The object of this invention is to provide a new and improved form of an endless traveling grate for a furnace which grate will also act as a mechanical stoker.

Another object of the invention is to provide a belt having grate bars upon which the chain travels up a steep incline at the forward end where the coal is received and by which the coal is turned over and over, and is caused to roll back on the belt.

These and other objects of the invention will be illustrated in the drawing described in the specification and pointed out in the claims at the end thereof.

In the drawing, Fig. 1 is a side elevation of the grate, the belt and some of the parts associated therewith being shown in vertical section. Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

Fig 3 is a top plan view of two links of one of the chains.

Fig. 4 is a vertical section through the links, the section being taken on the line 4—4 of Fig. 2.

In the drawing reference numerals indicate like parts.

In the drawing reference numerals 1, 1 indicate small sprocket wheels at the lower end of the belt, and 2, 2 indicate large sprocket wheels at the upper end of the belt. The sprocket wheels are mounted to rotate with shafts 3 and 4 respectively. Over these sprocket wheels travel chains 5 and 6 on which chains are fastened cross bars 7, 7 by which cross bars the two chains are connected together. These cross bars are narrower than the links to which they are attached so that an interval is provided between them through which the ashes can fall. These cross bars are beveled, that is they are thin on the front and thick at the back. This prevents the coal from lodging in the cracks between the bars and helps the coal to roll over backwards. The shaft 3 is extended at the left as shown in Figure 2 so that the chains and belt may be driven in the direction indicated by the arrow by power.

At the upper end is provided the hopper 8 from which the coal is fed by a feed regulating device 9. The coal is fed on to a chute 10 from which it is delivered to the belt preferably at the upper end.

The lower run of the belt is supported by rollers 11, 11, five of which are shown in Fig. 1, on which rollers the cross bars 7 bear, and by which rollers they are held in practically a straight line. The chains are given a surplus length so that the upper run of the belt will sag and the top of the sprocket wheel 2 is placed at a considerable elevation above the top of the sprocket wheel 1 so that the belt as it approaches the sprocket wheels 2 will travel up a steep incline.

The belt is enclosed in a fire box 12, which holds the coal from rolling off the side of the belt. The tendency of the travel and the slope of the belt is to accumulate the fire at the upper end of the fire pot where it is turned over and the burning coal is mixed with the fresh coal so that the apparatus acts more or less as a smoke consumer. The chain travels at from 2 to 4 feet per minute. While the fire is or can be maintained the whole length of the fire pot, the bottom of the fire is continually drawn up and turned over on top of the fire.

The links of the belt are each provided with a broad hook 15 at one end and a broad slot 16 at the other end with which the hook of the next preceding link engages. A recess 17 is provided in the link at one side of the slot, which permits the hook 15 of the next succeeding link to slide sideways therein and to make full engagement therewith or disengage therefrom.

I claim:

1. A combination of a belt comprising two chains having links therein, cross bars connecting the links of the two chains, said belt being adapted to travel through the firebox of a furnace, the under run of said belt being supported so that it travels substantially in a straight line, the upper run of said belt being allowed to sag, the upper part of said belt traveling up in a steep incline, means for feeding coal on the steep inclined part of the belt, the upward movement of the belt being adapted to carry the coal up the steep incline and permitting it to roll back down the incline.

2. The combination of a belt comprising two chains having links therein, cross bars connecting the links of the two chains, said belt being adapted to travel through the firebox of a furnace, the upper run of said belt being allowed to sag in the middle thereof, the upper part of said belt traveling up in a steep incline, means for feeding coal on the steep inclined part of the belt, the upward movement of the belt being adapted to carry the coal up the steep incline and permitting it to roll back down the incline.

HARRISON L. WHITE.