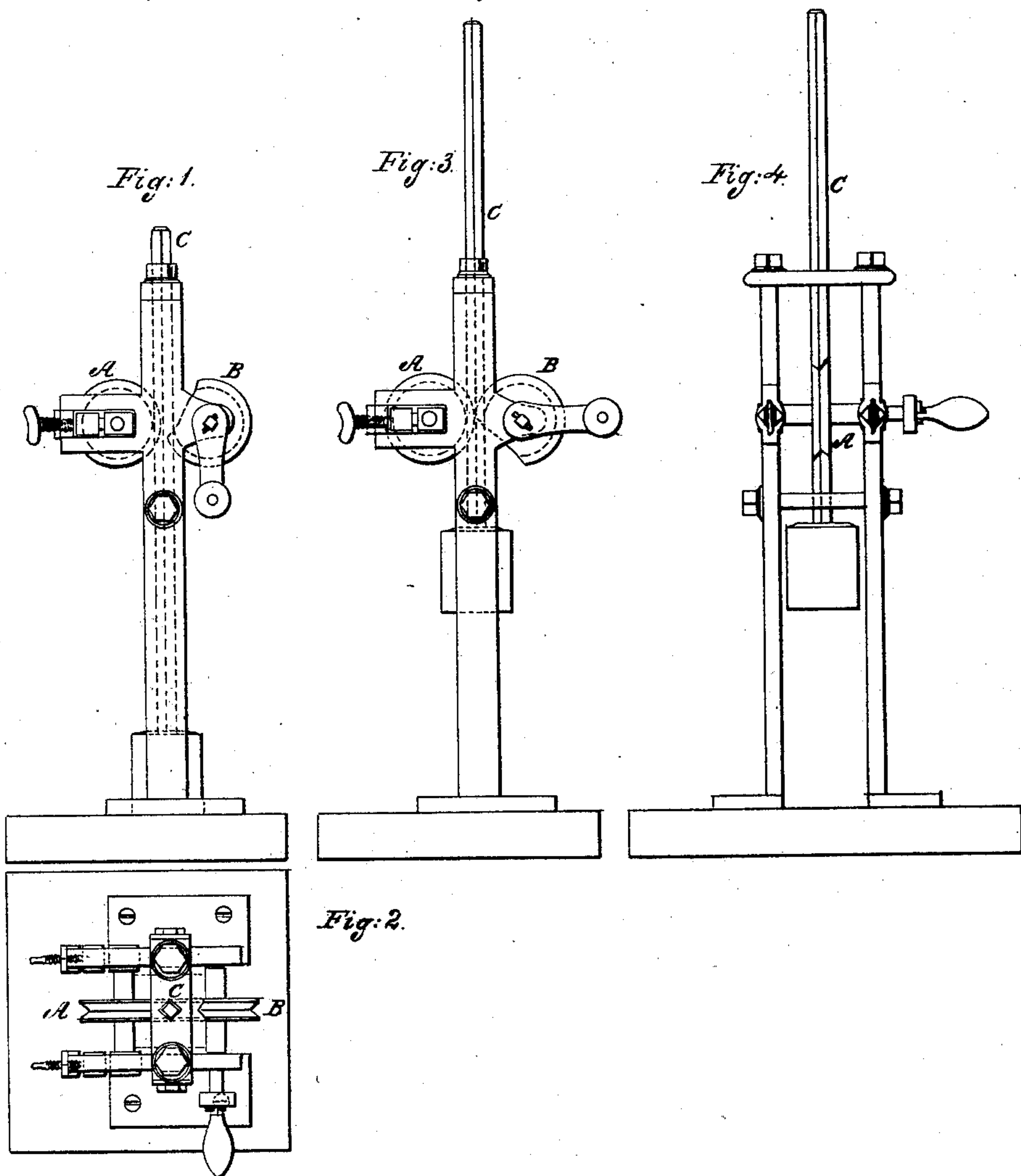


S. F. HODGE.

Ore Stamp.

No. 17,374.

Patented May 26, 1857.



UNITED STATES PATENT OFFICE.

SAML. F. HODGE, OF DETROIT, MICHIGAN.

ORE-CRUSHING MACHINE.

Specification of Letters Patent No. 17,374, dated May 26, 1857.

To all whom it may concern:

Be it known that I, SAML. F. HODGE, of Detroit, in the county of Wayne and State of Michigan, have invented certain new and
5 useful Improvements in Ore-Crushing Machines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, in which—

10 Figures 1, 3 and 4 represent elevation and Fig. 2, a plan view of my improved ore-crusher.

Stamping mills are generally used for breaking the hard refractory pieces or ore,
15 which resist the action of rollers of the crushing and chat mills. In some establishments where the ore is very hard such as certain copper and zinc ore, stamping mills are used exclusively. These consist of a
20 number of upright wooden beams called stampers, to the lower extremities of which are attached pieces of cast iron varying in weight. These are placed in a wooden frame, and alternately lifted up about 10
25 inches by the cogs or wipers of a horizontal axle which is moved around either by a master wheel or a steam engine. This mode of elevating the stampers prevents serious inconveniences. 1. Resistance due to the
30 sliding friction of the cams against the studs of the beams which absorbs a considerable amount of the motive power transmitted. 2. Necessarily short stroke of the stampers and their consequent inefficiency
35 it being impossible to increase the length of the stroke beyond a certain limit.

The annexed drawing shows a new system of elevating weights, applicable to trip hammers, stampers or any other similar implement which are operated by lifting and
40 falling alternately on any substance to be crushed, compressed or broken. It consists of two grooved rollers (A) and (B) grasping with a gentle pressure an upright and
45 rigid rod to which the stamper or hammer is attached. The rollers are fixed onto axles which are both placed in a horizontal line

in relation to the vertical axis line of the elevating rod (C) so that the pressure on the rod shall always be in one line normal to
50 one point of the rod. The roller (A) or the guiding roller, may be of any convenient diameter and move freely with the rod C. The roller B or conveying roller is so shaped that it will lift the hammer during
55 part of a single revolution and allow it to drop during another part of said revolution. The circular periphery of the roller is for that purpose incomplete and is interrupted between two points of the periphery the dis-
60 tance of which is so calculated in relation to the diameter and velocity of the roller B and also in relation to the intended stroke of the hammer as to allow the hammer or weight to fall freely, without impairment. 65

It is obvious that rollers can be arranged for one or more strokes to each revolution, by removing one or more disk segments from the periphery of the roller.

I do not wish to confine myself to the
70 particular shape of the rod or of the groove of the roller as shown in the annexed drawing. Bars of a circular, square or polygonal section will answer the purpose equally well, when grasped by similarly grooved
75 rollers. Neither do I confine myself to any kind of material in the construction of the beam or rod, or the rollers, as this is a matter of convenience governed by circumstances
80 and economy.

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

The alternate lifting and dropping of a stamper, hammer or any weight, by means of a combination of a vertical rod with two
85 clamping rollers the periphery of one of which is not a complete circle.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

SAML. F. HODGE.

Witnesses:

H. G. STORY,
THOS. S. CHRISTIE.