A. W. CURTIS.

ONE-MAN TOP.

APPLICATION FILED OCT. 30, 1916.

1,298,014.

Patented Mar. 25, 1919.

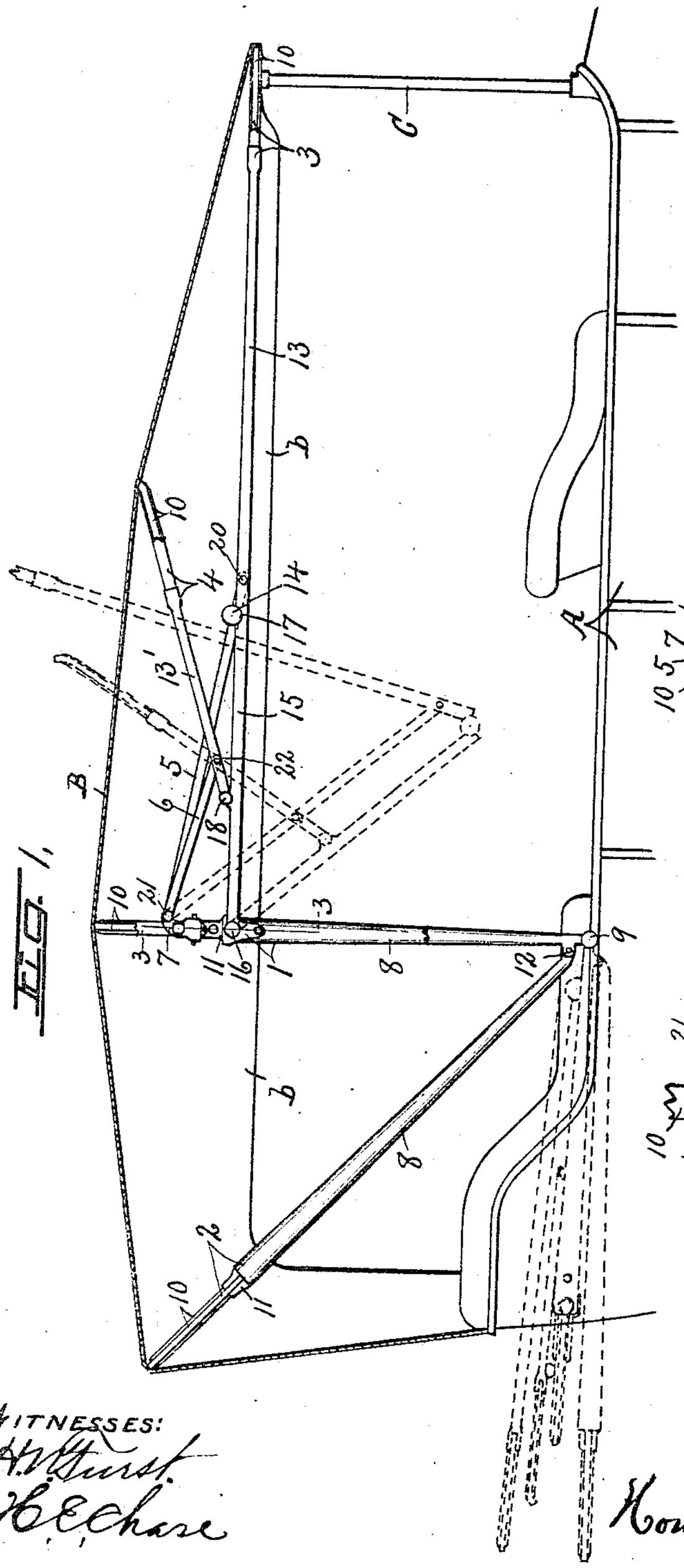

FIG. 1.

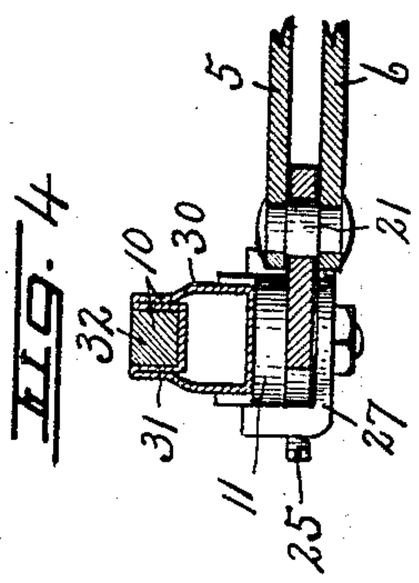

FIG. 4

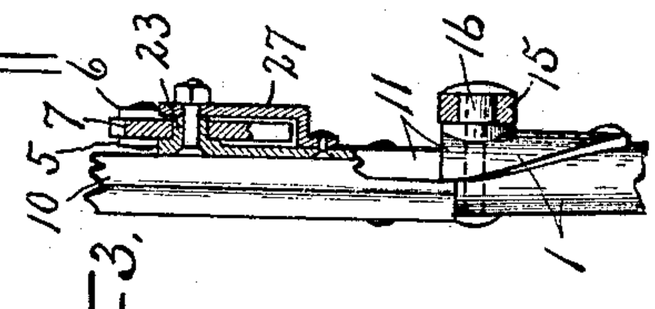

FIG. 3.

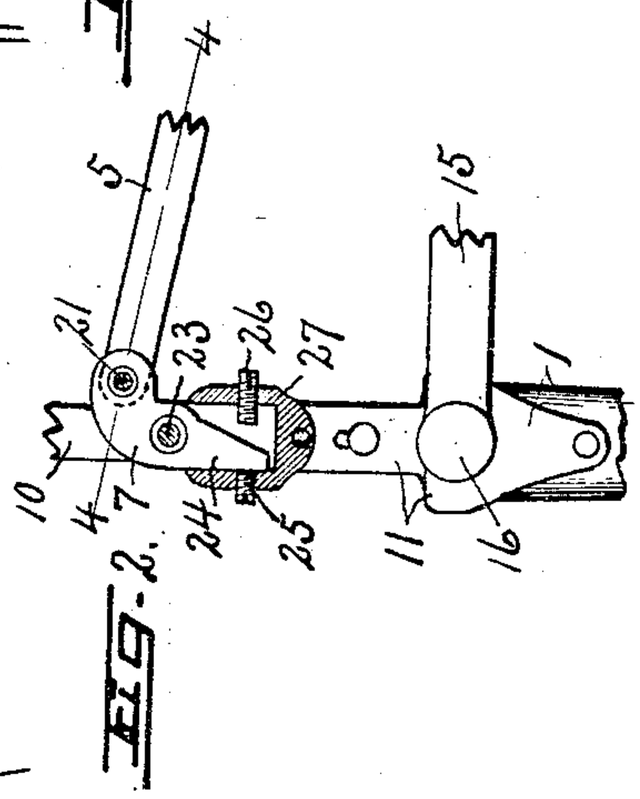

FIG. 2.

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ONE-MAN TOP.

1,298,014. Specification of Letters Patent. Patented Mar. 25, 1919.

Application filed October 30, 1916. Serial No. 128,599.

To all whom it may concern:

Be it known that I, ALMON W. CURTIS, a citizen of the United States of America, and resident of Cortland, in the county of Cortland, in the State of New York, have invented new and useful Improvements in One-Man Tops, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in one-man tops for automobiles and like vehicles, and refers more particularly to the means for connecting the front and intermediate bows to the main upright bow to cause them to move in unison and in proper relation when folding or unfolding the top.

These connections are adapted to be used more particularly in connection with the system of bows shown in my pending application, Serial No. 79,649, filed February 21, 1916, except that the means for connecting the arched sections of the main upright bow and rear bow to their respective sockets is somewhat similar to that shown in my pending application, Serial No. 117,269, filed August 28, 1916.

It is evident, however, that the same connections may be used for connecting other forms of front and intermediate bows to the main bow without departing from the spirit of this invention.

Tops of this character are used more extensively on touring cars having front and rear seats and corresponding front and rear sets of doors, the front end of the top being usually attached by movable fastening means to the upper edge of the wind-shield frame when extended for use so as to leave a clear open space at the sides between the rear seat and wind-shield and from the lower edges of the side quarters of the top to the rails of the body, thereby permitting the motorists to pass easily into and out of the doors without in any way interfering with the bows or connecting mediums.

This arrangement necessitates the extension of the front bow a considerable distance forwardly from the main supporting bow which is secured to the body some distance to the rear of the rear doors, and in order to leave the clear open space at the sides referred to, it is necessary to dispose the front and intermediate bows and their connections with the main supporting bow within a comparatively narrow vertical space between the lower edge of the side quarters and main portion of the top when the latter is extended.

One of the specific objects, therefore, of my present invention is to simplify the connections between the front and intermediate bows and main supporting bow so as to occupy a minimum space close to and within the vertical height of the side quarters, and at the same time to enable these bows to be more easily clashed or extended by one person without liability of injuring the hands by being caught between the shearing parts so common in the one-man tops now in common use.

Opposite arms of the front bow are made in sections pivoted to each other to form toggle connnections with the main supporting bow, the toggle joints being provided with stop shoulders to limit their upward movement about a substantially horizontal position when the top is extended, and another object of the invention is to arrange the connecting links between the front section of the front bow and main supporting bow so as to automatically lock said sections in operative position when the top is adjusted for use.

Another object is to connect the intermediate bow to the main supporting bow by separate links which are so arranged as to assist the supporting links for the front bow in automatically holding the top in its extended position.

A still further object is to arrange the bow-supporting links in such manner that when the front end of the top is freed from connection with the wind-shield frame, it is simply necessary to depress the toggle joints of the front bow sufficiently to break the toggle lock, whereupon the bows will partially collapse by their own weight.

Another object is to provide simple means to compensate for slight variations in the lengths of the links or bows and to utilize such compensating means for assuring a positive toggle lock of the front bow joints when the top is extended.

Other objects and uses will be brought out in the following description.

In the drawings—

Figure 1 is a side elevation of an extended one-man top, showing the various fea-

tures of my invention, the dotted lines indicating, respectively, the partially collapsed position of the front portion of the top, and the final clashing position of the entire top.

Fig. 2 is an enlarged side elevation, partly in section, of a portion of the main supporting bow and adjacent ends of the front and intermediate bow-supporting members, showing also the compensating device for the link motions.

Fig. 3 is an enlarged vertical sectional view taken on line 3—3, Fig. 1.

Fig. 4 is an enlarged detail sectional view taken in the plane of line 4—4, Fig. 2.

The top supporting frame comprises a main supporting bow —1—, a rear bow —2—, a front bow —3—, and an intermediate bow —4—, together with suitable links —5— and —6— and a rocking member —7— for connecting the front section of the front bow —3— and the intermediate bow —4— to the main supporting bow —1— in a manner hereinafter described.

The main supporting bow —1— comprises a pair of socket members —8— pivotally secured at —9— to the main body, as —A—, of the vehicle some distance to the rear of the rear bars or at opposite sides of the rear seat, and an arched member —10— having its opposite ends abutting against the upper ends of the sockets —8— and secured thereto by couplings —11— similar to those shown in my pending application, Serial No. 717,269, previously referred to, and not necessary to herein illustrate or describe because the particular form of coupling forms no part of my present invention.

The rear bow —2— is very similar to the main bow —1—, in that it comprises socket members —8— and an arched member —10— having its ends secured to the upper ends of the socket members —8— by couplings —11—, the lower ends of the socketed members —2— being pivoted at —12— to the lower ends of the sockets —8— so as to allow both bows —1— and —2— to clash together one over the other.

The front bow —3— comprises an arched section —10—, similar to those previously described, having its ends secured to a pair of oppositely disposed toggle arms —13— in any suitable manner similar to that set forth in my pending application, Serial No. 79,649, previously mentioned, the arms —13— being pivotally connected at —14— to the adjacent ends of another pair of arms —15— which, in turn, are pivoted at their rear ends at —16— to the socket members —8—, or rather to the couplings —11—, as shown in section in Fig. 3, and together with the sections —13— form opposite toggles which, when straightened out, serve to hold the top, as —B—, in its extended position.

The axes of the pivots —14— are preferably disposed within or above the plane of the sections —13— and —15— which are formed with abutting shoulders —17— below the pivot to limit their upward flexing movement to a substantially horizontal plane.

When the top is attached for use, the front bow —3— may be secured by any of the well-known fastening devices to the upper edge of a wind-shield frame —C— to hold such top against undue vibration relatively to the body, and also to assist in retaining the top in its extended position, it being understood that the toggle sections —13— and —15— together with the bow section —10— will be disposed above the lower edge of the side quarters, as —*b*—, of the top when the latter is extended.

The intermediate bow —4— comprises an arched or bow section —10— similar to that previously described and opposite arms —13′— similar to, but somewhat shorter than, the arms —13— and having their rear ends pivoted at —18— to the intermediate portions of the rear sections —15— of the front bow —3—.

The links —5—, only one of which is shown, are located at opposite sides of the frame and pivoted at their front ends at —20— to the front bow sections —13— some distance in front of the toggle joint or pivot —14—, their rear ends being pivotally connected at —21— to the upper ends of the rock arm —7— some distance above the pivots —16— for the rear sections of the front bow.

The links —6—, only one of which is shown, are also located at opposite sides of the top-supporting frame and have their front ends pivotally connected at —22— to the arms —13′— of the intermediate bows —4— a short distance from the pivots —18—, substantially equal to the distance between the pivots —17— and —20—, the rear ends of the links —6— being pivoted at —21— to the rocking member —7—, coaxial with the corresponding pivots of the links —5— so that both links —5— and —6— may swing about the same axes.

The distance between the axes of the pivots —16— and —21— is approximately twice the distance between the pivots —18— and —22—, or —17— and —20—, so as to allow the front and intermediate bows, together with their respective links, to clash close to each other and to the main-supporting bow —1—, the relative positions of these parts when partially clashed being shown by dotted lines in Fig. 1.

The compensating devices or rocking members —7—, as shown more clearly in Fig. 2, are pivoted at —23— to opposite sides of the main-supporting bow—1—, or rather to the couplings —11—, a short dis-

tance below the pivots —21— and are provided with pendent arms —24— playing between adjustable stops —25— and —26— for limiting the forward and rearward movement of the upper ends thereof and links —5— and —6— connected thereto.

The links —5— and —6— are preferably straight bars of flat steel or other suitable material and are connected and adjusted to the bow sections —13— and —13′—, respectively, so that when the top is extended for use, the pivot —17— is slightly above a direct line between the pivots —20— and —21— so as to hold the abutting faces of the toggle joints against each other, or rather to hold the toggle joint against vertical vibration, and if for any reason, as for example through wear, there should be any tendency of the toggle joints to break downwardly, the adjusting screws or limiting stops —25— may be tightened against the extension —24— of the rock arm —17— to take up the lost motion, the major portion of each rock arm being covered or protected by a cap —27—, as shown more clearly in Fig. 3.

The fabric top —B— is usually drawn tightly over the bow sections —10— and fastened to the rear end of the main body under sufficient tension to normally hold the front end of the top or front bow section —10— some three or four inches above the points of attachment to the wind-shield frame —C— so that in order to make the connection between the front end of the top and wind-shield, it is necessary to draw such front end downwardly until engaged with the fastening means, thus increasing the tension of the fabric top, and at the same time drawing forwardly and downwardly from the pivot —20— and link —5— to establish a more positive lock of the toggle joint by reason of the upward and rearward pull of the link —5— along a line below the axis of such joint.

While the toggle joint is passing through a direct line between the pivots —20— and —21—, as for example in locking and breaking the joint, there is a tendency to buckle the link —5—, but this is prevented by the slight movement of the rocking member —7— which may then rock away from the stop —25— toward the stop —26—.

This movement, however, is only slight under any conditions, but aids materially in the easy folding and unfolding of the bows, and at the same time provides means for assuring a positive lock at the toggle joint —17— when the top is extended for use.

The arched sections —10— of the several bows are substantially identical in construction,—in that each consists of a tubular metal bar —30— having a lengthwise channel —31— in its outer face in which a strip —32— of wood is tightly held by compressing the opposite sides of the channel against the wood, which latter is adapted to receive the tacks by which the flaps usually provided on the inner side of the fabric top may be easily and quickly secured to the bows, the remaining portions of the metal tubes —30— being hollow to receive the adjacent ends of the bow sections, as —13— or —13′—.

In clashing the top from the position shown in Fig. 1 of the drawings, it is simply necessary to loosen the connection between the front bow and wind-shield frame —C—, whereupon the tension of the fabric top —B— will automatically lift the front end of the bow out of engagement with said frame, whereupon a slight downward pull upon either of the sections —13— or —15— will break the toggle joint —17— downwardly and allow the front portion of the top to clash by its own weight to or beyond the position shown by dotted lines at the front of the main-supporting bow —8—, Fig. 1.

When this portion of the top is clashed against the main supporting bow, the remaining bows may be clashed downwardly and rearwardly by their own weight.

The top may also be easily extended or adjusted for use by reversing these operations.

It will be evident, however, from the foregoing description that the main features of the invention lie in the construction and arrangement of the links —5— and —6— and rocking member —7—, but I do not wish to limit myself to the use of the rocking member, nor to the specific points of attachment of the links.

What I claim is:

1. In a folding top for vehicles, the combination of a main bow, a rocking member thereon, a front bow composed of front and rear sections hinged to each other and having its rear section pivoted to the main bow, an intermediate bow pivoted to the rear section of the front bow, and links pivotally connected at one end to the rocking member and having their opposite ends connected, respectively, to the front section of the front bow and to the intermediate bow.

2. In a folding top for vehicles, the combination of a main bow, a rocking member thereon, a front bow composed of front and rear sections hinged to each other and having its rear section pivoted to the main bow, an intermediate bow pivoted to the rear section of the front bow, links pivotally connected at one end to the rocking member and having their opposite ends connected, respectively, to the front section of the front bow and to the intermediate bow, and an adjustable stop for limiting the rocking movement of said member in one direction.

3. In a folding top for vehicles, the combination of a main bow, a front bow com-

posed of front and rear sections hinged to each other, the rear section being pivoted to the main bow, an intermediate bow pivoted to the rear section of the front bow, a link-support on the main bow, and separate links pivoted at one end to said support and having their opposite ends pivotally connected, respectively, to the front section of the front bow and to the intermediate bow at substantially equal distances from the hinged joint of the front bow and the pivot of the intermediate bow.

4. In a folding top for vehicles, the combination with main bow sockets, a main bow having its ends abutting against the ends of the sockets, couplings connecting the adjacent ends of the bow and sockets, a front bow having toggle arms pivotally connected to the couplings, rocking members pivotally mounted on said couplings, an intermediate bow pivoted to the toggle arms of the front bow, links connecting the rocking member with the front bow, and additional links connecting the rocking member with the intermediate bow.

5. In a folding top for vehicles, the combination with main bow sockets, a main bow having its ends abutting against the ends of the sockets, couplings connecting the adjacent ends of the bow and sockets, a front bow having toggle arms pivotally connected to the couplings, rocking members pivotally mounted on said couplings, an intermediate bow pivoted to the toggle arms of the front bow, links connecting the rocking member with the front bow, additional links connecting the rocking member with the intermediate bow, and adjustable stops on the couplings for limiting the movement of the rocking members.

In witness whereof I have hereunto set my hand this 21st day of October, 1916.

ALMON W. CURTIS.

Witnesses:
H. E. CHASE,
ALICE M. CANNON.