W. E. PEDRICK.

STACKING MECHANISM.

APPLICATION FILED DEC. 31, 1917.

1,292,642.

Patented Jan. 28, 1919.

3 SHEETS—SHEET 1.

FIG. 1.

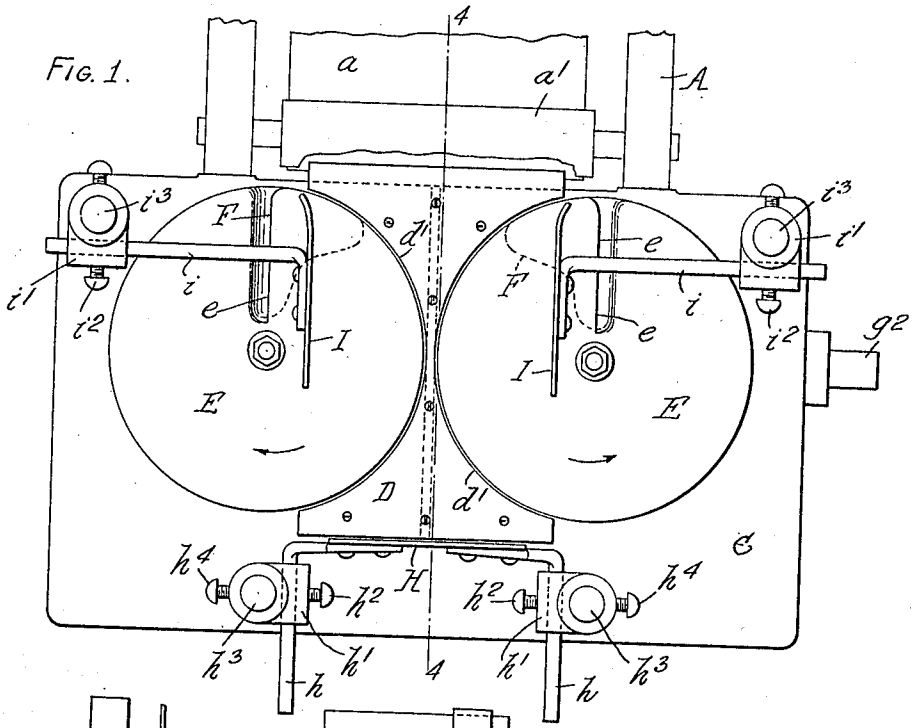
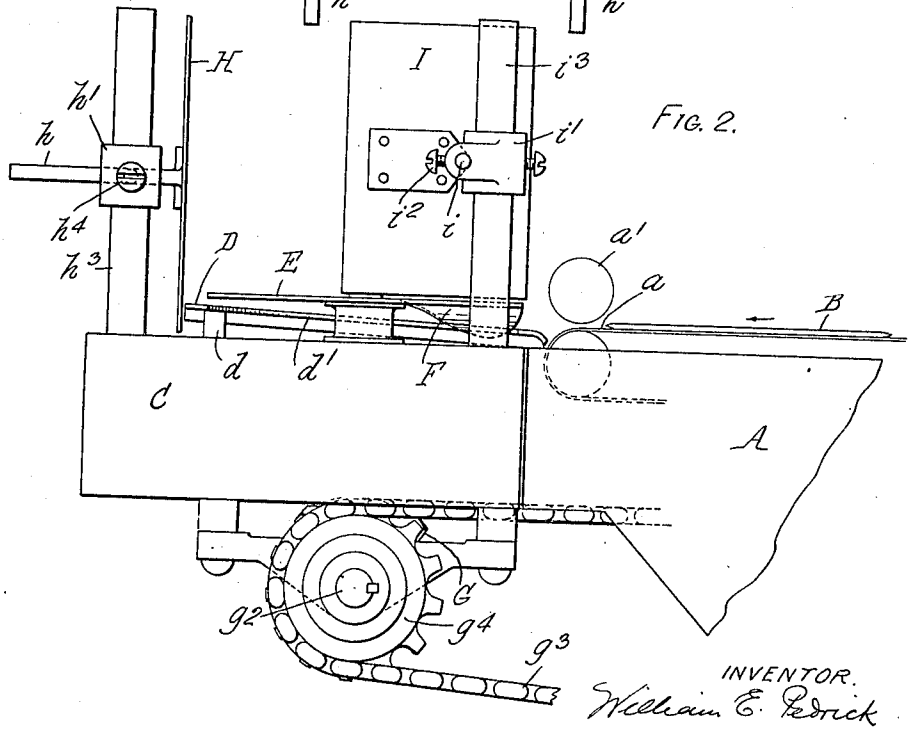


FIG. 2.



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3 SHEETS—SHEET 2.

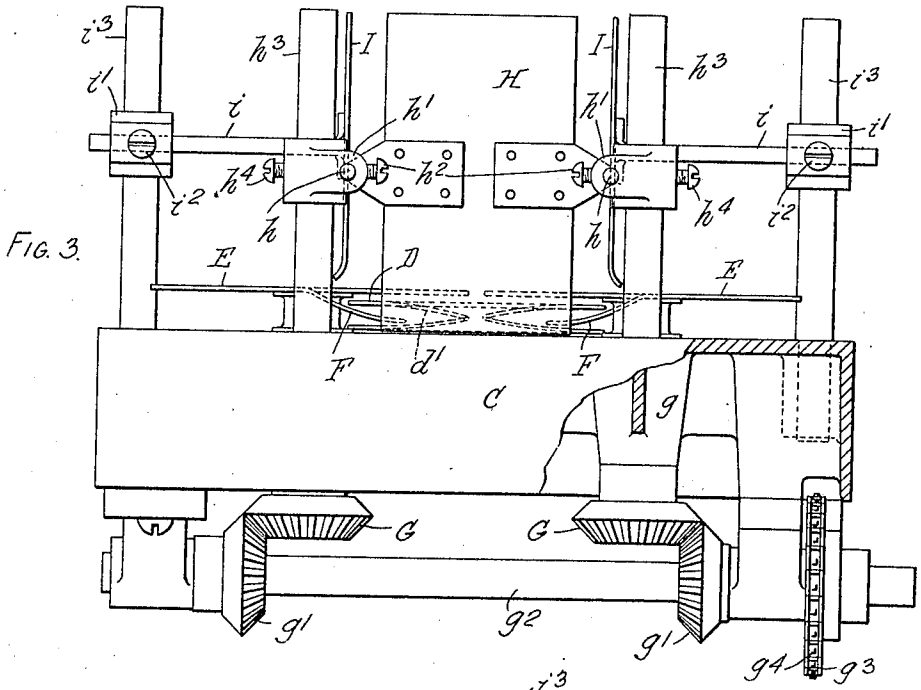


FIG. 3.

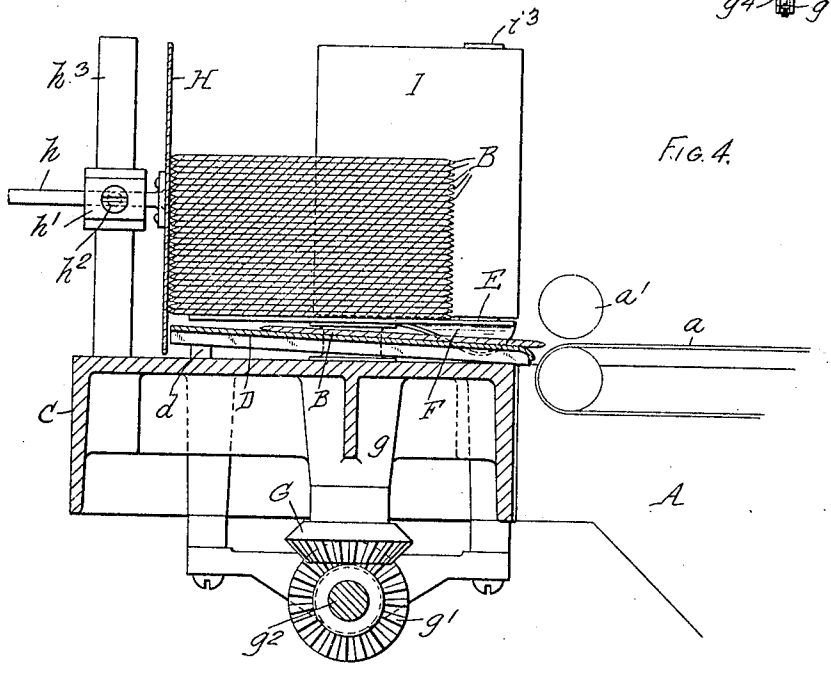


FIG. 4.

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3 SHEETS—SHEET 3.

FIG. 5.

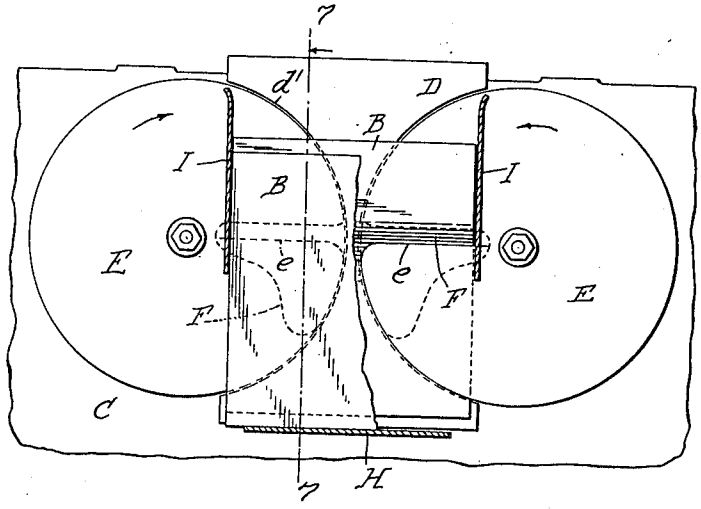
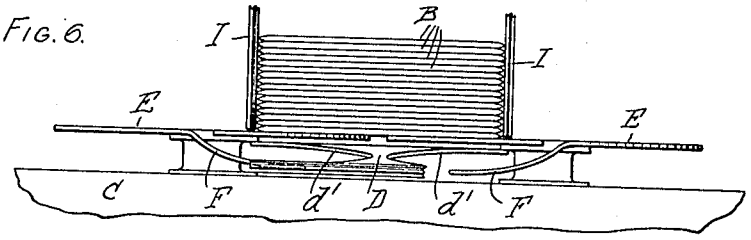


FIG. 6.



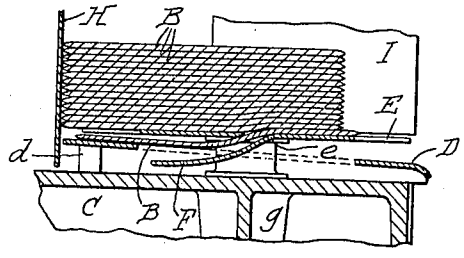


FIG. 7.

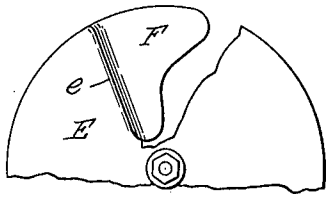


FIG. 8.

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UNITED STATES PATENT OFFICE.

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STACKING MECHANISM.

1,292,642. Specification of Letters Patent. Patented Jan. 28, 1919.

Application filed December 31, 1917. Serial No. 209,673.

To all whom it may concern:

Be it known that I, WILLIAM E. PEDRICK, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Stacking Mechanisms, of which the following is a specification.

This invention relates to mechanisms for arranging articles in a stack, and more particularly to mechanisms of this kind which are adapted to place articles one at a time on the bottom of a stack of articles.

One of the objects of the invention is to produce a mechanism of this kind of improved construction which is particularly adapted to operate on catalogues, periodicals or analogous articles immediately after the same have been inclosed in a wrapper or envelop, so that the weight of the stacked articles will serve to insure the proper joining of the glued parts of the envelop or wrapper.

Other objects of the invention are to provide a compact and efficient mechanism of this kind which will be reliable in operation and which will not in any way injure the articles; also to improve the construction of mechanism of this kind in other respects hereinafter specified.

In the accompanying drawings:

Figure 1 is a top plan view of a stacking mechanism embodying the invention, showing the same arranged on a machine which discharges the articles to be stacked.

Fig. 2 is a side elevation thereof.

Fig. 3 is a rear elevation thereof, partly in section.

Fig. 4 is a longitudinal sectional elevation thereof on line 4—4, Fig. 1.

Fig. 5 is a fragmentary plan view thereof, partly broken away.

Fig. 6 is a fragmentary front elevation thereof.

Fig. 7 is a fragmentary longitudinal sectional elevation thereof on line 7—7, Fig. 5.

Fig. 8 is a top plan view of one of the stacking disks partly broken away to show the lip for placing the articles in the stack.

The stacking device shown in the drawings and which embodies the invention is shown as arranged on the discharge end of a machine for placing or forming envelops or wrappers about catalogues, magazines, or other articles, but it is not intended to limit the stacking mechanism to use in connection with a machine of this kind nor to be used for stacking catalogues or magazines, since the mechanism can operate equally well on other articles.

A represents the frame of a machine from which the articles to be stacked are delivered by means of a conveyer or the like *a*. A roller *a'* is preferably arranged above the conveyer so as to engage the articles B as they are discharged from the end of the conveyer and positively feed the same to the stacking device. These parts may be of any suitable or desired construction. The stacking device has a frame or base C of any suitable structure on which the several parts of the stacking device or mechanism are mounted and which is preferably rigidly secured to the frame A in any suitable manner.

D represents a support or receiving plate for the articles to be stacked which is suitably mounted on the base C and is arranged in operative relation to the discharge end of the conveyer *a*. The receiving plate D as shown in the drawings is slightly inclined, being higher at the rear end of the device than at the front end thereof, and in the construction shown is supported from the base by means of lugs or feet *d* which are suitably secured to the base and to the plate D. The receiving plate is arranged slightly below two stacking or stack supporting disks or members E and preferably is cut away at *d'* to correspond approximately to the circumference of the disks. A plate or member of any other suitable construction for supporting the articles to be stacked may be provided.

The stacking members or disks shown in the drawings are made with flat upper surfaces which are preferably polished or otherwise finished so as to reduce the friction between the rotating disks and the stack of articles supported thereby. The disks are arranged with their axes at the sides of the stack and rotate in opposite directions, as indicated by arrows in Fig. 1, the stack being supported on those portions of the disks nearest to the center of the stack. The upper surfaces of the disks are practically unbroken except for radial slots *e* arranged in the disks, one slot being provided for each disk in the construction

shown, the slots being so arranged that the same will move in unison but in opposite directions. The disks are preferably provided at their lower faces with lips or tongues F which form substantially a continuation of one of the edges of the slot and extend below the article-receiving plate D and are so shaped as to engage the lower surface of an article on the receiving plate D and deflect the article upwardly as the disks rotate to cause the same to pass through the slots in the disks and thus position the article on the upper face of the disks and on the bottom of the stack supported thereon. The lip F is preferably formed about as shown in Fig. 7 and inclines gradually toward the level of the disk so as to raise the article from the supporting plate to the upper side of the disk gradually and without creasing or injuring the article. The disks E may be rotated by any suitable means. In the construction shown the disks are secured to shafts or rods suitably journaled in bearings g formed in the base or frame C, the lower ends of the shafts being provided with beveled gears G. The gears G mesh with beveled gears g' arranged on a transverse shaft g^2, which may be driven from any suitable source of power by means of a sprocket chain g^3 engaging a sprocket wheel g^4 secured on the transverse shaft g^2. When the stacking mechanism is used in connection with a machine which delivers the articles to be stacked to the stacking mechanism, the sprocket chain g^3 is preferably connected with the machine which delivers the articles to be stacked, and the machine and stacking mechanism are preferably connected to operate at such relative speeds as to cause the disks to pick up the articles from the receiving plate as soon as they are placed thereon by the conveyer a. Any other means for driving the rotary disks may be employed.

Means are preferably provided for guiding the stack of articles. In the construction shown for this purpose, a back or stop plate H is preferably provided which is arranged in rear of the receiving plate D and the disks E and against which the rear ends of the articles are pushed by the rotation of the disks. The plate H in the construction shown is provided with rearwardly extending rods or arms h which are preferably adjustably secured in bushings or sleeves h^1 by means of set screws h^2, the bushings or sleeves being adjustably mounted on upright rods h^3 secured to the base C of the stacking device, and may be held in place by means of set screws h^4 or other suitable means. This plate acts as a stop to limit the rearward movement of an article while being positioned on the receiving plate D and also stops the rearward movement of the articles due to the rotation of the disks E.

The stack of articles is held against lateral displacement by means of side plates or guides I, which, in the construction shown, are provided with arms or rods i adjustably held in bushings i' by means of set screws i^2 in such a manner as to permit the side plates to be adjusted toward and from each other to adapt the device to operate on articles of different sizes. The bushings i' are preferably adjustably secured to upright arms i^3 and are also rigidly secured to the frame or base C of the stacking mechanism.

By means of the stacking mechanism described, articles can be readily arranged in a stack, and when the articles to be stacked are delivered from the machine which wraps the same in an envelop or the like, then the arrangement of the articles at the bottom of the stack serves to insure the proper joining of the freshly glued parts to the wrapper or envelop. The construction is such that the article will not in any way be injured by the stacking mechanism, the mechanism being capable of handling articles freshly wrapped and will not displace or disarrange the wrapper or envelop even before the glue is thoroughly dried thereon. The mechanism described is simple and efficient in construction and contains no parts which are likely to become broken or worn out.

I claim as my invention:

1. In a mechanism for stacking articles, the combination of a pair of disks rotating in unison and in opposite directions, slots in said disks adapted to move into alinement, a stationary table arranged below the adjacent portions of said disks, means for feeding an article to said table, and parts on said disks for passing an article from said table through said slots to the upper face of said disks, said table being cut away on its opposite sides to receive said parts of the disks.

2. In a mechanism for stacking articles, the combination of a pair of rotary disks having substantially flat upper surfaces adapted to support a stack of articles, means for feeding said articles beneath said disks and beneath said stack, slots in said disks, parts on said disks adapted to engage an article and cause the same to pass upwardly through said slots to the bottom of said stack and means for holding said articles on said disks whereby the entire weight of said articles is supported on said disks.

3. The combination of a pair of substantially flat disks rotatable in opposite directions, said disks constituting the sole support for a stack of articles, slots in said disks, means on said disks which engage an article placed below the disks and cause the article to be moved to the upper side of the disks by the rotation of said disks and means adapted to engage the sides of a

stack of articles for holding the stack so that the entire weight thereof is supported by said disks.

4. The combination of a pair of substantially flat disks rotatable in opposite directions and arranged in proximity to each other, the upper surfaces of said disks supporting a stack of articles, a stationary article-receiving member arranged below the adjacent portions of said disks, means for feeding articles to said member, and projections on said disks adapted to engage the lower sides of an article for raising an article from said member and placing the same on said disks, said stationary member having parts cut away to permit said projections to pass underneath the article.

5. The combination of a pair of substantially flat disks rotatable in opposite directions in close proximity to each other, the upper surfaces of said disks supporting a stack of articles, a stationary article-receiving member arranged below said disks, means for feeding articles to said member, lips on said disks extending below said receiving member and adapted to raise the article from said member and placing the same on said disks, said stationary member having parts cut away to permit said lips in their rotation to pass underneath said article.

6. The combination of a pair of substantially flat disks rotatable in opposite directions and arranged in close proximity to each other, the upper surfaces of said disks supporting the entire weight of a stack of articles, said disks rotating in opposite directions in unison and having substantially radial slots therein which are in alinement once during each revolution of the disks to form a substantially continuous slot, means for feeding an article into a position below said disks, and means for passing an article through said slots from below said disks to the upper surfaces thereof.

7. The combination of a pair of substantially flat disks rotatable in opposite directions, the upper surfaces of said disks supporting the entire weight of a stack of articles, a stationary article-receiving member arranged below said disks, a conveyer for feeding articles to said receiving member, means on said disks for raising said articles from said member and placing the articles on the upper surfaces of said disks and means for supporting the stack of articles on said disks independently of said conveyer.

8. In a mechanism for stacking articles, the combination of a pair of stacking members rotatable in opposite directions and adapted to support the entire weight of a stack of articles, the upper surfaces of said members being polished to enable said members to move relatively to said stack, means for feeding articles into operative relation to said stacking members, means for guiding said stack to hold the same in proper position on said members independently of said feeding means, and means actuated by the rotation of said disks for placing articles on the bottom of said stack.

9. In a mechanism for stacking articles, the combination of a pair of stacking members rotatable in unison in opposite directions and adapted to support a stack of articles, each of said stacking members having a substantially radial slot, said slots being in alinement once during every revolution of said disks to form a substantially continuous slot, a lip on each of said members which forms substantially a continuation of one edge of said slot and which extends forwardly in the direction of rotation of the member and which is adapted to engage an article arranged below said members and to cause the same to pass through said slots by the rotation of said members, and means for feeding articles to be stacked into operative position below said members.

Witness my hand this 26 day of Dec., 1917.

WILLIAM E. PEDRICK.

Witnesses:
HAL. E. PUFFER,
F. W. EVANS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."