Jan. 8, 1957 G. O. INGRAM 2,776,856

MATERIAL HANDLING AND CARRYING DEVICE

Filed May 12, 1954

FIG. 1.

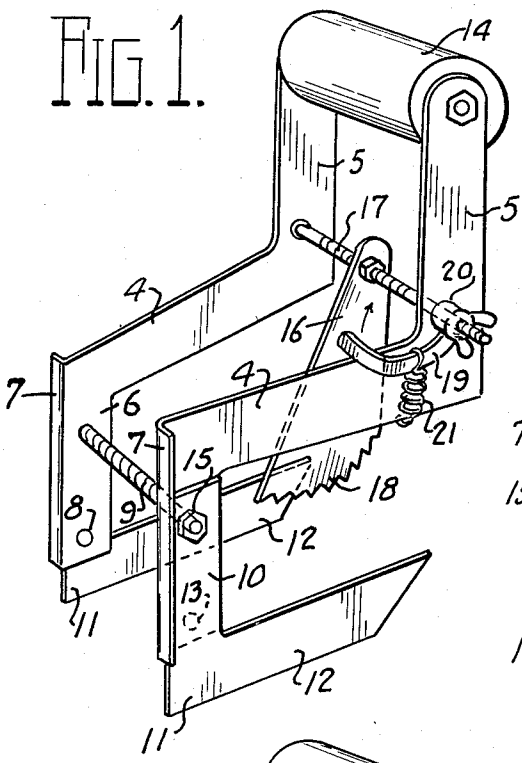
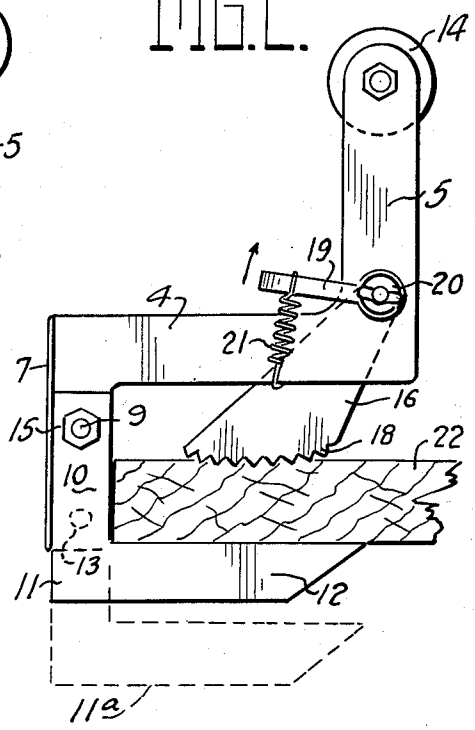


FIG. 2.



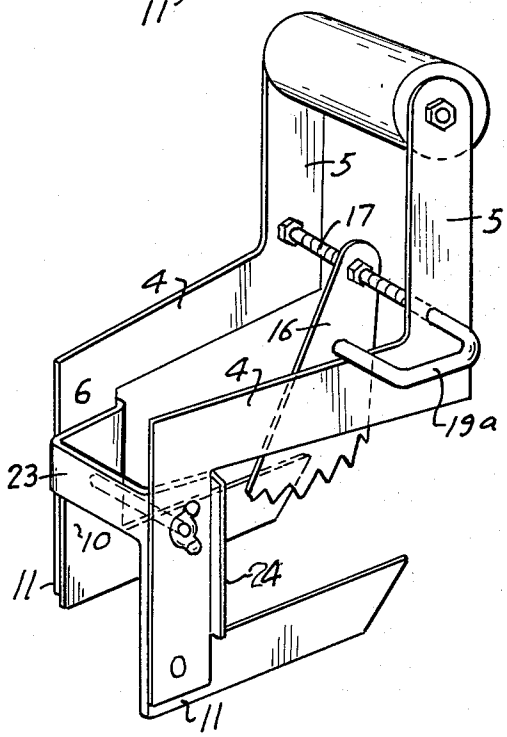


FIG. 3.

INVENTOR.
George O. Ingram
BY
Malcolm W. Fraser
ATTORNEY

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MATERIAL HANDLING AND CARRYING DEVICE

George O. Ingram, Harbor View, Ohio

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1 Claim. (Cl. 294—16)

This invention relates to devices or tools for lifting and transporting materials and objects such, for example, as lumber, cinder and concrete blocks, drums, barrels, crates, tile and the like, and an object is to produce a new and improved tool of the above character which facilitates the handling and carrying of such objects and insures that they will not come loose due to jars, rough handling and the like.

Another object is to produce a tool of the above character which can be quickly and easily adjusted to accommodate objects of various sizes.

A further object is to produce a tool of the above character requiring but a few parts for construction, and which can be readily and inexpensively assembled.

Due to wide variations in weight, size and roughness of the general class of materials and objects mentioned above, their handling and transportation are extremely onerous and oftentimes endanger personnel due to accidental slippage of the objects or their ripping and tearing of the worker's clothing and hands. According to this invention, these difficulties and objections are overcome in a simple and practical manner.

For purposes of illustration but not of limitation, embodiments of the invention are shown in the accompanying drawings, in which

Figure 1 is a perspective view of the tool;

Figure 2 is a side elevation of the tool applied to an object, such as lumber, and illustrates the tool's adjustable feature; and

Figure 3 is a perspective view of an alternate form of tool, illustrating a variation in its framework construction and an alternate locking cam actuating mechanism.

Referring to Figures 1 and 2, the illustrated embodiment of the invention comprises an adjustable materials handling tool, the body of which is formed of two pieces of sheet metal preferably blanked, formed and assembled into the proper configuration to provide two identical side frames of substantially Z shape which are maintained in laterally spaced relation. Each side frame comprises a horizontal arm 4, an integral upwardly extending arm 5 projecting at substantially right angles from the rear end of the arm 4, and an integral downwardly extending arm 6 projecting at substantially right angles from the front end of the horizontal arm 4. The arms 4 are formed or bent somewhat inwardly from the upright arms 5 to downwardly extending arms 6. An integral lip or flange 7 is formed along the front edge of each downwardly extending arm 6 and extends laterally outwardly therefrom and at substantially right angles thereto. Each downwardly extending arm 6 is provided with at least two vertically spaced apart holes 8 therethrough to accommodate an end of a transverse brace rod 9.

Removably attached to the exterior face of each of the two downwardly extending arms 6 is an upright arm portion 10 of an L-shaped stamped metal member 11 whose lower horizontal arm 12 extends rearwardly and is maintained in vertically spaced parallel relation to the horizontal arm 4 of the side frame. Preferably the arm

12 is shorter than the framework arm 4 and the rear end portion of the arm 12 is slanted upwardly to a point from its lower edge to its upper edge. The upright arms 10 of the L-stamped members 11 are each provided with at least two vertically spaced holes 13 therethrough which register with the holes 8 of the arms 6.

The side frames of the tool are maintained in lateral spaced apart relation by a suitable tubular or rod-like handle 14 which is disposed and attached transversely between the top ends of the upright arms 5, and by the removable brace rod 9 disposed and attached transversely between the downwardly extending arms 6. The rod 9 is provided, adjacent each of its ends, with shoulder portions adapted to abut against the inside surfaces of the arms 6 when the rod is in place, it is manifest that the main purpose of the rod 9 is removably to maintain the L-shaped members 11 in the desired position and, coincidentally, to maintain the front portion of the framework members in rigid laterally spaced relation. When thus assembled, the front edges of the upright arms 10 abut against the inside surfaces of the flanges 7 and the lower arms 12 are maintained in the desired vertically spaced relation with respect to the horizontal arms 4, by the arrangement of the rod 9 through the proper pair of corresponding holes 8 and 13. A nut 15 maintains the rod 9 in the desired position. Thus assembled, the horizontal arms 4, combined arms 6 and 10 and the lower horizontal arms 12 define a pair of laterally spaced hooks adapted to engage and removably retain various materials or objects therebetween.

To insure positive latching or locking of the tool to the material to be handled and to prevent accidental disengagement of the tool when in use, a vertically rotatable toothed wedge cam 16 is positioned centrally between the two side frames. This locking cam is formed into a triangular piece of sheet metal, the apex end of which is attached to the central portion of a rod 17 positioned transversely and axially rotatably between the lower portions of the upright arms 5. The lower edge of the cam 16 has a cam-like contour and is provided with a plurality of teeth 18. The length and positioning of the cam member 16 is such that normally its toothed edge portion 18 extends downwardly below the horizontal arms 4 and the front edge thereof projects forwardly beyond the axis of the oscillatable rod 17.

To facilitate the manual operation of the cam 16, a small L-shaped sheet metal actuating lever 19 has one of its ends suitably attached to an exterior end of the rod 17 by nuts 20. The free end portion of the lever projects laterally inward and at right angles, and normally rests upon the upper edge of the adjacent framework horizontal arm 4. To insure against accidental releasing movement of the lever 19, one end of a tension spring 21 is hooked over the lever 19 while the other end is hooked over the lower edge of the adjacent arm 4. The spring 21 normally urges the lever 19 and the cam 16 in a generally downward direction.

It will be seen by an inspection of Figures 1 and 2 that in use, the material or object to be handled, such as lumber 22, may be introduced within the confines of the tool's hook area defined by the configuration of the arms 4, 6 and 10 and 12. Thus confined, one surface of the object 22 rests against the top edges of the arms 12 while the other surface is in releasable enagement with the toothed portion 18 of the cam 16. The object is thus supported and retained by a three-point engagement of the tool therewith. Coincidental with the introduction of the object 22 within the hook area, the toothed portion 18 of the cam 16 yieldingly engages the upper surface of the object by virtue of the spring-tensioned cam member. When the handle 14 is grasped and a pulling or moving force is applied thereto, any tendency of the object 22 to

move backwardly out of the tool is opposed and prevented by the biting action of the teeth **18** upon the surface of the object. The object **22** is literally wedged between the cam teeth **18** and the lower arms **12**. The tool can be released from the object by rocking the lever **19** upwardly against the tension of the spring **21**.

To adjust the tool so that it will accommodate larger objects, the rod **9** is removed and then the L-shaped members **11** are placed in the lower portion **11***a* so that the upper holes **13** thereof coincide with the lower holes **8** in the downwardly extending arms **6**. The rod **9** is then replaced through these holes and maintained in the new position by replacing the nut **15** thereon.

Referring to Figure 3, a variation in the framework construction and of the cam actuating lever is shown, wherein the construction and assembly of the slide frames, comprising the arms **4**, **5** and **6**, are identical to that hereinbefore described with the exception that the flanges **7** are eliminated from the arms **6**. The variation comprises the joining of the upper front edge portions of the L-shaped members **11** with an integral transverse brace strip **23**, the length of which conforms to the lateral spacing between the framework arms **6**. Further, an integral flange **24** is formed along the rear edge of each upright arm **10** of the L-shaped members **11**, extending laterally outwardly therefrom and at substantially right angles thereto. This construction permits the adjustable movement of the L-shaped members **11** as an integral unit. With this type of construction, the upright arms **10** of the members **11** are positioned along the inside surfaces of the framework arms **6**.

Modification of the cam actuating lever **19***a* comprises an exterior extension of one end of the rod **17**, in which the extended portion is first bent forwardly and then inwardly in a square U-shaped formation so that the end portion thereof normally rests upon the upper edge of the adjacent framework arm **4**. The spring **21**, shown in Figures 1 and 2, is eliminated in this form, gravity being relied upon in this instance normally to urge the cam **16** into its downward position.

From the above description, it will be manifest that

I have produced an exceedingly simple and inexpensive tool which greatly facilitates the lifting and carrying of objects and materials. The tool can be inexpensively produced from sheet metal stampings and is so designed as to be rigid and sturdy and withstand the rough usage to which tools of this character are ordinarily subjected. The positive manner in which the objects or materials are secured or retained during the lifting or carrying contributes substantially to the usefulness of the tool.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What I claim is:

A carrier device comprising a pair of substantially Z-shaped sheet metal frame members spaced laterally from each other and with the arms of each member disposed at approximately right angles to adjacent arms, a handle between one end of said frame members and secured thereto, an oscillatable rod adjacent said handle and having end portions mounted in said frame members respectively, a lever constituting a finger piece on said rod for actuating same, an arm fixed at one end to said rod between the frame members, an arcuate toothed portion on the free end of said arm, L-shaped members attached respectively to the arms of the frame members remote from those engaged by said handle thereby to form with the intermediate of the frame member arms a rearwardly facing hook formation for engaging an article, the same being wedged into secure position by said toothed arm, an integral strip connecting said L members and spacing the adjacent portions of the frame members, and a flange on each L member to engage the adjacent arms of the frame members.

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