

W. F. MURPHY.
CONVEYER.

APPLICATION FILED NOV. 29, 1911.

1,062,548.

Patented May 20, 1913.

Fig. 1.

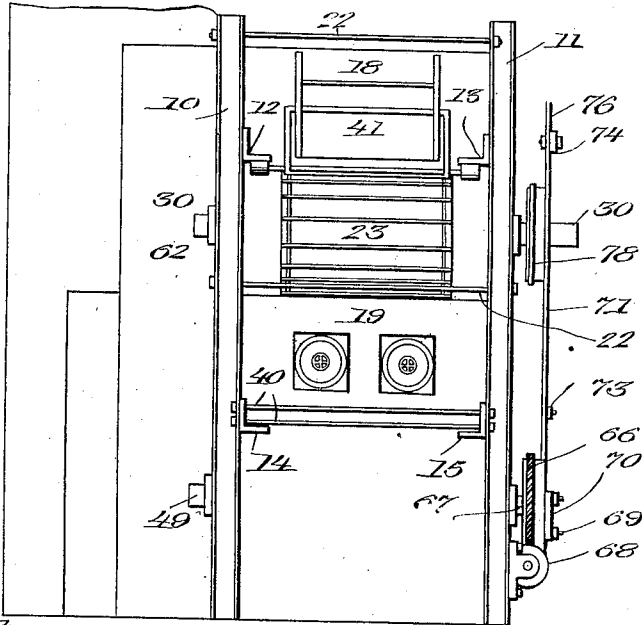


Fig. 3.

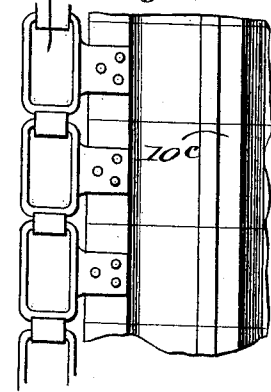


Fig. 4.

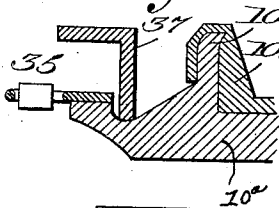


Fig. 5.

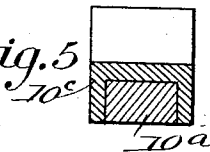
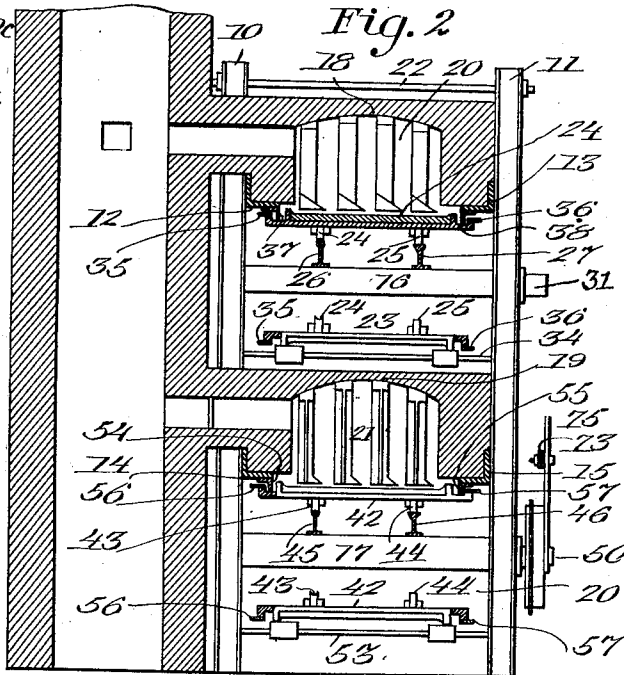


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM F. MURPHY, OF IOWA CITY, IOWA.

CONVEYER.

1,062,548.

Specification of Letters Patent.

Patented May 20, 1913.

Original application filed February 11, 1911, Serial No. 608,089. Divided and this application filed November 29, 1911. Serial No. 663,081.

To all whom it may concern:

Be it known that I, WILLIAM F. MURPHY, citizen of the United States, residing at Iowa City, in the county of Johnson and State of Iowa, have invented new and useful Improvements in Conveyers, of which the following is a specification.

My present invention pertains to conveyers; and it consists in the peculiar and advantageous conveyer, hereinafter described and claimed, designed more particularly for use in combination with the ore roasting furnace constituting the subject matter of my contemporary application filed February 11, 1911, Serial No. 608,089, of which this application is a division.

In the accompanying drawings which are hereby made a part hereof: Figure 1 is an end elevation illustrating the furnace and the upper conveyer constructed in accordance with my invention. Fig. 2 is a vertical transverse section showing the furnace and the upper and lower conveyers. Figs. 3, 4, and 5 are views illustrating details of the conveyers and hereinafter specifically referred to.

Similar numerals designate corresponding parts in all of the views of the drawings.

10 and 11 designate spaced side posts.

12, 13, 14 and 15 designate spaced beams; and 16, 17 designate spaced girders, fixed at their ends to and connecting the posts 10, 11 in pairs. An arch 18, composed of refractory material such as fire brick, is carried by and connects the beams 12 and 13, and a similar arch 19 is carried by and connects the beams 14 and 15. An end wall 20 of refractory material, Fig. 2, conjunctively closes one end each of the arches, while a lesser end wall 21, Fig. 1, closes the opposite end of the arch 19. The posts 10, 11 are connected by tie rods 22 above the arches.

A sectional hearth or conveyer 23 is mounted approximately horizontally in and extends longitudinally of the upper portion of the structure. The said hearth or conveyer 23 preferably is carried by casters 24, 25 on each section, Fig. 2, riding on track rails 26, 27, supported by the girders 16, 17. Any suitable means compatible with the purpose of my invention may be employed for driving the hearth or conveyer 23. The

hearth or conveyer is in the form of an endless apron; and it projects at the ends of its sections entirely across the base of the arch 18. The upper portion or stretch of said hearth or conveyer preferably is carried in a given plane by the casters 24, 25 and track rails 26, 27, Fig. 2. The lower or return portion or stretch of the sectional hearth or conveyer 23 is further carried and steadied by roller shafts 34, Fig. 2, journaled to the posts 10, 11 and extending across and beneath said lower or return portion of the conveyer.

My improved sectional hearth or conveyer 23 is composed of sections and means for connecting said sections. Each section preferably is composed of a cast metal body 10^a Figs. 4 and 5, having spaced ribs 10^b and grooved end portions outside the ribs. Each section is overlaid on its top and the front and rear margins by a cap 10^c, Figs. 3 and 4, formed of refractory composition such as fire clay and asbestos molded and pressed into the desired shape and fired. The shape may vary to any extent, but I prefer to make each cap fit to its section and the ribs thereof, and abut the next adjacent cap so that the completed hearth or conveyer may be approximately imperforate and susceptible of containing and carrying all of the ore, even when such ore is in the finest pulverized condition. Connecting mechanism such as chains 35, 36 may be secured to end portions of the sections 10^a. The driving devices may be composed of pivotally connected members or links rigidly secured to the sections. I have illustrated the connection wherein the chains 35, 36 have their links formed with lateral lugs extending over and riveted to ends of the sections 10^a. Each section 10^a is illustrated with transverse ribs 10^b on its upper surface and spaced apart. The ore is received on the upper surfaces of the sections 10^a between the ribs 10^b and is confined against lateral movement by said ribs; grooved end portions of the sections being adapted to extend and travel beneath the bases of the arch 18; and guards 37, 38 of refractory material such as asbestos, are fixed to the beams 12, 13 and depend in the grooves of the sections so as to locate the driving devices wholly outside of the arch and protect them from the deleterious effects of the roasting

ores or fumes therefrom within the arch. The guards 37, 38 also exclude atmospheric air from the base of the arch.

A chute 41 is suitably supported and projects within the arch 18. The conveyer 23 is adapted to receive ore from the chute 41 and carry the same longitudinally of the arch 18.

A sectional hearth or conveyer 42 is mounted approximately horizontally in and extends longitudinally of the lower portion of the arch 19. The sectional hearth or conveyer 42 preferably is carried by casters 43, 44 on each section riding on track rails 45, 46 supported by lower girders 17, of which one is shown in Fig. 2. Any suitable means compatible with the purpose of my invention may be employed to drive the sectional hearth or conveyer 42. Said hearth or conveyer extends transversely of and projects at the ends of its sections entirely across the base of the arch 19. The upper portion of said hearth or conveyer preferably is carried in a given plane by the casters 43, 44 and track rails 45, 46. The lower or return portion of the sectional hearth or conveyer 42 is further carried and steadied by roller shafts 53, suitably supported and extending across and beneath said return lower portion of the conveyer. Further, the conveyer 42 is constructed identically with the upper stretch of the conveyer 23, except that the conveyer 42 travels in the lower portion of the arch 19. The sides of the arch 19 adjacent the upper portion of the conveyer 42 are sealed or protected against escape of fumes or inlet of atmospheric air by guards 54, 55, of refractory material, carried by the beams 14, 15 and depending in grooves of the sections. The connecting and driving chains of the conveyer 42 are designated by the numerals 56, 57 and are like the chains 35, 36. The sectional hearth or conveyer 42 preferably is approximately parallel with and materially spaced from the hearth or conveyer 23, and like said hearth or conveyer 23 the hearth or conveyer 42 is in the form of an endless apron. The hearth or conveyer 42 is adapted to receive ore from the hearth or conveyer 23 and carry the same longitudinally of the lower portion of the arch 19.

Each caster 24 and 43 is grooved, and each

rail 26 and 45 is formed with a bulb fitting thereto, while each caster 25 and 44 is formed with a wider flat face to support them on the flat rails 27 and 46. Thus all of the rails support casters for travel thereon, and the rails 26 and 45 have the further function of guiding the casters 24 and 43. Thus provision is made for guiding the conveyers in travel, and at the same time providing for any lateral expansion or contraction thereof under changes of temperature.

The sectional hearths or conveyers 23 and 42 are designed to be driven in opposite directions.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. A conveyer comprising sections arranged close together and having ribs and end portions extending outward beyond the ribs, belts connected to the said extended end portions of the sections, and a covering of refractory material overlying the top and the front and rear sides of each section and overhanging the ribs thereof; the said ribs and the overhanging portions of the refractory coverings serving to form continuous retaining walls on the upper stretch of the conveyer.

2. A conveyer comprising sections arranged close together and having ribs and end portions extending outward beyond the ribs and having depressions, belts connected to the said extended end portions of the sections, a covering of refractory material overlying the top and the front and rear sides of each section and overhanging the ribs thereof; the said ribs and the overhanging portions of the refractory coverings serving to form continuous retaining walls on the upper stretch of the conveyer, and longitudinal fixed guards having depending portions disposed in the said depressions in the end portions of the sections for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM F. MURPHY.

Witnesses:

J. W. HOLLAND,

N. W. SEALER.