

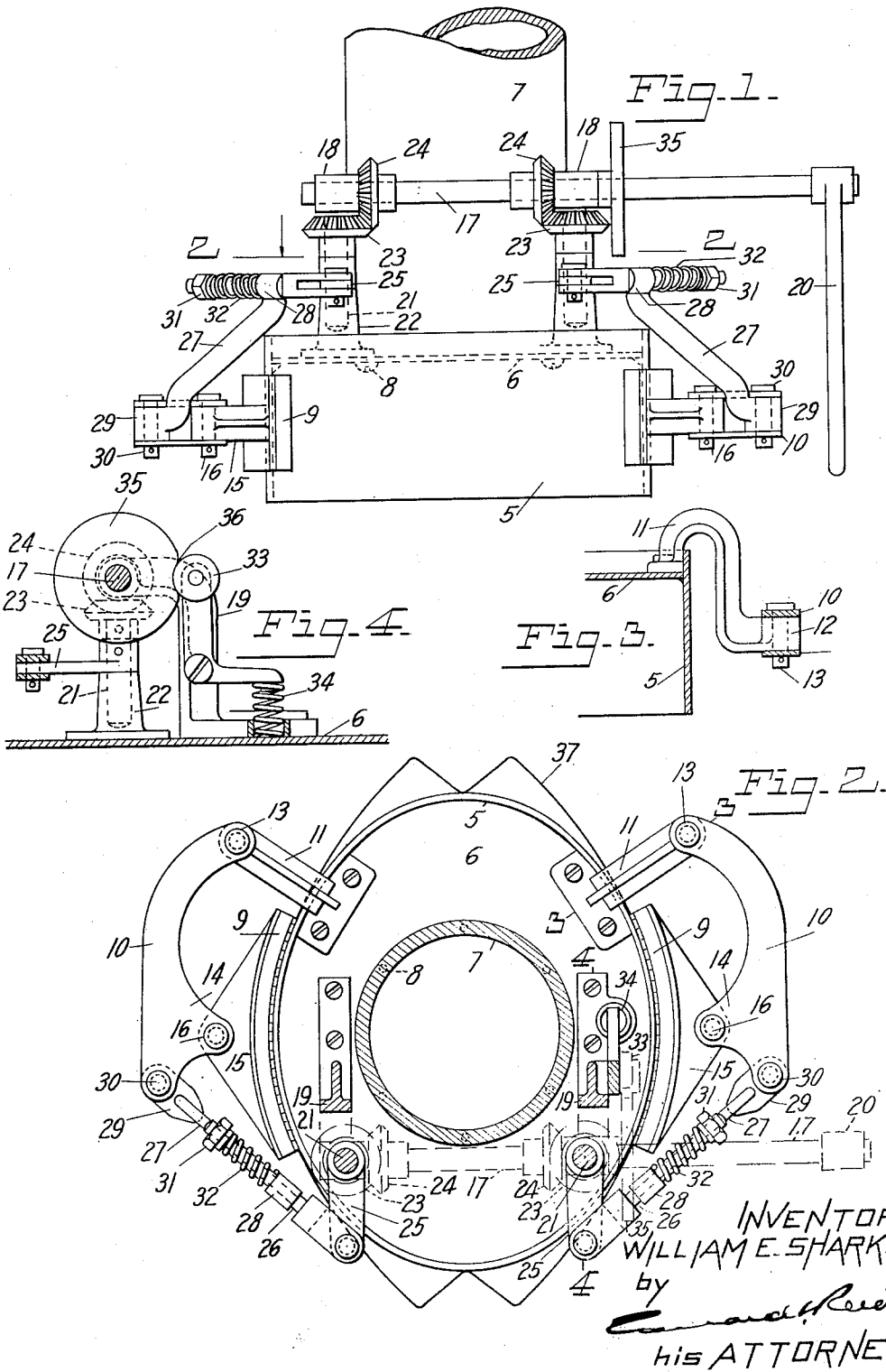
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BAG SUPPORTING DEVICE

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BAG SUPPORTING DEVICE

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This invention relates to a bag supporting device and is designed more particularly for supporting a paper bag while the latter receives material from a bag filling device, such as a weighing or measuring mechanism. Bag supporting devices have been provided heretofore which operate satisfactorily with fabric bags but these devices are not adapted to support paper bags because they crumple the paper in an objectionable manner and subject the same to strains which frequently cause the bag to tear.

One object of the present invention is to provide a device for supporting paper bags without crumpling the paper or subjecting the same to undue strains.

A further object of the invention is to provide such a device which will be simple in construction and operation and which may be produced at a low cost.

A further object of the invention is to provide such a device which will comprise a single self-contained unit and may be quickly and easily installed on existing filling machines in substitution for the present bag holders.

Other objects of the invention will appear as the device is described in detail.

In the accompanying drawing Fig. 1 is a front elevation of a bag supporting device embodying my invention; Fig. 2 is a transverse section taken on the line 2-2 of Fig. 1; Fig. 3 is a detail section taken on the line 3-3 of Fig. 2; and Fig. 4 is a detail section taken on the line 4-4 of Fig. 2.

In the drawing I have illustrated the preferred form of my invention and have shown the same as comprising a bag supporting member about which the open end of a paper bag may be placed and which is adapted to be secured to a relatively fixed support, such as the filling spout of a bag filling machine. Cooperating with this supporting member are bag gripping members arranged to engage the bag on opposite sides of the supporting member and to press the same firmly against the latter without crumpling the paper or imposing thereon any strain other than the weight of the bag and its contents.

In the arrangement here shown the bag supporting member 5 is tubular in form and is provided near its upper end with an inwardly extending flange 6 of such size and shape that it will overlap the lower edge of the filling spout 7, without obstructing the passageway through that spout, and which may be rigidly secured to the spout, as by screws 8. The tubular supporting member is preferably oval in cross section to conform it approximately to the open end of a paper

bag, and it is of a vertical length substantially less than its shortest diameter, although the relation of the length of the supporting member to its diameter is immaterial.

Arranged on each side of the supporting member 5 is a bag gripping member 9 adapted to be moved into and out of contact with the bag on the supporting member. These gripping members are of such a character that they will engage the side walls only of the bag and will press the same smoothly against the adjacent sides of the supporting member. Preferably they are in the form of shoes and are here shown as having their contact surfaces shaped to conform to the contour of the adjacent walls of the supporting member and of a length substantially less than the fore and aft diameter of the tubular supporting member. The shoes may be movably supported and actuated in any suitable manner but preferably they are mounted on levers 10 arranged on opposite sides of the supporting member and connected with a suitable actuating device. The present device is self-contained and comprises a single unit all parts of which are carried by the supporting member. Mounted on the rear portion of the supporting member are brackets 11 and, as here shown, each of these brackets is mounted on and secured to the flange 6 within the upper portion of the supporting member and has a goose neck which extends upwardly above the edge of the supporting member and then outwardly and downwardly, the vertical portion of the goose neck being spaced from the supporting member to permit the end of the bag to be inserted between these parts. The lower end of each bracket has a laterally extending bearing lug 12 and, in the form shown, each lever 10 comprises two parallel plates, the rear ends of which are arranged respectively above and below the bearing lug 12 and are pivotally connected therewith by a pin 13. The two levers extend forwardly from their supporting brackets on the respective sides of the supporting member and each lever is provided between its ends with inwardly extending projections 14 which receive between them the pivot lug 15 of the adjacent shoe, the lug being connected with the lever by means of a pivot pin 16.

The forward ends of the levers 10 are connected with a suitable actuating device which will move the same simultaneously toward or from the supporting member. This actuating device may be of any suitable character but it is preferably mounted on the supporting member. In the construction shown the actuating device comprises a

transverse shaft 17 mounted in bearings 18 carried by brackets 19 which are mounted on and rigidly secured to the forward portion of the flange 6. The shaft is provided with means, such as a handle 20, for imparting oscillatory movement thereto. Short vertical shafts 21 are mounted in upright bearings 22, also mounted on the forward portion of the flange 6, and have secured to the upper ends thereof beveled pinions 23 which mesh with beveled pinions 24 on the transverse shaft 17. The pinions 24 face in opposite directions so that the oscillatory movement of the shaft 17 will cause the vertical shafts to rotate simultaneously in opposite directions. Rigidly secured to each vertical shaft 21 is a rock arm 25, these rock arms being operatively connected with the forward ends of the respective levers 10. The connecting means may take various forms but I have here shown link connections each of which comprises a rod 26 pivotally mounted at one end on the corresponding rock arm 25, and an arm 27 having at one end a bearing portion 28 slidably mounted on the rod 26 and having at its other end a bearing portion 29 arranged between the two members of the adjacent lever to which it is connected by a pivot pin 30. Mounted about the rod 26 and confined between the bearing portion 28 of the arm and a stop, such as a nut 31, on the outer end of the rod, is a coiled spring 32 which is so arranged that the operation of the actuating mechanism to press the shoes against the supporting member will compress the springs and cause the same to exert yieldable pressure upon the shoes so long as the actuating mechanism is retained in its operative position. To retain the actuating mechanism in its operative position I have mounted on a fixed support adjacent to the shaft 17, such as one of the brackets 19, a detent 33 which is actuated by a spring 34. A disk 35 rigidly secured to the shaft has a peripheral recess 36 so arranged that when the actuating mechanism is moved to its operative position, that is, to a position to cause the shoes to engage the bag on the supporting member, the detent 33 will enter the recess 36 and hold the shaft against return movement until sufficient force is applied thereto to overcome the tension of the spring on the detent.

When the apparatus is in its normal or inoperative position with the shoes 9 spaced from the supporting member 5, a bag, such as that shown at 37, is opened and the upper end thereof placed about the supporting member. While the operator holds the bag in this position by one hand he operates the handle 20 with his other hand to force the shoes into engagement with the bag and tightly clamp the latter against the supporting member. This causes the detent 33 to enter the notch in the disk and thus lock the parts in their operative positions so as to support the bag throughout the filling operation. When the bag has been filled the operator moves the handle in the other direction, thus rotating the disk and forcing the detent out of the notch to release the bag. Usually the bag hangs from this supporting device and when released will drop by gravity a distance sufficient to withdraw the upper end thereof from the supporting member.

While I have shown and described one embodiment of my invention I wish it to be understood that I do not desire to be limited to the details thereof as various modifications may occur to a person skilled in the art.

Having now fully described my invention, what

I claim as new and desire to secure by Letters Patent, is:

1. In a bag supporting device, a supporting member having an opening therethrough and arranged to permit the open end of a bag to be placed about the same, said member having uninterrupted and substantially vertical bag engaging surfaces on opposite sides thereof, levers arranged on opposite sides of said supporting member and pivotally connected therewith for movement about substantially vertical axes, bag gripping members pivotally mounted on said levers on substantially vertical axes for bodily movement toward and from said supporting member and having bag engaging surfaces shaped to conform to the contour of the bag engaging surfaces of said supporting member, an actuating device, and means for operatively connecting said levers with said actuating device.

2. In a bag supporting device, a supporting member having an opening therethrough and arranged to permit a bag to be placed about the same, levers arranged transversely to said supporting members on opposite sides thereof, each lever being pivotally supported at one end for movement toward and from said supporting member about an axis substantially parallel with said supporting member, a bag gripping shoe pivotally mounted on each lever between the ends of the latter on an axis substantially parallel with the axis of said lever, an actuating device, and means for operatively connecting the other end of each lever with said actuating device.

3. In a bag supporting device, a supporting member having an opening therethrough and arranged to permit the open end of a bag to be placed about the same, said supporting member having on each side thereof a substantially vertical bag clamping surface, levers arranged on opposite sides of said supporting member, means for pivotally mounting one end of each lever on said supporting member for movement about a substantially vertical axis, a bag gripping shoe mounted on each lever between the ends of the latter for movement thereby toward and from the adjacent clamping surface of said supporting member, a shaft rotatably mounted on said supporting member and extending transversely thereto, means for actuating said shaft, rock arms mounted on said supporting member for movement about substantially vertical axes and operatively connected with said shaft, and means for connecting said rock arms with the other ends of the respective levers.

4. In a bag supporting device, a supporting member having an opening therethrough and arranged to permit the open end of a bag to be placed about the same, levers arranged on opposite sides of said supporting member, means for pivotally mounting one end of each lever on said supporting member, a bag gripping shoe pivotally mounted on each lever between the ends of the latter, a shaft mounted on said supporting member for oscillatory movement, rock arms actuated by said shaft, and links connecting the other ends of said levers with the respective rock arms, each link comprising two parts and a spring arranged between said parts to be compressed by the movement of the rock arm with which said link is connected.

5. In a bag supporting device, a tubular bag supporting member having an inwardly extending flange adapted to be connected with a filling spout or the like, brackets mounted on the rear portion of said supporting member, levers piv-

totally mounted on said brackets on substantially vertical axes and extending forwardly on the respective sides of said supporting member, a bag gripping shoe pivotally mounted on each lever, brackets mounted on the forward portion of said flange and projecting above said supporting member, actuating mechanism carried by the last mentioned brackets, and means to operatively connect said actuating mechanism with said levers.

6. In a bag supporting device, a tubular bag supporting member having an inwardly extending flange adapted to be connected with a filling spout or the like, brackets mounted on the rear portion of said supporting member, levers pivotally mounted on said brackets on substantially vertical axes and extending forwardly on the respective sides of said supporting member, a bag gripping shoe pivotally mounted on each lever, brackets mounted on the forward portion of said flange and projecting above said supporting member, actuating mechanism carried by the last mentioned brackets, means to operatively connect said actuating mechanism with said levers, said connecting means including springs arranged to be compressed by said actuating mechanism and to press said shoes toward said supporting member, and a device to hold said actuating mechanism in a position to retain said springs in compression.

7. In a bag supporting device, a tubular bag supporting member having an inwardly extending flange adapted to be connected with a filling spout or the like, brackets mounted on the rear portion of said supporting member, levers pivotally mounted on said brackets and extending forwardly on the respective sides of said supporting member, a bag gripping shoe pivotally mounted on each lever, brackets mounted on the forward portion of said flange and projecting above said supporting member, actuating mechanism carried by the last mentioned brackets and comprising parts movable toward and from each other and means for actuating said parts, a rod connected with each of said parts, a stop on the outer end of each rod, arms connected with said levers and having parts slidably mounted on the respective rods, and springs confined between said parts of said arms and the stops on said rods.

8. In a bag supporting device, a tubular bag supporting member having means for mounting the same on a filling spout or the like in a position to permit the open end of a bag to be placed about the same, brackets mounted on the rear portion of said supporting member and extending outwardly and downwardly therefrom, levers pivotally mounted at their rear ends on said brackets and extending forwardly on the respective sides of said supporting member, a shoe pivotally mounted on each lever between the ends of the latter, brackets mounted on the forward portion of said supporting member and extending above the same, a transverse shaft mounted on the last mentioned brackets, means for imparting oscillatory movement to said shaft, vertical shafts mounted on said supporting member adjacent to said transverse shaft, gears connecting said vertical shafts with said transverse shaft and arranged to rotate said vertical shafts simultaneously in opposite directions, rock arms carried by said vertical shafts, rods pivotally connected with the respective rock arms and each having a stop near its outer end, arms pivotally connected with the forward ends of said levers

and slidably mounted on the respective rods between said stops and the pivotal axes of said rods, and springs confined between said arms and said stops.

9. In a bag supporting device, a tubular bag supporting member having means for mounting the same on a filling spout or the like in a position to permit the open end of a bag to be placed about the same, brackets mounted on the rear portion of said supporting member and extending outwardly and downwardly therefrom, levers pivotally mounted at their rear ends on said brackets and extending forwardly on the respective sides of said supporting member, a shoe pivotally mounted on each lever between the ends of the latter, brackets mounted on the forward portion of said supporting member and extending above the same, a transverse shaft mounted on the last mentioned brackets, means for imparting oscillatory movement to said shaft, vertical shafts mounted on said supporting member adjacent to said transverse shaft, gears connecting said vertical shafts with said transverse shaft and arranged to rotate said vertical shafts simultaneously in opposite directions, rock arms carried by said vertical shafts, rods pivotally connected with the respective rock arms and each having a stop near its outer end, arms pivotally connected with the forward ends of said levers and slidably mounted on the respective rods between said stops and the pivotal axes of said rods, springs confined between said arms and said stops, a spring pressed detent mounted on a fixed support adjacent to said transverse shaft, and a part carried by said transverse shaft to engage said detent and hold said shaft against reverse movement.

10. In a bag supporting device, a supporting member having an opening therethrough, arranged to permit the open end of a bag to be placed about the same and having substantially vertical bag clamping surfaces, levers arranged on opposite sides of said supporting member, means for pivotally mounting one end of each lever on said supporting member for movement about a substantially vertical axis, a bag gripping shoe mounted on each lever between the ends of the latter for movement thereby into and out of engagement with a bag on said supporting member, an actuating device carried by said supporting member, and means for operatively connecting the other end of each lever with said actuating device and including spring means operating to exert continuous pressure on said shoes when the latter are in engagement with said bags.

11. In a bag supporting device, a supporting member having an opening therethrough, arranged to permit the open end of a bag to be placed about the same and having bag engaging surfaces, a single lever arranged on each side of and transversely to said supporting member and pivotally mounted at its rear end for movement in a plane intersecting said supporting member, bag gripping means carried by each lever between the ends thereof and movable thereby into and out of engagement with a bag on said supporting member, and means connected with said levers near the forward ends thereof for actuating said levers to move said bag gripping means into and out of engagement with said bag.

12. In a bag supporting device, a supporting member having an opening therethrough, arranged to permit the open end of a bag to be

placed about the same and having uninterrupted and substantially vertical bag engaging surfaces, levers extending transversely to said supporting member on opposite sides thereof and
5 mounted for movement in planes intersecting said supporting member, bag gripping shoes pivotally mounted on said levers for bodily movement thereby toward and from the bag engaging surfaces of said supporting member, a de-

vice for actuating said levers, spring means controlled by said actuating device to exert continuous pressure on said shoes toward said supporting member when said actuating device is moved to its operative position, and means for automatically locking said actuating device in said operating position.

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