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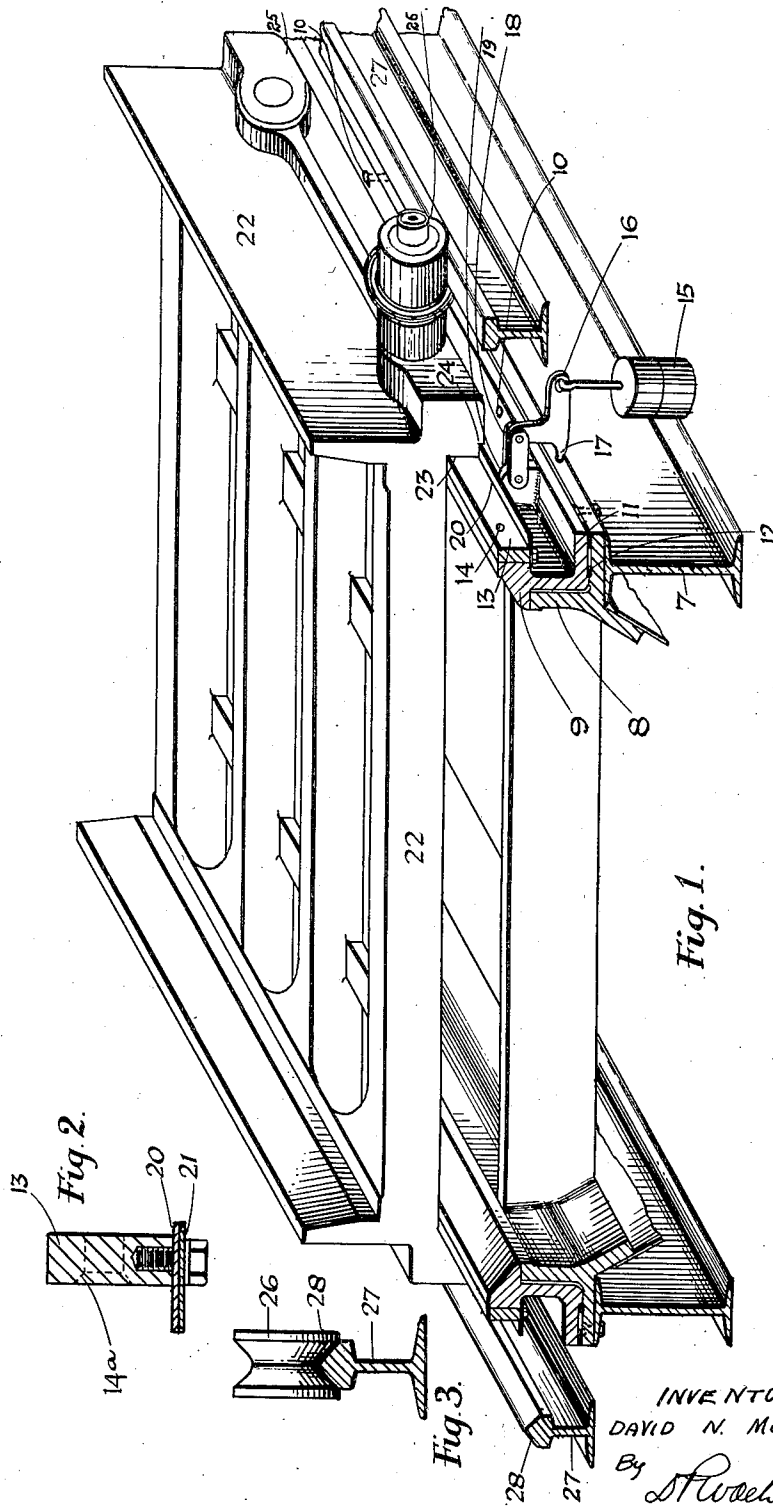
D. N. MORISON

1,880,146

ORE SINTERING MACHINE

Filed Jan. 20, 1931

2 Sheets-Sheet 1



INVENTOR
DAVID N. MORISON

By *Sturges*
5744

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Fig. 5

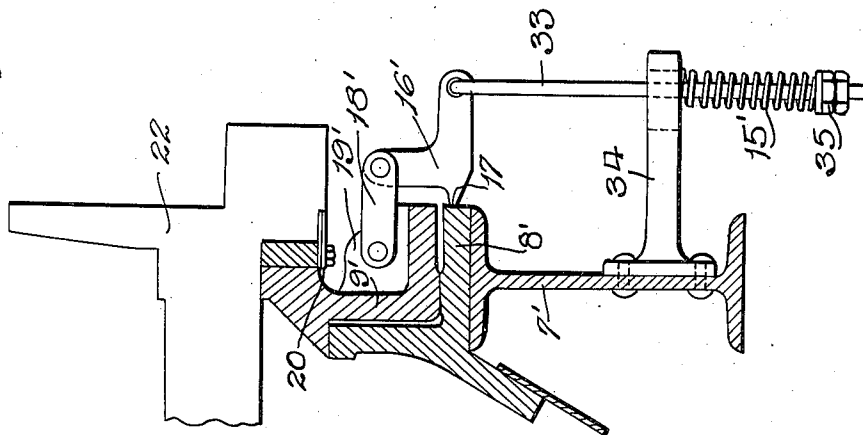
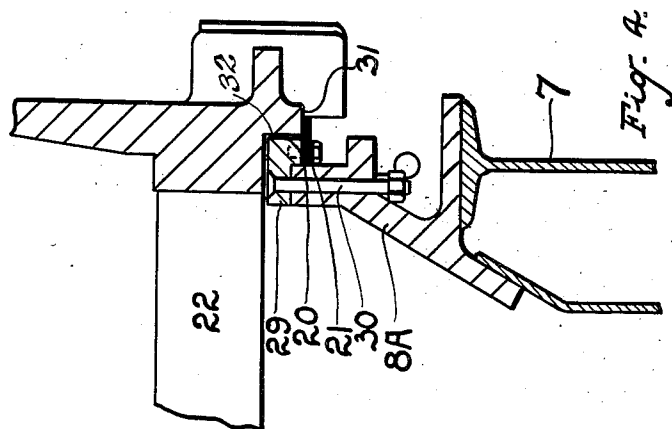


Fig. 4

INVENTOR
DAVID N. MORISON
By D. P. Wechsung Atty.

UNITED STATES PATENT OFFICE

DAVID NIVEN MORISON, OF CARRINGTON, NEWCASTLE, NEW SOUTH WALES,
AUSTRALIA

ORE SINTERING MACHINE

Application filed January 20, 1931, Serial No. 509,979, and in Australia January 20, 1930.

This invention relates to certain mechanism for carrying on the Dwight Lloyd process of treating ores or rather fines of ores wherein wheeled pallets (having a grate bottom) containing the ore to be sintered are caused to travel along a continuous track and pass over a suction "wind box" having suction fans or the like to draw air into the box through the ore on the pallets the combustible ingredients of which have been previously ignited to maintain combustion thereof. And this invention has been specially devised to enable simple adjustment of the various parts (if need be while the machine is in operation) to compensate for wear and tear between the pallets and the wind box; and the invention has been further devised to provide a more effective mechanism than heretofore for preventing air leakage between the pallets side edges and the wind box so increasing the efficiency of the draught through the ores; and the invention has been further devised to provide a simple pallet rail and wheel which will obviate side wobble of the pallets as they move along the track.

According to this invention the stationary frame of the machine has a travelling pallet slider or adjustable guide (between the pallet rails) on the wind box framing in sections slidable transversely on said framing with adjusting mechanism for regulating the working space between the wind box and the pallet a longitudinal gland slot being provided in the meeting faces of the guide and the framing wherein is inserted a packing (preferably asbestos packing).

The pallets have sealing inverts depending from the sides thereof adapted to slidably fit against the side faces of the guides and at the bottom to contact a sealing liner, say an asbestos tape bolted to the guides above a keeper plate.

But in order that this invention may be readily carried into practical effect it will now be described with reference to the draw-

ings accompanying and forming part of this complete specification and wherein Fig. 1 is a perspective view of a fragment of a wind box with a skeleton pallet thereon. Fig. 2 is a section of the sealing liner. Fig. 3 is a section of one pallet rail with wheel thereon. Fig. 4 is a fragmentary section of a wind box and pallet of conventional construction to which this invention is adapted, while Fig. 5 is a view similar to Fig. 4 illustrating a slightly alternative embodiment of the invention.

The stationary frame 7 of the wind box section of the machine has—describing one side for simplicity, though both sides are preferably identical—a sole frame 8 bolted or otherwise affixed thereto and on this sole frame 8 is an adjustable guide 9 retained in position by bolts through elongated holes 10 homing in the sole plate 8 and which are preferably left slack to enable the guide 9 to slide transversely. Interposed in longitudinal gland slot 11 is a packing 12 of asbestos or the like (to prevent air leaks between the sole frame 8 and said guide 9). On the guide 9 is a removable wearing liner 13 retained in position by set bolts 14 in orifices 14A screwing into the guide 9 from said liner 13. Counter balance weights 15 on one arm of a bell crank 16 having its fulcrum 17 on the sole frame 8 and the other arm of which has a link 18 to a lug 19 on the guide 9 keeps said guide up to its work, such counter balance devices being provided at each end of each section of the guides 9. A sealing liner 20 of asbestos tape or the like having a thin flexible steel backing or keeper 21 is bolted to the wearing liner 13.

The pallets 22 (the frame only is shown) have fast to or integral therewith on each side thereof a depending sealing invert 23 having a groove 24 therein for the sealing liner 20. The ends of the pallets 22 are rounded as indicated at 25 to allow close contact between the pallets as they travel around the discharge end of the machine.

The weight of the pellets 22 is borne by wheels or rollers 26 which travel on rails 27 outside the wind box. The rails or one of them in a present preferred construction as shown in Fig. 3 have an inverted V shaped top 28 (or it may be arcuate) and the pallet wheels 26 have tires shaped complementary thereto so that the pallets travel in a true course along the machines without side wobble.

In operation, a working clearance is provided between the pallets and the wearing liner 13. The free edge of the sealing liner 20 is held in the pallet groove 24 against the bottom face of the invert 23 by the keeper 21 and the suction of any suitable fan tends to draw the liner 20 upwardly into close contact with the pallet groove 24 and so the air draught created by the fan is confined to pass through the materials being sintered in the pallets thus achieving a more effective sintering than heretofore. The clearance between the top of the guides 9 and the bottom of the pallet may be adjusted by inserting wedges or the like in the gland slot 11 to raise or lower the guides, or such adjustment can be effected by raising or lowering pallet rails by like means.

Existing machines may be quickly and cheaply modified to achieve the objects of this invention as far as the seal between the pallet and the wind box. In Fig. 4 the sole frame 8A is shown as usually constructed and on top thereof is a flanged liner 29 retained in position by bolts 30 and having the sealing liner 20 and the keeper 21 bolted thereto. The pallet 22 has the edge 31 machined to provide a smooth working surface for the sealing liner the invert being grooved as indicated at 32.

Figure 5 of the drawings illustrates the use of spring means in lieu of and for the purpose of the counterbalance weights 15. A bell crank lever 16' is fulcrumed as at 17' against the sole frame 8' and has vertical and horizontal arms the former of which is connected by a link 18' with a lug 19' on the guide 9', and the latter of which has depending therefrom a rod 33 which extends loosely through a bracket arm 34 carried by the frame 7'. On the rod 33 below the bracket arm 34 is a suitable abutment such, for example, as a nut or nuts 35, and between this abutment and the under side of the bracket arm is disposed a compressed coil spring 15' which, by reaction from the bracket arm, tends constantly to urge the rod 33 downwardly thus to accomplish the same purpose as the weights 15.

Though the invention has been described as having for a sealing liner an asbestos tape with a keeper plate it is to be clearly understood that the asbestos tape may be dispensed with and that the keeper plate may be provided in the form of a thin spring

steel strip adapted to directly contact the pallet inverts.

I claim:—

1. In an ore sintering machine, a wind box, a pallet rail at each side of the wind box, a slider guide at each side of the wind box, a wheeled pallet mounted to travel on said pallet rails and having inverts slidably engaging said slider guides, and means providing for lateral adjustment of at least one of said slider guides to maintain a close sliding engagement of the slider guides with the inverts.

2. In an ore sintering machine, a wind box, a pallet rail at each side of the wind box, a slider guide at each side of the wind box, a wheeled pallet mounted to travel on said pallet rails and having inverts slidably engaging the outer faces of said slider guides, and means constantly tending to urge at least one of said slider guides outwardly against the related invert thereby to maintain a close sliding engagement of the slider guides with the inverts.

3. In an ore sintering machine as set forth in claim 1, a sealing liner carried by each slider guide and sealing against the pallet inverts, respectively.

4. In an ore sintering machine as set forth in claim 2, a sealing liner carried by each slider guide and sealing against the pallet inverts, respectively.

5. In an ore sintering machine as set forth in claim 1, a sealing liner carried by each slider guide and sealing against the pallet inverts, respectively, and a metal keeper for each sealing liner.

6. In an ore sintering machine as set forth in claim 2, a sealing liner carried by each slider guide and sealing against the pallet inverts, respectively, and a metal keeper for each sealing liner.

7. In an ore sintering machine, a wind box inclusive of a sole frame element at each side thereof, a pallet rail at each side of said wind box, a wheeled pallet mounted to travel on said rails, a slider guide carried by each sole frame element, the pallet having inverts slidably engaging said slider guides, at least one of said slider guides being mounted on its related sole frame element for lateral adjustment with respect thereto into sliding engagement with the related pallet invert, means providing a gland slot between each sole frame element and the related slider guide, a packing in each slot, and sealing means carried by each slider guide sealing against the pallet inverts, respectively.

8. In an ore sintering machine, a wind box inclusive of a sole frame element at each side thereof, a pallet rail at each side of said wind box, a wheeled pallet mounted to travel on said rails, a slider guide carried by each sole frame element, the pallet having inverts slidably engaging said slider guides, at least one

of said slider guides being mounted on its related sole frame element for lateral adjustment with respect thereto into sliding engagement with the related pallet invert, and means constantly tending to urge at least one of said slider guides outwardly into engagement with the related pallet invert, said means comprising a lever connected with the slider guide and fulcrumed against the related sole frame element, and means constantly tending to swing said lever to urge the slider guide outwardly.

In testimony whereof I have signed my name to this specification.

D. N. MORISON.