(No Model.)

E. A. SPERRY.

PICK FOR MINING MACHINES.

No. 428,787. Patented May 27, 1890.

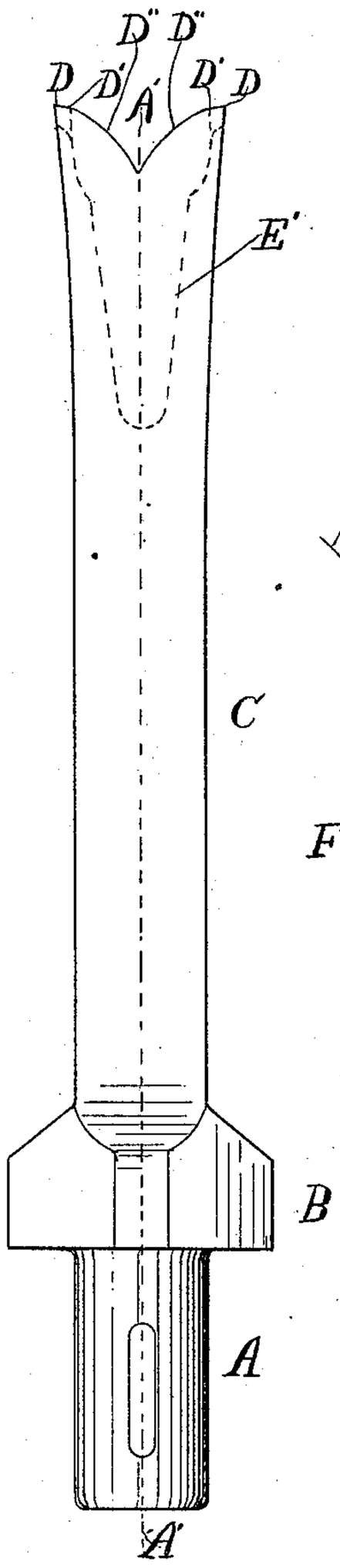

FIG. 1.

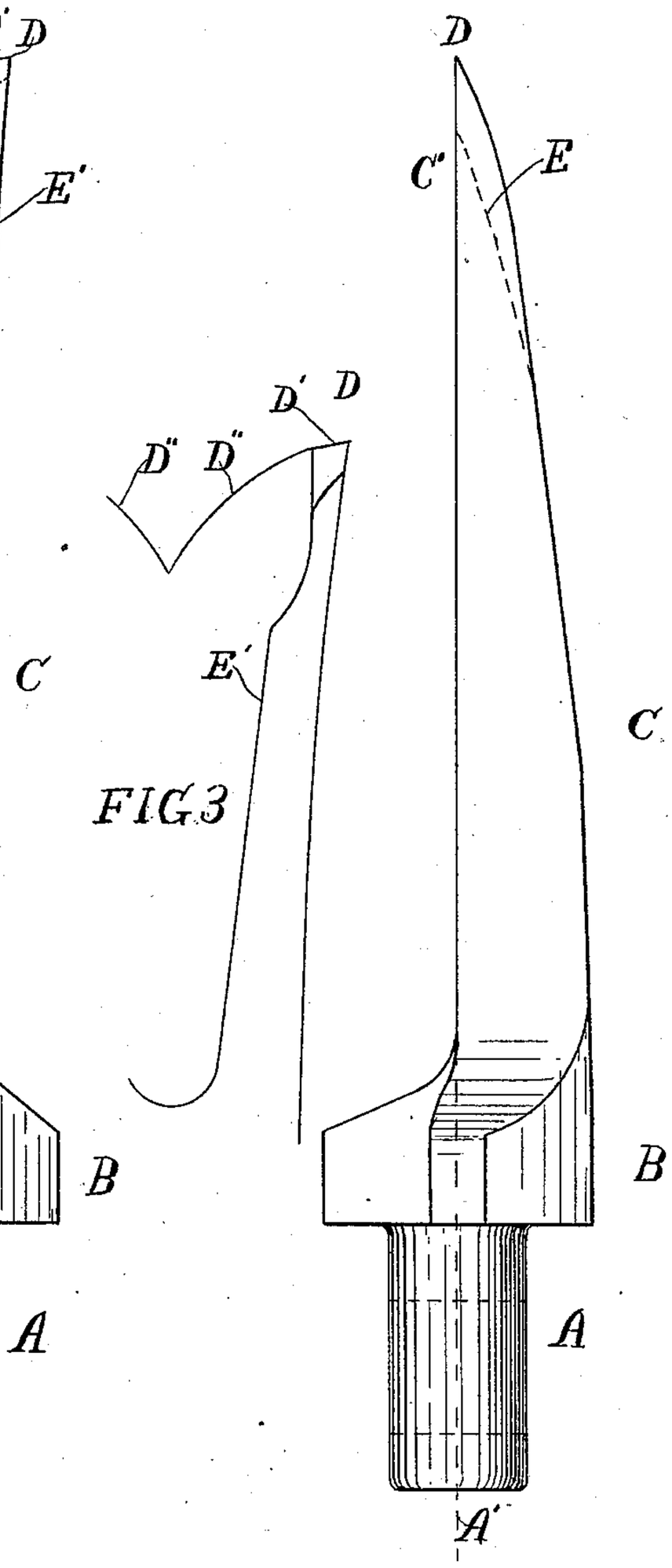

FIG. 2.

FIG 3

Witnesses
Celeste P. Chapman
H. B. Hallock.

Inventor
Elmer A. Sperry.

UNITED STATES PATENT OFFICE.

ELMER A. SPERRY, OF CHICAGO, ILLINOIS.

PICK FOR MINING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 428,787, dated May 27, 1890.

Application filed September 9, 1889. Serial No. 323,480. (No model.)

To all whom it may concern:

Be it known that I, ELMER A. SPERRY, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Picks for Mining-Machines, of which the following is a full, clear, and exact specification.

My invention relates to picks or coal-cutters for mining-machines; and it consists in peculiarities in such cutters as hereinafter more fully set forth.

Heretofore picks or colters have been made to fit the end of the projectile or reciprocating portion of the machine in which the cutting-edge has been of chisel shape and at one side of the central line or axis of the reciprocating system of mechanism. I have found in practice that in this system, wherein the picks have their cutting-edges at one side, the whole machine, and especially the guiding portions of the reciprocating parts, is subjected to undue wear. I have therefore designed a colter, now to be described, which is shown in Figures 1, 2, and 3, the last being a detail showing the reverse side from that shown in Fig. 1, and Figs. 2 and 1 side elevations.

Similar letters of reference indicate like parts throughout the several views.

A slight variation in form of the pick is found to very materially affect the amount of product mined in a given time by the machine. The shape does not seem to be as materially affected by the character of the material cut as would be supposed; but a form has been adopted, hereinafter specified, which is found to be best for all-around use, and it is desired to secure in this patent the particular shape determined on by experiment as being the best.

A is the shank, by means of which the pick is fastened to a suitable connection secured to or forming part of the projectile. Formed upon the end of this stem is an angular enlargement or abutment B. Projecting from this angular enlargement is the pick proper, which consists of a finger C. (Shown as having a rectangular section.) The position of this bar is such that one face thereof is upon or near the axis or central line A′ of the socket A. The point or cutting portion of the finger C is constructed of chisel form, one plane surface C′ of which is straight and lies coincident with the axis of the pick. This point is divided by a notch, and the outer corners D D are flared slightly, so as to be wider than any other portion of the finger C. The front cutting-edge D′ is then brought in a short distance straight at an angle of about ten degrees with the axis A′ A′, as shown more fully in Fig. 3. The farther and central portion of the cutting-edge is deeply notched, being in general direction at a much greater angle than the ten degrees above mentioned. The notch is formed at the center, or upon the axis or line A′, so that the cutting-edges D″ D″ formed will be convex as to their general outline from the corners in to the center on on each side. The bevel by means of which the surfaces are sharpened extends down, as shown in dotted lines E in Fig. 2 and E′ in Figs. 1 and 3. The operation of these surfaces against the substance mined is obvious, the entire work being done by the cutting-edges which are coincident with the axis. The side strains to which the reciprocating parts are ordinarily subjected are entirely done away with by the use of this device, the blows and strains coming central in every case upon the line of axis. The convex shape of the cutting-edges is for the purpose of extra rigidity of the corners. The straight surfaces at the corners aid and facilitate in sharpening the tool.

It will be readily understood that a peaked corner, or one more than ten degrees, would be more likely to be fractured, and at the same time it will be understood that with less than ten degrees it would not make enough of a notch in the end of the pick to aid the same in clearing itself.

I do not care to be understood as limiting myself to the exact angle of ten degrees hereinbefore mentioned, but I have found that an angle approximating this measurement is best.

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

1. In a pick or cutter for a mining-machine, a point consisting of a single mechanical element made up of a surface lying in a plane of the axis of the reciprocating part of the machine, the chisel-face of which consists of

a bifurcated end, the two outer points of which are slightly flaring as compared with the general lateral lines of the shank forming the body of the pick, the form of the chisel-face coming from the corners in straight lines from each side to a point about a quarter of the distance to the center, this straight line being at a slight angle back toward the base of the cutter and terminating at this point, and the face of the chisel continuing toward the center from each side by a convex curved line forming an indentation of about half the depth of the width of the chisel-face.

2. In a pick or cutter for a mining-machine, a point consisting of a single mechanical element made up of a surface lying in a plane of the axis of the reciprocating part of the machine, the chisel-face of which consists of a bifurcated end, the two outer points of which are slightly flaring as compared with the general lateral lines of the shank forming the body of the pick, the form of the chisel-face coming from the corners in straight lines from each side to a point about a quarter of the distance to the center, this straight line being at a slight angle back toward the base of the cutter and terminating at this point, and the face of the chisel continuing toward the center from each side by a convex curved line forming an indentation of about half the depth of the width of the chisel-face, in combination with the cylindrical shank for the attachment of the projectile, and an abutment between said shank and the main body of the pick which supports the chisel-face, substantially of the form above described.

In witness whereof I have hereunto set my hand this 27th day of August, 1889.

ELMER A. SPERRY.

In presence of—

CELESTE P. CHAPMAN,

H. B. HALLOCK.