Jan. 31, 1950 C. G. BAILEY 2,495,954

ARTICLE HANDLING DEVICE

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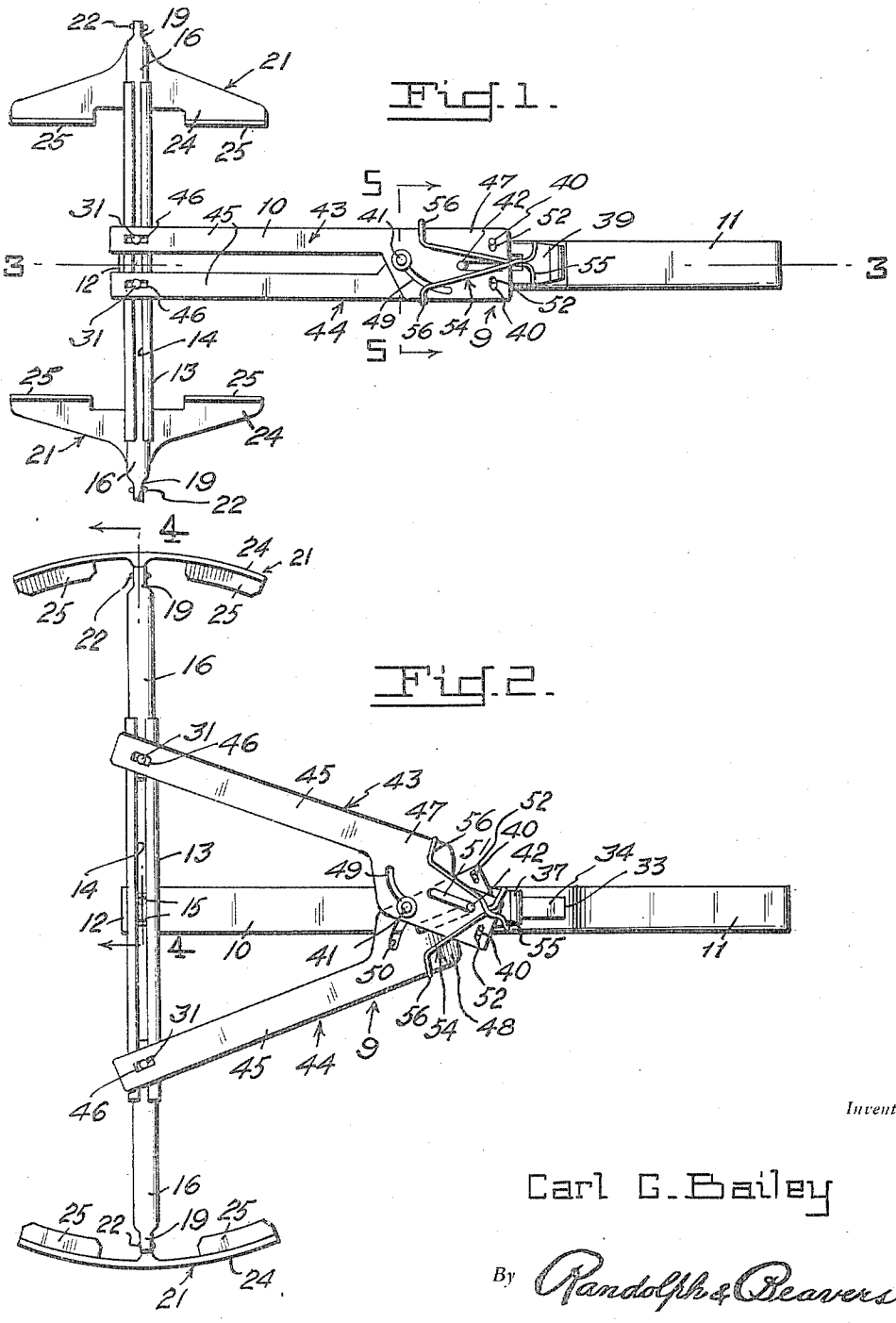


Fig. 1.

Fig. 2.

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Fig. 3.

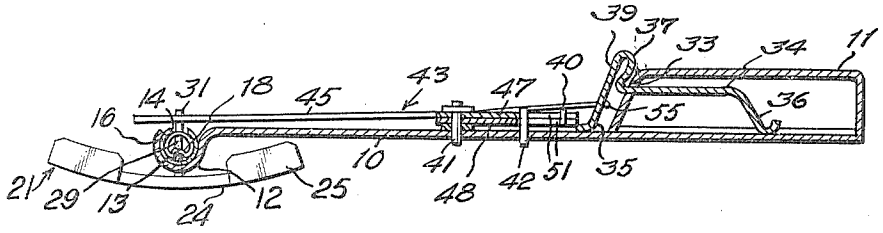


Fig. 4.

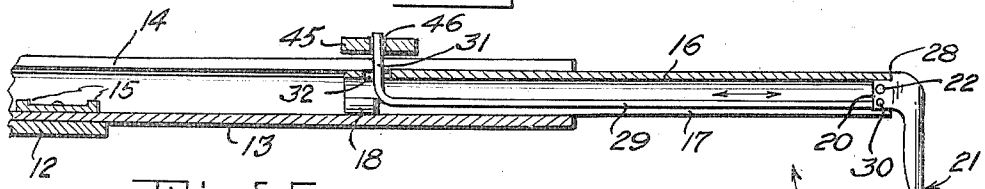


Fig. 5.

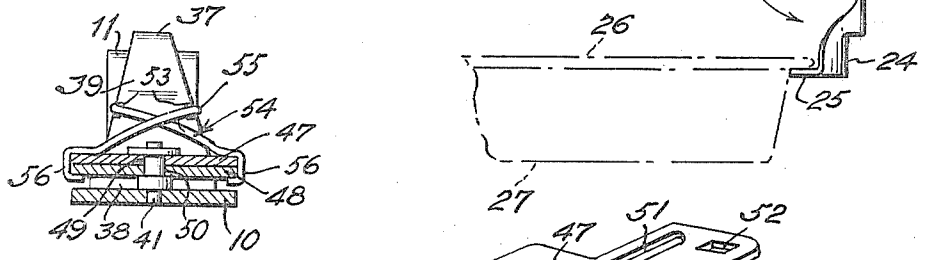


Fig. 6.

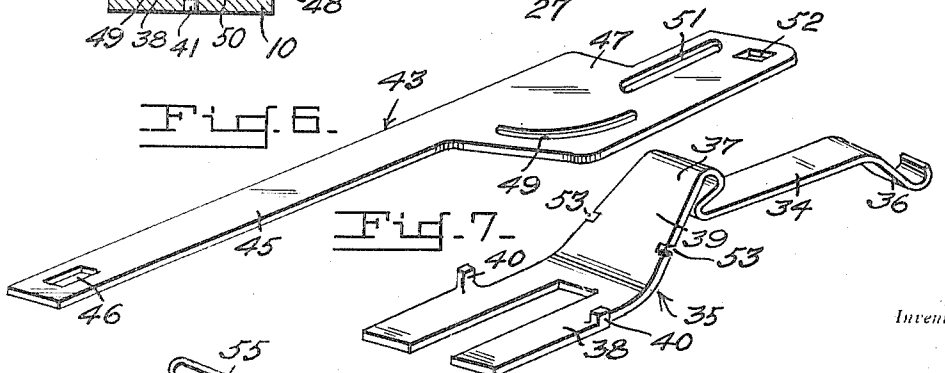
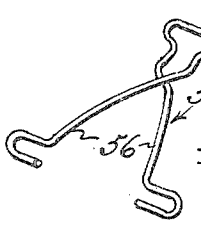


Fig. 7.

Fig. 8.



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ARTICLE HANDLING DEVICE

Carl G. Bailey, Staunton, Va.

Application September 5, 1946, Serial No. 694,888

9 Claims. (Cl. 294—34)

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This invention relates to a novel construction of device for use in handling heated articles used in cooking and baking and is particularly intended for lifting pie pans and constitutes an improvement on my prior U. S. Letters Patents, Numbers 2,367,991 and 2,398,129.

Among the objects of the present invention is to provide an improved lifting device provided with a novel construction of guide member for movably supporting the lifting jaws and equipped with novel means for collapsing or folding the jaws when in a retracted position.

A further object of the invention is to provide a novel construction of jaw actuator provided with a direct operating connection to the actuating means of the device.

Still a further object of the invention is to provide a lifting device having improved actuating means for transmitting a manual impulse from the handle portion of the device to the article engaging jaws.

Other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, which illustrate a preferred embodiment of the invention, and wherein:

Figure 1 is a top plan view showing the invention in a retracted position;

Figure 2 is a similar view showing the device in an extended, operative position;

Figure 3 is a longitudinal sectional view taken substantially along a plane as indicated by the line 3—3 of Figure 1;

Figure 4 is a transverse sectional view taken substantially along a plane as indicated by the line 4—4 of Figure 2;

Figure 5 is a cross sectional view taken substantially along a plane as indicated by the line 5—5 of Figure 1;

Figure 6 is a perspective view of one of the actuating levers;

Figure 7 is a similar view of the manual actuator, and

Figure 8 is a perspective view of the retracting spring.

Referring more specifically to the drawings, the article lifter in its entirety is designated generally 9 and includes an elongated base bar 10 having an upwardly offset, longitudinally elongated housing 11 at one end thereof, forming the implement handle. The opposite end of the bar 10 is provided with a downwardly offset upwardly opening arcuate portion 12 in which is received the intermediate portion of a tube 13 which is welded or otherwise suitably secured

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therein and which is disposed transversely to the bar 10, as best illustrated in Figure 2.

The tube 13 is provided with an upwardly opening slot 14 which extends from end to end thereof and with spaced, adjacently disposed lugs 15, which are disposed in the bottom of the intermediate portion thereof and which project upwardly therefrom. The tubular member 13 forms a guide for a pair of tubes 16 which are slidably disposed in telescoping relationship with the corresponding end portions of the tube 13.

The tubes 16 are each provided with slotted bottom portions, the slots 17 of which extend from end to end thereof, and the inner end portions of the tubes on either side of the slots 17 are rolled inwardly to form an arch 18 arranged to receive the lugs 15. The outer end of each tube 16 is compressed as best at 19 in Figures 1 and 2; the compressed portions 19 being provided to receive the inturned shank portions 20 of the article engaging jaws 21, one of which jaws is mounted on the outer end of each of the reciprocating tubes 16. The inwardly projecting shank portion 20 of each jaw 21 is provided with an opening in the upper part thereof to receive a pivot pin 22 which extends loosely therethrough and which is anchored in the compressed portion 19. Each jaw 21 also includes an elongated shank portion 23 which is disposed substantially at a right angle to its shank extension 20 and which has side edges which diverge away from its supporting tube 16. The jaw shank 23 terminates at its free end in a laterally enlarged jaw head 24, as best seen in Figures 2 and 3, which is provided with longitudinally spaced inturned lips 25 adapted to engage under the rim 26 of a pan 27, as indicated in broken lines in Figure 4, when the implement 9 is in an extended, operative position, as illustrated in Figures 2 and 4. As best illustrated in Figure 2, the jaw heads 24 are bowed longitudinally with the inner side thereof being concave to substantially conform to the normal curvature of cooking pans and the free edges of the lips 25 are similarly bowed, for the same purpose. As best seen in Figure 3, the shank portion 23 of each jaw 21 is provided with a shoulder 28, located above its extension 20 and facing toward the outer end of said extension to abut against the upper part of the outer end of its tube 16, to prevent the jaw 21 from swinging outwardly in a counterclockwise direction, as seen in Figure 4, past a position substantially at right angles to the axis of its supporting tube 16.

A connecting rod 29 extends longitudinally, substantially the length of each of the jaw sup-

porting tubes 16, and each of the connecting rods 29 is pivotally connected at 30 at its outer end to its associated jaw extension 20 beneath and adjacent the pivot 22. The inner ends of the rods 29, which form connecting links, are each turned upwardly to form arms 31 which extend through longitudinally elongated slots 32 in the upper portions of the tubes 16. The slots 32 are located adjacent the inner ends of the tubes 16 and permit longitudinal sliding movement of the links or rods 29 relatively to said tubes. The arms 31 extend upwardly through the slots 14 of the guide tube 13 and are adapted for sliding movement therein.

As best seen in Figure 3, a housing 11 is provided with a horizontal slot 33 in its forward end to slidably receive a shank portion 34 of an actuator 35. The shank portion 34 is provided at its free end with a curved portion 36 which is slidably located within the housing 11 and which is shaped to prevent its movement through the slots 33. The actuator 35 is provided with an upwardly extending loop 37 disposed forwardly of the housing 11 and extending to above the top thereof to form a thumb rest by means of which the actuator 35 is manually moved longitudinally of the bar 10. The actuator 35 at its opposite end is provided with an elongated bifurcated part 38 which rests on and slidably engages the bar 10, forwardly of the housing 11, and which is connected to the thumb rest 37 at its rear end by an integral, upwardly and rearwardly inclined portion 39. The side edges of the bifurcated portion 38, adjacent its inner end, are each provided with an upstanding lug or pin 40.

As best seen in Figure 3, the slot of the bifurcated portion 38 is provided to accommodate a pair of pivot pins 41 and 42 which are anchored in the bar 10 and which project upwardly therefrom. The pivot pins 41 and 42 are disposed intermediate of the side edges of the bar 10 and in longitudinal spaced relationship to one another.

A pair of actuating levers, designated generally 43 and 44 are provided with elongated relatively narrow arms 45 having elongated, longitudinally disposed slots 46 adjacent their free ends for loosely engaging the upturned rod ends 31. The opposite ends of the levers 43 and 44 are laterally enlarged in opposite directions to form heads 47 and 48, respectively, having correspondingly curved arcuate slots 49 and 50, respectively, through which the pivot pin 41 loosely extends. The heads 47 and 48 are provided with corresponding longitudinally disposed slots 51 located between their free ends and the arcuate slots 49 and 50 and through which the pivot pin 42 loosely extends. The heads 47 and 48 are also provided with corresponding transversely disposed slots 52 for loosely receiving the upstanding lugs 40 of the actuating member 35.

The inclined portion 39 of the actuator 35 is provided with outwardly opening corresponding notches 53 in its side edges, in which are anchored corresponding portions of a tong-shaped spring 54 which is formed from a single strand of wire and which is provided with a looped intermediate portion 55 which engages around the inclined portion 39. The spring 54 is provided with corresponding legs 56 which are crossed adjacent the intermediate loop portion 55 and which terminate in outwardly offset inwardly opening hook portions 56 which engage around the outer edges of the lever heads 47 and 48 for normally urging

the levers 43 and 44 toward retracted, parallel positions, as illustrated in Figure 1.

With levers 43 and 44 thus disposed in substantially parallel relationship, the actuator 35 is in a retracted position as seen in Figure 3, and the tubes 16 are likewise in retracted positions relatively to the ends of the guide tube 13 and the connecting rods or links 29 are retracted relatively to the jaw supporting tubes 16 so that the jaws 21 are swung inwardly on their pivots 22 to fold upwardly and inwardly substantially against the underside of the guide tubes 13, as illustrated in Figure 1. The implement 9 will be normally retained, thus disposed, by the action of the spring 54 resiliently bearing against the outer edges of the levers 43 and 44. The user or operator grasps the implement 9 by the housing 11 and to extend the implement to an operative position, places the thumb of the hand grasping the housing 11 against the thumb rest 37 to push the actuator 35 in a direction away from the housing 11. As the actuator 35 is connected to the lever heads 47 and 48 by the lugs 40 engaging the slots 52, as the actuator 35 is moved forwardly, the levers 43 and 44 will likewise slide in a direction along the bar 10 away from the housing 11. The engagement of the arcuate slots 49 and 50 with the pivot pin 41 will cause the lever ends 45 to swing outwardly relatively to one another as said levers are moved away from the housing 11. This initial outward swinging movement of the lever ends 45 will cause the rods or links 29 through engagement of their upturned ends 31 with the slots 46, to slide outwardly in the tubes 16 to swing the jaws 21 downwardly and outwardly to positions substantially at right angles to the longitudinal axis of the tubes 16, as illustrated in Figures 2 and 4. As the jaws 21 assume these positions, the shoulders 28 thereof will abut against the upper portions of the outer ends of the tubes 16 to prevent further outward sliding movement of the links 29 within the tubes 16, so that further outward swinging movement of the lever ends 45 will cause the tube 16 to be slid outwardly in the guide tube 13 from their positions of Figure 1 to their positions of Figure 2. With the implement 9 arranged, as illustrated in Figure 2, the jaws may be placed over diametrically opposed portions of the pan 27 and with the lips 25 disposed below the level of the rim 26 thereof. Upon release of the pressure being exerted against the thumb rest 37, the spring 54 will swing the levers 43 and 44 toward one another to move the jaws 21 in unison with the supporting tubes 16 inwardly until the jaw lips 25 are engaging under the pan rim 26 after which the pan 27 may be readily lifted and transported and upon being placed in the desired location, released by the simple expedient of exerting an outward pressure on the thumb rest 37 to again move the jaws 21 out of engagement with the pan rim 26. The action of the spring 54 in returning the lever ends 45 toward parallel positions may be augmented by exerting a pressure on the forward side of the thumb rest 37 for manually moving the actuator 35 in the opposite direction or toward the housing 11. The elongated slots 46 of the lever arms 45 accommodate the relative movement of said arms 45 lengthwise of the upturned rod end 31, which movement is principally accommodated by the forward sliding movement of the levers 43 and 44.

During the initial expanding movement of the parts, the rods 29 are moved outwardly in tubes 13 and in so moving, the arms 31 ride outwardly

over the arches 18 and drop downwardly on the outer sides thereof to be retained thereby to prevent inward sliding movement of rods 29 and inward folding movement of jaws 21. As the parts approach fully retracted positions, the lugs 15 enter arches 18 and their outer ends, which are slightly rounded, engage and cam arms 31 upwardly to above the arches 18 so that rods 29 can slide inwardly in tubes 16 to fold jaws 21.

While the tubes 13 and 16 have been illustrated as being substantially circular in cross section, it will be readily apparent that said tubes could be of rectangular or polygonal cross section.

Various other modifications and changes are likewise contemplated and may obviously be resorted to, without departing from the spirit and scope of the invention as hereinafter defined by the appended claims.

I claim:

1. In an article lifting implement, a handle provided with an elongated shank, a manually actuated member slidably disposed on said shank, a guide member mounted on the shank, remote to the handle and transversely thereof, jaw supporting members slidably connected to the guide member, a jaw pivotally mounted on the outer end of each jaw supporting member, actuating levers slidably and pivotally connected to the shank and to said actuating member and constructed and arranged to slide and swing relatively to the shank when the actuating member is moved longitudinally thereof, and link means connecting said levers and jaws and constructed and arranged upon movement of the levers from retracted to projected positions to initially swing the jaws relatively to said jaw supporting members from folded to extended, operative positions and to subsequently move said jaw supporting members outwardly of one another for opening the jaws.

2. An implement as in claim 1, said link means being slidably and pivotally connected to said levers, pivotally connected to the jaws and slidably disposed relatively to the jaw supporting members.

3. An implement as in claim 1, said jaws being provided with shoulders forming stops for engaging portions of the jaw supporting members when the jaws are swung to positions substantially at right angles to the axis of the jaw supporting members for causing said links and levers to slidably actuate and extend the jaw supporting members.

4. An implement as in claim 1, said jaw supporting members having stops for engaging the link means to retain them and the jaws in extended positions, said guide being provided with lugs arranged to engage the adjacent ends of the link means, as the parts approach fully retracted positions, to displace them out of engagement with the stops to permit retraction of the link means and folding of the jaws.

5. An implement as in claim 1, said levers being provided with arcuate slots adjacent their inner ends, a pin fixed to said shank and loosely engaged in said slot, said levers being provided with laterally disposed slots, and lugs on the actuating member loosely engaging said laterally disposed slots and combining with the first mentioned pin and arcuate slots for reciprocating and oscillating the levers when said actuating member is reciprocated.

6. An implement as in claim 1, and resilient means anchored to the actuating member and yieldably bearing against said levers for normally returning the parts toward retracted, folded positions.

7. An implement as in claim 1, said guide being of tubular construction and being provided with an upwardly opening longitudinally extending slot, said jaw supporting members being telescoped within the ends of said guide and being provided with upwardly opening longitudinally disposed slots adjacent their inner ends, and said links each including an elongated rod having its outer end pivotally connected to its associated jaw and having an upturned inner end extending through the slot of its associated jaw supporting member and through the slot of the guide member for sliding movement relatively to each of said slots.

8. An implement as in claim 1, said guide being of tubular construction and being provided with an upwardly opening longitudinally extending slot, said jaw supporting members being telescoped within the ends of said guide and being provided with upwardly opening longitudinally disposed slots adjacent their inner ends, and said links each including an elongated rod having its outer end pivotally connected to its associated jaw and having an upturned inner end extending through the slot of its associated jaw supporting member and through the slot of the guide member for sliding movement relatively to each of said slots, said jaw supporting members being of tubular construction to slidably house the connecting links therein.

9. In an article lifting implement, an elongated handle having a cross head at one end thereof, a pair of opposed jaws located beyond the ends of the cross head, jaw supporting members slidably mounted by the cross head for longitudinal movement relatively thereto and to which the jaws are pivotally connected, a manually actuated member slidably supported on said handle, and link and lever means connecting said actuating member to the jaws, said means being connected to the jaws beneath their pivotal mounting on the jaw supporting members to initially swing the jaws to extended positions when the supporting members are extended by the manually actuated member and to initially swing the jaws to folded positions when the supporting members are retracted by the manually actuated member.

CARL G. BAILEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,398,129	Bailey	Apr. 9, 1946