

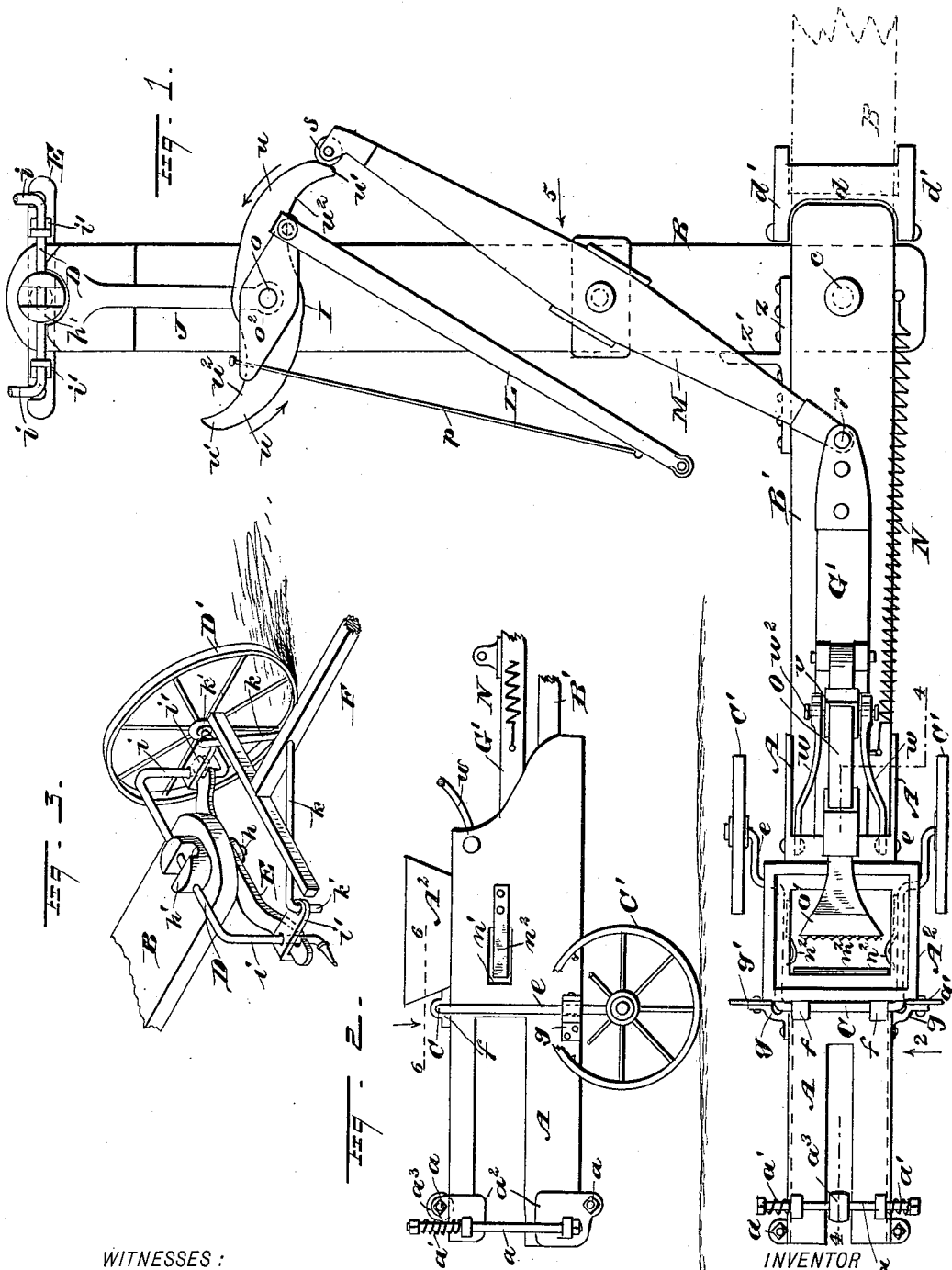
(No Model.)

2 Sheets—Sheet 1.

G. V. B. WILLIAMS.
BALING PRESS.

No. 552,310.

Patented Dec. 31, 1895.



WITNESSES :

H. Walker
C. Sedgewick

G. V. B. Williams
BY Munn & Co

ATTORNEYS.

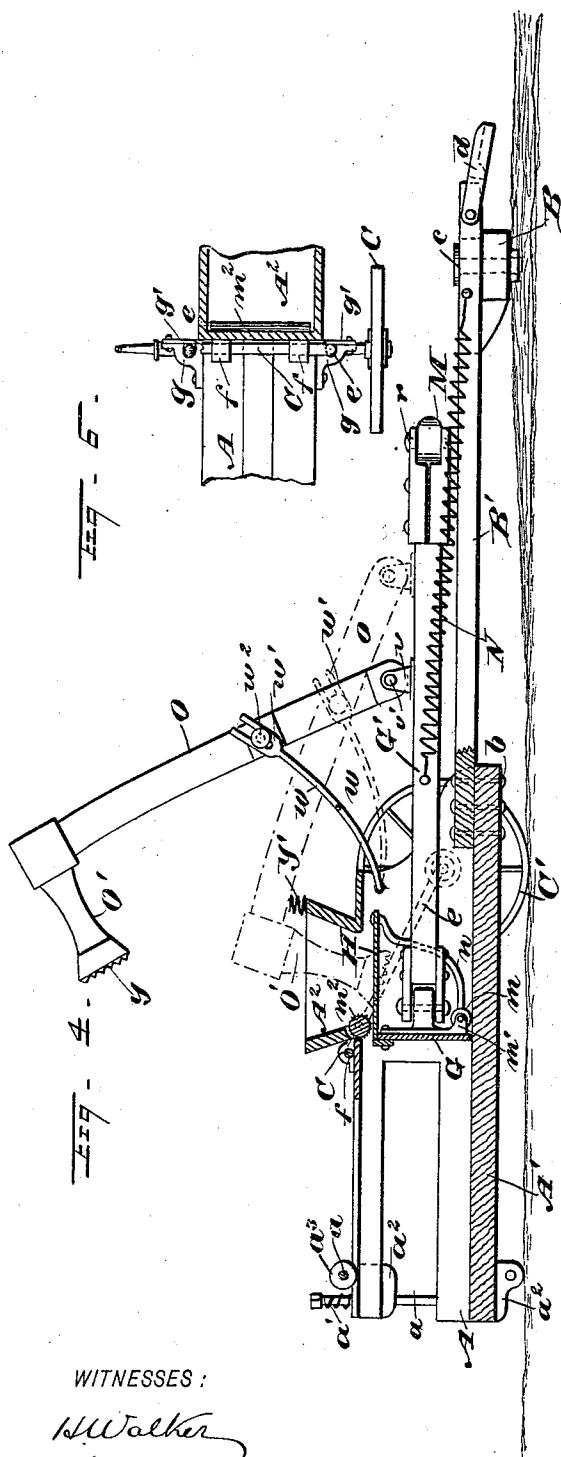
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G. V. B. WILLIAMS.
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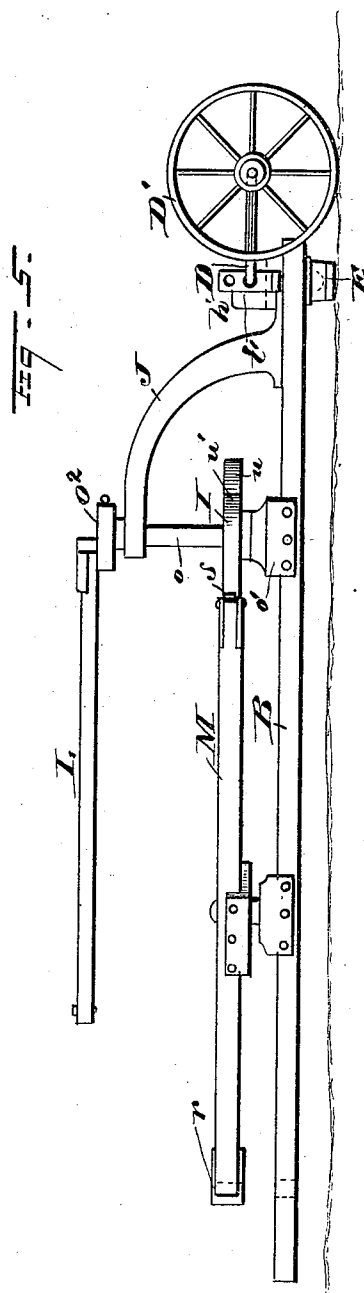
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H. Walker
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INVENTOR

G. V. B. Williams

BY

Munn & Co

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UNITED STATES PATENT OFFICE.

GEORGE V. B. WILLIAMS, OF CHETOPA, KANSAS, ASSIGNOR OF ONE-HALF
TO ELWIN W. BEDELL, OF SAME PLACE.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 552,310, dated December 31, 1895.

Application filed May 31, 1892. Renewed October 2, 1894. Serial No. 524,767. (No model.)

To all whom it may concern:

Be it known that I, GEORGE V. B. WILLIAMS, of Chetopa, in the county of Labette and State of Kansas, have invented a new and useful Baling-Press, of which the following is a full, clear, and exact description.

This invention relates to improvements in hay or straw baling-presses of a type that is portable and continuous in operation, and has for its object to provide a wheeled baling-press of simple durable construction that is easy to move and convenient to anchor in position for use, which will feed loose material to be baled into the hopper of the machine automatically, and, furthermore, that will reduce the labor and expense of attendance, with an increased output of baled or pressed material, as compared to ordinary hand-fed baling presses.

To these ends my invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the device adjusted and located for service. Fig. 2 is a broken side elevation of the rear portion of the press, viewed opposite the arrow 2 in Fig. 1. Fig. 3 is a broken perspective view of the forward part of the device, parts being removed. Fig. 4 is a side elevation of the press, partly in section, on the line 4 4 in Fig. 1. Fig. 5 is a side elevation of the forward part of the machine detached, viewed opposite the arrow 5 in Fig. 1; and Fig. 6 is a broken plan view, partly in section, on the line 6 6 in Fig. 2.

The baling-chamber A is elongated and rectangular in cross-section and slotted longitudinally at each side and in the top wall of the same, and at its discharging or rear end vertical and transverse clamping screw-bolts a^2 , the former having spiral springs a' thereon, are adjustably supported in connection with said sides and top wall by bracket-plates a^2 , which afford means to slightly contract the delivery-throat of the chamber, so as to produce frictional resistance to the passage of compressed material, and thus render feasi-

ble the continuous operation of baling hay or straw.

The transverse top bolt a has a roller a^3 mounted on it at the center, which roller projects within the baling-chamber through the longitudinal slot in its top wall, the office of said roller being to facilitate the discharge of baled material from the rear end of the chamber.

The baling-chamber is mounted upon the rear end portion of a base-plate A' , which projects forwardly a proper length, and upon its front end the rear end of a reach-plate is bolted, as at b in Fig. 4. The reach-plate consists of two sections $B B'$, the latter being secured to the base-plate A , as before stated, and having its forward end portion imposed upon the rear end of the other section B and pivoted thereto by a bolt c . A sufficient length, width and thickness are given to the base-plate A' and composite reach-plate $B B'$, and to afford efficient service and to retain the sections of the latter in lateral alignment a rocking latch-plate d is provided, which is pivoted to swing on the front end of the reach-plate section B' and locate its side flanges d' on each side of the plate-section B , when the latter is adjusted as indicated by dotted lines in Fig. 1.

Upon the baling-chamber A a hopper A^2 is secured, near its rear end, above a feed-aperture therein of rectangular form and a width equal to that of the chamber.

A bent rear axle C is provided to co-act with the wheels C' and sustain the rear portion of the device when it is to be transported, and also permit the bed-plate A' of the chamber A to be quickly and easily lowered to rest upon the ground when the machine is to be used as a press. To these ends the rear axle C is made of a proper width in its bowed portion to allow its parallel limbs e to loosely embrace the sides of the baling-chamber, while the portion of the axle that unites said limbs is loosely secured in boxes f , rearward of the hopper A^2 on the top wall of the chamber, the lower end portions of the bent axle named being bent outward and then in, parallel with the upper limb portions, terminating in oppositely-projecting spindles on which the wheels C' are rotatably secured.

At a suitable point on each side of the baling-chamber A, near the lower edge, a locking-box *g* is secured, wherein the limbs *e* may be held in a vertical position by the latch-plates *g'* when the latter are adjusted to bear upon the front of the axle-limbs, while the latter are embedded in vertical grooves of the boxes, as shown in Fig. 6. Said latch-plates are adapted to swing outwardly and release the axle when desired.

The forward part of the reach-plate B is supported by a bent axle D that has a loose engagement in its upper part with the king-bolt *h*, which latter is enlarged to have an extended bearing upon the reach-plate through which it passes, the straight horizontal portion of the axle near its longitudinal center being inserted through a transverse hole in the king-bolt head *h'*.

The reach-plate B is pivoted by the king-bolt *h* upon a transverse bolster-plate E that is arched, as shown in Fig. 3, and has its front edge notched near each end, so that the depending limbs of the bent axle may be swung into these notches when it is desired to lock the axle and bolster together, with the front wheels D' engaging the ground.

A preferred means for detachably securing the limbs *i* of the bent axle D within the notches of the bolster-plate E consists of the similar L-shaped clip-plates *i'* that are loosely located on the limbs *i* above the spindles of the axle. As represented in Fig. 3, the clip-plates in service rest upon the bolster-plate with one limb of each in engagement with the rear edge of said plate and their other limbs projected forwardly, these projections being perforated to receive bent end portions *k'* of diagonal braces *k* on the draft-pole F, which, when in position and use, will retain the clip-plates in place and lock the axle D upon the bolster-plate E, a removal of the pole permitting the axle to be swung forwardly into a horizontal position, or such a plane as will drop the bolster-plate upon the ground, as indicated in Fig. 5.

Within the baling-chamber A there is a plunger-plate G, jointed to the forward end of a pusher-bar G', said plunger-plate being provided at its lower end with antifriction-rollers *m*, that are rotatably sustained in bracket-frames *m'*. There is a horizontal apron H secured at its front edge upon the top edge of the plunger-plate G, which apron extends the width of the hopper-opening and is located below it, and along the forward lower transverse edge of the hopper A² a serrated roller *m*² is rotatably supported, having its serrations hooked downwardly. The plunger-plate G is connected at its lower end by curved braces *n* to the rear edge of the apron H, which braces serving to sustain the connected parts are located one each side of the pusher-bar G'.

The side walls of the baling-chamber A, forward of the axle C, are nearly intact, except the longitudinal slots *n'*, wherein spring-

plates *n*² are located, the free curved portions of which project within the baling-chamber, as shown in Fig. 1.

The plunger-plate and apron and also the pusher-bar receive reciprocating motion from a cam-head I, that is affixed upon the body of a vertical driving-shaft *o*, which has its lower end stepped into a pedestal-box *o'*, the latter being secured upon the reach-plate B at a proper distance from the bolster-plate E. The upper portion of the driving-shaft *o* is supported rotatably by a bent arm J, which is seated upon and secured to the reach-plate B near its front end, and above the arm a driving-head *o*² is affixed upon the shaft *o*, which head supports the horizontal sweep-beam L. The sweep is attached to one end of the head *o*² by one of its ends, and at the other end of said head one end of a truss-rod *p* is attached. The opposite end of this rod projecting toward the sweep-beam is thereto secured near its free end, the point of support for the head on the shaft *o* being intermediate of its ends.

There is a horizontal cam-lever M pivoted centrally upon the reach-plate B, having one end at *r* jointed to the forward end of the pusher-bar G', its other end projecting toward the cam-head I to engage therewith and having an antifriction-roller *s* rotatably sustained on said extremity, as shown in Fig. 1. The cam-head I is peculiarly shaped on the edges which have impinging contact with the roller *s*, being oppositely curved from the longitudinal center on the outer edges *u* and has the extremities *w'* approaching a true circle, of which the axis of the shaft *o* is the radial center, and upon the other edges *w*² re-entering curves are produced that are joined near the middle of the arm with an arc of a true circle, the outer cam-faces thus produced being parabolic arcs.

The free end of the sweep-beam L is designed to receive a single or double tree for the harnessed attachment thereto of a team of draft-animals that when moving in a circle will rotate the cam-head in the direction of the curved arrows in Fig. 1, thus causing the roller *s* to traverse the cam-head from its center to the ends on the curved edges *u*, which in pitch and length should be sufficient to cause a travel of the plunger and apron from front to rear of the hopper A². Upon the side of the pusher-bar G' a retractile spring N is secured by one end near to the baling-chamber A, its rearwardly-extending end portion being affixed to the reach-plate B', the strength of said spring being sufficient to forcibly retract the pusher-bar when it is released by the cam-head.

On the upper side of the pusher-bar G', at a suitable distance from the hopper A², a tripping-beam O is pivotally attached by a bracket-box *v* and pintle-bolt *v'*, or other similar means, the relative position and length of the beam being such as will permit a hammer-block O' on the free end of the latter to enter

the hopper-box and vibrate its front edge near to the roller m^2 when the beam O is made to rock upon its pivot-bolt.

As shown in Figs. 1 and 4 by full and dotted lines, the tripping-beam O is connected to the side walls of the baling-chamber A forwardly by two curved guide-rods w , which are hooked fast by one end of each to said walls, and at their other ends have the forks w' produced thereon, which loosely engage with a transverse bolt w^2 that is secured to project from each side of the tripping-beam, these rods serving as braces to prevent a lateral displacement of the beam O, while a free vertical rocking movement of the same is permitted.

Preferably the hammer-block O' is shod upon its striking-face y with a metal cap having its surface roughed by checker-work or similar means which will adapt it to prevent the hay or straw from crowding away when struck by the block.

Upon the upper edge of the hopper A² a buffer-spring y' is affixed, so that the impact of the tripping-beam O will be absorbed by said spring if the beam is vibrated when the hopper is empty.

In service the front portion of the device is swung into the position shown in Fig. 1, which will dispose the reach-plate section B at a right angle to the other section B', there being a knee-plate z affixed upon the latter along its edge, so that its projecting member z' will be impinged upon by the edge of the forward reach-plate section when a proper degree of swinging adjustment has been given to it, as represented in Fig. 1.

The improved baling-press is well adapted for use in fields where hay or straw has been stacked or housed under ricks and that is to be converted into bales, the machine being first transported by hauling it as a wagon to the point where it is to be used, and then preparing it for service, as follows: The rear end of the base-plate A' is elevated with a wagon-jack sufficiently to permit the wheels C' to be swung with the bent axle C forwardly, as shown in Fig. 4, the latch-plates g' being first rocked outwardly, so as to permit such a movement of the rear axle. The rear end of the press-chamber A is now lowered by the jack (not shown) and simultaneously with this movement the driver of the team will throw up the latch-plate d , and thus release the front reach-plate section B, which is swung laterally till it assumes the position indicated in Fig. 1. The draft-pole F is now lifted so as to release the front bent axle D, that with its wheels D' is then projected forwardly, the axle being thrown into a horizontal position and the clip-plates i' located upon the transverse portion of said axle. When the wheels D' and front axle D are adjusted, as stated, the plate B is lowered, and the bolster-plate E rests upon the ground, thus becoming a wide base for the support of the machine at this end of the reach-plate, that is essentially a base-plate when the de-

vice is in service. The team of draft-animals is now attached to the outer end of the sweep-beam L and started, the rotary motion thus produced in the cam-head I causing the cam-lever M to vibrate, and it in turn reciprocates the pusher-bar G' with the plunger-plate G and apron H. For convenience the machine entire is located near to a hay-stack, if such material is to be baled, and when the device is put in motion hay is forked into the hopper A², while the hammer-block O' is elevated, the movement of the latter being slow enough to permit this with entire safety to the operator. It will be seen that when there is a charge of hay driven down by the fall of the hammer-block O' this adjustment of parts will occur at the instant the roller s slips off of the curved end of the cam-head I, and the contractile force of the spring N has simultaneously drawn the plunger-plate G back along with the apron H, while the cam-lever M is drawn toward the hub-center of the cam-head and for a few seconds remains at rest, this cessation of motion in the cam-head occurring alternately at the time the beam L is nearing the cam-lever, so that the team of draft-animals can step over the latter safely. As the hammer-block O' is adapted to strike within the hopper A² near the serrated roller m^2 , it will be evident that the latter will roll on its journal ends, if there are wisps of hay between, and thus transfer the hay down within the baling-chamber to be forced forward by the next stroke of the plunger-plate G, and when so forced the side spring-plates n^2 hold the pressed increment of hay from crowding back when pressure is relaxed.

The peculiar shape of the cam-head I affords a gradation of pressure in the baling-chamber A, until the plunger-plate G is nearing the end of its travel rearward, when the pressure is increased and the ratio of speed correspondingly decreased by reason of the nearly concentric curvature of the end portions of the cam-head, and as this point in the traverse of the plunger-head is where the greatest resistance is to be overcome the advantages of such a construction for the cam-head are obvious.

As the compacted hay issues from the rear end of the baling-chamber A it may be cut into conveniently-shaped bales by any suitable means, and banded as usual to retain the material in a pressed condition.

After one stack of hay has been baled the apparatus can be quickly restored to a portable condition to move it to another point for resumption of work or housing the machine.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with the baling chamber having a feed hopper, and the plunger provided with a pusher bar to move it past the hopper toward the outlet end of the baling chamber, of a beam O pivoted at its lower end to the pusher bar, extending rearwardly and

provided over the hopper with a hammer block, and braces pivoted to the frame work in rear of the beam pivot and pivotally connected at their opposite ends to the beam above its pivotal point.

2. In a baling press, the combination with a horizontal baling chamber, of a two part jointed reach plate, one section of which is extended to form a bottom plate for the baling chamber, vertically swinging axles on the baling chamber and reach plate, having wheels, a plunger device on one section of the reach plate, and a cam mechanism on the other section of said plate adapted to actuate the plunger device, substantially as described.

3. In a baling press, a two part reach plate, an end extension of one of which sections forms the base plate of a horizontal baling chamber, the two sections of said reach plate being jointed to flex laterally and form an angular base support for the press mechanism when in service, substantially as described.

4. In a baling press, the combination with a horizontal baling chamber, and its forwardly extending base plate, of a two part reach plate laterally adjustable in its forward section, and wheeled supports for the chamber and the reach plate sections, substantially as described.

5. In a baling press, the combination with a horizontal baling chamber, a two part lat-

erally-flexing reach plate and press mechanism on the reach plate, of a rear bent axle on the baling chamber adapted to swing forwardly, means for securing said axle in vertical position, wheels on said axle, a front bent axle, a bolster plate pivoted on the reach plate and notched on the front edge to receive the front bent axle, L-shaped clip plates adapted to hold the axle and bolster plate together, a draft pole, and braces on the draft pole engaging the clip plates and locking them to the axle and bolster plate, substantially as described.

6. In a baling press, the combination with a baling chamber and its forwardly extended base support, pressing devices for said chamber, and a two part reach plate, of a bent axle adapted to swing on the baling chamber, devices for locking said axle in a vertical position, wheels on said axle, a bent axle adapted to swing on one of the reach sections, devices for holding said axle in a vertical position, a draft pole, and diagonal braces thereon that are adapted to co-act with the front axle securing devices and hold them in locked condition, substantially as described.

GEORGE V. B. WILLIAMS.

Witnesses:

E. W. MINTURN,
M. E. ADAMS.