P. UMHOLTZ.

Coal Breaker.

No. 27,581. Patented March 20, 1860.

Fig. 2

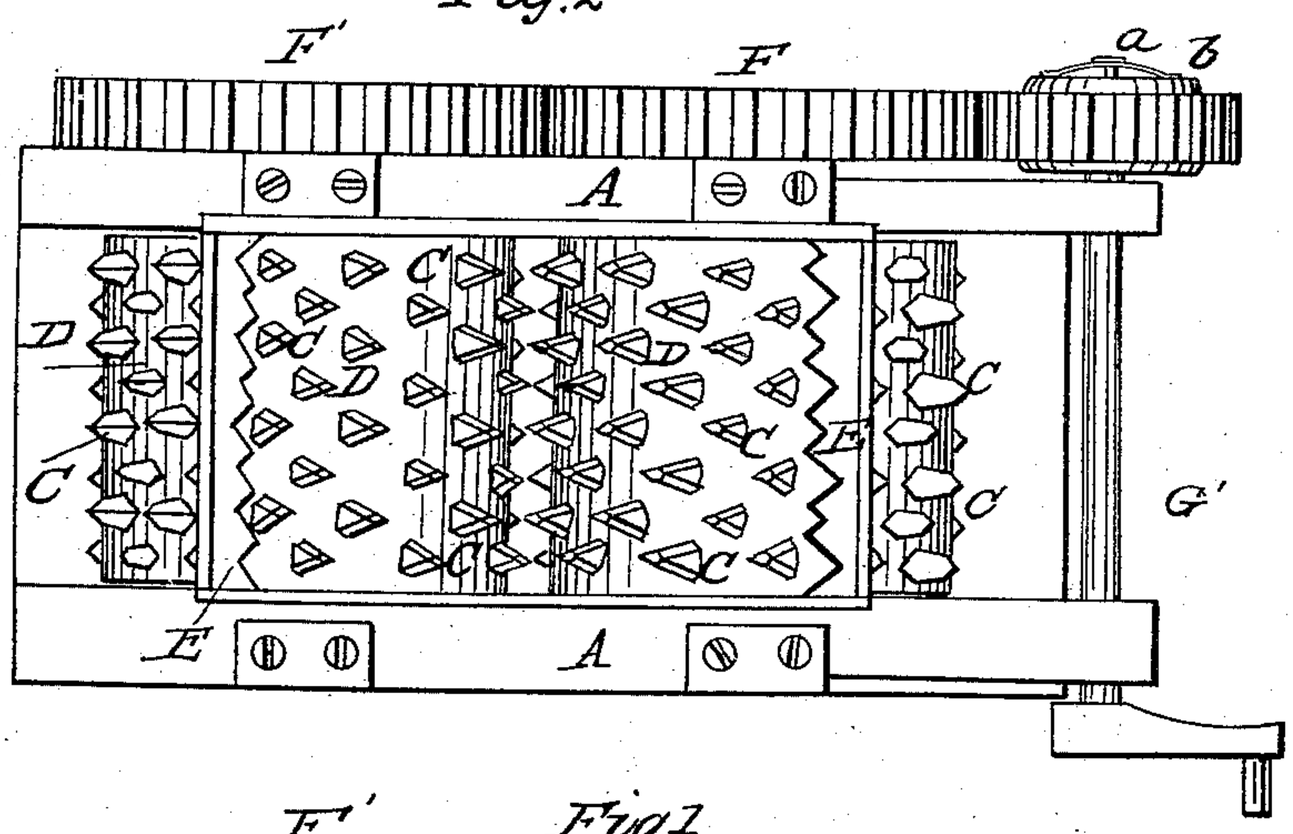

Fig. 1

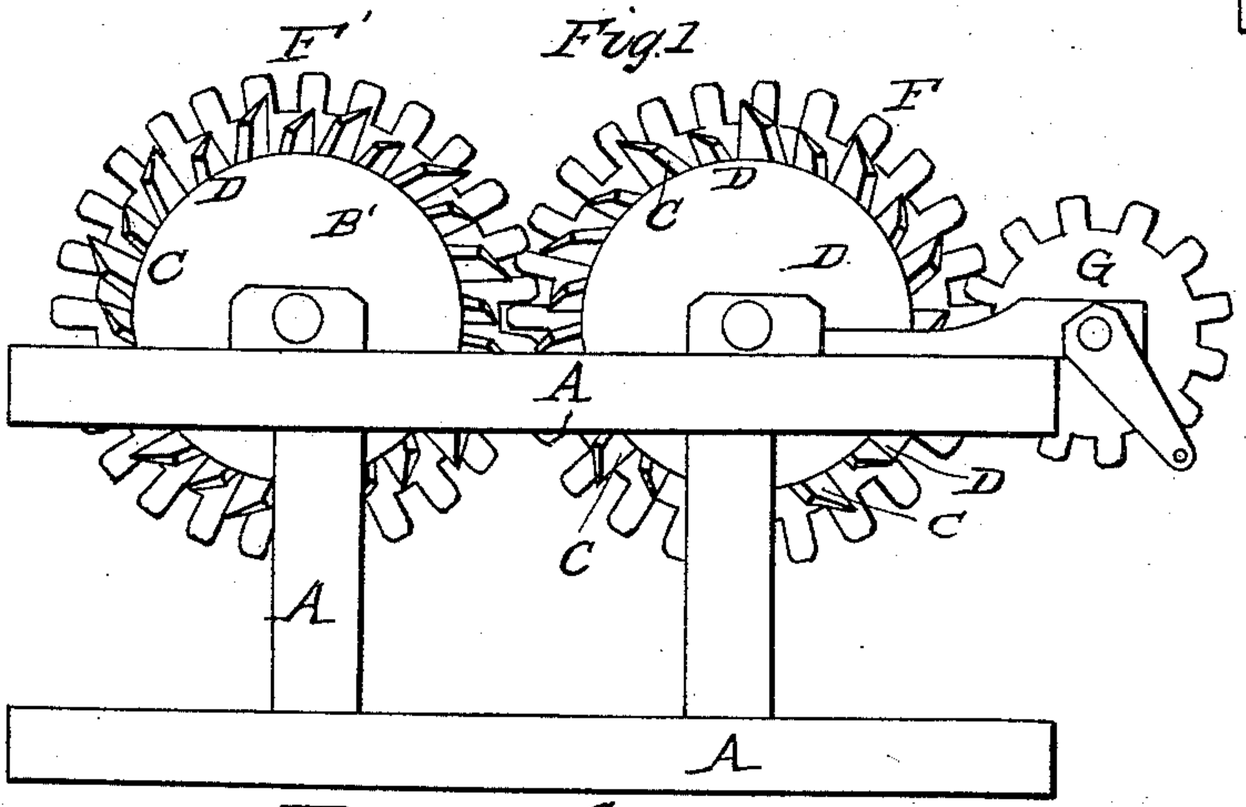

Fig. 3

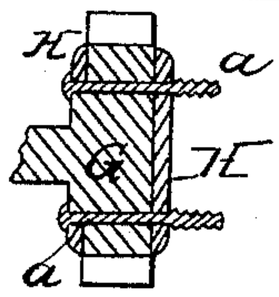

Fig. 5

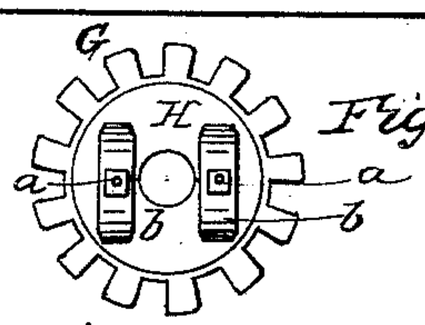

Fig. 4

Witnesses
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UNITED STATES PATENT OFFICE.

PHILIP UMHOLTZ, OF FREMONT, PENNSYLVANIA.

COAL-BREAKER.

Specification of Letters Patent No. 27,581, dated March 20, 1860.

To all whom it may concern:

Be it known that I, PHILIP UMHOLTZ, of Tremont, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Coal-Breakers; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

Figure 1 is a side view with the hopper removed. Fig. 2 is a plan view. Fig. 3 is a section showing the mode of throwing out of gear. Fig. 4 represents the teeth. Fig. 5 view of springs.

To enable others skilled in the art to make and use my invention I will describe its construction and operation.

The nature of my invention consists in constructing the teeth of coal breakers of different two sizes, and in arranging them in alternate rows, parallel to the driving shafts, and upon rollers of equal size, so that the large teeth of each roller shall be opposite the small teeth of each other one:—Also in the arrangement hereinafter described for allowing the driving shaft to turn in the driving wheel so as to prevent breakage of machinery when rocks, &c., get in with coal. In the drawing A the frame work. B and B′ the rollers. C the large teeth. D the small teeth. F and F′ gear-wheels. G driving wheels. G′ driving shaft. H friction clutch. *a a* tension rods and nuts. *b b* springs for regulating the friction of clutch against driving wheel.

In operating my invention as the coal is fed into the hopper, the large pieces are first caught by the large teeth C projecting higher up than the small teeth D, the teeth C which carry the coal downward then break the large pieces into smaller ones which fall lower down where they are broken by the operation of the large against the small teeth. By this means I am enabled to dispense with the use either of a grate or a set of roughing rollers, as has hitherto been the case. The friction clutch H on driving shaft G′ is so constructed that the springs *b* shall be regulated by the tension rods and nuts *a* to any required degree of friction, for the purpose of allowing the shaft to turn in the driving wheel so as to prevent breakage if there should chance to be any slate, or other material harder than coal get between the rollers.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

The combination of the clutch H, as constructed, with the rollers B, and B′, constructed as set forth, operating as described, and for the purposes set forth.

P. UMHOLTZ.

Witnesses:
T. G. CLAYTON,
JOS. C. CLAYTON.