No. 700,172. Patented May 20, 1902.

E. CLIFF.

CAR TRUCK.

(Application filed Feb. 26, 1902.)

(No Model.)

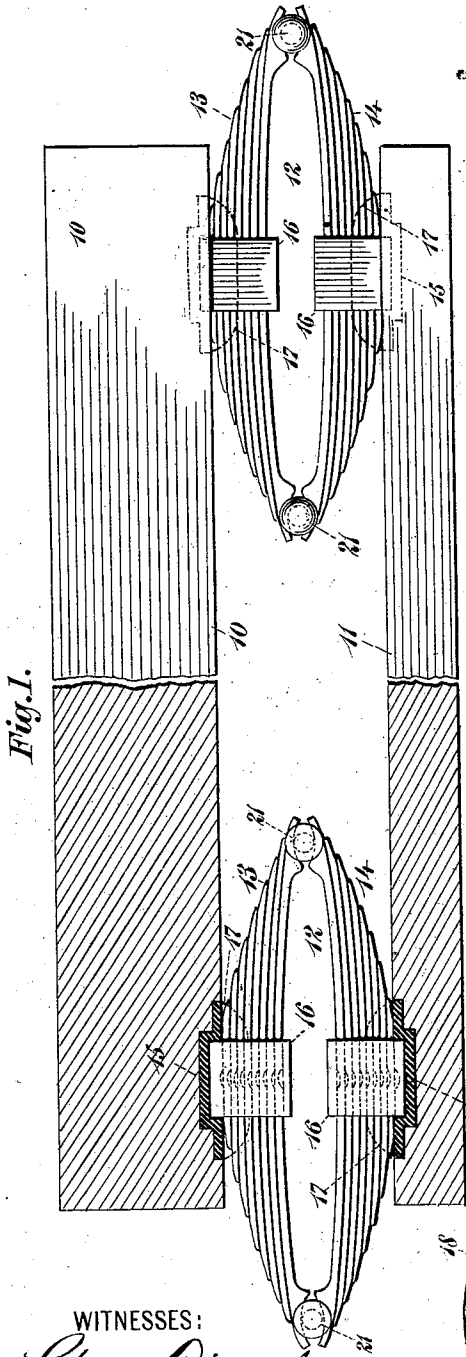


Fig. 1.

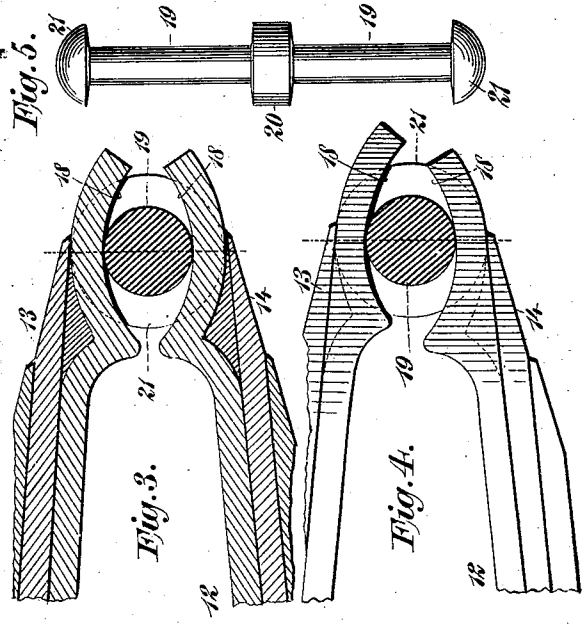


Fig. 5.

Fig. 3.

Fig. 4.

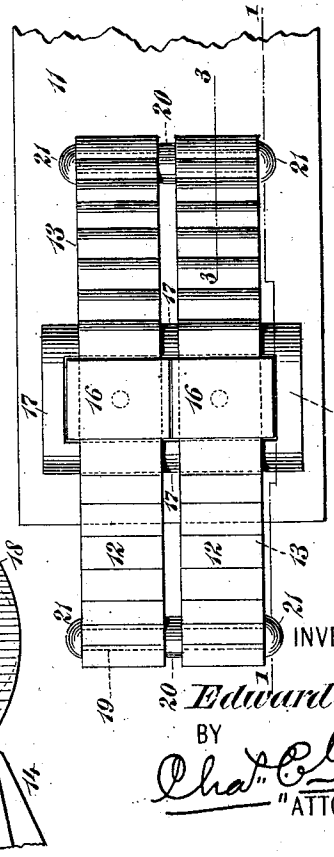


Fig. 2.

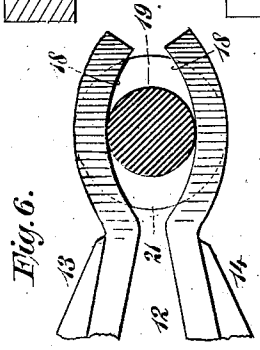


Fig. 6.

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UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF NEWARK, NEW JERSEY, ASSIGNOR TO VOSE AND CLIFF MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CAR-TRUCK.

SPECIFICATION forming part of Letters Patent No. 700,172, dated May 20, 1902.

Application filed February 26, 1902. Serial No. 95,672. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CLIFF, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Car-Trucks, of which the following is a specification.

The invention relates to car-trucks; and it consists in a novel double elliptic spring embracing movable bearings for use in connection with the bolster of tender and other trucks, as hereinafter fully described, and particularly pointed out in the claims.

The object of the invention is to produce double elliptic springs which may serve to support the bolster of car-trucks and at the same time afford adequate means for permitting of the movement transversely of the car-truck of the said bolster.

In accordance with my invention I provide double elliptic springs intermediate the sand-plank or other support and the ends of the bolster, said bolster resting upon said springs, and the said springs are each formed of two independent parts, between whose ends are applied bearings, whereby the upper part or half of the springs connected with the bolster are rendered capable of movement with said bolster without in any manner interfering with the utility of the springs in their entirety and without disturbing the lower half of the springs and without distorting either half of the springs, the upper half of the springs being adapted to have a movement longitudinal of the springs, while the lower half of the springs remains stationary.

The invention and satisfactory means for carrying the same into effect will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a view, partly in elevation and partly in section and partly broken away, of the sand-plank and bolster of an ordinary car-truck with springs and bearings constructed in accordance with and embodying my invention shown as interposed between the sand-plank and the ends of the bolster. Fig. 2 is a top view, partly broken away, of the sand-plank with the springs applied upon one end thereof. Fig. 3 is an enlarged longitudinal section through a portion of one of the springs on the dotted line 3 3 of Fig. 2, and this figure illustrates the upper and lower halves of the spring in the relation they bear to one another prior to any movement of the upper half of the spring lengthwise of the lower half thereof. Fig. 4 is a side elevation, partly broken away, of one end of the double elliptic spring, the roller-bearing being in section, and this figure illustrates the relation of the parts to one another after the upper half of the spring has moved longitudinally of the lower half thereof. Fig. 5 is a detached elevation of one of the roller-bearings, which in use are applied intermediate the ends of the halves of the double elliptic springs; and Fig. 6 is a detached side elevation, partly in section, of a portion of a modified form of double elliptic spring with the roller-bearing between the ends thereof, said roller-bearing being in section and the modification residing solely in the arrangement of the layers of the springs.

The springs illustrated in the drawings are shown in the position they occupy when in use with a load upon them.

In the drawings, 10 designates a customary form of truck-bolster adapted to have movement endwise of itself, but transversely of the truck, 11 a customary sand-plank, and 12 12 double elliptic springs interposed between the sand-plank and the bolster and adapted to receive the load applied upon said bolster. In the present instance I illustrate the springs 12 as applied in pairs upon each end of the plank 11, and said springs are each composed of the upper and lower halves numbered, respectively, 13 14, which are substantially independent of one another, the lower halves 14 of the springs 12 being connected in a substantially stationary manner to the sand-plank 11 or other support and the upper halves 13 being connected with the bolster 10 so as to move therewith.

Any suitable means that may be desired may be employed for connecting the respective halves of the springs 12 with the bolster and sand-plank; but in the present instance I provide iron seats or boxes 15, set within

the facing surfaces of the sand-plank and bolster to snugly receive the projecting outer ends of the bands 16, holding the several layers of the halves of the springs together, said boxes 15 serving to center the respective halves of the springs 12 in position and afford seats for said halves. The boxes 15 will be cast with lugs 17 to form additional means for retaining the halves of the springs 12 in position, the lugs 17 extending downward from the box 15 for the upper half of the springs and upward from the box 15 for the lower half of the springs, the said lugs extending along the sides of the bands 16 and serving to guide and locate the springs.

The upper and lower halves 13 14 of the springs 12 are substantially independent of one another, there being no positive connection between said halves. The ends of the halves 13 14 of the springs 12 are at their facing sides formed with pockets or recesses 18, receiving the roller-bearings 19, the latter being confined within said recesses and permitting the upper half of the spring to travel lengthwise of itself upon the lower half of the spring while said upper half is resting upon said roller-bearings. The ends of the recesses or pockets 18 confine the roller-bearings, and the walls of said recesses are preferably concave, the ends of said recesses being curved, as shown.

The springs 12 may at each end of the sand-plank or other support be used singly or in pairs, and in the present instance I illustrate a pair of said double elliptic springs below each end of the bolster. When the springs 12 are used in pairs, as shown, the roller-bearings 19 will extend through the recesses or pockets 18 of both springs, the roller-bearing 19 then being of the form illustrated in Fig. 5 and having a separating-collar 20 at about its center for disposition intermediate the springs. The roller-bearing 19, whether of the form shown in Fig. 5 for a pair of springs or constructed for a single double elliptic spring, will be provided at its ends with heads 21 to prevent the bearing from moving, endwise of itself, from the pockets or recesses 18 of the springs.

I do not limit the invention to any special construction of the ends of the upper and lower halves of the springs 12 to receive the roller-bearings, since it is obvious that the facing ends of the upper and lower halves of these springs may be modified in construction in various ways to form the recesses or pockets 18 for the roller-bearings, the essential consideration being that the upper and lower halves of the springs shall be substantially independent of one another and that said halves shall possess in the facing sides of their ends recesses or pockets to receive and retain the roller-bearings 19, thereby to permit the upper halves of the springs to travel lengthwise of the lower halves thereof under the thrusts of the bolster without in any manner distorting or disturbing the springs or interfering with their proper vertical yielding action.

I have designated the springs 12 as double elliptic springs to definitely indicate that they are complete elliptic springs composed of two halves as distinguished from elliptic springs defining but one-half of an ellipse.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the facing portions of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

2. In a truck, the series of elliptic parallel springs at each side of the truck to receive the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the facing portions of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

3. In a truck, the series of elliptic parallel springs at each side of the truck to receive the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the facing portions of their ends, combined with the roller-bearings confined within said pockets and each extending from the pocket of one spring into the adjacent pocket of the adjacent parallel spring, and upon which roller-bearings the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

4. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves having pockets in the facing portions of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may travel with said

bolster, said roller-bearings having heads at their ends to confine and guide them; substantially as set forth.

5. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each having elongated concave pockets with curved end portions in the facing sides of their ends, combined with roller-bearings confined within said pockets and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

6. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves, combined with roller-bearings confined between the facing sides of the ends of said springs and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

7. In a truck, the elliptic springs receiving the bolster, a support for said springs, and means connecting said springs with said bolster and said support, said springs each being in two substantially independent halves, combined with bearings confined between the facing sides of the ends of said springs and upon which the upper halves of the springs may under the lateral thrusts of said bolster move longitudinally therewith over and independently of the lower halves of said springs, thereby permitting the proper movement of said bolster laterally of the truck-frame; substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 24th day of February, A. D. 1902.

EDWARD CLIFF.

Witnesses:
CHAS. C. GILL,
ARTHUR MARION.