

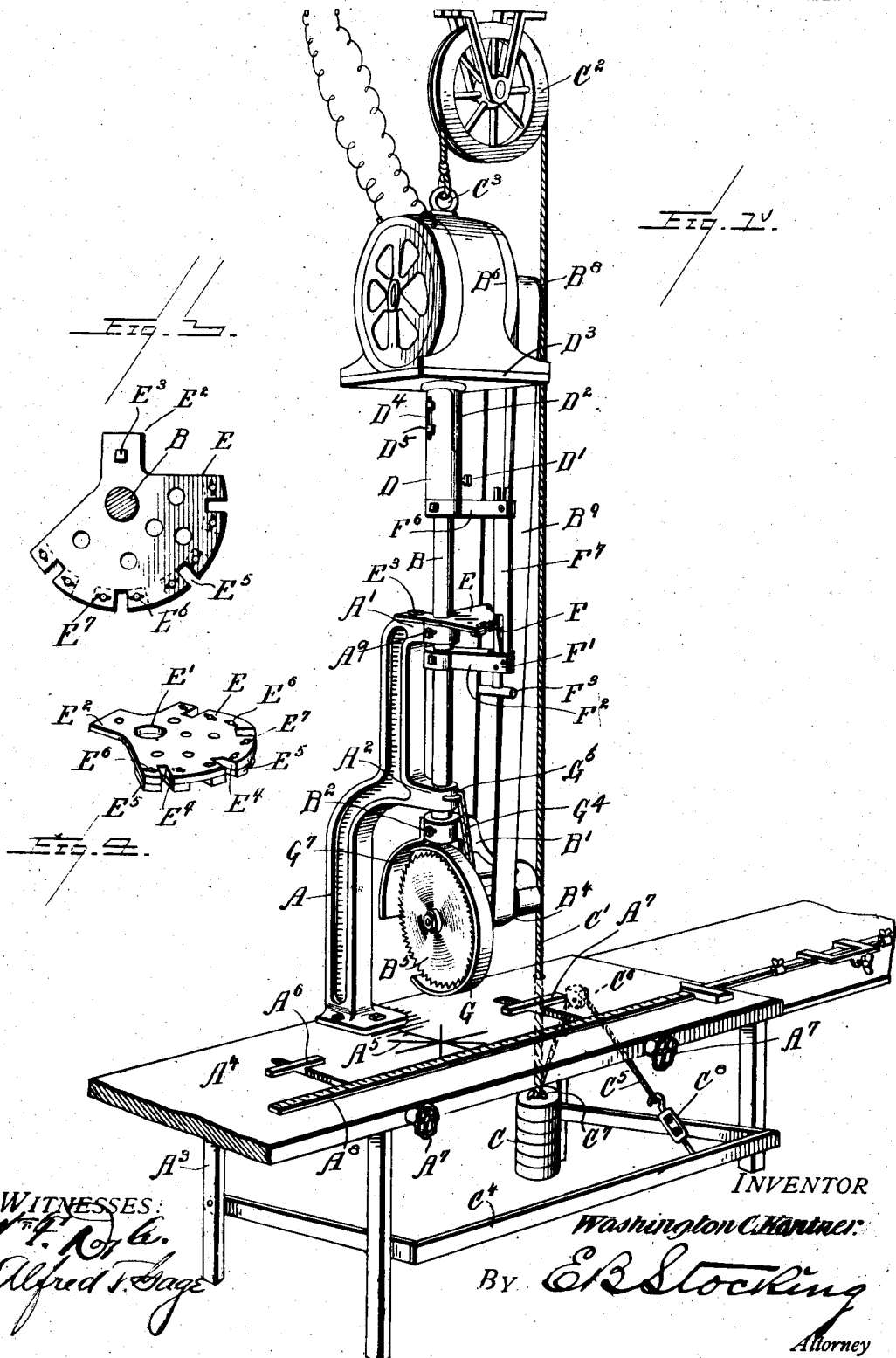
No. 834,206.

PATENTED OCT. 23, 1906.

W. C. KANTNER.
MITERING MACHINE.

APPLICATION FILED SEPT. 15, 1905.

2 SHEETS—SHEET 1.

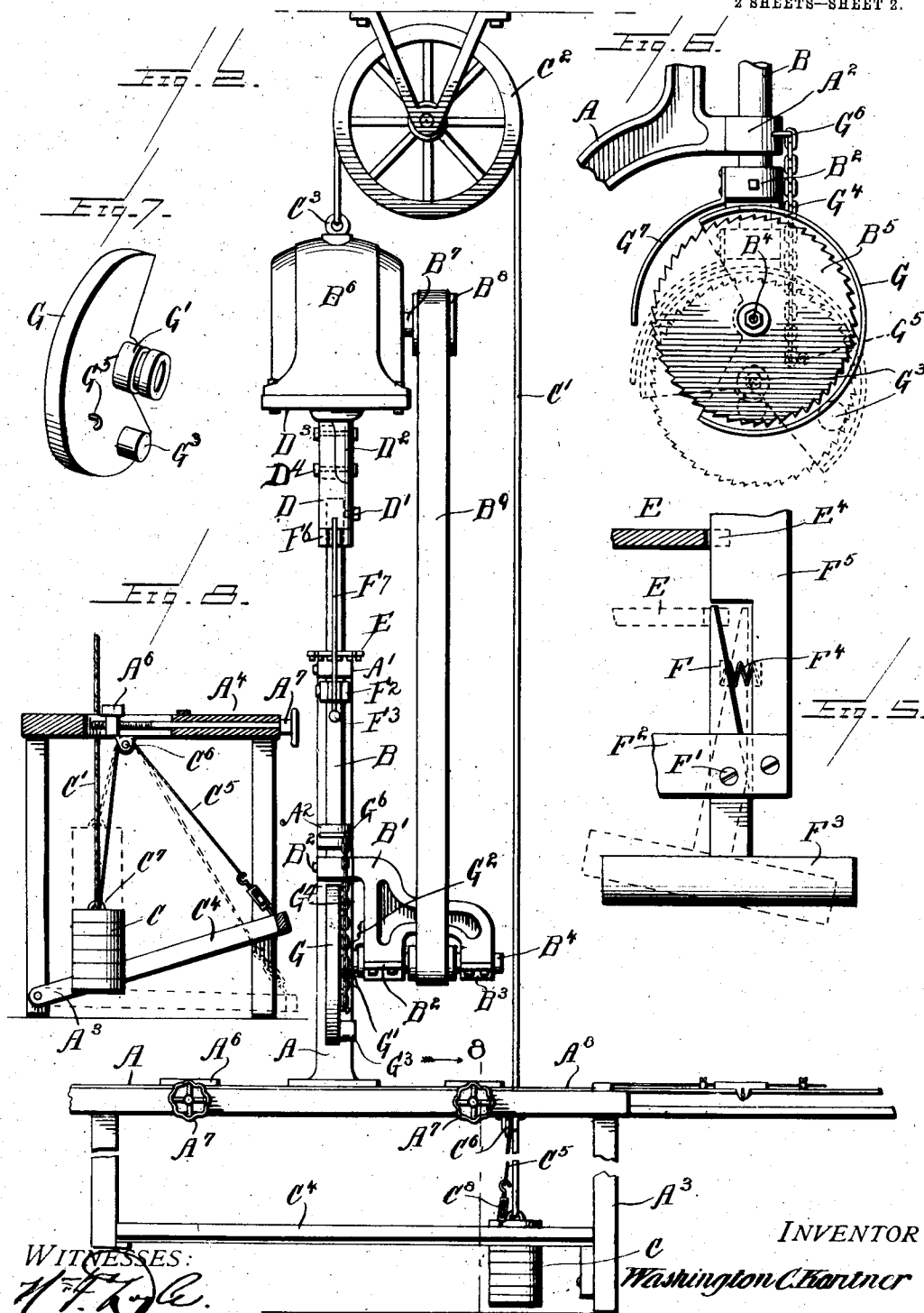


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2 SHEETS—SHEET 2.



WITNESSES:

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WASHINGTON C. KANTNER, OF READING, PENNSYLVANIA.

MITERING-MACHINE.

No. 834,206.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed September 15, 1905. Serial No. 278,586.

To all whom it may concern:

Be it known that I, WASHINGTON C. KANTNER, a citizen of the United States, residing at Reading, in the county of Berks, State of Pennsylvania, have invented certain new and useful Improvements in Mitering-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to a mitering-machine, and particularly to an apparatus of this character adapted for framing-work.

The invention has for an object to provide a novel and improved construction of parts 15 by which the saw is mounted upon a vertically-reciprocating shaft adapted for oscillatory adjustment in its bearings and disposed in a plane substantially parallel with the longitudinal axis of said shaft.

20 A further object of the invention is to provide improved means for retaining this shaft and its saw at the desired angle of inclination or adjustment and for permitting a sliding movement thereof at that time.

25 Another object of the invention is to provide a guard for the saw adapted to automatically withdraw from the periphery of the saw in the descending movement thereof and to again cover the cutting under face of 30 the saw in its ascending movement.

Other and further objects of the invention will be hereinafter set forth and the novel features thereof defined in the appended claims.

35 In the drawings, Figure 1 is a perspective of the invention. Fig. 2 is a front elevation thereof. Fig. 3 is a plan of the adjusting-plate. Fig. 4 is a detail perspective thereof. Fig. 5 is an enlarged detail elevation of the 40 latch for engaging said plate. Fig. 6 is a detail elevation of the saw and its guard-plate. Fig. 7 is a detail perspective of said guard-plate looking from the right of Fig. 2; and Fig. 8 is a detail vertical section on the line 8-8, Fig. 2.

45 Like letters of reference refer to like parts throughout the several views of the drawings.

The letter A designates a standard or support of any desired construction or configuration and provided with supporting-arms A' 50 and A², disposed in parallel planes above each other. These arms are provided with bearings for the vertical reciprocation of the saw-shaft B, which shaft is provided at its lower end with a lateral bracket B', secured 55 thereto in any desired manner—for instance,

by the set-screw B²—and provided at its lower portion with bearing-boxes B³ to receive the driving-shaft B⁴, which carries at its outer end the saw B⁵. At the upper end of the shaft B an electric or other suitable motor B⁶ 60 is mounted and the shaft B⁷ thereof provided with the driving-pulley B⁸, which is connected by belt B⁹ with the driving-shaft B⁴ of the saw.

For the purpose of counterbalancing the 65 parts carried by the shaft B a suitable weight C is provided and connected with the motor by means of a cable C', extending over the supported bearing-wheel C² and connected at C³ to the motor-casing. This weight normally retains the saw in elevated position, as 70 shown in Figs. 1 and 2, and when it is desired to relieve the parts of the weight to permit the descent of the saw a treadle is pivotally mounted upon the supporting-frame A³ 75 of the table or platform A⁴, upon which the standard A is mounted. This treadle is connected by means of a cable C⁴, passing over the bearing-pulley C⁶ on the under surface of the table and connected at C⁷ with the weight, 80 so that the depression of the treadle raises the weight and permits the lowering of the saw-shaft and the parts carried thereby. In many cases it is desirable to adjust the length 85 of the cable C⁵, which may be accomplished by means of the turnbuckle C⁸, as shown in Fig. 1, which adjusts the extent of travel of the treadle, and consequently the extent of travel of the shaft carrying the saw.

For the purpose of maintaining the driving-belt B⁹ under proper tension an adjustable connection is provided at the upper end of the shaft B and comprises the fixed member D, secured upon the upper end of the shaft B in any desired manner—for instance, 95 by the set-screw D'—and the adjustable member D², carried by the base D³, upon which the motor B⁶ rests, and these parts are adapted to be secured in position by means of bolts D⁴, passing through the slot D⁵ in 100 the fixed member and through the adjustable member D².

The shaft B is mounted to swing or oscillate in the bearings of the arms A' and A², so as to permit the adjustment of the saw to the 105 necessary angle for cutting the miter-joint, and for the purpose of securing the saw in accurate position for that purpose a holding-plate E is provided with an aperture E', through which the shaft B passes, and with a 110

lug E², by which the plate is secured to the standard by any desired means—for instance, a set-screw E³, as shown in Fig. 1. This plate has a curved or segmental outer periphery and is provided at the proper radial angles with slots or recesses E⁴, adapted to engage a latch F, to be hereinafter described. At the opposite side of each of these adjusting-slots bearing-blocks E⁵ are adjustably secured by means of screws E⁶, passing through slots E⁷ in the plate E, so as to secure an accurate adjustment of the mitering-angles and compensate for any wear of the parts in use.

15 The latch F is pivoted at F' upon a supporting-arm F², secured to the shaft B, and is provided with a handle F³ at its lower portion, by which it may be turned inward, as shown in dotted lines in Fig. 5, so as to pass beyond the edge of the plate E and permit a rotary adjustment of the saw-shaft without engaging the plate, while the latch is restored to its initial position by means of the spring F⁴, disposed between the beveled free end thereof, and the vertical guiding-bar F⁵. This guiding-bar is provided at its upper end with an arm F⁶, secured to the shaft B and extending outward therefrom, so as to maintain the bar in a parallel vertical plane with said shaft. This guiding-bar provides means by which the handle may be used to swing the saw-shaft and when released pressed inward and locks it in position by the engagement of the latch with the plate E.

35 The saw B⁵ is provided with an automatically-operating guard G, which is pivotally mounted upon the driving-shaft B⁴ of the saw and held against longitudinal movement thereon by means of the grooved sleeve G', disposed on said shaft and held in position by the retaining-plate G², secured to the lateral bracket B' from the saw-shaft B. This guard is provided with a weight G³, so as to normally throw the guard into the position shown by full lines in Fig. 6 when the saw and its shaft are in their raised position. When the shaft is drawn downward to throw the saw into operation, the guard is automatically rotated into the position shown in dotted lines in Fig. 6 by means of a connection extending from the guard to a fixed point—for instance, the arm A². This connection may be of any desired character—for instance, a chain G⁴, extending from an eye G⁵ upon the guard to the similar eye G⁶ upon the arm. At the rear of the saw a fixed guard G⁷ of any ordinary construction is secured.

The table or platform A⁴ may be of any desired construction and is provided with the saw kerfs or grooves A⁵, extending at different angles, and with the work-clamps A⁶, adapted to be adjusted in position by means of the screw A⁷ at the front of the table. The table is also provided with an adjustable

gage-bar A⁸ of any ordinary or desired construction, by which both the long and short end of the frame may be measured.

In the operation of the machine the molding is placed in position upon the table and the saw with its shaft turned to the angle desired, which can only be accomplished when the saw is in raised position, with the guard protecting the same. The saw is then lowered into cutting position and the guard automatically removed by pressure upon the treadle to permit the descent of the saw, which comes straight downward upon the work and instantly cuts the same at the desired angle, this angle being absolutely retained by means of the guide-bar F⁷, which travels in the groove of the plate E during the downward movement of the saw to insure the accurate maintenance of the miter-angle. The weights are sufficient to automatically raise the saw when the pressure is released from the treadle, and it therefore only requires a slight force to carry the saw downward through the work, while the weight of the saw and its shaft and motor are sustained by the weight, which permits the rotary adjustment thereof to the desired angle. If desired, the saw may be held in vertical position and against reciprocation by means of the set-screw A⁹, disposed in the arm A' to engage the shaft B, carrying the saw. With the parts thus secured the backs of picture-frames or other straight sawing can be accomplished by feeding the work to the saw. It will be seen that any desired miter angle or bevel may be sawed by the proper adjustment of the saw-shaft, and the guard thereon absolutely prevents contact with the saw when the same is out of engagement with the work, while the vertical adjustment of the saw permits the same to come directly into contact with the work and obviates the necessity of swinging saw into engagement therewith. The treadle connection for lowering the saw permits the use of both hands in feeding or adjusting the work. This effects a simple, economical, and efficient construction adapted to occupy but little space and to be operated by electric current from an adjacent fixture.

Having now described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a mitering-machine, a standard, a vertically-disposed shaft mounted to reciprocate and rotate therein, a circular saw carried by the lower end of said shaft in a plane substantially parallel with the longitudinal axis thereof, counterbalancing means for supporting said shaft, a motor upon the upper end of said shaft for rotating said saw and a driving connection from the motor to the saw-shaft.

2. In a mitering-machine, a standard, a vertically-disposed shaft mounted to rotate

therein, a saw carried by the lower end of said shaft in a plane substantially parallel with the longitudinal axis thereof, means for supporting said shaft, a holding-plate mounted upon said standard, and a latch carried by said shaft to engage said plate.

3. In a mitering-machine, a standard, a vertically-disposed shaft mounted to reciprocate and rotate therein, a saw carried by the lower end of said shaft in a plane substantially parallel to the longitudinal axis thereof, means for supporting said shaft, a holding-plate mounted upon said standard, a latch carried by said shaft to engage said plate, and a guide-bar carried by said latch to engage said plate during the reciprocation of said shaft.

4. In a mitering-machine, a standard, a vertically-disposed shaft mounted to reciprocate and rotate therein, a saw carried by the lower end of said shaft in a plane substantially parallel to the longitudinal axis thereof, means for supporting said shaft, a holding-plate mounted upon said standard, a latch carried by said shaft to engage said plate, a guide-bar carried by said latch to engage said plate during the reciprocation of said shaft, a motor carried by the upper end of said shaft, a laterally-disposed bracket at the lower end of said shaft to receive the driving-shaft of the saw, and a belted connection between said driving-shaft and motor.

5. In a mitering-machine, a standard, a vertically-disposed shaft mounted to reciprocate and rotate therein, a saw carried by the lower end of said shaft in a plane substantially parallel to the longitudinal axis thereof, means for supporting said shaft, a holding-plate mounted upon said standard, a latch carried by said shaft to engage said plate, a guide-bar carried by said latch to engage said plate during the reciprocation of said shaft, a motor carried by the upper end of said shaft, a laterally-disposed bracket at the lower end of said shaft to receive the driving-shaft of the saw, a belted connection between said driving-shaft and motor, and an adjustable connection between the motor and the upper end of the supporting-shaft for maintaining said belt under tension.

6. In a mitering-machine, a support, a shaft mounted therein, a rotary saw driven by said shaft, a guard-plate rotatably mounted upon the axis of said saw, and a connection extending from said guard-plate to a relatively fixed point.

7. In a mitering-machine, a support, a shaft mounted therein, a rotary saw driven by said shaft, a guard-plate rotatably mounted upon the axis of said saw, a connection extending from said guard-plate to a relatively fixed point, and means carried by one end of said plate for moving the same beneath the saw when tension upon the connection is released.

8. In a mitering-machine, a support, a shaft mounted to reciprocate therein and provided at its lower end with a laterally-extending bracket, a circular saw, a driving-shaft for the saw mounted in the bracket, a guard-casing provided with a collar mounted upon said driving-shaft, a retaining-plate mounted upon the bracket to engage a portion of said collar, and a connection extending between said support and a point on said casing below the driving-shaft of the saw.

9. In a mitering-machine, a support, a shaft mounted to reciprocate therein provided at its lower end with a laterally-extending bracket, a circular saw, a driving-shaft for a saw mounted in said bracket, a guard-casing provided with a collar mounted upon said driving-shaft, a retaining-plate mounted upon the bracket to engage a portion of said collar, a connection extending between said support and a point on said casing below the driving-shaft of the saw, a restoring-weight at the lower portion of said casing, and a fixed guard-plate at the rear of said casing.

10. In a mitering-machine, a standard, a shaft mounted to reciprocate and oscillate therein, a saw carried by one end of said shaft, in a plane substantially parallel to the longitudinal axis thereof, a holding-plate mounted upon said standard and provided with recesses disposed radially of said shaft, a guide-bar supported by said shaft parallel thereto to travel in said recesses, and a pivoted latch at the lower portion of said bar adapted to be thrown out of the path of said plate.

11. In a mitering-machine, a standard, a shaft mounted to reciprocate and oscillate therein, a saw carried by one end of said shaft in a plane substantially parallel to the longitudinal axis thereof, a holding-plate mounted upon said standard and provided with recesses disposed radially to said shaft, a guide-bar supported by said shaft parallel thereto to travel in said recesses, a pivoted latch at the lower end of said bar comprising a beveled point disposed in a recess in the bar, and a restoring-spring between said point and the bar.

12. In a mitering-machine, a standard, a shaft mounted to reciprocate and oscillate therein, a saw carried by one end of said shaft, in a plane substantially parallel to the longitudinal axis thereof, a holding-plate mounted upon said standard and provided with recesses disposed radially to said shaft, a guide-bar supported by said shaft parallel thereto to travel in said recesses, a pivoted latch carried by said bar, and adjustable blocks carried by said holding-plate at the sides of the recesses therein.

13. In a mitering-machine, a standard, a shaft mounted to reciprocate and oscillate therein and provided at its upper end with a fixed clamping member having a slotted wall,

a cooperating adjustable member, securing-bolts extending between said members, a motor mounted upon said adjustable member, a saw and its driving-shaft at the lower portion of said supporting-shaft and having its axis at substantially a right angle thereto, and a belted connection between said driving-shaft and motor.

14. In a mitering-machine, a supporting-platform, a standard thereon, a shaft mounted to reciprocate and oscillate in said standard, a saw carried by the lower end of said shaft, in a plane substantially parallel to the longitudinal axis thereof, a motor carried by the upper end of said shaft and geared to drive said saw, a supporting-pulley, a cable extending from said motor over said pulley, and a counterbalancing-weight at the lower end of the cable.

15. In a mitering-machine, a supporting-platform, a standard thereon, a shaft mounted to reciprocate and oscillate in said standard, a saw carried by the lower end of said shaft, in a plane substantially parallel to the longitudinal axis thereof, a motor carried by the upper end of said shaft and geared to

drive said saw, a supporting-pulley, a cable extending from said motor over said pulley, a counterbalancing-weight at the lower end of the cable, a treadle mounted upon said platform, and a connection between said treadle and said weight to lift the latter.

16. In a mitering-machine, a supporting-platform, a standard thereon, a shaft mounted to reciprocate and oscillate in said standard, a saw carried by the lower end of said shaft, in a plane substantially parallel to the longitudinal axis thereof, a motor carried by the upper end of said shaft and geared to drive said saw, a supporting-pulley, a cable extending from said motor over said pulley, a counterbalancing-weight at the lower end of the cable, a treadle mounted upon said platform, a flexible connection between said treadle and said weight, and means for adjusting the length of said connection.

In testimony whereof I affix my signature in presence of two witnesses.

WASHINGTON C. KANTNER.

Witnesses:

HARRY F. KANTNER,
GEO. A. BOYER.