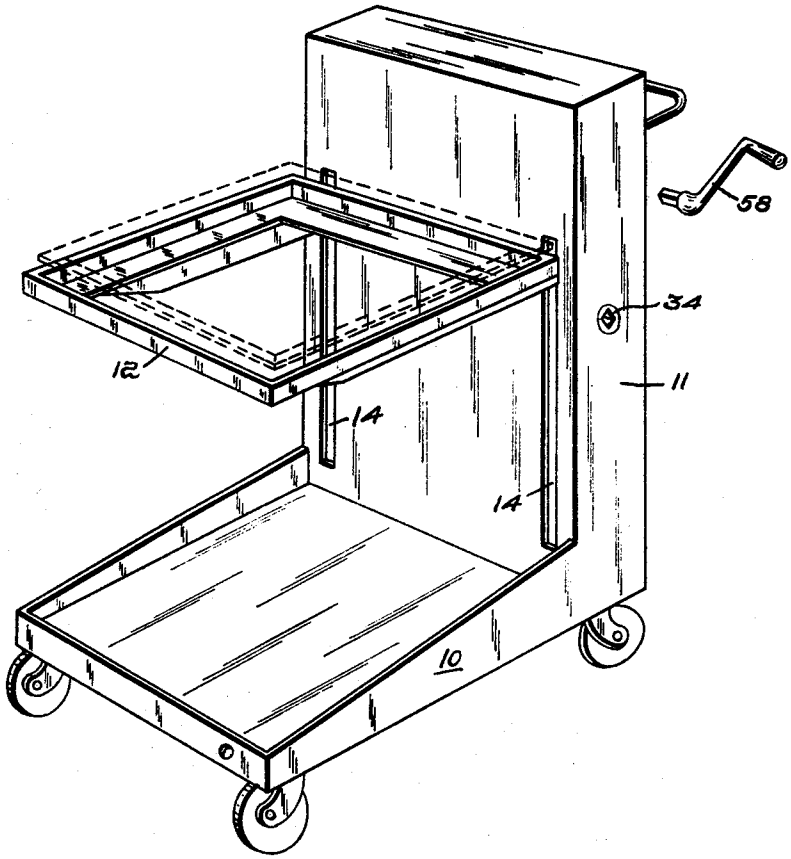
April 12, 1960 D. R. VERSHBOW 2,932,404

SERVING MECHANISM

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Fig. 1.



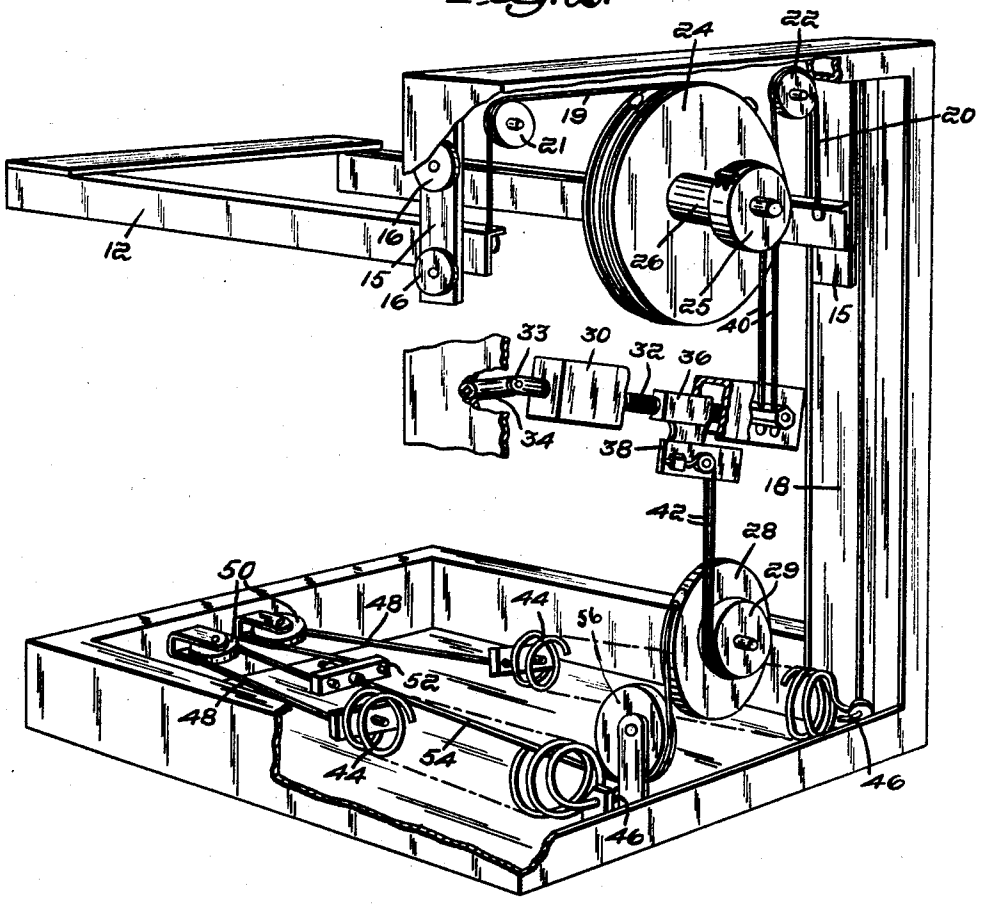
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Fig. 2.



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SERVING MECHANISM

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9 Claims. (Cl. 211—49)

This invention relates to serving mechanism including a vertically movable carrier adapted to support a supply of articles such as dishes, table utensils, trays and the like, together with self-leveling means for automatically maintaining the articles at a constant and efficient dispensing level as the top articles are removed from the carrier, the mechanism being adjustable for articles of various unit weights. Such mechanism requires the employment of resilient means constantly urging the carrier upwardly, at an adjustable rate, to compensate for the articles removed and the employment of such means within the vertical space permitted frequently presents a considerable problem. The primary object of the invention herein resides in the production of novel and compact mechanism for solving this problem.

More specifically the invention embodies a rotary drum together with flexible cable means connected at one end to the drum and at its other end to the carrier and so disposed on and about the drum that rotation of the drum in one direction raises the carrier and rotation thereof in the other direction lowers the carrier. Cooperating resilient means together with a cable connected to and disposed on and about a smaller drum fixed coaxially to the first named drum and forming a double drum therewith is adapted normally to effect raising movement of the carrier. In the preferred form of the invention two such double drums are provided, the carrier and resilient means being directly connected respectively to the larger drum and the smaller drums being connected together by means including cables connected to and disposed on and about such drums. The mechanism furthermore preferably includes means for varying the ratio of the driving connection between the smaller drums. The construction permits such compact arrangement of the parts as substantially to reduce the vertical space otherwise required in the serving unit. The production of novel and improved serving mechanism of this nature and for the purpose described comprises a further object of the invention.

These and other features of the invention will be best understood and appreciated from the following description of a preferred embodiment thereof selected for purposes of illustration and shown in the accompanying drawings in which—

Fig. 1 is a perspective view of a serving unit embodying the invention, and

Fig. 2 is a fragmentary perspective view illustrating operating mechanism within the unit.

The serving unit illustrated in the drawings comprises a hollow base **10** from which rises a vertical housing **11**, the base and housing constituting the supporting frame of the serving unit. A carrier **12** extends through two vertical slots **14** into the housing and projects therefrom horizontally in cantilever fashion over the base **10**. The carrier is fixed to two plates **15** within the housing and two rollers **16** on each plate ride vertically within a guideway **18** in the housing, thus supporting the carrier in horizontal position. The carrier is suspended by two cables **19** and **20** secured thereto and extending upwardly over

sheaves **21** and **22** respectively. From thence the cables extend partially about and are anchored to a drum **24**. The drum is constantly biased to rotate in clockwise direction (Fig. 2) and thereby counterbalance the weight of the carrier and tend to elevate it, all as illustrated in Fig. 2 and hereinafter described.

The drum **24** together with a smaller drum **25** are fixed to a shaft **26** within the housing. Two like large and small drums **28** and **29** are rotatably mounted in the housing beneath the drums **24—25**. Between the drums **24—25** and **28—29** within the housing **11** is a hollow, bottom-slotted arm **30** including a threaded rod **32** connected at one end by a universal joint **33** to a stub shaft **34** rotatably mounted in the housing. The rod is journaled at its ends in the arm and has a nut **36** threaded thereto and extending downwardly and outwardly at **38** through a slot in the arm. Cables **40** anchored to the free end of the arm extend upwardly and are wrapped partially about and anchored to the drum **25**. Cables **42** anchored to the portion **38** of the nut extend downwardly and are wrapped partially about and anchored to the drum **29**.

The drums **28—29** are constantly biased anti-clockwise (Fig. 2) by the following described resilient means mounted within the base **10**. A pair of tension springs **44** are anchored at one end each to the base at **46**. Cables **48** connected to the other ends of the springs extend over sheaves **50** and from thence are connected to a yoke **52**. A cable **54** connected to the yoke extends over a sheave **56** and from thence it is wrapped partially about and anchored to the drum **28**.

It will now be apparent that the springs **44** constantly bias the drums **28—29** to rotate anti-clockwise. This action operating through the cables **42** places a constant downward pull on the arm **30** which functioning through the cables **40** places a constant clockwise bias on the drums **24—25**. Thus the springs are adapted to counterbalance the weight of the carrier **12** together with its load. The placing of a load on the carrier will cause it to descend. In order to compensate for increased load upon the carrier and counterbalance it to the desired dispensing position, the operator has only to rotate the shaft **34** as by means of the handle **58**. Such rotation advances the nut **36** in one direction or the other along the arm **30**. When compensating for increased load the nut will be advanced in a direction away from the pivot **33**, thus increasing the effective down pull of the cables **42** on the drum **24** and rasing the carrier. As will also be apparent, the novel mechanism provides such compact arrangement of the parts as substantially to reduce the vertical space otherwise required in the serving unit.

Having thus disclosed my invention what I claim as new and desire to secure by Letters Patent is:

1. Serving mechanism comprising in combination a frame, a carrier supported for vertical movement in the frame, a drum rotatably mounted in the frame, flexible cable means connected to the carrier and so anchored to and variably stored on the drum that rotation of the drum in one direction raises the carrier and rotation thereof in the other direction lowers the carrier, a second drum rotatably mounted in the frame beneath the first drum, means other than said cable means rotatably connecting the drums, and means including resilient means normally operative on the second drum to rotate it and the first drum in directions to raise the carrier.

2. The serving mechanism defined in claim 1 in which said means rotatably connecting the drums includes means for varying the amount of cable pull applied from the second drum to the first drum.

3. The serving mechanism defined in claim 1 in which said means connecting the drums includes an arm pivoted to the frame between the drums and cables respectively

connecting the arm to each drum and so disposed about the rotary axes of the drums that pivotal movement of the arm effects rotation of the drums.

4. The serving mechanism as defined in claim 3 in which the connection from one of the drums to the arm includes a member adjustable along the arm.

5. The serving mechanism defined in claim 1 plus a smaller drum fixed to and coaxial with one of the first named drums, said means rotatably connecting the drums including a cable anchored to and variably stored on and about the smaller drum.

6. The serving mechanism defined in claim 5 plus a second smaller drum fixed to and coaxial with the other of the first named drums, said means rotatably connecting the drums including a cable anchored to and variably stored on and about the second smaller drum.

7. The serving mechanism defined in claim 6 in which said means rotatably connecting the drums includes means disposed between the two smaller drums for varying the amount of cable pull applied from the second smaller drum to the first smaller drum.

8. Serving mechanism comprising in combination, a frame, a carrier supported for vertical movement in the frame, a drum rotatably mounted in the frame, flexible cable means connected to the carrier and so anchored to and variably stored on the drum that rotation of the drum in one direction raises the carrier and rotation thereof in the other direction lowers the carrier, a smaller drum fixed to and coaxial with the first named drum, a cable anchored to and variably stored on and about the smaller drum, and resilient means connected to the last named cable and normally operative therethrough to rotate the drums in a direction to raise the carrier.

9. The serving mechanism defined in claim 8 plus means between and connected to the resilient means and cable for varying the drum rotating pull of the resilient means on the cable.

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