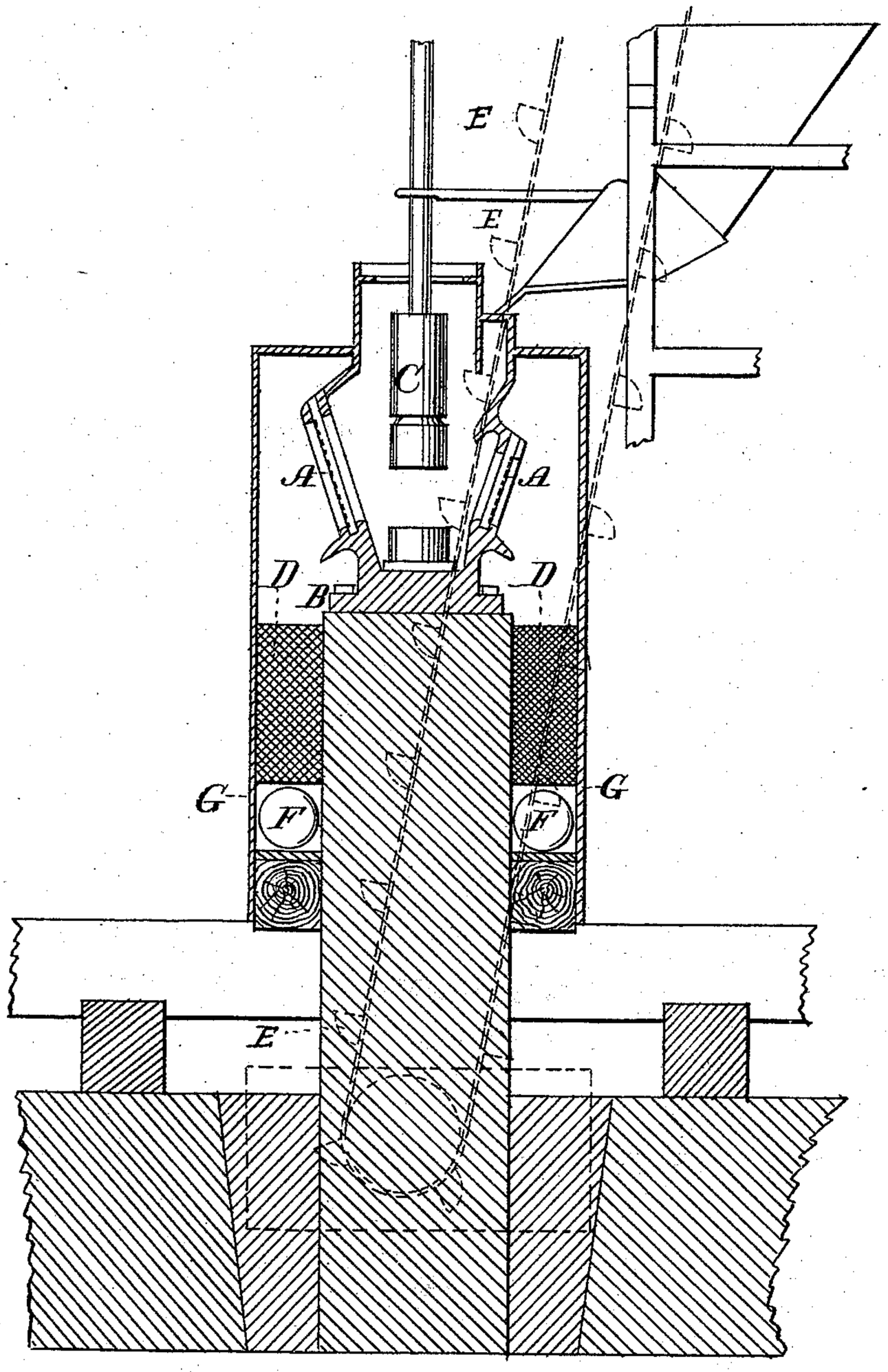
(No Model.) 2 Sheets—Sheet 1.

G. H. MALTER.

STAMP BATTERY.

No. 305,701. Patented Sept. 23, 1884.

Fig. 1.



Witnesses,
Geo. H. Strong.
J. B. Towne

Inventor,
Geo. H. Malter.
By Dewey & Co.
Attorneys

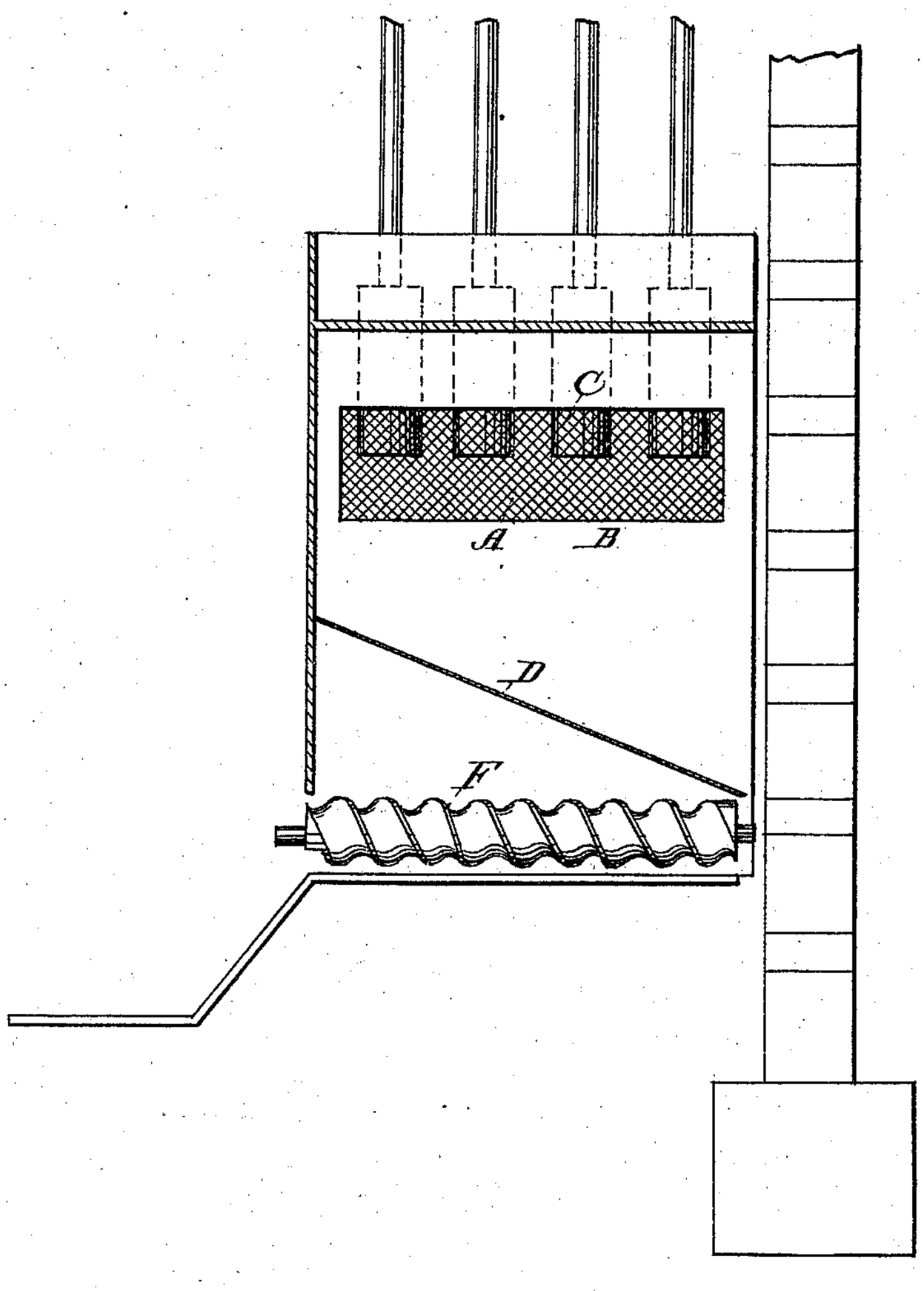
(No Model.) 2 Sheets—Sheet 2.

G. H. MALTER.

STAMP BATTERY.

No. 305,701. Patented Sept. 23, 1884.

Fig. 2.



Witnesses,
Geo. H. Strong.
J. B. Howes

Inventor,
Geo. H. Malter
By Dewey & Co.
Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE H. MALTER, OF SAN FRANCISCO, CALIFORNIA.

STAMP-BATTERY.

SPECIFICATION forming part of Letters Patent No. 305,701, dated September 23, 1884.

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

To all whom it may concern:

Be it known that I, GEORGE H. MALTER, of the city and county of San Francisco, and State of California, have invented an Improvement in Stamp-Batteries; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in apparatus for crushing quartz, and for separating and discharging the material as fast as it is reduced to a sufficient fineness; and it consists in the apparatus constructed as herein described and claimed, and as will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical transverse section of a stamp-battery mortar, showing, also, the screens and elevator. Fig. 2 is a front view of the stamps, conveyer, and screens.

In crushing quartz in a battery it is customary to employ screens at the front and back of the mortar of a sufficient degree of fineness to allow the material to pass through when it is pulverized to the desired point, the fall of the stamps throwing it outward against the screens until it will pass through. Two objections are found to this operation. One is that much of the fine material is retained in the mortar, after it is reduced as much as it is necessary, by not being thrown against the screens, and it thus remains to impede the working of the stamps, and the other is that the coarse ore is thrown against the fine screens with so much force as to break them.

In my invention I employ screens A, of coarse strong wire, having meshes considerably larger than the required fineness of the material to be crushed. These are fixed in the sides of the mortar B, as shown, and when the stamps C fall upon the rock which is fed into the mortar they crush it and throw it outward at each blow. The screens A are strong enough to resist the force of the larger pieces of rock which strike them, and all which is fine enough will readily pass through their meshes, thus rapidly relieving the mortar and making it to crush much more rapidly.

Below the screens A, upon the sides of the mortar, are placed screens D, which lie with their surfaces upward, so that the material which passes through the screens A will fall upon them. They stand at such an incline that all the particles which cannot pass through them will slide off and fall into a receptacle, from which they are taken by the buckets E of an elevator, and are carried upward to a point from which they are again delivered into the mortar, where they will be acted upon by the stamps until reduced to a sufficient degree of fineness. That portion of the ore falling upon the screens D which is fine enough passes through them, the meshes being as fine as necessary, and as the ore does not strike them with much force they are not broken or injured by it. The ore passing through these screens D is carried out by conveyers F to the opposite side from the elevator, and is ready for the next steps of the process of reduction. That portion of the mortar below the feed-opening—the screens D, conveyers F, &c.—is preferably inclosed or cased in, as shown at G, to prevent the escape of dust. By this construction the rock is much more rapidly crushed, and does not remain or pack in the mortar to clog it, and the screens will wear much longer.

I am aware that stamp-batteries have been made in which two sets of screens have been used—one finer than the other—to separate the coarser from the finer ore after it has passed from the battery.

I am also aware that a battery has been constructed in which the ore was placed upon grating through which it would fall when crushed to a certain degree of fineness, and that it has then been elevated and passed through screens by which the finer ore is separated from the coarse particles. I do not, therefore, broadly claim such a device; but

What I do claim, and desire to secure by Letters Patent, is—

An ore-reducing apparatus consisting of a mortar, stamps which are caused to fall upon ore in the mortar, screens having a coarse mesh fixed in the sides of the mortar, inclined screens below said screens in the mortar, through which the finer material passes, the coarser portions being delivered to one side,

conveyers beneath the inclined screens, to remove the finer material, a receptacle for the coarser material discharged from the inclined screens, and an elevator to carry the coarse ore up from the receptacle and deliver it back to the mortar and stamps, substantially as herein described.

In witness whereof I have hereunto set my hand.

GEORGE H. MALTER.

Witnesses:
S. H. NOURSE,
C. D. COLE.