R. N. B. KIRKHAM.

Carriage-Step.

No. 213,429. Patented Mar. 18, 1879.

Fig. 3

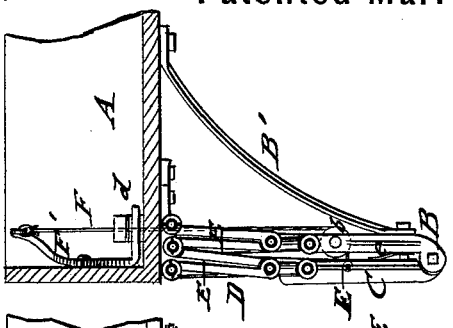


Fig. 2.

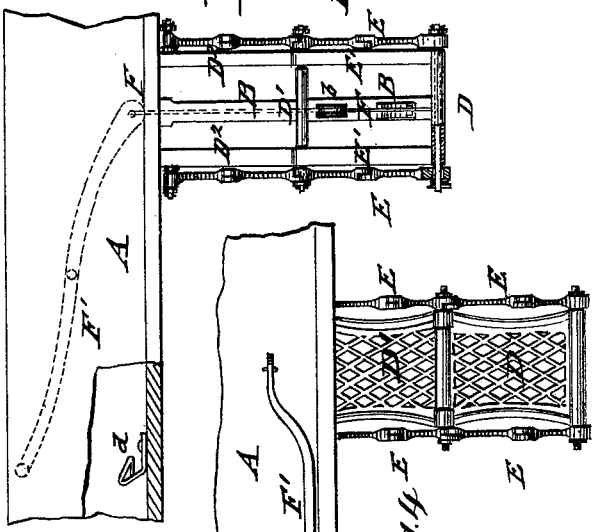
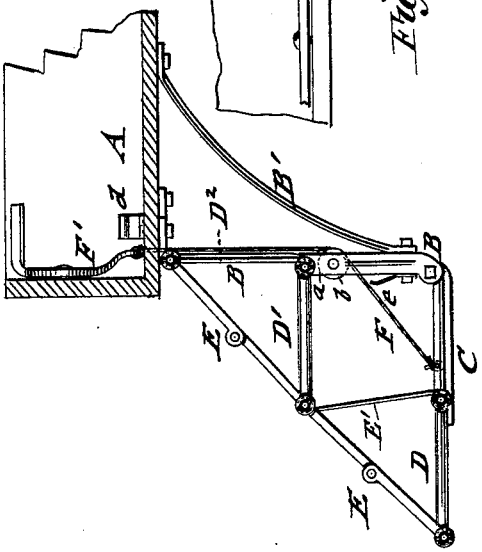


Fig. 4.

Fig. 1



WITNESSES:

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RICHARD N. B. KIRKHAM, OF KANSAS, ILLINOIS.

IMPROVEMENT IN CARRIAGE-STEPS.

Specification forming part of Letters Patent No. **213,429**, dated March 18, 1879; application filed September 21, 1878.

To all whom it may concern:

Be it known that I, RICHD. N. B. KIRKHAM, of Kansas, in the county of Edgar and State of Illinois, have invented a new and Improved Carriage-Step, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a side view of my improved carriage-step, shown as let down. Fig. 2 is a front view of the same, partly in section; and Figs. 3 and 4 are side and top views of the step, shown as folded up.

Similar letters of reference indicate corresponding parts.

The invention is designed to furnish for spring-wagons and vehicles generally an improved folding step, by which the getting on or off the vehicle is facilitated and the soiling of the clothes by contact with the wheels prevented; and the invention relates to two folding steps, which are applied respectively to a fixed perpendicular arm depending from the vehicle-body, and to a swinging arm hinged to the fixed arm. The steps are supported in position for use by brackets, folding braces, and hangers. The steps are folded up to the perpendicular arm, below the vehicle-body, by a cord attached to the swinging arm, in connection with guide-pulleys, an operating-lever, and a spring-catch.

Referring to the drawings, A represents the body of a vehicle, to which my improved folding step is attached. The step is supported on a perpendicular main arm, B, that is screwed or bolted to the under side of the body, and rigidly held in position by a brace, B′. A swinging arm, C, is hinged to the lower end of the rigid arm B, so as to swing into horizontal or vertical position thereon. A step, D, is firmly attached to the front end of the swinging arm, while a second step, D^1, is hinged above the first step, D, to the lower ends of brackets D^2, which are attached to the body of the vehicle at both sides of the perpendicular arm B. The upper step, D^1, rests, furthermore, at the center of its rear end, on a projecting shoulder or seat, *a*, of the arm B.

The steps D and D^1 are supported, when thrown down into horizontal position for use, by folding braces E, which extend from pivots of the brackets D^2 to the front ends of the steps D^1, and from the front pivots of step D^1 to the front pivots of the lower step, D. The lower step is, furthermore, connected with the upper step by hinged hangers E′, that impart stiffness to the lower step in lateral direction in similar manner as the brackets D^2 do to the upper step.

A leather or other cord or metallic chain, F, is attached to the swinging arm C, and passed over a pulley below the shoulder *a* of the rigid arm B, and back of the arm B upward and through a guide-hole in the vehicle-body A to the end of a fulcrumed lever, F′, at the inside of the body, which lever raises the steps and folds them up against the perpendicular arm, when the opposite treadle-shaped end is depressed by the foot and retained by a spring-catch, *d*. By releasing the spring-catch from the lever F′ the steps are thrown down, partly by the action of a releasing-spring, *e*, that is attached to the lower part of arm B, so as to press by its free end on the swinging arm C, and partly by the weight of the steps.

When the steps are let down they reach out far enough beyond the wheels to admit of the convenient getting on or off the vehicle without coming in contact with the wheels. By pressing the lever down again until engaged by the spring-catch, the steps are folded up compactly underneath the body of the vehicle, being always out of the way, and forming a neat and convenient attachment for vehicles of all kinds.

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

1. The combination, in a carriage-step, of a rigid perpendicular arm having a swinging arm hinged to the lower end thereof, and of rigid brackets depending from the vehicle-body, with folding steps, hinged respectively to the brackets and attached to the swinging arm, substantially as specified.

2. The combination of a rigid perpendicular arm having a swinging arm hinged to the lower end thereof, and rigid side brackets depending from the vehicle-body, with folding steps that are applied to the brackets and

hinged arm, and supported by folding pivot-braces and step-connecting hangers, substantially as shown and described.

3. The combination of the swinging and folding steps, of which the upper step is hinged to brackets of the vehicle-body, and the lower step attached to a swinging arm hinged to a perpendicular supporting-arm, with folding braces and hangers, and with a cord-pulley and lever, as described, for raising the steps into folded position below the vehicle-body, substantially as set forth.

4. In a carriage-step, the combination of the rigid perpendicular arm, the hinged arm, folding steps, and raising and retaining mechanism with a cushioning-spring at the lower end of the perpendicular arm, to throw the steps down when the retaining mechanism is released, substantially as set forth.

5. In a carriage-step, the rigid perpendicular arm depending from the vehicle-body, provided with a projecting shoulder or rest for supporting the upper step at its rear part, substantially as set forth.

RICHARD N. B. KIRKHAM.

Witnesses:

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