(No Model.)

C. HAYWOOD.

SCREEN FOR SIZING ORES AND OTHER SUBSTANCES.

No. 319,486. Patented June 9, 1885.

Fig. 1.

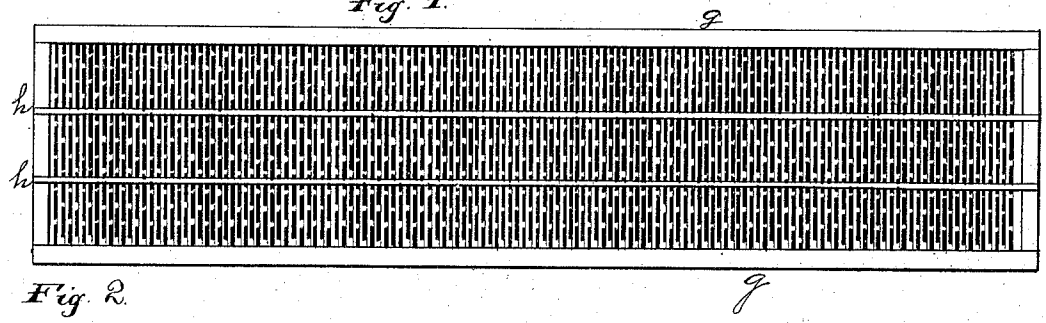


Fig. 2.

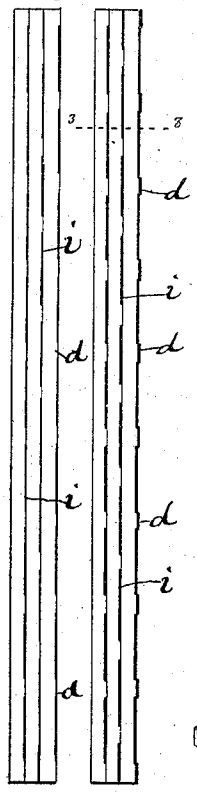


Fig. 3.

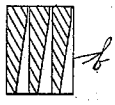


Fig. 4.

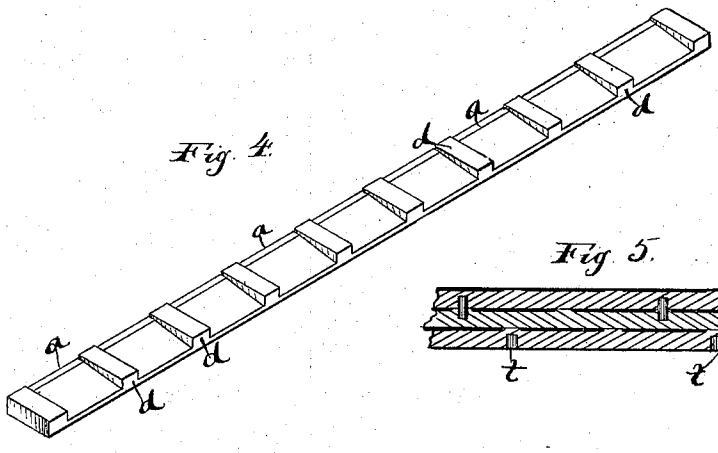


Fig. 5.

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CORNELIUS HAYWOOD, OF CHICAGO, ILLINOIS.

SCREEN FOR SIZING ORES AND OTHER SUBSTANCES.

SPECIFICATION forming part of Letters Patent No. 319,486, dated June 9, 1885.

Application filed January 5, 1885. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS HAYWOOD, a citizen of the United States, residing in Chicago, in the State of Illinois, have invented certain new and useful Improvements in Screens for Sizing Ores and other Substances, of which the following is the specification.

In the preparation of ores bearing precious metals, particularly of a low grade, great trouble has been experienced in sizing the ores in consequence of the screen not being made in a proper manner. To overcome these difficulties is the object of this invention.

Figure 1 is a bottom view of my screen placed in a frame and showing supporting-bars. Fig. 2 shows plan views of portions of screens with different mesh. Fig. 3 is a sectional view through line 3 3 of Fig. 2. Fig. 4 is a perspective of one bar, showing the lugs and bevel cut-away portions between the lugs. Fig. 5 is a detail showing the bars joined together by small pins passing from one to the other.

My improved screen is made by taking pieces of metal, preferably of steel, and forming them from one-eighth to one-half an inch in thickness, and from a half to one inch in depth, of the requisite length, and with square edges, so that when several are placed side by side they will form a smooth surface. One side of each bar I cut away at intervals, and at intervals I leave uncut spaces the entire depth of the bar. This cutting away can be done by an emery-wheel, or by arranging the pieces in an inclined position on a planer-bed and planing them off, the same as any planing is done. At the top surfaces of the bars the cut-away surfaces are quite narrow, or they may be comparatively wide. The bottoms of the cut-away surfaces are always wider than the tops thereof. The bar provided with cut-away and uncut spaces is shown in Fig. 4. These bars thus formed are placed side by side with the lugs of one against the back of its neighbor, as shown in Figs. 1, 2, 3, and 4, the lugs on one bar alternating with the lugs on the adjoining bar. Thus each lug is placed about midway of the opening alongside of it. In Fig. 3 the lugs are shown by the line at *b*. As many bars as required, all being of uniform size and shape, are placed side by side and properly clamped or fastened together, which forms a screen with a smooth surface. The length of the openings depends upon the distance apart of the lugs *d d*. The lower ends of the openings are made larger by the bevel cuts between the lugs, as shown in Figs. 3 and 4. The bars thus formed and placed together are surrounded by a frame, *g*, Fig. 1, and properly clamped therein to make the screen rigid and firm. Across the bottom of the screen I place one or more bars, *h h*, to support the screen.

I make the openings or meshes of different sizes in different screens, thus forming coarse or fine screens, as desired. They can be made very fine and as coarse as desired, the fineness or coarseness depending upon the depth of the cut-away spaces between the lugs in the surfaces where the smaller ends terminate.

These screens are designed to be used in working ores, for separating those parts of the same or nearly the same size from those of a different size. They can be placed in batteries, in revolving barrel or telescopic form, and will be arranged according to their degrees of fineness. The first one would be the coarsest, which would allow all ores up to a certain size to pass through. The next one would be the next degree finer, which would allow all particles of ore to pass through up to a certain other size. Thus there would be left, separate and alone, all ores of a size equal to the difference between the meshes of the two screens, and by continuing the screening with screens of varying meshes the ore would be divided into parts or parcels, and each parcel would be formed of atoms of nearly uniform size, which is absolutely necessary in concentrating ores of a low grade. The lower ends of the openings or meshes being larger than the upper ends, no choking or blocking of the ore in the meshes can occur.

In Fig. 1 the bottom of the screen is shown, the heavy black lines indicating the larger ends of the openings or apertures.

The pins *t*, Fig. 5, could extend through all the bars and be riveted or otherwise fastened, if desired.

A screen made as herein described presents the openings at the surface of the metal, and with no part of the openings smaller than

the ends through which the ores enter in passing through the mesh, as is the case in wire screens.

I claim—

As an article of manufacture, a screen for sizing ores, made of a series of bars, a portion of one side of each bar being cut away at intervals, leaving at intervals uncut spaces of the full size of the bar, these uncut spaces between the bars determining the width of the meshes or open spaces in the top surface of the screen, the lower part of the cut-away part being deeper in each bar than the top part thereof, thus making the lower parts of the open spaces between the bars wider than the top parts, as and for the purpose described.

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