(No Model.)

J. W. PARMELEE.

DISINTEGRATOR.

No. 335,615. Patented Feb. 9, 1886.

Fig 1.

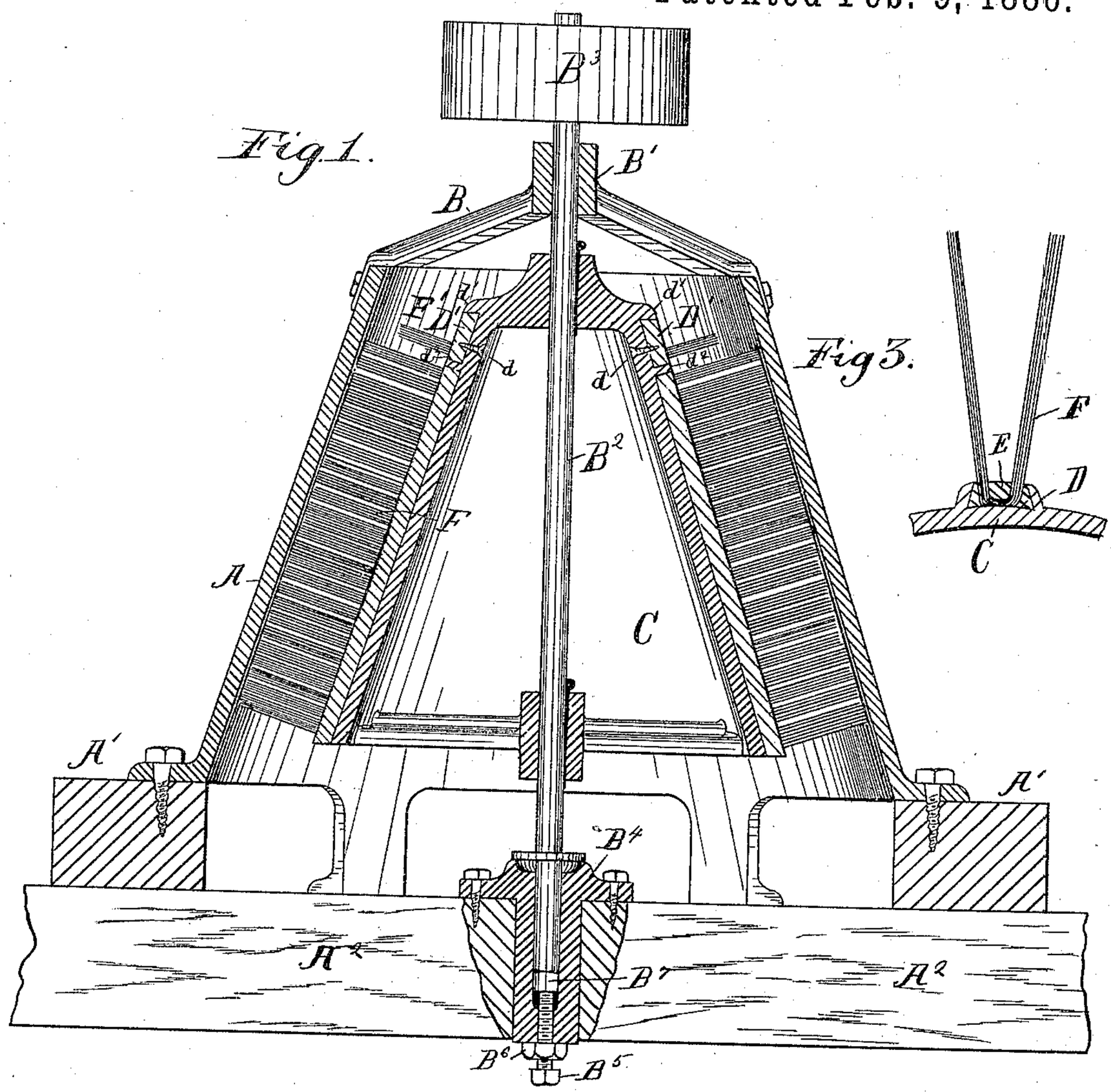
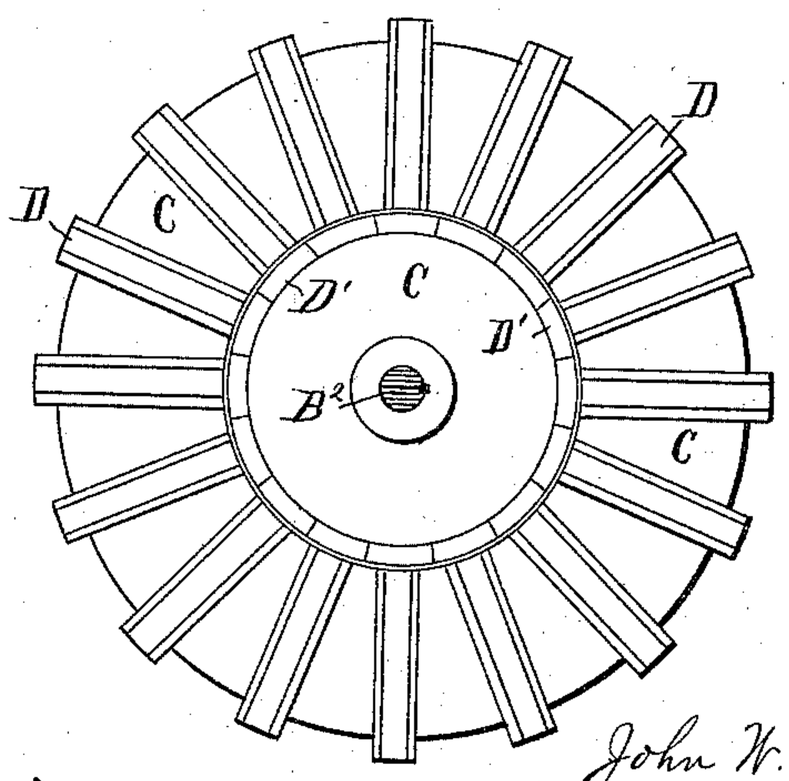


Fig 3.

Fig 2.



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UNITED STATES PATENT OFFICE.

JOHN W. PARMELEE, OF ENGLEWOOD, ILLINOIS.

DISINTEGRATOR.

SPECIFICATION forming part of Letters Patent No. 335,615, dated February 9, 1886.

Application filed August 21, 1884. Serial No. 141,129. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. PARMELEE, a citizen of the United States, residing in Englewood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Disintegrators, of which the following is a specification.

This invention relates to an apparatus for disintegrating what is known as "placer dirt," or the detritus and gold-bearing mixture of gravel, clay, &c., forming the alluvial deposits of placer gold-mines. It is also applicable to other like purposes.

My improved apparatus consists of a close vertical chamber containing a rapidly-moving conical brush provided with wire bristles, adapted to act upon the material after the manner of a whip or lash, the material being fed into such chamber at the top and allowed a free exit at the bottom, all substantially as hereinafter set forth, whereby the dirt is reduced to a pulverized condition, and the stones and gravel are brushed clean and deprived of all adhering ore and ore-containing substances.

The best form or embodiment of my invention now known to me is that illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a sectional elevation of the disintegrator. Fig. 2 is a plan view of the interior cone removed, the brushes not being shown; and Fig. 3 is a section, on a somewhat enlarged scale as compared with the other figures, of a portion of the brush-cone, illustrating the manner of securing the brush to the cone.

In said drawings, A represents the exterior conical shell, resting on suitable foundation-timbers, A' A^2. At the upper portion this chamber is made open to receive the dirt to be operated upon, and is made open below to discharge the same. Arms B at the upper end afford a bearing, B', for a central vertical shaft, B^2, provided at its upper end with a driving-pulley, B^3, and at its lower end stepped in a bearing, B^4. A set-screw, B^5, with jam-nut B^6, and a steel bearing-block, B^7, serve as the bearing part of said step and to adjust the shaft vertically as occasion demands. Mounted upon the shaft B^2, and concentric with the exterior shell, A, is the revolving inner brush-cone, C. The exterior surface of this revolving cone is provided with longitudinal dovetail grooves D, extending from its lower rim up to near the upper end of the cone. In these dovetail grooves are inserted wooden strips E, provided with tufts F, made of spring steel wires, as shown at Figs. 1 and 3. Around the upper portion of the cone is a series of removable wooden blocks, D', which also carry tufts of steel wire F'. The tufts F are long enough to reach almost to the inner surface of the exterior shell, and should in any event be of such length that they will possess such pliability as will enable them to exert a whipping or lashing action upon the material, while the tufts F' are made shorter, but are placed closer together laterally. The object of this arrangement is to afford a surface or guard of wire bristles which shall receive the dirt as it is poured in at the top, in order that the rapidly-revolving longer tufts shall not be bent or injured by striking against the material. Screws *d*, together with the dovetail ledge d' and the ledge d^2, serve to hold the blocks D' upon the cone. The strips E and blocks D', I prefer to make of wood; but they may be made of metal in case they should wear too rapidly.

The operation of my apparatus is as follows: Power is applied to the pulley B^3, and the interior cone, with its wire bristles or brush-surface, is caused to revolve rapidly—say at a speed of six hundred revolutions a minute. The dirt to be operated upon is fed into the open top of the exterior shell, falling first upon the closely-placed circle of shorter wire tufts F', and from thence passing by gravity and centrifugal tendency outward and downward to the longer tufts F, and so down through the machine, discharging in a disintegrated condition at the open bottom. For most dirts a single passage through the machine will be found sufficient. If, however, a single operation is not sufficient, the dirt may be returned and passed through the machine again, as will be readily understood.

The apparatus is very effective in its operation, disintegrating the dry clays and earths with great rapidity and effectiveness, and at the same time cleaning any contained gravel; and it is, moreover, simple in its construction and easy to build and repair.

It will be understood that the wire-brush dress may be removed, in whole or in part, at any time and readily renewed.

I claim—

The combination of the exterior imperforate conical vertical shell, open at top and bottom, and a concentric revolving brush-cone provided with long flexible wire bristles, adapted to whip instead of cutting the gravel, &c., and driving mechanism for operating the cone, substantially as specified.

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