(No Model.) 2 Sheets—Sheet 1.

C. W. BILDT.

FEED DEVICE FOR GAS PRODUCERS.

No. 442,676. Patented Dec. 16, 1890.

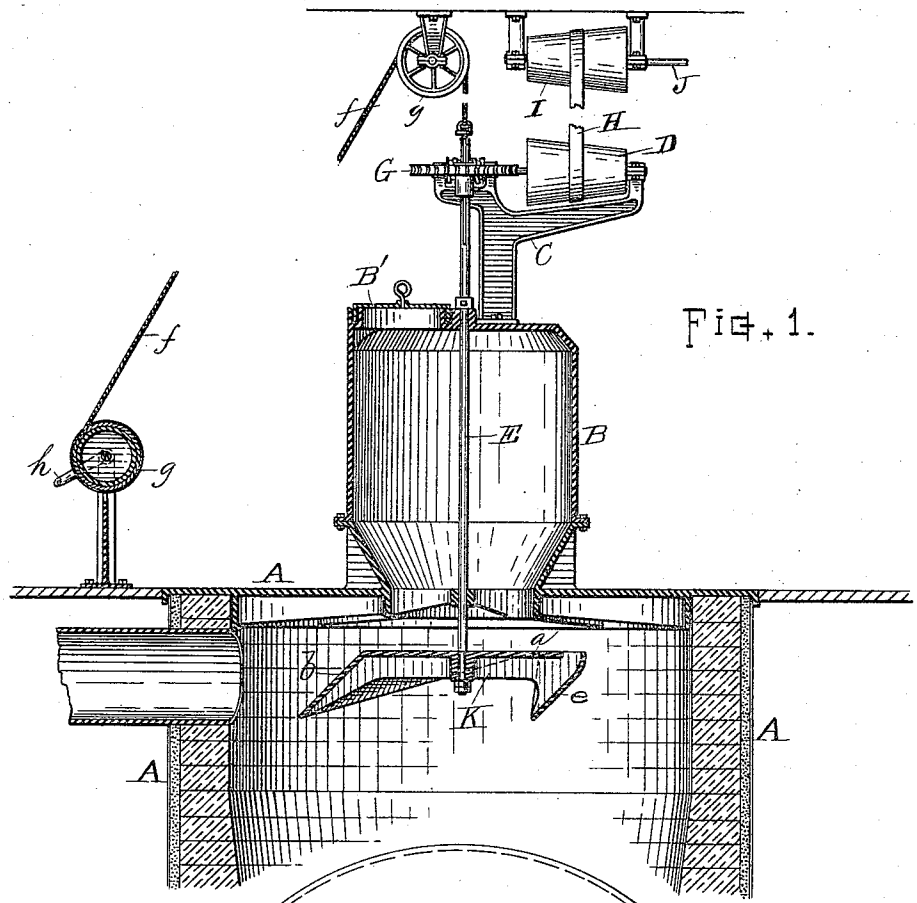


Fig. 1.

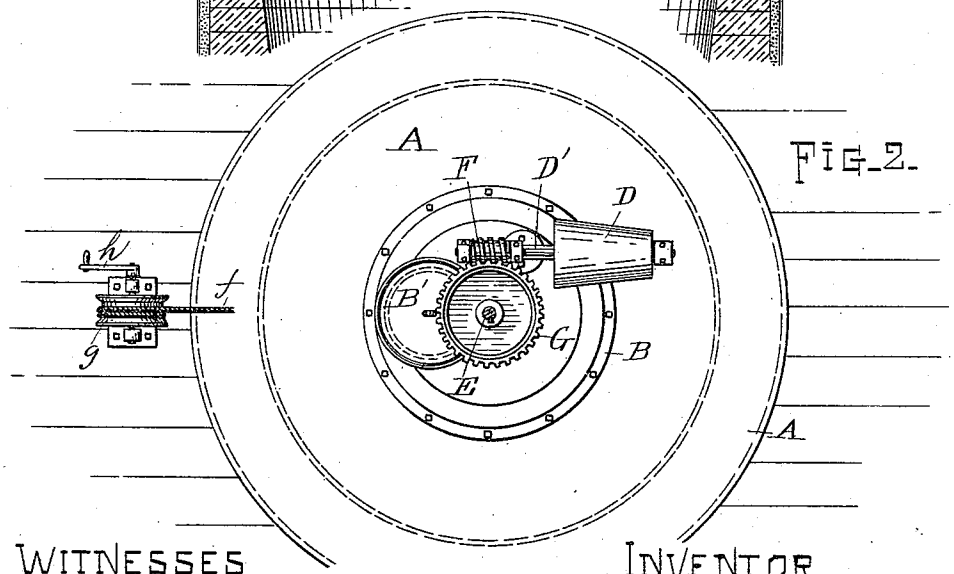


Fig. 2.

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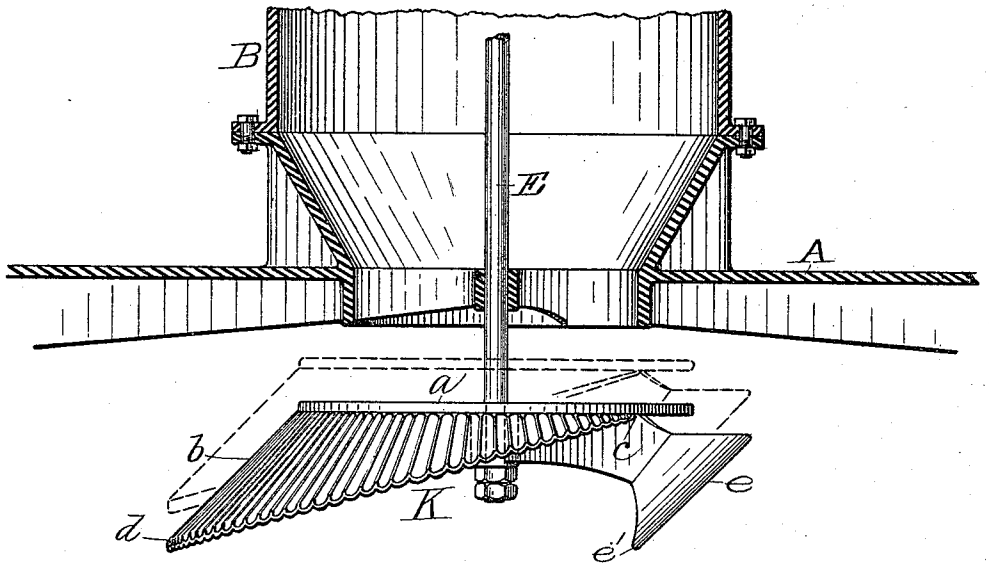
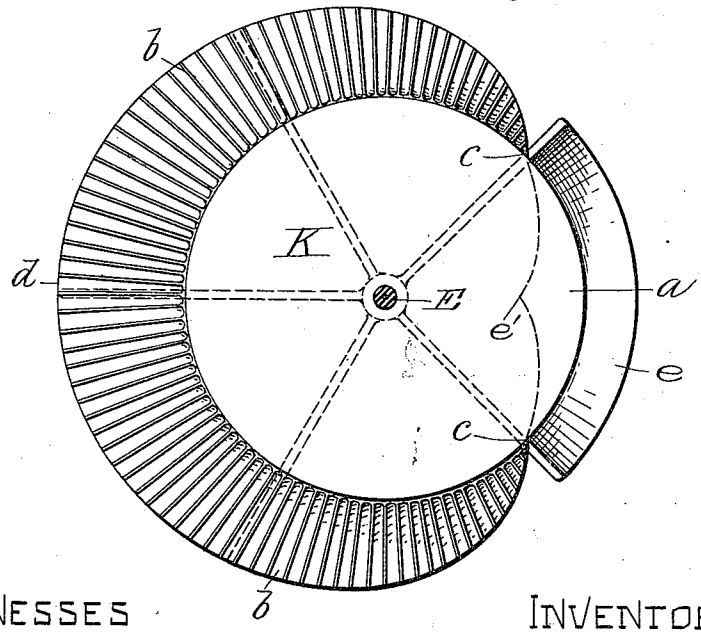


Fig. 3.

Fig. 4.



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CARL WILHELM BILDT, OF WORCESTER, MASSACHUSETTS.

FEED DEVICE FOR GAS-PRODUCERS.

SPECIFICATION forming part of Letters Patent No. 442,676, dated December 16, 1890.

Application filed August 15, 1889. Serial No. 320,795. (No model.)

To all whom it may concern:

Be it known that I, CARL WILHELM BILDT, of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Feed Devices for Gas-Producers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a central vertical section of the upper part of an ordinary gas-producer with my improved feed device or apparatus combined therewith, the latter also being shown in section. Fig. 2 is a top or plan view of the parts shown in Fig. 1. Fig. 3 is a similar sectional view to Fig. 1 of the lower part of my improved feed device, shown upon an enlarged scale; and Fig. 4 is a plan, also upon an enlarged scale, of the revolving disk of my improved feed device or apparatus for evenly distributing the coal in the gas-producer, as hereinafter more fully explained.

The object of my invention is to effect a saving in fuel and labor, and also to reduce the liability to injury of the workmen from escaping gas; and it consists of a feed device or apparatus combined with the top of the gas-producer, having a continuously-revolving disk for continuously feeding and evenly distributing the coal in said gas-producer, the device or apparatus also having means whereby the supply of coal may be regulated, as will be hereinafter more fully set forth.

To enable others skilled in the art to which my invention appertains to fully understand the nature and purpose thereof, I will now proceed to describe it more in detail.

It is a well-known fact that the more uniform the layer of coal can be kept in a gas-producer the better the result will be.

A common way of running gas-producers is to charge the coal by hand through a hopper. In this way the coal is not evenly distributed over the surface, but falls more in one place than another, thus forming a layer, which increases in thickness in different places as the coal is continued to be poured in. This causes a variation in the composition of the gas in the generator in different parts of the same producer. An excess of carbonic acid is thus produced, which results in a waste of coal. Another drawback in charging by hand, aside from the waste of coal, is the escape of gas, which is very injurious to the workmen.

The above disadvantages, it is claimed, are removed by my invention.

Referring to the drawings, the part marked A represents the upper part of an ordinary gas-producer. My invention being combined with the top thereof only, it will be unnecessary to illustrate or describe the other parts of said producer.

B is the coal receptacle or receiver, arranged and fastened in position, preferably over the center of the producer to the cover thereof. It is provided with a covered inlet B′ at the top, through which to supply the same with coal, and made open at the bottom to permit the coal to discharge therefrom, the lower end of said receptacle being preferably drawn in smaller, as is indicated in Figs. 1 and 3.

To the upper end of the receptacle is secured an upright frame C, which carries a cone-pulley D, and also serves as a bearing for the upper end of a vertical shaft E, both being fitted to turn in suitable bearings therein. The shaft D′ of the cone-pulley is provided with a worm-gear F, which engages with a horizontal spur-gear G on shaft E to turn the latter. Power is transmitted to the cone-pulley D through the belt H, cone-pulley I, and main shaft J, said cone-pulley I being secured to said main shaft, and the latter driven by connection with suitable driving mechanism in any well-known way. The spur-gear G, while turning with shaft E, also permits said shaft to be moved up and down freely by forming a spline on one and a groove in the other, as is indicated in Fig. 2. The shaft is also fitted to turn in suitable bearings at the top and bottom of the coal-receptacle B, as is indicated in Figs. 1 and 3.

To the lower end of the shaft E is secured a horizontal disk K, of peculiar construction, and by means of which the coal as it passes out from the receptacle is caused to be evenly distributed in the producer, as will be more fully described farther on. Said disk K (see Figs. 3 and 4) is preferably made with the flat surface *a* at the top, with the flaring or

fan-shaped part *b* extending down and outward from said horizontal flat part *a*, provided with diverging grooves or corrugations and graduated in width from a point at each end *c c* to the wide central portion *d*, also having the irregular-shaped concave part *e* extending between the points *c c* of the part *b* and made widest at the center *e'*, as in the former instance, this part *e* being curved in an opposite direction to the part *b* and converging inward and down under the flat part *a* toward its center, as is fully shown in said Figs. 3 and 4. By thus constructing the disk it is obvious that as the coal is discharged thereon from the receptacle B and passes therefrom into the producer the fan-shaped part *b* causes said coal to be evenly distributed over the surface of the burning coal in said producer in a thin sheet or layer from a line about under the outer edge of the flat portion *a* of the disk to the inner side of the producer, and the converging concave part *e* distributes it evenly at the center under said flat portion *a*, thereby keeping the whole surface constantly supplied with fresh fuel of an even thickness, and in consequence maintaining a uniform combustion, which, as will at once be apparent, not only renders the process and result produced more satisfactory, but also effects a large saving in fuel.

While the producer is in operation a constant rotary motion is imparted to the disk, through the mechanism previously described, for the purpose of keeping the coal constantly in motion, and thus maintaining a continual discharge of coal into said producer, said revolving motion in connection with the peculiar form of the disk causing the even distribution of said coal, as previously described.

The amount of coal discharged into the producer may be regulated by increasing or decreasing the speed of the disk, and also by increasing or reducing the distance between the top of said disk and the bottom of the coal-receptacle B, the speed being regulated by moving the driving-belt H on the cone-pulleys D or in any other well-known way and the disk being moved vertically by means of a rope *f*, fastened to the upper end of shaft E, passed over suitable guide-pulleys *g*, and operated by a crank-lever *h*, as is indicated in Figs. 1 and 2.

As is well known, gas-producers charged by hand require fresh coal to be supplied at certain intervals—about ten to twenty minutes—whereas by the application of my invention the coal is continuously fed from a large receptacle, which has to be refilled only about once in three hours. It is therefore obvious to those skilled in the art that a large saving in labor, as well as fuel, is effected. Furthermore, being charged at much longer intervals, less opportunity is afforded for the escape of gas, thus rendering the attendance upon the producer not only more comfortable, but much less injurious to the workmen.

By the use of my invention larger gas-producers may be employed than when charged by hand, as the coal may be evenly distributed equally as well over either a small or a large surface.

I am aware that a mechanical device for separating and distributing the coal as it is discharged into a furnace is not broadly new, and I therefore limit my invention to substantially the construction herein set forth and shown.

Having now fully described my said invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. In a feed apparatus for gas-producers, a disk and means for rotating the same, arranged under the coal-receptacle and having means for supporting as well as for elevating and lowering the same, substantially as and for the purpose set forth.

2. In a feed device or apparatus for gas-producers, the rotary disk K, consisting of the top horizontal flat part *a*, the convex fan-shaped part *b*, and the concave irregular-shaped part *e*, substantially as and for the purpose set forth.

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Witnesses:
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