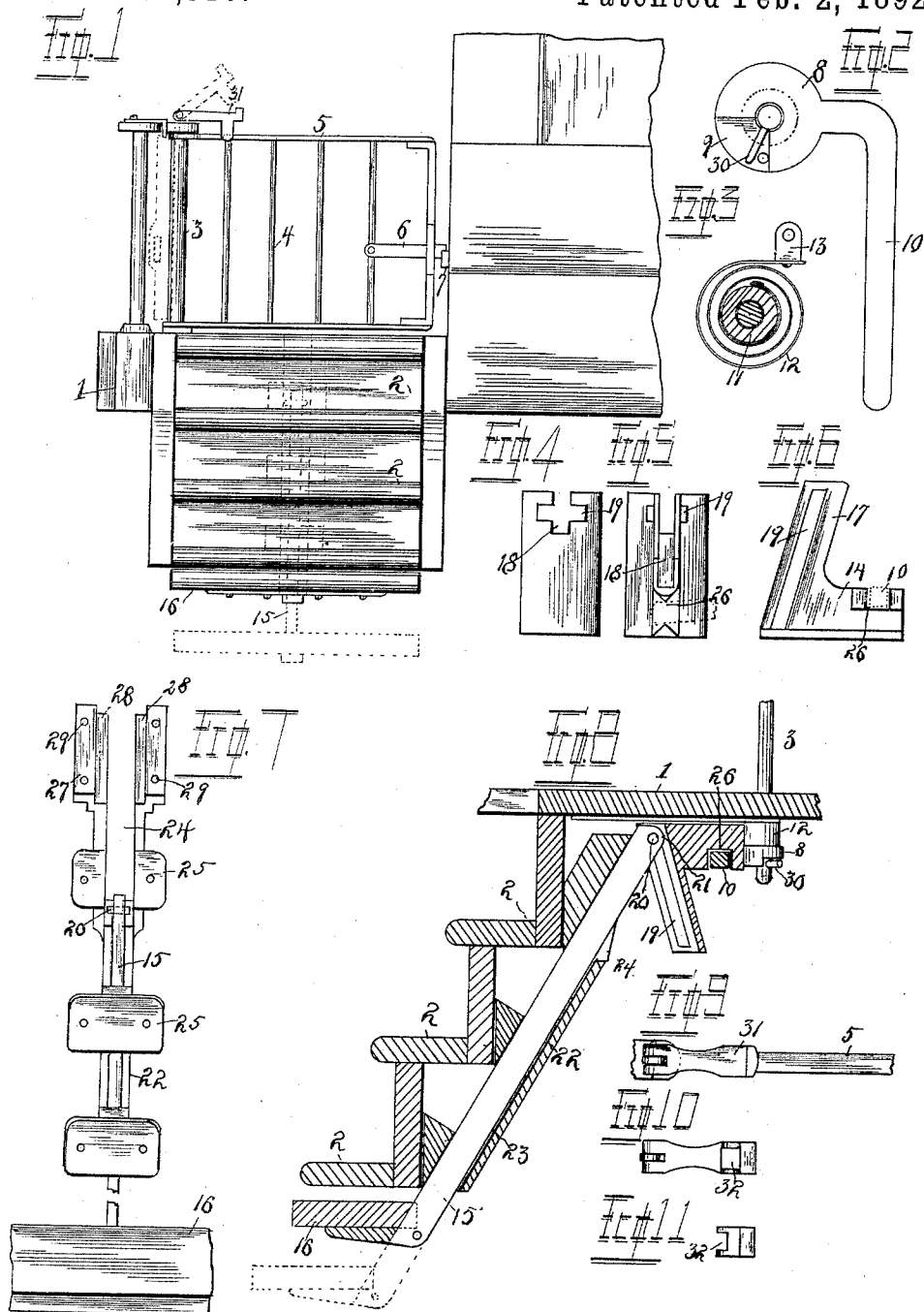


(No Model.)

C. O. SOBINSKI.
COMBINED CAR STEP AND GATE.

No. 468,310.

Patented Feb. 2, 1892.



Witnesses
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UNITED STATES PATENT OFFICE.

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COMBINED CAR STEP AND GATE.

SPECIFICATION forming part of Letters Patent No. 468,310, dated February 2, 1892.

Application filed September 12, 1891. Serial No. 405,511. (No model.)

To all whom it may concern:

Be it known that I, CHARLES O. SOBINSKI, of St. Louis, State of Missouri, have invented certain new and useful Improvements in a Car Step and Gate Combined, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to an improvement in a combined car-step and means for operating same; and it consists in the novel arrangement and combination of parts, as will be more fully hereinafter described, and designated in the claims.

In the drawings, Figure 1 is a side elevation of a platform of a car and a front elevation of the steps, showing my invention applied thereto. Fig. 2 is a bottom plan view of the lever which actuates the mechanism which pushes out the car-step in position for use. Fig. 3 is a detail view of a spring which retracts said lever and also a cross-section of a portion of the lever, as illustrated in Fig. 2. Fig. 4 is a top plan view of a sliding plate which operates the bar to which the step is secured detached. Fig. 5 is a bottom plan view of the same. Fig. 6 is a side elevation of the same. Fig. 7 is a front elevation of the guiding-bar to which the step is secured, and also showing the manner in which said guiding-bar is secured to the steps. Fig. 8 is a vertical longitudinal section of my invention, taken through the platform of the car-steps, &c. Fig. 9 is a top plan view of the gate and pivoted lug mounted on the same. Fig. 10 is a bottom plan view of said lug, and Fig. 11 is an end view of the same.

The object of my invention is to construct a step for cars, to be used in connection with ordinary car-steps, and also means for projecting or pushing the same out for use direct from the platform of a car.

Although I have shown my invention in connection with or adapted to be operated by the gate mounted on the platform of the car, I desire to state that I may dispense with the gate or use it in connection with car-platforms not provided with a gate and employ other

means, such as a crank, which is not illustrated, for projecting or pushing out the step.

I will give a further description of the use and operation of my invention in connection with a mechanical description thereof.

Referring to the drawings, 1 indicates the platform of a car of the ordinary construction, and 2 a series of steps secured thereto in the ordinary and usual manner. Mounted on said platform 1 and pivotally mounted on a vertical crank-shaft 3 is a gate 4, having a top bar 5. Said gate 4 is provided with an ordinary lift-latch 6, which is adapted to engage in a hook 7, secured to the car. Said vertical shaft 3 projects downwardly through the bottom of the platform 1 of the car, and is mounted on a lever 8. Said lever 8 is provided with a V-shaped depression 9 and with an arm 10, for the purposes more fully hereinafter described.

Cast integrally with the lever 8 is a rounded portion or cylinder 11. (Shown in dotted lines in Fig. 2 and a sectional view of which is shown in Fig. 3.) Said vertical shaft also passes through said cylinder 11. Secured to said cylinder is one end of a spring 12, and the other end of said spring is secured to a retaining device 13, which device is secured to the platform of the car in any suitable and mechanical manner. The function of said spring 12 is to automatically rerotate or retract the lever 8. It may be noted in this connection that the lever 8 is loosely or revolvably mounted on the vertical shaft 3, and it also may be noted that the lever 8 is mounted beneath the platform 1 of the car.

14 indicates a sliding plate, which is operated by the arm 10 of the lever 8, and said sliding plate 14 operates or pushes downwardly a bar 15, on which the auxiliary or supplemental step 16 is mounted in a manner as will be more fully hereinafter described. Said sliding plate 14 is provided with an arm 17, and said arm 17 is provided with a longitudinal groove 18 and with a transverse slot 19, which passes through said groove 18 at right angles and also through the arm 17 of the sliding plate 14. A top plan view of said

groove is shown in Fig. 4, and the slot 19 is shown in Figs. 5, 6, and 8, and the groove 18 is shown in Fig. 5.

Rigidly secured in the upper end of the bar 15 is a pin 20, which is adapted to move upwardly and downwardly in the slot 19. (For illustration see Figs. 7 and 8.) The upper end of bar 15 is provided with a rounded or bevel portion 21, and the upper terminal portion of said bar is adapted to move upwardly and downwardly in the longitudinal groove 18. It may be noted in this connection that the arm 17 of the sliding plate 14 extends obliquely relative to the plane surface of said plate, and the groove 18 and slot 19, formed in said plate, also extend outwardly relative to the plane surface of said plate. (For illustration see Figs. 6 and 8.) From this construction it can be readily perceived that when the plate 14 (referring to Fig. 8 for illustration) is moved toward the car-steps 2 (by the agency of arm 10) the bar 15 will be pushed downwardly, and consequently the step 16, secured to said sliding bar, will assume the position illustrated in dotted lines in Fig. 8, and when said plate 14 is moved in an opposite direction, or, that is, moved from the car-steps 2, said bar 15 and steps 16 will be elevated or moved upwardly; or, in other words, the plate 14 imparts a reciprocating motion to the bar 15 and steps 16, and the arm 10 imparts a sliding motion to said plate 14 in a manner as will be more specifically hereinafter described. The sliding bar 15 is located in a guide-bar 22. (See Figs. 7 and 8 for illustration.) Said guide-bar 22 is provided with a longitudinal channel 23, in which said bar 15 is adapted to freely slide, and said channel 23 communicates with an opening 24, in which the arm 17 of plate 15 is adapted to move inwardly and outwardly as said plate slides inwardly and outwardly, which imparts a reciprocating motion to the sliding bar 15. Said guide-bar 22 is provided with a series of perforated ears 25, as illustrated in Fig. 7, the same being secured to the car-steps 2 in any suitable and mechanical manner.

The auxiliary or supplemental step 16 is secured to the sliding bar 15 in any suitable and mechanical manner, and is projected or retracted upwardly and inwardly by the agency of the sliding bar 15, as above described. The sliding plate 14 is provided with a depression 26, in which arm 10 is adapted to freely slide. The guide-bar 22 is provided on its upper terminal portion with a base-plate 27, which is secured to the bottom surface of the platform of the car in any suitable and mechanical manner, and said plate 27 is provided with grooves or recesses 28, in which said plate 14 is adapted to slide. In other words, the recesses or grooves 28 act as a guide for said plate 14 when it is slid inwardly toward the car-steps or outwardly from the same. The base-plate 27 is also provided with perforations 29, through which

screws or nails pass and are received into the platform of the car.

Having described the manner in which the sliding of the plate 14 reciprocates the sliding bar 15 and consequently projects outwardly and withdraws upwardly and inwardly the supplemental or auxiliary step 16, I will now proceed to describe the mechanism which slides the sliding plate 14. As before described, the arm 10 of lever 8 fits into a recess 26 and communicates a sliding motion to said plate 14. I will now describe the mechanism by which arm 10 is operated. As arm 10 is rigidly secured to lever 8, it follows as a natural conclusion that when lever 8 is moved its arm 10 will consequently be moved. The lever 8 is rotated by means of the vertical shaft 3. Secured in the lower end of said vertical shaft 3 is a pin 30, which normally rests and moves in the V-shaped depression 9 formed in said lever. When the vertical shaft 3 is rotated, said pin 30 will come in contact with the side of said recess 9, and consequently turn or move lever 8, and lever 8 will impart motion to the arm 10. When lever 8 (or, more specifically, the arm 10 thereof) moves in the direction of the car-steps 2, the plate 14 will be pushed inwardly, it being premised that the arm 10 is located in recess 26 formed in the said plate 14. When plate 14 moves inwardly, (see Fig. 8 for illustration,) the sliding bar 15 will be pushed downwardly, and consequently the supplemental step 16 will be projected downwardly and outwardly ready for use, as shown in dotted lines in Fig. 8. The elasticity of spring 12 from the construction hereinbefore described will automatically turn the lever 8 and consequently the arm 10 in an opposite direction, and when said arm 10 is moved in an opposite direction the sliding plate 14 will consequently be drawn in a direction away from the steps 2 and will consequently withdraw or elevate the sliding bar 15, and consequently draw inwardly and upwardly the supplemental step 16.

I will now proceed to describe the manner of rotating the vertical shaft 3 by first describing the manner in which it is rotated by the door 4. 31 indicates a lug which is non-revolubly and vertically pivotally mounted on the upper end of the vertical shaft 3. (See Figs. 1 and 9 for illustration.) Said lug 31 is provided with a recess 32, in which the top bar 5 of door 4 is adapted to fit. Whenever it is desired to project the supplemental step 16 downwardly by means of the door, the operator should place the pivoted lug 31 on the top bar 5 of door 4, as illustrated in Fig. 1, and then by opening the door outwardly—that is, toward the car-steps—the vertical shaft 3 will be rotated, and will rotate unrestrained until the pin 30 comes in contact with the sides of the V-shaped recess 9, and then said pin 30 will actuate the lever 8 and the other mechanism, as hereinbefore described. By having the V-shaped recess 9 of

the proper dimension the gate 4 can be almost completely opened before the pin 30 comes in contact with its side. Of course when it is desired to open the door independent of moving the step 16 the operator should elevate the pivoted lug 31, and then the gate 4 can be opened without imparting motion to the step 16. It may be noted in this connection that I can employ any suitable mechanical means for rotating the crank-shaft 3 other than the gate and pivoted lug, which act as cranks, such as a crank or lever mounted on said shaft, which is not illustrated, and it may be further noted that I can use my invention on cars the platforms of which are not provided with gates such as 4.

Having fully described my invention, what I claim is—

1. A supplemental car-step, a sliding bar carrying the same, a vertical crank-shaft journaled on the platform, and a gate pivoted on said shaft and provided with means for connecting it with said shaft, whereby it is adapted to reciprocate said sliding bar, all arranged and combined to operate substantially as set forth.

2. The combination of a sliding bar 15, carrying a supplemental step 16, a sliding plate mounted underneath the platform of the car and also on the upper end of said sliding bar, a lever 8, provided with an arm 10, the same being located in said sliding plate, a shaft 3, mounted in said lever and adapted to communicate motion thereto, and means for rotating said shaft, substantially as set forth.

3. The combination of a sliding bar 15, carrying a supplemental step 16, a sliding plate mounted underneath the platform of the car and also on the upper end of said sliding bar, a lever 8, provided with an arm 10, the same being located in said sliding plate, a shaft 3, mounted in said lever and adapted to communicate motion thereto, and a gate 4 for rotating said shaft, substantially as set forth.

4. The combination, with a supplemental car-step, of a sliding bar 15, a guide-bar 22, secured to the car-steps, in which said sliding bar 15 is located, a sliding plate 14, provided with a groove 18 and transverse slot 19 and depression 26, a pin or lug 20, mounted in the upper end of said bar 15 and adapted to slide upwardly and downwardly in the transverse slot 19, a vertical shaft 3 and means for

rotating the same, a lever 8, provided with an arm 10, normally located in said depression 26, said lever adapted to be actuated by said shaft, and a spring 12, one end of which is secured to said lever and the opposite end thereof to the platform of the car, substantially as set forth.

5. The combination, with a supplemental car-step, of a sliding bar 15, a guide-bar 22, secured to the car-step, in which said sliding bar 15 is located, a sliding plate 14, provided with a groove 18 and transverse slot 19 and depression 26, a pin or lug 20, mounted in the upper end of said bar 15 and adapted to slide upwardly and downwardly in the transverse slot 19, a vertical shaft 3, a recessed lug 31, mounted on said shaft and adapted to engage with a gate, a gate for imparting motion to said lug and consequently rotating said shaft, a lever 8, provided with an arm 10, normally located in said depression 26, said lever adapted to be actuated by said shaft, and a spring 12, one end of which is secured to said lever and the opposite end thereof to the platform of the car, substantially as set forth.

6. The combination, with a supplemental car-step, of a sliding bar 15, a guide-bar 22, provided with perforated ears 25, and base-plate 27, having recesses 28, formed therein, a group 23, in which said bar 15 is adapted to slide, a sliding plate 14, provided with an oblique groove 18 and an oblique transverse slot 19 and depression 26, a pin or lug 20, mounted in the upper end of said bar 15 and adapted to slide upwardly and downwardly in the transverse slot 19, a vertical shaft 3, a recessed lug 31, mounted on said shaft and adapted to engage with a gate, a gate for imparting motion to said lug and consequently rotating said shaft, a lever 8, provided with an arm 10, normally located in said depression 26, said lever adapted to be actuated by said shaft, and a spring 12, one end of which is secured to said lever and the opposite end thereof to the platform of the car, substantially as set forth.

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

CHAS. O. SOBINSKI.

Witnesses:

BENJ. J. KLENE,
ED. E. LONGAN.