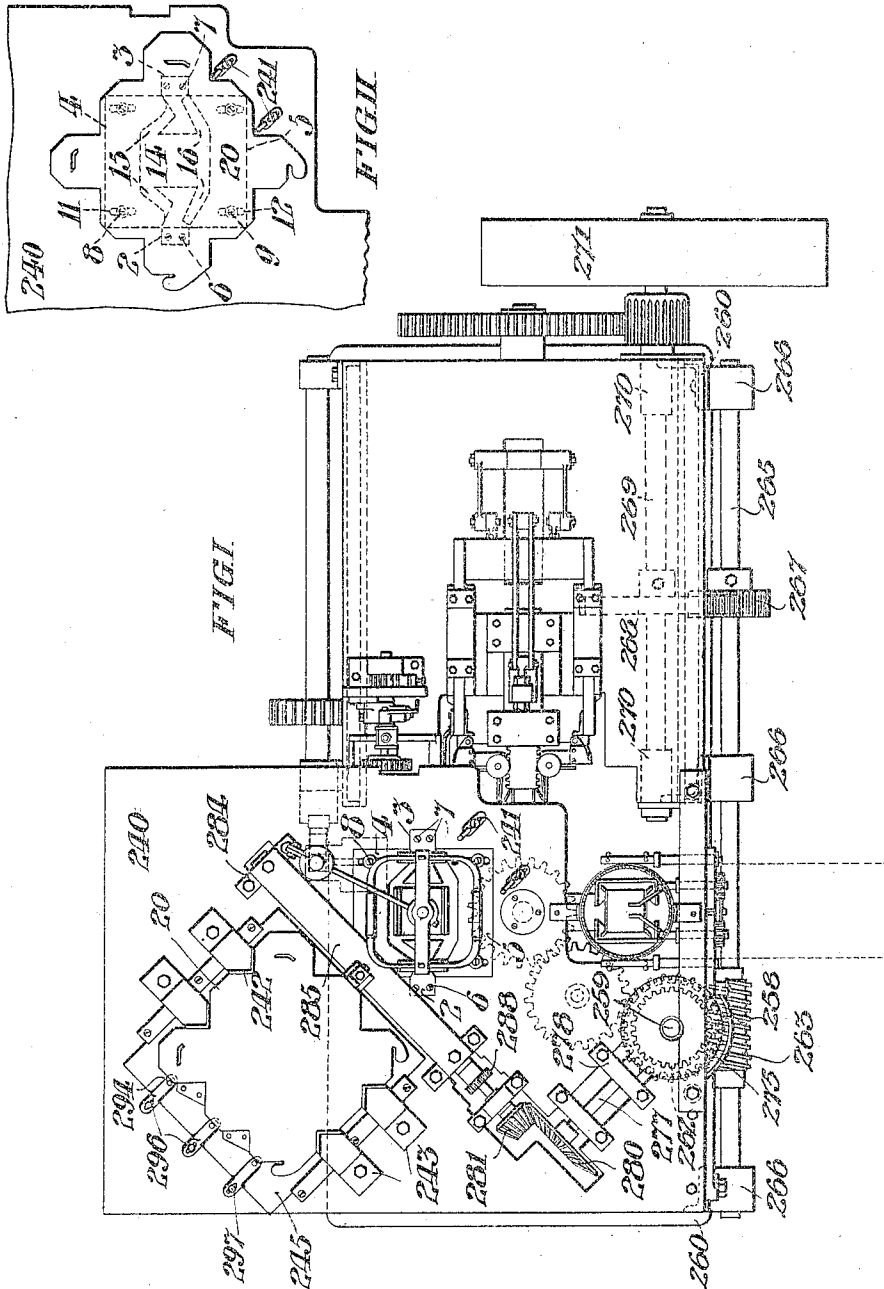


G. W. SWIFT, JR.
 BLANK FEEDING MECHANISM.
 APPLICATION FILED NOV. 13, 1911.

1,065,086.

Patented June 17, 1913.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

FIG. III.

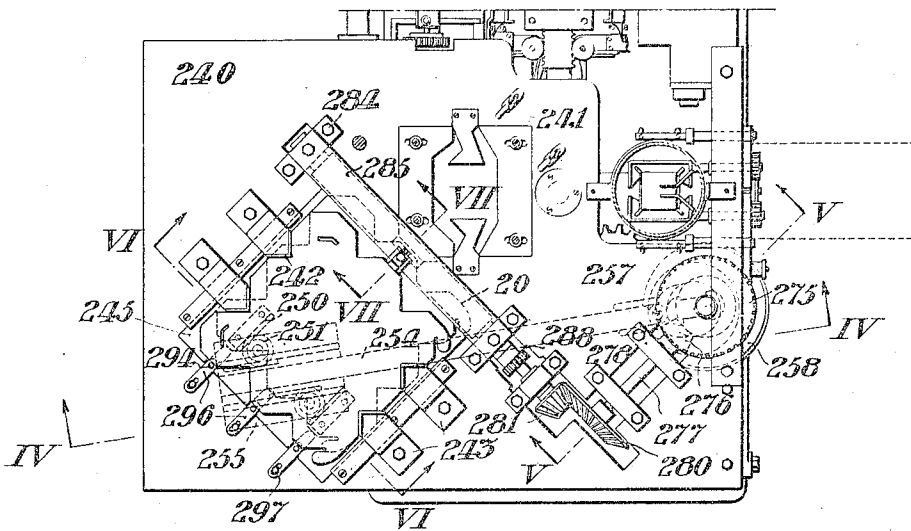


FIG. IV.

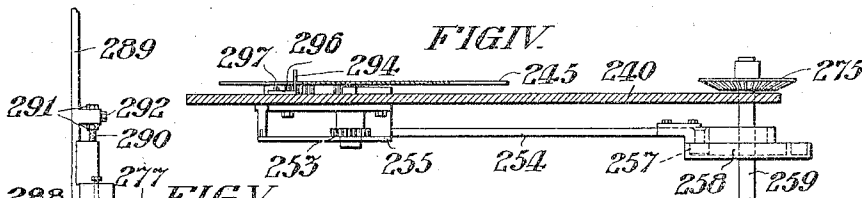


FIG. V.

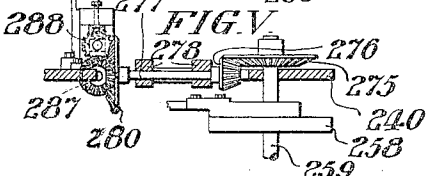


FIG. VI.

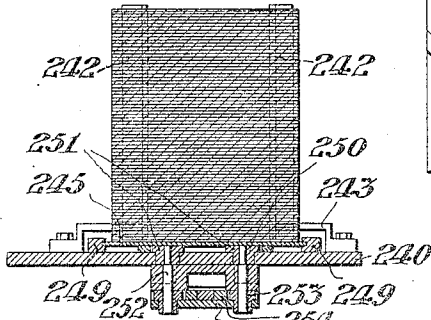
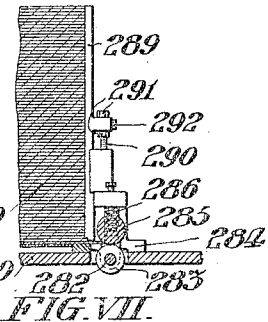
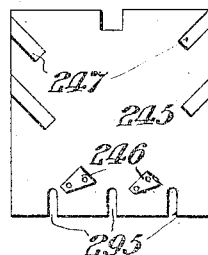


FIG. VIII.



WITNESSES: 255 254

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UNITED STATES PATENT OFFICE.

GEORGE W. SWIFT, JR., OF BORDENTOWN, NEW JERSEY.

BLANK-FEEDING MECHANISM.

1,065,086.

Specification of Letters Patent.

Patented June 17, 1913.

Original application filed September 21, 1911, Serial No. 650,492. Divided and this application filed November 13, 1911. Serial No. 660,085.

To all whom it may concern:

Be it known that I, GEORGE W. SWIFT, JR., of Bordentown, in the State of New Jersey, have invented a certain new and useful Improvement in Blank-Feeding Mechanism, whereof the following is a specification, reference being had to the accompanying drawings.

This application is a division of my application Serial #650,492 filed September 21, 1911, for Letters Patent of the United States for an improvement in mechanism for making paper receptacles of the class described in Letters Patent of the United States #906,485 dated December 8, 1908, such a vessel being seamlessly formed of a single primarily plane sheet and provided with a wire bail handle having its ends clenched through the folds of the vessel so as to retain the same in the desired shape. Said mechanism for making paper receptacles includes a plane table upon which the flat sheet blanks are placed, having a horizontal die opening through which said sheets are successively pressed by a plunger die, the folding of each sheet to proper form being effected by said horizontal die during the downward movement of the sheet there-through. Each receptacle thus thrust through the table is received in a holder of which there are four respectively mounted upon radial arms on a rotary carrier by which they are successively presented to mechanism which provides them with the wire bails aforesaid and mechanism which discharges them upwardly from said holder.

My invention includes the various novel features of construction and arrangement hereinafter described, comprising a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks having marginal flaps, including opposite vertical angle bars fitted between said flaps and having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having abutments upon its upper surface arranged to engage and feed only the bottom blank in said stack, said plate and the bottom ends of said bars being so spaced as to permit passage of but a single blank between them; gear racks on said feed plate; gears engaging said racks; ver-

tical shafts in said gears, having other gears beneath said table; a rack engaging said lower gears and having a cam roller; a cam engaging said roller; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder bars, preventing feeding movement of more than one blank at a time; and, means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

In the drawings: Figure I is a plan view of a machine conveniently embodying my invention. Fig. II is a fragmentary plan view of said horizontal die showing the initial position of the paper blank with respect thereto. Fig. III is a fragmentary plan view of said machine shown in Fig. I omitting the plunger die, etc. Fig. IV is a vertical sectional view, taken on the line IV, IV in Fig. III. Fig. V is a fragmentary vertical sectional view, taken on the line V, V in Fig. III. Fig. VI is a fragmentary sectional view, taken on the line VI, VI, in Fig. III. Fig. VII is a fragmentary vertical sectional view, taken on the line VII, VII, in Fig. III. Fig. VIII is a plan view of the reciprocatory feed plate indicated in Fig. III.

In said figures; the horizontal plane table 240 is provided with the stationary die comprising the four plates 2, 3, 4 and 5; said plates 2 and 3 being rigidly connected therewith by the screws 6 and 7; and said plates 4 and 5 being adjustably connected with said table by the screws 8 and 9 extending through the respective slots 11 and 12 in said plates. As best shown in Fig. II the four plates of said stationary die are so correlated as to afford a vertical opening 14 therethrough having opposite lateral extensions 15 and 16. Said table 240 is provided with the stops 241 adjoining said die, and, a stack holder including opposite vertical angle bars 242 having brackets 243 at their lower ends connecting them with said table; said bars being spaced to hold a stack of said blanks 20 between them. The reciprocatory feed plate 245, best shown in Fig. VIII, extends between the lower ends of said bars 242 and the top of said table 240, being arranged to support said stack which gravitates thereon, and having abutments

246 and 247 upon its upper surface arranged to engage and carry only the bottom blank in said stack, when said plate is moved toward said die; said plate and the bottom ends of said bars 242 being so spaced as to permit the passage of but a single blank between them. Said feed plate 245 is mounted to reciprocate in the bearings 249 on said table 240 and has the gear racks 250 engaging the gears 251 by which it is reciprocated. Said gears 251 are mounted upon the upper ends of the shafts 252 shown in Fig. VI, having at the lower ends thereof the gears 253 engaging the rack 254 which reciprocates on the bearing 255 rigidly connected with said table 240. Said rack 254 is reciprocated by the engagement of its roller 257 in the cam 258 on the vertical shaft 259 which is journaled in the frame 260, and arranged to be continuously rotated by the engagement of its gear 262 with the worm 263 on the horizontal shaft 265 which is journaled in the bearings 266 on said frame 260, and has the gear 267 engaging the gear 268 on the main driving shaft 269 which is journaled in the bearings 270 on said frame 260; and provided exterior thereto with the pulley 271. It may be observed that said shaft 269 is operatively connected with a cam shaft extending parallel thereto and provided with cams and adjunctive means arranged to operate the reciprocatory plunger die and bailing mechanism above mentioned. As shown in Figs. III, IV and V said vertical shaft 259 has the bevel gear 275 at the top thereof engaging the bevel gear 276 on the horizontal shaft 277 which is journaled in the bearings 278 on said table 240, and has the bevel gear 280 engaging the bevel gear 281 on the shaft 282 of the feed roller 283 which is journaled in the bearing brackets 284 on said table 240 beneath the feed roller 285; the latter being pressed into operative relation with the roller 283 by the springs 286 shown in Fig. VII. Said feed roller 283 has the gear 287 engaging the gear 288 on the roller 285 to positively drive the latter. Said feed rollers being continuously rotated in definite relation to the reciprocatory movements of said plunger die and said feed plate 245, catch the blanks 20 as they are successively presented by said plate and feed them into proper relation with the stationary die on said table 240 against said stops 241 shown in Fig. III. The feeding movement of more than one of said blanks 20 at a time is prevented by the vertical gate bar 289 of said stack holder, which is arranged to be raised and lowered in said bracket 284 and may be vertically adjusted by the screw 290 and secured in adjusted position by the nuts 291 and set screw 292 shown in Figs. V and VII, so as to afford passage for single blanks 20 of different

thicknesses beneath it. The outward return movement of said feed plate 245 in frictional contact with the bottom blank in said stack of course tends to displace said bottom blank outward. Therefore, I find it convenient to prevent such accidental displacement of the bottom blank in the stack by vertical pins 294, which extend in the notches 295 in the outer edge of said plate, from base plates 296 which are slotted for adjustment in the direction of the movement of said plate in connection with bolts 297 by which they are secured to said table 240.

I do not desire to limit myself to the precise details of construction and arrangement herein set forth as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined in the appended claims.

I claim:—

1. In mechanism of the class described, a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks having marginal flaps, including opposite vertical angle bars fitted between said flaps and having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having abutments upon its upper surface arranged to engage and feed only the bottom blank in said stack, said plate and the bottom ends of said bars being so spaced as to permit passage of but a single blank between them; gear racks on said feed plate; gears engaging said racks; vertical shafts in said gears, having other gears beneath said table; a rack engaging said lower gears and having a cam roller; a cam engaging said roller; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder bars, preventing feeding movement of more than one blank at a time; and; means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

2. In mechanism of the class described, a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks having marginal flaps, including opposite vertical angle bars fitted between said flaps and having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having means arranged to engage and feed only the bottom blank in said stack; gear racks on said feed plate; gears engaging said racks; vertical

shafts in said gears, having other gears beneath said table; a rack engaging said lower gears and having a cam roller; a cam engaging said roller; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder bars, preventing feeding movement of more than one blank at a time; and, means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

3. In mechanism of the class described, a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks having marginal flaps, including opposite vertical angle bars fitted to extend between said flaps in marginal recesses in said blanks, whereby all of said blanks above the bottom one are prevented from feeding movement, and having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having means arranged to engage and feed only the bottom blank in said stack; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder bars, preventing feeding movement of more than one blank at a time; and, means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

4. In mechanism of the class described, a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks, including opposite vertical bars having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having abutments upon its upper surface arranged to engage and feed only the bottom blank in said stack, said plate and the bottom ends of said bars being so spaced as to permit passage of but a single blank between them; gear racks on said feed plate; gears engaging said racks; vertical shafts in said gears, having other gears beneath said table; a rack engaging said lower gears and having a cam roller; a cam engaging said roller; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder bars, preventing feeding movement of more than one blank at a time; and, means coöperatively connecting said plate and feed rollers, whereby, blanks

are delivered from said stack singly, in succession.

5. In mechanism of the class described, a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks, including opposite vertical bars having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having means arranged to engage and feed only the bottom blank in said stack; gear racks on said feed plate; gears engaging said racks; vertical shafts in said gears, having other gears beneath said table; a rack engaging said lower gears and having a cam roller; a cam engaging said roller; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder bars, preventing feeding movement of more than one blank at a time; and, means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

6. In mechanism of the class described, a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks, including opposite vertical bars fitted to extend in marginal recesses in said blanks, whereby all of said blanks above the bottom one are prevented from feeding movement, having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having means arranged to engage and feed only the bottom blank in said stack; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder bars, preventing feeding movement of more than one blank at a time; and, means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

7. In mechanism of the class described, a horizontal plane table; a stack holder arranged to hold a stack of plane sheet blanks, including opposite vertical bars fitted to extend in marginal recesses in said blanks, whereby all of said blanks above the bottom one are prevented from feeding movement, having brackets at their lower ends connecting them with said table; a reciprocatory feed plate extending between the lower ends of said bars and the top of said table, arranged to support said stack which gravitates thereon, and having means arranged to engage and feed only the bottom blank

in said stack; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; and, means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

8. In mechanism of the class described, a stack holder arranged to hold a stack of plane sheet blanks; a reciprocatory feed plate, arranged to support said stack which gravitates thereon, arranged to engage and feed only the bottom blank in said stack, and having notches in the outer edge thereof; base plates carrying pins extending in said notches, serving as stops preventing the movement of the bottom blank outward by return movement of said feed plate; and, means whereby said base plates are adjustable in the direction of the movement of said feed plate.

9. In mechanism of the class described, a stack holder arranged to hold a stack of plane sheet blanks; a reciprocatory feed plate, arranged to support said stack which gravitates thereon, arranged to engage and feed only the bottom blank in said stack, and having notches in the outer edge thereof; and, base plates carrying pins extending in said notches, serving as stops preventing the movement of the bottom blank outward by return movement of said feed plate.

10. In mechanism of the class described, a stack holder arranged to hold a stack of plane sheet blanks; a reciprocatory feed plate arranged to support said stack which

gravitates thereon, and having means arranged to engage and feed only the bottom blank in said stack; gear racks on said feed plate; gears engaging said racks; vertical shafts in said gears, having other gears beneath said table; a rack engaging said lower gears and having a cam roller; a cam engaging said roller; a pair of feed rollers extending horizontally transversely to the direction of movement of said feed plate; a vertically adjustable gate bar between said feed rollers and said stack holder, preventing feeding movement of more than one blank at a time; and, means coöperatively connecting said plate and feed rollers, whereby, blanks are delivered from said stack singly, in succession.

11. In mechanism of the class described, a stack holder arranged to hold a stack of plane sheet blanks having marginal recesses, including vertical bars fitted to extend in said recesses, transversely with respect to the direction of feeding movement of said blanks, whereby the upper blanks are prevented from feeding movement; and, a reciprocatory feed plate, arranged to engage and feed only the bottom blank in said stack.

In testimony whereof, I have hereunto signed my name at Bordentown, New Jersey, this tenth day of November, 1911.

GEORGE W. SWIFT, JR.

Witnesses:

HAROLD B. WELLS,
LOUISE B. TAYLOR.