June 9, 1925. 1,541,373

R. MICEK

COMBINATION TOOL

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Fig. 1.

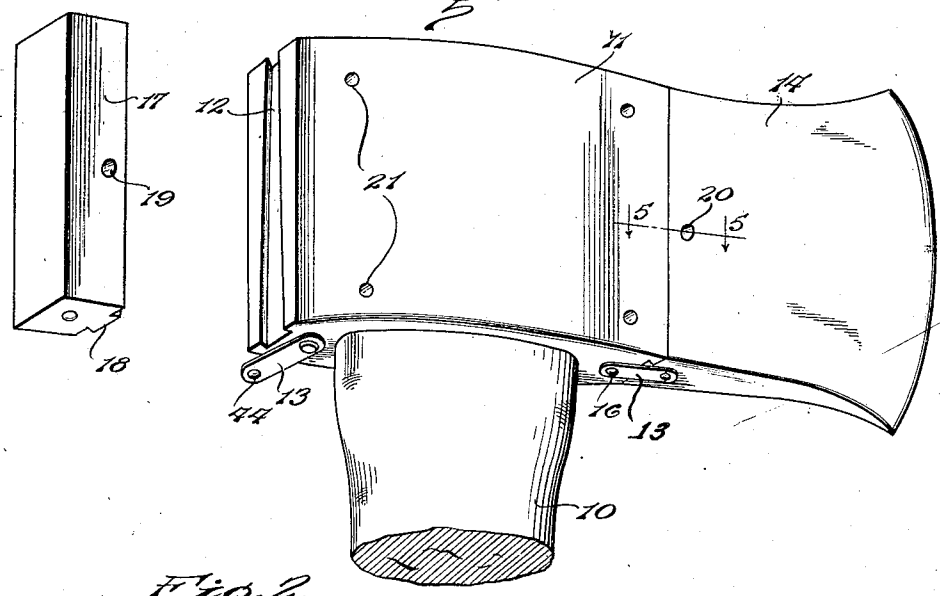


Fig. 2.

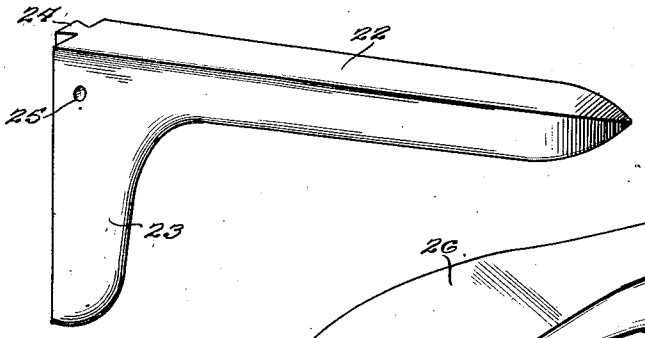


Fig. 3.

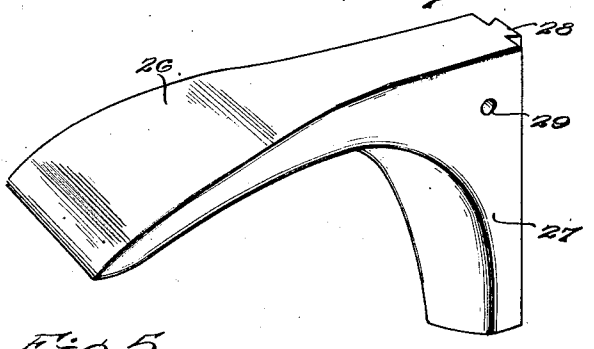


Fig. 4.

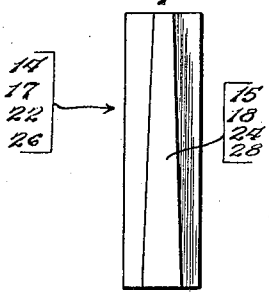
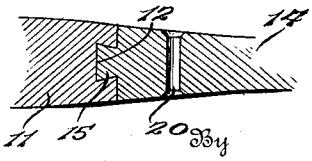


Fig. 5.



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Fig. 6.

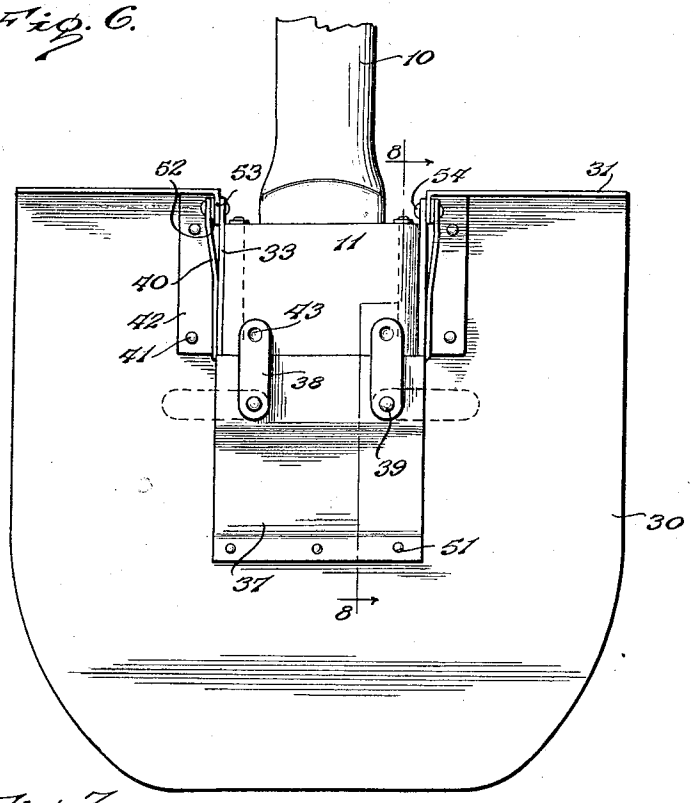


Fig. 7.

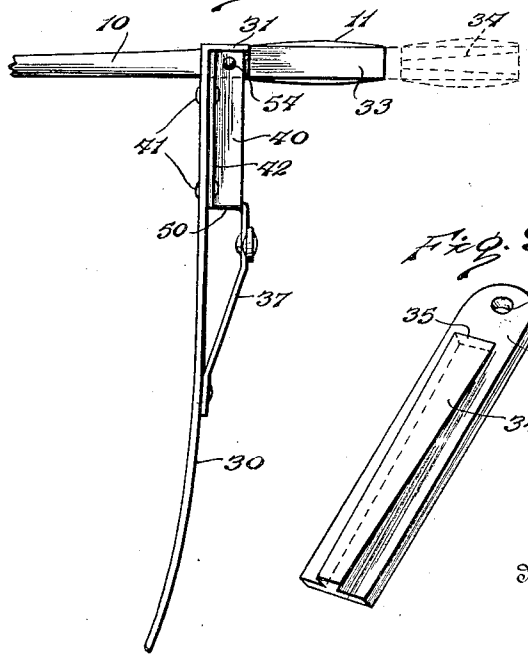


Fig. 8.

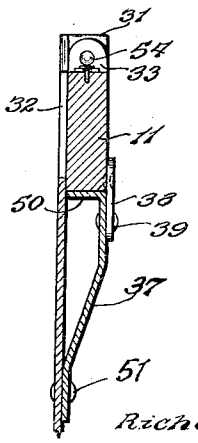


Fig. 9.

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UNITED STATES PATENT OFFICE.

RICHARD MICEK, OF LESTER, COLORADO, ASSIGNOR OF ONE-HALF TO PAUL A. WAYT, OF WALSENBURG, COLORADO.

COMBINATION TOOL.

Application filed November 28, 1923. Serial No. 677,551.

To all whom it may concern:

Be it known that I, RICHARD MICEK, a citizen of the United States, residing at Lester, in the county of Huerfano and State of Colorado, have invented certain new and useful Improvements in Combination Tools, of which the following is a specification.

My invention relates to a tool having interchangeable parts so that it can be converted from an ax into a hoe, a pick, or a shovel. This tool will be desirable for miners, farmers, lumbermen, tourists, campers, carpenters, or for general household use.

The tool is constructed so that the handle is common for all the different adaptations of the tool while the sundry implements are detachable from the handle and can be instantly interchanged at will.

In the accompanying drawings, one embodiment of the invention is illustrated, and—

Figure 1 is a fragmentary perspective view showing the tool in the form of an ax;

Fig. 2 is a perspective view of the pick portion;

Fig. 3 is a perspective view of the hoe or adz;

Fig. 4 is a rear end view of any of the detachable parts;

Fig. 5 is a fragmentary section along line 5—5 of Fig. 1;

Fig. 6 shows the device in the form of a shovel as assembled;

Fig. 7 is an end view of the shovel during assembling;

Fig. 8 is a longitudinal section along line 8—8 of Fig. 6; and

Fig. 9 is a perspective view of the detail of a cleat.

Refering particularly to Fig. 1, reference numeral 10 denotes a handle which is permanently secured in the usual manner to a block or adapter 11. The two opposite sides of the adapter 11 are grooved, as at 12, which grooves are wider at the handle end than at the free end thereof. As best seen in Fig. 5, the groove 12 is of dovetail cross-section in order to be in firm engagement with the detachable parts. At the inner or handle end of the adapter 11 are hinged a pair of straps 13 which are intended to swing across the detachable parts, when in position, to lock them to the adapter. The free ends of the straps are preferably dented, as at 44, for locking with the sundry implements.

Reference numeral 14 represents the ax portion which is provided with a tongue 15 along its rear side, which tongue is also tapering so as to fit in the groove 12. It is evident that the ax portion is assembled from the handle end of the adapter 11 by pushing the tongue in from the wide end of the groove 12 whereupon the strap 13 is swung on its pivot 16 across the inner end of the ax portion 14 to lock the same to the adapter 11.

Reference numeral 17 represents a butt portion similarly provided with a tapering dovetail tongue 18 fitting in the groove 12 which will complete the ax with a sharp edge on one side and a butt on the opposite side. It is evident that in some cases a double ax may be desired when a blade similar to the ax portion 14 will be inserted in the opposite groove in the adapter 11 instead of the butt 17. This butt, as well as the ax portion and the adapter, are each provided with apertures 19, 20 and 21 through which a wire or chain is intended to pass for securing the parts together during transportation.

In Fig. 2 is shown a straight pick 22 with a foot 23 provided with a dovetail tongue 24 also fitting in the tapering groove 12, the length of the foot 23 corresponding to the length of the adapter, as before. At 25 is shown an aperture for tying the parts together. The pick 22 is shown straight as used in mining and may preferably have its counterpart on the opposite side of the adapter 11. It is evident that for gardening or farming use the pick would be curved or shaped suitable for this purpose.

In Fig. 3 is shown a hoe or adz 26 with a foot 27 having a dovetail tongue 28 fitting in the groove 12 in the adapter. The hoe or adz has a transverse aperture 29 for the purpose already described.

In Figs. 6, 7, 8 and 9 the tool is shown in the form of a spade or shovel. In Fig. 6 the shovel or spade is shown assembled as seen from the rear, and reference numeral 30 represents the blade provided with a top flange 31 at right angles thereto which forms the step or foot rest. The blade 30 is cut out in the middle some distance down from the flange 31, as indicated at 32. At

the inner edges thus formed in the blade are pivoted two cleats 33 one on each side, which cleats are adapted to swing toward the rear of the blade. These cleats are provided with dovetail tongues 34 fitting in the grooves 12 of the adapter and with the wider part 35 of each tongue near the pivot point 36. Below the cut in the blade is secured, as at 51, an abutment piece 37 of sheet metal having an inwardly directed abutment ledge 50, as best seen in Figs. 6 and 8. This abutment piece is provided with hinge straps 38 pivoted thereon, as at 39. Along each side of the cut 32 and extending up from the abutment ledge 50 are guide members 40 having side flanges 42 riveted, as at 41, to the blade 30 and being integral with the abutment piece 37 and its ledge 50. The guide-pieces 40 and the step 31 have downwardly bent fingers 52 and 53 respectively thereby forming a three-ply bearing for each pivot 54 of the cleats 33.

In order to assemble the blade on the handle, the blade is held as in Fig. 7 substantially in a vertical plane, while the cleats 33 are swung toward the rear of the blade in a horizontal direction, and the handle is also held horizontally to permit the adapter grooves to be slipped over the tongues 34 of the cleats and drawn back until the rear ends of the adapter and cleats are even. The handle is now swung on pivots 54 until the adapter and the cleats abut against the top ledge 50 of the abutment piece 37, whereupon the hinge straps 38 are swung into position as best seen in Figs. 6 and 8. The shovel or spade is now ready for use and the parts are locked rigidly together by the cleats and the hinge straps 38, the latter being preferably provided with dents 43 for engaging in corresponding recesses or apertures 21 in the adapter.

It is evident that any suitable combination of tools may be arranged so that, for instance, the ax blade may be secured to one side of the adapter and an adz to the other side thereof; or the combination of a pick and adz may be selected. Many other types of tools not enumerated in the specification may be adapted to be attached to the holder.

Having thus described the invention, what is claimed as new is:

1. In a combination tool, a tool holder adapted to support a plurality of tool members, said tool holder including a handle, an adapter permanently secured on the handle, and means for detachably securing any of the tool members on the adapter, said securing means including tongue and groove elements on the adapter and tool members respectively, said tool members including a blade, some of the elements having hinge connection with the blade, and guides on the blade adapted to engage the hinged elements between them.

2. In a combination tool, a tool holder adapted to support a plurality of tool members, said tool holder including a handle, an adapter permanently secured on the handle, means for detachably securing any of said tool members on the adapter, said securing means including tongue and groove elements on the adapter and tool members respectively, said tool members including a blade, some of the elements having hinge connection with the blade and guides on the blade adapted to engage the hinged elements between them, and locking straps between the adapter and the respective tool members.

3. In a combination tool, a tool holder adapted to support a plurality of tool members, said tool holder including a handle, an adapter permanently secured on the handle, means for detachably securing any of the tool members on the adapter, the securing means including dovetail grooves provided on two opposite sides of said adapter, elements adapted to engage in the grooves, said tool members including a blade having an abutment for the adapter, some of the elements having hinge connection with the blade, and guides on the blade adapted to engage said hinged elements between them.

4. In a combination tool, a tool holder adapted to support a plurality of tool members, said tool holder including a handle and an adapter permanently secured on the handle, dovetail grooves provided on opposite sides of the adapter, elements adapted to engage in the dovetail grooves to secure the respective tool members on the adapter, said tool members including a blade, some of the elements having hinge connection with the blade, an abutment block permanently united with the blade, and locking straps pivoted on the abutment block intended to lockingly engage with the adapter.

In testimony whereof I affix my signature.

RICHARD MICEK. [L. S.]