

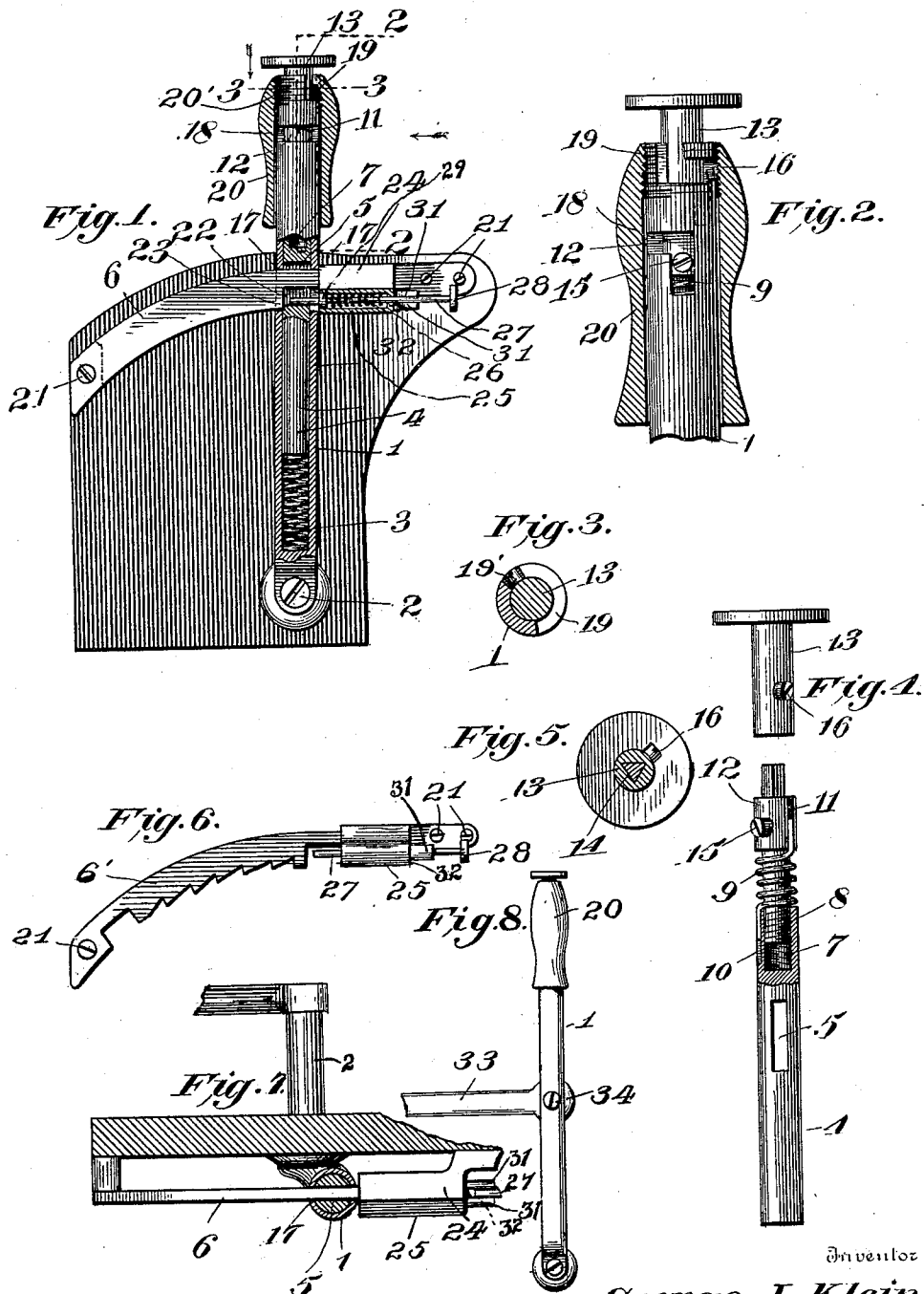
No. 698,841.

Patented Apr. 29, 1902.

G. J. KLEIN.
CONTROLLER.

(Application filed July 2, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 698,841, dated April 29, 1902

Application filed July 2, 1901. Serial No. 68,891. (No model.)

To all whom it may concern:

Be it known that I, GEORGE JOHN KLEIN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Controllers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in controllers, and more particularly to a lever for governing the application of power and means for locking said governing means.

It further consists, in connection with such mechanism, of means for preventing the unfastening of said locking means.

It also consists of certain other novel constructions, combinations, and arrangements of parts, as will hereinafter be more fully described and claimed.

In the accompanying drawings, Figure 1 represents a view in side elevation of a part of the improved governor, a part of the controlling-lever being in section to facilitate the disclosure of the parts. Fig. 2 represents an enlarged vertical section through the handle on line 22 of Fig. 1. Fig. 3 represents a horizontal section on line 3 3 of Fig. 1 through the lever rod and key, the handle having been removed. Fig. 4 represents a side elevation of the locking-bar and the key attached. Fig. 5 represents an inverted plan view in detail of the key. Fig. 6 represents a detail view of an extra locking-plate. Fig. 7 represents a top plan view of my improved controller with the handle thereof broken away. Fig. 8 represents a view in side elevation of the controller-lever detached, showing the application of a modified form of the controller-arm.

Referring to the drawings by numerals, 1 indicates a hollow rod secured at its lower end to any form of pivot-pin, as 2, which is adapted to transmit motion for the control of the governed power. Seated in the lower end of the rod 1 is a spring or other cushion, as 3, adapted to be pressed by a contained locking-bolt, as 4. The bolt 4 is slotted near its upper end, as at 5, to permit the locking-plate 6 to pass therethrough. The upper end of the bolt 4 is provided with a central thread-

ed bore, as 7, to receive the threaded end of a bolt 8, which last-mentioned bolt is of less diameter for a portion of its length than bolt 4, which smaller portion is adapted to be surrounded by a spring, as at 9. Spring 9 is preferably secured at its lower end within a slot, as 10, in bolt 4 or in any suitable manner secured thereto and the upper end fastened with a similar slot, as 11, in an enlarged portion, as 12, of bolt 8, as seen most clearly in Fig. 4. The upper end of bolt 8 is preferably of polygonal form, adapted to receive a key, as 13, provided with a similarly-shaped aperture in its lower end, as 14. The enlarged portion 12 of bolt 8 is provided with a preferably removable lug, as 15, and key 13 with a similar lug 16. Hollow lever-rod 1 is longitudinally slotted upon opposite sides, as at 17 17, which slots are adapted to register with slot 5 to permit the passage of locking-plate 6. Near the upper end of rod 1 is formed a bayonet-slot, as 18, which is adapted to receive lug 15, said lug being preferably the head of a screw threaded into enlarged portion 12 of bolt 8. Opening into the top of said hollow rod 1 is another bayonet-slot, as 19, which is adapted to receive lug 16, a vertical slot, as 19', leading downwardly from the inner end of the horizontal portion of slot 19.

Any suitable grip or handle, as 20, may be secured about rod 1 in such a manner as to cover the otherwise exposed working parts, and the preferred construction as illustrated contemplates the provision of internal threads, as 20', near the upper end of the said handle or grip, which are adapted to engage similar external threads near the upper end of rod 1, whereby the grip will be firmly held in position.

Any suitable securing means, as 21 21, may be provided for holding locking-plate 6 in position. Near one end of locking-plate 6 is formed a notch, as 22, the shoulders 23 23 of which are adapted to engage bolt 4 and lock rod 1 against movement. A shoulder portion, as 24, is formed on plate 6 and carries a suitable housing, as 25, which housing is adapted to inclose a suitable spring, as 26. A pin, as 27, provided with a suitable operating-head 28, extends longitudinally of housing 25 and carries a washer, as 29, engaging the free end of spring 25, whereby said pin is normally

held with its inner end partially filling notch 22, thereby preventing bolt 4 from entering said notch for more than a short distance. The outer end of housing 25 is preferably provided with a head, as 30, which is provided with suitable longitudinal open-ended slots, as 31 31, and pin 27 carries a lug, as 32, adapted normally to rest at the inner end of either of slots 31; but when pin 27 is pulled outwardly, thus freeing bolt 4 to enter fully notch 22, and rotated the said lug will rest upon the outer end of head 30, thereby holding pin 27 in its outer position against the pressure of spring 26. In order to bring the inner end of pin 27 again into notch 22, the same is rotated until lug 32 is brought into register with one of the slots 31, when the spring 26 will immediately throw pin 27 until lug 32 again rests at the inner end of said slot 31.

In order for a full understanding of the operation of all the parts of my invention, I will first set forth the manner of assembling said parts and then describe the operation. Hollow rod 1 is first pivoted by means of pivot-pin 2, and spring 3 is first inserted into said rod 1 and followed by bolt 4, which rests upon the same. Bolt 4 carries with it bolt 8 and spring 9, the screw-forming lug 15 not being in position until after said bolts have been inserted into rod 1 and the aperture for receiving said screw is brought opposite aperture 9, when the same is inserted. In order to bring the parts into this position, it is necessary to give bolt 8 a half-turn, while bolt 4 is held by any suitable means passed through registering slots 17 17 and slot 5, thereby twisting spring 9. Locking-plate 6 is inserted through slots 17 17 and slot 5 and the ends thereof secured. In this position the parts are operable; but I prefer to place the handle 20 about the top of rod 1 for gripping purposes. The parts are so proportioned that as long as bolt 27 prevents bolt 4 from entering fully into notch 22 lug 15 cannot enter the upper portion of bayonet-slot 18, the twisted condition of spring 9 giving a constant tendency to lug 15 to turn in the direction of the elongated upper portion of slot 18.

To insert key 13, it is necessary to withdraw bolt 27 from notch 22 and permit bolt 4 to enter fully into said notch, whereby lug 15 is free to enter the upper elongated portion of slot 18, and said lug immediately moves the full length of said slot, and this operation brings the upper polygonal end of bolt 8 in position to register with aperture 14 in key 13, when said key may be inserted into the vertical open-ended portion of slot 19. To disengage bolt 4 from notch 22, key 13 must be rotated in such manner as to bring lug 16 in registering relation to the lower vertical slot 19, communicating with slot 19, and by the same movement the lug 15 is again brought into register with the vertical portion of slot 18. When in this position, downward pressure upon key 13 will entirely re-

lease bolt 4 from engagement with notch 22 and leave rod 1 free to move to any desired position on locking-plate 6. Bolt 27 may again be caused to enter notch 22 and prevent bolt 4 from again entering fully into said notch, thereby preventing the removal of the key. To remove key 13, withdraw bolt 27 from notch 22, and the remaining operation will be automatic, as spring 3 will force bolts 4 and 8 upward until lug 15 registers with the horizontal portion of slot 19, and spring 9 will immediately force lugs 15 and 16 for the full length of the horizontal portions of slots 18 and 19, thereby leaving the key free to be removed and the parts of the controller locked against movement except by use of said key.

Many advantages will be obvious in my structure, and one of the most important of these is the fact that by removing the key 13 the parts will be left locked and cannot be unlocked or operated by any one not in possession of a key. The polygonal end of bolt 8 may have more or less sides, so as to require a separate key for each controller, or any slight change may be made in the structure which will make each key peculiar to its specific controller, as desired.

Although I have specifically described one embodiment of my invention, I shall feel at liberty to alter the shape, size, and minor details of construction without departing from the spirit and scope of the invention herein described.

As shown in Fig. 6, I may employ a locking-plate, as 6', provided with a series of comparatively small notches and a large notch at either end, and this I may use interchangeably with plate 6. In this construction the inner edge of each of the small notches will be equivalent in depth to the distance from the inner edge of the locking-plate to the inner end of pin 27, whereby bolt 4 may engage any one of the same and temporarily hold rod 1 at any given position without danger of freeing key 13.

When for any reason it is not found desirable to secure the power-controlling lever to the rear end of pin 2, I prefer to provide a suitable power-controlling lever-arm, as 33, pivoted, as at 34, at any preferred point intermediate the length of rod 1, whereby any amount of force may be applied to handle 20 for operating rod 1 and lever-arm 33. This modified form of lever-arm will obviate all danger of breaking, as might under heavy strain occur with regard to pin 2, there being some danger of the said pin when under heavy twisting strain in performing its function as a rock-shaft being wrenched out of operable shape or possibly broken.

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

1. A controller for governing the application of power, comprising means for communicating motion, a hollow rod connected to the same, means passed transversely through said

rod for locking the same, means carried by said rod designed to engage said locking means, and a key extending longitudinally of said rod, and carried thereby inside the same and projecting from the upper end thereof and movable longitudinally for releasing the engagement of said lock-engaging means, substantially as described.

2. A controller for governing the application of power, comprising a lever for applying and shutting off said power, a handle at the upper end of said lever adapted to be grasped for operating the same, means passed transversely through said lever for locking the same, means carried by said rod designed to engage said locking means and a key projecting from within and carried by said handle and movable longitudinally thereof for releasing the engagement of said lock-engaging means, whereby said key is in position to naturally fall beneath the thumb of the operator's hand, when the said handle is grasped, substantially as described.

3. A controller for governing the application of power, comprising a pivoted hollow rod, means for automatically locking said rod against movement, a lock-plate passed through said rod and designed to be engaged by said locking means within said rod, and means projecting from within the upper end of said rod for controlling said locking means substantially as described.

4. A controller for governing the application of power, comprising a pivot-pin for imparting motion, a hollow rod connected to said pin, locking means passed transversely through said rod, means carried within said rod for automatically engaging said locking means, and a key for operating said engaging means, substantially as described.

5. A controller for governing the application of power, comprising a pivot-pin for imparting motion, a hollow rod secured to said pin, a bolt carried within said rod, a locking-plate passing through said rod and bolt, means for holding said bolt in contact with said locking-plate, whereby said rod will be locked against movement, and means for forcing said bolt out of contact with said locking-plate, substantially as described.

6. A controller for governing the application of power, comprising means for imparting motion, a hollow rod carrying said means, a bolt carried within said rod, a locking-plate passed through said rod and bolt, means for automatically holding said bolt in contact with said locking-plate, means for locking said bolt against movement, and means for automatically releasing the same, substantially as described.

7. A controller for governing the application of power, comprising in its construction means for imparting motion, a hollow rod secured to said means, a bolt carried within said rod, a locking-plate passed through said rod and bolt, means for automatically maintaining said bolt in contact with said locking-

plate, a spring-pressed bolt threaded into the upper end of said first-mentioned bolt, said hollow rod being provided with a horizontal and a vertical slot situated near the top of said rod, a lug carried by said spring-pressed bolt adapted to operate in said slot, the upper end of the spring-pressed bolt being of polygonal shape, a key provided with an aperture in its end adapted to register with said polygonal end, and a lug carried by said key, the said hollow rod being provided with a vertical slot-opening at the upper end of said rod, a horizontal slot communicating therewith and another vertical slot leading downward from the inner end of the horizontal slot, the lug of said key being adapted to be guided by said last-mentioned slots, substantially as described.

8. A controller for governing the application of power, comprising means for communicating motion, a hollow rod carrying the same, a bolt within said rod, a lock-plate provided with a notch and passed through said rod and bolt, means for normally holding said bolt in engagement with said notch, a key for disengaging the same, means for retaining said key in engagement with said bolt when the bolt is not fully within said notch, and means for partially filling said notch for preventing the disengagement of said key from said bolt, substantially as described.

9. A controller for governing the application of power, comprising a lever, means for imparting motion therefrom, a notched locking-plate engaged by said lever, a key for disengaging said lever from said plate, means for retaining said key in engagement with said lever until the same is brought into engagement with the notch of said lever, and an automatically-controlled pin adapted to partially fill said notch for preventing the disengagement of said key from said lever, substantially as described.

10. A controller for governing the application of power, comprising a lever, a notched locking-plate adapted to be engaged thereby, means for releasing such engagement, means retaining said releasing means in engagement with said lever until the said lever is brought fully into engagement with the notch of said locking-plate, and means for partially filling said notch for preventing disengagement of said releasing means from said lever, comprising a spring carried by said locking-plate, a pin held by said spring normally with its inner end within the notch of said plate, and means for locking said pin against the pressure of said spring, with its inner end free of said notch, substantially as described.

11. A controller for governing the application of power, comprising a lever, a notched locking-plate adapted to be engaged thereby, means for releasing such engagement, means for retaining said releasing means in engagement with said lever until the said lever is brought fully into engagement with the notch of said locking-plate, and means for partially

filling said notch for preventing disengagement of said releasing means from said lever, comprising a housing carried by said locking-plate, a spring within said housing, a slotted head at the outer end of said housing, a pin extending longitudinally of said housing and pressed by said spring, whereby the inner end is normally held within the notch of said locking-plate, means for removing the inner end of said pin from said notch against the pressure of said spring, and a lug adapted to move in the slot of said housing-head, and to engage the outer end thereof, when the said pin is partially rotated, for maintaining said pin with its inner end free of said notch, substantially as described.

12. A controller for governing the application of power, comprising a pivoted hollow rod, a bolt movable within the same for locking said rod against movement, a detachable key inserted in the upper end of said rod and contacting with said bolt for controlling the operation thereof, and means for preventing the removal of said key, substantially as described.

13. A controller for governing the application of power, comprising a pivoted hollow rod, a bolt longitudinally movable within the same, a locking-plate passed transversely through said rod and bolt, and means for causing said bolt to engage said locking-plate for locking said rod against movement, substantially as described.

14. A controller for governing the application of power, comprising a pivoted, hollow lever, having a longitudinal, shouldered slot in its wall, means for locking said lever against movement, a key movable longitudinally within said lever at the upper end thereof for

controlling said locking means, means carried by said key designed to engage the said shouldered slot for locking the key against removal, and means for permitting the removal of said key, substantially as described.

15. A controller for governing the application of power, comprising means for communicating motion, a rod secured thereto, a bolt movable within said rod for automatically locking the same against movement, means for preventing the unfastening of said bolt, a key projecting from the upper end of said rod for releasing the bolt, and means on said key engaging said rod for preventing the removal of the key, substantially as described.

16. A controller for governing the application of power, comprising a hollow rod for imparting motion, locking means passed transversely through said rod, means movable longitudinally within said rod for automatically engaging said locking means, and a key detachably engaging said rod and contacting with said engaging means for operating the same, substantially as described.

17. A controller for governing the application of power, comprising a hollow rod, locking means passed through said rod, a bolt movable longitudinally within said rod, a spring inclosed by said rod pressing said bolt for normally retaining the same in engagement with said locking means, and means detachably carried by said rod for moving said bolt against the pressure of said spring, substantially as described.

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

GEORGE JOHN KLEIN.

Witnesses:

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