E. SHEPARD.

CONTAINER STITCHING APPARATUS.

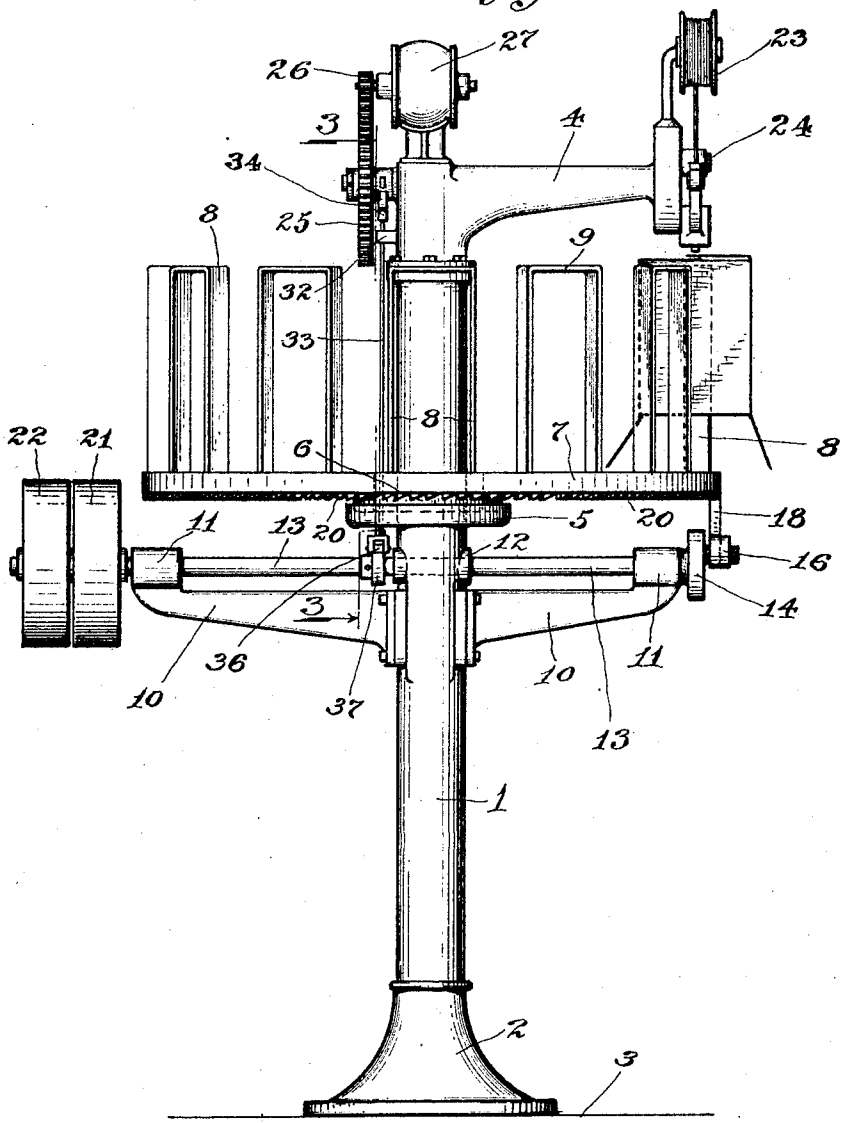
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1,367,721.

Patented Feb. 8, 1921.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

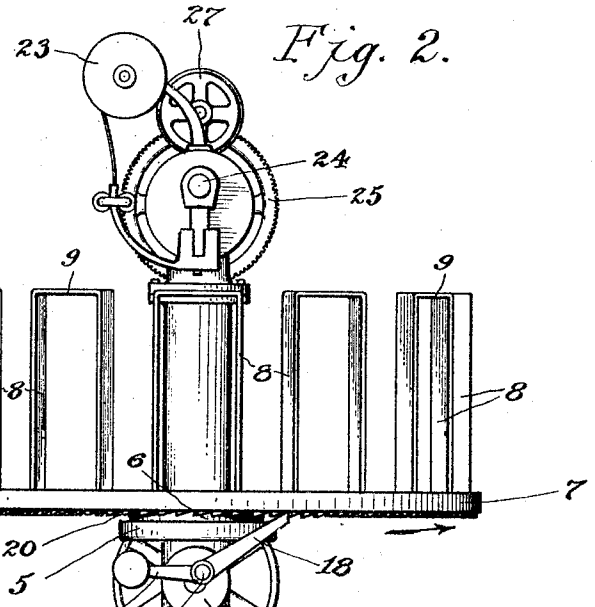


Fig. 3.

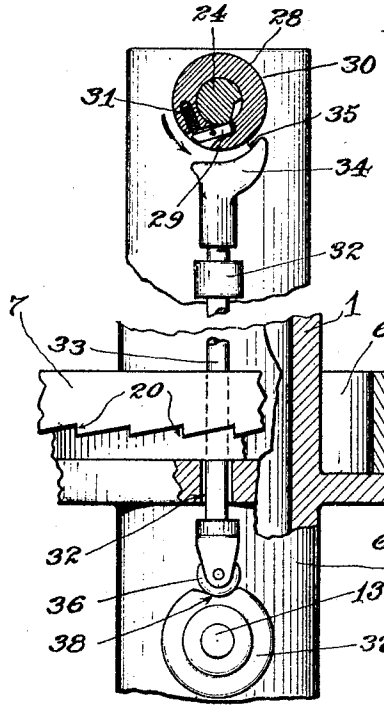
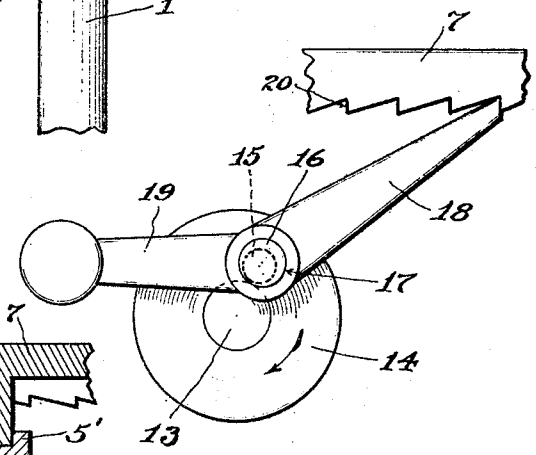


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CONTAINER-STITCHING APPARATUS.

1,367,721. Specification of Letters Patent. Patented Feb. 8, 1921.

Application filed November 12, 1919. Serial No. 337,596.

To all whom it may concern:

Be it known that I, ELLIOTT SHEPARD, a citizen of the United States, residing at Fresno, in the county of Fresno and State of California, have invented certain new and useful Improvements in Container-Stitching Apparatus, of which the following is a specification.

Numerous devices and machines have been constructed for the stitching or stapling of the side and end wall flaps of paper containers, but, in said machines as at present manufactured and used, a well-known type of stitching device is employed, and the containers are placed by an operator within the operative field thereof for stitching, and upon being stitched are removed therefrom, this operation being slow and tedious and not obtaining the maximum capacity of the stitching apparatus as may be desired.

The present invention relates to an improved apparatus whereby the containers to be stitched are automatically positioned within the operative field of the stitching machine, and after being stitched are removed therefrom in rapid succession, the stitching machine and the means for presenting and removing the containers from the operative field thereof being set into operative movement by inter-engaging or co-operating parts.

The particular advantages of the present invention is to provide an apparatus which is capable of operation by a single attendant, and by the use of which, the stapling or stitching of the containers is materially expedited over machines now on the market, thus reducing the cost of manufacturing containers and materially increasing the output of finished containers.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

To more fully comprehend the invention reference is directed to the accompanying drawings, wherein,

Figure 1 is a view in side elevation of the preferred embodiment of my invention.

Fig. 2 is a view in detail of the container supporting table, this view being taken at right angles to the view illustrated in Fig. 1.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1, and

Fig. 4 is an enlarged view of the pawl co-operating with the ratchets on the under-face of the table.

In the drawings, 1 indicates a suitable table or pedestal having a flanged base 2, adapted to rest on a support 3, preferably the floor of a room. Extending laterally from the upper end of the standard or pedestal 1 is a laterally disposed arm 4 of any suitable construction, and said pedestal or standard is provided approximately midway of its length with an annular bearing flange 5, having an upstanding rim 5′ in which rests the flange 6 extending downwardly from the edge of an opening 6′ in the center of a substantially circular table 7. If desirable, anti-friction devices may be positioned between the flanges 5 and 6. The table 7 is of a diameter to preferably extend to a point beneath the terminus of the arm 4, and said table carries on its upper surface adjacent its peripheral edge, the container supporting frames 8, which are inverted U-shaped in plan, with the upper ends connected to the legs thereof by a rectangular joint affording an anvil 9 at the upper end of each frame 8.

Extending laterally from opposite sides of the pedestal or standard 1 beneath the table 7 are the shaft supporting arms 10, formed in their outer ends with alined bearing openings 11, which are in alinement with bearing openings 12, formed at diametrically opposite points in the side wall of the standard or pedestal 1. A suitable shaft 13, rotates in said bearings 11 and 12 and carries at one end a suitable disk 14, outwardly from which extends a fulcrum pin 15, said pin being arranged eccentrically of the shaft 13, and the pin operates in a bushing 16, carried by a bore 17, formed in a pawl 18 laterally from the fulcrum point of which extends a weighted arm 19. The point of coöperation between the pin 15 and bushing 16, is illustrated as being eccentric to the opening 17, thus the rotation of the bushing 16 within the opening 17 will vary the distance between the end

of the pawl 18 and its point of fulcrum and thus by this adjustment, the movement of the member with which the pawl 18 coöperates is capable of being varied.

Adjacent the periphery and on the under-surface thereof, said table 7 is formed with a plurality of ratchet teeth 20 with which the free end of the pawl 18 coöperates on the rotation of the shaft 13, thus, on each complete rotation of the shaft 13 it will be apparent that the table 7 is rotated a predetermined distance in the direction of the arrow, Fig. 2. On its opposite end the shaft 13 carries the band wheels 21 and 22, one of which is an idler to the other drive wheel adapted to be driven by power from any suitable source.

On the outer end of the overhanging arm 4, as illustrated in Figs. 1 and 2, is positioned a container stitching machine preferably of that type known and capable of being purchased on the open market, as the Morris paper container stitching machine, the same being indicated in its entirety by the numeral 23, and inasmuch as said machine is of the well-known type, and the details of construction thereof form no patentable part of the present combination, it is not deemed necessary to describe the details of construction of the same, as it is here illustrated merely in a conventional form. While I illustrate the well-known Morris machine, it is to be understood any other well known form of paper container stitching machine adapting for mounting on the end of the arm 4 may be employed. The container stitching machine 23 is preferably operated by a shaft 24 extending longitudinally of the arm 4, and at its inner end, said shaft supports a gear wheel 25, which is adapted for free rotation around the same and is driven by a pinion 26 on the armature of a motor 27. The gear wheel 25 has a lateral extending hub 28 within which is mounted a pivoted clutch pawl 29, the inner end of which is adapted for engagement with an angular face 30 on the surface of the shaft 24, and said inner end of the pawl 29 is normally inwardly pressed by a coil spring 31, Fig. 3 of the drawings. At such time as the inner end of the clutch pawl 29 is in engagement with the angular face 30, the outer end of said clutch pawl is adapted to project beyond the periphery of the flange 28. Vertically movable in guide-openings 32 and passing upwardly through the opening 6′ in the plate 7 is a clutch pawl release rod or member 33 carrying at its upper end a pawl throw-out finger 34, the inner surface of which is curved in the direction of the rotation of said collar 30, as in Fig. 3 of the drawings, forming what may be termed a cam surface.

On the lower end of said rod 33 is carried an anti-friction roller 36, for riding on the peripheral surface of a cam roller 37 secured to rotate with the shaft 13, and said cam roller is provided on its peripheral surface with a depression 38 in which is adapted to be received the anti-friction roller 36, during such time as the roller and depression are in coöperative engagement.

In the operation of the machine, it will be apparent that power is transmitted to the shaft 13 to rotate the same in the direction of the arrow, Fig. 4 of the drawings, which movement imparts a reciprocating motion to the end of the pawl 18 causing an intermittent movement to be imparted thereby to the table 7, the stroke of said movement being dependent on the position of the bushing 16 within the bore 17. This intermittent movement of the table 7 in the direction of the arrow, Fig. 2, takes place only during a half revolution of the shaft 13, the other half revolution of said shaft drawing said pawl 18 in an inward direction over the ratchets 20. The motor 27 during this rotation of the shaft 13 is operating at high speed to drive the gear 25, and which completes several revolutions to one revolution of the shaft 13, thus when the pawl 18 arrives at its extreme forward movement the depression 38 in the cam 37 lies beneath the roller 36, which permits the rod 33 to drop enabling the clutch pin 29 to engage with its seat 30 to impart operative movement to the shaft 24 during the next revolution of the gear 25, and on the continued further rotative movement of the shaft 13, the roller 36 is raised from the depression 38 forcing the cam surface 35 within the path of rotative movement of the clutch pawl 29 which maintains said clutch pawl out of engagement with its surface 30 until such time as the depression 38 again coöperates with the roller 36, thus, during each interval of rest of the table 7, a stitch is made in the container which has been previously positioned over the frame on the table which is now in operative relation with the stitching machine 23. It will be observed that the containers are placed in an inverted position over the frames 8, and that in clenching the stitches or staples the surface 9 of the frame forms an anvil as in Fig. 1 of the drawings.

Having thus described my invention what I claim is:

1. A paper container stitching or stapling apparatus, the same comprising a rotatable supporting table provided adjacent its periphery with a plurality of upstanding container supporting frames, a portion of each of said frames providing a stitching clenching anvil, an arm overlying said table, a stitching machine supported by said arm in coöperative relation with the anvil portions of said frames, a continuously operating motor for operating said stitching machine, a clutch between the stitching machine and

motor, mechanism for imparting a step rotation to said table to present successive frames in coöperative relation to said stitching machine, and means actuated by said table rotating mechanism for throwing said clutch into engagement whereby said stitching machine is operated during the intervals of rest of said table.

2. A paper container stitching or stapling apparatus, the same comprising a supporting standard formed at its upper end with a laterally disposed arm, a supporting table carried by said standard beneath said arm and rotatable about said standard, a plurality of spaced upwardly extending container supporting frames carried by said table, the upper ends of said frames each providing a stitching clenching anvil, a stitching machine carried by said laterally disposed arm, means for operating said stitching machine including a clutch and a continuously operating motor, mechanism for imparting a stepped rotation to said table to present successive frames beneath said stitching machine, and means associated with table rotating mechanism for causing the engagement of the clutch for connecting said motor and stitching mechanism for operating said stitching machine during the intervals of rest of said table.

3. A paper container stitching or stapling apparatus, the same comprising a supporting standard formed at its upper end with a laterally disposed arm, a supporting table carried by said standard beneath said arm and rotatable about said standard, a plurality of spaced upwardly extending container supporting frames carried by said table, the upper ends of said frames each providing a stitch clenching anvil, a stitching machine carried by said laterally disposed arm, said table formed on its under surface with a plurality of radial teeth, a shaft beneath the table, a pivoted pawl eccentrically mounted on said shaft and coöperating with said teeth on the rotation of said shaft to impart a step by step rotation to said table, a driven shaft associated with said stitching machine, a motor for operating said shaft, a single revolution clutch connection between said motor and shaft, and a connection between said first shaft and said second shaft whereby said clutch is released from engagement with its shaft during the movement of the table.

4. A paper containing stitching or stapling apparatus, comprising a supporting standard formed at its upper end with a laterally disposed arm, a horizontally disposed table supported by said standard and rotatable about the same, said table provided on its under-surface with a plurality of ratchet teeth, a pawl coöperating with said table, a rotatable shaft on the end of which said pawl is eccentrically mounted for pivotal movement, a cam carried by said shaft, a plurality of container supporting frames positioned on the upper surface of said table in spaced relation to each other and the upper end of each frame providing a container stitch clenching anvil, a stitching machine carried by said arm and overlying the path of movement of said frames, a shaft extended through said arm and connecting with said stitching machine and operating the same, a motor for operating said shaft, a clutch between the motor and shaft, and a member associated with the cam on the first shaft and coöperating with said clutch to release said clutch at intervals.

In testimony whereof I have signed my name to this specification in the presence of a subscribing witness.

ELLIOTT SHEPARD.

Witness:
HARRY A. TOTTEN.