

(No Model.)

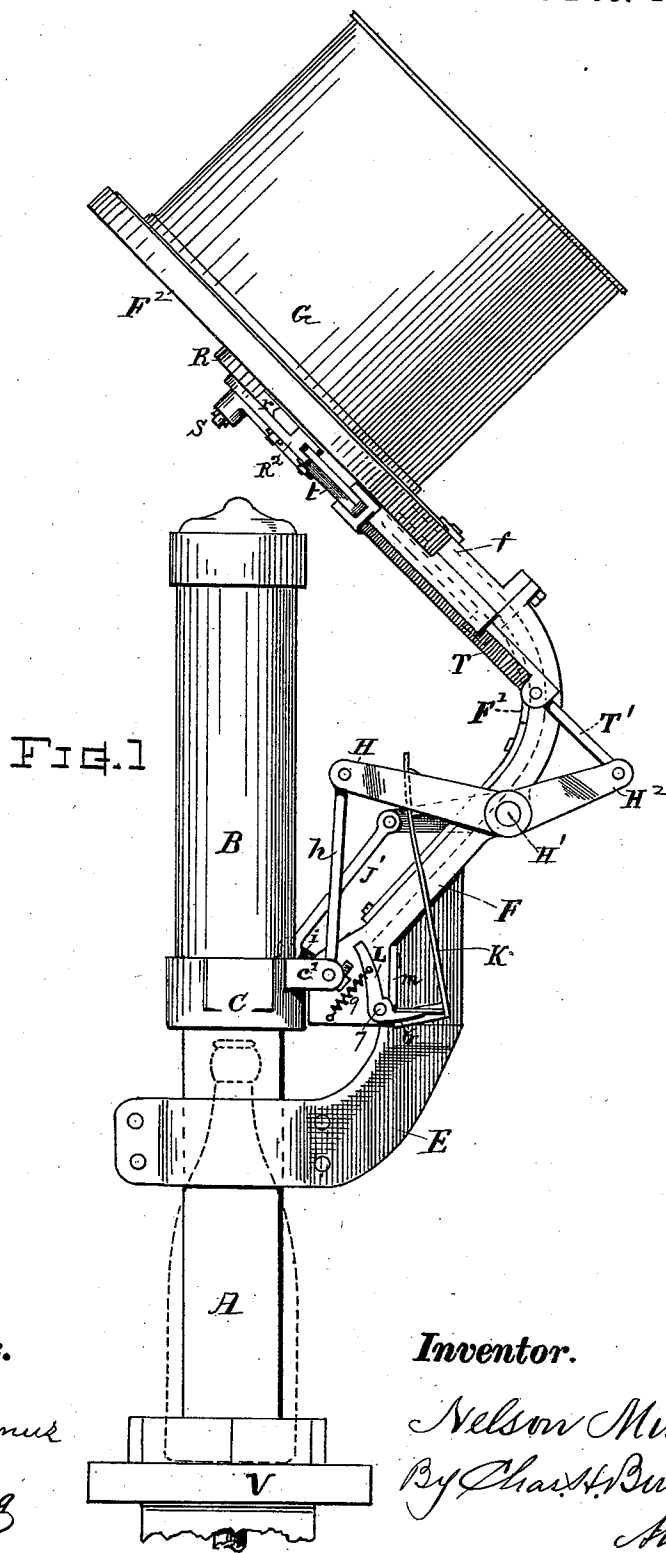
3 Sheets—Sheet 1.

N. MUSLAR.

MACHINE FOR FEEDING CROWN BOTTLE STOPPERS.

No. 531,001.

Patented Dec. 18, 1894.



Witnesses.

Ella P. Blenue
Simon C. King

Inventor.

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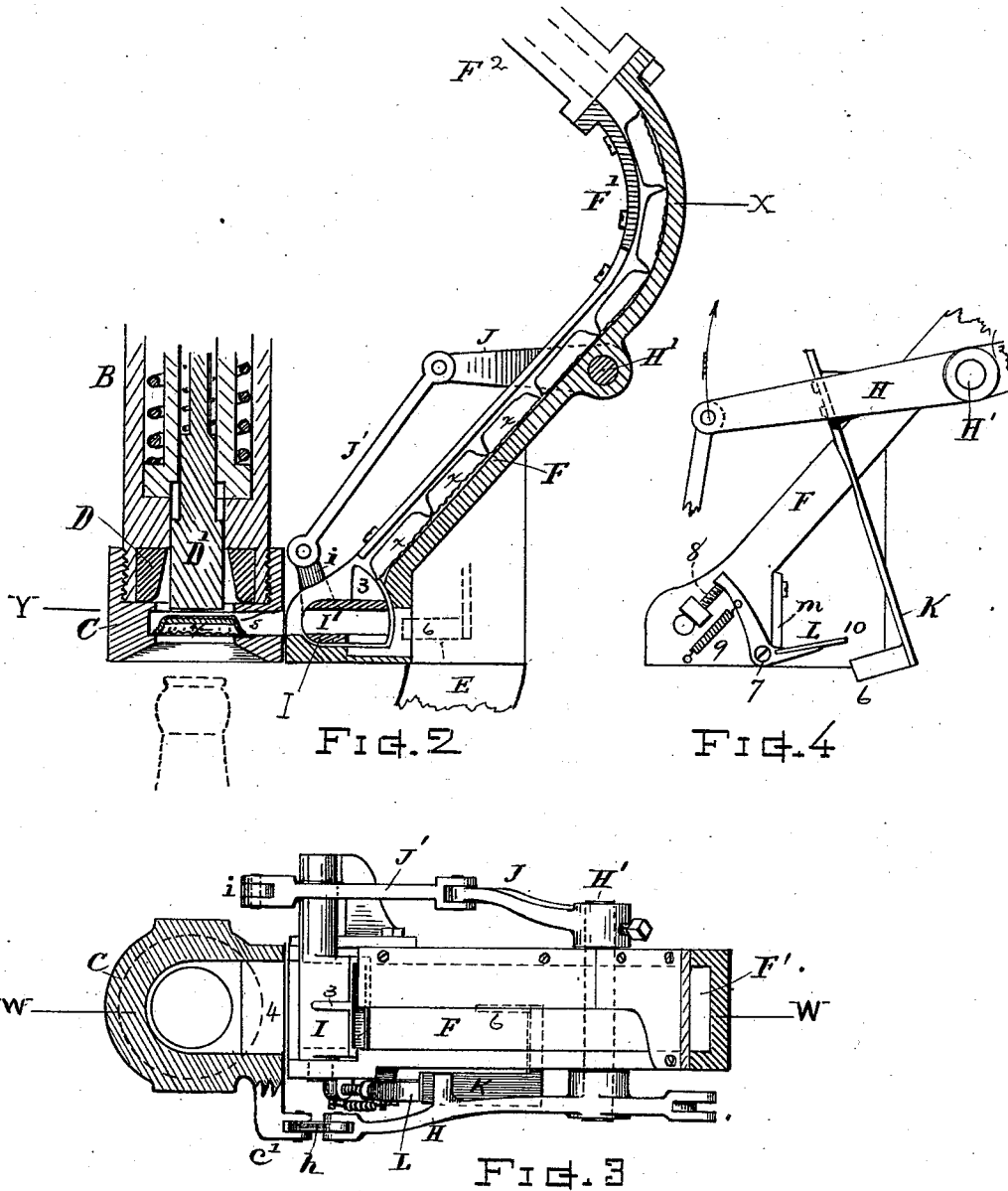
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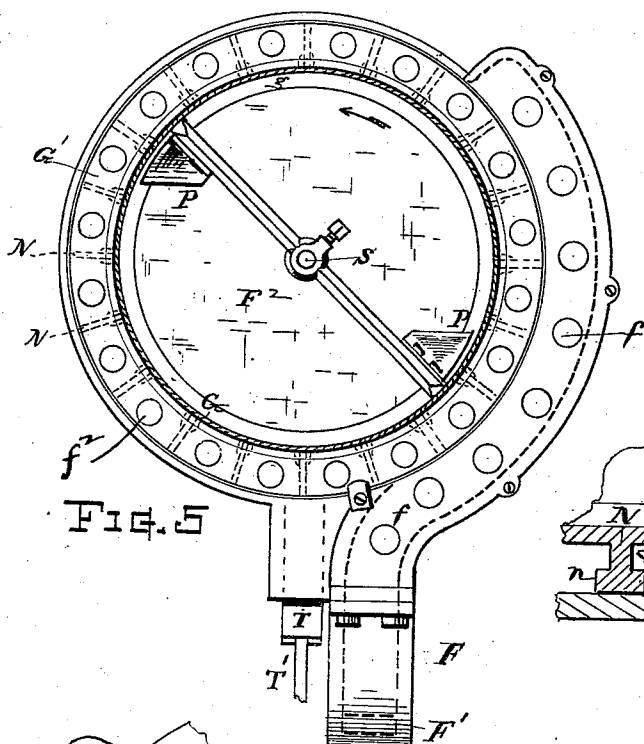


FIG. 5

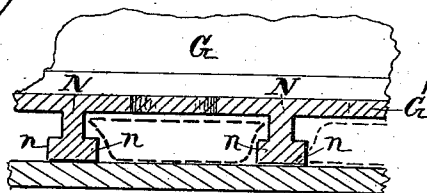


FIG. 7

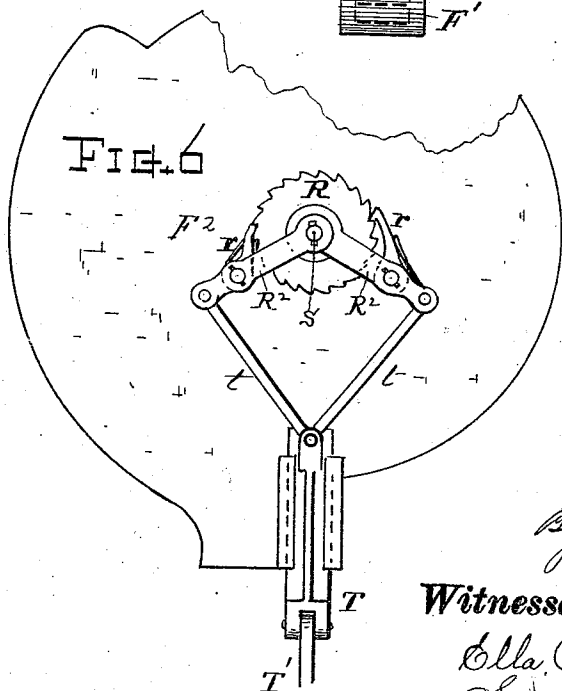


FIG. 6

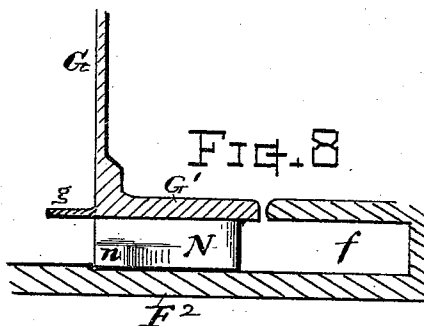


FIG. 8

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UNITED STATES PATENT OFFICE.

NELSON MUSLAR, OF WEST BOYLSTON, ASSIGNOR TO RICHARD C. HEMMAN,
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MACHINE FOR FEEDING CROWN BOTTLE-STOPPERS.

SPECIFICATION forming part of Letters Patent No. 531,001, dated December 18, 1894.

Application filed September 15, 1894. Serial No. 523,093. (No model.)

To all whom it may concern:

Be it known that I, NELSON MUSLAR, a citizen of the United States, residing at West Boylston, in the county of Worcester and State of Massachusetts, have invented a new and useful Machine for Feeding Crown Bottle-Stoppers, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

The object of my present invention is to provide mechanism for automatically feeding machines for fixing to bottles that class of metal caps known as "crown" bottle-stoppers; also, to provide an efficient means for automatically separating, conducting and delivering the said crowns or caps in proper consecutive order to the mechanism whereby said crowns are fixed to the bottles.

Another object is to provide a charging pan or hopper having facilities for separating and arranging crown bottle stoppers for delivery in uniform position and order.

Another object is to provide a feeding mechanism for the purpose named, having means for effecting instantaneous transfer of the crown or cap from the delivering device into the movable crown-holder and beneath the clinching die, or dies, at proper position for receiving the head of the bottle.

These objects I attain by mechanism organized for operation substantially as explained in the following description; the particular subject matter claimed being herein-after definitely specified.

In the drawings, Figure 1 is a front view of my automatic feeding mechanism in connection with bottle-capping mechanism. Fig. 2 is a vertical section of the lower portion of the feed mechanism, crown-holder and attaching mechanism at line W W on Fig. 3. Fig. 3 is a plan of the feed mechanism with the chute shown in section at line X, and the crown-holder in section at line Y in Fig. 2. Fig. 4 is a front view showing the striker and trip devices. Fig. 5 is a plan of the hopper and separating devices. Fig. 6 is a bottom view of the mechanism for rotating the hop-

per. Fig. 7 is a section longitudinally of the separator rim on larger scale, and Fig. 8 is a transverse section of the separator rim.

My feeding mechanism may be applied to machines such as ordinarily employed for attaching crown stoppers or metal caps to bottles. The means for, and method of clinching the crowns onto the bottle heads being well known, is not included as a feature of my present invention otherwise than as an element in combination with other parts; and is not, in detail, shown and described herein.

Referring to parts, A denotes the standard and B the vertically movable plunger or head of a crown bottle stopper attaching machine, which plunger is, in practice, moved up and down to and from the head of the bottle by a foot-treadle and rod, or by other power appliances in the usual well known manner; the distance of its reciprocative action being some two inches, more or less.

C denotes the crown-holder, which is screw-threaded to the lower end of the plunger, and D the clinching die, or dies, supported within the same.

D' indicates the top presser mounted within the plunger and provided with springs for operation in well known manner.

My feed mechanism, comprising the inclined run, the hopper and operating parts, is arranged at the side of the plunger, and is supported by a bracket or suitable casting E bolted to the lower part of the feed frame and adapted to be clamped to the standard A of the attaching machine in the manner illustrated in Fig. 1. The feed frame carries an inclined chute or run-way F, its lower end being substantially level with the crown holder when the latter is in elevated position. The upper part of the chute is provided with a reversing bend F' and carries the plate F² whereon is arranged the rotating pan or hopper G, which latter is adapted for containing, in promiscuous order, a supply of crown bottle stoppers. The hopper and plate are supported in oblique position, the base of the hopper being provided with a rim of separating devices, hereinafter described; while at one side of the plate there is a curved channel f leading, at its lower end, into the

chute or run-way F that extends down the reversing bend. The plate F² is suitably joined with and bolted to the chute F, or formed as a continuous standard therewith.

5 An arm or lever H is fixed to an axis or rock-shaft H' journaled in bearings on the chute F, and said arm is coupled by a suitable link h with a movable part of the crown-attaching machine, so that according with the reciprocal action of the plunger B movement will be imparted to the arm H, shaft H' and parts connected therewith. In the present instance the link h is connected with a projecting ear c' formed directly upon the side of the crown holder C.

At the lower end of the chute F there is provided a mechanism for presenting the crown bottle stoppers x in proper position for delivery, one at a time, to the crown holder. Said mechanism consists of a movable delivery gate I having a mouth or pass-way I' therethrough of sufficient dimension to contain a single crown bottle stopper. This gate is horizontally journaled and adapted to rock or swing in a manner to bring its mouth or pass-way into alignment with the inclined channel of the chute, and also to a horizontal position (see Fig. 2); the gate being operated by an arm i and a link J' that connects with an arm J fixed on the end of shaft H'. The under portion of the gate piece is slotted to afford space for the striker or ejector to enter; and its top is provided with a guard 3 that retains the following crowns x from sliding out of the chute when the gate is depressed.

The crown-holder C is provided with a lateral opening or pass-way 4 in that side adjacent to the feed chute, and such opening is brought into alignment with the mouth of the delivery gate I when the plunger B and crown-holder are elevated, as shown in Fig. 2. In some instances a light spring 5 can be arranged within the pass-way of the crown-holder to obviate any liability of the crowns rebounding as they strike the opposite end of the way; or again, the bottom of the pass-way can be fitted with a slight downward offset to catch the edge of the crowns. A resilient striker or spring-bar K is arranged to operate with the upward action of the arm H for ejecting the crowns x from the gate I into the crown-holder. This striker is provided with a suitable prong or end 6 for entering the space in the gate and forcing forward the crown, and a resilient portion that affords facility for the instant delivery of the blow and the rebound of the striker end from the gate (see dotted line Fig. 2) so as not to interfere with the rocking movement of the gate.

L indicates a device for straining and tripping the striker, and consists of an angle lever pivoted at 7 and having a backwardly extended arm against which the striker or spring-bar K engages, as indicated in Fig. 1. Its upwardly extended arm rests against an adjusting screw 8 for maintaining the part at

proper position, and a spring 9 is provided for normally retaining the lever with its rear end elevated. The lever L is best reinforced with a hard steel contact-plate 10. A buffer m of leather or suitable material is provided on the frame for limiting the forward throw of the striker.

The bottom end of the revoluble hopper or pan G is provided with an annular separator consisting of a flange G' having on its under side a series of radial partitions or barriers N with spaces between corresponding to the dimension of the crown bottle stopper x. The lower edges of the barriers fit close to the bottom plate F² and are each provided, at their lower part, with laterally projecting lugs or guards n, (see Figs. 7 and 8) the same being disposed so that a crown bottle stopper can pass freely between the partitions when it lies face upward, (see dotted line Fig. 7) but cannot pass when it lies face downward. Thus the crowns x, promiscuously dumped into the hopper, become separated by the barriers N and their guards n, as the hopper rim rotates above the stationary inclined bottom plate F², and crowns that lie face upward on said bottom plate are permitted or caused to slide outward between the barriers N by reason of the rotative action of the hopper rim and the inclination of the bottom plate, being thereby delivered into the curved channel or run f, and thence by gravity pass down into the chute F in regular order face upward, and are turned over at the reverse bend of the chute, as indicated, to be presented to the crown-holder face downward.

The interior of the hopper is best provided with an inwardly projecting annular shelf or guard rib g disposed adjacent to and above the open spaces through which the crowns pass out. Between the barriers N the under side of said shelf sustains the overlying mass of crowns and prevents their resting upon or interfering with the crowns that are in position to slide out through the spaces of the separating rim G'. This guard or shelf g greatly facilitates the free exit of the crowns from the hopper to the run f. The flange G' and run way are best provided with a series of openings f² through which the crowns can be observed.

Plows or turners P can be arranged within the hopper in any instance desired for overturning the crowns. For rotating the hopper a ratchet-wheel R is fixed to the axial shaft S. Swing-arms R² carrying pawls r that engage said ratchet-wheel, are pivoted on the axis and their outer ends connected by links t with a slide-plate T mounted in guide-ways on the lower part of the plate F². The slide T is connected by a link T' with an arm H² joined to the rocking-shaft H' or its operating arm H, so that movement of said arm imparts reciprocal movement to the slide T; and through the action of the ratchet mechanism, effects rotation of the hopper cylinder carrying the separator rim, facilitating the passage to the

run-way of a full supply of crowns laid in uniform order, which slide down the chute to the delivery-gate I.

The operation is as follows: The motion for operating the crown-feeding mechanism is derived, through the link *h* and arm H, from the upward and downward action of the plunger B and crown-holder C when applying the crown to the bottle and raising the plunger from the bottle, effected in well known way. The crown bottle-stoppers are placed promiscuously in the hopper G and pass into and down the chute, as above specified. When the plunger is depressed the movement, acting through the connections, swings the delivery gate I into alignment with the channel of the chute F; and a crown slides into the mouth or pass-way thereof. Then as the plunger and crown-holder are again elevated, swinging up the arm H, the gate I moves to a horizontal position carrying within it the single crown bottle-stopper, and presenting it in proper position for transfer into the crown-holder when the latter comes into alignment with the delivery-gate. The upward movement of the arm H at the same time swings forward the striker-bar or spring K which is attached to it; and also swings the arm H², which through the slide T and ratchet mechanism R, effects rotation of the hopper G. As the striker K swings forward it comes into contact with the lever L, and by the resistance thereof the striker-spring is strained until the pressure becomes so great that the lever L is caused to slip and swing downward off the end of the striker-spring, thus tripping or releasing the striker which instantly flies forward, its end entering the space in the gate I and striking the edge of the crown bottle-stopper within the pass-way of the gate, thereby ejects it therefrom and shoots it to position within the crown holder (see Fig. 2) ready for attachment to the bottle; which is effected as the plunger descends and brings the crown holder and clinching dies down upon the bottle-head, the bottle being seated, as indicated by dotted lines Fig. 1, upon the stationary support V beneath the plunger, in usual manner.

I claim—

1. The combination with mechanism for attaching crown bottle-stoppers to the tops of bottles; of a feed-hopper comprising the bottom-plate and adjacent revoluble rim having barriers thereon with intervening spaces formed for automatically separating and arranging crown bottle-stoppers, a crown-conducting chute leading from said hopper to the attaching mechanism, the gate controlling the delivery end of said chute, having a mouth that receives and singly presents said crowns, and means for projecting the crown from said gate into the chamber of the crown-attaching mechanism, acting at each reciprocal movement of said attaching mechanism, substantially as set forth.

2. The combination, of the crown holder having a lateral opening and carrying suit-

able dies for crimping the crowns upon the bottle-head, a feed-chute through which crowns are supplied, provided with a gate adapted for individually presenting the crowns in proper position for delivery, a resilient rebounding striker that ejects the crown from the delivery-gate into the crown-holder, and operating connections whereby said delivery gate and striker are actuated with the movement of the crown holder, for the purpose set forth.

3. The mechanism for feeding crown bottle stoppers, comprising the feed-chute, its head-plate carrying a hopper, said hopper having the crown-separating barriers on its annular base-flange, mechanism for rotating said hopper, the rocking delivery-gate journaled at the end of the chute, having a mouth or pass-way adapted for singly presenting a crown bottle stopper, the ejector-spring or striker, the striker-discharging trip, the actuating-arm, a rocker-shaft and connections for operating said delivery-gate, striker, and hopper mechanism, combined and operating substantially as set forth.

4. The combination with the reciprocating plunger or head that carries the crown-clinching dies, in a crown-bottle-stopper attaching machine, of the crown-holder detachably secured to said plunger and having an interior crown-centering chamber with a lateral opening or pass-way therein, and an external projecting ear, an automatic laterally-delivering feed-mechanism for the crown-bottle-stoppers, and a suitable connecting link joining the operating-arm of said feed mechanism with said ear, and working said feed-mechanism in unison with said crown-holder and die-carrying head, substantially as set forth.

5. The hopper provided with the annular separator rim having a series of passways or spaces with intervening barriers N formed with laterally projecting lugs or guards thereon for controlling the passage of crown bottle stoppers in uniform order, in combination with the bottom-plate having the run-way *f* at one side, and mechanism for revolving said separator rim upon the plate, substantially as set forth.

6. In mechanism for feeding and attaching crown bottle stoppers, the combination with the feed chute, its delivery-gate and means for ejecting the crown from said delivery-gate, and the crown-holder having a crown-carrying space with a lateral pass-way leading therein, of a check-spring 5, or device for retaining the crowns from rebound within the crown holder, substantially as set forth.

7. In a crown bottle stopper feeding mechanism, the inclined feed-chute or run-way formed with a reversing bend therein, in combination with a hopper having separator devices that deliver the crown bottle stoppers arranged face upward, and delivery mechanism, substantially as described, that presents the crowns to the attaching mechanism

face downward and means for placing or attaching such crowns upon bottles.

8. In mechanism for separating and feeding crown-bottle-stoppers, the inwardly projecting shelf or guard *g* disposed about the interior of the hopper adjacent to and above the exit spaces; in combination with the hopper *G* and its separator flange *G'*, substantially as and for the purpose set forth.

9. In mechanism for feeding crown-bottle-stoppers; the rocking gate *I* having a mouth or interior opening for receiving the crown,

and provided with an upwardly projecting segmental guard 3 that obstructs the runway of the chute when said gate is depressed; in combination with the chute, gate-operating mechanism, and crown ejector, substantially as set forth.

Witness my hand this 31st day of August, A. D. 1894.

NELSON MUSLAR.

Witnesses:

CHAS. H. BURLEIGH,
ELLA P. BLENUS.