

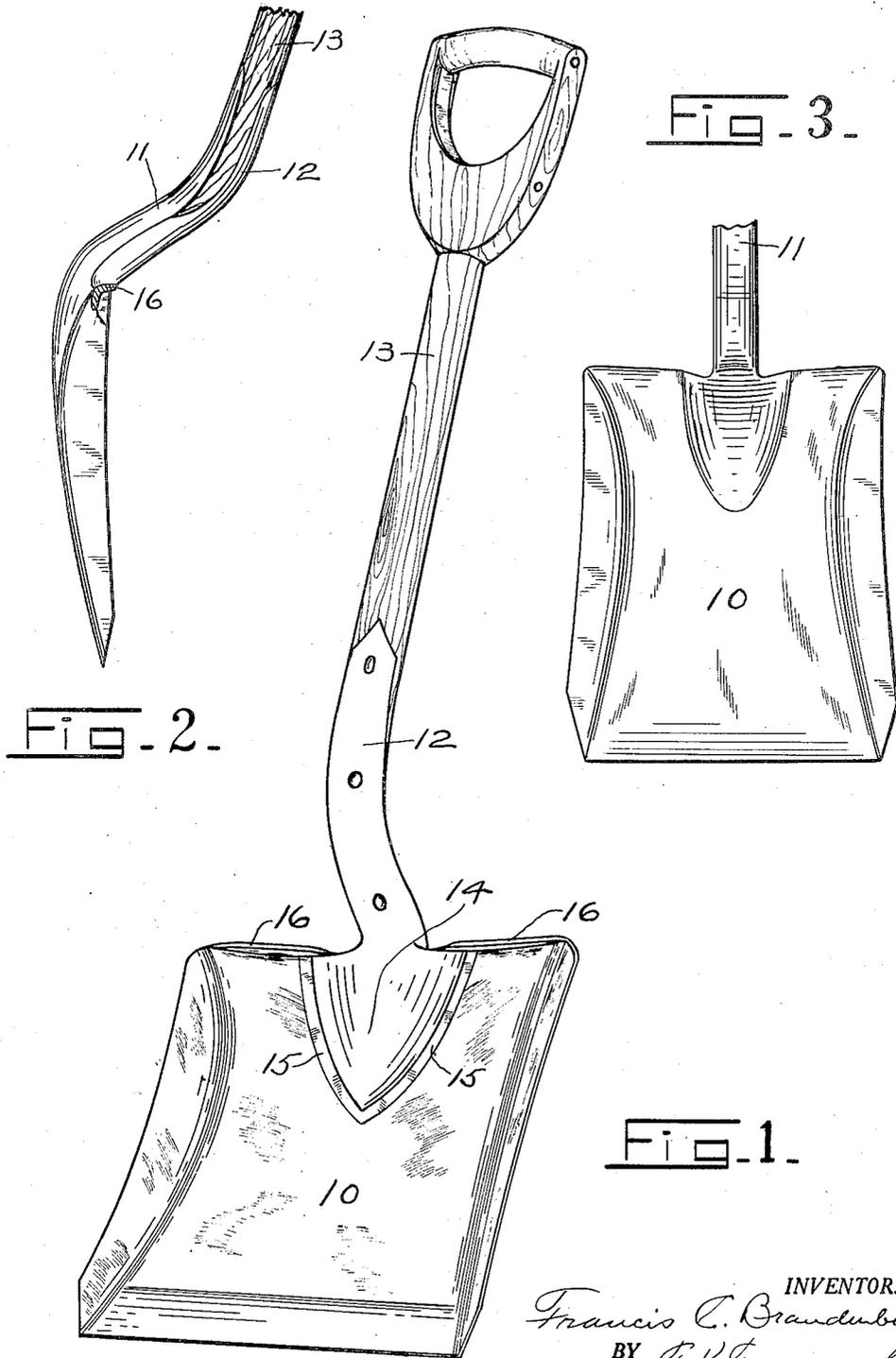
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SHOVEL

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SHOVEL.

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To all whom it may concern:

Be it known that I, FRANCIS C. BRANDENBURG, a citizen of the United States, residing at Piqua, in the county of Miami and State of Ohio, have invented a new and useful Improvement in Shovels, of which the following is a specification.

My present invention relates to improvements in shovels, whereby they are strengthened and at the same time reduced in weight, a foot rest being also provided, which is of great value to the man using the shovel.

My improvement will be more easily and fully appreciated after a brief description of a shovel thus improved, so I shall proceed to describe such a shovel, referring to the accompanying drawing, in which—

Figure 1 is a perspective view of what is commonly known as a track shovel, for the reason that shovels of this type are extensively used in laying railway tracks;

Figure 2 is a side elevation, showing the shovel standing with its blade or bowl in a vertical position, a small fragment being broken away to show a cross section at that point, and

Figure 3 is a view looking at the back of the shovel as it stands in the same position it occupies in Figure 2.

Shovels of this type are usually considered to comprise four principal parts: the blade 10, back strap 11, front strap 12 and handle 13. The blade and back strap might be made of one piece, but for reasons which need not be mentioned here they are usually separate pieces of metal, welded together. The front strap is formed integral with a member 14 (see Fig. 1), having a shape resembling an arrow head. The edges of this member are welded to the blade 10, as at 15, after which a drift is driven between it and the blade, to form a pocket for the wooden handle. After the handle is inserted in the pocket the front and back straps are rolled down to the shape of the handle and secured to the handle with rivets which pass through the handle and the straps and are headed down on each side. So far I have described the ordinary shovel. I shall now point out and describe my improvement.

At each side of the handle I provide the upper edge of the blade with an extension 16, these extensions being wholly above the upper edge of the pocket member. The ex-

tensions are bent toward the front of the blade so as to extend substantially perpendicular, i. e., at right angles, to the blade as a whole. This is shown very clearly at the place where the fragment is broken away in Figure 2. In this figure the shovel stands vertically and the extension 16 is substantially horizontal. These extensions form foot rests and are a great benefit to the laborer who is compelled to use his foot thousands of times daily to push the shovel into the ground. The foot rest saves his shoes and it avoids making his feet sore, as the sharp edges of ordinary shovels so often do.

Referring to Figure 3 it will be seen that the foot rests 16 incline slightly from the handle. This prevents the foot slipping off of the shovel, and it is a valuable improvement, especially in wet weather, or when the user of the shovel is working in slippery material.

I have referred to the fact that the extensions 16 are above the upper edge of the pocket member 14. The bends by which these extensions are formed into foot rests are also above the edge of the pocket. The reason for isolating these bends from the welds is to avoid putting strains on the welds such as would result if the bend were made below the edge of the pocket. In fact, a few shovels have heretofore been made in which foot rests were formed by bending the upper edge of the blade and at the same time bending the pocket member. Bending two pieces of metal which have been welded together, causes an unequal action on the two pieces. This strains and tends to disintegrate the weld. These shovels have not been a success, for the reason that when they got out into the field the strain which had been imposed upon the welds resulted in the welds yielding under the stresses to which the shovels were put in practical use. For example, track shovels are used for lifting ties while broken stones, gravel or earth are tamped under the ties. To do this the laborer slips the edge of the shovel under the end of the tie, and using the upper portion of the back as a fulcrum he bears down on the handle. Thus he employs the shovel as a lever, and, as can very easily be seen, the strength of the shovel is put to a very severe test. Where in forming foot rests the welds have been bent, even though the

welds at first showed no sign of injury, it has been found that the welds could not withstand the severe service, and a very large percentage of shovels thus made soon
5 broke down.

I have solved the problem of the foot rest, or stepped, shovel in the manner described. While I isolate the bends from the welds, I make them near the edge of the pocket member and therefore near the ends of the welds. The foot rests, or flanges, for that is in effect what the foot rests are, stiffen the blade very materially. By referring to Figure 1 it will be seen that the foot rests begin at a point much nearer the handle than are the upper ends of the welds, and extend to the edges of the blade. In other words the welds meet the foot rests at a point not far removed from the center of the foot rests. As is well known, the most vulnerable part of a weld is its margin, or its end, if we may so call it. If the end of a weld is protected from strains the weld is much less liable to fail under repeated and varying stresses, than where the end of the weld is directly exposed to such strains. The kind of strain most to be avoided is such as results in flexing the welded parts. By having the welds 15 terminate at the base of the foot rests, i. e., in the throat of the angle formed by bending up the extensions 16, the welds are given much needed support. The portions of the blade contiguous to the foot rests are very rigid. Therefore, although the blade springs more or less under the strains to which it is put, there is substantially no flexure of the blade in the vicinity of the ends of the welds. This improvement has proven so effectual that it has enabled me to make the blade of a thinner gauge of metal than has heretofore been practicable, and thus I have reduced the weight of the shovel fully one pound. This is a boon to the man who has to use the shovel all day. And yet this shovel of reduced weight is stronger and more durable than the ordinary heavy shovel.

Having described my invention, I claim,
1. A shovel, comprising a blade with a

handle pocket welded thereto, the blade having an extension on its upper edge at each side of the handle, which extends beyond the upper edge of the pocket, said extensions being bent toward the front to form nearly a right angle to the blade, thereby forming 55 foot rests, the bends being above the upper edge of the pocket and therefore isolated from the weld which secures the pocket to the blade, but close to the upper edge of the pocket, thereby placing the ends of the welds substantially at the throat of the angles formed by the bends.

2. A shovel, comprising a blade with a handle pocket welded thereto, the blade having an extension on its upper edge at each side of the handle, which extends beyond the upper edge of the pocket, said extensions being bent toward the front to form nearly a right angle to the blade, thereby forming foot rests, the bends being above the upper edge of the pocket and therefore isolated from the weld which secures the pocket to the blade, but close to the upper edge of the pocket, thereby placing the ends of the welds substantially at the throat of the angles formed by the bends, said foot rests inclining upward slightly from the handle.

3. A shovel, comprising a blade with a handle pocket welded thereto, the blade having an extension on its upper edge at each side of the handle, which extends beyond the upper edge of the pocket, said extensions being bent toward the front to form nearly a right angle to the blade, thereby forming foot rests, the bends being above the upper edge of the pocket and therefore isolated from the weld which secures the pocket to the blade, but close to the upper edge of the pocket, thereby placing the ends of the welds substantially at the throat of the angles formed by the bends, said extensions, and the bends by which they are converted into foot rests, extending from points a substantial distance nearer the handle than are the welds, to approximately the edges of the blade.

FRANCIS C. BRANDENBURG.