

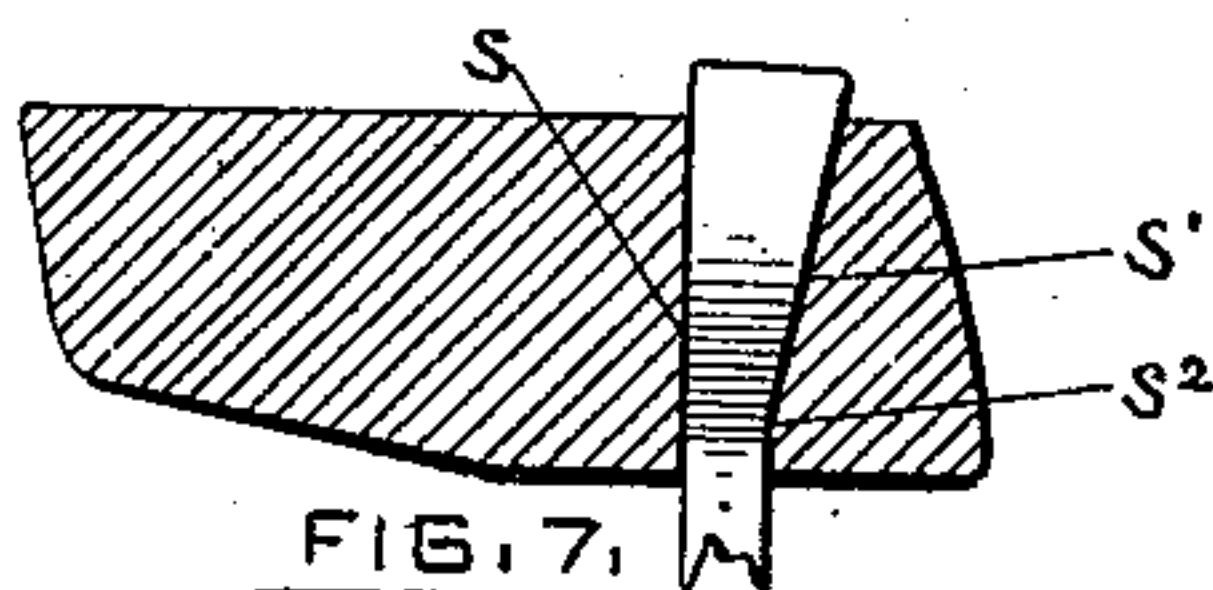
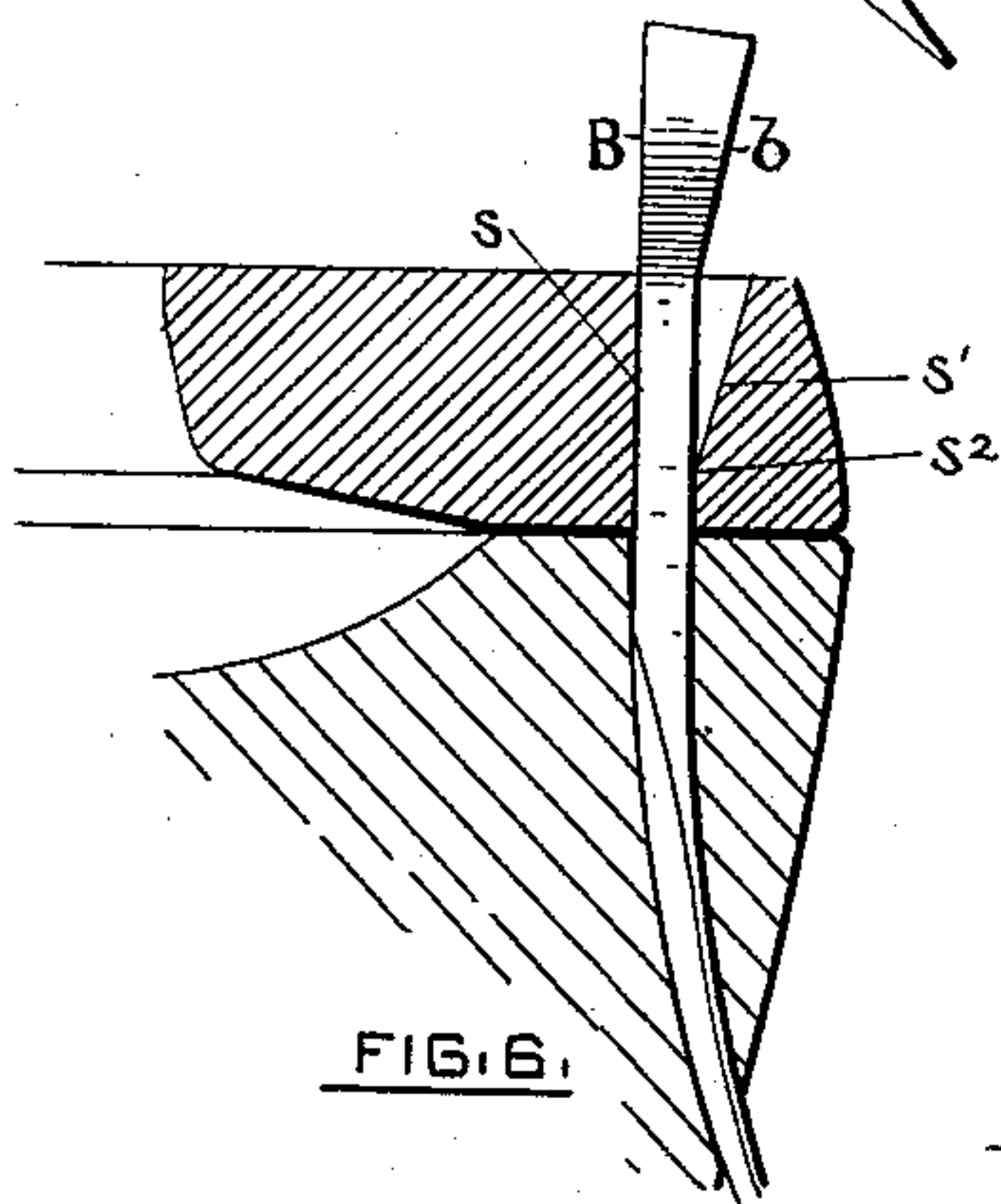
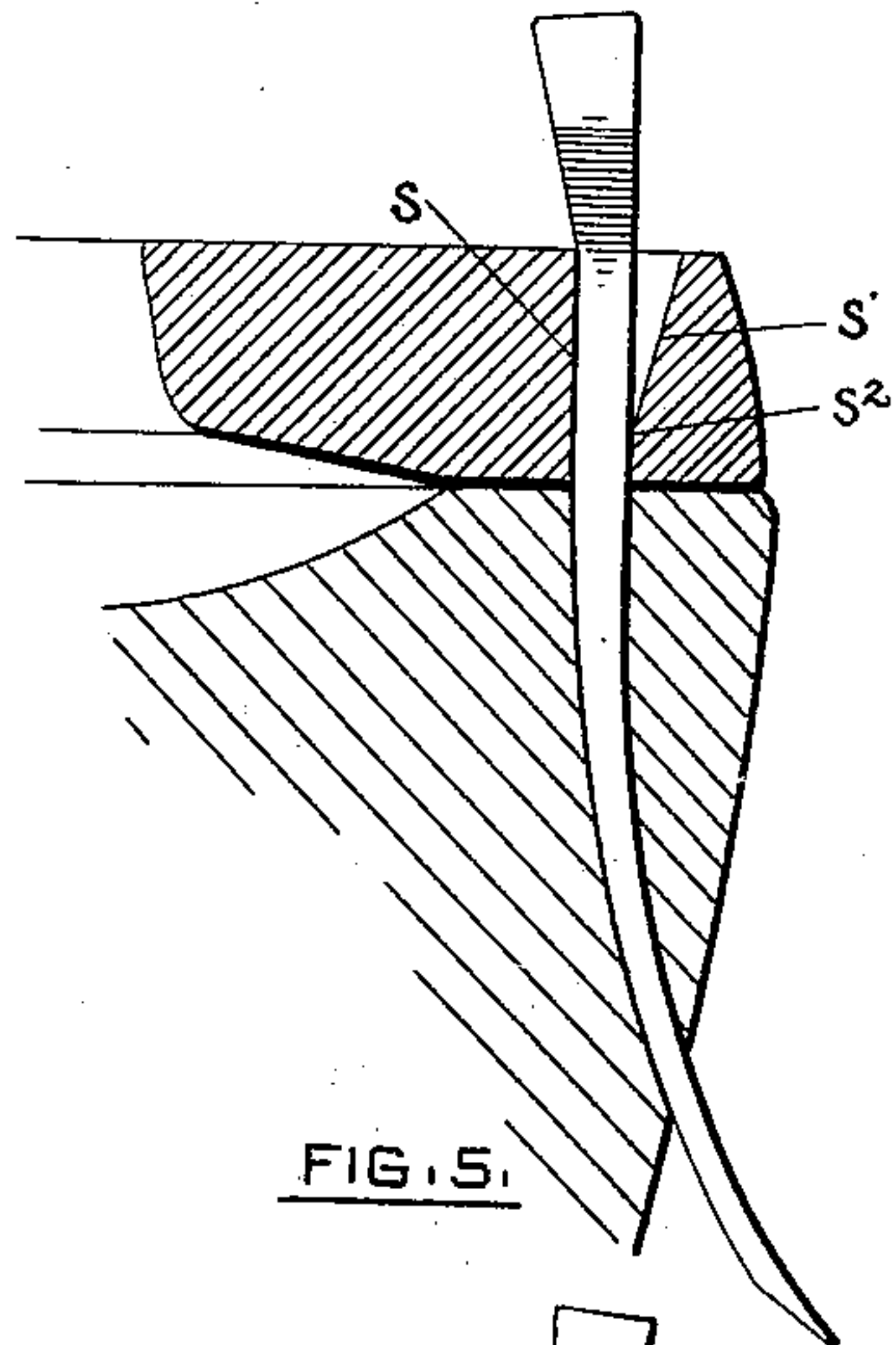
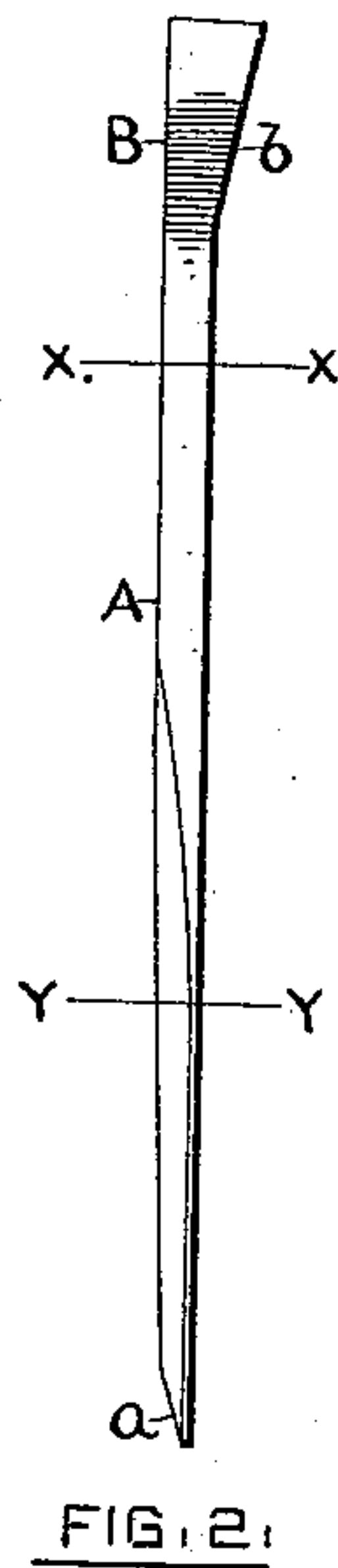
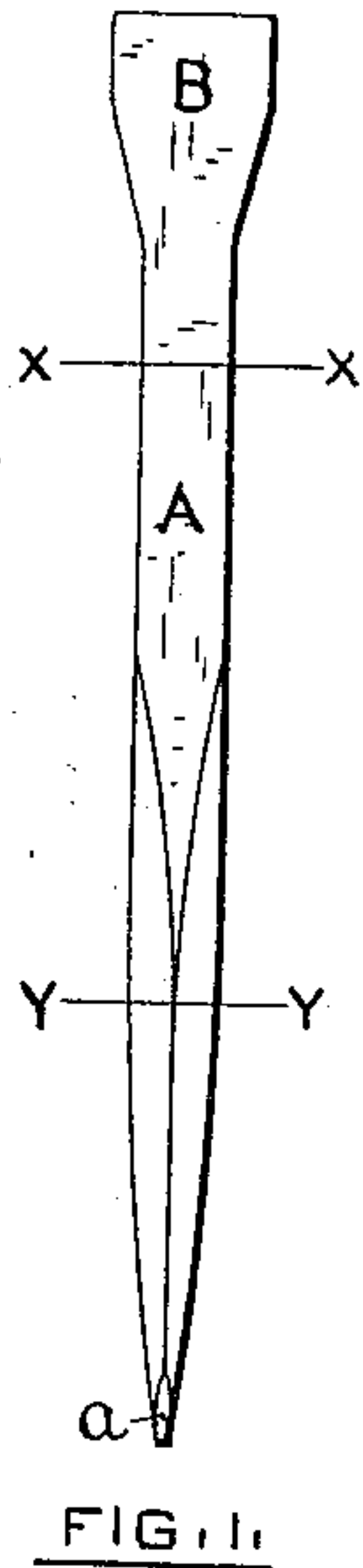
(No Model.)

J. A. COLEMAN.

HORSESHOE NAIL.

No. 333,396.

Patented Dec. 29, 1885.



WITNESSES.

FIG. 8.

Kenny J. Stapleton
Edward H. Walter

FIG. 9.

INVENTOR.

John A. Coleman

UNITED STATES PATENT OFFICE.

JOHN A. COLEMAN, OF PROVIDENCE, RHODE ISLAND.

HORSESHOE-NAIL.

SPECIFICATION forming part of Letters Patent No. 333,396, dated December 29, 1885.

Application filed October 25, 1883. Serial No. 110,035. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. COLEMAN, a citizen of the United States, residing at Providence, county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Horseshoe-Nails, of which the following is a specification.

My invention consists in a horseshoe-nail having the front face of its shank portion beveled at the point, such beveled portion surmounted by a shank portion having its front face beveled from the center toward the sides of the nail, and this portion surmounted by a long shank portion, which is intended to occupy the hoof after the nail is driven, which is rectangular in cross-section, and has its faces and sides respectively parallel, the body of nail being surmounted by a head to enable the nail to be driven.

It also consists in arranging the front face of the head of a horseshoe-nail in the same plane as the front face of the shank portion, which face is beveled at the point, and in beveling the rear face of the head with relation to the rear face of the shank of the nail, as will hereinafter appear.

The objects of my invention are, by beveling the point and also the lower portion of the front face of the shank, to furnish a nail which will readily enter the hoof, and which can be easily driven without cracking or damaging the hoof, by surmounting these beveled portions of the shank with a long shank portion which is rectangular in cross-section and has its faces and sides respectively parallel, to provide a nail-section which is designed to remain in the hoof after the nail is driven home, and which shall possess the maximum of holding friction, the nail being so constructed that its beveled portions shall gradually separate the substance or laminae of the hoof, so as to admit the long rectangular portion which is to hold the nail in the hoof without straining or cracking the latter, and, by arranging the front face of the head of the nail in the same plane as the front face of the rectangular shank portion, and, by beveling the rear face of the head with relation to the rear face of the shank, to cause the nail to pass into the channel in the horseshoe as commonly constructed without being bent over under the head during the seating of the

nail, and thereby weakening the same at that part by producing an incipient crack or break.

In the drawings, Figures 1 and 2 show front and side views, respectively, of my improved nail. Figs. 3 and 4 represent transverse sections of the shank of the nail through lines X X and Y Y, respectively. Fig. 5 shows in transverse section one arm of a horseshoe and a portion of a hoof with an ordinary nail about to be driven home. Fig. 6 shows in transverse section one arm of a horseshoe and a portion of a hoof with my improved nail about to be driven home. Fig. 7 shows in transverse section one arm of a horseshoe with the nail-head seated in the channel of the shoe. Figs. 8 and 9 represent front and side views, respectively, of the ordinary form of horseshoe-nail.

The shanks of horseshoe-nails, as usually constructed, have flat faces which diverge toward the head of the nail, as shown in Fig. 9. Such nails, therefore, are wedge shape, and consequently depend largely upon the "clinch" for holding them in place. The passage of the ordinary nail through the hoof shears or breaks off the fibers of the hoof substance and causes the hoof to hold less firmly upon the nail than if such fibers were separated and lifted and the tendency remained for them to return to their original position.

The beveled face of the ordinary nail-head is on the same side as that face of the shank which is beveled at the point, as shown in Fig. 9, and this construction is true of all horseshoe-nails of which I am aware. In the ordinary horseshoe the inner wall, *s*, of the channel is at right angles with the face of the shoe, and the outer wall, *s'*, is beveled, as shown in Figs. 5, 6, and 7. Since that face of the ordinary nail, which is beveled at the point, stands toward the inner side of the shoe in order that said bevel shall deflect the nail toward the exterior of the hoof when driven, the beveled face of the nail-head comes in contact with the wall *s* of the channel of the shoe as the nail is being driven home, as shown in Fig. 5, and the nail-head will be bent sharply over the angle *s'*, as shown in Fig. 7, as it is seated in the channel, thereby weakening the nail under the head, and producing an incipient crack or break.

As shown in Figs. 1 and 2, the lower por-

tion of the front face, A, of the shank of my improved nail, from the beveled point *a* upward, is inclined in opposite directions toward the edges of the shank, making such edges thinner than the central portion, and giving to the nail great driving strength for the amount of material employed. This double inclination or bevel of the face A enables the nail to enter the hoof much as a sail-needle enters canvas, and gently to separate and lift the fibers of the hoof substance instead of shearing or breaking them off, thereby allowing the nail to be easily driven, and preventing it from cracking and shelling off the hoof, particularly when the latter is dry. This beveling of the face A also causes the nail to make a V-shaped groove or path in the hoof, which prevents the nail from swerving laterally, and the better guides it in the proper direction. The beveling of the front face of the nail is also advantageous in that it enables the workmen to ascertain more readily and certainly than heretofore the front face of the nail, or that face which is to be toward the center of the foot in driving, in order that the beveled point may turn the nail outward. The inclined portions of the face A also assist in turning the nail in this direction, owing to the greater amount of surface possessed by these portions.

As shown in Figs. 1 and 2, the upper portion of the shank is rectangular in cross-section, and its faces and sides are respectively parallel. The length of the rectangular portion of the shank is designed to be such as to leave but little if any of the upper beveled portion of the shank in the hoof when the nail is driven home, so that great strength is secured in this part of the nail, and a large area, in the form of parallel surfaces, is provided to create the greatest possible amount of friction upon the hoof to resist any tendency to longitudinal and transverse movements of the nail.

It will be readily seen that in a nail thus shaped the beveled portion will gradually enlarge the hole in the hoof by separating and lifting its fibers and easily admit the rectangular portion of the shank which is to be gripped by the hoof to hold the nail in place.

As shown in Fig. 2, the front face, B, of the head of my improved nail is substantially in the same plane as the central portion of the face A of the shank, and the rear face, *b*, of the head is beveled outward from the rear face of the shank in order that the head of the nail shall pass into the channel in the shoe without being distorted or bent over the sharp angle s^2 when the nail-head is seated in the channel.

It will be readily seen by an inspection of Fig. 5 that in order for the head of an ordinary nail properly to be seated in the channel in the shoe, as shown in Fig. 7, such head will be bent outward over the angle s^2 in driving home, to the detriment of the strength of the nail. It will also be readily seen by an examination of Fig. 6 that the head of my im-

proved nail will pass into the channel of the shoe without being bent, as shown in Fig. 7, thereby preserving the strength of the nail under the head.

I am aware that horseshoe-nails have heretofore had one of their faces beveled toward their edges; but as far as I am aware such bevels have started very near the head of the nail, so as to leave but a very small rectangular shank portion, which is merely designed to fit and occupy the hole in the shoe to prevent the nail from turning. In such nails but a trifle, if any, rectangular shank portion enters the hoof, and dependence is placed upon a practically wedge-shape form to hold the nail against both longitudinal and transverse movements. It will be readily seen that the retention of such nails in the hoof must depend very largely upon the "clinch," and should such clinch be or become defective a longitudinal movement of the nail in the hoof would loosen the nail, since it would no longer completely fill the hole which it originally occupied. Since in such nails the shank portion which remains in the hoof after being driven is substantially triangular in cross-section, the sides of the nail will act, in a great measure, to cut the hoof substance under the force of transverse strains.

In my improved nail, since the hoof is occupied mainly, if not entirely, by a shank portion which is rectangular in cross-section and has faces and sides respectively parallel, all the deleterious results above mentioned are avoided; and although I prefer to clinch my improved nails as an additional means of security, yet practical tests and uses of my nails have shown that a clinch is really unnecessary to retain them firmly in place.

I am also aware that nails have heretofore been made with the bevel of the head and the bevel of the point upon the same face of the nail; but I am not aware of the existence of any nail having the bevel of the point and the bevel of the head upon opposite faces of the nail, while the remaining face of the head is in the same plane as that face of the shank which is beveled at the point, as in my improved nail.

A nail having its head and point beveled on the same face, whether such nail is of the ordinary form shown in Figs. 8 and 9, or has one of its faces beveled toward the edges, will be weakened under the head when driven home, because in seating the nail in the channel in the shoe it will be bent outward over the angle s^2 on the shoe, as hereinbefore described. When, however, the beveled point and the bevel of the head are on opposite faces of the nail in accordance with my improvement, the head of the nail will pass into the channel in the shoe without being bent and weakened under the head, as will be readily understood, and as heretofore explained.

I am aware of the United States Patent No. 218,302, to Moeller, for a horseshoe-nail; but the nail is distinctly described in his patent

as having only such rectangular section as shall prevent the nail from turning in the shoe, and the portion of the shank remaining in the hoof as being triangular in cross-section. This triangular section in the hoof impairs the usefulness of a horse-nail, because it presents only beveled or knife-like edges to the walls of the hole in the hoof, and the hoof is cut or split during the strains attendant upon the struggle of the horse upon the pavement in drawing a load.

My improved nail possesses a rectangular portion with parallel sides, which extend from the head far enough toward the point to occupy the hoof, and presents only flat surfaces to the walls of the hole in the hoof instead of cutting or splitting edges. The nail has also a triangular portion commencing at the termination of the rectangular portion, and this triangular portion tapers upon the top face and sides of the shank from the rectangular portion to the extreme point of the nail. The triangular portion of the nail is designed for easy penetration of the hoof, and is cut off and thrown away when it has emerged from the hoof and the rectangular portion has been firmly embedded in the hoof and the head firmly embedded in the shoe. The flat surfaces of the shank prevent the nail from cutting the walls of the hole in the hoof under the strain caused by the horse in drawing a load, and the surfaces being parallel do not permit the nail to become loosened in the hoof, as happens with a tapering nail if the nail is slightly started backward in its seat.

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

1. A horseshoe-nail having the front face of its shank beveled at the point and beveled or inclined toward its edges or sides, as described, and such portion surmounted by a shank portion of a length as described, which is rectangular in cross-section, and has its face and sides respectively parallel, whereby the nail can readily enter the hoof and be easily driven, and be retained in the hoof by the friction of its long rectangular shank portion with the hoof, substantially as set forth.

2. A horseshoe-nail having the beveled face of its head and the point bevel on the face of its shank located upon opposite faces of the nail, and the remaining face of the head located in the same plane as that face of the shank which is beveled at the point, whereby the nail can be seated in the channel in the shoe without bending the nail under the head, substantially as set forth.

3. A horseshoe-nail having the front face of its shank portion beveled at the point and beveled or inclined in opposite directions toward the sides of the nail, and such shank portion surmounted by a shank portion of a length as described, which is rectangular in cross-section, and has its faces and sides respectively parallel, a flat rear face, and a head, the front face of which is in the same plane as the front face of the shank, and the rear face of which is beveled with relation to the rear face of the shank, substantially as described and shown.

JOHN A. COLEMAN.

Witnesses:

HENRY J. STAPLETON,
EDWARD H. WALTER.