

No. 156,274.

Patented Oct. 27, 1874.



Algernon S. Austin
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Scale for Figs. 2, 3, 4 & 5.

Stephen S. Brooks
Per Atty-
Lionel Varicas

UNITED STATES PATENT OFFICE.

STEPHEN S. BROOKS, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF HIS RIGHT TO EDWARD P. GRAY, OF SAME PLACE.

IMPROVEMENT IN STONE-SPLITTING MACHINES.

Specification forming part of Letters Patent No. 156,274, dated October 27, 1874; application filed April 13, 1874.

To all whom it may concern:

Be it known that I, STEPHEN S. BROOKS, of the city and county of San Francisco, State of California, have invented an Improved Stone-Splitting Machine, of which the following is a specification:

My invention relates to a stone-splitting machine, consisting, essentially, of several square-shaped bars beveled to points at one end, arranged in line alternately with separating-plates in top and bottom frames, and actuated together by suitable mechanism, so as to cause the pointed ends of these bars to close like teeth fitted to jaws on blocks of stone placed between such upper and lower frames, and by puncturing this stone with several holes simultaneously, both above and below, split it in the direction it is required to be cut or faced.

Figure 1 is a longitudinal elevation of a steam-hammer, to which frames, fitted with pointed metallic bars and separating-plates, have been adjusted so as to constitute the stone-splitting machine embodying my invention. Fig. 2 is a longitudinal elevation of a frame fitted with the pointed bars and separating-plates with attachments embodying my invention. Fig. 3 is an end view of Fig. 2. Fig. 4 is a vertical transverse section of Fig. 2 through the line *x x*. Fig. 5 is a plan of Fig. 2.

With reference to the drawings, *s s* represent an ordinary steam-hammer fitted with cylinder *C*, valve rods *g g*, hammer-block *H*, and anvil *A*. *D D D* are the drill-pieces or pointed bars, which, when arranged in single file alternately with separating-plates *E E E* in upper and lower frames *B B'*, as herein described, embody my invention for the purposes to which they are to be applied. These pieces *D D D* consist of short square-shaped bars of steel, which are beveled off at the ends that are to be exposed on all four sides equally, so as to meet at and form a point, and the angle they are thus beveled off to varies according to the nature of the rock to be punctured and split. Between each of the pieces *D D D* a plate, *E*, is placed of the same breadth as these pieces, but of varying length, according to the distance the points of these

drills *D D D* are to be kept apart so as to render them effective in splitting blocks of stone of different qualities. On two of the opposite flat faces of these drill-pieces *D D* and plates *E E* grooves *n n'* are provided for L-shaped clamps *p p'*, having tongues *t t'* to fit into, so that when a single file of several such drill-pieces *D D* and plates *E E E* have been arranged alternately together in a right line, these clamps may be placed, one on each side, so as to keep them in position for their proper adjustment to the hammer or anvil-block heads or frames *B B'* in such manner that the point of an upper drill-piece shall be exactly over and in line with that of a corresponding lower one. These frames *B B'* are similar to one another, and each consists of a massive piece of iron, having a receptacle or groove prepared for receiving the drill-pieces *D D D* and separating-plates *E E E* with clamps *p p'*, and is held securely by means of dovetailed projections which fit into corresponding grooves provided on the raised portions *h h'* of the hammer and anvil block respectively. The clamps *p p'* are themselves securely fastened to the frames *B B'* by means of keys *K K'* and pins *O O'*, and in order to still further hold these drill-pieces *D D* and plates *E E E* firmly, so that the drill-points may be properly adjusted, small screws *s s'* are made to press them together through the ends of the clamps *p p'* just above and below the keys *K K'*.

When these drill-pieces and separating-plates are fitted to a steam-hammer, or other suitable mechanism, the parts which are actuated so as to meet one another have the appearance of jaws fitted with teeth which close on or bite in two parts the material to be split, and can be arranged according to the breadth or extent of the splitting required; for, if paving blocks are to be split, a few teeth, small separating-plates, and smaller frames, only, are necessary; whereas, if large blocks for building purposes are to be divided up, the breadth of the frame, the number of the teeth, and length of the separating-plates to keep the points apart, must be proportionately increased.

By this arrangement of drill-pieces with separating-plates, as described, the sudden shock

on puncturing holes in blocks of stone is supposed to weaken and disintegrate the stone in the line of the holes thus made, and thus split it ready for use in a rough state.

I claim as my invention—

The combination of the drill-pieces D D D with the separating-plates E E E arranged and adjusted to the upper and lower frames

B B', and actuated by suitable power s s, as described, substantially as and for the purposes specified.

STEPHEN S. BROOKS.

Witnesses:

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