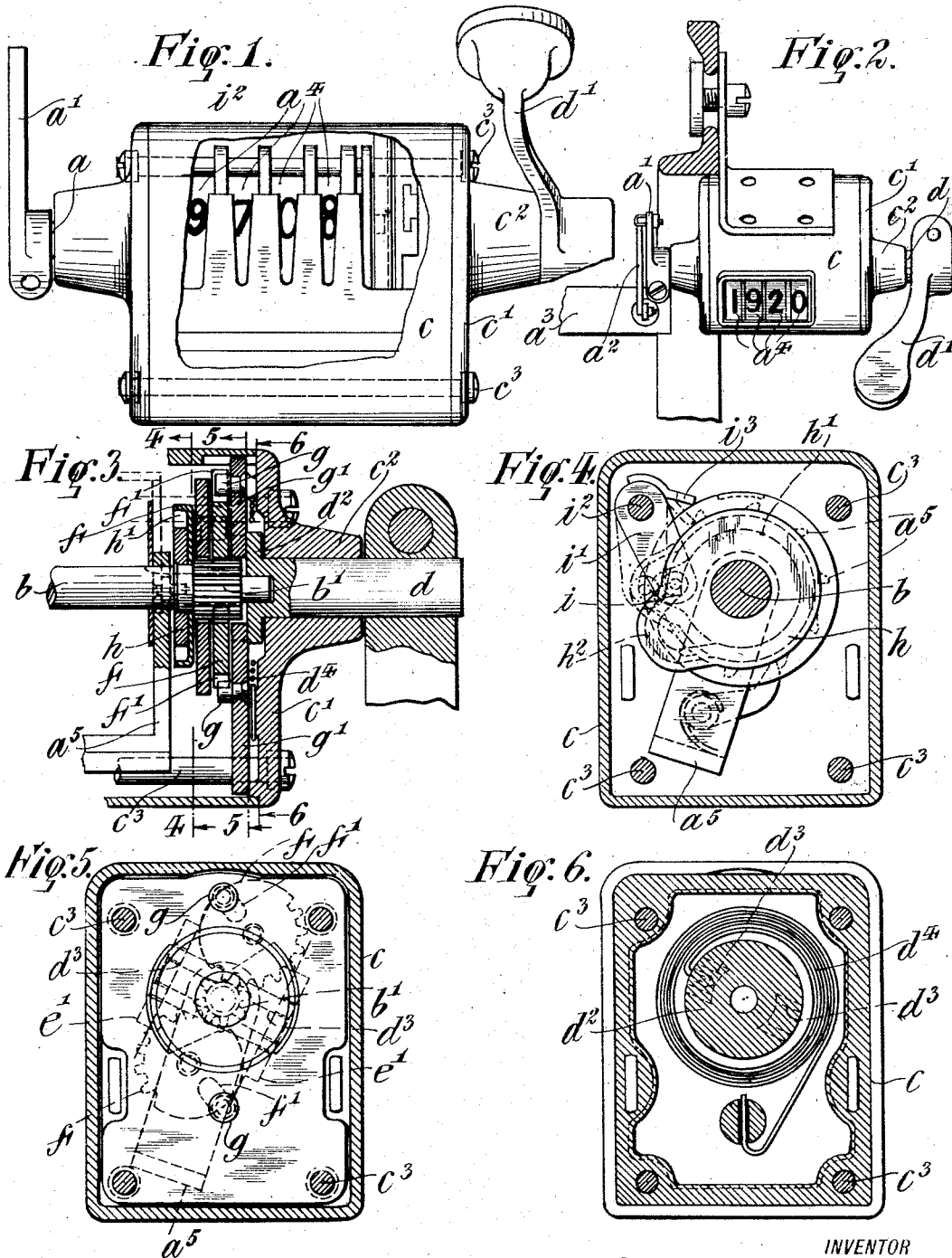


1,385,408.

Patented July 26, 1921.

3 SHEETS—SHEET 1.

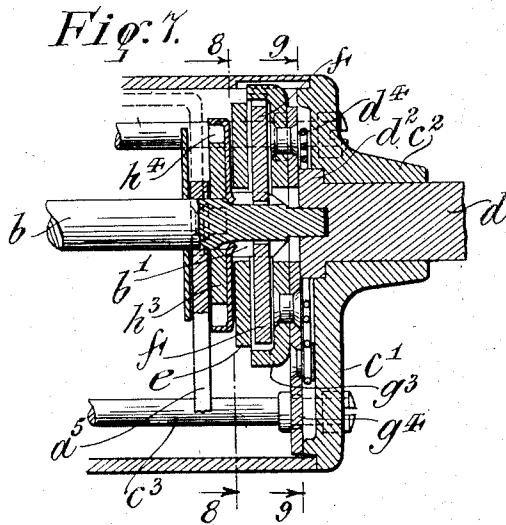
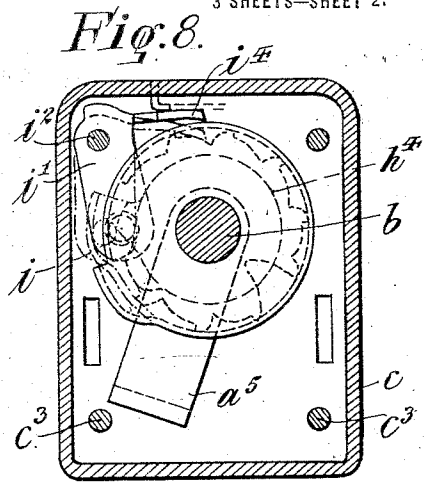
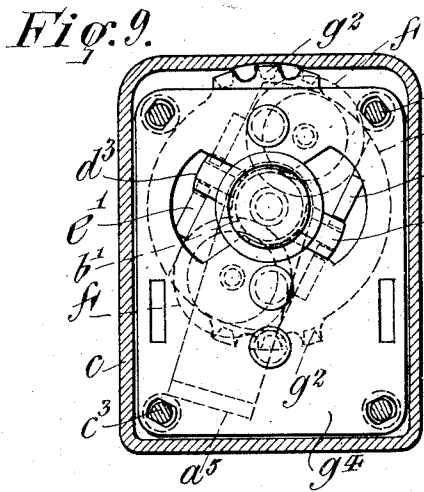
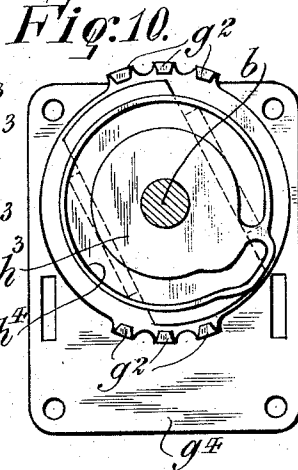
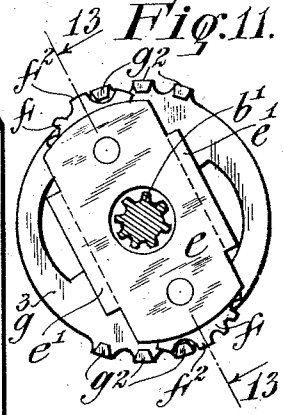
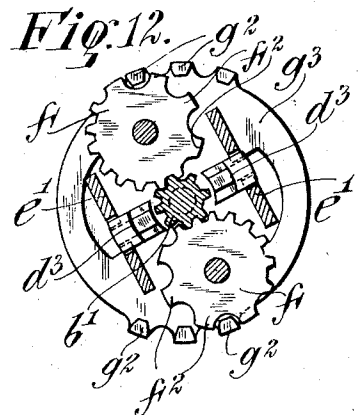
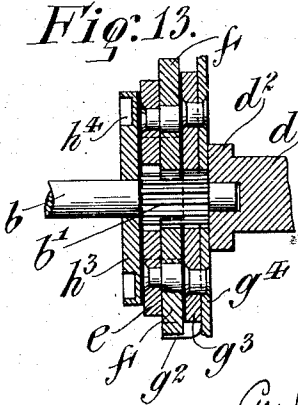
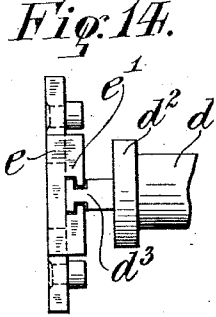


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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 15.

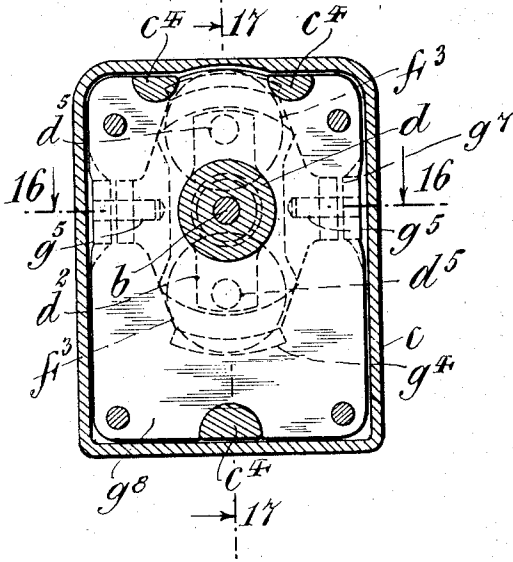


Fig. 16.

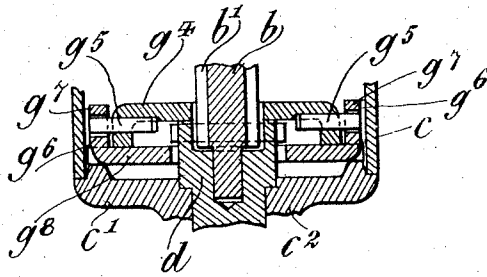


Fig. 17.

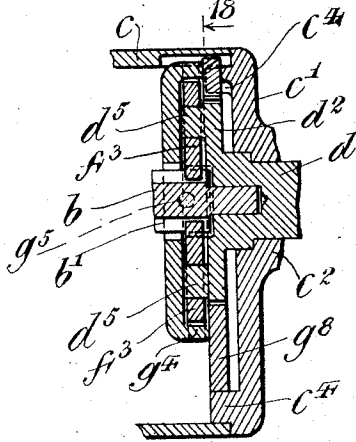
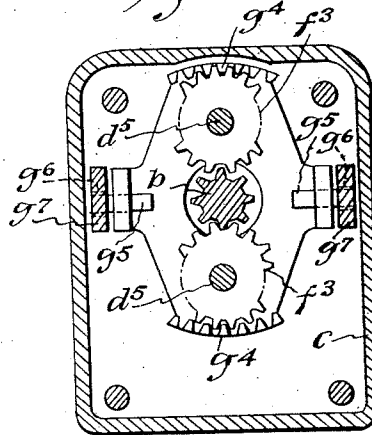


Fig. 18.



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CURTIS HUSSEY VEEDER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE VEEDER MANUFACTURING COMPANY, OF HARTFORD, CONNECTICUT, A CORPORATION OF CONNECTICUT.

COUNTING-MACHINE.

1,385,408.

Specification of Letters Patent.

Patented July 26, 1921.

Application filed February 20, 1920. Serial No. 360,248.

To all whom it may concern:

Be it known that I, CURTIS HUSSEY VEEDER, a citizen of the United States, residing in the city of Hartford, in the State of Connecticut, have invented certain new and useful Improvements in Counting-Machines, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

10 This invention is concerned particularly with the devices for resetting to zero, after a succession of counting operations, those number wheels which have been moved in such counting operations. Resetting devices intended for this general purpose are known in the art in various forms and have been applied to similar counting machines as well as to counting mechanisms which form parts of computing machines. The particular object in view in this invention has been the production of improved devices for actuating the resetting shaft, generally common to resetting devices known in the art, to the end that such actuating devices shall be very compact so as to permit them to be incorporated with the counting and resetting devices and in the same case therewith, shall be simple and inexpensive to manufacture and shall be perfectly balanced so as to offer

20 very little resistance to operation and to avoid the necessity of extreme accuracy in the machining of the parts, or, in other words, to permit the devices to accommodate themselves to the minor irregularities in the gears employed without loss of the balancing effect. In general the transmission of motion from the actuating shaft to the resetting shaft is effected through a form of planetary gearing, in which the rotation of the transmitting gears on their axes is effected through the partial revolution of such gears about an external axis. The invention will be explained more fully hereinafter with reference to the accompanying drawings in which several different embodiments are illustrated and in which

Figure 1 is a view in side elevation of a counting machine equipped with the present invention, a portion of the case being broken out to show mechanism within.

Fig. 2 is a top view of the same, showing the means for operating the counting machine and, in section, a bracket for supporting it.

Fig. 3 is a detail view mainly in central longitudinal section of the devices for actuating the resetting shaft, the latter being shown in elevation.

Figs. 4, 5 and 6 are views in section on the planes indicated by the broken lines 4—4, 5—5 and 6—6 of Fig. 3, looking in the direction of the arrows.

Fig. 7 is a view generally similar to Fig. 3 but showing a slight modification of the actuating devices.

Figs. 8 and 9 are detail views in section on the planes indicated by the broken lines 8—8 and 9—9 of Fig. 7, looking in the direction of the arrows.

Fig. 10 is a detail view in elevation showing the fixed, toothed plate which cooperates with the planetary gears and the cam plate together with the supporting plate.

Fig. 11 is a detail view in elevation showing the fixed toothed plate, the planetary gears and the sliding plate which carries them, the pinion on the resetting shaft being shown in section.

Fig. 12 is a view similar to Fig. 11 but with the slide removed and its side flanges in section.

Fig. 13 is a view in section on the plane indicated by the broken line 13—13 of Fig. 11, looking in the direction of the arrows.

Fig. 14 is a detail view illustrating particularly the engagement of the actuating shaft with the slide.

Figs. 15, 16, 17 and 18 are detail views in section illustrating the preferred construction of the transmitting devices, the plane of section of Fig. 15 being transverse to the axis, while the planes of section of Figs. 16 and 17 are indicated by the broken lines 16—16 and 17—17 of Fig. 15 and the plane of section of Fig. 18 by the broken line 18—18 of Fig. 17.

The numbering mechanism may be of any usual or suitable construction, the present invention not being directly concerned therewith. So far as the same is represented in the drawings it may comprise a numbering shaft shown at *a* in Fig. 1, with an arm *a'* connected by a link *a''* to the part, the movements of which are to be counted, such as the spacing bar *a'''* of a typewriting machine, a series of number wheels *a''''* mounted upon a common axis, a pawl frame *a'''''* connected to the shaft *a* and by which the number

wheels are driven forward, and a resetting shaft b which rests at one end in the end of the shaft a , constitutes the common support for the number wheels a^1 , and is provided with means, known in the art, by which, through the oscillation of the resetting shaft, those number wheels which have been moved in successive counting operations, are reset to zero when the counting operation has been completed. All of the parts thus far referred to, including the devices actuated by the resetting shaft for setting the number wheels to zero, may be of any usual or suitable construction, the present invention being concerned with the means for actuating the resetting shaft b . For explanation of the devices whereby all of the number wheels can be reset to zero with less than one revolution of the resetting shaft, reference may be had to Letters Patent of the United States No. 649,522, May 15, 1900.

The end wall c' of the casing c is provided with a hub c^2 to form a bearing for the actuating shaft d which has secured to it a suitable finger-piece d' for operation by the finger. The actuating shaft d , as shown more particularly in Figs. 3, 13 and 14, has a flange d^2 within the casing which is provided at diametrically opposite points with dove-tailed lugs d^3 , for engagement with a slide e formed with side flanges e' for engagement with the dove-tailed lugs d^3 . The slide has mounted thereon, near its ends, the planetary gears f , the purpose of the sliding movement between the slide e and the actuating shaft d being to permit the gears to accommodate themselves to such minor irregularities as might be found in the gears and co-acting parts unless great care is exercised in machining them, while maintaining the balancing effect and preventing any such binding of the parts in operation as might create resistance, it being highly desirable that the mechanism shall be capable of operating freely under a very light touch on the finger-piece d' . Both gears f mesh internally with the pinion b' formed on the resetting shaft b , as clearly shown in Fig. 3, the reduced end of such resetting shaft preferably having a bearing in the inner end of the actuating shaft d . The planetary gears are arranged to be engaged also with the fixed part so that the gears shall be oscillated on their axes, and so effect an oscillation of the resetting shaft b , as the carrier slide e is oscillated by the actuating shaft d about its axis. As shown in Figs. 3 and 4 each gear is slotted, opposite its gear teeth, as at f' , for engagement with a fixed pin g which is carried by a plate g' , held in place within the casing by the bolts c^3 . A coiled spring d^4 is applied to the flange d^2 of the actuating shaft, within the casing, as shown in Figs. 3 and 6, for the purpose of returning the actuating shaft to its initial posi-

tion after it has been oscillated by the application of the finger to the finger-piece d' and released. By the means just described the resetting shaft b is oscillated by the operator for the purpose of resetting the number wheels to zero, the amplitude of oscillation being sufficient to enable each number wheel to be picked up by the resetting shaft in any position in which it may have been left by the numbering operation, from 1 to 9 inclusive. It will be understood, by reference to the patent above mentioned, that the number wheels are advanced only by the operation of the shaft a and are reset only by operation of the shaft b and are not affected by the operation of the shaft d except through the shaft b .

In the construction shown particularly in Figs. 3 and 5 the oscillation of the planetary gears f on their axes is effected through the engagement of the fixed pins g with the slots f' of the gears. The construction illustrated in Figs. 7 and 9-13 is the same as that already described, except that the gears f , instead of being slotted for engagement with a stationary pin, are formed, opposite the teeth which mesh with the pinion b' on the resetting shaft, with teeth f^2 for engagement with internal teeth g^2 carried by a disk g^3 riveted to the fixed plate g^4 . The operation of this modified form of construction is the same as that of the construction previously described.

It is not only necessary, in mechanisms of the kind described, to provide for a quick oscillation of the resetting shaft b , but it is necessary also to provide for the application of a brake or stopping device to the number wheels at the instant when they have reached the zero position, in the resetting operation, in order to prevent overthrow. In the construction shown in Figs. 3 and 4 there is provided, for this purpose, a grooved cam h , secured to the resetting shaft b . This cam is provided with a long concentric groove h' , as indicated by dotted lines in Fig. 4, and with a sharp lift h^2 . This cam groove is engaged by a pin i in the end of an arm i^1 which is fixed on a shaft i^2 . The latter is extended lengthwise of the numbering machine and is provided with a dog i^3 for engagement with the teeth a^5 , shown in dotted lines in Fig. 4, of the toothed driving wheel of each number wheel a^4 . When the pin i is in the concentric portion of the groove h' the dogs i^3 are held in the full line position shown in Fig. 4, clear of the teeth a^5 , but the lift h^2 of the cam groove is so positioned that as soon as the actuating shaft, which carries the cam h , reaches such angular position that the number wheels are in their respective zero positions, the shaft i^2 is rocked so as to move the dogs i^3 into the position indicated by dotted lines in Fig. 4, in which they stand in the path of the teeth a^5 of

each driving wheel and so prevent further movement of such driving wheels and the attached number wheels through their momentum after the oscillation of the actuating shaft has ceased.

The braking or stopping devices shown particularly in Figs. 7, 8 and 10, are substantially the same in operation and construction as those already described, although the cam groove h^4 in the cam wheel h^3 is of slightly different form and the dogs i^4 of the locking shaft i^2 are also of slightly different form.

The constructions of the transmitting devices already described answer the intended purpose, but for simplification, ease in construction and convenience in assembling, the construction of the transmitting devices shown in Figs. 15, 16, 17 and 18 is preferred. The actuating shaft d and the resetting shaft b are mounted as before, but instead of mounting the planetary gears so that they may slide transversely to accommodate irregularities, this relation of parts is reversed and the non-rotating, internal gear is arranged to slide sidewise as far as may be necessary to accommodate irregularities in the gears. In this construction the gears f^3 are mounted on fixed pivots d^5 carried by the flange d^2 of the actuating shaft d and mesh with an internal, non-rotating gear g^4 , supported and held from rotation by diametrically opposite pins g^5 which may be fixed in the rim of the internal gear and enter freely holes g^6 in the flange g^7 of a fixed plate g^8 , the latter being held in place in the casing by three dowels c^4 . This construction permits more easy assembling of the parts, requires only half of the twisting moment to be transmitted to the sliding joint, the other half being taken up by the resetting pinion b' , and further reduces the pressure at the sliding point by reason of the fact that the two parts of the joint are farther apart.

Various other modifications of what is in effect a form of planetary gearing of the transmitting devices between the actuating shaft and the resetting shaft will readily suggest themselves and the invention is not limited to any particular construction, except as may be pointed out in the accompanying claims.

I claim as my invention:

1. In a resetting mechanism for a numbering machine, the combination of a resetting shaft, an actuating shaft, a planetary gear, oscillated by the actuating shaft about the axis of the latter and in operative engagement with the resetting shaft, and a non-rotating member in engagement with the planetary gear, whereby oscillation of the planetary gear on its own axis and of the resetting shaft on its axis is effected.
2. In a resetting mechanism for a number-

ing machine, the combination of a resetting shaft, an actuating shaft, a pair of planetary gears, oscillated by the actuating shaft about the axis of the latter and in operative engagement with the resetting shaft, and a non-rotating member in engagement with the planetary gears, the planetary gears and the non-rotating member having freedom for relative sidewise movement to accommodate irregularities in the gearing.

3. In a resetting mechanism for a numbering machine, the combination of a resetting shaft having a pinion, an actuating shaft, a planetary gear carried by the actuating shaft and in engagement with the pinion of the resetting shaft, and a non-rotating member in engagement with the planetary gear whereby oscillation of the planetary gear on its own axis is effected in the movement of the gear with the actuating shaft.

4. In a resetting mechanism for a numbering machine, the combination of a resetting shaft having a pinion, an actuating shaft, a pair of planetary gears carried by the actuating shaft and in engagement with the pinion of the resetting shaft, and a non-rotating member in engagement with the planetary gears, the planetary gears and the non-rotating member being free for relative sidewise movement to accommodate irregularities in the gearing.

5. In a resetting mechanism for a numbering machine, the combination of a resetting shaft, an actuating shaft, a planetary gear carried eccentrically by the actuating shaft and in operative engagement with the resetting shaft, and a non-rotating member in engagement with the planetary gear, whereby oscillation of the planetary gear on its own axis is effected in the movement of the gear with the actuating shaft.

6. In a resetting mechanism for a numbering machine, the combination of a resetting shaft, an actuating shaft, a pair of planetary gears carried eccentrically by the actuating shaft and in operative engagement with the resetting shaft, and a non-rotating member in engagement with the planetary gears, whereby oscillation of the planetary gears on their own axes is effected in the movement of the gears with the actuating shaft, the non-rotating member being movable sidewise to accommodate irregularities in the gearing.

7. The combination of a resetting shaft, an actuating shaft, a planetary gear carried eccentrically by the actuating shaft and in operative engagement with the resetting shaft, and a non-rotating, internal gear in engagement with the planetary gear, whereby oscillation of the planetary gear on its own axis is effected in the movement of the gear with the actuating shaft.

8. The combination of a resetting shaft, an actuating shaft, a pair of planetary gears

carried eccentrically by the actuating shaft and in operative engagement with the resetting shaft, and a non-rotating, internal gear in engagement with the planetary gears 5 whereby oscillation of the planetary gears on their own axes is effected in the movement of the gears with the actuating shaft, the non-rotating, internal gear being movable sidewise to accommodate irregularities in the gearing. 10

This specification signed this 9th day of February A. D. 1920.

CURTIS HUSSEY VEEDER.