

No. 733,488.

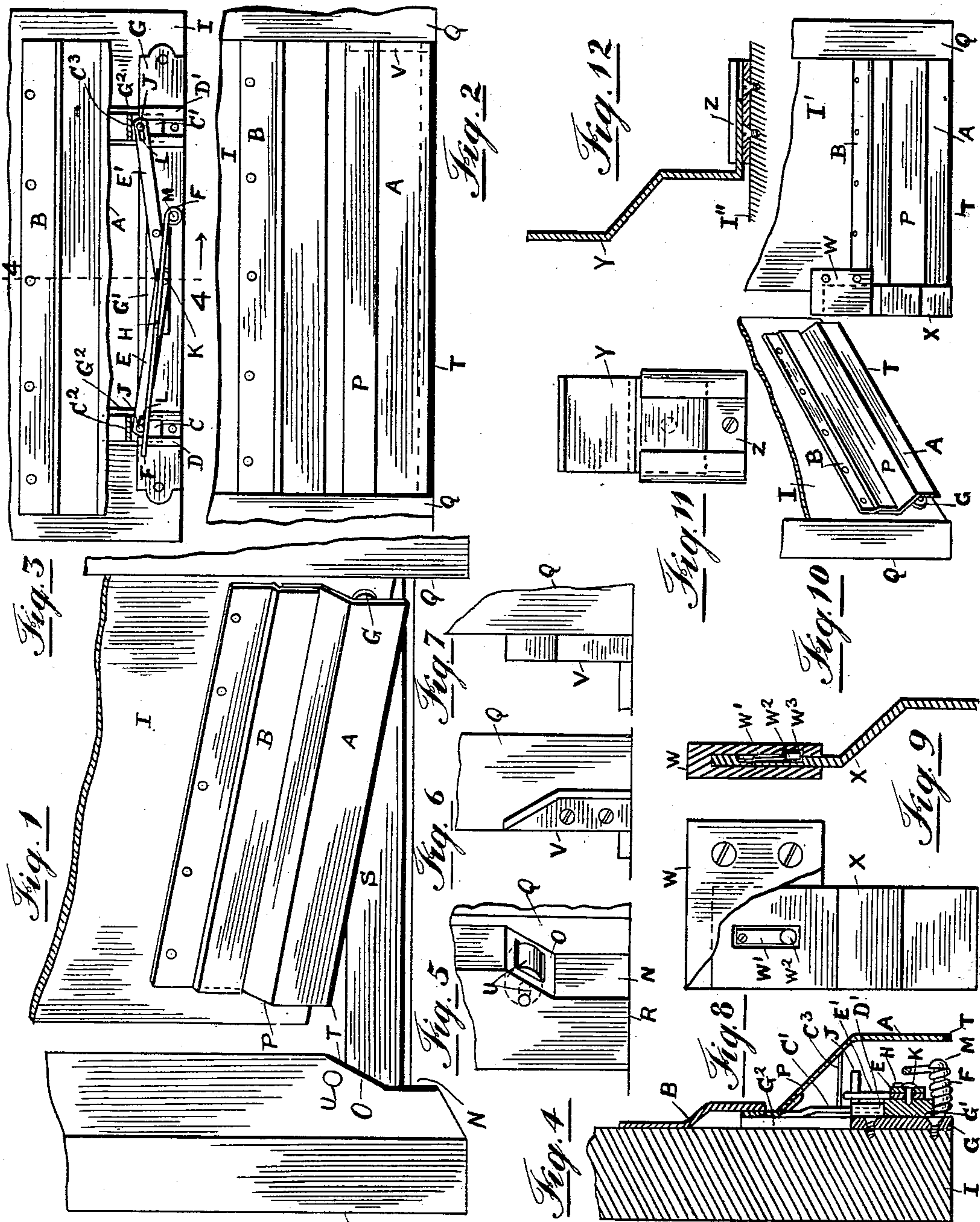
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J. B. A. LA JEUNESSE.

WEATHER STRIP.

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NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JEAN B. A. LA JEUNESSE, OF ALAMEDA, CALIFORNIA.

WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 733,488, dated July 14, 1903.

Application filed April 30, 1902. Serial No. 105,392. (No model.)

To all whom it may concern:

Be it known that I, JEAN BAPTISTE ADOLPHE LA JEUNESSE, a citizen of the United States of America, and a resident of the city of Alameda, in the county of Alameda and State of California, have invented certain new and useful Improvements in Weather-Strips, of which the following is a specification.

This invention is an automatically-operating contrivance designed, primarily, for the exclusion of rain, wind, and other atmospheric inclemencies from between outside doors and their marginal surroundings, especially between the bottom of such doors and their sublying thresholds, and it is also applicable to windows, shutters, and other closures.

The accompanying drawings are integral herewith as a means of illustration, in which I employ like reference characters to indicate like parts in the several figures.

Figure 1 is a perspective view of the lower part of a door slightly ajar and its supporting-jambs and threshold, illustrating my invention in place against a lower face of the door, the upper part of the door and the jambs being broken away. Fig. 2 is a similar view in outside or front elevation. Fig. 3 is a front detail elevation of my invention secured to the lower face of a door, an outer plate being broken away to expose the operating mechanism that is otherwise covered thereby. Fig. 4 is a cross-section on the line 4 4 of Fig. 3 looking to the right. Figs. 5, 6, and 7 are details of parts of the invention. Figs. 8 and 9 are details in front elevation and vertical section, respectively, of a lapping plate used with strips that are applied to double doors having either iron or stone sills. Fig. 10 is an elevation of a pair of double doors with my invention thereto attached, one door being partly open, and therefore disposed in perspective. Figs. 11 and 12 are respectively a top view and a sectional elevation of a lapping plate for strips applied to double doors with wooden sills.

I will explain my invention in relation to the lower part of the door and its threshold.

This device embodies, essentially, a vertically-sliding plate A, which is actually the

weather-strip proper, a guarding-plate B, that flange-like loosely overlaps the upper edge of the plate A, so as to admit of the free vertical reciprocation of the latter back of it, and the means and mechanism that reciprocate the plate A. The act of opening and closing the door is made to automatically operate the actuating mechanism, whose parts and their functions are as follows:

Referring to the detail Figs. 3 and 4, slides C C' act within double-flanged tracks or keeps D D' by means of levers E E', that are actuated by a spring F, as will be better understood shortly. In applying the invention I may secure the keeps D D', the levers E E', and the spring (or springs) F to a single supporting-plate G, although it will be observed that this latter plate is not an indispensable element of my weather-strip. One of the slides, C, while it is free to move up and down within its respective keep D is held laterally firm thereby. The other slide, C', on the contrary, is quite loose in its keep D'. I have found in actual practice that due to the shrinkage of the door and to the contraction and expansion in the material of the door in variable weather the slides C C' will occasionally bind and become inoperative within their keeps D D' if tightly fitted on both sides. It is to obviate this trouble that I have left lateral play between one of the slides and its keep, as illustrated for C' D', Fig. 3. These slides C C' are securely joined to the inner face of the sliding plate A by their upper ends and also by braces C² C³, and both slides and the sliding plate are held up on the outer ends of the levers E E', as will be next explained. It will be seen that thus combined the slides C C' are maintained always at the same distance one from the other, and since they are free to reciprocate within their keeps D D' the movements of the said slides and sliding plate must be rigidly mutual and positively vertical or toward and from the threshold, the covering-plate B affording supplemental stability to the upper part of the plate A, besides acting as a water-shed and otherwise protecting the mechanism below.

The movement of the plate A and the slides C C' is effected by the levers E E' thus:

These levers are securely pivoted somewhat centrally of their lengths to a small block G' by means of fulcrum-pivots H, one to each, which while permitting them to rock
 5 freely hold them rigidly secured to the supporting-plate G or to the door to which attached. The door is herein designated I and is so marked in the drawings. The said levers E E' at their outer ends are in hinge
 10 connection with the slides C C' by pins J, and at their inner ends they are loosely hinged together by means of a pin K, so that the rocking of one lever transmittingly rocks the other lever. As represented in Figs. 3 and
 15 4, the pins J are rigid with and project forwardly from the slides C C' and pass through snug-fitting slots L of the levers E E', which levers are disposed more or less longitudinally of the supporting-plate G and block G',
 20 transversely of the door, as illustrated. It is manifest that as the levers E E' rock on their fulcrum H they mutually raise or lower the slides C C' and the thereto-attached weather-plate A. For the automatic performance of
 25 this rocking function I have provided the means next to be described.

The sliding plate A is normally held up or in the open position by means of the spring F, which is coiled around and rigidly secured
 30 by one end to a stud M on the plate G and has its other end turned so as to press under the pin J of either slide C or C'. The spring F is thereby enabled to raise the outer ends of the levers E E' and the thereto-connected
 35 slides C C' and by transmission the plate A. The weather-strip is thus held free from contact with the threshold or floor when the door is open, or partly so; but on the instant the door is fully closed against its stops or against
 40 that stop which is at its free or lock edge the plate A drops into position against the threshold or the door-sill, or both, by means of the following provisions: The plate A must swell out enough to cover the threshold, and I there-
 45 fore take advantage of its swelling to close it and incidentally to shut in its before-described actuating mechanism. Accordingly I make this plate sufficiently long to extend at one end behind one of the door-stops, and I cut for it a
 50 correspondingly-shaped notch N at the bottom of the door-stop, as suggested in Fig. 1, to force it down whenever the door is closed. As shown, this notch has a slant O properly fitting over an incline P of the plate A and
 55 designed to bear slidingly thereon—that is to say, the notch N is so cut out that the said incline P of the plate A contacts and is forced to slide against, and thus down, the corresponding counter-slant O of the door stop or
 60 jamb, which takes place only when the door is fully closed against the stops. Thus the normal action of the spring F is counteracted and the weather-strip is forced functionally into its closed position against the threshold
 65 or the sill beyond or against both. The door-

jamb is marked Q in the drawings, the door-stop R, and the threshold S.

I prefer to line the bottom of the weather-plate A with india-rubber or some properly-elastic material, (marked T in the drawings,) 70 and I may likewise margin the notch N, as indicated in Fig. 1. In Fig. 5 I have also shown embedded in the slant O of this notch N of the door-stop R an antifriction-roller U, to be contacted by the incline P of the 75 weather-plate A as it slides down the said slant O against this roller U; but these provisions may be dispensed with.

In Figs. 2, 6, and 7 I have shown a block V for a back support to the end of the weather- 80 strip that is toward the hinge edge of the door, this block properly fitting on and against the inner side of the weather-strip when the door is fully closed. The said block V is beveled from the weather-strip, so 85 as to admit of the gradually sliding on of the latter as the door is shut. The notch N and the block V are thus on opposite sides of the weather-strip, the former being without and the latter within and both tending to impart 90 security and firmness to the weather-strip.

For use with double doors that open inward I have devised the joint provision illustrated in Figs. 8, 9, and 10. This comprises a slotted holding-block W, that is screwed to 95 the outer face of the door I', Fig. 10, that usually remains bolted, at the bolted or swinging edge thereof, and a lapping plate X, removably held in the slot of the said block W, which plate X is sufficiently wide to cover 100 the joint where the weather-plates A of both doors I I' when closed approach. This lapping plate X may be free to be slid in and out with the hand as the bolted door I' is to be opened or closed, or it may be held, as shown 105 in Fig. 9, by means of a pointed or flanged spring, the point or flange of which by the action of the spring is adapted to drop into a notch in the block W when the plate X is forced into its socket or slot in the block W. 110 This locking-spring, Figs. 8 and 9, is marked W', its point or flange W², and the corresponding notch in the block W is marked W³. When it is desired to remove the plate X, the projection W² is retracted from its notch W³ 115 in the block W by means of a thin or pointed tool. This joint-lapping provision is particularly applicable to double doors having either iron or stone sills. For this same joint-lapping purpose at the meeting-point or 120 seam of double doors having wooden sills I provide the joint-lapping plate Y and its holder Z, Figs. 11 and 12. This holder Z is doubly flanged to contain and firmly hold the horizontally-bent part of the plate Y against 125 the joint or point of meeting of the plates A on the doors when closed. It is secured to the door-sill I'', Fig. 12, just outside the threshold or its usual position.

It is manifest that by the employment of 130

my invention outside thresholds would be obviated, leaving the entrance free from such impediment.

By a glance at Fig. 1 it will be seen that the upper part of the plate A, where it slides within or back of its covering-plate B, would naturally move in frictional contact with the door throughout its entire length unless isolated therefrom. This objectionable feature I overcome by the provision illustrated in Figs. 3 and 4, in which lugs G^2 of the supporting-plate G (or extensions of the keeps D D') extend up to the rear of and above the slides C C' and with which lugs G^2 the slides C C' and the rear face of the upper part of the plate A frictionally contact in their reciprocation. In this manner the plate A and slides C C' do not reciprocate in impact with the door.

The above-described weather-strip is best applied in the following manner: First, place the movable plate A in the position it is to occupy on the lower face of the door and scribe the notch to be provided for it in the door-stop. Then cut out this notch and bore the hole required for the antifriction-roller to be placed therein and insert this roller. Next, if a supporting-plate, as G, is used, screw it, with its block G' , on the bottom of the door, so that its keeps D D' will be in the right position to receive the slides C C' of the plate A, having, of course, the outer ends of the levers E E' disengaged from the pins J of the said slides, as also their spring F. Having done this, insert the slides C C', which are fastened to the plate A, in their respective keeps D D', raise or flex the outer ends of the levers E E' so the slots thereof will engage the pins J, and bring the outwardly-extending portion of the spring F to bear against the under side of whichever one of these pins J it may point to. Now put on the water-shed or guarding-plate B, and the weather-strip is ready for use. The rear block V, if employed, may be put on at any time. The mode of proceeding is substantially the same if the plate G is omitted. The more convenient method of locating the keeps D D' in that case is first to place them on the slides C C' of the plate A and press the combination against the face of the door before screwing them on, so that their screw-holes, which are more or less burred, will make impressions on the door, thus indicating their correct position. After this remove the plate A, with its slides, and screw on the keeps where they belong. The rest of the operation is outlined above.

Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A weather-strip comprising a plate vertically slidable against the bottom of a door or other closure, slides rigidly secured to said plate, keeps on the door within which said

slides can move up and down, a spring-actuated lever mechanism operating to raise the slides and thereto-connected plate when the door is opened, means for forcing down the plate as the door is closed, and a superimposed protecting-plate, substantially as described.

2. The combination, with a door or other closure, of an automatically-rising weather-strip thereto attached, a back support for said strip at the hinge side of the door, and means, as a notched stop, at the door's lock edge to force down the strip as the door closes, substantially as described.

3. In combination with a weather-strip comprising plates A, A, arranged to be separately raised or lowered and means for supporting said plates independently of each other, a lapping plate for covering the spaces between the adjacent edges of the plates A, A, and means for removably securing the lapping plate in place independently of said plates A, A; substantially as and for the purpose described.

4. A weather-strip comprising a plate bodily movable in a vertical direction, means for securing the weather-strip to the bottom of a door or the like, means for isolating the movable plate from the door to avoid frictional contact therewith, mechanism operating normally to keep the plate raised, and means exterior to the plate adapted to engage the face of the plate to force the same down as the door is shut, substantially as described.

5. A weather-strip for doors or the like comprising a plate bodily movable in a vertical direction, mechanism operating normally to keep said movable plate raised, and means exterior to the plate adapted to engage the face thereof for counteracting said mechanism and lowering the plate when the door to which it is applied is shut, substantially as described.

6. A weather-strip comprising a plate bodily movable in a vertical direction, mechanism keeping said plate raised when the door is opened, means exterior to the plate adapted to engage the face thereof for lowering the plate as the door shuts, and means for securing the weather-strip to the door comprising a supporting-plate to which the mechanism for raising the plate is secured, and means for securing the plate to the door, substantially as described.

7. In combination with a door or other closure, of a weather-strip mounted thereon and bodily movable in a vertical direction, means for raising said strip as the door is opened, and means exterior to the strip adapted to engage the face thereof for lowering the strip as the door is closed, substantially as described.

8. A weather-strip adapted to be secured to the bottom of a door or the like and vertically movable thereon, means for normally elevating said plate comprising the levers

E, E' pivotally secured together at their inner
ends, means pivotally mounting each lever
intermediate of its ends, connections between
the levers and the plate, and a spring opera-
5 tively associated with one of the levers, and
means for forcing the plate down as the door
is closed, substantially as described.

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

J. B. A. LA JEUNESSE. [L. S.]

Witnesses:

A. H. STE. MARIE,

GEO. T. KNOX.