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L. E. WEBSTER

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BACK STRAP SHOVEL

Filed May 16, 1925

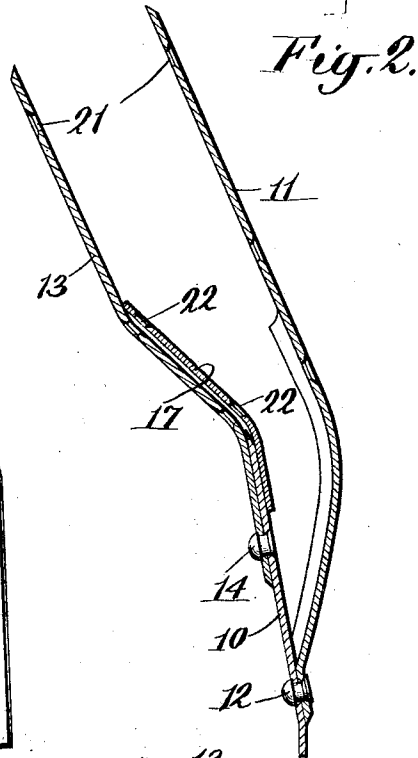
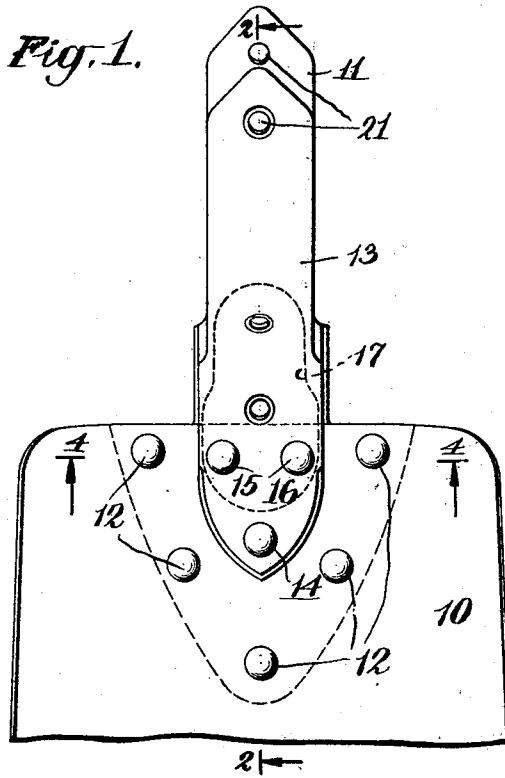


Fig. 3.

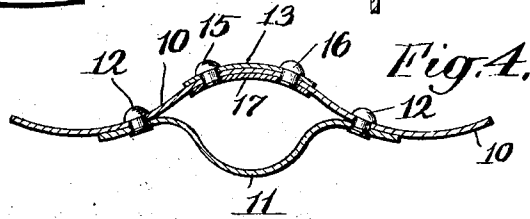
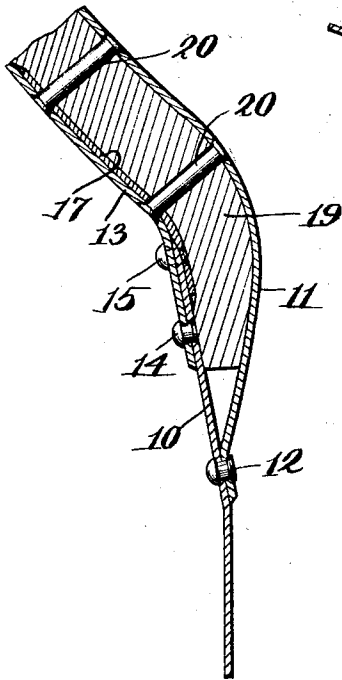
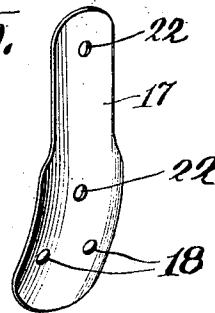


Fig. 5.



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UNITED STATES PATENT OFFICE

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BACK STRAP SHOVEL

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This invention relates to improvements in shovels and is more particularly directed to improvements in so-called back strap shovels.

Shovels of this class usually include a blade portion, a back strap portion and a front strap portion. These strap portions are fastened to the blade by rivets and are then spread to receive the shank of the shovel handle. In the use of the shovel particularly when prying forces are exerted upon the handle it is found that the strain is localized in such a way that the straps become bent and in time crystallization of the metal causes one or the other of the strap portions to break. The shovel is then useless.

According to the present invention I provide a reinforcement of novel form and shape which is inserted in position within the socket formed by the front and back straps. This reinforcement extends beyond the top of the blade portion of the shovel and along inside the front strap. The reinforcement is preferably securely fastened to the blade and strap portions of the shovel and also preferably to the shank or wooden handle and is adapted to distribute the forces which are received from the handle in such a way that localized stresses are avoided.

The drawings show what I consider to be a preferred embodiment of the invention.

In the drawings,

Fig. 1 shows an elevational view of a shovel embodying my improvements.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1 with the handle removed and with the reinforcement piece slipped into position.

Fig. 3 is a similar section to that shown in Fig. 2 with the handle shank in position and with the reinforcement riveted in place.

Fig. 4 is a detail sectional view taken on line 4—4 of Fig. 1.

Fig. 5 is a perspective view of the reinforcement element.

In more detail in the drawings, 10 designates the blade portion of the shovel. The back strap 11 is secured to this blade in the usual way by rivets 12 and the front strap 13 is also secured on the opposite side of the blade by means of rivets 14, 15 and 16.

Disposed within the socket formed by the back and front straps and the blade is a reinforcing element 17. This reinforcing element is of curved contour and may be said to have a shoe horn configuration. It is so disposed relatively to the blade 10 as to extend downwardly below the top of the blade and to extend upwardly above the top of the blade in the manner indicated in Fig. 3. The reinforcing element 17 is provided with a pair of openings 18 which receive the rivets 15 and 16. These rivets 15 and 16 thus securely fasten front strap 13, the blade 10 and the reinforcing element 17 together. After these rivets are placed in position and riveted down the wooden shank 19 is fitted in place and secured in position by three through rivets. Two of these rivets 20 are shown in Fig. 3 and the third rivet passes through the openings 21 in the front and back strap portions of the shovel, these openings being indicated in Figs. 1 and 2. The lowermost of the two rivets pass through suitable openings 22 in the reinforcing element 17.

It will be seen that the reinforcing element 17 provides a smooth bearing surface for the wooden shank 19 and obviates the localizing of the stresses upon the front strap 13 at a point adjacent the upper edge of the blade 10. Heretofore in back strap shovels the stress was localized upon the front strap at this point and tended to break it when the shovel was in use. The reinforcing element thus bridges over the top edge of the blade portion and provides a smooth bearing surface for the inserted wooden shank 19. In this way the formation of a sharp notch in the wooden shank is obviated. These sharp notches were previously formed in the inserted shanks in former back strap shovels not utilizing my novel reinforcement when the shank was driven home to the maximum depth in its socket. The sharp upper edge of the blade in previous constructions cut into the shank and thus formed a notch therein. This former cutting and notching of the wooden shank not only weakened the shank at the notched portion but also hindered the shank from being driven entirely home in its

socket. The interiorly smoothed shoe horn shaped reenforcing element obviates all of these difficulties and secures a much stronger construction when the shovel assembly is
5 complete.

What I claim is—

1. A shovel comprising a blade portion, a front and back strap each separate from the blade but each secured thereto and receiving
10 therebetween an inserted wooden shank and a curved reinforcing element fitted within said front strap portion and adjacent the wooden shank and extending downwardly and bridging the top of the blade portion to
15 prevent contact by said wooden shank portion to bridge the shoulder formed by the blade at the point where the front strap overlaps the top of the blade.

2. A shovel assembly comprising a blade
20 portion, a front strap and a back strap each separate from and secured to said blade portion, a shank embraced by and secured to said back and front strap portions, and a reinforcing element of shoe horn configura-
25 tion and which is curved both longitudinally and transversely and fitted within the front strap portion and extending into cooperation with the blade portion of the shovel where the blade underlies the front strap to reen-
30 force the shovel assembly at the upper edge of the blade portion where the separate front strap extends over the blade, said reenforcing element being riveted to the front and blade portions and being also riveted to the
35 front strap portion by rivets which secure the shank to the front and back strap portions.

3. A shovel comprising a blade portion having front and back straps secured thereto
40 and a wooden shank received thereby and therebetween said front strap being separate from and overlapping the blade and said blade forming a shoulder at the point where the front strap overlaps the top of the blade
45 and a reinforcing element of thin shoe horn configuration fitted between the front strap and blade portion and the wooden shank to distribute the strain away from the aforesaid shoulder at the upper edge of the blade and
50 to provide a smooth abutting surface which will prevent notching of the shank by the edge of the blade portion.

4. A shovel comprising a blade portion having front and back straps secured thereto
55 and a wooden shank received thereby and therebetween, said front strap being separate from and overlapping the blade and said blade forming a shoulder at the point where the front strap overlaps the top of the blade,
60 a reinforcing element of thin shoe horn configuration fitted between the front strap and blade portion and the wooden shank to distribute the strain away from the aforesaid shoulder at the upper edge of the blade and
65 to provide a smooth abutting surface which

will prevent notching of the shank by the edge of the blade portion, means for attaching the reinforcing element to the blade and to the separate front strap, and supplemental fastening means to cooperate to secure the
70 separate front strap, the reinforcing element, the wooden shank and the back strap together, said supplemental fastening means being remote from and out of cooperation with the blade.

5. A shovel assembly including the usual
75 blade portion, the usual separate back strap portion, the usual separate front strap portion, and with a plurality of rivets uniting the back strap and blade and also with rivet
80 fastening means for securing the front strap and blade together and including in combination therewith, a wooden shank inserted between the front and back straps and extend-
85 ing into a socket below the top of the blade which is formed by the back strap and blade, a reinforcing element of shoe horn configura-
90 tion cooperating at one side with the inserted wooden shank and at the other abutting for a portion of its length the inside of the front strap and also upon said side abutting the in-
95 side of the blade adjacent the top thereof to thereby bridge the shoulder formed by the blade where the front extends from its overlapping with the blade beyond the blade, and
other rivet fastening means for securing the blade to both the separate front strap and to the reinforcing element.

In testimony whereof I hereto affix my signature.

LEWIS E. WEBSTER.