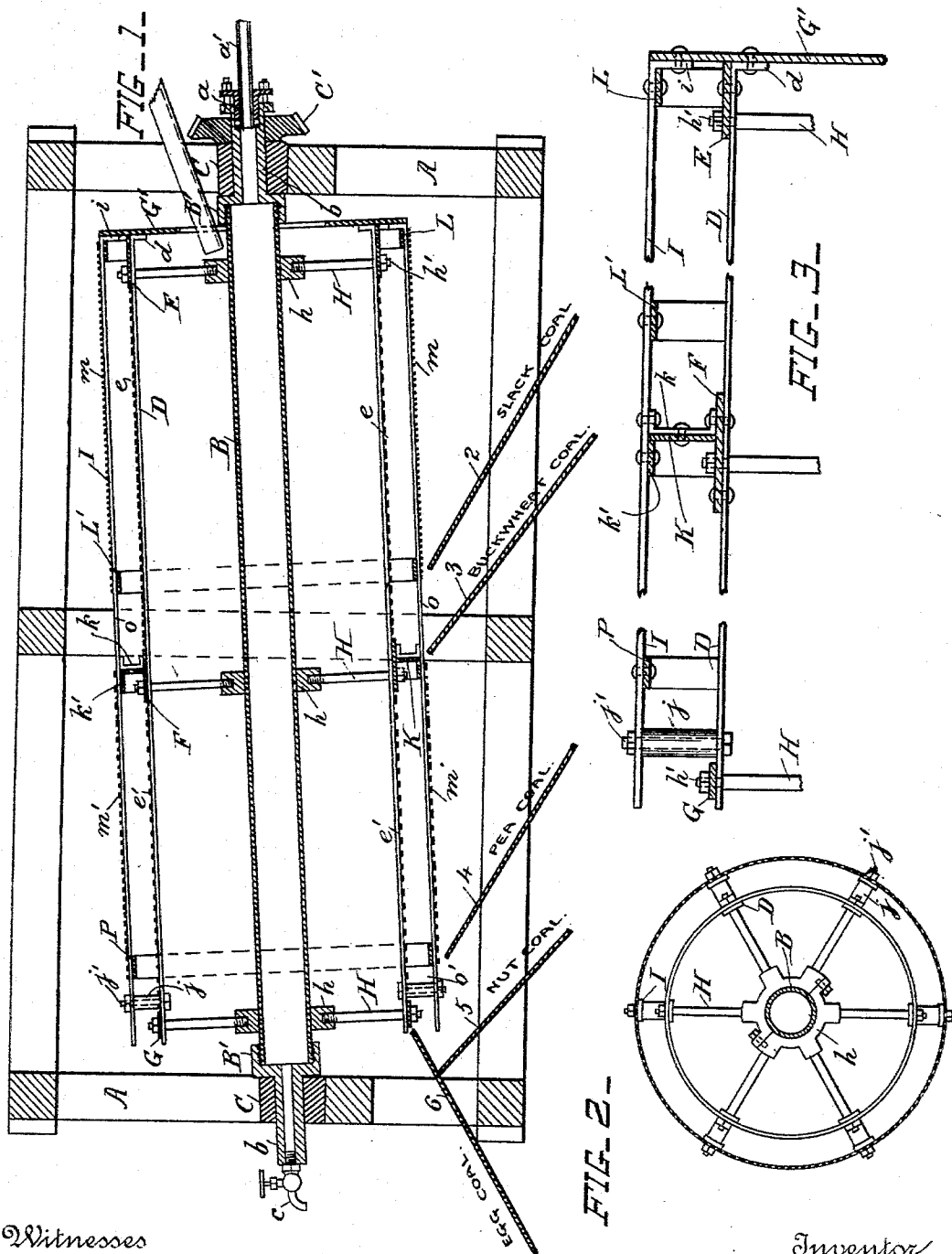


(No Model.)

W. O. GUNCKEL.
COAL SCREEN.

No. 533,457.

Patented Feb. 5, 1895.



UNITED STATES PATENT OFFICE.

WINFIELD O. GUNCKEL, OF TERRE HAUTE, INDIANA.

COAL-SCREEN.

SPECIFICATION forming part of Letters Patent No. 533,457, dated February 5, 1895.

Application filed May 13, 1892. Serial No. 432,834. (No model.)

To all whom it may concern:

Be it known that I, WINFIELD O. GUNCKEL, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Coal-Screens; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to coal screens; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings: Figure 1 is a longitudinal section through the coal screen. Fig. 2 is a rear end view of the screen. Fig. 3 is a detail longitudinal section through the periphery of the screen, showing the means for joining its parts together.

A is the frame of the screen.

B is a central hollow pipe provided at each end with a hollow bearing-piece *b* of smaller diameter than the pipe. Each bearing-piece *b* is provided with a cap *B'* which is screwed onto the pipe, or is otherwise rigidly secured to it. The bearing-pieces *b* are journaled in the bearings *C* secured to the frame, and the said pipe is inclined at the angle found most advantageous in working the screen. A toothed wheel *C'* is secured on one of the bearing-pieces *b* for driving the screen, but the pipe and the screen may be revolved by any other approved mechanism.

The bearing-piece *b* at the higher end of the screen is provided with a stuffing-box *a*, and *a'* is a stationary steam pipe which projects through the said stuffing-box and supplies the pipe *B* with steam.

The bearing-piece *b* at the lower end of the screen is provided with a valve *c* for letting out the condensed water.

The use of the hollow pipe *B*, when filled with steam, is to heat the screen and the material in it, and thereby to prevent the meshes of the screen from becoming blocked with frozen material in winter and when the material is wet.

The screen consists of two cylinders arranged one within the other. The inner cylinder consists of a series of longitudinal bars

D provided with flanges *d* at their front ends, the front band *E*, the middle band *F*, the rear band *G*, and the wire screen-fabric *e* and *e'* for screening the material.

G' is an annular head secured to the flanges *d* at the front end of the screen.

The inner cylinder is connected to the hollow shaft *B* by means of the arm *H* and the hubs *h*. The hubs *h* are preferably made in halves, and are secured upon the pipe *B*. The arms *H* are screwed at one end into the said hubs, and have their outer ends *h'*, which are of smaller diameter than their main portions, passed through holes in the bars *D* and the bands encircling them, and secured by nuts.

The outer cylinder of the screen consists of a series of longitudinal bars *I* provided with flanges *i* at their front ends and secured to the said head *G'*. The rear ends of the bars *I* are secured to the bars *D* by the thimbles *j* and the bolts *j'*. The middle parts of the bars *I* are secured to the annular head *K* which is arranged over the middle band *F*, between the screens *e* and *e'*. The head *K* is secured to the bars *I* and to the band *F* by the double-angle brackets *k*. A band *k'* is secured to the bars *I* on the opposite side of the head *K* from the brackets *k* for the purpose of stiffening the bars and forming an attachment for the wire screen.

L is a band secured to the bars *I* close to the front head *G'*; and *L'* is a band secured to the bars *I* near the middle head *K*. The wire screen-fabric *m* is secured to the bars *I* and to the bands *L* and *L'*, leaving an opening *o* around the outer cylinder next to the head *K*.

P is a band secured to the bars *I* near the thimbles *j*.

The wire screen-fabric *m'* is secured to the bands *P* and *k'*, leaving an opening *o'* around the outer cylinder at the rear end of the screen.

The screen *m* is the finest in mesh, and is provided with the gatherboard 2. The screen *e* is not so fine, and it is provided with the gatherboard 3. The screen *m'* is coarser than the screen *e* and is provided with the gatherboard 4; and the screen *e'* is the coarsest, and it is provided with the gatherboard 5. The material which will not pass through the

screen *e'* is discharged out of the end of the machine and slides down the gatherboard 6. When coal is screened it can therefore be separated into the different grades known as slack, buckwheat, pea, nut and egg coal.

5 The material is placed in the machine through the opening in the front head *G'*, and the bulk of it is therefore kept from falling on the sieve *m* which has the finest mesh.
 10 The coarse material which will not pass through the sieve *e* slides onto the sieve *e'*. The material which passes through the sieves *e* and *e'*, falls onto the respective sieves *m* and *m'*, and is again separated by them into
 15 separate grades. The material which will not pass through the sieves *m* and *m'* falls through the open spaces *o* and *o'* onto the respective gatherboards 3 and 5.

20 The various parts of the screen are bolted or riveted together as is found most convenient.

What I claim is—

1. The combination, with a cylindrical screen, of a hollow pipe extending through
 25 the screen, arms for securing the screen on the pipe, bearing-pieces constructed of smaller diameter than the pipe and provided with caps secured to the ends of the pipe, a stuff-

ing-box and a stationary steam pipe connected to one of the said bearing-pieces, and a valve 30 for letting out the water of condensation formed in the pipe, substantially as set forth.

2. In a coal screen, the combination, with the inclined central shaft, and the arms secured thereon; of the two concentric cylinders 35 carried by the said arms, each cylinder being formed of continuous longitudinal bars and screening fabric of two different grades of fineness, the screening fabric at the upper end of each cylinder being finer than that at 40 its lower end, and the screening fabric at each end of the inner cylinder being coarser than that at the corresponding end of the outer cylinder which incloses it, and the outer cylinder having the two discharge openings 45 *o* and *o'*; and the annular head *K* secured between the two cylinders below the opening *o*, whereby the coal is separated into five grades, substantially as set forth.

In testimony whereof I affix my signature 50 in presence of two witnesses.

WINFIELD O. GUNCKEL.

Witnesses:

P. B. O'REILLY,
 JACOB N. FRISZ.