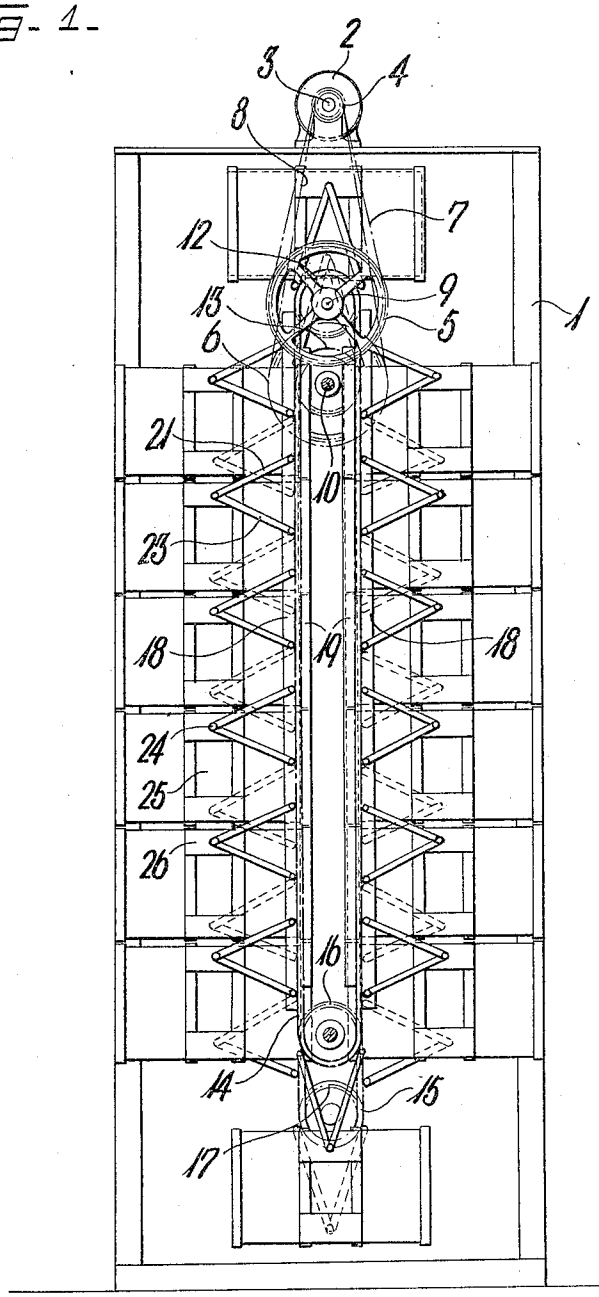
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ROTARY SAMPLE OR STOCK CASE STACK

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Fig. 1.



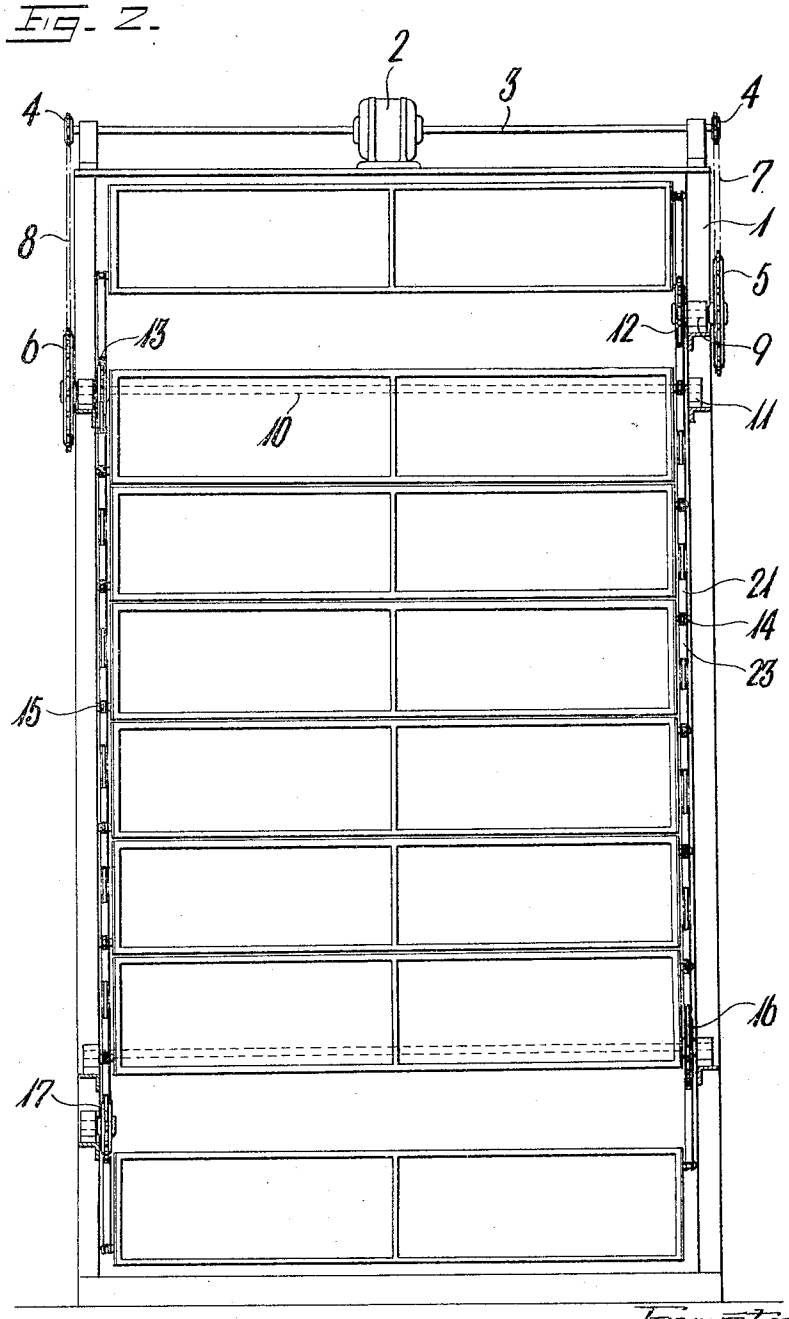

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ROTARY SAMPLE OR STOCK CASE STACK

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Fig. 2.




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Fig. 3.

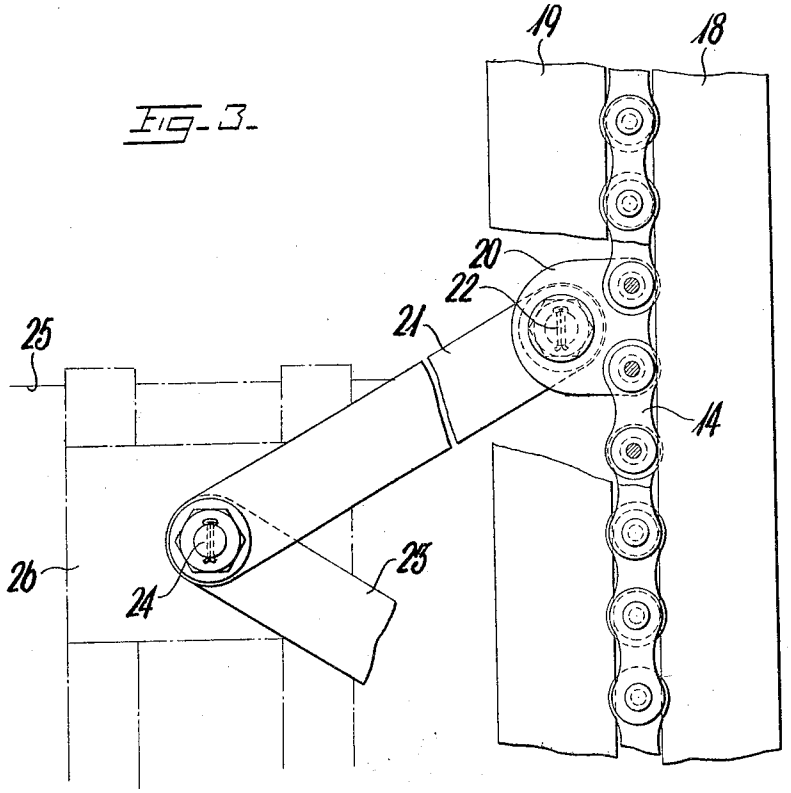
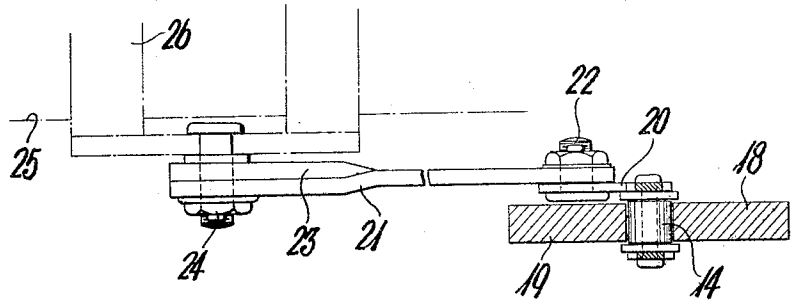



Fig. 4.




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Fig. 5.

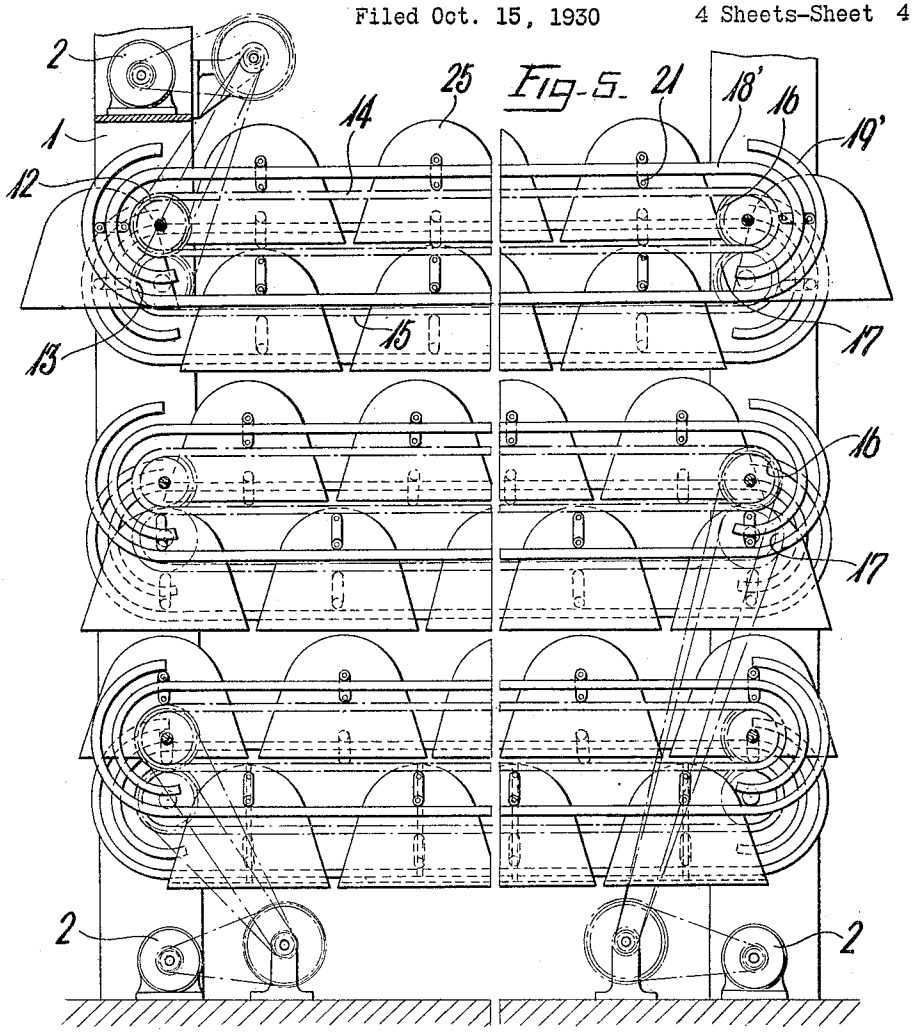



Fig. 7.

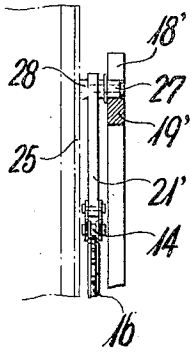
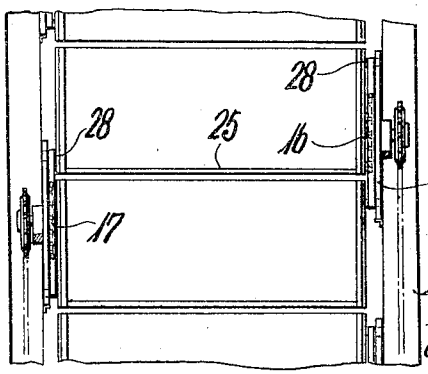



Fig. 6.




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# UNITED STATES PATENT OFFICE

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## ROTARY SAMPLE- OR STOCK-CASE STACK

Application filed October 15, 1930. Serial No. 488,836.

The present invention relates to an improved form of a rotary sample- or stock-case stack which substantially comprises a plurality of cases arranged vertically or horizontally in an outer framework, each being suspended by a pair of electrically or hand-driven endless link chains running along two opposites of said framework, so that the cases make a positive vertical or horizontal cyclic motion. The object of the invention is to provide a novel type of case-stack which is easy to handle and of access and in which the space required for installation can be fully utilized.

In a stationary case-stack hitherto known, we must stoop down in handling the lower cases, while a footstool or ladder is often required for reaching the upper cases, which results in a considerable waste of time and labor. These defects can be wholly removed by the present invention, in which any case can be brought at will to a position most convenient for handling.

In respect of space economization the present invention is decidedly an improvement on the old stationary type, as it enables us to utilize fully any retired space, such as the space near the ceiling, the space under floor or of a recess, etc. This utilization of space can be effected in a horizontal or vertical direction, as it is not necessary to leave any space between two adjacent cases, the cases being closely juxtaposed and pivotally jointed by means of levers to the endless link chains.

A vertical stock-case stack can be set up directly against the wall without leaving any passage between its back and the wall, for the set of cases in the rear side can be handled from the front. Two sets of vertical case-stack, each provided with two rows of cases, can be installed back to back. In this case only two passages instead of three are required for each front.

When a number of horizontal case-stacks are arranged one upon the other, they may be handled from the front or rear passage; consequently a further space economization can be effected, as compared with the vertical type, the number of passages being considerably reduced.

The case-stack according to the present invention can be used with advantage as a book stack or card-case stack in a library, a show-case, a stock-case for shoemakers, a stock-case for spare parts of motor-cars, a stock- or sample-case for apothecaries, for dealers in provisions, and the like. The stack may also be applied for posters, show-cards for advertising, for cyclic exhibition of pictures, photographs, etc.

Practical application of this invention will now be fully described by way of example in reference to the accompanying drawings, in which Fig. 1 is a side elevation of a vertical case-stack, Fig. 2 a front elevation of same, Fig. 3 an enlarged side elevation of the connection parts of the case and link-chain, Fig. 4 a plan of same. Fig. 5 a modification in which the link-chains are horizontally disposed, Fig. 6 a front elevation of same, and Fig. 7 an enlarged front elevation of part of same.

On the top of the outer framework (1) an electric motor is set up, the shaft of which extends horizontally in both directions beyond the framework and has at its both ends a pair of chain-wheels (4) keyed thereto. Another pair of chain-wheels (5) (6) are mounted on the frames. The endless chains (7) (8) engage the chain-wheels (4) (5) and (4) (6) respectively. The shaft (10) of the chain-wheel (6) is disposed a little lower than the shaft (9) of the chain-wheel (5) and is supported at its other end by a bearing (11) secured to the frame on the opposite side. The sprocket-wheels (12) (13) are keyed to the shafts of the chain-wheels (5) (6) respectively. Just below the sprocket wheels (12) (13) another pair of sprocket-wheels (16) (17) are supported by the frame, the sprocket-wheel (17) being positioned a little lower than the sprocket-wheel (16), so that the interval of elevation between the sprocket-wheel (12) and (13) is made equal to that between the sprocket wheel (16) and (17). The endless link-chains (14) (15) equal in length engage the sprocket-wheels (12) (16) and (13) (17) respectively.

Two pairs of parallel guide rails (18) (19) are laid on both sides of the frame work, so

that said endless link chains pass through the space between the guide rail (18) and (19) as clearly shown in Figs. 1, 3 and 4.

To the link at regular intervals of said endless chain a supporting plate (20) is secured, to which a supporting bracket or lever-arm (21) is jointed. The other end of said lever-arm (21) is jointed to the corresponding end of the adjacent supporting bracket or lever-arm (23) by bolt and nut (24), the bolt carrying the frame (26) of the case (25).

It will be noted that the levers (21) (23) carried by the chain 14, for example, are connected to the carrying frame 26 adjacent its upper portion at one end thereof, while the levers (21) (23) carried by the chain 15 are connected to the carrying frame adjacent its lower portion at the opposite end thereof, and that the intervals of elevation between the points of connection of the levers (21) (23) at the respective ends of the carrying frame 26 are substantially equal to the interval of elevation between the axial lines of rotation of the shafts 9 and 10 and the shafts supporting the sprocket wheels 16 and 17.

By such an arrangement, and by reason of the pivotal connections between the levers (21) (23) at their points of connection with the carrying frame and the endless chains, it will be observed that the points of connection of the levers (21) (23) with the carrying frame 26 will maintain their relative positions in a vertical plane extending lengthwise of the carrying frame, and provide a support, at spaced intervals of elevation, to prevent tilting or swinging of the carrying frame and case, which might otherwise result from a one sided or top heavy load contained in the case.

The case (25) is provided with the outer skeleton frame (26) of any suitable form. The upper and lower cases are supported by the levers as closely as possible.

In a modification shown in Fig. 5–7 the both ends of the guide rails (18′) (19′) are of arcuate form, the middle part of same which is not wanted, being removed. The roller (27) mounted on the shaft (28) which is secured to one end of the lever (21′) fixed to the link chain, glides on said guide rails. In this modification the case is supported by said shaft (28).

I claim:

1. In a device of the class described, the combination of a frame work, pairs of sprockets mounted on the respective sides of said frame work, the sprockets of one of said pairs being positioned in a different horizontal plane from the sprockets of the other of said pairs, endless link chains trained around the respective pairs of sprockets, carrying cases, and a plurality of levers operatively connected to said chains and cases for supporting the cases on said chains.

2. A rotary sample- or stock-case stack according to claim 1 characterized by the feature that the endless link-chains carrying the cases are maintained in alignment between the sprockets by two parallel guide-rails laid on the frame-work.

3. A rotary sample- or stock-case stack according to claim 1 characterized by supporting plates carried by said chains and by the feature that one end of the levers is jointed to the supporting plate secured to the endless link chain, and the other end to the carrying case.

4. A rotary sample- or stock-case stack according to claim 1 characterized by shafts mounted on said levers and the feature that rollers revolvably mounted on one end of the shaft secured to the lever carried by the endless link-chain are supported by two parallel guide rails horizontally disposed and with both ends in arcuate form.

5. In a device of the class described, the combination of a frame work, a plurality of pairs of sprockets mounted on said frame work, one of said pairs of sprockets being positioned above the other pair, endless link chains of substantially equal length trained around the respective pairs of sprockets, a carrying frame, and supporting brackets carried by the respective chains, the bracket carried by the chain engaging the lower pair of sprockets being pivotally connected to said carrying frame adjacent the lower portion thereof and the bracket carried by the chain engaging the upper pair of sprockets being pivotally connected to said carrying frame adjacent the upper portion thereof.

6. In a device of the class described, the combination of a frame work, a plurality of pairs of sprockets mounted on said frame work at opposite sides thereof respectively, one of said pairs of sprockets being positioned above the other pair, endless link chains of substantially equal length trained around the respective pairs of sprockets, a carrying frame, and supporting brackets carried by the respective chains, the bracket carried by the chain engaging the lower pair of sprockets being pivotally connected to said carrying frame adjacent its lower portion and at one end thereof, and the bracket carried by the chain engaging the upper pair of sprockets being pivotally connected to said carrying frame adjacent its upper portion and at the opposite end thereof.

7. In a device of the class described, the combination of a frame work, a plurality of pairs of sprockets mounted on said frame work, one of said pairs of sprockets being positioned at an interval of elevation above the other pair, endless chains of substantially equal length trained around the respective pairs of sprockets, a carrying frame, and supporting brackets carried by the respective chains, the bracket carried by the

chain engaging the lower pair of sprockets being pivotally connected to said carrying frame at one end thereof and the bracket carried by the chain engaging the upper pair of sprockets being pivotally connected to the opposite end of said carrying frame at an interval of elevation above the pivotal connection of said previously mentioned bracket substantially equal to the interval of elevation between the respective pairs of sprockets.

8. In a device of the class described, the combination of a frame work, a plurality of pairs of sprockets mounted on said frame work at opposite sides thereof, one of said pairs of sprockets being positioned at an interval of elevation above the other pair, endless link chains of substantially equal length trained around the respective pairs of sprockets, a carrying frame, and supporting brackets carried by the respective chains, the bracket carried by the chain engaging the lower pair of sprockets being pivotally connected to said carrying frame adjacent its lower portion at one end thereof and the bracket carried by the chain engaging the upper pair of sprockets being pivotally connected to said carrying frame adjacent its upper portion at the opposite end thereof and at an interval of elevation above the pivotal connection of said previously mentioned bracket substantially equal to the interval of elevation between the respective pairs of sprockets.

9. In a device of the class described, the combination of a frame work, a plurality of pairs of sprockets mounted on said frame work at opposite sides thereof, one of said pairs of sprockets being positioned at an interval of elevation above the other pair, endless link chains of substantially equal length trained around the respective pairs of sprockets, a carrying frame, supporting brackets carried by the respective chains, the bracket carried by the chain engaging the lower pair of sprockets being pivotally connected to said carrying frame adjacent its lower portion at one end thereof and the bracket carried by the chain engaging the upper pair of sprockets being pivotally connected to said carrying frame adjacent its upper portion at the opposite end thereof and at an interval of elevation above the pivotal connection of said previously mentioned bracket substantially equal to the interval of elevation between the respective pairs of sprocket wheels, and a plurality of substantially parallel guide rails positioned on said frame work between the sprockets of the respective pairs and operatively related to said link chains for maintaining the links thereof in substantial alignment throughout their travel between said sprockets.

10. In a device of the class described, the combination of a frame work, a plurality of sprockets mounted at opposite sides of said frame work, endless link chains trained around the sprockets at respective sides of the frame work, the sprockets at one side of the frame work around which one of said chains is trained being positioned in different horizontal planes from the sprockets at the other side of said frame work around which the other link chain is trained, carrying cases, and means operatively connected to said chains and cases for supporting the cases on said chains.

11. In a device of the class described, the combination of a frame work, a plurality of sprockets mounted at opposite sides of said frame work, endless link chains of substantially equal length trained around the sprockets at the respective sides of the frame work, the axial lines of the sprockets at one side of the frame work around which one of said chains is trained being positioned in different planes from the axial lines of the sprockets at the other side of said frame work around which the other link chain is trained, carrying cases, and means operatively connected to said chains and cases for supporting the cases on said chains.

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