediate guide members during the up-run of the screen, while at the same time providing suitable support for the screen baskets and chains throughout this up-run—since the water pressure is usually sufficient to make such support necessary or desirable—the major portion of the wear which now occurs upon the pintle rolls may be eliminated.

It is, therefore, the primary object of the present invention to provide means which, while furnishing the necessary lateral support for the chains and baskets on the up-run of the screen, will relieve the chain pintle rolls from their engagement with the vertical guides and thereby eliminate, to a great extent, the wear which now occurs thereon.

A further object of the invention is to provide means for accomplishing the above desirable result comprising additional rollers or members which may engage the vertical guides to furnish the necessary horizontal support, which rollers or members are so mounted as to be readily accessible to the end that they may be removed and replaced without the necessity of dismantling the chain and disconnecting the screen baskets.

With the above and other objects in view which will appear as the description proceeds, the invention consists in the novel details of construction and combinations of parts more fully hereinafter described and particularly pointed out in the appended claims.

Referring to the accompanying drawings forming a part of this specification in which like reference characters designate like parts in all the views:—

Figure 1 is a side elevational view, partly broken away, of a well known form of endless traveling water screen embodying the present invention;

Figure 2 is an enlarged transverse sectional view through the up-run of the screen shown in Figure 1;

Figure 3 is an enlarged vertical sectional elevational view through the articulating joint of a pair of screen baskets;

Figure 4 is an elevational view of the parts shown in Figure 3, as seen from the right of the said figure;

Figure 5 is a horizontal sectional view taken approximately on the plane indicated by the line 5—5 of Figure 3, looking in the direction of the arrows;

Figure 6 is a view similar to Figure 3 showing a slightly modified form of the invention;

Figure 7 is an elevational view of the parts

shown in Figure 6 as seen from the right of the said figure; and

Figure 8 is a cross sectional view taken approximately on the plane indicated by the line 8—8 of Figure 6, looking in the direction of the arrows.

Referring more particularly to Figures 1 to 5, there is illustrated an endless traveling water screen comprising a frame work 15 upon which are journalled the head sprockets 16 about which pass the endless chains 17 constituting the supports for the screen baskets 18. The frame 15 comprises in part the vertically extending Z-bars 19, one flange 20 of which is receivable in grooved socket members 21 which are embedded in the side walls 22 of the water conduit. The webs 23 of the Z-bars 19 extend parallel to the faces of the walls 22 and the forward flanges 24 of the said bars 19 extend inwardly to form trash seals with the fabricated side members 25 of the screen baskets, as is well known in the art. Boot or tail sprockets 26 are suitably journalled upon the frame 15 adjacent the bottom of the water conduit and the chains 17 pass around these sprockets as will be clearly understood.

Intermediate the sprockets 16 and 26 there is provided the vertically extending angles or guides 27 which constitute in conjunction with the rolls to be hereinafter described, the means for taking the horizontal thrust imposed upon the screen by the force of the water as it flows therethrough. The chains 17 are provided with pintle rolls 28 which are journalled upon bushings 34 surrounding the chain pins 29 and in previous constructions these pintle rolls have engaged with the vertical guides 27 during the up-run of the chain to furnish the necessary horizontal support for the screens. These pintle rolls engage the teeth 30 of the head sprockets 16 whereby motion may be imparted to the chains and screens, but ordinarily the boot sprockets 26 are so formed or cut away as at 31 that the said rolls do not contact therewith.

As above stated, the pintle rolls 28 of the chains 17 are ordinarily mounted intermediate the side bars 32 of the said chains and when wear occurs upon such rolls obviously the chain pins 29 must be withdrawn and the chains and the baskets disconnected in order that such rolls may be removed and renewed. This is a rather difficult and expensive procedure and in order to eliminate the necessity therefor, I have provided supplemental rolls 33, mounted upon short readily removable stub shafts 37 which are journalled in the side bars 32 of the chains. The said supplemental rolls are positioned intermediate the side bars adjacent to and in alinement with the pintle rolls 28, but they are at the same time readily removable and renewable without dismantling the chain, it being only necessary to knock out the stub shafts 37 without in any wise disturbing the pintle rolls 28 or the connecting chain pins 29.

The form of invention shown in Figures 6, 7 and 8, inclusive, is closely analagous to that shown in Figures 1 to 5 except that the supplemental rolls 33 and their supporting stub shafts 37 are located substantially midway between the ends of the chain links instead of being immediately adjacent to the pintle rolls 28. The same accessibility and ease of removal and replacement is still retained, however. It will be noted that the supplemental rolls 33 are of greater diameter than the chain pintle rolls, since the supplemental rolls and pintle rolls are in alinement and if the supplemental rolls were of the same diameter as the pintle rolls, they would fail to relieve the pintle rolls from the vertical guide members 27. The peripheries of the sprockets 16 and 26 may be cut away or recessed, as indicated at 16′ and 26′ respectively, Figure 1, to accommodate these larger rolls.

It is obvious that those skilled in the art may vary the details of construction as well as the precise arrangement of parts without departing from the spirit of the invention and it is not wished to be limited to the above disclosure except as may be required by the claims.

What is claimed is:

1. In an endless traveling water screen, a basket supporting chain; a guiding sprocket therefor; an additional guiding element adjacent said sprocket; sprocket engaging pintle rolls carried by said chain; and additional rolls mounted in longitudinal alinement with said pintle rolls for engaging said additional guiding element to prevent excessive wear upon said pintle rolls, said additional rolls being removable and replaceable without dismantling said chain.

2. In an endless traveling water screen, a basket supporting chain; a guiding sprocket therefor; an additional guiding element adjacent said sprocket; sprocket engaging pintle rolls carried by said chain; and additional rolls mounted in longitudinal alinement with said pintle rolls and substantially midway between adjacent pintle rolls, for engaging said additional guiding element to prevent excessive wear upon said pintle rolls, said additional rolls being removable and replaceable without dismantling said chain.

In testimony whereof I affix my signature.

LLOYD G. BLEYER.