

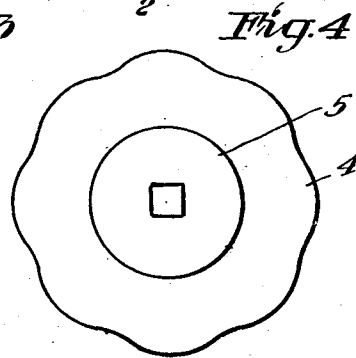
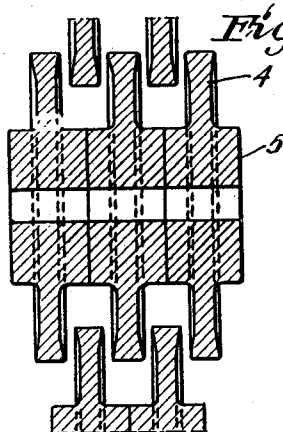
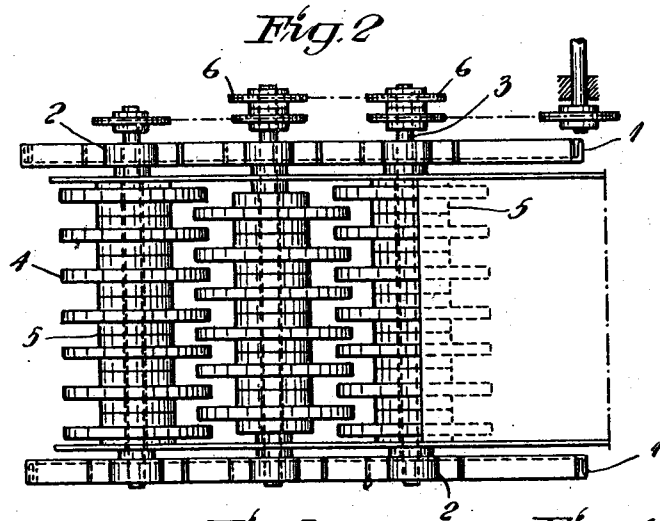
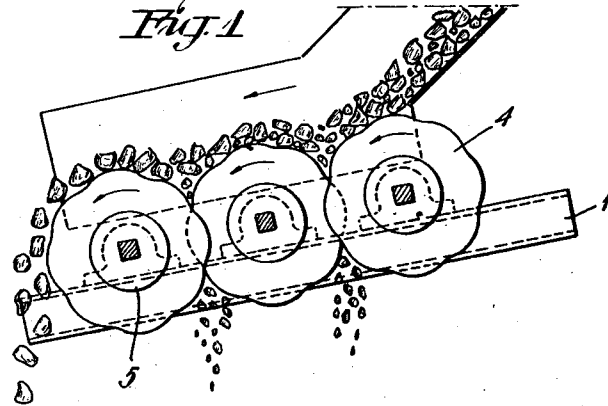
July 17, 1928.

1,677,838

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SIZING APPARATUS FOR COKE OR THE LIKE

Filed Dec. 9, 1926



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SIZING APPARATUS FOR COKE OR THE LIKE.

Application filed December 9, 1926, Serial No. 153,654, and in Sweden February 3, 1926.

The present invention relates to improvements in those apparatus for sizing coke and the like which comprise a number of parallel shafts having discs attached thereto in such a manner that the discs on adjacent shafts overlap one another, the distance between the circumference of the discs of one row and the hub of the discs of the adjacent row being generally about equal to the distance between the discs attached to the same shaft. Moreover, the shafts, which are adapted to rotate in the same direction, are arranged in a slanting plane, so that the coke particles are fed over the discs on the rotation of the shafts, and are thus given a tumbling movement by reason of the discs of the different rows being displaced relatively to each other.

This type of sizing apparatus, however, suffers from the disadvantage that some of the pieces of coke while moving down between the discs cannot pass through the opening between the discs on one shaft and the hub on the adjacent shaft, if the circumference of the discs is circular. The consequence of this is that the pieces of coke remain lying over the said opening and are thus given a rolling or sliding movement causing great wear of the edges of the disc, the screening action being at the same time decreased according as the said openings are clogged up by the lumps of coke. Furthermore, it may readily happen that still smaller lumps of coke pass in between the parallel surfaces of adjacent discs of different shafts, which causes not only an unpleasant gnashing sound, but also great wear of the said surfaces.

In order to keep the screening openings clean, endeavours have been made to make use of discs provided with teeth of different shape and size, but the consequence of such endeavours has been that the discs have been caused to act in a crushing way so that the coke that ought to pass through the screen was ground into small pieces and breeze, while at the same time the power consumption of the screen would be unnecessarily large.

The present invention has for its object to avoid these disadvantages by forming the edges of the discs of a slightly sinuous shape.

The accompanying drawings disclose one embodiment of the invention.

Figure 1 being a longitudinal section

through a sizing apparatus (grizzly) of the type in question, and

Figure 2 showing a plan view of the same grizzly.

Figure 3 is a cross section through some adjacent discs according to the present invention, and

Figure 4 is an external view of the same disc.

In the embodiment shown, the grizzly consists of two beams 1, which are arranged in a slanting position and on which are attached bearings 2 at the same distance from one another, said bearings having shafts 3 mounted therein, which shafts may preferably be of square cross section between the bearings. Attached to the said shafts are a number of discs 4 with hubs 5, the discs of one row being, as stated above, displaced with respect to the discs of the adjacent row by an amount corresponding to half the length of the hub. Moreover, the distance between adjacent shafts is so adjusted that the smallest distance between the circumference of the discs of one row and the hubs on the adjacent shaft is about equal to the free distance between the two adjacent discs. Thus there are formed between two shafts, two rows of square openings, as viewed from above (see Figure 2), which openings may be designated as the screen openings and which thus approximate the lower limit for the pieces that may pass over the screen.

Moreover, the one end of each shaft 3 has attached thereto a sprocket wheel 6 in such a manner that all shafts 3 are caused to rotate in the same direction, which rotary movement coincides with the direction of movement of the material which is to be sized or screened. These directions are indicated with arrows in Figure 1. The material which is screened off passes down between the discs, and the material which has been screened clean passes over the last shaft provided with discs, as is also indicated in Figure 1.

In order to facilitate this passage, the outer edge or circumference of the disc is formed, according to the invention, of a slightly sinuous shaft, as indicated in Figure 4. Thus the height of the wave is very small as compared with the diameter of the disc, in order that the space between the discs and the hub, which is herein called the screen opening, may be influenced as

little as possible by the said sinuous shape of the discs. For the common grizzlies, the height of the wave thus amounts only to a few (5-10) millimeters. Moreover, the
 5 number of waves is very small, there being only eight waves in the example illustrated, so that the waves do not exert any crushing action on the lumps of coke passing down between the discs and the hub, which would
 10 be the case if the waves were made of a greater height and were provided in greater number.

Figure 3 shows some discs made in accordance with the present invention, the disc
 15 4, however, also tapering from the circumference toward the hub, but only so far as corresponds to the difference between the diameter of the disc and the distance between the shafts. Thus, the free openings
 20 between the discs is square, the shape of the opening being not influenced by the oblique surfaces of the discs. There is nothing, however, that prevents the discs from being made with a taper or decreasing thickness
 25 as far as to the hub.

By reason of the fact that the space adjacent the hub is in the way larger than the space near the circumference of the disc, a lump of coke having a size permitting it
 30 hardly to pass down between the edges of the discs finds an easier way past the critical point, which is represented by the free screen opening between the hub and the disc, after which the said lump of coke has no
 35 greater difficulty in passing down through the grizzly.

Obviously, the invention is not limited to the embodiment disclosed, it being possible to undertake various alterations within the

scope of the invention. For instance, the
 40 edge of the disc need be sinuous along the whole of its circumference, it being possible to shape the disc in this way only for a certain amount of the circumference. Moreover, one side of the disc may be made
 45 plane, while the other side is made concave, whereby the taper of the disc toward the hub is also obtained. Likewise, it is not necessary for the taper of the disc to commence at the peripheral portion of the disc,
 50 it being also conceivable to make the disc of uniform thickness adjacent the edge, for instance, as far as corresponds about to the height of the wave.

What I claim as new and desire to secure
 55 by Letters Patent of the United States of America is:—

Sizing apparatus for coke and the like comprising a number of parallel shafts rotating in the same direction, said shafts hav-
 60 ing discs attached thereto in such a manner that the discs of adjacent shafts overlap one another, characterized by the fact that the edges of the discs are slightly and in a continuous manner sinuously shaped at the
 65 same time as the discs are tapering from the edge toward the hub, in order that the openings at the hubs of the sizing apparatus may in axial as well as radial direction be slightly
 70 larger than the axial distance between the edges of adjacent discs, so as to facilitate the passage of that part of the material which passes between the edges of adjacent discs and which material otherwise would
 75 tend to clog up the sizing openings of the apparatus.

In testimony whereof I affix my signature.

ADOLF GUSTAF MOLIN.