

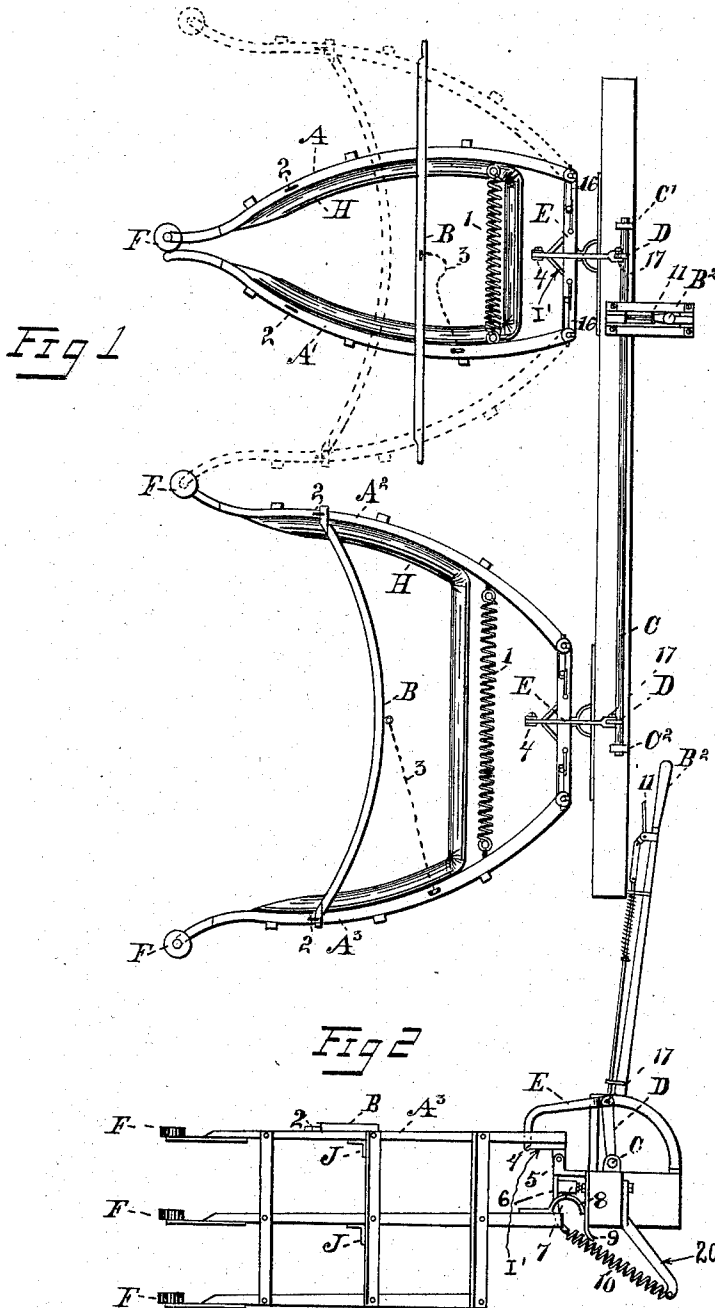
(No Model.)

4 Sheets—Sheet 1.

J. W. ANGELL.
SAFETY FENDER FOR STREET CARS.

No. 571,256.

Patented Nov. 10, 1896.



WITNESSES:
C. Hondelink
W. Louie Wright

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his ATTORNEY

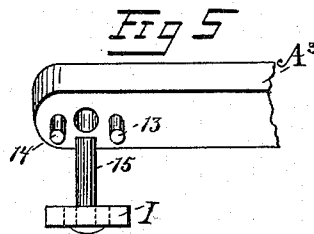
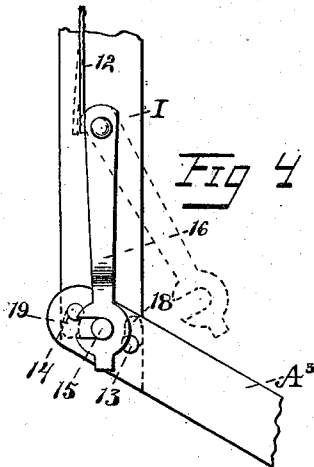
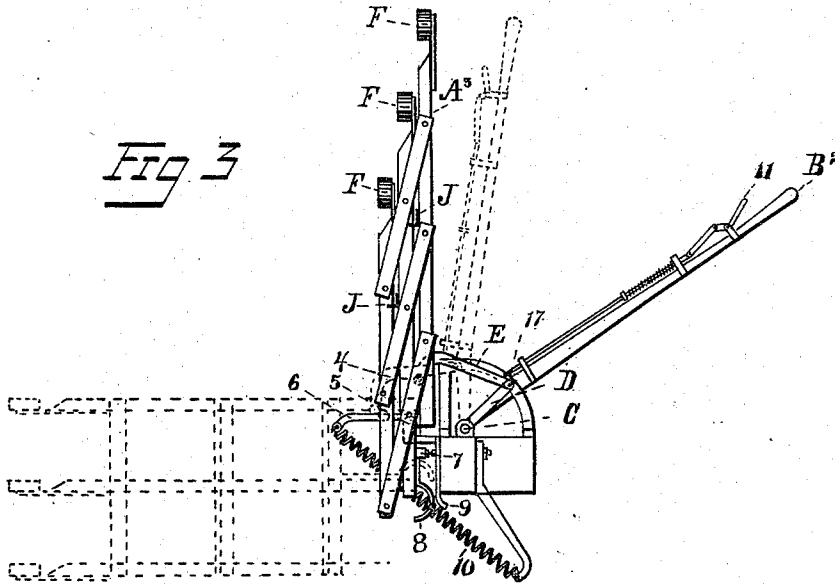
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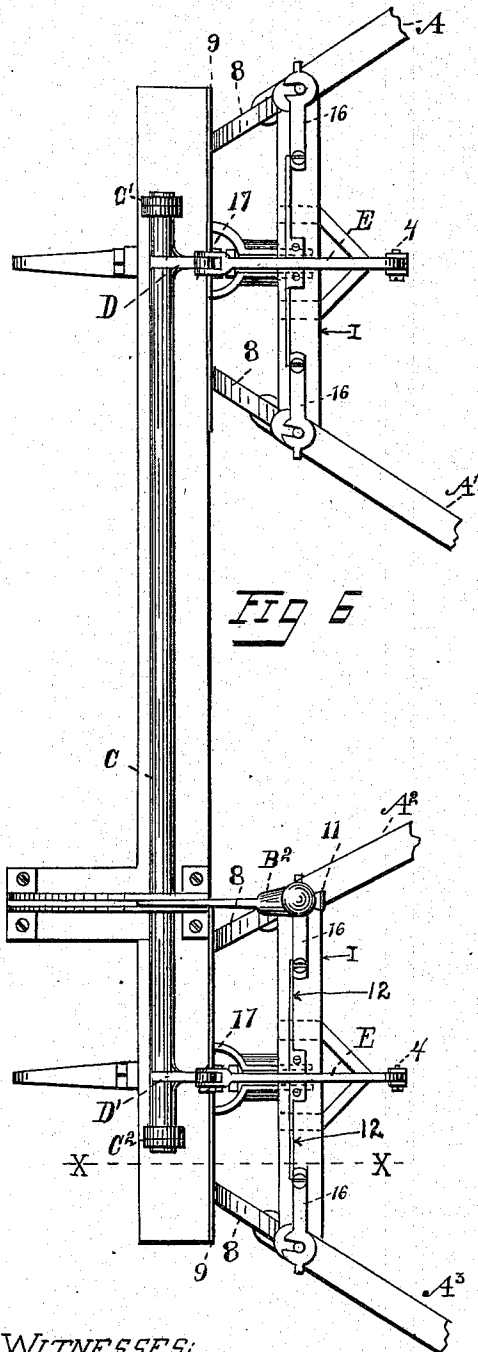


Fig 6

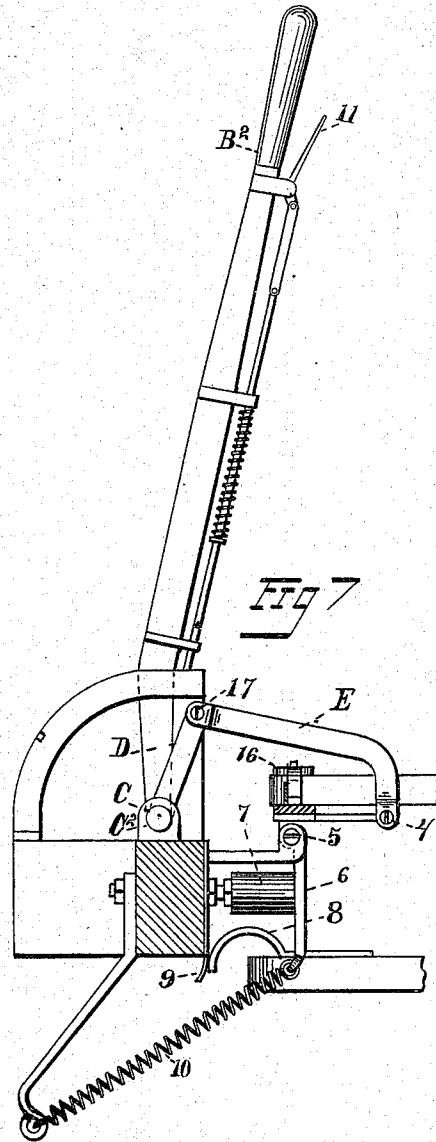


Fig 7

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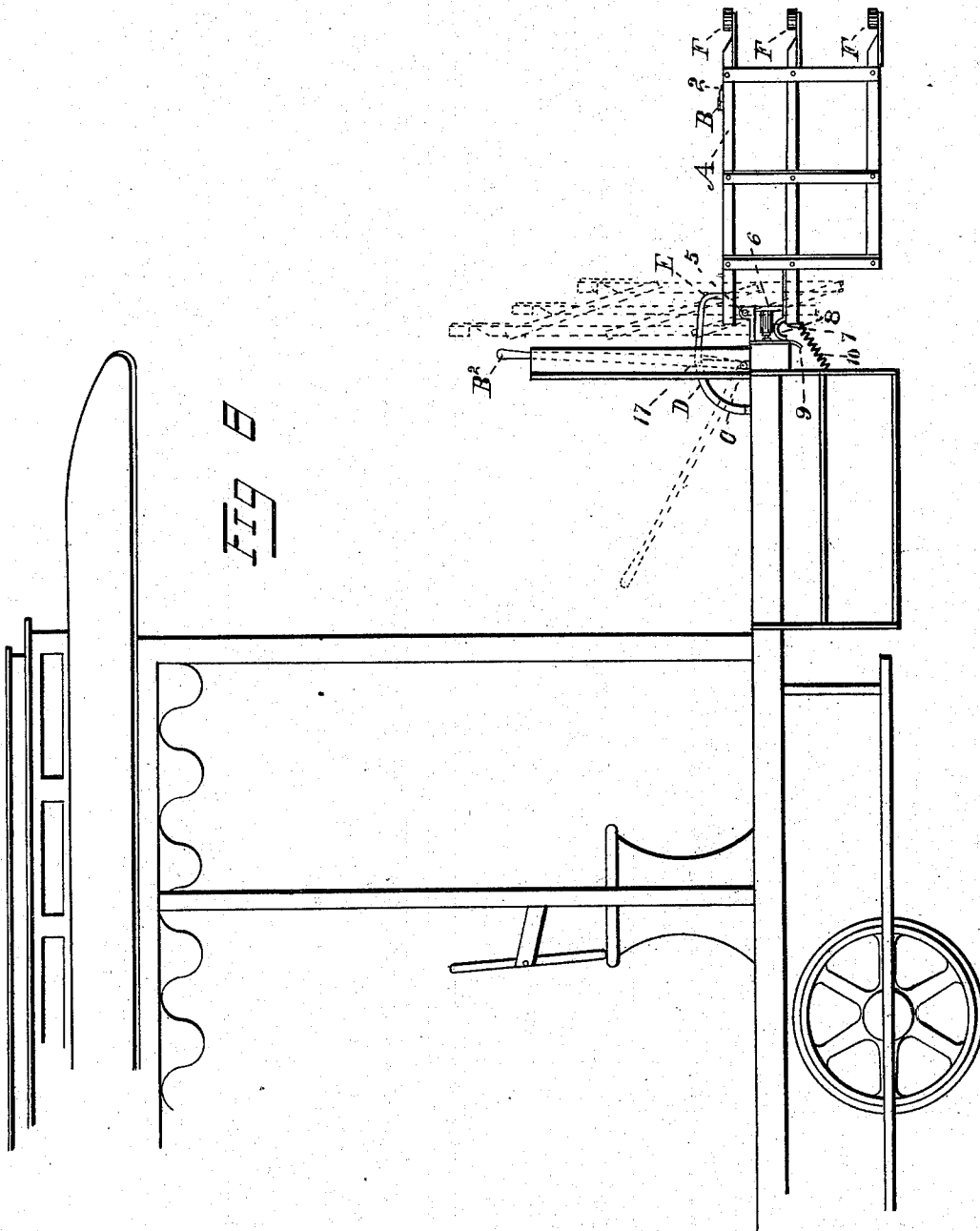
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UNITED STATES PATENT OFFICE.

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SAFETY-FENDER FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 571,256, dated November 10, 1896.

Application filed July 25, 1895. Serial No. 557,125. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. ANGELL, a citizen of the United States, residing at the city of Owosso, in the county of Shiawassee and State of Michigan, have invented a certain new and useful Safety-Fender for Street-Cars, &c., of which the following is a specification.

This invention relates to a new and useful safety-fender for street-cars and analogous purposes; and the invention consists in the combination, with a car or vehicle, of one or more pair of clamping-jaws adapted to clasp a person who is accidentally struck by a moving car and to retain such person so as to render it impossible for him to be run over by a moving car or vehicle to which my invention is attached.

The invention also relates to the combination of parts and details of construction hereinafter described in the specification and claimed.

The objects of my invention are, first, to prevent a person from falling under a moving car or vehicle; second, to grasp and securely hold the person struck by the moving car and to remove the person without injury; third, to form a car-fender which acts automatically on coming in contact with a person or obstacle; fourth, to form a street-car fender that can be readily attached and detached; fifth, to provide a car-fender that can be folded up readily and quickly when not in use; sixth, to obviate the danger of being run over or injured by a moving car. These objects I accomplish by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved fender with a beam of the car or vehicle to which the same is attached, the view showing the fender provided with two sets of jaws, one closed and the other open, the dotted lines showing the position of the closed jaws when opened. Fig. 2 shows a side elevation of the parts illustrated in Fig. 1, said Fig. 2 showing the lever in nearly a perpendicular position and showing a side view of one set of jaws, the same being composed of three horizontal strips on each side of the jaw, the same being fastened together by means of cross-strips. Fig. 3 shows a side elevation

with the jaws raised and folded together, the dotted lines showing the position the jaws and lever would assume when the jaws are lowered. Fig. 4 shows a detail illustrating the connection of the jaws to the hanger and the means for attaching and detaching the same. Fig. 5 shows also a detail, partially in perspective, of the inner end of one of the jaws, an end view of the hanger and the connecting-bolt, together with the stops or pins which regulate the movement of the jaw with reference to the hanger. Fig. 6 is a plan view, on an enlarged scale, designed to show more fully the connection of the jaws to the hanger, and also the connection to the operating rod or shaft, which is turned or rocked by means of a lever in raising and lowering the jaws. Fig. 7 is an end view, on an enlarged scale, of the parts shown in Fig. 6. Fig. 8 shows a side elevation of a part of a car to which my invention is attached with a side view of the fender lowered, the dotted lines showing the position of the fender when folded back against the dashboard of the car.

Similar letters refer to similar parts throughout the several views.

A and A' represent one set of the clamping-jaws, and A² and A³ represent the other set of the clamping-jaws. As these jaws are constructed and operated precisely alike it will be sufficient to describe one set of jaws with the connections and operation in use. Each jaw is preferably made in the shape of a frame provided with a plurality of horizontal pieces, or pieces which are horizontal when the jaws are lowered, as shown in Fig. 2. The jaws are pivoted to the hanger I, which hanger I is supported in suitable lugs so that it may be rocked or partially rotated for the purpose hereinafter described. At the outer end of the jaws I provide a roller, preferably of rubber or other elastic material, as shown by F F F, the object of the roller being merely to prevent injury to the person who may be struck with the fender when the car is moving.

The pivoted jaws are held open by means of a trip mechanism composed, as here shown, of a tripping stretcher-bar B and hooks 2. The hooks constitute parts of the pivoted jaws, and the extremities of the tripping stretcher-bar are notched to engage with these hooks.

The stretcher-bar is adapted to span the space between the jaws when the latter are unfolded, and this bar holds the jaws unfolded until an object is encountered which disengages the bar from the hooks, whereupon the spring 1 automatically closes the two jaws. In order to prevent the tripping stretcher-bar from becoming lost, or entirely detached from the car or the fender, I provide a chain or cord 3, which is connected at one end with one of the jaws and at its other end with the bar. When the two jaws are unfolded, the stretcher-bar is mounted upon and detachably connects with the jaws at a point between their pivoted ends and their outer extremities.

Whenever the fender is moved against a person or any object striking the stretcher-bar B, the two ends of this bar immediately detach or disconnect themselves from the two jaws, and the spring 1 closes the jaws upon the object which strikes the stretcher. This spring 1 may be a coil-spring or any other suitable means for closing the jaws.

In order to facilitate the folding of the jaws, I provide a rock-shaft C, to which is attached a lever B². The lever B² is connected rigidly to the shaft, and the shaft has a rigid arm D. To the rigid arm D there is pivoted, at the point 17, the connecting-bar E, the same being shown clearly in Fig. 7. The connecting-bar E at its other end is pivoted to the projection I', which projection is an arm or lug rigid with the hanger I. The pivotal point is shown by 4. Projecting from the hanger, and rigidly connected thereto, is the arm 6. To the lower end of the arm 6 is connected the coiled spring 10, which coil-spring 10 is connected at its other extreme to a projection 20, said projection 20 being an arm secured rigid with the front beam of the car.

The lever B² is provided with a catch or lock adapted to lock the lever when turned back so as to fold the jaws up against the dashboard and retain the same in that position. A coil-spring may be used for the purpose of retaining the lock in position, and a finger or trip 11 may be used for unlocking it. As this is the ordinary device used in levers I, do not consider it necessary to describe the same in detail.

Each jaw, when the same is provided with more than one strip, is adapted to fold up as well as to be raised to a horizontal position, the folded position being shown in Fig. 3, and when lowered or unfolded it assumes the position shown in Fig. 2, in which case I provide a series of stops J J, which arrest or prevent the strips from unfolding beyond the required position. These strips are made, in the example of my invention shown in the drawings, in the form of angle-iron, but may be constructed in any suitable manner.

In order to raise the jaws or to fold them up against the dashboard, all that is necessary is to turn the handle backward, as shown in Fig. 3, turning the hangers I I and

raising the jaws and allowing the same to fold into the position shown, and when the jaws are to be lowered the lever B² is unconnected and the jaws dropped down into the working position by their own weight, or may be crowded down by pushing on the lever. By this construction the jaws can be raised or lowered readily, and when not in use may always be folded up out of the way.

C' C' represent the lugs which form bearings for the shaft C. In order to prevent the jaws from injuring the person who may accidentally be brought in contact therewith, I provide preferably pneumatic or other cushions, (shown by H H,) one for each one of the fenders, and where the jaws or fenders are made of frames I prefer to apply the pneumatic cushions to each frame.

In order to facilitate the removal of the jaws, I provide a peculiar attachment therefor.

16 is a hook pivoted to the hanger I, the same being shown on an enlarged scale in Fig. 4. A spring 12 serves to retain the hook in engagement with the pin 15, which pin serves to attach the jaw to the hanger. In Fig. 4 the dotted lines show the movement of the hook when moved to disengage the jaws from the hanger.

13 and 14 are stop-pins which serve the purpose of limiting the outward and inward movement of the jaws.

18 and 19 are slots in the jaw adapted to receive the pins 13 and 14. The position of the pins, and also the opening with which the pin 15 engages, is shown in Fig. 5.

It will be understood that the connection shown in Figs. 4 and 5 is used for each of every pair of jaws.

5 are the pivots on which the hanger turns or oscillates. The arm 6 serves also as a buffer-plate, and is brought in contact with the buffer 7.

8 is a cam-shaped spring attached to the jaws and adapted to assist in unfolding the jaws then lowered. It bears against the beam of the car.

9 is a metallic fastening of the car-beam, against which the spring 8 comes in contact. The spring 10 not only serves the purpose of lowering the jaws, but also retains them steadily in position when lowered. After being lowered the jaws are opened by hand or by any other suitable means.

In the example of my invention shown in the drawings I have illustrated a fender having two pairs of jaws, but it will be evident that the number of pairs of jaws may be varied without departing from the spirit of my invention.

The detachable connection of the ends of the stretcher-bar with the two jaws when they are unfolded is an important feature of my invention, in that the stretcher-bar is more efficient and rapid in operation, and will instantly become disconnected from the two jaws when a person or object strikes the

stretcher-bar, no matter at what point the bar is struck, whether at the center or near either end.

Having thus described my invention, what I claim to have invented, and desire to secure by Letters Patent, is—

1. In a safety-fender, the combination with a car, of a pair or more of jaws pivotally connected with the car to swing vertically to a folded position and movable, when unfolded, approximately in a horizontal plane to clasp or retain the object or person brought in contact therewith.

2. The combination with a car, of a pair or more of jaws hinged or pivoted to swing horizontally and to fold vertically in front of the car-platform, said jaws swinging, when closing, approximately in a horizontal plane, means for folding the jaws vertically, and mechanism for automatically closing the said jaws when they are unfolded and are brought in contact with a person or other object.

3. The combination with a car, of automatically-closing jaws, a hanger to which said jaws are attached, and suitable mechanism for folding the said jaws into substantially a perpendicular position.

4. The combination with a car, of automatically-closing jaws, a hanger to which said jaws are pivoted to swing vertically, mechanism for folding the jaws into substantially a perpendicular position, a trip mechanism for unlocking the jaws when they stand unfolded and open, and a spring for automatically closing the jaws when unlocked by the trip mechanism, substantially as described.

5. In combination with a car, a pair or more of jaws held expanded by means of a suitable lock, a trip adapted by contact to unlock said jaws, a hanger to which said jaws are attached, and lever mechanism for folding said jaws when not in use into a compact position.

6. In a car-fender, the combination with a car, of a pair or more of jaws, a pneumatic or

other cushion for said jaws, a lock for retaining said jaws open, a trip for unlocking said jaws, a spring or springs for automatically closing said jaws, and means for raising and lowering said jaws at will, substantially as described.

7. In combination with a pair of jaws attached to a street-car or other vehicle, a pivoted hanger to which said jaws are pivotally connected to swing approximately horizontal, means for retaining the said jaws in their opened position, a trip for releasing the said jaws from their opened position, springs adapted automatically to close said jaws, buffers at the front end of said jaws, and means for rocking the hanger to swing the jaws vertically, substantially as described.

8. The combination with a car, of two oppositely-arranged jaws pivotally mounted to swing approximately horizontal and to fold upward to an approximately perpendicular position, each jaw consisting of a collapsible framework which collapses when it is raised vertically, substantially as described.

9. The combination with a car, of automatically-closing jaws, a hanger to which the said jaws are attached, and suitable mechanism for folding said jaws into a compact position so as not to interfere with the coupling of the cars.

10. In combination with a car, of a pair of jaws, each jaw composed of a folding framework pivotally connected and adapted to fold together when said jaws are raised, a hanger to which said jaws are attached, lever mechanism for lifting said jaws, and said jaws adapted to fold when lifted, substantially as described.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

JOHN W. ANGELL. [L. s.]

Witnesses:

J. B. GLASGOW,
T. O. CHRISTIAN.