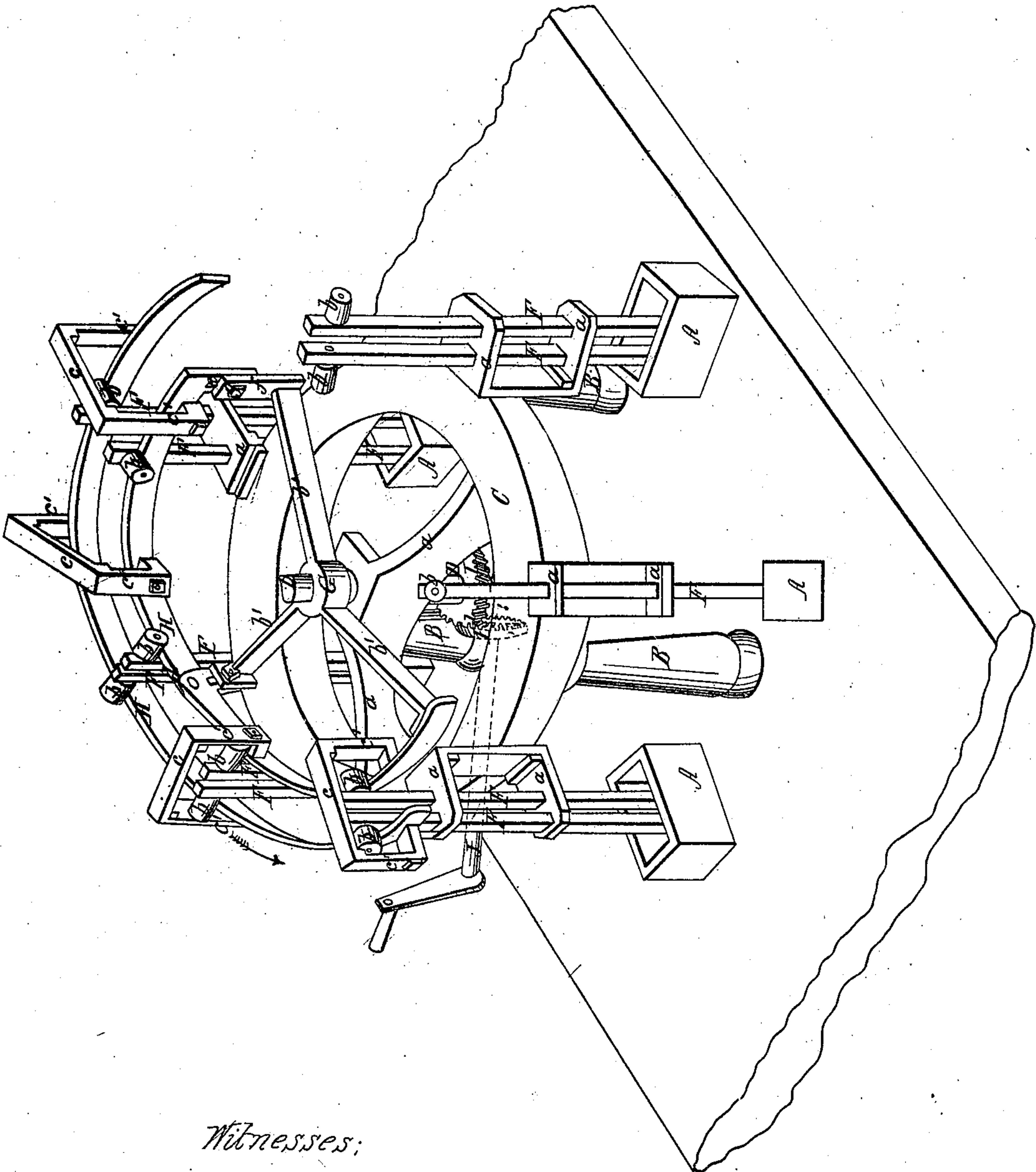


W. Murray

Ore Stamp.

N^o 25,213.

Patented Aug. 23, 1859.



Witnesses:

*John B. West
Ephraim S. Skinner*

Inventor.

W. Murray

UNITED STATES PATENT OFFICE.

WILLIAM MURRAY, OF BALTIMORE, MARYLAND.

STAMPING-MACHINE FOR CRUSHING ORES, &c.

Specification of Letters Patent No. 25,213, dated August 23, 1859.

To all whom it may concern:

Be it known that I, WILLIAM MURRAY, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and
5 useful Improvement in Stamping-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this speci-
10 fication, in which a perspective view of my invention is shown.

The nature of my invention consists 1st in the combination of two or more stampers arranged on the same radial line, with two
15 or more semi-circular inclined revolving lifting and dropping cams, which move together, and with a central driving shaft, in the manner hereinafter described, whereby each mortar can be provided with two or
20 more stampers and both of the same raised or dropped simultaneously by means of the same driving shaft.

It consists 2nd. in providing the semi-circular lifting and dropping cams with a ver-
25 tical joint about midway between their terminating ends, and with an oblong vertical slot at their rear or highest ends, and attaching said ends by means of a set screw, or its equivalent, to the frame of the cams, so that
30 the inclination of said cams may be adjusted to lift the stampers to a greater or less height according to the force required to perform the operation of stamping.

To enable others, skilled in the art, to
35 make and use my invention, I will proceed to describe its construction and operation.

In constructing my machine, I arrange a series of mortars A, A, on a circle, and with-
40 in the circle of the inner side of the same, I arrange three strong uprights B, B, and on top of the same mount a circular ring C, said ring having a transverse arch shaped bearing a, constructed on it to receive a vertical
45 central shaft D, said shaft having its bearing in said arch and in a step of the platform.

On the outside of the ring, at points directly over the mortars, I attach guide brackets a, a, and through each of said brackets
50 pass the stems of two vertical stampers F, F, the stems of said stampers having at their upper ends horizontal arms to receive friction rollers b, b which stand at right angles to the stems. One friction roller is on the
55 outer side of one stem and the other friction roller is on the inner side of the other stem, as shown.

On the upper end of the central shaft, I arrange, so as to revolve with the shaft, a circular horizontal hub G, having three or
60 more arms b', b', b', and to the arms, I attach a lifting and dropping device, consisting of two semi-circular inclined cams H, H, said cams being formed of thin iron, and
65 united together by bonnets or arches c, c, which overhang the top of the cams and attach by screws to the inner side of one cam and the outer side of the other cam, so as to
70 leave ample space for the friction rollers of the stampers to pass by their vertical portions c', c', without coming in contact with the same. The forward ends of the cams are
75 set low enough to pass under the friction rollers of the stampers when the stampers are resting down on the bottom of the mortars, and the rear ends of the same are set
much higher so as to give the stampers the
80 required elevation for ordinary stamping operations. I also make provision for elevating or lowering the rear ends of the cams so as to have the stampers act with greater
85 or less force according to the nature of the materials operated upon. This is accomplished by making a vertical joint at d, in each of the cams and having the rear por-
90 tions capable of turning on said joint. To retain the rear portions after the adjustment
has been effected, I make a curved oblong slot e, in a vertical arm at the rear extrem-
ity of each cam, and fasten said arm to a
vertical or angular extension f, of one of the
95 arms of the hub G, by means of a set screw g, as shown.

In order to give motion to the driving shaft and thereby revolve the cams, I ar-
90 range a bevel wheel I, on the lower portion of said shaft and have it gear with another
similar wheel I' on the power or crank shaft J, as represented.

From the above description of parts, it
10 will be seen that if the cams are caused to revolve in the direction of the arrow, their
forward or lowest ends will pass under the friction rollers of the several pairs of stamp-
ers successively, and said stampers will
15 gradually be elevated out of the mortars by the cams until the highest or rear ends of
the cams arrive at the point where the lower
ends passed under the friction rollers of the
first pair of stampers, when the friction roll-
10 ers of the first pair of stampers will escape
from the cams and the stampers, by their
11 gravity, will descend into the mortars and

perform the stamping operation, and thus the operation continues with every succeeding pair of stampers and until the stamping operation is perfectly performed.

5 My arrangement of two or more stampers on the same radial line, with two or more cams, enables me to do twice the work of ordinary single cam machines in a given time, without materially enlarging the size
0 of the machine, or employing more than one driving shaft. And my arrangement for regulating the force of the blow given by the stampers, enables me to adapt the machine for operating upon substances of different
5 natures such as quartz, hominy, rice, &c. &c.

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

1. The combination of two or more stampers arranged on the same radial line, with two
0 or more semi-circular inclined revolving lift-

ing and dropping cams, which move together, and with a central driving shaft, substantially as and for the purposes set forth.

2. Providing the semi-circular lifting and dropping cams with a vertical joint about
25 midway between their terminating ends and with an oblong vertical slot at their rear or highest ends and attaching said ends by means of a set screw, or its equivalent, to the
30 frame of the cams, so that the inclination of said cams may be adjusted to lift the stampers to a greater or less height according to the force required to perform the operation of stamping, substantially as and for
35 the purposes set forth.

WM. MURRAY.

Witnesses:

JOHN B. WHEAT,
EPAPHRODITUS SWINNEY.