

No. 777,875.

PATENTED DEC. 20, 1904.

M. WOODHULL.  
BODY LOOP.

APPLICATION FILED SEPT. 15, 1904.

NO MODEL.

FIG. 1.

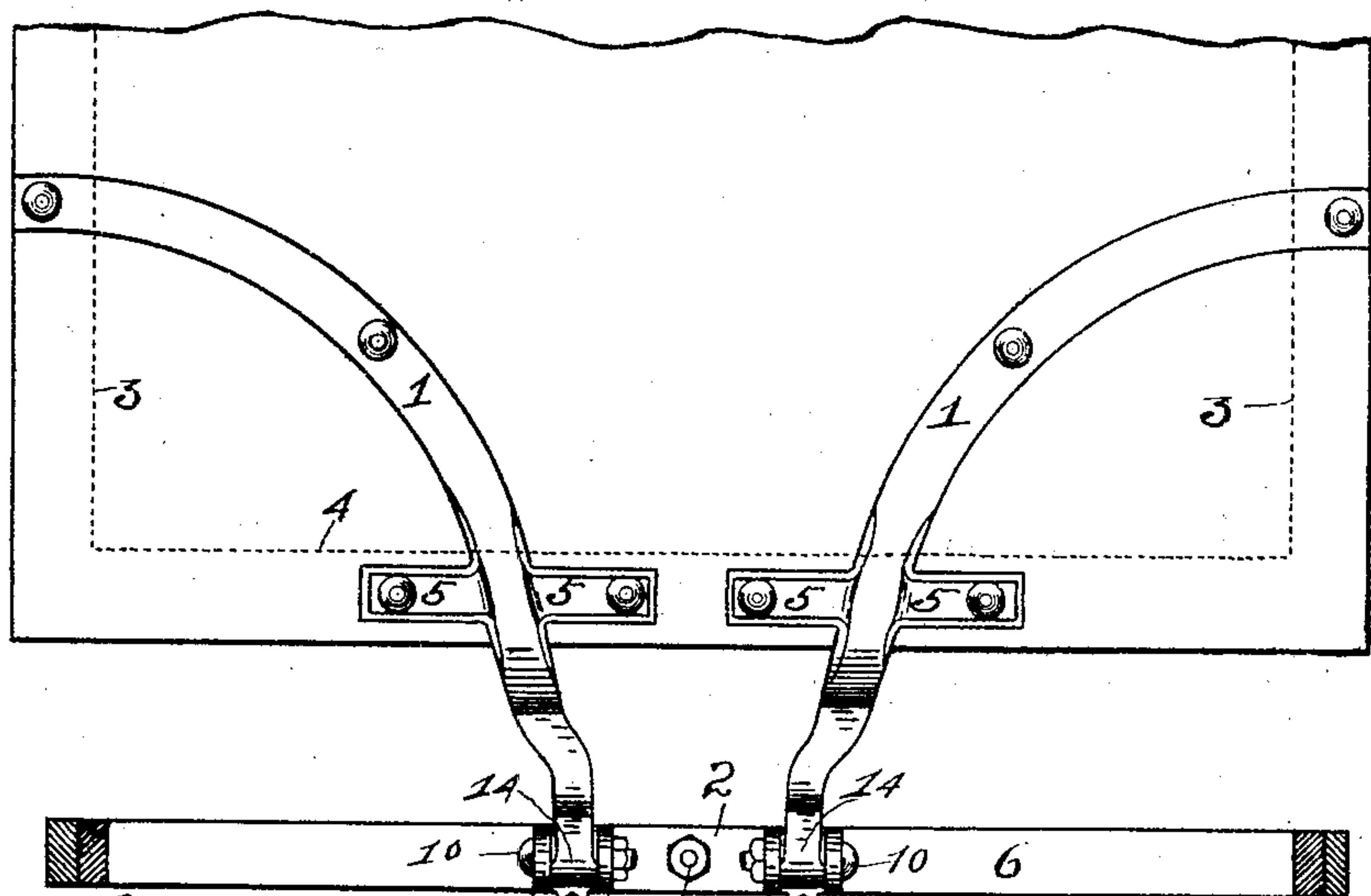


FIG. 2.

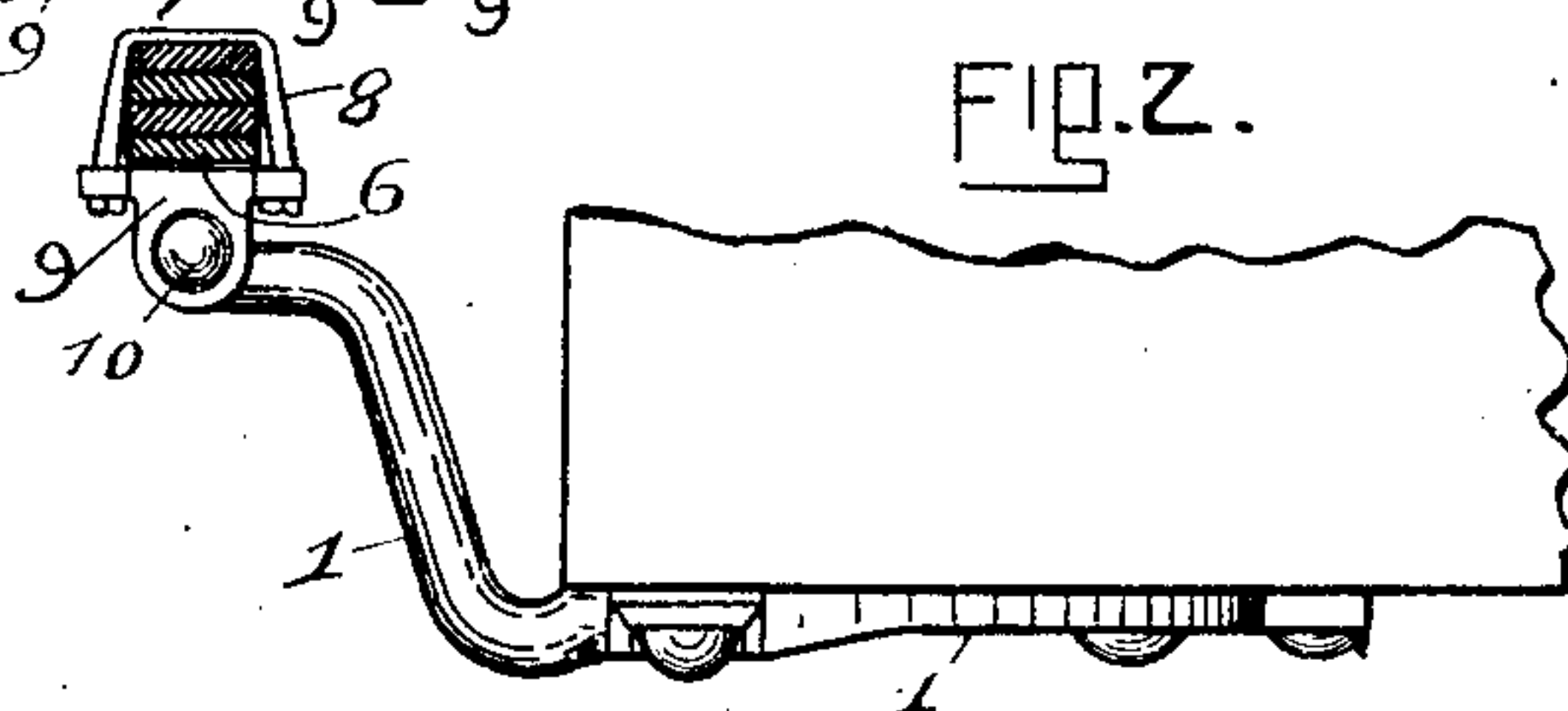


FIG. 4.

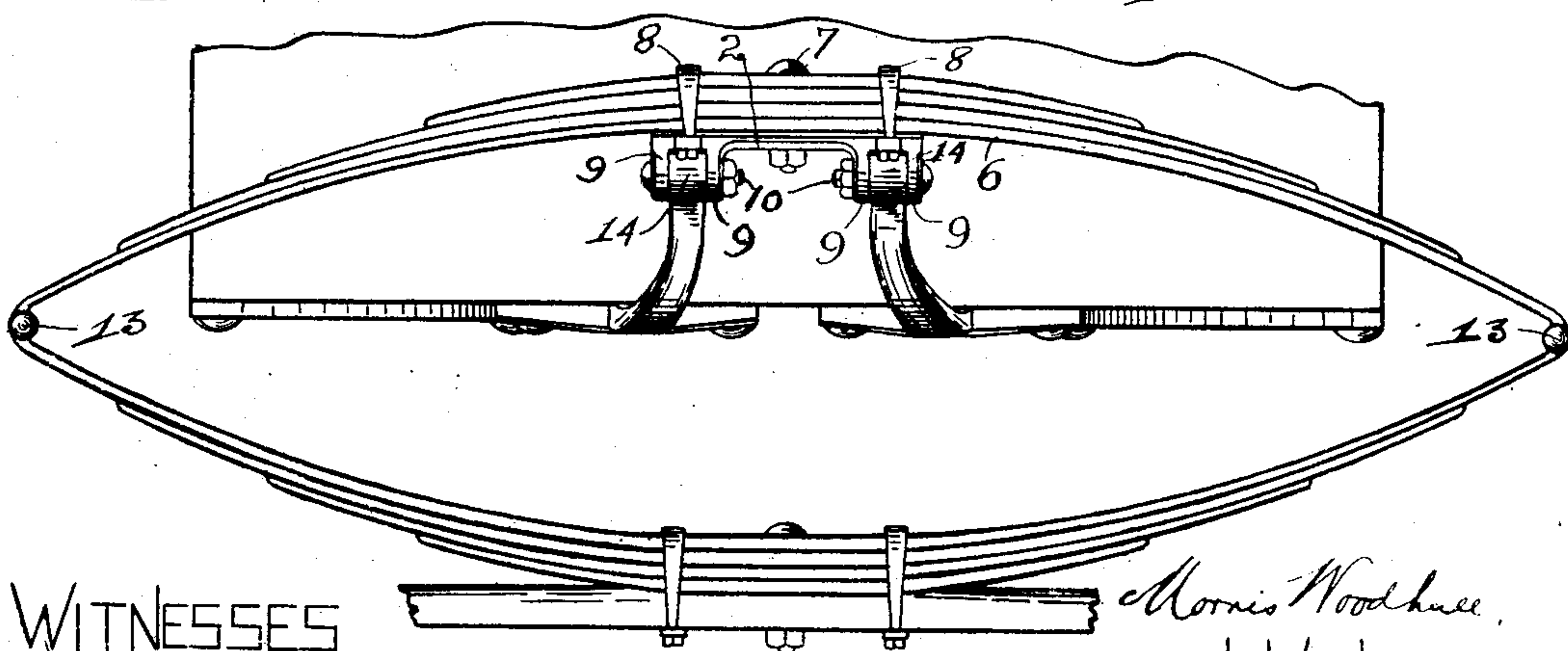
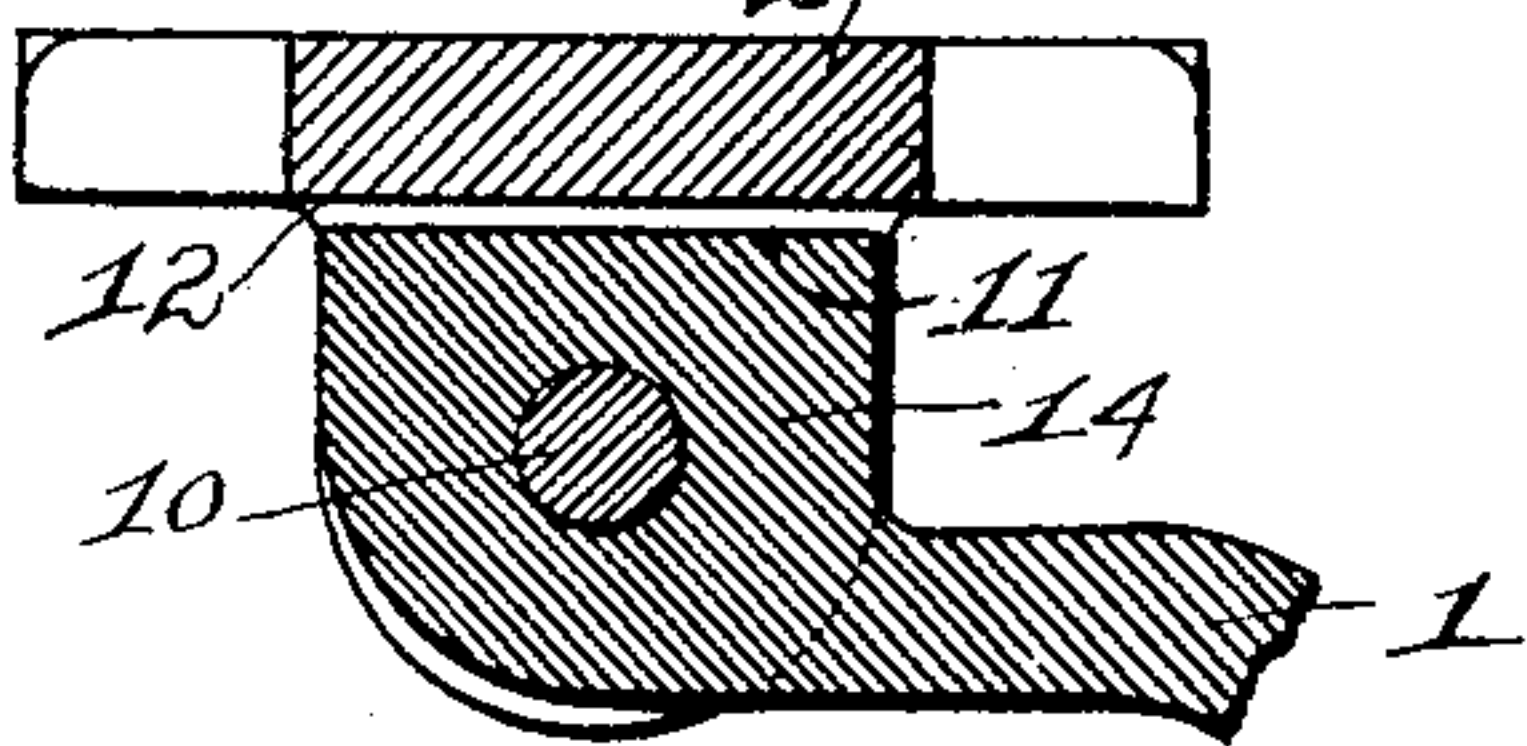


FIG. 3.

WITNESSES

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# UNITED STATES PATENT OFFICE.

MORRIS WOODHULL, OF DAYTON, OHIO.

## BODY-LOOP.

SPECIFICATION forming part of Letters Patent No. 777,875, dated December 20, 1904.

Application filed September 15, 1904. Serial No. 224,495.

*To all whom it may concern:*

Be it known that I, MORRIS WOODHULL, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Body-Loops; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to new and useful improvements in body-loops or hangers for vehicle-bodies, having two elliptical springs, one in front and one in the rear; and the said invention consists of the novel and essential features hereinafter described and claimed.

One method now commonly in use for hanging or suspending bodies consists in securing to the top of the elliptical spring a wooden bar, known as a "spring-bar," which is of such a length as to bring the outer ends of said bar in line with the lengthwise sills of the body. Bolted to the top of said spring-bars are suspended metal hangers, otherwise known as "body-loops," one end of which is bolted to the spring-bar and the other end is secured to the body. Another method is to bolt or clip to the top of an elliptical spring a continuous iron bar extending equidistant from the center and describing a segment of a circle or otherwise and extending downward and under the body and secured to the outside lengthwise body-sills. Another method is to utilize a single drop the top of which is secured to a T or cross bar, which in turn is fastened to the spring. The lower end of the loop extends in the form of a U and terminates at each end in members parallel with the side sills of the body. Another method consists of a bifurcated bracket the members of which are joined to a knee portion, which portion is attached to a spring which is not an elliptical spring. The bracket is not a loop or drop device and is constructed in one piece, all parts of which lie in the same horizontal plane. These may be said to represent the

most familiar forms of body-loops or hangers now in use.

In the present invention many of the objectionable features heretofore found with common forms of body-loops or hangers are obviated.

Preceding a detail description of my invention, reference is made to the accompanying drawings, of which—

Figure 1 is a bottom plan view of one end of a vehicle-body, showing my improved body-loop or hanger in position. Fig. 2 is a side elevation of one end of a body, part of which is broken away and the upper half of the elliptical spring is shown in section. Fig. 3 is a front or rear end elevation of a vehicle-body and elliptical spring, showing my improved body-loop or hanger in position, part of the body being broken away. Fig. 4 is a sectional view through the forward end of one member of the body-loop or hanger and through the shackle at that point.

Throughout the specification similar reference characters indicate corresponding parts.

My improved body-loop or hanger consists of three parts—to wit, the arms or loops 1 1 and the cross-bar or double shackle 2. The said arms or loops have a suitable outward curvature in order that their ends may reach to the lengthwise body-sills 3 3, to which they are secured, and said loops are also secured to the body at other suitable points. At a point in line with the transverse body-sill 4 and lying parallel therewith each of said loop members 1 1 are provided with right and left integral feet 5, which are secured by bolts to the said body-sill 4. These integral feet 5 5 serve materially to equalize the strain or pressure on the bottom of the body, and owing to the construction and attachment of said body-loop members a thoroughly-braced and extra-strong connection is made between the body-loop or hanger where the members first engage the vehicle-body. The weight and strain between the parts of the body are equalized, and the corners are preserved from undue strain. The double shackle 2 is secured against the under side of the lower leaf 6 of the upper half of the elliptical spring



by means of a bolt 7, which penetrates the upper half of said spring and the shackle at the center, and by further means consisting of clips 8, which embrace the upper half of

5 said spring and are secured to the ends of the shackle in the well-known manner. The ends of said shackle are provided with downwardly-projecting ears 9, between each two of which the heads 14 of the hanger or loop members

10 lie and are secured by horizontal bolts 10. The heads 14 terminate in flat upper surfaces, as at 11, (see Fig. 4,) and the said flat surfaces lie immediately below corresponding surfaces 12 of the shackle, so that a limited amount of

15 movement or oscillation on the bolts 10 is possible. The said horizontal bolts 10 serve to hold in place the members of the hanger or body-loop and to preserve a downwardly-perpendicular draft on the elliptical spring

20 and to thereby insure an equal pressure and wear on the spring-bolts 13, thereby preserving the life of said bolts. In order to obtain the advantages of the pivotal connection between the right and left members of the

25 body-loop and the shackle and at the same time provide a suitable stop to prevent backward-and-forward thrusts of the body in descending hills or passing over inequalities of the ground, the upper surfaces of the hanger

30 or body-loop heads 14 are flattened, as before stated, and also the adjacent surfaces of the shackle to limit the movements of said heads in either direction. In other words, the flattened surfaces 12 of said shackle will

35 resist any undue oscillations of the loop-heads 14 in either direction and will only allow the necessary turn upon the bolts at these points of connection to enable a proper movement of the body under vibrations imparted

40 thereto by the spring in passing over inequalities of the road. By reason of the attachment of drop-hangers or body-loops under the lower side of the upper half of the elliptical spring a much shorter and stronger loop

45 is obtained, to say nothing of the enhancement of the symmetrical features of the device. In other words, the necessity of employing undesirably-long body-loops is obviated.

50 Another desirable feature of the body-loop lies in the fact that it is almost invisible, and in passing the loop downwardly from the spring and symmetrically extending the loop members outwardly it not only gives a graceful

55 appearance, but in connection with the in-

tegral feet 5 and the continuous arms 1 adds greatly to the strength of the device and effectually prevents any side motion of the vehicle-body.

By means of the shackle and the separate 60 body-loops or hangers, assembled and connected as described, the pressure of the weight on the under side of the spring increases the elasticity thereof to a material extent, and thus adds to the efficiency of the spring. 65

Having described my invention, I claim—

1. In a drop-hanger or body-loop, the combination with an elliptical spring, of separate drop-body loop members, and a double shackle attachable to the under side of the upper half 70 of said spring, and to which the heads of said drop-body loop members are attached by horizontal pivots.

2. In a drop-body loop or hanger, the combination with an elliptical spring, of right and 75 left separate body-loop members having right and left extending integral feet in the body portion thereof, a shackle attachable to the under side of the upper half of said spring, and means for attaching the heads of the 80 body-loop members to opposite points of said shackle.

3. In a body-loop or hanger, the combination with an elliptical spring, of right and left separate body-loop members, a shackle secured 85 to the under side of the upper half of said elliptical spring, ears projecting downwardly from said shackle, and bolts by means of which the heads of said body-loop members are secured to said shackle, said bolts forming horizontal pivots with limited movement in either 90 direction.

4. In a body-loop or hanger, the combination with an elliptical spring, of right and left separate body-loop members, said members 95 having heads, the upper surfaces of which are flat, a double shackle attached to the under side of the upper half of said elliptical spring, apertured ears projected downwardly from said shackle and between which the heads of 100 said members are connected, the surfaces of said shackle immediately above the head being flat to coincide with the adjacent surfaces of said heads.

In testimony whereof I affix my signature in 105 presence of two witnesses.

MORRIS WOODHULL.

Witnesses:

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JOHN W. McKEOWN.