

G. N. SANDERS & G. N. SANDERS, Jr.
Spikes.

No. 140,844

Patented July 15, 1873.

Fig. 1.

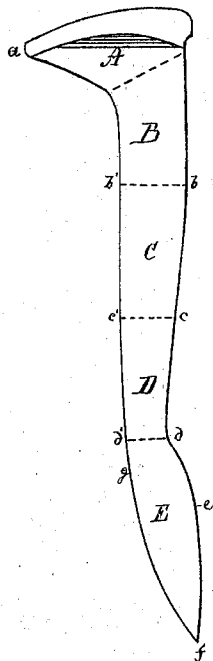


Fig. 2.

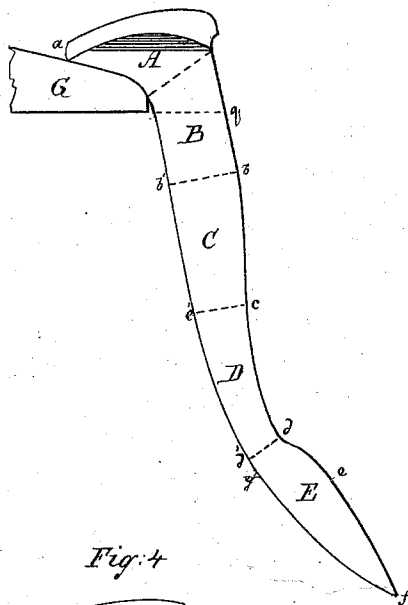


Fig. 3.

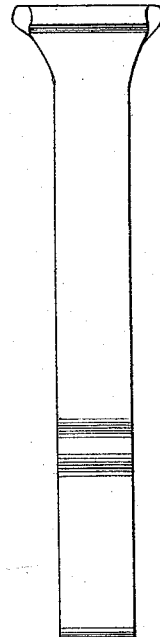
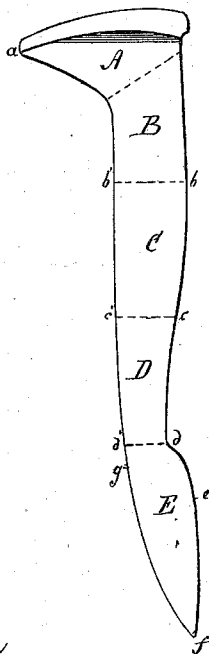


Fig. 4.



Witnesses:
Richard Blunestall,
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UNITED STATES PATENT OFFICE.

GEORGE N. SANDERS AND GEORGE N. SANDERS, JR., OF NEW YORK, N. Y.

IMPROVEMENT IN SPIKES.

Specification forming part of Letters Patent No. 140,844, dated July 15, 1873; application filed April 8, 1873.

To all whom it may concern:

Be it known that we, GEORGE N. SANDERS and GEORGE N. SANDERS, Jr., of No. 39 Nassau street, New York city, State of New York, have jointly invented an Improvement in Spikes, which we designate as the "Curvo Spike," and of which the following is the specification:

Referring to the figures in the accompanying drawing, A is the head; *a*, the hook on the head; B, the upper part of the spike between the head and shoulder; C, the shoulder; D, the neck; E, the tail or lower end; *f g*, the bevel; *f*, the extremity; G, the object to be fastened; and *p q*, the surface-line of the timber to which G is to be secured.

The figures represent the size corresponding to the common hook-head railroad spike. Figure 1, the side view of the spike before being driven; Fig. 2, when driven and holding the object G to be secured; Fig. 3, an outline rear view; and Fig. 4, a slight modification of Fig. 1 at *d*.

The back of the shoulder *b c* is curved so as to be easy of insertion, non-destructive to the fiber, to press the head firmly against the object to be secured, form a tight joint at the surface, and reduce to a working minimum the amount of metal required to resist the transverse strain, as *h a*, Fig. 2, to which the spike is liable to be subjected when embedded, this strain decreasing rapidly below the surface. The neck D is tapered so as to bend or curve by the action of the bevel *f g* in driving, but is stiff enough not to bend before entering the wood. It serves to connect the shoulder C and lower end E by the smallest quantity of metal adequate, and to fix the point of the maximum inflection of the shank. The tail E has its surface so curved as to be non-destructive to the fiber, easy of insertion, and tenacious in its hold, the curvature from *d* to *e* being of small radius, and from *e* to *f* of large and increasing radius. The tail forms a tight chamber to itself in the solid wood so as to retain its hold with the same tenacity as long as the timber lasts, and should be of less

thickness than the top of the shank, so as not to make a larger opening than the latter will fill. The bevel *f g* is so curved as not to form an angle at *g*, to avoid lacerating the wood, and is of increasing curvature from *g* toward *f*, and consequently of greater deflecting force.

The combined effects of the parts described admit of the spike being driven in and pulled out of the wood without damaging the fiber or endangering its splitting, and to retain its hold with very slight bending of the shank, so that it may be driven and extracted many times at the same or different places in the wood without appreciably affecting the fiber of the wood or metal, or loosening the hold.

By slight variation of the thickness of the tail and neck, and of the curvature of the bevel *f g*, and the upper surface *d e* of the tail, the shank may be given any desired degree of deflection, inflection, and tenacity. The surfaces described as curved might be composed of planes with similar but inferior effect.

Owing to these properties of the curvo spike different sizes of it are adapted to various uses besides those of the corresponding straight spikes, such as holding the latter, and likewise railroad keys, secure in their places; and as it may be always shorter than the straight spikes, while of equal tenacity and less liability to break, owing to the slanting position it assumes and its firm pressure against the object fastened, the curvo spike is better adapted than the straight spike to all the uses of the latter.

We claim as our invention—

The spike A B C D E, with the shoulder C, neck D, tail E, and bevel *f g*, substantially as described.

In testimony whereof we have hereunto subscribed our names in the presence of two witnesses.

GEORGE N. SANDERS.
GEORGE N. SANDERS, Jr.

Witnesses:

RICHD. B. TUNSTALL,
LEWIS SANDERS.