

J. KENNEDY.
 DOWNCOMER CONSTRUCTION FOR BLAST FURNACES.
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1,064,343.

Patented June 10, 1913.

Fig. 1.

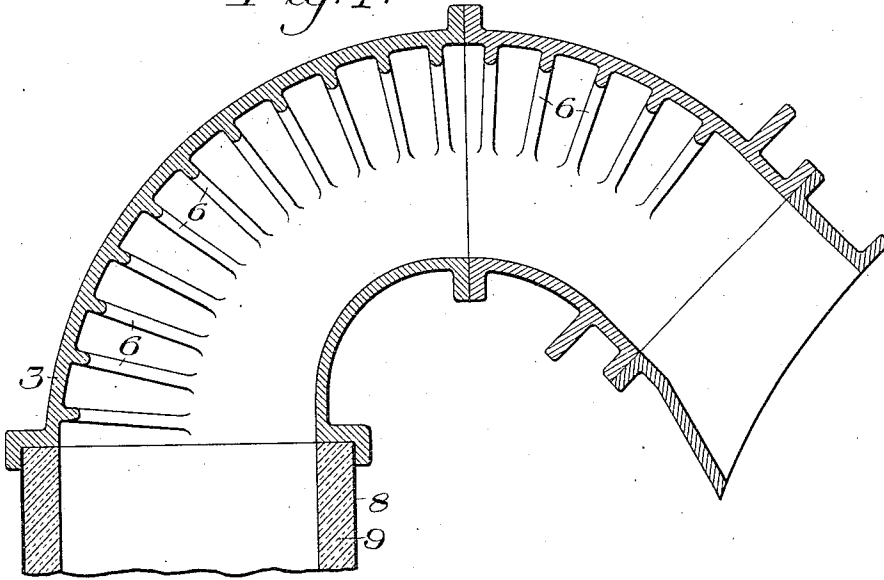
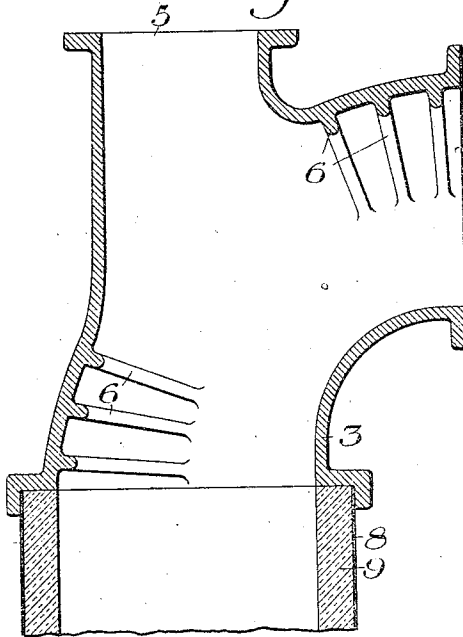


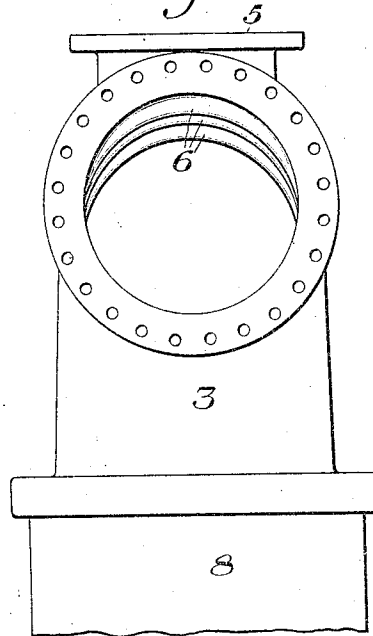
Fig. 2.



WITNESSES

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Fig. 3.



INVENTOR

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UNITED STATES PATENT OFFICE.

JULIAN KENNEDY, OF PITTSBURGH, PENNSYLVANIA.

DOWNCOMER CONSTRUCTION FOR BLAST-FURNACES.

1,064,343.

Specification of Letters Patent.

Patented June 10, 1913.

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To all whom it may concern:

Be it known that I, JULIAN KENNEDY, of Pittsburgh, Allegheny county, Pennsylvania, have invented a new and useful Downcomer Construction for Blast-Furnaces, of which the following is a full, clear and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional view of one portion of the downcomer pipe; Fig. 2 is a sectional view, and Fig. 3 an elevation, of another portion of a downcomer pipe.

In the use of a downcomer piping or conduits for blast furnaces, the fine ore, dust, &c., carried by the outgoing gases rapidly cut those portions of the conduits which are curved to change the direction of the currents of the gas currents, thus making the life of these portions of the downcomer system comparatively short.

The object of my invention is to lengthen the life of such curved portions of the gas conduits by providing protecting means for the interior surfaces of the conduit walls.

In carrying out my invention, I preferably provide these curved portions of the walls with projecting ribs on the deflecting surface portions thereof, which ribs will collect dust, and also serve to retain a dead layer of gases and thereby largely protect the walls from the cutting action of the gases. This arrangement also tends to produce eddy currents, which further protects the walls from the currents of gas flowing by.

In Fig. 2 I have shown a curved portion of a blast furnace downcomer pipe. This curved portion is shown as consisting of cast pipe sections having ribs 6 on the inner surface of its outer wall, this being the portion which deflects the currents of gases passing therethrough. These ribs may taper toward the ends and gradually merge into the wall of the pipe. While they may be arranged in any desirable manner, they are preferably transverse, and also substantially radial.

In Figs. 2 and 3 I show a portion of a

branch downcomer having a bleeder connection opening 5. In this case the ribs 6 are arranged in the portions of the branch pipe in front of and also beyond the bleeder pipe entrance. The section of the pipe which carries these ribs is shown formed of a single casing having the bleeder-pipe connection cast integral therewith.

The advantages of my invention result from the use of the inwardly projecting ribs on the curved portions of the downcomer pipes, which, as above stated, form a substantially dead layer of gases, collect dust, and serve to protect these portions of the pipe from the cutting action of the gases flowing past.

Many changes may be made in the form and arrangement of the downcomer system, the construction of the curved portions and ribs, as well as the form and arrangement of the ribs, without departing from my invention.

I claim:—

1. A downcomer pipe for blast-furnaces, having a curved portion whose outer wall is provided on its inner surface with a plurality of ribs or projections, the spaces between said ribs forming pockets closed at their outer sides; substantially as described.

2. A downcomer pipe for blast-furnaces, having a curved portion whose outer wall is provided on its inner surface with a succession of transverse ribs, the spaces between which ribs forming pockets closed at their outer sides; substantially as described.

3. A downcomer pipe for blast-furnaces, having a curved portion whose outer wall is provided on its inner surface with a succession of transverse radial ribs, said ribs and outer wall forming a series of gas-retaining pockets which act to protect said wall against the cutting action of the furnace gases; substantially as described.

In testimony whereof, I have hereunto set my hand.

JULIAN KENNEDY.

Witnesses:

C. P. BYRNES,
R. A. BALDERSON.