

G. S. LEWIS.

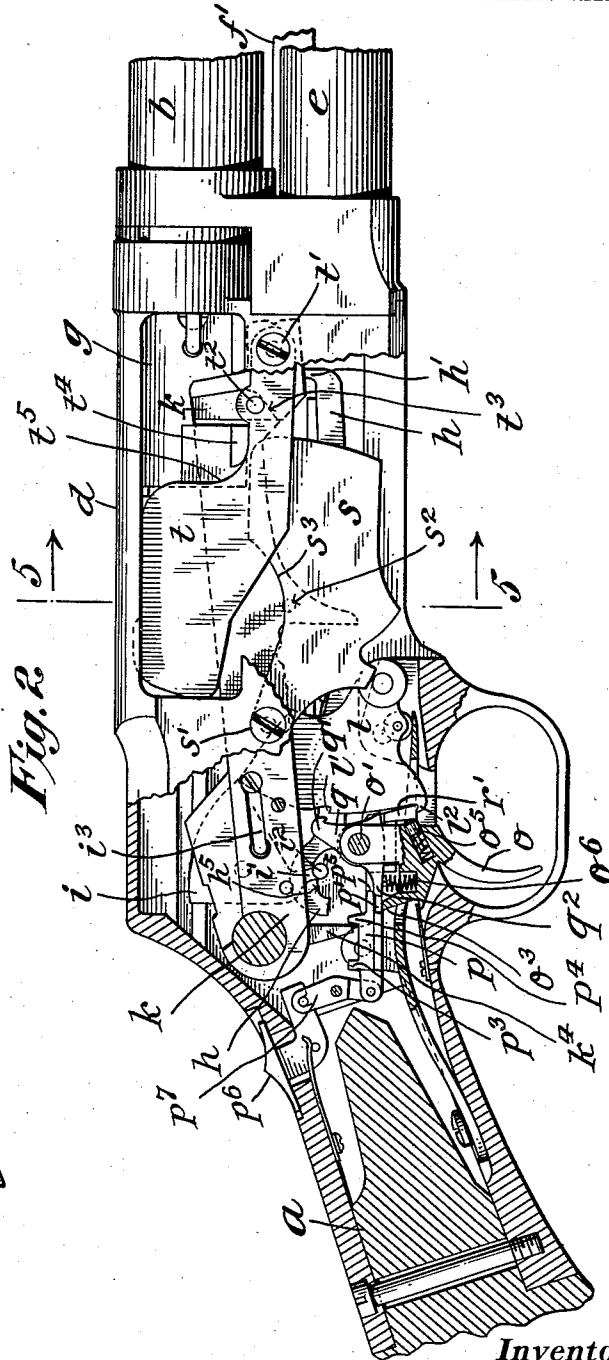
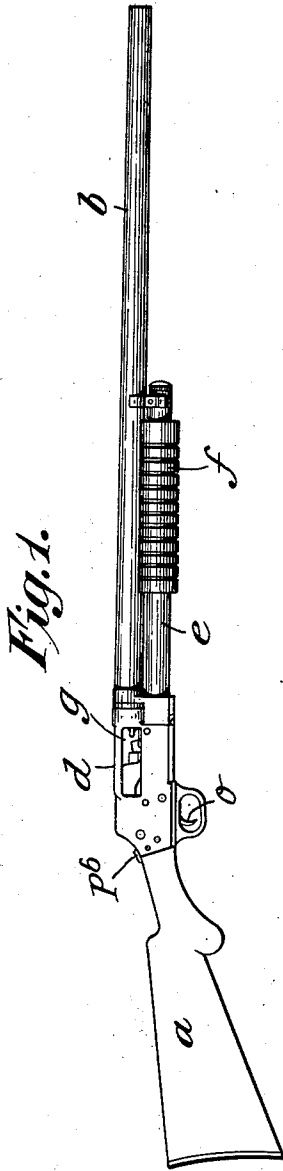
FIREARM.

APPLICATION FILED JULY 14, 1911.

1,021,988.

Patented Apr. 2, 1912.

3 SHEETS—SHEET 1.



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FIREARM.

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3 SHEETS—SHEET 2.

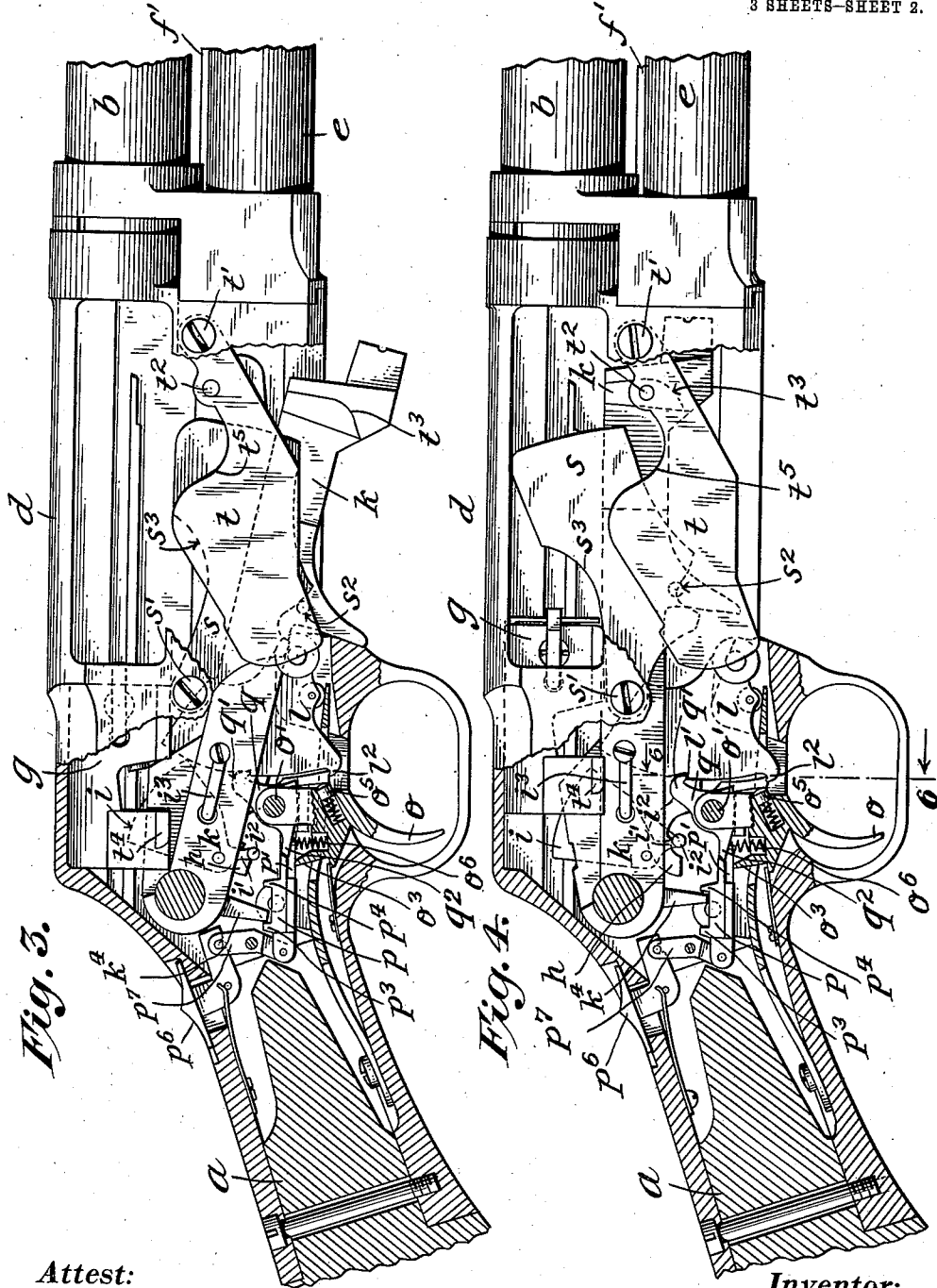


Fig. 3.

Fig. 4.

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3 SHEETS—SHEET 3.

Fig. 8.

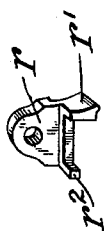


Fig. 9.



Fig. 10.

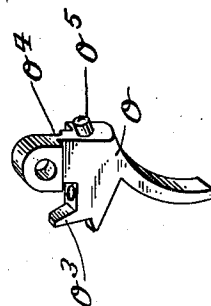


Fig. 6.

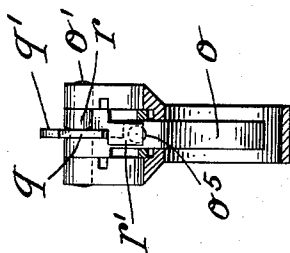


Fig. 11.

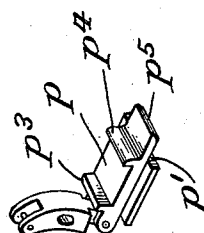


Fig. 5.

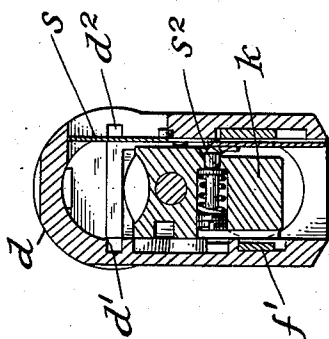
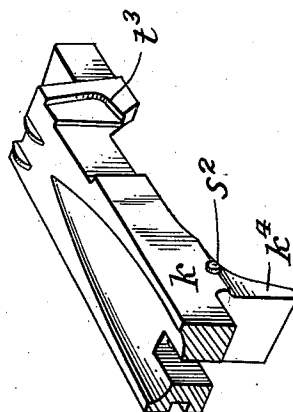


Fig. 7.



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UNITED STATES PATENT OFFICE.

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FIREARM.

1,021,988.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed July 14, 1911. Serial No. 638,545.

To all whom it may concern:

Be it known that I, GEORGE S. LEWIS, a citizen of the United States, residing in Chicopee Falls, in the county of Hampden, in the State of Massachusetts, have invented certain new and useful Improvements in Firearms, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

10 This invention relates to repeating firearms of that class in which the several operations of loading, withdrawing the empty cartridge shell from the chamber of the barrel and cocking the hammer are effected by the reciprocating movement of a fore-end, or grip piece, which is suitably mounted below the barrel and acts upon the mechanism within the receiver or frame through a slide bar.

20 The invention is shown and described herein as applied to a repeating shot gun of the same general construction as that shown in another application of the present applicant filed June 9, 1911, Serial No. 632,262, it being intended in the present case to cover certain modifications of and improvements in the construction shown in said application.

30 One particular object in view in the present invention is to prevent the possibility of the bending or breaking of parts of the mechanism by pressing rearwardly the safety slide lock in the opening of the gun while the trigger is held. For this purpose the hammer is engaged by a sear which is disengaged by the forward movement of the safety slide lock and it will be seen hereinafter that by this construction and arrangement of parts it becomes possible to fire the gun until the magazine is exhausted by simply holding the trigger and operating the fore-end for discharging the empty shells and reloading.

45 Another object is to prevent the possibility of breakage if the safety is put on while the gun is partly open, a sear being interposed for this purpose between the hammer and the trigger to yield and engage the hammer without moving the trigger.

50 The invention is further concerned with the construction and operation of the cartridge guard, with the provision of a cover to close the elongated ejector opening in the side of the frame in rear of the breech-block when the latter is in its forward position,

and with the cocking or returning to position of the inertia block.

The various features of improvement will be more fully explained hereinafter with a reference to the accompanying drawings in which the invention is illustrated and in which—

Figure 1 is a view in side elevation of the firearm chosen for illustration of the invention. Fig. 2 is a detail view, on a larger scale partly in longitudinal section and partly in side elevation, showing the breech-block in its forward position, the hammer cocked and engaged by the sear and other parts in corresponding positions. Fig. 3 is a view similar to Fig. 2, showing the breech-block in its rearward position and the lifter in its lowest position. Fig. 4 is also a similar view but showing the parts in positions which they would assume if the lifter were moved by hand upward from the position shown in Fig. 3, illustrating particularly the operation of the rear cover plate. Fig. 5 is a detail view in section on the plane indicated by the line 5—5 of Fig. 2, looking in the direction of the arrows. Fig. 6 is a detail view on the plane of section indicated by the line 6—6 of Fig. 4, looking in the direction of the arrows. Fig. 7 is a detail view in perspective of the lifter with the rear end in section. Figs. 8 and 9 are detail views of the two sears hereinafter referred to. Fig. 10 is a detail view of the trigger, and Fig. 11 is a detail view of the safety slide.

The shot gun illustrated in the drawings 90 as an embodiment of the invention is shown as of ordinary construction except in the parts hereinafter referred to, comprising the stock *a*, the barrel *b*, the receiver *d*, the magazine tube *e*, and the grip piece or fore-end *f*. The grip piece, as usual, has extended rearwardly therefrom a slide bar *f*¹ as shown in Figs. 2 and 5, by which the movement of the grip piece is transmitted to the breech-block and other parts of the mechanism.

The firearm shown in the drawings is intended to be of the take-down variety, but as the take-down features form no part of the present invention it is not necessary to illustrate or describe them in detail.

The receiver *d* is suitably chambered to receive the sliding breech-block *g* and is grooved longitudinally as at *d*¹ and *d*² to guide the breech-block in its movements.

When the gun is taken down the breech-block can be removed through the open forward end of the receiver and it is therefore unnecessary, so far as the insertion and removal of the breech-block is concerned, that it should consist of several parts detachably secured together, as described in said former application. It is moved to and fro through its engagement or connection with the slide bar f^1 substantially in the manner disclosed in said prior application, and as the connection between the slide bar and the breech-block forms no part of the present application it is not necessary to illustrate or describe it further. The rearward movement of the slide bar is prevented, except at the proper time, by a slide bar locking lever h , which acts in substantially the same manner as in the gun shown in said prior application, its toe h^1 being held normally upward by a spring, not shown, in the path of a shoulder of the slide bar. The lever is provided with a button, not shown, which projects through the left-hand side of the frame to permit the lever to be shifted by hand. It is also arranged, as fully described in said former application, to be actuated to release the slide bar when the gun is fired by a pivoted inertia block i , which is mounted on the cartridge lifter k forward of its pivot and is provided with a finger i^1 having a stud i^2 , which co-acts with a cam surface h^5 , on the under side of the rear end of the lever h to raise the rear end and throw the forward end down. The inertia block is provided with a detent, indicated at i^3 , to prevent the rebounding of the inertia block, as also described in said former application, but instead of being restored to normal position or cocked by the action of a cam extension of the lever h , it is restored or cocked, in the present case, by the action of the hammer l , the forward radius of which is longer than the rear radius so that the top edge of the hammer forms a cam to coöperate with the forward corner of the inertia block and thereby to turn the inertia block back to normal or cocked position when the hammer itself is cocked.

In the construction shown in said former application the trigger engages the hammer directly and also engages the safety locking slide directly having a heel which enters a recess in the under side of the slide when the gun is to be fired, the safety slide being then in its middle position, while in either extreme position of the safety slide the body of the slide, either in front or in rear of the recess, prevents operative movement of the trigger. It will be understood that in some conditions, as when the safety slide is moved to the rear by the opening movement of the gun while the trigger is still pulled rearwardly, there might be such engagement of parts as to prevent their proper movement

without bending or breaking. To overcome such difficulties and to accomplish other desirable results, in the present case the slide bar p has the lower portion of its body cut away as at p^1 , to permit the operative movement of the trigger o when the slide p is in either its middle or its rearward position. In the forward position of the slide p the body of the rear of the cut away portion stands over the heel o^3 of the trigger o to prevent operative movement of the trigger, but in front of the cut away portion p^1 there is no corresponding portion of the body to prevent operative movement of the trigger when the slide p is in its rearward position. Therefore the slide p can be moved rearwardly, through the coöperation of the finger k^4 , which moves with the lifter, with the rear lug p^3 of the slide, even though the trigger be held in its rearward position with the heel o^3 elevated. The finger k^4 , in the upward movement of the lifter, coöperates with the lug or shoulder p^4 in the same manner as described in said application. On the same pivot pin o^1 with the trigger o is pivoted a sear q which has a toe q^1 adapted to engage a shoulder l^1 of the hammer and a rearward projection q^2 which is slightly beveled to coöperate with the beveled end p^5 of the safety slide p . There is also pivoted on the same pin o^1 a second sear r which has a toe r^1 to engage a notch or shoulder l^2 of the hammer l and a rear, lateral projection r^2 which overlies the rearward projection q^2 of the sear q , the upper portion o^4 of the trigger being embraced loosely between the laterally extended toe r^1 and the lateral projection r^2 ; a spring plunger o^5 mounted in the trigger acts against the rear face of the toe r^1 to press the toe toward the hammer. A spring o^6 is interposed between the rear portion of the trigger and the rearward extension of the sear q to press such rearward extension upwardly and the toe q^1 forward to the hammer. The sear r is controlled by the movement of the trigger, but yields, when the trigger is in its forward position, to permit the shoulder l^2 of the hammer to pass downward by it. The sear q is controlled by the safety slide p , so that when the lifter is raised in the operation of closing the gun and the slide p is pulled forward, the sear is thereby disengaged from the hammer. By this means it is possible to fire the gun repeatedly by the operation of the grip piece f while the trigger is pressed to the rear, for as soon as the slide p is moved rearwardly in the opening of the gun the sear q is permitted to engage the hammer and hold it cocked until, in the closing of the gun, as the lifter reaches its highest position, when the gun is fully closed the safety slide p then acts upon the sear q to release the hammer and permit it to act upon the firing pin.

It will be noted that if the trigger is not pressed rearwardly, the hammer will then be held in its cocked position by the sear *r* and, if it is desired then to prevent operative movement of the trigger the forward movement of the safety slide *p* may be continued by moving the safety button *p*⁶ to the rear, the latter acting through the lever *p*⁷. It will be seen that if the safety slide *p* is moved to its extreme forward position by movement of the button *p*⁶ while the gun is partly open, the sear *r* will yield to the movement of the hammer without requiring movement of the trigger and will engage and hold the hammer as soon as it reaches cocked position.

The cartridge guard *s*, which prevents the fresh cartridge from escaping through the lateral opening in the frame after it has been raised by the lifter and before it is pushed forward by the breech-block, is in the present case pivoted on the frame, as at *s*¹. A spring plunger *s*², mounted in the lifter *k*, moves past the lower edge of the guard *s* in its downward movement and in the upward movement of the lifter makes contact with the lower edge of the guard *s* and raises it to its highest position, slipping by the lower edge of the guard as soon as the latter has reached its highest position. The guard plate is held in its highest position frictionally and is thrown down by the breech-block in its forward movement, the breech-block coöperating with the cam edge *s*³ of the guard for this purpose. There is also provided in the present case a chamber guard plate *t* which is pivoted to the frame at its forward end as at *t*¹, and is arranged to close the lateral opening in the frame in rear of the breech-block when the latter is in its forward position, the opening being made unusually long so that obstructive substances might enter the receiver in rear of the breech-block when the gun is closed, but for such rear guard plate. The rear guard plate is provided with a stud at *t*² which is engaged by a shoulder *t*³ on the lifter *k* as the latter completes its upward movement, thereby raising the guard plate to its highest position where it is held frictionally. A lug *t*⁴ on the breech-block co-acts with the cam edge *t*⁵ of the rear guard plate to throw the latter down as the breech-block moves rearwardly.

It will be understood that some of the features of improvement herein described are capable of use independently of others and in other structures than that shown and described herein. It will be understood, therefore, that the invention is not restricted to a structure in which all of the features of improvement are incorporated nor to the particular construction and arrangement of such features in themselves,

it being possible to make various changes to suit different conditions of use without departing from the spirit of the invention.

I claim as my invention:

1. In a firearm, the combination of a hammer, a trigger, a sear pivoted co-axially with the trigger and having a toe to engage the hammer and a rearward beveled extension, and a safety locking slide to coöperate with the trigger and having a beveled end to coöperate with the sear to disengage the hammer.

2. In a firearm, the combination of a hammer having a plurality of notches, a trigger, a sear controlled by the trigger and adapted to engage one of the notches of the hammer to hold it in cocked position, a second sear adapted to engage another of the notches of the hammer to hold it in cocked position, a safety slide and means actuated by the movement of the safety slide to control said second named sear.

3. In a firearm, the combination of a hammer having a plurality of notches, a trigger, a sear controlled by the trigger and adapted to engage one of the notches of the hammer to hold it in cocked position, a second sear adapted to engage another of the notches of the hammer to hold it in cocked position, a slide bar and a safety locking slide actuated by the movement of the slide bar and coöperating with the trigger and also coöperating with said second named sear to disengage the hammer.

4. In a firearm, the combination of a hammer having a plurality of notches, a trigger, a sear controlled by the trigger and adapted to engage one of the notches of the hammer to hold it in cocked position, a second sear adapted to engage another of the notches of the hammer to hold it in cocked position, a cartridge lifter and means actuated by the movement of the cartridge lifter to control said second named sear.

5. In a firearm, the combination of a hammer having a plurality of notches, a sear pivoted co-axially with the trigger and adapted to engage one of said notches to hold the hammer in cocked position, and a second sear also pivoted co-axially with the trigger and adapted to engage another of said notches to hold the hammer in cocked position.

6. In a firearm, the combination of a hammer, a trigger, a sear pivoted co-axially with the trigger and adapted to engage the hammer, said sear having lateral projections engaging the trigger loosely, a second sear also pivoted co-axially with the trigger and having an extension overlying one of the lateral projections of the first named sear and independent means to actuate the second named sear.

7. In a firearm, the combination of a ham-

mer, a trigger, two sears mounted co-axially with the trigger and adapted to engage the hammer, a spring plunger mounted in the trigger and cooperating with one of said sears, and a second spring plunger also mounted in the trigger and cooperating with the other of said sears.

8. In a firearm, the combination of a hammer, a slide bar, a slide bar locking lever pivoted in the frame, a pivoted inertia block cooperating with the locking lever and a hammer having a cam edge to cooperate with the inertia block and restore the same to cocked position as the hammer itself is cocked.

9. In a firearm, the combination of a receiver having a lateral opening for the ejection of the cartridge shell, a breech-block arranged to reciprocate longitudinally in the receiver, a cartridge lifter mounted in the receiver, a spring plunger mounted in the lifter, and a cartridge guard plate pivoted within the receiver and adapted to be raised by cooperation of said spring plunger with its lower edge and to be depressed by cooperation of the breech-block with the plate.

10. In a firearm, the combination of a receiver having a lateral opening for the ejection of the cartridge shell, a breech-block arranged to reciprocate longitudinally within the receiver, a cartridge lifter pivoted at its rear end within the receiver, a spring pressed plunger mounted in the lifter and a cartridge guard plate having a cam edge and pivoted at its rear end within the receiver, said cartridge guard plate being

raised by cooperation of said spring plunger with the lower edge of the plate and depressed by cooperation of the breech-block with said cam edge.

11. In a firearm, the combination of a receiver having an elongated lateral opening for the ejection of a cartridge shell, a breech-block mounted to reciprocate longitudinally in the receiver and moving forward of the rear end of said opening, a movable chamber cover to close the opening in the rear of the breech-block, means to move said cover to close the opening when the breech-block is in its forward position, and means to move said cover to clear the opening when the breech-block is in its rearward position.

12. In a firearm, the combination of a receiver having an elongated lateral opening for the ejection of a cartridge shell, a breech-block mounted to reciprocate longitudinally in the receiver and to move forward of the rear end of said opening, a cartridge lifter, and a chamber cover pivoted at its forward end in the receiver and adapted to cover the opening in the receiver, the cartridge lifter cooperating with said cover to raise the same as the breech-block reaches its forward position and the breech-block cooperating with said cover to depress the same as the breech-block moves to the rear.

This specification signed and witnessed this 10th day of July A. D., 1911.

GEORGE S. LEWIS.

Signed in the presence of—

C. H. LEONARD,

A. F. CROWTHER.