

(No Model.)

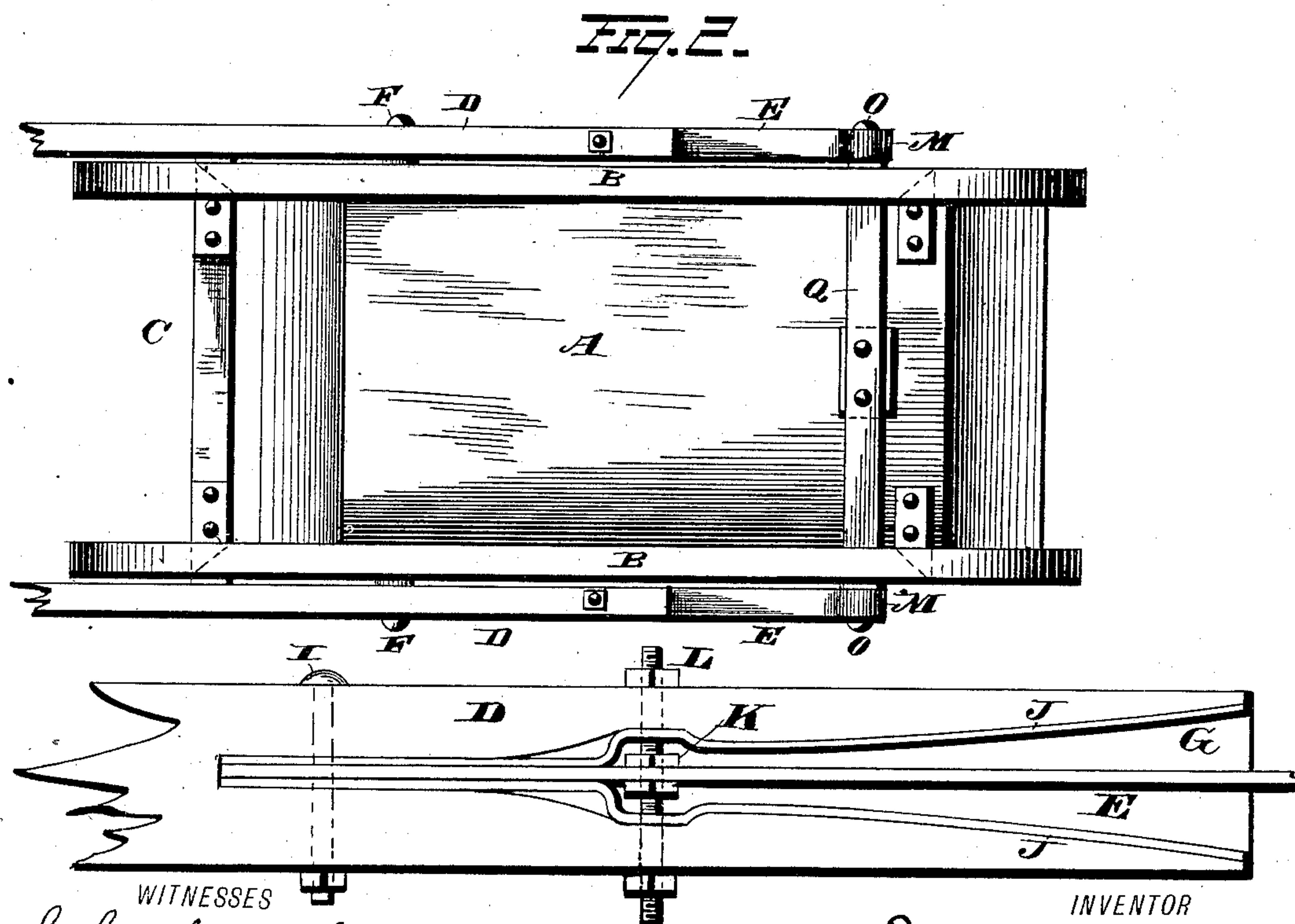
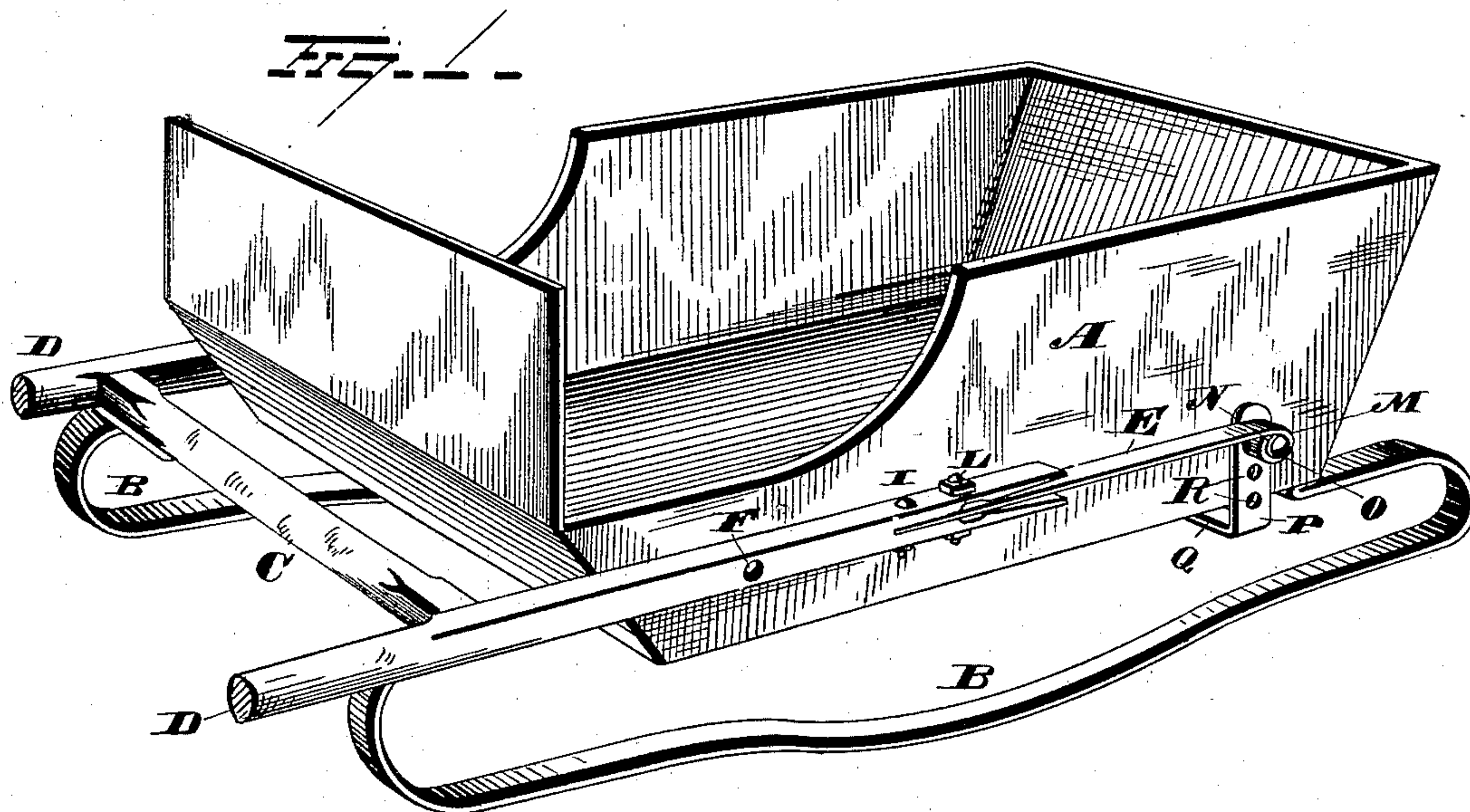
3 Sheets—Sheet 1.

F. L. PERRY.

TWO WHEELED VEHICLE.

No. 280,235.

Patented June 26, 1883.



WITNESSES

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Geo. F. Downing.

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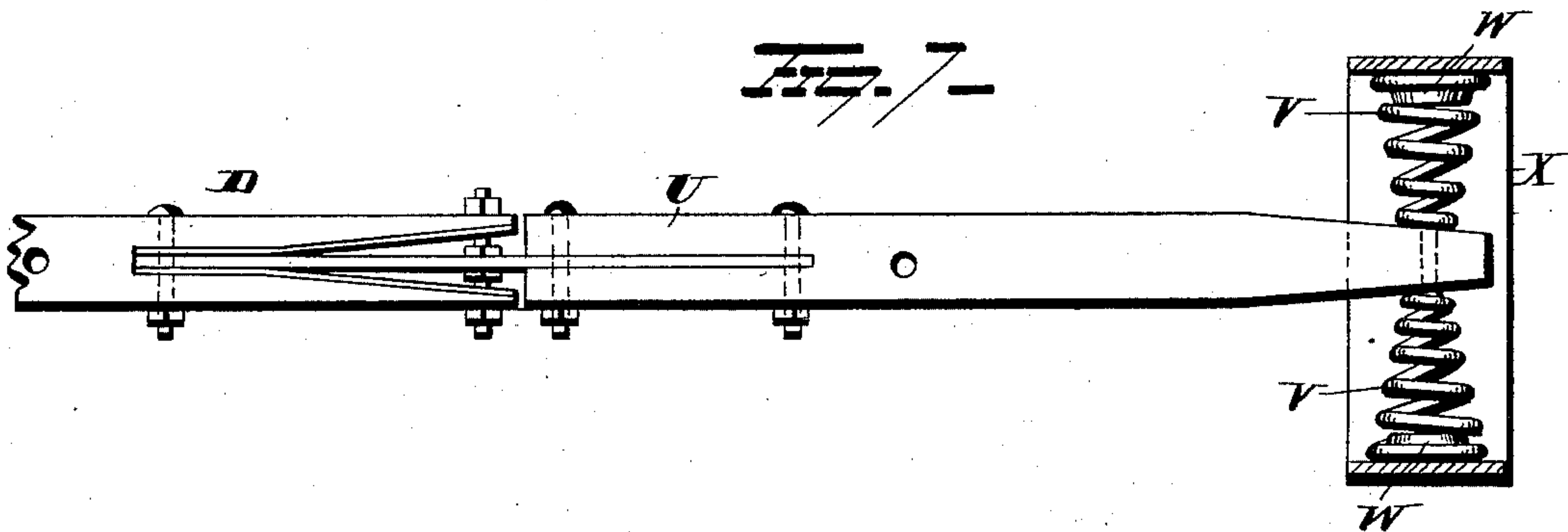
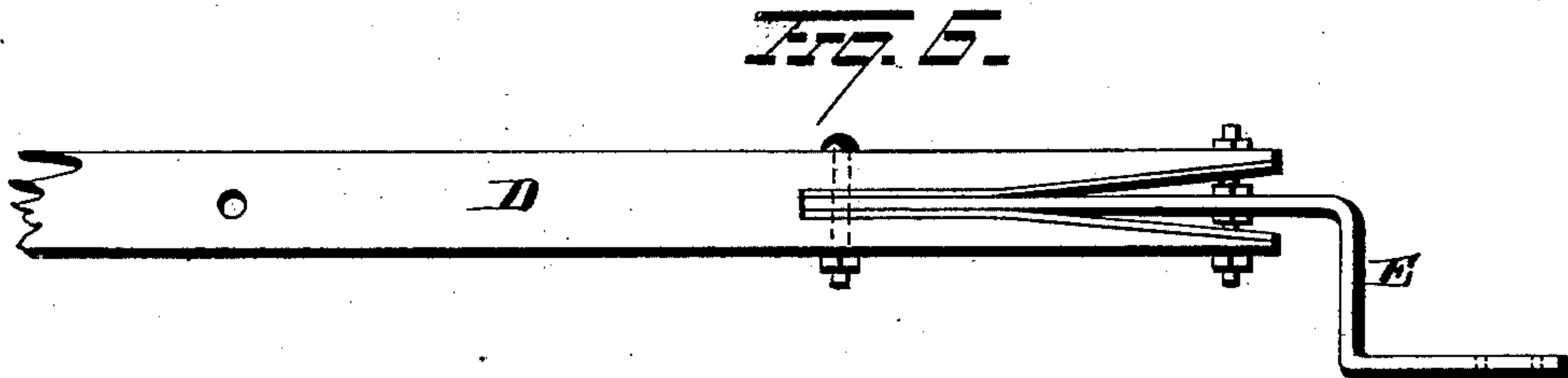
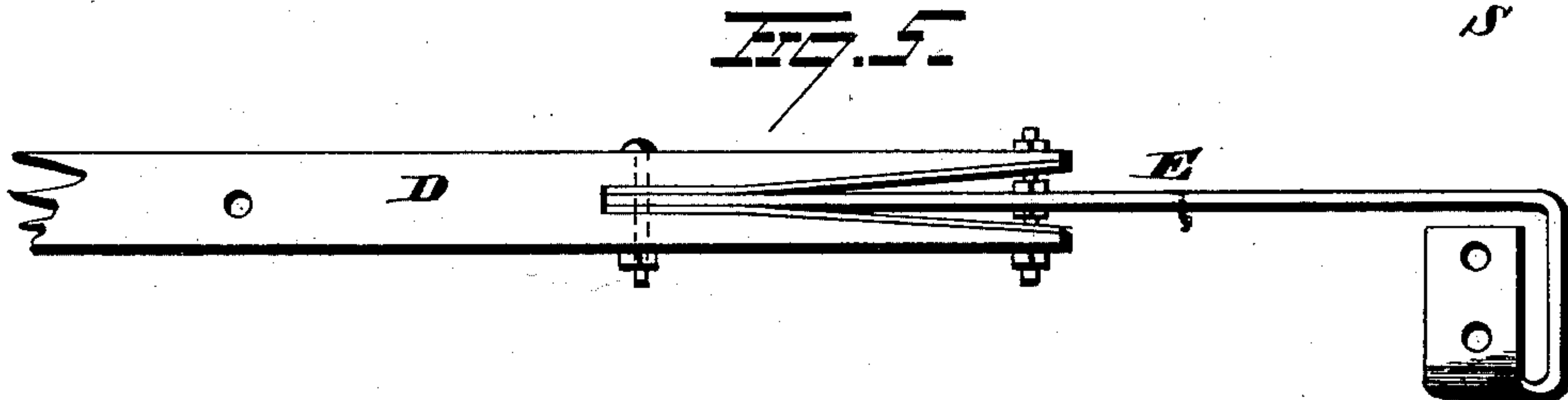
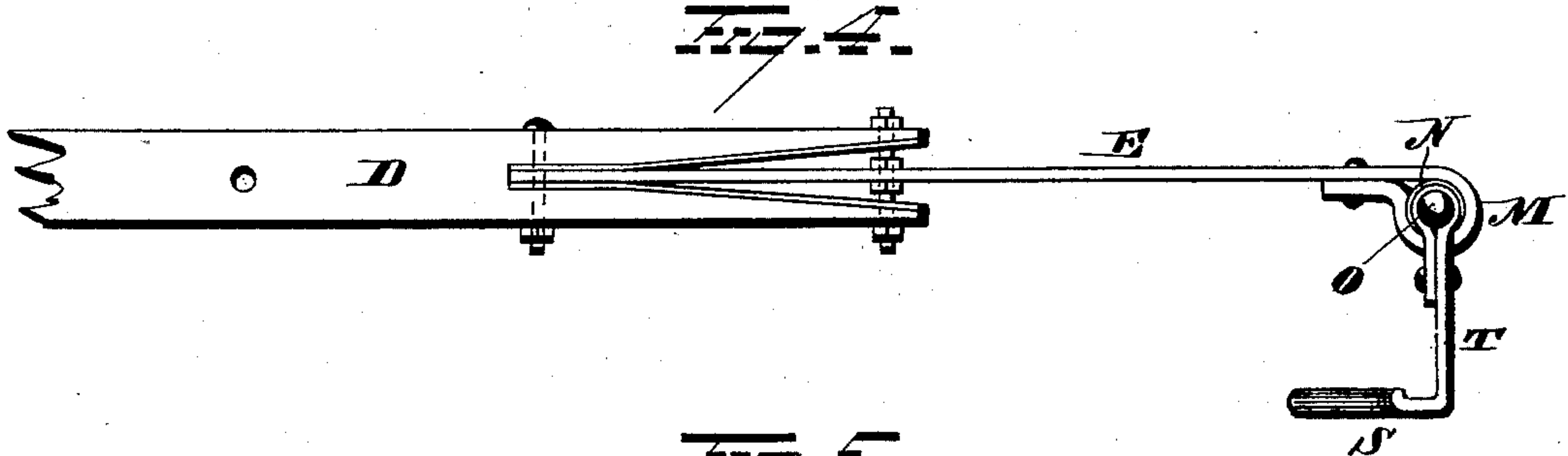
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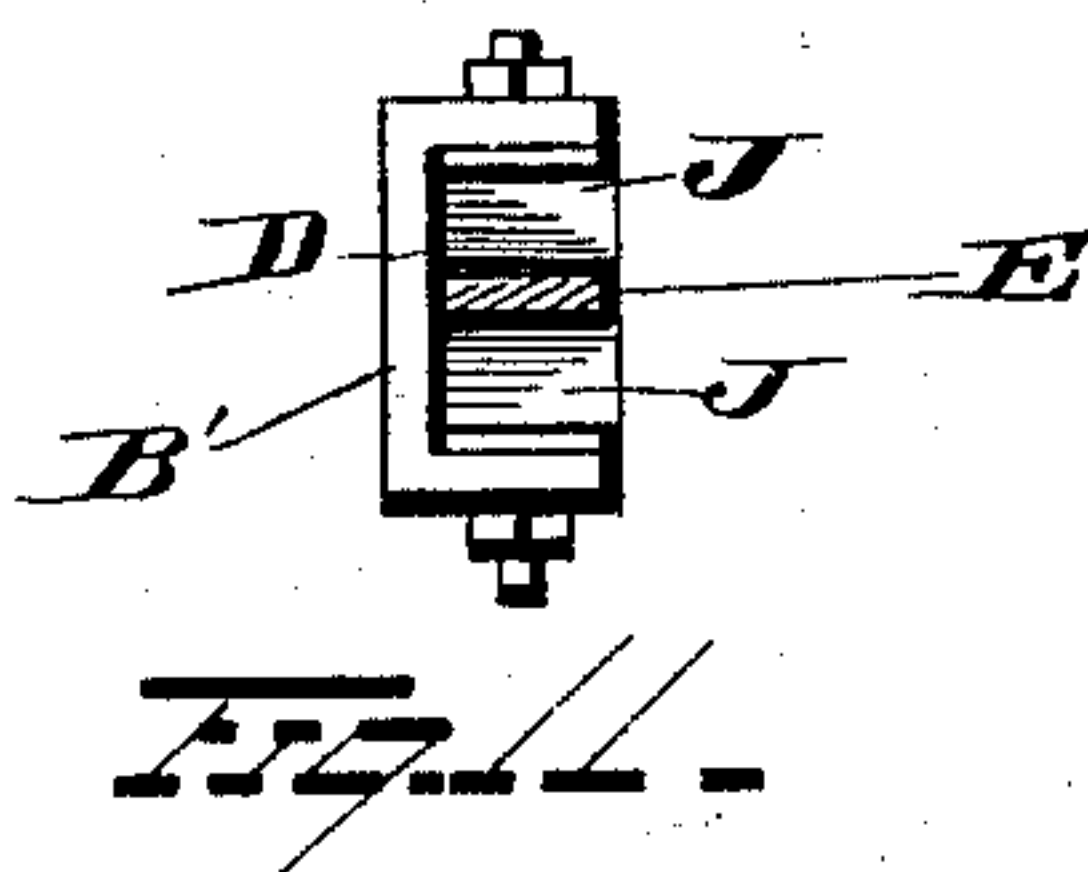
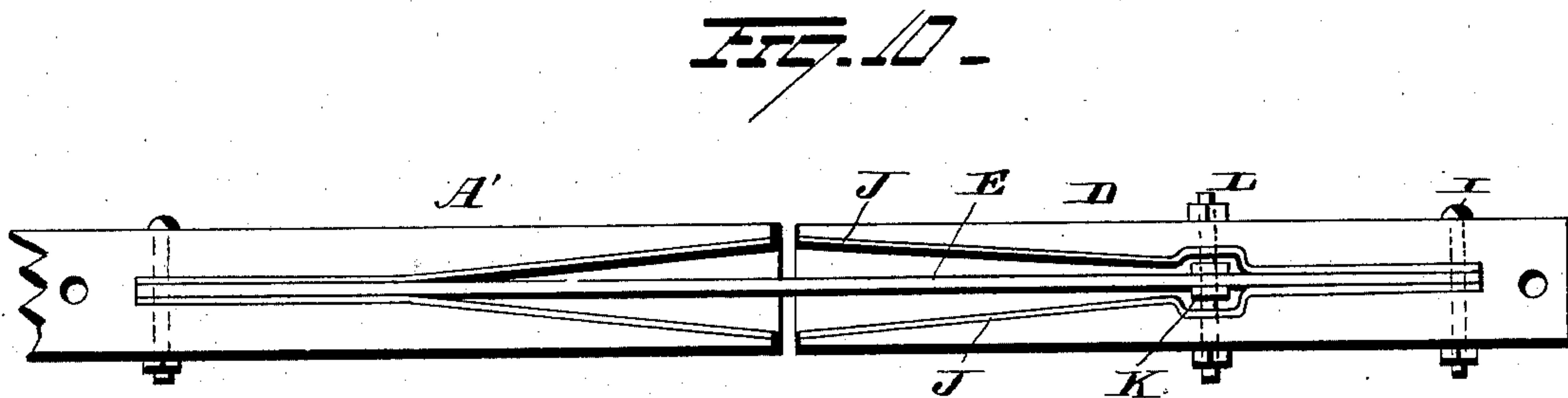
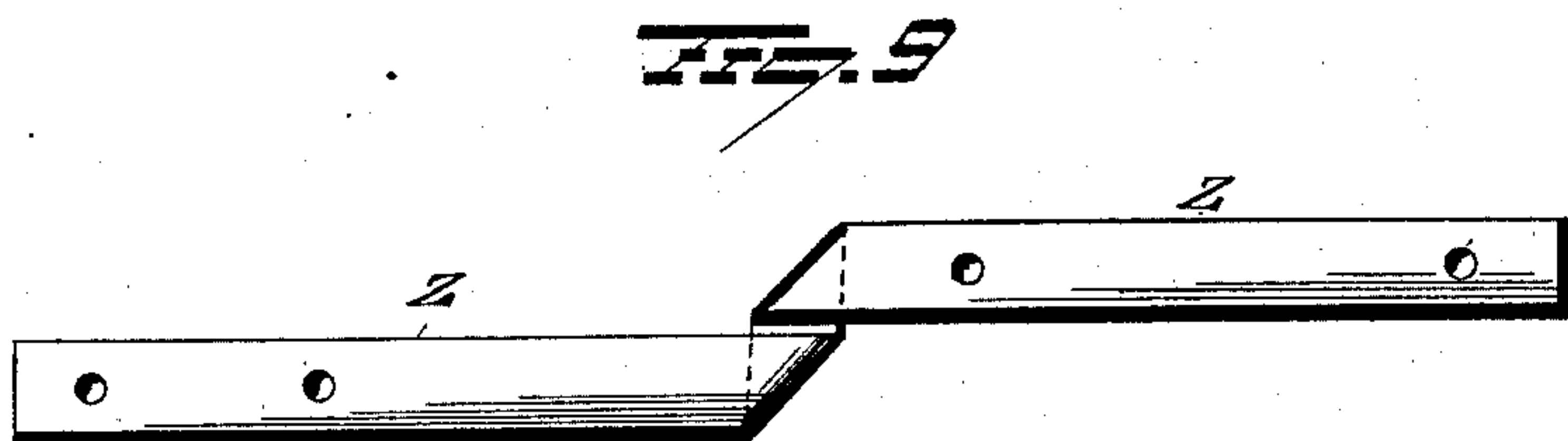
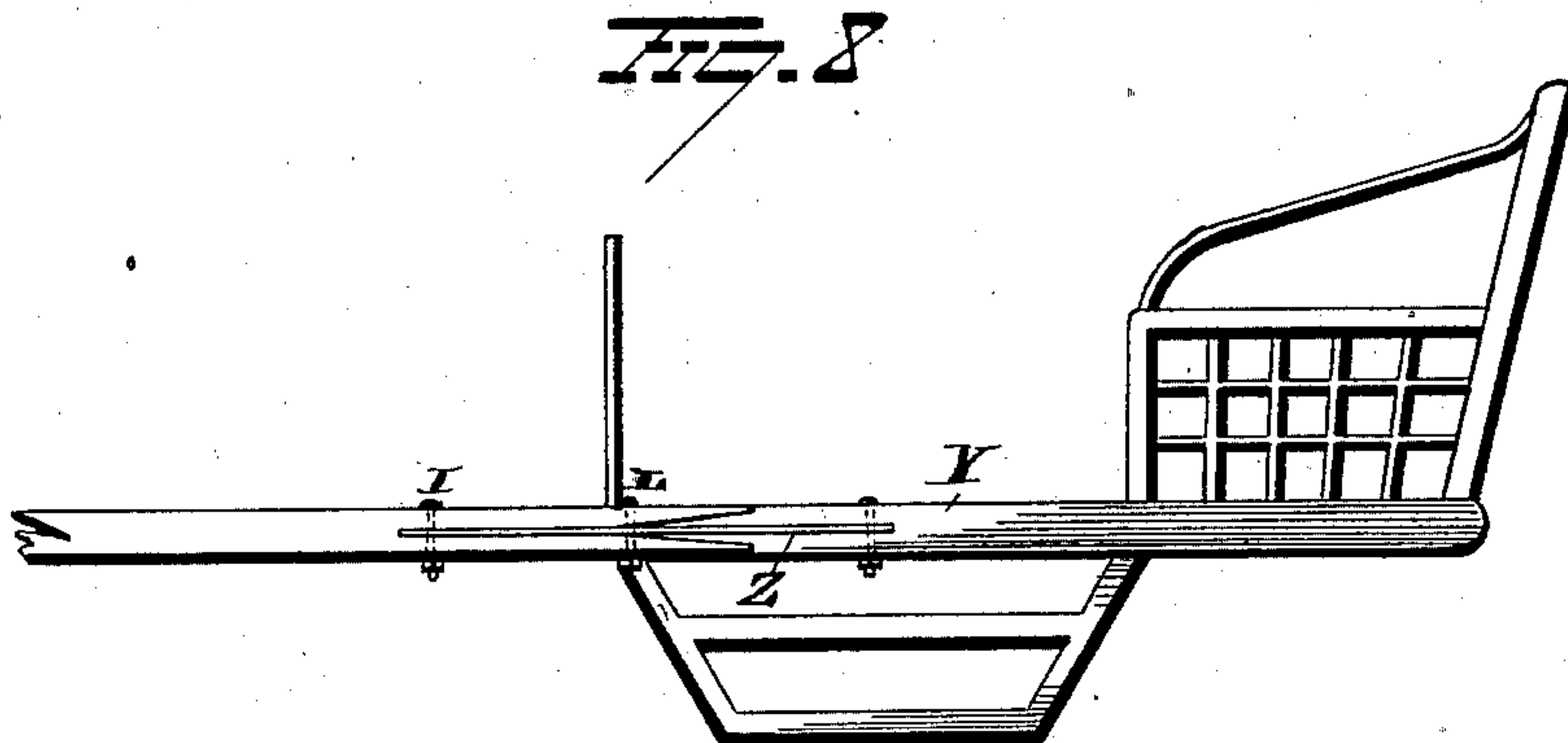
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F. L. PERRY.
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No. 280,235.

Patented June 26, 1883.



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UNITED STATES PATENT OFFICE.

FRANCIS L. PERRY, OF CANANDAIGUA, NEW YORK.

TWO-WHEELED VEHICLE.

SPECIFICATION forming part of Letters Patent No. 280,235, dated June 26, 1883.

Application filed December 22, 1882. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS L. PERRY, of Canandaigua, in the county of Ontario and State of New York, have invented certain new and useful Improvements in Two-Wheeled Vehicles; 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 pertains to make and use the same.

My invention relates to an improvement in devices for obviating the characteristic oscillation of two-wheeled vehicles, the object being to produce devices of the character designated, which shall combine simplicity and cheapness of construction with durability and efficiency in use.

With these objects in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of a two-wheeled vehicle embodying my invention. Fig. 2 is a plan view of the bottom thereof. Fig. 3 is an enlarged view of the rear end of one of the shafts. Figs. 4, 5, 6, 7, and 8 are views in side elevation of modified forms which the invention may assume. Fig. 9 is a view showing the manner of bending the springs in adapting them for the construction shown in Fig. 8. Fig. 10 is still another modified form of my invention; and Fig. 11 is a view in end elevation, showing the manner of slotting the shafts employed in the construction illustrated in Fig. 10.

For the purpose of illustration the invention is shown in Fig. 1 of the drawings as embodied in a dog-cart; but it is apparent that it is applicable to sulkies, gigs, village-carts, and to all two-wheeled vehicles of similar construction.

A is the body of the vehicle, the same being suspended in springs B, the forward and rear ends of which are turned inwardly at right angles, and respectively attached to the cross-bar C of the shafts D and to the rear of the vehicle-body. By constructing and arranging the suspension-springs in this manner they co-operate with the shaft-springs E, to be hereinafter described, in correcting the oscil-

lations of the vehicle. These suspension-springs also possess the advantages of being cheap in construction and durable in use. The said shafts are fulcrumed by bolts F, or by any equivalent devices, to the sides of the vehicle-body, and extend rearwardly from the fulcrum, their rear ends being provided with open-jaw slots G, in which the forward ends of the springs E are inserted, and secured in place by bolts I. By providing the rear ends of the shafts with open slots, as described, the springs are allowed an increased range of vibration, the same being defined by the walls of the slots, which are cushioned by strips J, of rubber or other elastic material. The springs are relatively adjusted with the walls of the slots by means of nuts K, adapted to be vertically adjusted upon bolts L, extending through the shafts and slots. Loops M, formed by suitably bending the rear ends of the springs, are arranged to inclose rubber sleeves N, which receive studs O, secured to the outer faces of the upright arms P of the spring-plate Q, attached to the bottom of the vehicle-body, the said arms P being provided, respectively, with a vertical series of holes, R, in which the studs O are raised or lowered, according as it is desired to depress or elevate the outer ends of the shafts in accommodating them to horses varying in height. When the vehicle is in motion, the rear ends of the shafts are actuated in a constant oscillation, being alternately elevated and depressed above and below a line passing through them and the studs or bearings O, and inasmuch as this line represents the shortest path between the ends of the shafts and the studs, any deflection from it will increase the distance between them. For the purpose of compensating for this increase in distance, as described, and to avoid the shock which would be transmitted to the vehicle if all parts were rigid, the sleeves N and the plate Q are employed to compensate for these deflections, which they do by permitting the studs to move forward a short distance, the sleeves N acting in virtue of their elastic character, and the plate Q being sprung torsionally, with the effect of deflecting its arms forward.

In virtue of the arrangement of parts above set forth, the motion which the shafts derive

from the gait of the horse will be diffused through the springs B and E, the rubber sleeves N, and the spring Q and its vibrating arms P, the rocking or oscillation of the vehicle being so far corrected that its occupant is unconscious of it. The invention is not, however, limited to the use of any particular mode of attaching the springs to the shafts, nor to any one form of compensating bearing, as evidenced by the proposed modifications.

In Fig. 4 of the drawings the plate Q is dispensed with and its place supplied by a compensating bearing consisting of plates S, adapted to be secured to the body of the vehicle, and provided with vibrating upright arms T, supporting studs arranged to pass through the rubber sleeves N of the springs E.

In Fig. 5 of the drawings the compensating bearings, as a distinct feature of construction, are dispensed with altogether, a suitable bearing being formed by bending the rear ends of the springs, substantially in the manner shown, and attaching them to the body of the vehicle.

Fig. 6 shows another method of bending the rear ends of the springs in such manner as to do away with separate bearings, the springs being bent in two turns and attached directly to the body of the vehicle. In this construction, in which the shafts may or may not be fulcrumed to the body of the vehicle, the springs and the cushions are relied upon to absorb the oscillations of the shafts.

In the construction illustrated in Fig. 7 of the drawings the rear ends of the springs are rigidly secured in the forward ends of auxiliary shafts U, fulcrumed to the sides of the vehicle-body, the rear ends of said shafts being interposed between spiral springs V, inclosing conical rubber cushions W, and mounted in casings X, attached to the vehicle-body. In operation the auxiliary shafts oscillate with the rear ends of the ordinary shafts and absorb and diffuse their motion. Of this construction it may be further remarked that the ordinary shafts may be fulcrumed to the shafts or not, as found desirable.

The construction illustrated in Fig. 8 of the drawings is constructed with special reference to giving a wide space between the shafts, which is effected by securing them to the outer faces of auxiliary shafts Y, which are rigidly attached to the vehicle-body by means of springs Z, one of which is shown in Fig. 9, these springs being appropriately bent to permit their forward and rear ends to be respectively secured to the ordinary and auxiliary shafts. If desired, the latter may be dispensed with and the rear ends of the springs attached directly to the vehicle-body.

The construction illustrated in Fig. 10 of the drawings employs oscillating auxiliary shafts A', the forward ends of which are provided with cushioned open slots which receive the rear ends of the springs, the forward ends of the same being secured in the slotted ends of the ordinary shafts.

It will be observed by reference to Fig. 11 of the drawings that the slots are not cut entirely through the shafts, as elsewhere shown, but that they are sunk into the inner faces of the shafts, being concealed by the outer walls, B', thereof.

If found necessary, the springs E may be provided with sliding auxiliary springs arranged to increase or decrease their stiffness.

In view of the modifications herein shown, of other modified constructions of which the invention is clearly susceptible, and of the changes which must frequently be made, to meet the requirements resulting from the oscillation, of the ordinary practical conditions, I would have it understood that I do not limit myself to the exact construction shown and described, but hold myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

I am aware that it is not broadly new to combine a spring or springs with the rear end of a pivoted shaft; hence I do not claim such a combination; but,

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

1. The combination, with the body of a two-wheeled vehicle, of shafts the rear ends of which are provided with open or jaw slots, and springs the forward ends of which are located in the slots of the shafts, their rear ends being attached to the vehicle-body, substantially as set forth.

2. The combination, with the body of a two-wheeled vehicle, of shafts fulcrumed thereto and extending rearwardly from the fulcrum, their rear ends being provided with open or jaw slots, and springs the forward ends of which are secured in the slots of the shafts, their rear ends being attached to the vehicle-body, substantially as set forth.

3. The combination, with the body of a two-wheeled vehicle, of shafts the rear ends of which are provided with open or jaw slots, elastic cushions for the walls of said slots, and springs located in and extending rearwardly from the slots, and attached to the vehicle-body, substantially as set forth.

4. The combination, with the body of a two-wheeled vehicle, of shafts the rear ends of which are provided with open or jaw slots, springs located in and extending rearwardly from said slots, their rear ends being attached to the vehicle-body, and bolts extending through the slots in the shafts and provided with adjustable nuts, between which the springs are interposed, substantially as set forth.

5. The combination, with the body of a two-wheeled vehicle, of shafts the rear ends of which are provided with open or jaw slots, springs located in and extending rearwardly from said slots, and bearings attached to the vehicle-body and arranged to support the rear ends of the springs, substantially as set forth.

6. The combination, with the body and shafts

of a two-wheeled vehicle, of springs secured to and extending rearwardly from the shafts, the rear ends of the springs being bent to form loops, rubber sleeves located in said loops, and
5 studs attached to the vehicle-body and extending through said sleeves, substantially as set forth.

7. The combination, with the body and shafts of a two-wheeled vehicle, of springs secured
10 to and extending rearwardly from the shafts, and a spring-plate extending across the vehicle-body, and having its ends turned up to form upright arms, and vertically-adjustable studs secured to said arms and arranged to support
15 the rear ends of the springs, substantially as set forth.

8. The combination, with the body of a two-wheeled vehicle, of pivoted shafts provided at their rear ends with springs connected to the body of the vehicle, and suspension-springs
20 turned inwardly at their ends at right angles, and attached, respectively, to the cross-bar of the pivoted shafts and to the body of the vehicle, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.
25

FRANCIS L. PERRY.

Witnesses:

GEORGE COOK,
S. G. NOTTINGHAM.