(No Model.)

2 Sheets—Sheet 1.

E. CLIFF.

WAGON BOLSTER SPRING.

No. 346,725. Patented Aug. 3, 1886.

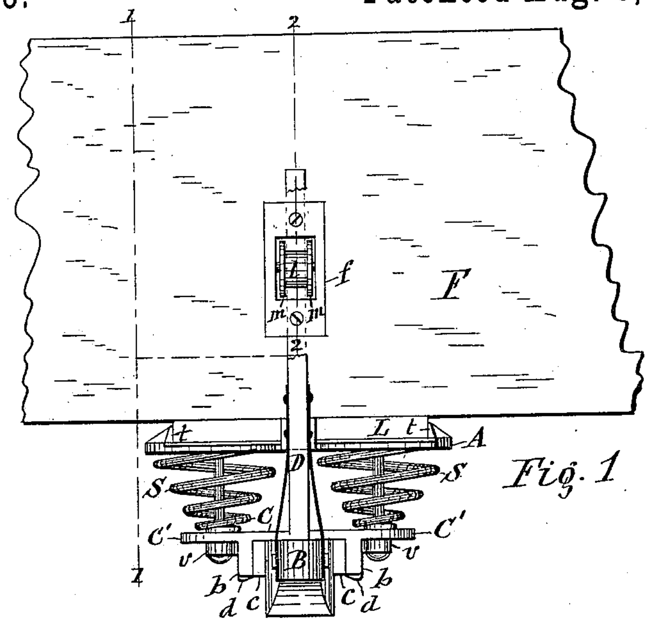

Fig. 1

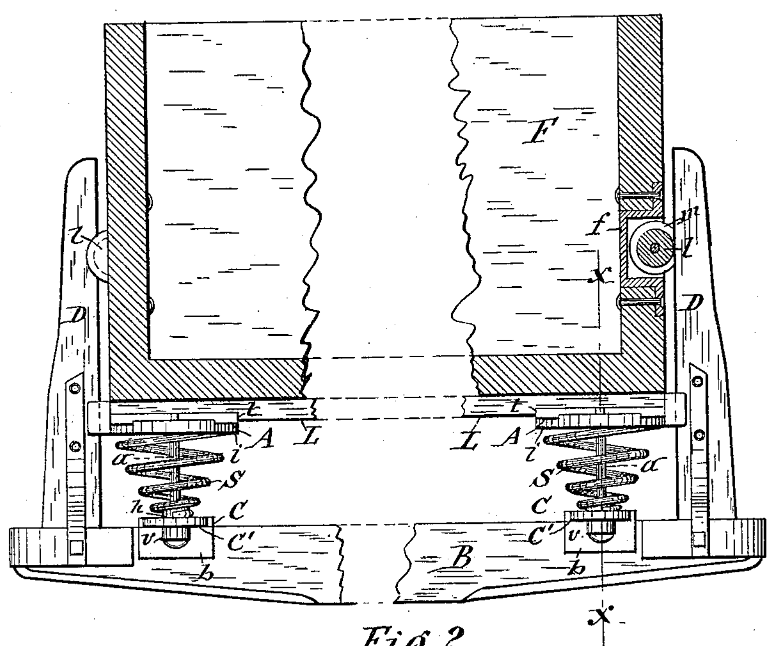

Fig. 2

WITNESSES

C. Bendixon

J. H. Gibbs

INVENTOR

Edward Cliff

per Dodd, Laass & Hey

his Attys

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

E. CLIFF.

WAGON BOLSTER SPRING.

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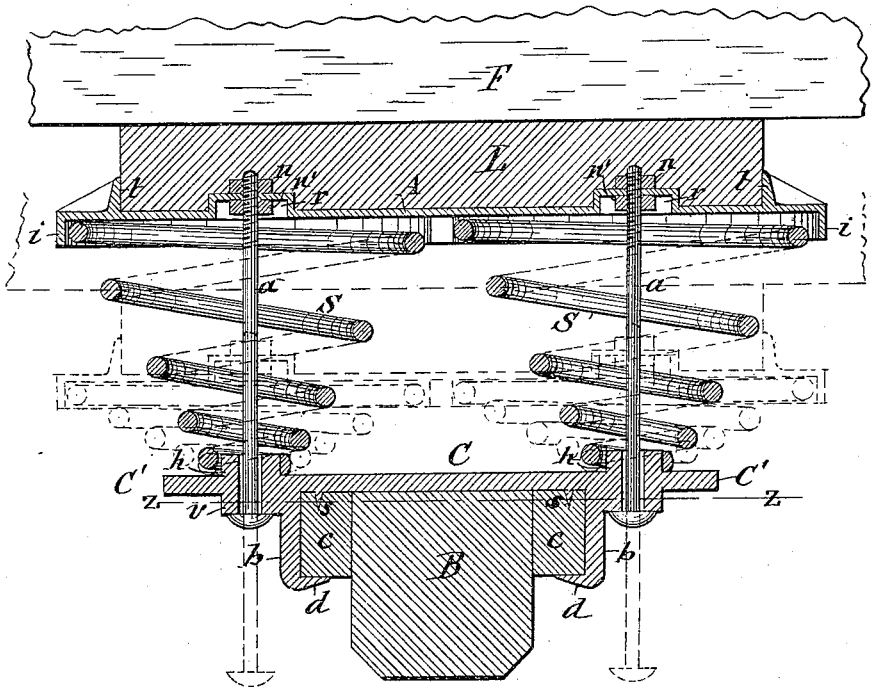

Fig. 3

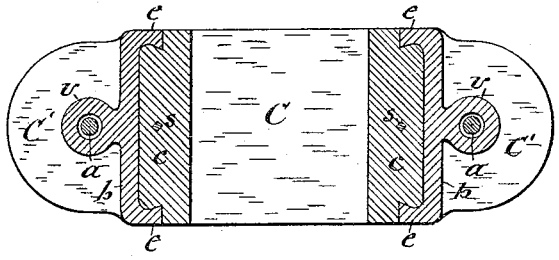

Fig. 4

WITNESSES

C. Bowdidson

J. H. Gibbs

INVENTOR

Edward Cliff

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his Attys

UNITED STATES PATENT OFFICE.

EDWARD CLIFF, OF OSWEGO, NEW YORK, ASSIGNOR TO CLIFF & RIGHTER CO., OF SAME PLACE.

WAGON-BOLSTER SPRING.

SPECIFICATION forming part of Letters Patent No. 346,725, dated August 3, 1886.

Application filed June 3, 1886. Serial No. 204,013. (No model.)

To all whom it may concern:

Be it known that I, EDWARD CLIFF, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful Improvements in Wagon-Bolster Springs, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists, first, in improved devices for elastically supporting wagon-bodies on the bolsters of the wagons, and, secondly, in improved means for protecting the sides of the elastically-supported wagon-bodies from abrasion and marring by contact with the stakes of the bolsters, all as hereinafter fully explained and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of a section of a wagon provided with my improved spring-support for the body of the wagon. Fig. 2 is a vertical transverse section taken partly on line 1 1 and partly on line 2 2, Fig. 1. Fig. 3 is a vertical section on line *x x*, Fig. 2; and Fig. 4 is a horizontal section on line *z z*, Fig. 3.

Similar letters of reference indicate corresponding parts.

B represents the bolster, mounted on the axle of the wagon in the usual manner, and F denotes the box or body of the wagon, which I elastically support on the bolster by the following improved means: Astride the top of the bolster, at the inner sides of the usual stakes, D D, I place clips C C, secured in position by flanges *b b* projecting downward from the under side of the clips at opposite sides of the bolster, and in order to adapt the clip to be applied to bolsters of different widths and properly embrace the same between its aforesaid flanges I apply to the inner sides of the flanges *b b* adjustable cheek-pieces *c c*, preferably in the form of blocks of wood, or other suitable material adapted to be readily cut and trimmed off, so as to reduce the width of their projections from the inner sides of the flanges and conform the space between the cheek-pieces to the width of the bolster to be embraced by them. Said cheek-pieces I secure to the clip by spurs *s s*, projecting from the under side of the clip, and embedded in the top of the cheek-pieces, and by ribs *e e* on the vertical edges of the flanges *b b*, which ribs are undercut on their inner sides, so as to form a dovetail seat between the two ribs, which ribs grip the ends of the cheek-piece or block *c*, and by lids *d d*, formed on the bottom or free edge of the flange *b* and bent over onto the bottom of the cheek-piece *c*, the latter is securely retained in place.

The cap A is formed with horizontal projections C′ C′ at opposite sides of the bolster B, and upon said projections are mounted the springs S S, which are preferably of the conically-coiled type and placed with their small ends upon the projections C′ C′, where they are held in place by bosses *h h*, formed on the top of the projections C′ C′ and entering the small coils of the springs. The springs are so arranged as to bring the large ends thereof in proximity to each other at a point central over the bolster. It will be observed that by this arrangement I place both springs under the supplemental bolster or body-supporting bar L, hereinafter more particularly referred to.

Across the tops or large ends of the two springs S S, over each clip, reaches a cap, A, which is provided on its under side with annular flanges *i i*, encompassing the large coils of the springs, and thus holding the same in their required positions on the cap. The aforesaid arrangement of the springs under the supplemental bolster effectually relieves the cap A from undue strain. The cap is also formed with recesses *r r* on its under side, which recesses are concentric with the flanges *i i*, and in the center of each recess the cap is provided with a bolt-hole. The projections C′ C′ of the clip are provided with corresponding bolt-holes in the centers of the bosses *h h*, and through said bolt-holes of the cap and clip pass the coupling-bolts *a a*, which are provided with heads under the clip projections, and with nuts *n n* on top of the cap, said bolts serving to tie the clip, cap, and springs together.

In order to prevent the nuts *n n* from working loose, I apply jam-nuts *n′ n′* to the bolts *a a*, below the cap, which jam-nuts are seated in the recesses *r r*, so as to prevent them from colliding with the bosses *h h* of the clip projections C′ C′ when the springs are compressed, thus allowing full play to the springs.

The under side of the clip projections C′ C′, I provide with annular bosses *v v* around the aforesaid bolt-boles, which bosses form bearings for the heads of the bolts, and by being joined to the adjacent flanges, *b b*, heretofore described, said bosses also serve to brace the projections C′ C′ and the aforesaid flanges.

L represents a bar or supplemental bolster, which rests at opposite ends upon the two caps A A, where it is held in place by flanges *t t*, projecting from the top of each cap at opposite sides of the bar L, and upon the latter is supported the box or body F of the wagon.

The coils of the springs are so successively contracted in circumference as to allow each succeeding smaller coil to enter the preceding larger coil, and thus the springs can be completely compressed to bring the large ends of the springs within the plane of the small ends thereof, thereby affording maximum play to the springs.

The coupling-bolts *a a* have free play in the clip projections C′ C′, and being arranged at the outside of the bolster B, allows the lower ends of said bolts to freely descend below the clip when the springs are depressed.

In order to protect the sides of the body F from abrasion and marring by contact with the stakes D D, I countersink in the sides of the body F boxes *f f*, in which are pivoted vertical rollers *l l*, the peripheral faces of which abut against the inner sides of the stakes D D. Said rollers are provided with circumferential guide-flanges *m m*, which bear against the front and rear of the stakes, and thus prevent the body from shifting longitudinally or endwise.

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

1. The combination, with the wagon bolster and body supporting bar, of a clip striding said bolster and conical coil-springs mounted with their small ends on the said clip and arranged with their large ends in proximity to each other at a point central over the bolster, and a cap placed across the top of said springs, substantially as described and shown.

2. In combination with the bolster and body supporting bar, the clip C, formed with the projections C′ C′, and with the bosses *h h* on said projections, the conical coil-springs S S, seated with their small ends on the projections C′ C′ and held in place by the bosses thereof, and arranged with their large ends in proximity to each other at a point central over the bolster, the cap A on the large ends of the springs, and the coupling-bolts *a a*, passing movably through the bosses *h h* and projections C′ C′, to allow said bolts free vertical play beneath the clips, substantially as described and shown.

3. In combination with the clip C and springs S S, the cap A, provided with the recesses *r r* in its under side, and the coupling-bolts *a a*, passing loosely through the clip and cap at the center of the aforesaid recesses, and headed at their lower ends, and provided with the nuts *n n* on top of the cap, and with the jam-nuts *n′ n′* in the recesses *r r*, substantially as described and shown, for the purpose set forth.

4. The combination of the clip C, formed with the flanges *b b*, ribs *e e* on the vertical edges of the flanges and undercut on their inner sides, and lips *d d* on the free edges of said flanges, and the cheek-pieces *c c*, secured to the inner sides of the flanges by the aforesaid ribs and lips lapping onto the cheek-pieces, substantially as described and shown.

5. The combination of the clip C, formed with the flanges *b b*, ribs *e e*, lips *d d*, and spurs *s s*, and the cheek-pieces secured to the inner sides of the flanges by the engagement of said ribs, lips, and spurs with the cheek-pieces, substantially in the manner specified and shown.

6. In combination with the bolster B, stakes D D, body F, and springs interposed between the bolster and body, the boxes *f f*, countersunk in the sides of the body, and the rollers *l l*, pivoted in said boxes, and provided with flanges *m m*, substantially as described and shown, for the purpose set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 25th day of May, 1886.

EDWARD CLIFF. [L. S.]

Witnesses:
FREDERICK H. GIBBS,
E. C. CANNON.

Corrections in Letters Patent No. 346,725.

It is hereby certified that in Letters Patent No. 346,725, granted August 3, 1886, upon the application of Edward Cliff, of Oswego, New York, for an improvement in "Wagon-Bolster Springs," errors appear in the printed specification requiring correction, as follows: In line 56, page 1, the word "lids" should read *lips;* and in line 60, same page, the reference letter "A" should read *C;* and that the Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 10th day of August, A. D. 1886.

[SEAL.]

H. L. MULDROW,
Acting Secretary of the Interior.

Countersigned:

R. B. VANCE,
Acting Commissioner of Patents.