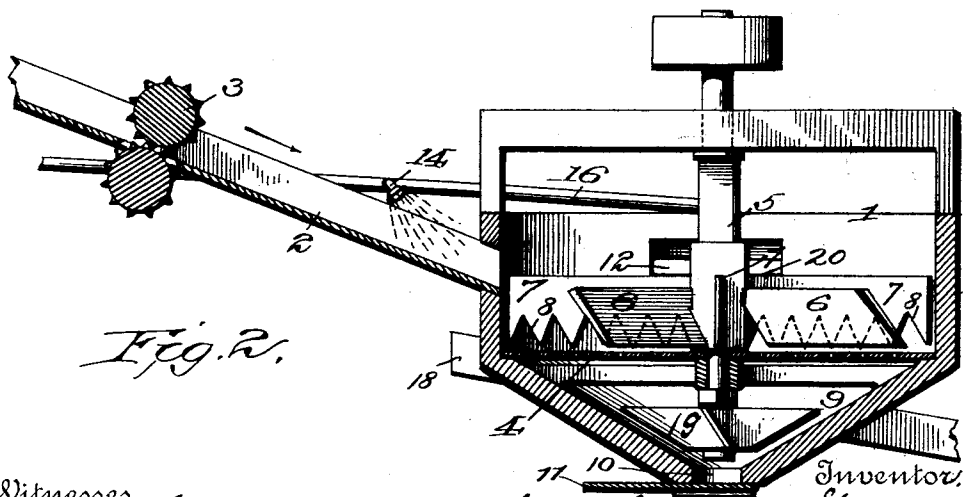
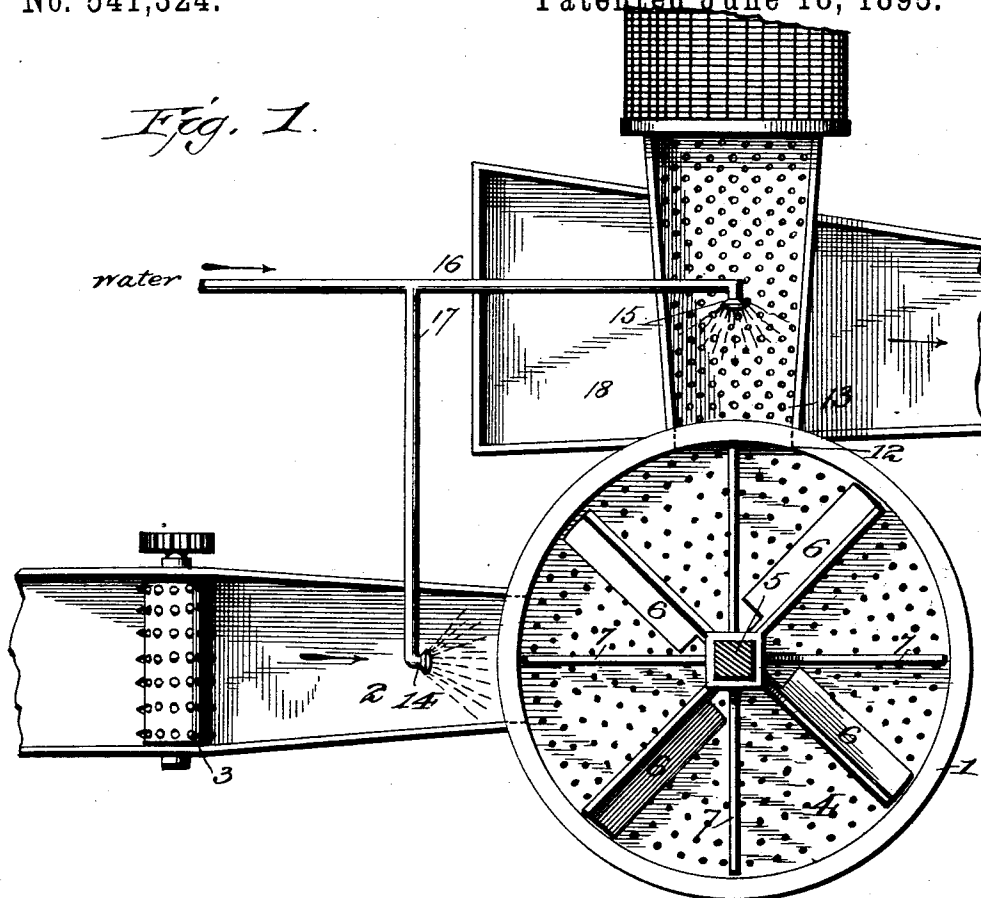


(No Model.)

G. E. GILES.
COAL WASHER.

No. 541,324.

Patented June 18, 1895.



Witnesses
W. H. Spence
Geo. R. Hamlin

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UNITED STATES PATENT OFFICE.

GEORGE EDWARD GILES, OF CARBONDALE, PENNSYLVANIA.

COAL-WASHER.

SPECIFICATION forming part of Letters Patent No. 541,324, dated June 18, 1895.

Application filed November 20, 1894. Serial No. 529,385. (No model.)

To all whom it may concern:

Be it known that I, GEORGE EDWARD GILES, a citizen of the United States, residing at Carbon-
dale, in the county of Lackawanna and
5 State of Pennsylvania, have invented certain
new and useful Improvements in Coal-Wash-
ers; and I do declare the following to be a
full, clear, and exact description of the in-
vention, such as will enable others skilled in
10 the art to which it appertains to make and
use the same, reference being had to the ac-
companying drawings, and to the figures of
reference marked thereon, which form a part
of this specification.

15 My invention relates to a coal or culm
washer.

Much of the coal is taken from the mine
mixed with clay, dirt, &c., which renders it
unfit for market, and the object of my in-
20 vention is to produce a machine which will
more efficiently wash and free it from these
foreign substances.

To this end my invention consists in the
employment of a peculiarly arranged and
25 constructed washing screen through which
the coal as it comes from the mine, is passed
and cleaned.

In the accompanying drawings, Figure 1
represents a top or plan view of my complete
30 invention, and Fig. 2 a sectional elevation
thereof.

The reference numeral 1, denotes a tub or
receptacle in which the coal or culm is de-
posited and agitated. The culm is fed into
35 this tub through an inclined funnel or chute 2.
A pair of crushing rolls 3 are placed trans-
versely across the feed chute to reduce the
lumps to the proper size before they enter
the tub. A screen 4 is placed over the bot-
40 tom of the tub, and the culm is agitated on
this screen by a revolving agitator consisting
of a vertical shaft 5 provided with screw
blades 6, and intervening horizontally dis-
posed radial paddles 7, having teeth 8 in their
45 lower edge. These paddles are placed be-
tween each of the screw blades, and serve as
agitators. The screw blades also press the
clay and foreign matter down through the
perforations of the screen 4, where it falls
50 upon the conical shaped bottom 9 of a cen-
trally disposed tub, and is then urged through
the hole 10, by a conical screw 19 on the lower

end of the shaft 5 and which closely fits the
conical bottom 9. A cut-off valve or door 11
is provided to close the hole when desired. 55

From the foregoing it will be seen that by
thus constructing the bottom 9 of the tub the
refuse will readily gravitate to the discharge
opening 10, and the ejecting screw is made
60 to fit the tub bottom closely so that it may
the more readily eliminate the refuse.

The coal passes out of the tub through a
discharge orifice 12 the bottom 20 of which is
located on a plane with the top of the pad-
dles 7, thus leaving the vertical wall beneath 65
the orifice equal in height to the width of the
paddles. From this discharge orifice 12 the
coal passes upon a downward sloping perfor-
ated screen 13 which leads to a revolving
screen which assort it into the various sizes 70
for the market.

The coal and culm are thoroughly washed
before and after they enter the tub by spouts
14 and 15 respectively, located over the re-
ceiving and discharge chutes, and attached 75
to branch pipes 16 and 17 connected to any
suitable source. A trough 18 is located un-
der the spout 15 to carry off the washings.

The preferred construction of my device
having been set forth I will now briefly de- 80
scribe its operation.

The coal as it comes from the mine is fed
into the inclined feed chute, and coming in
contact with the crushers 3, it is crushed and
passed on to the tub 1, where it falls upon the 85
perforated screen 4. Here it is carried around
in a wet and saturated condition by the radial
paddles 7 of the agitator. The filling of the
tub and the rotation of the agitator cause
the coal to pass out of the discharge orifice at 90
the side while the bulk of the clay is washed
down through the screen 4.

It is evident that my invention could be
varied in many slight ways which might sug-
gest themselves to a skilled mechanic. There- 95
fore I do not limit myself to the exact con-
struction herein shown but consider myself
entitled to all such variations as come within
the spirit and scope of my device.

What I claim as new, and desire to secure 100
by Letters Patent, is—

1. In a coal or culm washer, the combina-
tion with a tub having a conical bottom and
provided with a restricted central discharge-

opening in its lower end, of a horizontal screen located in the tub, a shaft provided with agitator blades operating over the screen, and a conical ejecting screw at the lower end of said shaft and disposed beneath the screen and closely fitting the lower portion of the bottom, the said screw being arranged to eject refuse from the tub as it falls through the screen, substantially as described.

15 2. In a coal or culm washer, the combination with a tub or tank having a screen, an agitator provided with screw-blades operating over the screen, a refuse ejector operating under the screen, an inclined feed chute, a discharge chute leading from the tub, and a washing device located at the feed and discharge chutes whereby washing is effected before and after separation in the tub.

20 3. In a coal or culm washer, the combination with a tub or tank having a screen, an agitator provided with screw-blades an ejecting device, an inclined feed chute, a perforated discharge chute leaving the tub on a

level with the top of the agitator, another chute located beneath the discharge chute, and washing devices whereby the material may be sprayed. 25

4. In a coal or culm washer, the combination of a tub or tank, having a horizontal screen, an agitator operating above the screen and provided with screw-blades and a series of horizontal paddles, an ejecting device operating beneath the said screen, a receiving chute and crushing rolls adapted to crush the material before it enters the tub, a discharge chute leaving the tub on a level with the highest point of the agitator, the latter chute having a perforated bottom, and washing devices adapted to project water upon the said receiving and discharge chutes. 30 35 40

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

GEORGE EDWARD GILES.

Witnesses:

JAS. T. MCANDREW,
M. F. BARRETT.