T. A. COCHRANE.

ORE-STAMP.

No. 192,567. Patented July 3, 1877.

Fig. 1.

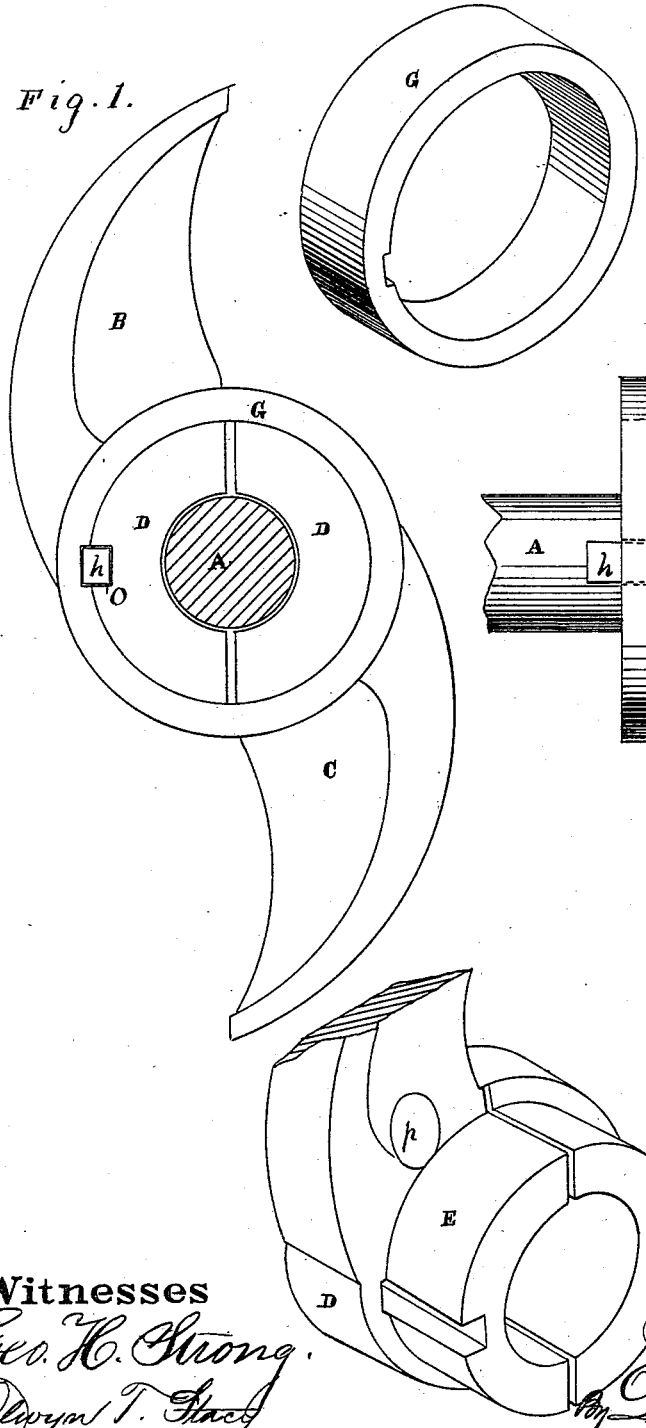
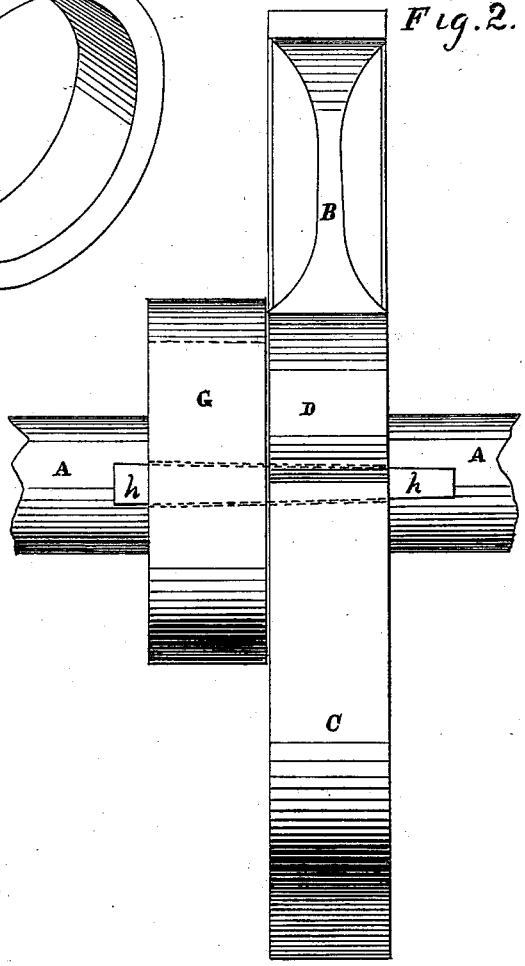


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS A. COCHRANE, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN ORE-STAMPS.

Specification forming part of Letters Patent No. **192,567**, dated July 3, 1877; application filed April 13, 1877.

To all whom it may concern:

Be it known that I, THOMAS A. COCHRANE, of the city and county of San Francisco, and State of California, have invented an Improved Sectional Cam for Quartz-Mills; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings.

My invention relates to such cams for quartz-mills as are made in two parts, so that the parts can be fitted in their proper position on the cam-shaft opposite each other, and secured together without disturbing the shaft or any of the other cams upon it.

My invention consists in constructing each of said parts or halves of the cam with a half-hub extension upon one side, so that when the two parts of the cam have been fitted upon the shaft a metal band can be secured around said extensions and a key inserted between the band and hub, so as not only to bind the parts of the cam together, but also clamping them immovably upon the shaft without the necessity of a key-seat in the shaft, as heretofore.

Referring to the accompanying drawings, Figure 1 is a side view of my cam. Fig. 2 is an edge view of the same.

A represents the cam-shaft of a quartz-mill, upon which the cams that lift and drop the stampers are secured. B C are two cam-arms, each of which has a half-hub, D. Each half-hub has a side extension, E, projecting from one side of it, so that when the two half-hubs are placed together they form a complete hub.

The line of division which separates the two parts of the hub can be made in any desired direction with reference to the arms of the cams, but I prefer to divide it on a line drawn from the inside bases of the arms, as represented, directly through the middle hub and central hole through which the shaft passes.

When the sections have been adjusted upon the shaft I pass a metal ring or band, G, over the extension or side hub, and secure it by means of a wedge, *h*, which passes through a key-seat, O, which is cut in the extension-hub, and an under seat in the ring; thence the key passes through a hole in the main hub. This wedge not only secures the band upon the hub, but also forces the hubs tightly upon the shaft, so that they will be prevented from shifting by the strain upon the cam-arms.

I prefer to construct the extension-hub sections with a slight taper or bevel toward their outer edges, and then form the ring or band, G, with a slight inside taper in an opposite direction, so that when the band is forced upon the half-hubs it will compress them together upon the shaft before the key is driven in.

The meeting edges of the hubs on each side of the shaft do not come quite together, but a sufficient space is left between them on each side to allow the parts to be compressed tightly upon the shaft.

It will be noticed that both the band and wedge serve to draw the sectional hubs together and clamp them upon the shaft, whereas in all other sectional cams the key or wedge is driven into a key-seat in the shaft, thus tending to force the sections away from the shaft.

Experiments have proven that I can secure the sections upon the shaft by my compression method with sufficient force to prevent them from shifting their positions under the strain which the cam-arms are subjected to without employing a key-seat in the shaft. I can thus avoid the expense of cutting the key-seat, which is an important item of economy.

Before mounting the cam-shaft in its bearings the rings or bands G are slipped upon it, so that the cam-sections can at any time be secured to or detached from it without subsequently disturbing its position.

Through one of the arms of the cam I make a hole, *p*, through which a punch can be introduced to drive out the key in the adjoining cam when it is desired to remove the sections from the shaft. This is necessary, because the cams are arranged spirally around the shaft, so that the key of one cam comes opposite the middle of the arm of the adjoining cam.

The ring or band *g* I prefer to make of wrought-iron, as it will be much stronger and resist a greater strain than cast metal.

This arrangement will render section-cams equally as strong as the solid cams, and, be-

sides, it will have the additional advantage of being easily removed without disturbing any of the other parts of the machinery.

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

1. The cam-sections B C, provided with the side extension half-hubs E, in combination with the band or ring G, substantially as and for the purpose described.

2. The cam-sections B C, each of which is provided with a side extension half-hub, E, with its key-slot O, in combination with the band or ring G and wedge or key *h*, substantially as and for the purpose described.

In witness whereof I have hereunto set my hand and seal.

THOMAS A. COCHRANE. [L. S.]

Witnesses:
OLWYN T. STACY,
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