(No Model.) 2 Sheets—Sheet 1.

# B. LANDRETH.

## CLOD CRUSHER.

No. 299,482. Patented May 27, 1884.

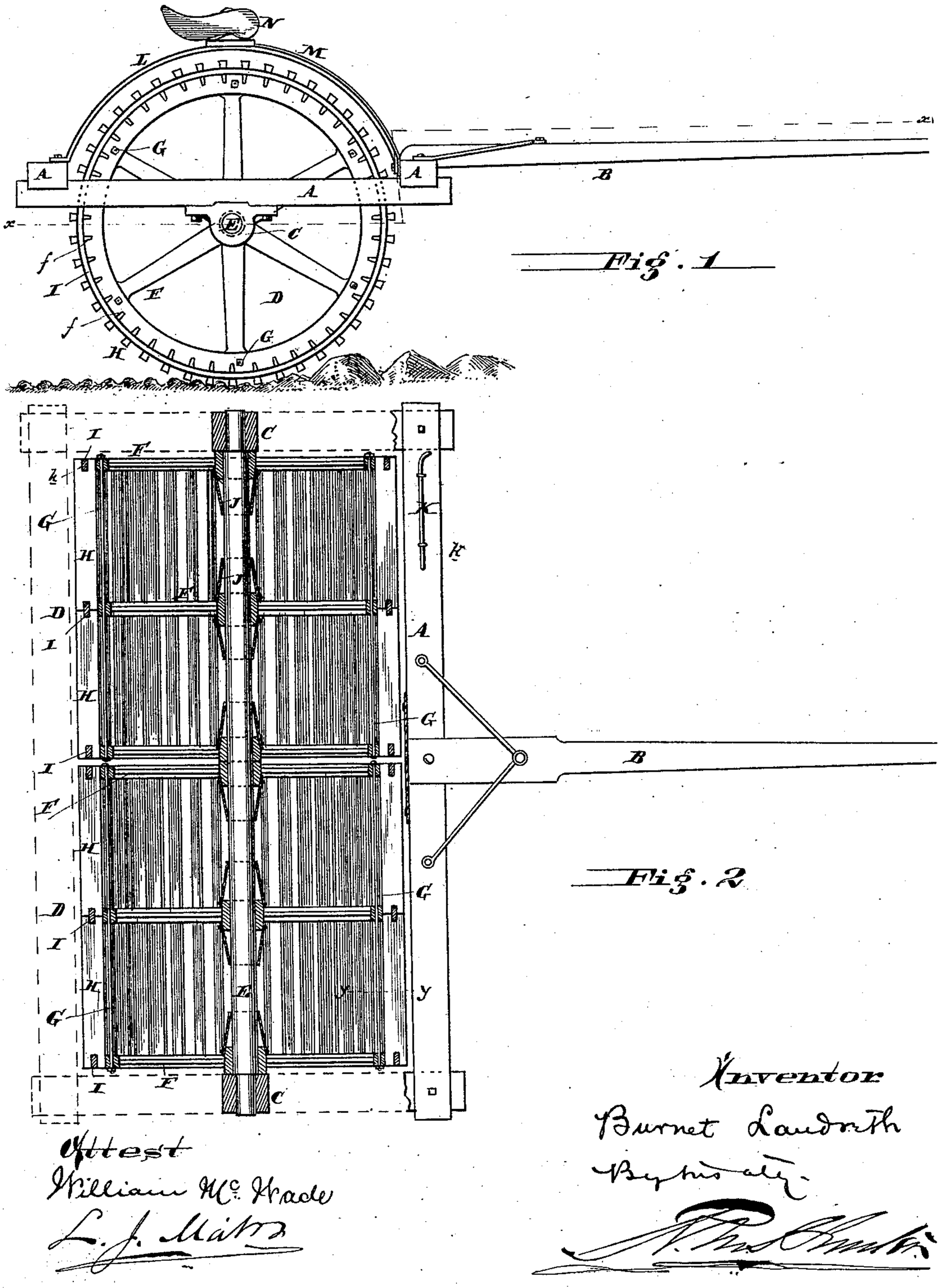


Fig. 1

Fig. 2

Attest
William McC. Wade
L. J. Mills

Inventor
Burnet Landreth
By his atty
[signature]

(No Model.) 2 Sheets—Sheet 2.

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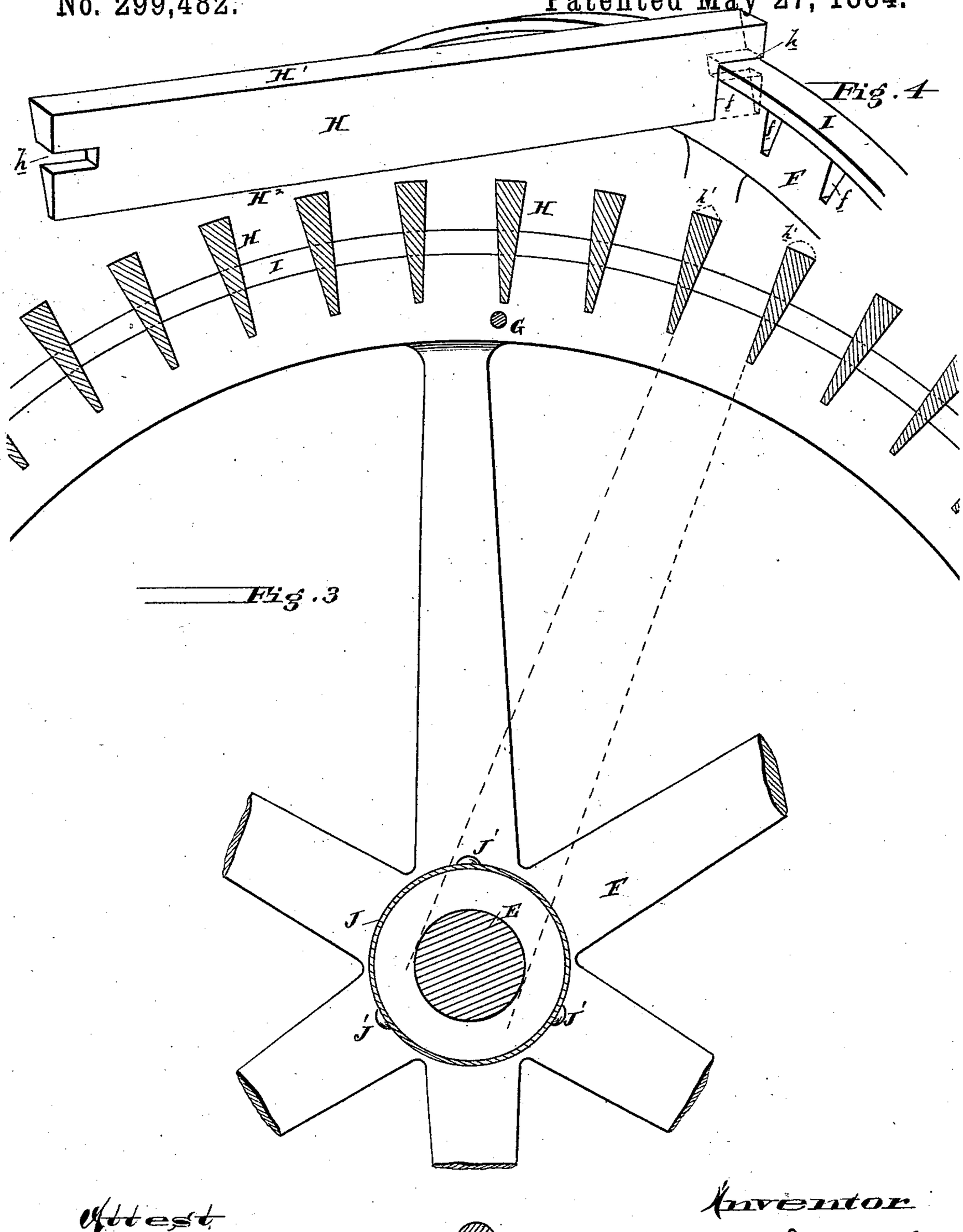


Fig. 4

Fig. 3

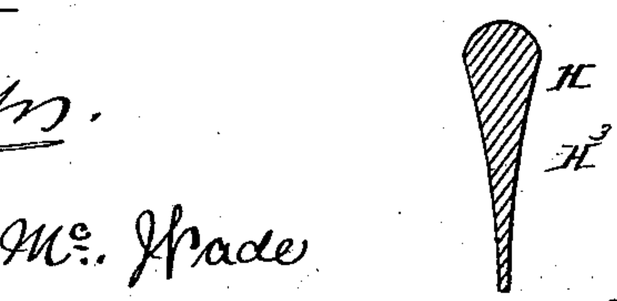


Fig. 5

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# UNITED STATES PATENT OFFICE.

BURNET LANDRETH, OF PHILADELPHIA, PENNSYLVANIA.

## CLOD-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 299,482, dated May 27, 1884.

Application filed November 12, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, BURNET LANDRETH, of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Clod-Crushers, of which the following is a specification.

My invention has reference to clod-crushers; and it consists in providing one or more loosely-pivoted cylinders or wheels with certain improvements, fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

Heretofore clod-crushers have been made of a simple cylinder, smooth on the outside or with spikes arranged thereon, or two or more wheels have been provided with spirally-arranged cutters; but these devices have not been found to practically perform the function for which they were designed.

The object of my invention is to provide a clod-crusher which shall be capable of finely dividing the most solid and refractory clod and leveling the earth; and, further, to so construct the machine that it cannot be clogged with earth or stones, but automatically clears itself in every revolution.

In the drawings, Figure 1 is a side elevation of my improved clod-crusher. Fig. 2 is a sectional plan view of same on line *x x* of Fig. 1. Fig. 3 is an enlarged cross section of part of the crushing-cylinder on line *y y* of Fig. 2. Fig. 4 is a perspective view of one of the crushing-blades, and shows its method of attachment to the cylinder-wheels; and Fig. 5 is a cross-section of a modified form of crushing blade or bar.

A is the rectangular frame of the machine, and B is the pole. C C are bearings secured to said frame at each end thereof, and carry loosely journaled therein the shaft E. This shaft supports the crushing-cylinders D, of which there may be one or more, and allows of their independent rotation thereon. These crushing-rollers are made as follows: Three wheels, F, having notches *f* on their periphery, are loosely supported on shaft E, and the said wheels support and carry a double series of crushing bars or blades, H, which fit into said notches, Fig. 4, and are clamped thereon by iron rings or bands I, which are shrunk on by first heating them and then allowing them to cool after being placed upon the peripheries of the wheels F and in the slots *h* in the ends of the blades H. Each notch *f* of the middle wheel F of cylinder D receives the ends of two blades, H, as shown in Fig. 2, and the same band, I, clamps both ends simultaneously. The wheels F are prevented from separating by binding-bolts G, and while they are not necessary should the clamping-power of the bands I be sufficient, yet they are very desirable to prevent any possibility of separation. The hubs of these wheels F are provided with protecting flanges or cones J, which are riveted to the hubs by rivets J′, and protect them from the earth, sand, and stones, preventing them being cut or worn out too rapidly. These blades H are made tapering in cross-section, being widest on their outer or crushing edges, H′, which may be flat, beveled, pointed, knife-edged, or rounded, as shown at *h′*, and narrowest at their inner edges, H², so as to form a space between any two adjacent blades, which shall increase in width as it approaches the center of the cylinder D from the outer or crushing edges of the said blades, to the end that any stones, dirt, &c., entering between the said blades will of its own accord fall out of said space when carried toward the upper part of the wheel or cylinder. By this construction it is evident that the crusher cannot become materially clogged, thus keeping the blades always clean and in a condition for crushing the hard clods of earth, which could not be crushed otherwise. The blades may be concave on their sides, as shown at H³, Fig. 5, if so desired. While one of these cylinders D may be used alone, it is desirable to have two or more, as shown, working against each other, for in turning there is little or no sliding action, as there would be with only a single cylinder, and the earth would be crushed uniformly, instead of the machine forcing it up and routing out a hole.

K is a bar, which, if a stone should from any cause spring the blades H sufficiently to wedge itself, may be employed to knock it out, the end being bent, as shown at *k*, to allow it to be passed horizontally down between the blades.

L are bars, which are curved to straddle

the cylinders D and are secured to the frame A, their front being covered by a sheet-iron shield, M, and supporting upon their upper part a seat, N, for the driver.

If desired, the bars H in any one cylinder D may be made in one piece and supported by the two outer wheels, F, alone, or secured to them and supported by a middle wheel also; and, if desired, the blades may be set at an angle to a radiating line from the axis.

If shaft E be rigidly supported in the bearings or blocks C, or where only one cylinder is used, the shaft may be secured to said cylinder, and journaled in said bearings C.

I am aware that it has been proposed to use crushing-blades on clod-crushers or cultivators separated by spaces having greater width at the inner than at the outer edges of said blades; also that it is not new to use crushing-blades having their edges extending above the faces of the wheels or rollers which support them; also that it has been proposed to bolt the supporting disks or wheels together, causing them to clamp the outer cylinder of the crushing-roller. Therefore I do not claim these features, broadly.

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

1. A crushing-cylinder for a clod-crusher, consisting of wheels F, having tapering notches *f* in their flanges, in combination with wedge-shaped crushing-blades H, adapted to set into said notches, and having notches *h* upon their ends, and bands I, shrunk on the flanges of said wheels F, and arranged to pass through the notches *h* in the crushing-blades, substantially as shown.

2. A crushing-cylinder for a clod-crusher, consisting of wheels F, having tapering notches *f* in their flanges, in combination with wedge-shaped crushing-blades H, adapted to set into said notches, and having notches *h* upon their ends, rods G, to prevent spreading of the wheels, and bands I, shrunk on the flanges of said wheels F, and arranged to pass through the notches *h* in the crushing-blades, substantially as shown.

3. A crushing-cylinder for a clod-crusher, consisting of three wheels, F, having tapering notches *f* in their flanges, in combination with two sets of wedge-shaped crushing-blades, H, adapted to butt against each other, as shown, set into said notches, and having notches *h* upon their ends, and three bands, I, shrunk on the flanges of said wheels F, and arranged to pass through the notches *h* in the crushing-blades, substantially as shown.

4. A crushing-blade for a clod-crusher, made tapering in cross-section and having one or both of its sides curved, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

BURNET LANDRETH.

Witnesses:

JOHN L. FINE,

W. H. H. FINE.