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W. M. SHEEHAN

DIPPER HANDLE

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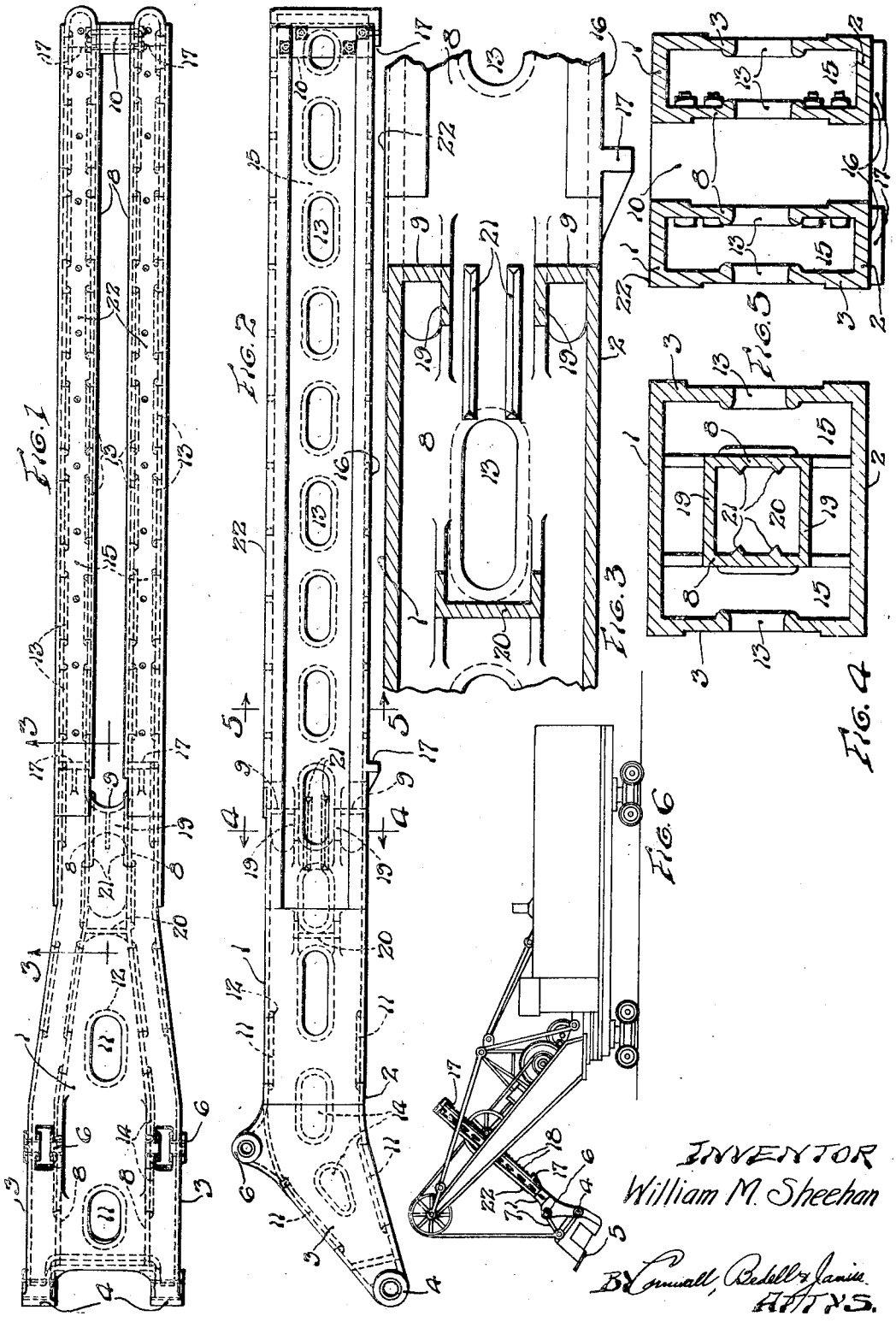


FIG. 1

FIG. 2

FIG. 3

FIG. 5

FIG. 4

FIG. 6

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DIPPER HANDLE.

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My invention relates to power shovels or dippers and consists in an improved handle for such articles. It is customary to make such handles of built-up structure which, due to the heavy service and the nature of the stresses imposed upon them, frequently loosen at the various connections and constitute a continual source of expense for maintenance and replacement of broken parts and cause other losses due to delays in the operation of the shovel.

One object of my present invention is to produce a handle which will not only be strong enough for the demand made thereon but which will remain in use at all times and will eliminate the disadvantages referred to in connection with ordinary handles.

Another object of my invention is to secure a structure of such form and shape as will present the greatest resistance to torsional forces which are responsible for one of the principal causes of failures of power shovel dipper handles as heretofore constructed. My invention which provides a main portion and two arms each made of box formation will effectively resist these forces. This box formation may be made by casting or by welding or otherwise connecting together plates to secure a similar result.

A more specific object of my invention is to form a shovel handle out of a one-piece casting provided with various detail features referred to heretofore which adapt it to be used efficiently for the purpose indicated.

In the accompanying drawings which illustrate a selected embodiment of my invention—

Figure 1 is a top view of my improved handle.

Figure 2 is a side view of the same.

Figure 3 is a fragmentary vertical longitudinal section taken approximately on line 3—3 of Figure 1.

Figures 4 and 5 are vertical transverse sections on lines 4—4 and 5—5, respectively, of Figure 2.

Figure 6 is a side elevation of a power shovel mounted on a railway car and illustrating the use of my improved handle.

As previously mentioned, the handle is preferably formed of a one-piece casting and the lefthand end of this casting, as illustrated in Figures 1 and 2 has a top wall 1, a bottom wall 2, and side walls 3 arranged so that substantially each cross section of this end of the handle is box-shaped. The extreme end of the box-shaped portion is provided with integral lugs 4 upon which the shovel 5 is mounted, and this portion is also provided with integral ears 6 forming pockets for shovel braces 7.

Parallel with and spaced from side walls 3 are integral reinforcing webs 8 and these webs and the outside walls 3 and the portions of the top and bottom walls between each side wall and the adjacent web extend outwardly from the shovel mounting end of the handle; the top and bottom walls between webs 8 terminating as indicated at 9. This construction provides a box-shape shovel mounting end and two box-shape arms 15 extending therefrom. The latter are preferably provided with a removable spacer 10 at their extreme end.

The top and bottom walls are provided with openings 11 to lighten the same and to facilitate manufacture of the device, and these openings may be surrounded by ribs 12. The side walls have similar openings 13 and the webs 8 have similar openings and also have additional openings 14.

The bottom surfaces of arms 15 are provided with machined pads as indicated at 16 and are provided with shear lugs 17 and these portions of the arms are thereby adapted to mount racks 18 for engaging the operating pinion of the shovel mechanism, the lugs relieving the rack bolts or rivets of shear stresses.

A buffer block housing is provided by connecting a short portion of web 8 with horizontal element 19 and a vertical element 20. Preferably the inner faces of webs 8 are provided with V-shaped ribs 21 to more securely hold the buffer block driven into the pocket. The upper faces of arms 15 are machined to mount wear plates 22 which contact with the guide blocks, not shown, on the shovel boom.

The above described structure produces a rigid handle well adapted for the work required and free from any joints between assembled parts and free from bolts or other assembling elements. A handle so made combines adequate strength and mimimum weight which is of importance as the weight of the moving parts in a power shovel, such as a handle, should be as light as possible.

Various details of the construction of my handle may be varied without departing from the spirit of my invention, and I con-

template the exclusive use of such variations in such modifications of my invention as fall within the scope of my claims.

I claim:

1. A handle for power shovels consisting of a one-piece casting having a shovel mounting portion and spaced parallel arms extending therefrom, there being integral transverse flanges connecting relatively short portions of said arms to form a centrally located box-shaped pocket for receiving and backing up a buffer block.

2. A handle for power shovels consisting of a one-piece casting having a shovel mounting portion and spaced parallel arms extending therefrom, there being integral transverse flanges connecting relatively short portions of said arms to form a centrally located box-shaped pocket for receiving a buffer block, the inner walls of said pocket having V-shaped projections for retaining such blocks.

3. A one-piece casting forming a handle for a power shovel and having horizontal top and bottom walls, vertical side walls, and vertical reinforcing webs spaced from said side walls and from each other, said webs and side walls and said top and bottom walls between each side wall and its adjacent web extending outwardly from one end to form spaced hollow box-shaped arms adapted to be assembled with the operating mechanism.

4. A handle for power shovels comprising a shovel mounting portion and spaced parallel arms extending therefrom, elements cooperating with said arms to form a centrally located box shaped pocket for receiving a buffer block, the inner walls of said pocket having V-shaped projections for retaining such blocks.

In testimony whereof I hereunto affix my signature this 12th day of August, 1926.

WILLIAM M. SHEEHAN.