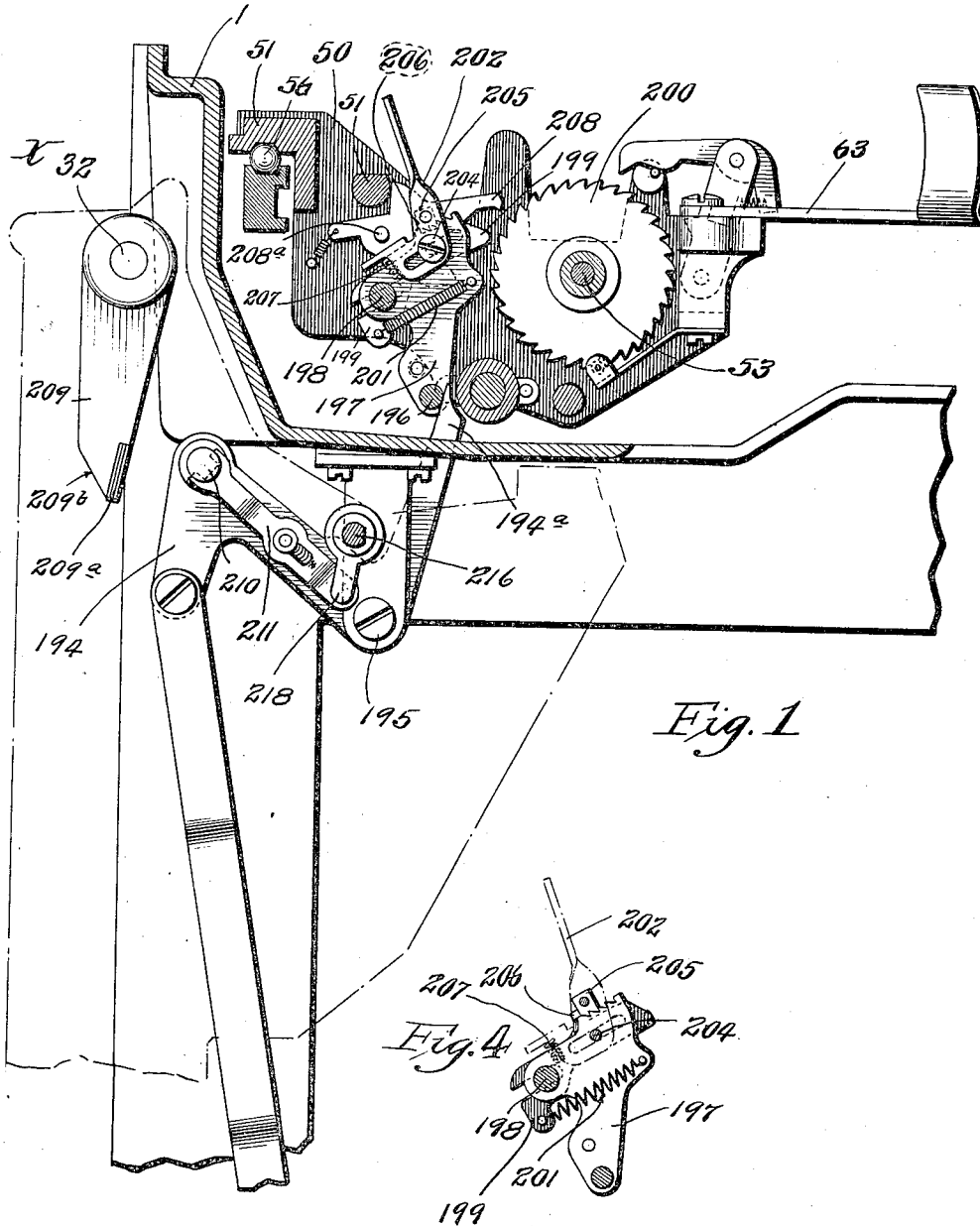


O. THIEME.
 PLATEN OPERATING MECHANISM.
 APPLICATION FILED MAY 18, 1917.

1,283,596.

Patented Nov. 5, 1918.
 3 SHEETS—SHEET 1.



Inventor
 Otto Thieme
 By *J. J. Coraue*, Atty.

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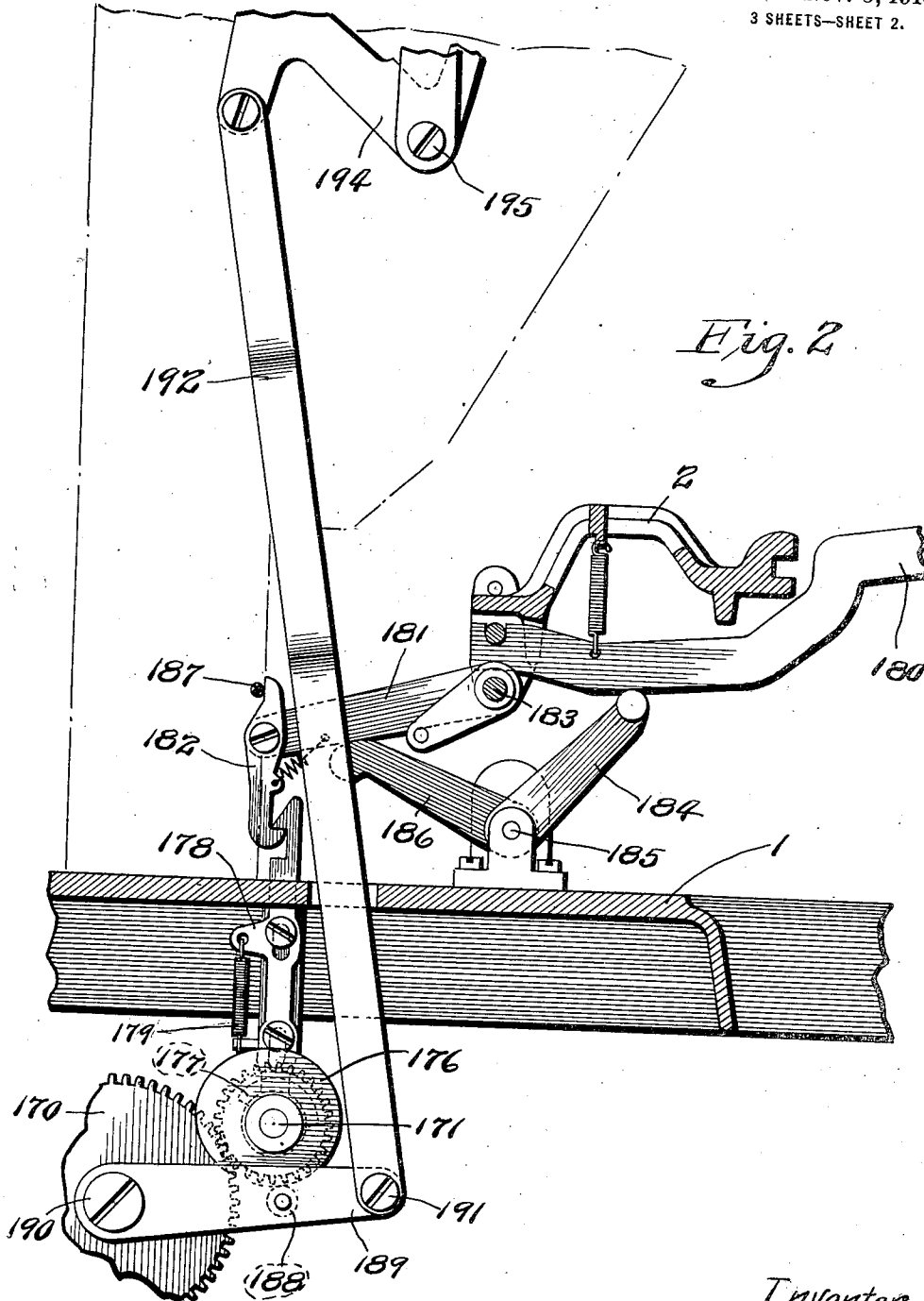


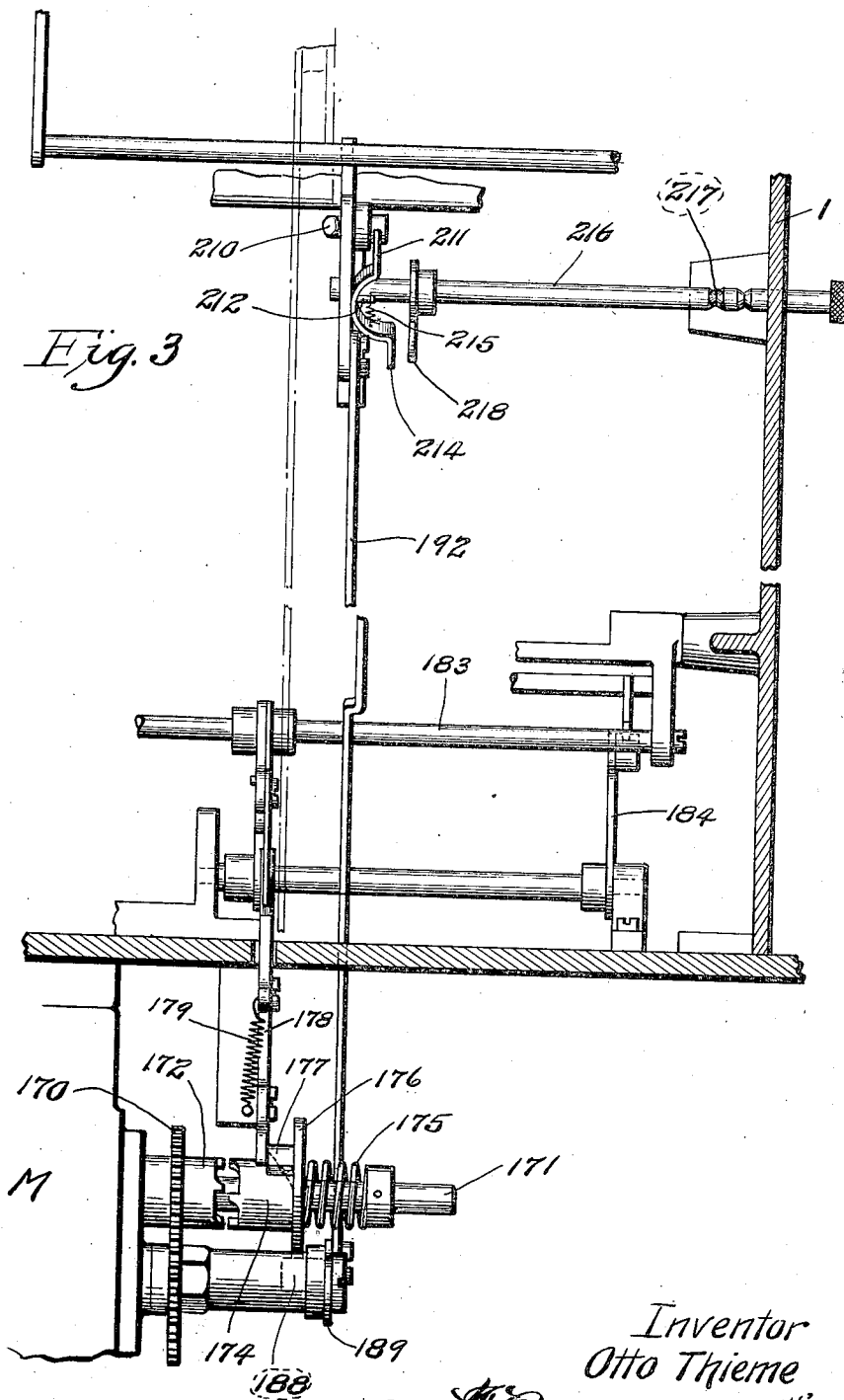
Fig. 2

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UNITED STATES PATENT OFFICE.

OTTO THIEME, OF ST. LOUIS, MISSOURI, ASSIGNOR TO MOON-HOPKINS BILLING MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

PLATEN-OPERATING MECHANISM.

1,283,596.

Specification of Letters Patent.

Patented Nov. 5, 1918.

Application filed May 18, 1917. Serial No. 169,584.

To all whom it may concern:

Be it known that I, OTTO THIEME, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Platen-Operating Mechanism, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to writing machines, and specifically to certain improvements in platen operating mechanism whereby a rotary paper-carrying platen may be operated in line-spacing movement by automatic means selectively controlled by a key in the keyboard of the machine.

The objects of my invention include the provision of such a mechanism whereby the line-spacing movement of the platen may be performed by a motor employed customarily in other operations of the machine; to provide an arrangement whereby the motor may be rendered effective to perform the line-spacing operation of the platen either automatically upon certain operations of the machine, or consequent upon volitional operation of a key by the operator; to provide a mechanism whereby the line-spacing operation may be effected through operation of the motor as many times in immediate succession as may be desired; and to improve generally upon the construction of such mechanisms to the end of providing an arrangement which is comparatively simple, positive and accurate in operation, and free from liability to disorders.

Other and further objects of my invention will be obvious or pointed out hereinafter, reference being had to the accompanying drawings in which—

Figure 1 is a side elevation of parts included in my invention, the same being shown in association with certain parts of the writing machine, some of which are shown in section;

Fig. 2 is a side elevation of another part of the mechanism;

Fig. 3 is a rear elevation of parts shown in Figs. 1 and 2.

Fig. 4 is a detail of the platen ratchet mechanism.

Referring to these illustrations by the characters of reference applied, it will be understood that the numeral 1 designates generally certain machine frame parts which form a support for the operating mechanism about to be described. Movably mounted on said frame parts is a paper carriage including the end frames 50 which are joined by suitable longitudinal members 51, and in which is journaled the platen shaft 53 carrying a rotary platen which may be of conventional form. The said paper carriage is mounted for lateral movement on bearing members 56, and may carry the conventional manually operable platen rotating mechanism designated generally by the numeral 63.

In suitable association with the machine, preferably below the table upon which it is supported, is mounted an electric motor which is indicated by the character M in Fig. 3. In association with this motor is mounted a transmission pinion 170 which is constantly rotated from the motor in the fashion well understood. This pinion drives constantly a clutch shaft 171 having the fixed clutch member 172 thereon. Freely mounted on shaft 171 is the slidable clutch member 174 adapted for interengagement with the clutch member 172 under influence of spring 175. Clutch member 174 carries a disk cam 176 and a wedge member 177, the latter having its active face extending about part of the circumference of the clutch member, and arranged to exert its effective wedging action in a direction longitudinally of shaft 171. An abutment bar 178 is slidably mounted on a depending portion of the machine frame being urged downwardly by a spring 179. When in its lowered position, the lower extremity of abutment member 178 lies in the path of the wedging edge of the wedge member 177, and when in engagement with the wedge member at its widest part holds the clutch member 174 out of engagement with the clutch member 172. The upward movement of the abutment member 178, which disengages the wedge member 177 and permits the engagement of the clutch members, is derived from a line-spacing key

disposed in the keyboard, and whose lever is indicated at 180. On a shaft 183 is loosely mounted a lever 181 carrying a dog 182 which is normally in engagement with the notched upper extremity of the abutment member 178. A bell crank arrangement consisting of an arm 184 conjoined by a shaft 185 to a second arm 186 forms a means whereby rocking movement may be imparted from line-spacing key lever 180 to arm 181. When key lever 180 is depressed, arm 181 will be rocked upwardly, raising dog 182 and as a consequence the abutment member 178. This will release slidable clutch member 174 and permit its engagement with the running clutch member 172. At the limit of upward movement of arm 181, dog 182 is cammed out of engagement with abutment member 178 by virtue of the engagement of said dog with a lug 187. Thereupon, abutment member 178 immediately drops downwardly under influence of spring 179, so as to resume its position in the path of the effective edge of the wedge member 177 so that the latter at the end of one revolution, by virtue of the wedging action exerted against abutment member 178, will cam the shiftable clutch member 174 out of engagement with the running clutch member. Upon the release of key lever 180, the dog 182 is restored to engagement with the abutment member 178.

During this revolution of slidable clutch member 174, the thrust of its cam 176 is rendered effective upon a roller 188 carried on an arm 189 which is pivoted at 190 to a stationary member and at 191 to a connecting rod 192. When arm 189 is thus rocked downwardly by the action of cam 176, the movement will be imparted by connecting rod 192 to the double bell crank 194 which is pivoted at 195, and whose forward extremity 194^a engages a rod 196 which extends the entire length of the carriage and constitutes a means for swinging a platen rotating lever 197 which is carried by a rock shaft 198 journaled in the side frames 50.

Coaxially pivoted with lever 197 by means of a slot, is a dog 199, which is adapted to operate on the platen ratchet wheel 200, the said dog having its forward end urged upwardly by a spring 201. Operative connection is made between lever 197 and dog 199 by means of a shiftable connecting member 202 slidably and pivotally connected to lever 197 by a screw 204 passed through a slot in said connecting member, and by a lug 205 extending laterally over the dog 199 and engaging at its rear side a lug 206 on the dog, and at its underside, by means of teeth, a serrated upper edge of lever 197. The lug 205 is held in engagement with the serrated edge of the lever by the tendency of a spring 207. By virtue of this connection, when the

lower end of lever 197 is rocked rearwardly by bell crank 194, dog 199 will be thrown into engagement with the platen ratchet wheel 200, and the latter will be rotated. The extent to which the ratchet wheel is rotated, depends upon the position of dog 199. When connecting member 202 is shifted forwardly on lever 197, it will permit dog 199 to move forwardly under the influence of its spring 201. When connecting member 202 is shifted rearwardly on lever 197, it will move dog 199 rearwardly by virtue of the engagement of lug 205 against lug 206; the farther forward dog 199 is moved, the more teeth of the ratchet wheel will be comprehended within the scope of its oscillation, and hence the greater will be the movement of the ratchet wheel. A pawl 208 pivoted on the side frame at 208^a and controlled by a lateral projection on dog 199 is swung into position to engage ratchet wheel 200 to prevent overthrow, upon rocking of lever 197.

By virtue of the structure just described, it will be obvious that the rocking of lever 189 by the rotation of cam 176, will cause the line-spacing movement of the platen, and that said operation can take place at any position of the carriage, by virtue of the fact that rod 196 extends the entire length of the carriage; and therefore, is always in position for the operative engagement of bell crank arm 194^a. Furthermore it will be seen how the line-spacing operation is derived from the motor upon the depression of a key in the keyboard and independently of any other operation of the machine.

The mechanism is also adapted for operation automatically upon certain predetermined operations of the machine or associated mechanism. As the means for accomplishing this automatic operation, let it be understood that X³² indicates a shaft which is operable from the motor through suitable connections, so that upon certain predetermining operations the shaft 32 may be rocked or partially rotated. Upon the shaft X³² is carried an arm 209 which is swung forwardly upon the operation of the shaft. In the path of the free end of this arm on the bell crank 194 is mounted a spring pressed stud 210, the same being carried in a yoke member 211 pivoted on a pin 212 and having an offset rear arm 214. A spring 215 tends to hold the stud 210 projected into the path of the arm 209. This arm has a beveled portion 209^a which cams the stud laterally against the spring 215 and permits the passage of the arm 209 thereby. Upon the return operation of the arm 209, however, the rear face thereof 209^b engages the projecting stud 210 and rocks the bell crank 194 to effect the line-spacing movement of the platen through the means heretofore described. In this fashion, the line-

spacing operation of the platen is automatically performed upon every operation of the shaft X³² unless the mechanism is disabled by the means shown in Fig. 3. This means consists of a rod 216 projecting from one side of the frame so that it may be manipulated manually, and provided with a detent device 217 whereby it is held in one or the other of its positions. This shaft carries a finger 218 which, when the shaft is thrust inwardly is adapted to engage the rear extension 214 of the yoke 211, and swinging said yoke to retract the stud 210 from the path of the arm 209. The shaft 216 being held in its inward position by its detent mechanism, the operation of arm 209 upon the line-spacing mechanism will be avoided, so that the platen will not be automatically line-spaced upon actuation of the shaft X³².

From the foregoing, it is to be observed that my invention provides a mechanism whereby the operation of line-spacing mechanism by the constantly running motor may be controlled with certainty, as each line-spacing operation requires a separate depression of the controlling key. Hence, an excessive operation of the line-spacing mechanism, due to the operator's inadvertently holding the controlling key depressed, is positively prevented. At the same time, the arrangement permits of a very rapid operation, so that the line-spacing operation is secured instantaneously upon the depression of the controlling key.

I am aware that my invention may be embodied in a variety of forms differing in many particulars from that herein shown and described as illustrative, and it is my intention that such variations and modifications are comprehended within the scope of the following claims.

What I claim is:

1. In a typewriting machine in combination, a revoluble platen, a motor, a ratchet device for line-spacing the platen, a cam member effective upon the ratchet device, a clutch mechanism for clutching the cam member to the motor, and manually operable means for rendering the clutch mechanism effective.

2. In a writing machine, the combination of a laterally movable carriage, a revoluble platen therein, a ratchet mechanism for giving the platen line-spacing movement, a bar extending in the direction of the letter-spacing movement and movable with the carriage, said bar having operating connection with the ratchet mechanism, a transmission device having operative association with the bar in different lateral positions of the carriage, a motor, and manually manipulative means for rendering the motor effective upon the transmission device to actuate the ratchet mechanism.

3. In a typewriting machine, the combination of a revoluble platen, line-spacing mechanism for rotating the same, transmission means for imparting movement to said line-spacing mechanism, a motor, a cam member effectively operable upon the transmission mechanism, a clutch for engaging the cam member for actuation by the motor, and a manually operable abutment member for governing the engagement of the clutch.

4. In a machine of the class described, a platen-rotating mechanism, a lever having a stationary mounting and arranged to actuate said mechanism, a motor, manually operable means for rendering said motor effective upon said lever, a swinging arm operable by the motor, and manually adjustable means for rendering the movement of said arm effective upon the said lever to operate the platen-rotating mechanism independently of the manually operable means.

5. In a typewriting machine, the combination of a laterally movable carriage, a revoluble platen carried therein, an oscillatory plate mounted on the carriage, a dog mounted on said plate and adjustable to vary its extent of oscillatory movement, a ratchet wheel associated with the platen and in cooperative disposal to said dog, a bar carried by the plate and extending longitudinally of the carriage, and means operatively associated with the bar for swinging the same to oscillate the plate.

6. In a writing machine, the combination of a platen-operating mechanism, a motor normally out of operative engagement therewith, means for placing said motor in operative engagement with the mechanism, a controlling member for controlling the operation of said means, manually operable means effective upon said controlling member to accomplish the engagement of the motor and platen-operating mechanism, and means for releasing said controlling member from said manually operable mechanism.

7. In a machine of the class described, the combination of platen-operating mechanism, a motor disposed for connection therewith, means effective to place said motor in control of said mechanism, a controlling member for governing the operation of said means, a manipulative member operatively connected with the controlling member and operable thereupon to permit engagement of the motor with the platen-operating mechanism, and means for disengaging said manipulative member from said controlling member upon operation of the former.

8. In a machine of the class described, the combination of a rotatable platen, ratchet mechanism for imparting movement to the platen to rotate it, a transmission member operable to actuate the ratchet mechanism, a motor, a manually operable key and key

mechanism for rendering said motor effective upon said transmission member, and means operable by said motor independently of said key for actuating the transmission member to effect rotation of the platen.

9. In a writing machine, the combination of a rotatable platen, line-spacing mechanism for rotating the same, a lever effective upon said line-spacing mechanism to operate it, a rocking arm operably connected with

said lever, a rotatable cam effective upon said rocking arm to swing it to actuate the lever, a constantly rotating motor effective to rotate the cam, clutch mechanism for controlling the operation of the cam by the motor, and manually operable means for controlling the clutch mechanism.

In testimony whereof I hereunto affix my signature this 10th day of May, 1917.

OTTO THIEME.