June 21, 1938. A. J. JONSSON 2,121,200

SHOVEL

Filed March 11, 1936

Fig. 1.

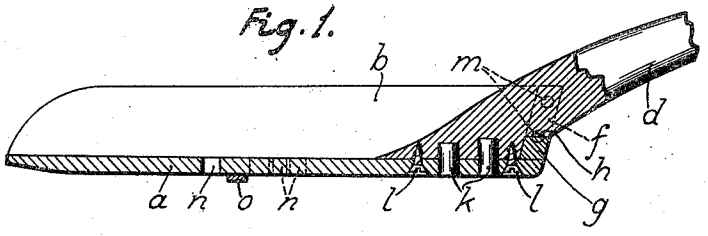


Fig. 2.

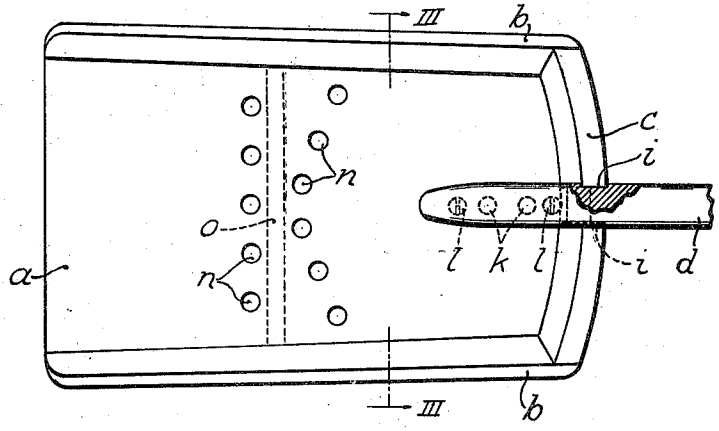
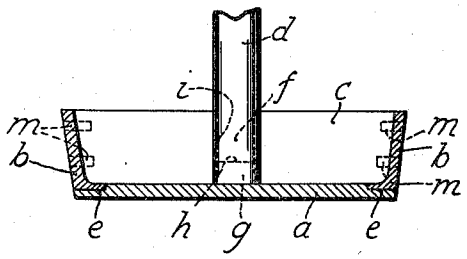


Fig. 3.



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SHOVEL

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5 Claims. (Cl. 294—55)

The present invention relates to a shovel, chiefly intended for grain. The object of the invention is to provide a shovel composed of separate parts and in all respects completely comparable to the shovels used heretofore. The shovels intended for the above-mentioned purpose must be made of wood, shovels of metal easily detaching wood fibres and the like from the floor and mixing them with the grain. To make the said wooden shovels light and strong, it has heretofore been necessary, in making the shovels, to form them by hand out of a single, selected piece of wood, which is free from knots. The said way of making the shovels results in the shovels becoming expensive, as, in addition to high costs of manufacture, it necessitates also the consumption of a large amount of material. For that reason tests have already been made to produce shovels composed of separate parts. In such shovels, however, the parts have been joined by means of screws or other metallic parts. But, as mentioned above, it being of the greatest importance that metallic parts be avoided as much as possible, because detached metallic parts or metallic parts, which project due to the wood having been worn away, detach wood fibres from the floor in the same way as a shovel made of metal, it cannot be said that metal shovels composed of separate parts in the abovementioned manner have fulfilled the requirements made upon them. For the rest, the use of metallic parts has not been able to produce any strong joining of the parts, nor has it been possible to manufacture the shovels in a rational and factory-scale manner, the joining work, which is done by hand only, having formed part of the manufacture in too high a degree.

For the first time it has been made possible, thanks to the present invention, to obtain, only by glueing, if desired, such a strong and durable joining of the several parts that no metal joint whatever need be used. Thus, the shovel according to the invention becomes completely comparable to the only shovel accepted hitherto, viz. the one made of a single piece of wood. The first-mentioned shovel will even surpass the latter due to the fact that the shovel according to the invention has not the same inclination or possibility to warp as the shovel consisting of a single piece of wood. In addition to this the shovel according to the invention may be made in a simple and factory-scale manner, without using any special and expensive working machines and with the use of small and more easily selected pieces of wood. The mounting work, which forms part of the making and which may be done by hand may be restricted only to the application of the separate parts—made by the machines—to the proper places, and there need not be any drilling or screwing operations.

The shovel according to the invention is characterized substantially by the fact that the upper side of the bottom is provided with cuts extending along the longitudinal side edges, into each of which there is fitted one leg of a wooden border the cross-section of which is substantially L-shaped, in such a manner that the upper side of the said leg merges into the upper side of the bottom and that the said leg is secured by glueing so that in a manner known per se it will face the border located at the opposite side.

Another important feature of the invention is that the handle and the rear portion of the shovel are recessed into one another and that the fore portion of the handle extends some way on the bottom of the shovel and is joined to the same in a suitable manner.

A construction of the invention is illustrated by way of example in the accompanying drawing, in which:

Figure 1 shows a vertical section of a shovel, and

Figure 2 shows the shovel in plan view, partly in section.

Figure 3 shows a section on line III—III of Figure 2.

Referring more particularly to the drawing, *a* indicates the bottom, *b* the wooden borders; which have L-shaped cross-sections and which form the side portions of the shovel, and *c* is the rear portion. In order to obtain good contact surfaces for the wooden borders *b*, which are glued (cold glued) to the bottom, the bottom plate *a* before the fixing of the borders *b* is provided with cuts *e* extending along the side edges of the plate or bottom, the respective legs of the borders being fitted into the said cuts in such a manner that the upper sides of the legs will lie flush with the upper side of the bottom plate and merge into the said upper side without any break or unevenness.

As already mentioned, the handle, which is indicated by *d*, and the rear portion of the shovel are recessed into one another. In the construction shown this has been effected in such manner that the rear portion has been provided with a recess *f* extending from the upper edge of the rear portion towards but not all the way down to the bottom, the handle *d* extending through the said recess. The part *g*

of the rear portion extending between the bottom plate *a* and the bottom *f* of the recess is placed in a recess *h* provided in the under side of the handle. Further, the side portions of the handle located in the recess *f* are provided with grooves *i* into which the side edges of the said recess extend, and finally, the fore portion of the handle is secured to the bottom by means of two glued wooden plugs *k*. During the glueing the parts may be kept in position by means of countersunk screws *l*, which may remain, if desired, after the shovel has been finished.

The bottom of the shovel and also the side parts thereof may be made in various ways and have various shapes according to the method of use. Thus, in certain cases it may be desired to make the side parts very low at the front end of the shovel or to completely dispense with them, if desired, the side portions at the rear end of the shovel having for their object to serve as supports for the rear portion *c* of the shovel and being fastened to the latter by wooden plugs *m* and glueing.

In the cases, in which the present shovel is to be used for shovelling roots, potatoes or the like, it is preferred to provide the bottom portion with a number of perforations *n*, slits or the like, through which soil, gravel and the like may pass. If, again, the shovel is to be used for light material, the shovel should be made as broad as possible, in which case it is preferred to reinforce the under side of the bottom portions by means of one or more laths *o* or the like secured across the shovel for example by glueing. In such a case the recess *f* also should be made in such a manner that a continuous portion is obtained in the rear portion above the recess, which portion serves as a reinforcement of the rear portion, the handle not being recessed in this case but inserted into the recess *f* from behind.

By the above-mentioned construction a strong joining of the parts forming the shovel is obtained, which renders superflous metallic joints or fittings designed for the purpose. Nevertheless, the same may be used in certain cases, for example, if the shovel is to be used for clearing away snow or the like on a hard and uneven ground and of course also if it is to be used for hard and uneven material. Moreover, by this construction cheap, simple and factory-scale making is rendered possible, in which no substantial and expensive mounting operations need be included.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a shovel of the character described, a wood bottom with a rabbet groove along each longitudinal edge, and wooden borders arranged along said edges, respectively, each border being of L-shaped cross-section, the leg of the L being fitted and glued in the corresponding rabbet groove and having its upper surface flush with the upper surface of said bottom.

2. In a shovel, the combination with the elements set forth in claim 1 of a wooden rear wall on said bottom and provided with a recess, a wooden handle having recesses interengaging with said wall recess, the lower portion of the handle overlying said bottom and being glued thereto, and wooden plugs interengaging said bottom and said lower portion of the handle.

3. In a shovel, the combination with the elements set forth in claim 1, of a wooden rear wall on said bottom and provided with a recess, said recess extending from the upper edge of said wall to a point short of the lower edge thereof, a wooden handle having on its under surface a recess which snugly accommodates the wall portion below said wall recess, the lower portion of the handle overlying said bottom and wooden plugs interengaging said bottom and said lower portion of the handle.

4. In a shovel, the combination with the elements set forth in claim 1, of a wooden rear wall on said bottom and provided with a recess, said recess extending from the upper edge of said wall to a point short of the lower edge thereof, a wooden handle having on its under surface a recess which snugly accommodates the wall portion below said wall recess, said handle also having on its side surfaces recesses which snugly accommodate the sides of said wall recess, the lower portion of the handle overlying said bottom and being glued thereto, and wooden plugs interengaging said bottom and said lower portion of the handle.

5. In a shovel, the combination with the elements set forth in claim 1, of a wooden rear wall on said bottom, said wall being secured to said borders by means of glue, and wooden plugs interengaging said rear wall and said borders.

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