

G. E. HOYT.

Coal Breaker.

No. 27,220.

Patented Feb. 21, 1860.

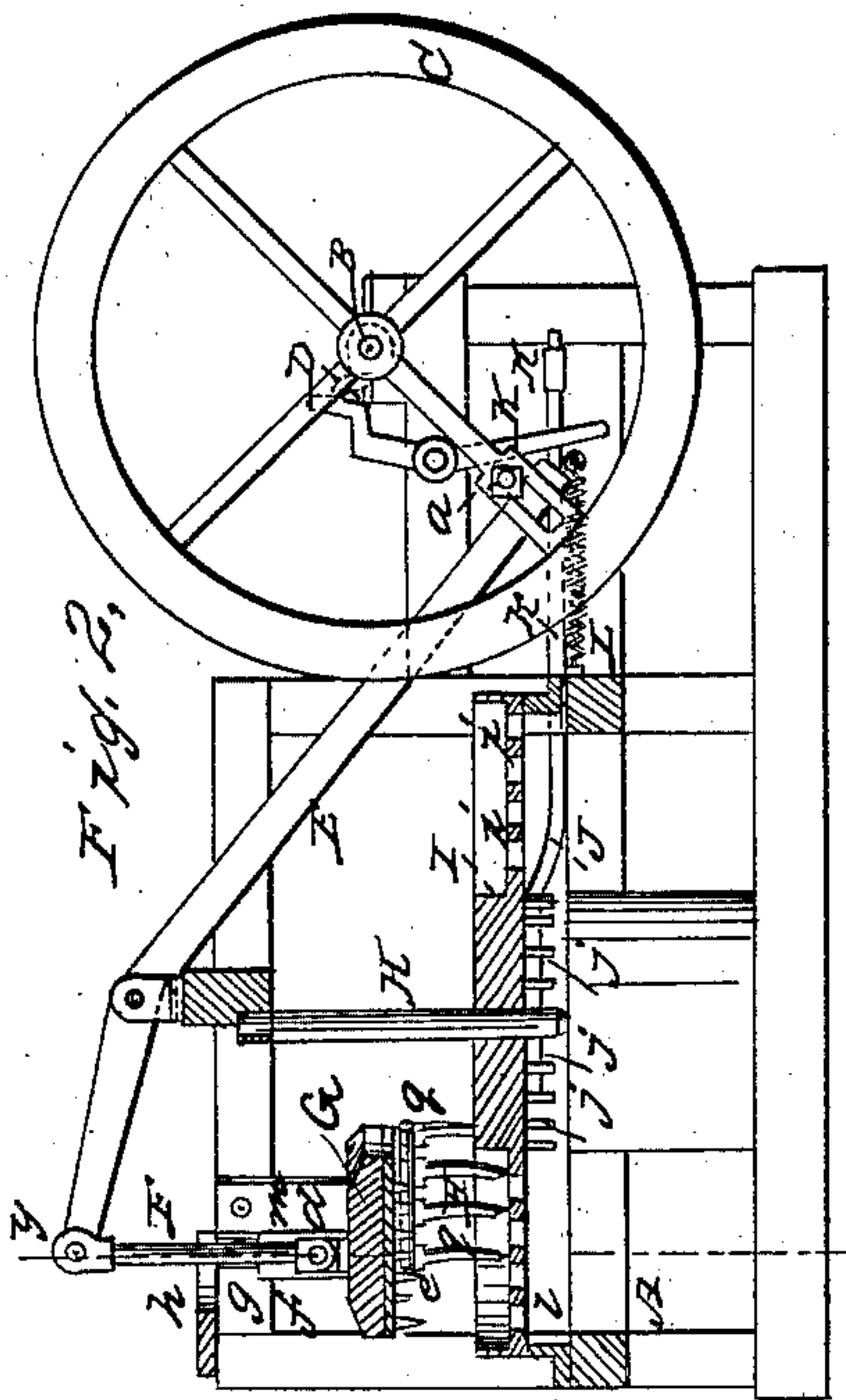
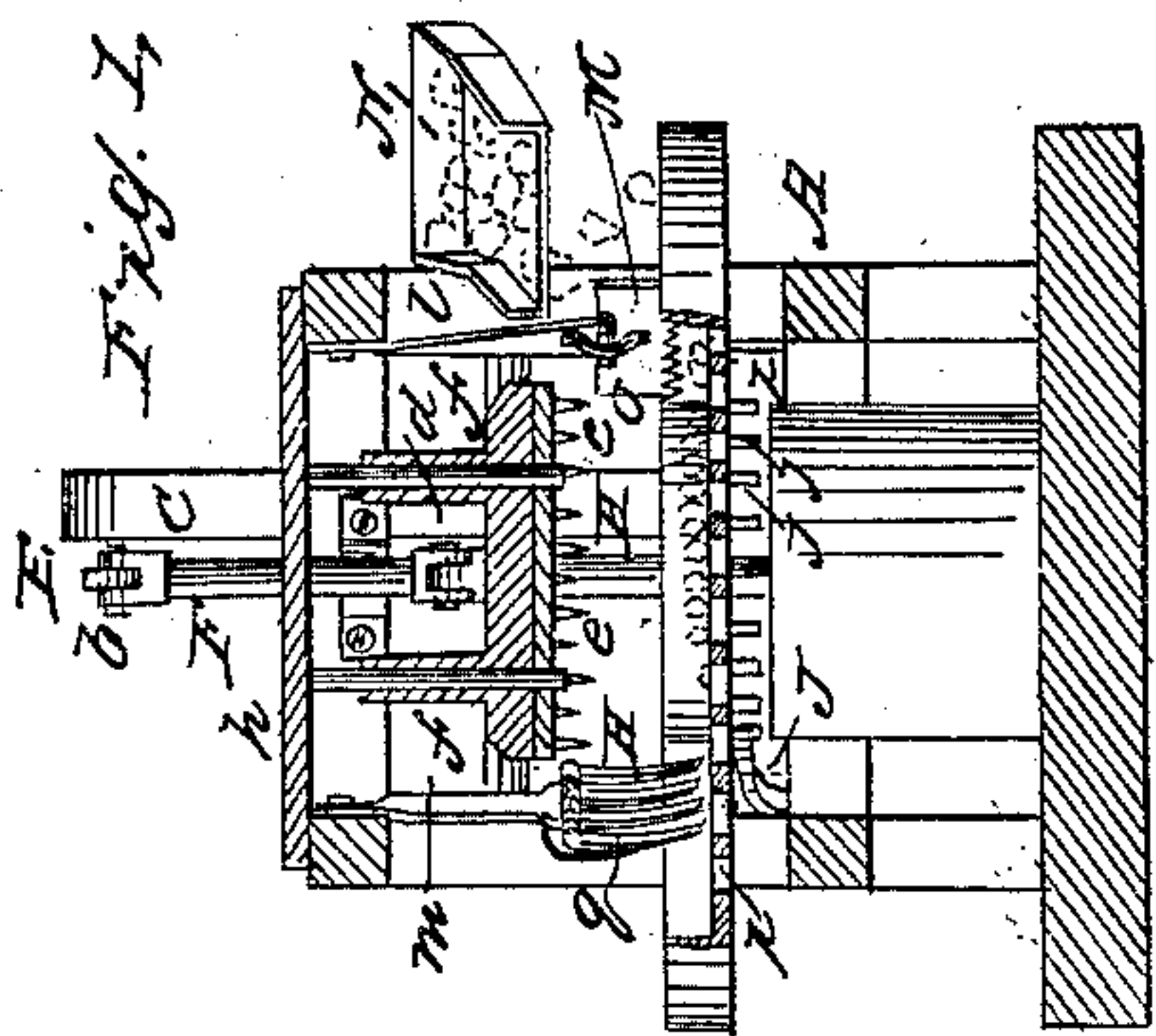
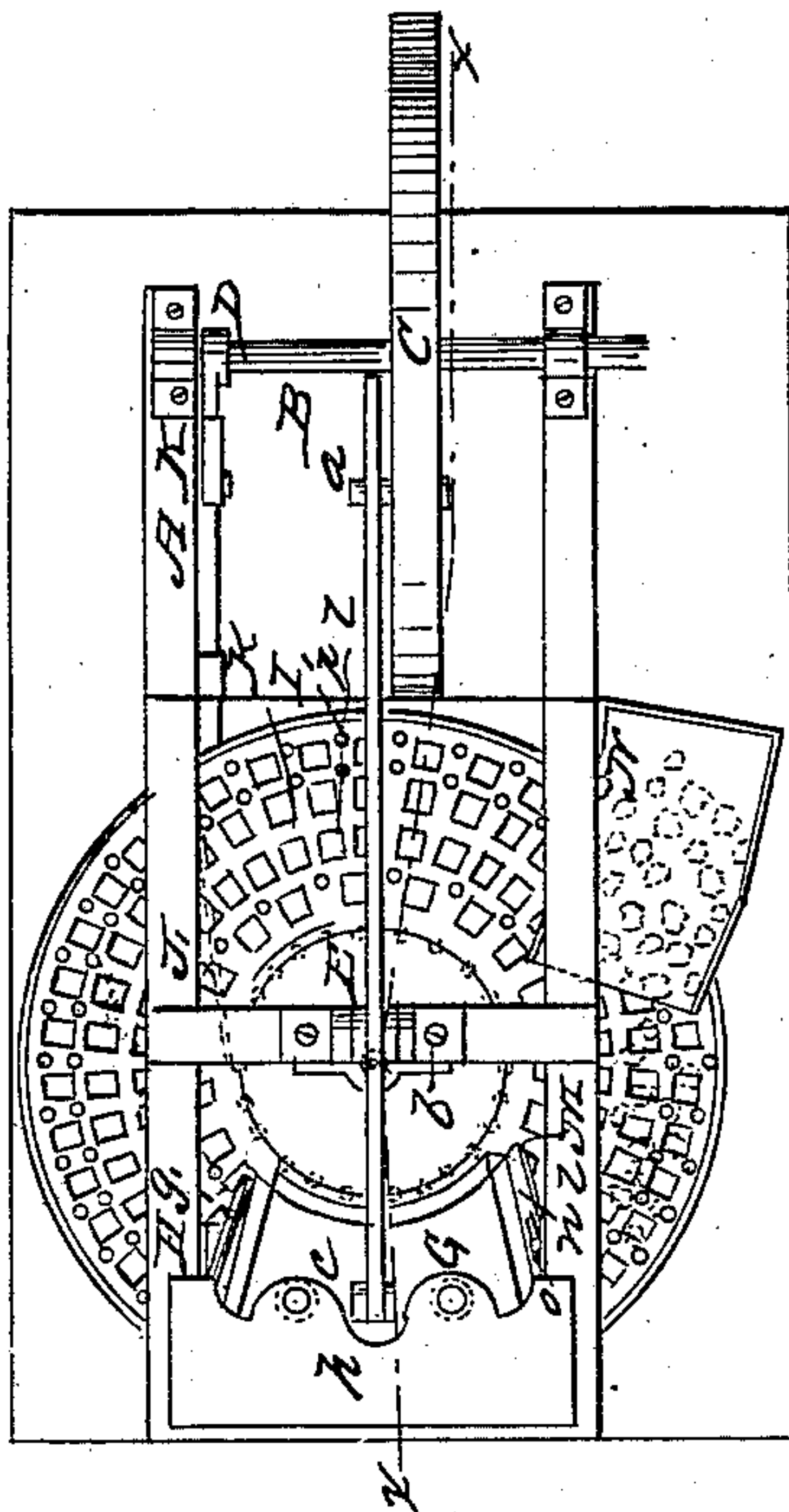


Fig. 3,



witnesses:

*Wm. Lusk
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Inventor,

G. E. Hoyt

UNITED STATES PATENT OFFICE.

GEORGE E. HOYT, OF BROOKLYN, NEW YORK.

MACHINERY FOR BREAKING COAL.

Specification of Letters Patent No. 27,220, dated February 21, 1860.

To all whom it may concern:

Be it known that I, GEORGE E. HOYT, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Machine for Breaking and Screening Coal; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a transverse vertical section of my invention taken in the line *y, y*, Fig. 2. Fig. 2, a side sectional view of the same, taken in the line *x, x*, Fig. 3. Fig. 3, a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the several figures.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a framing which may be constructed in any proper way to support the working parts of the machine. On the framing A, at one end, a driving shaft B, is placed, said shaft having a wheel C, placed on it and also a tappet D. To one of the spokes of the wheel C, a pin *a*, is secured, said pin projecting horizontally from the wheel.

On the upper part of the framing A, a lever E, is placed, *b*, being its fulcrum. One end of this lever E, is acted upon by the pin *a*, of wheel C, and the opposite end is connected by a joint *c*, to a rod F, the lower end of which is attached by a joint *d*, to a plate G, the lower surface of which is armed with teeth *e*, as shown clearly in Figs. 1, and 2. To the upper surface of the plate G, two tubes *f, f*, are attached into which vertical rods *g, g*, pass, said rods *g*, being secured to a plate *h*, which is attached to the upper part of the framing. The rods *g*, and tubes *f*, serve as guides for the plate G, and insure its working in a proper vertical direction as will be seen by referring to Fig. 1.

In the framing A, a vertical shaft H, is placed and fitted in suitable bearings. This shaft H, has a circular screen I, placed on it. This screen is of metal and is of sufficient thickness to insure durability. The perforations *i*, are of any suitable dimensions according to the size the coal is to be broken and the teeth *e*, of the plate G, which

is directly over the screen, are in line with the perforations *i*, so that when the plate or plunger G, is fully down the teeth *e*, will pass through the perforations *i*.

To the under side of the screen I, vertical rods *j*, are attached, said rods being in a circle concentric with the screen and serving as teeth into which a pawl J, catches, said pawl being in guides *k, k*, and operated by a lever K, the tappet D, and a spring L.

To the upper part of the framing A, two pendants *l, m*, are attached. To one of these pendants *l*, a plate M, is secured said plate being serrated at its lower edge. The plate M, is secured to its pendant *l*, by a hinge or joint *n*, which allows the plate to swing toward the plate G, a spring *o*, being affixed to pendant *l*, and made to bear against the plate M, to prevent it casually swinging toward plate G, see Fig. 1. To the pendant *m*, a rake H, is attached, each tooth of which has an independent joint connection enabling it to swing outward from the plate G. Against the back or outer side of each tooth, springs *q*, bear, said springs controlling the outward movement of the rake teeth. The rake teeth are directly over the annular bars of the screen. To one side of the framing A, a trough or spout N, is attached.

The operation is as follows: The shaft B, is rotated by any convenient power, and the coal to be broken and screened passes down the spout N, and drops on the screen I, which has an intermittingly rotating movement given it by the pawl L, the pawl being actuated by the lever R, and tappet D. The plate G, is also raised in consequence of the pin *a*, coming in contact with and pressing down the end of lever E, the plate falling by its own gravity when the pin *a*, has passed the end of lever E. The coal is broken by the descent of the plate or plunger G, the coal being carried underneath the plate or plunger by the rotation of the screen I. The plate or gage M, causes the coal to pass underneath the plunger in a layer of uniform thickness so as to insure the most efficient action of the plunger. The coal which is broken of a proper size passes through the screen, the rake H, removing all lumps that may remain on the annular bars of the screen and causing them to pass through the apertures *i*, of the same. The

tappet D, is placed on the shaft B, in such a position that the screen I, will be moved as the plunger G, rises and remains stationary as the plunger descends.

5 Screens of different sized apertures i, may be used according to the size of the lumps into which the coal is to be broken and although a rotating screen as described would be preferable still a reciprocating one
10 might be used, and for operating on a small scale a stationary screen may be used.

By this arrangement coal may be broken and screened with but little waste. The percussive force of the plunger G, armed
15 with teeth, in connection with the smooth

sustaining surface of the screen I, causes the coal to be fractured without being reduced to a powder or fine state.

I am aware that toothed plungers have been previously used for breaking coal and 20 I do not claim separately such device; but,

Having thus described my invention I claim—

In connection with the plunger and screen the gage M, and rake H, arranged substan- 25 tially as and for the purpose described.

GEO. E. HOYT.

Witnesses:

WM. TUSCH,

CHS. M. HUGHES.