# T. Petherick,

## Coal Screen.

No. 14,732. Patented Apr. 22, 1856.

Fig. 2.

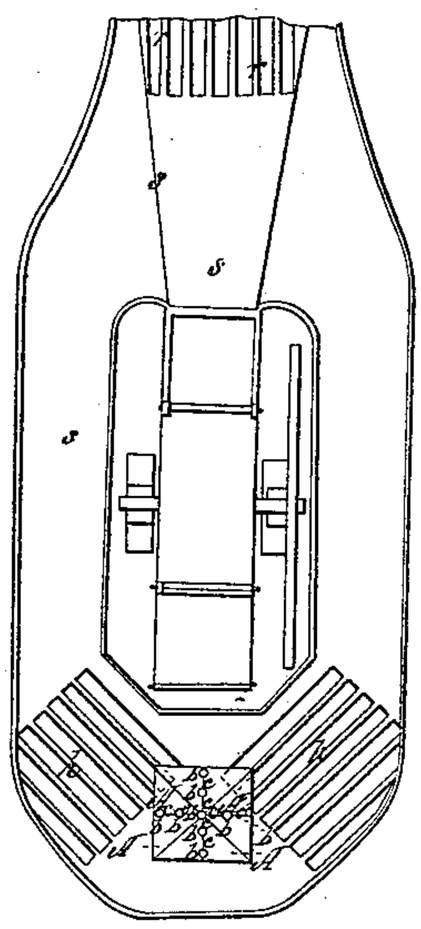
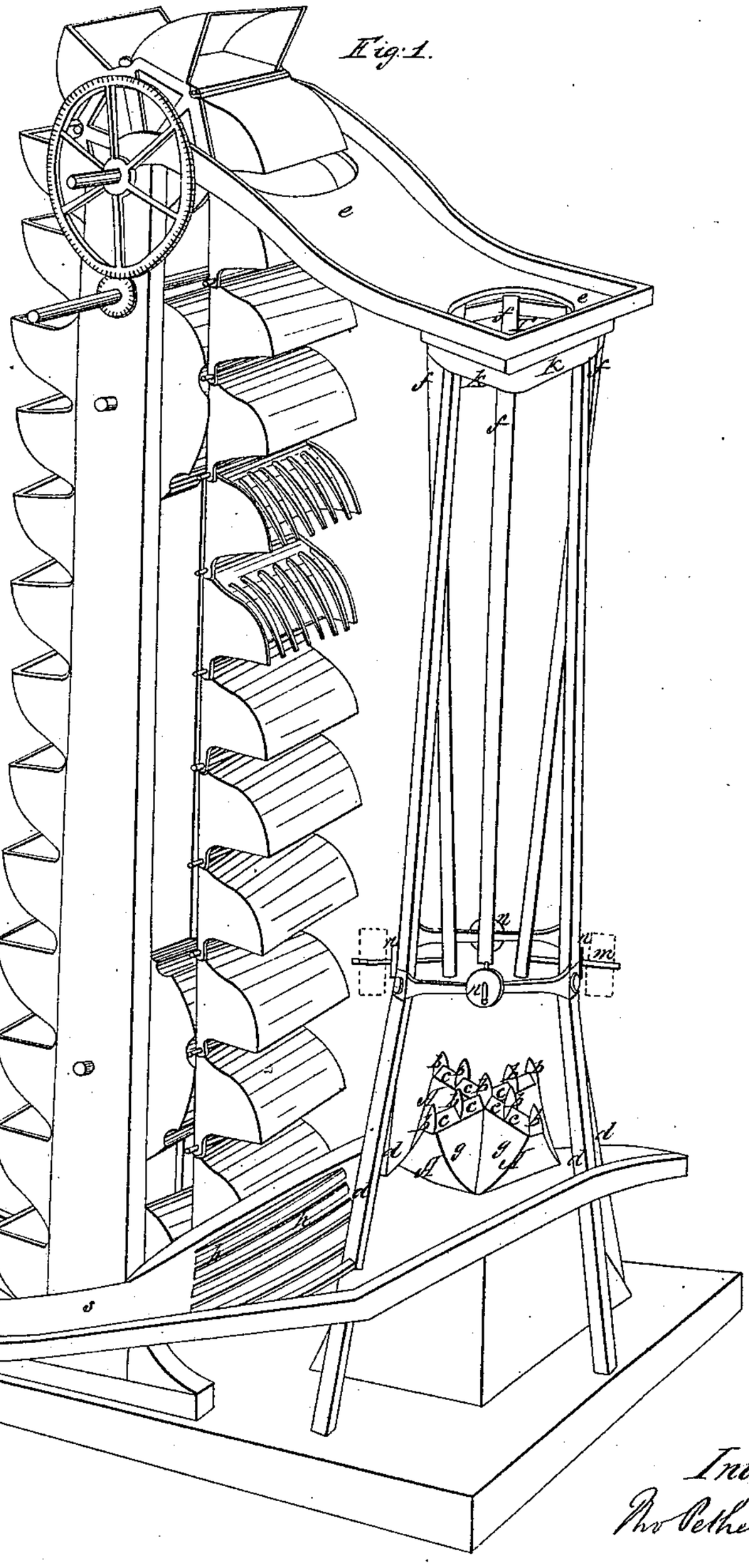


Fig. 1.



Witnesses.

Thos. Kenney
Charles Thompson

Inventor.

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# UNITED STATES PATENT OFFICE.

THOMAS PETHERICK, OF POTTSVILLE, PENNSYLVANIA.

## COAL-BREAKER.

Specification of Letters Patent No. 14,732, dated April 22, 1856.

*To all whom it may concern:*

Be it known that I, THOMAS PETHERICK, of Pottsville, in the county of Schuylkill, in the State of Pennsylvania, have invented a new and improved mode of breaking coal into the requisite sizes for use with less waste of the coal and with less expenditure of power than by the mechanical means hitherto used for that purpose; and I do hereby declare that the description hereinafter contained is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, the same letters indicating like parts of the device.

Coal was formerly broken by hand, and subsequently by mechanical means, consisting in most cases, of revolving cylinders armed with teeth. The disadvantage attending the use of those cylinders is that they exercise a crushing and abrading effect upon the coal, by which a large proportion of it is wasted by being reduced to "coal dirt," (as it is called in the anthracite collieries,) or dust.

My mode differs from the above in this; that by it, the coal, instead of being crushed or abraded, is broken by being split or fractured, and which mode I describe as follows. I place one or more blocks of cast iron or other suitable material and size, armed with metallic sharp pointed teeth, at distances from each other suitable to the sizes to which it may be desirable to break the coal, and with intermediate chisels; both their lower ends being inserted in holes in the block, the teeth and the chisels pointing upward. Upon these teeth and chisels the coal is dropped from a suitable height, and the force with which it falls upon them causes it to break and with little comparative waste. The shape of the block or blocks is such, that the surface slopes from the teeth and chisels downward, so that the coal will slide off readily therefrom, to suitably arranged screens, through which the coal which is broken to a sufficiently small size will pass. In order to insure the falling of the coal upon the teeth or chisels, I suspend from or near the elevated platform from which it is dropped, suitable guards or guides.

To enable any competent and skilful mechanic or workman to apply and use my invention, I proceed to describe it and its application, reference being had to the annexed drawings, making part of this specification, which I do hereby declare to be a true and exact description of my invention.

Figure 1 is a perspective view, Fig. 2 is a horizontal view, taken near the base.

The letters A, A, A, show the metallic blocks; *b*, *b*, *b*, *b*, *b*, *b*, *b*, *b*, *b*, the teeth;—*c*, *c*, *c*, *c*, *c*, *c*, *c*, *c*, the chisels; (the number of teeth and chisels in each block may be, according to circumstances more or less than here shown;)—*d*, *d*, *d*, *d*, *d*, *d*, the stand or supports of the platform *e*, *e*, from and through a large aperture in which the coal is dropped upon the teeth and chisels on the block below.

*f*, *f*, *f*, *f*, are four guards or guides made of iron or wood or both, suspended from or near the bottom of the platform *e*, *e*, and so arranged that the lower end of each guard, slopes inward toward the opposite guard, and toward the center of the block A, A, A, A, for the purpose of guarding the coal in its descent, from falling, otherwise than on the teeth or chisels. This inclination of the lower end of each of the guards toward that of the opposite guard, is caused by the application of a spring or an elastic band (as at *k*, *k*,) or a weight (as at *m*) suitably attached, or by any or all of these contrivances, and the degree in which each guard is inclined toward the opposite guard below the point of suspension may be regulated by stops or gages (as *n*, *n*, *n*, *n*,) capable of easy adjustment. These guards recede more or less from their proper sloping position when pressed against internally, by the larger descending lumps of coal, resuming however that position immediately after, in order to guard against smaller lumps falling otherwise than on the teeth or chisels. These guards or guides are important, as adding to the efficiency and economy of this mode of breaking coal.

The coal after falling on the teeth or chisels, drops therefrom upon the sloping upper surface of the block, a portion of which is shown by the letters *g*, *g*, and from thence slides on to the screens *h*, *h*. The coal which has been broken sufficiently small to pass through those screens, *h*, *h*, may be received into an assorting screen or some other suitable receptacle; and any coal which may remain of a larger size, may be, after passing over those screens *h*, *h*, elevated to the platform *e*, *e*, to be dropped

again on the teeth and chisels. The coal which is to be broken by falling upon the teeth or chisels, may be raised to the platform *e*, *e*, by an inclined plane, windlass or by any other suitable and convenient means, such, for instance, as an elevator like that shown in the perspective drawing annexed (having either plain or ribbed buckets); the coal which may pass over the screens *h*, *h*, (not being broken to a sufficiently small size) sliding therefrom over a chute or sloping surface into the buckets of the ascending part of the elevator, to be again raised, (together with the main body of the coal coming over the chute *r*, *r*, from the colliery,) to the platform *e*, *e*, in order to be again dropped upon the teeth or chisels. To this kind of elevator or the other modes of elevating the coal above mentioned, I make however no claim of invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

The above described mode of breaking coal, by causing it to fall from a suitable height, and between proper guards or guides, upon sharp pointed teeth and chisels placed on blocks, the whole being arranged and constructed substantially in the manner and for the purposes hereinbefore set forth.

THO. PETHERICK.

Witnesses:
JNO. B. KENNEY,
CHARLES THOMPSON.