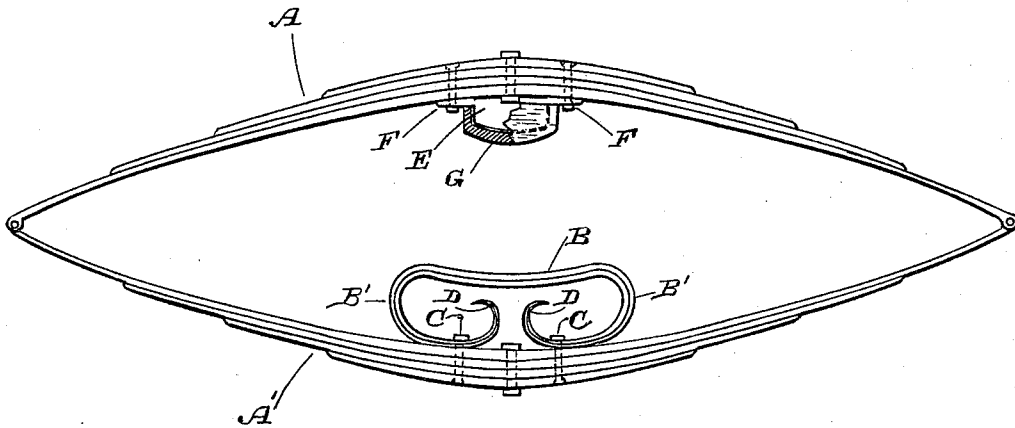


(No Model.)

W. M. BETTS.
AUXILIARY SAFETY SPRING.

No. 459,886.

Patented Sept. 22, 1891.



Witnesses,
J. A. Bayless

Inventor
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attys

UNITED STATES PATENT OFFICE.

WILLIAM M. BETTS, OF SAN FRANCISCO, CALIFORNIA.

AUXILIARY SAFETY-SPRING.

SPECIFICATION forming part of Letters Patent No. 459,886, dated September 22, 1891.

Application filed February 25, 1891. Serial No. 382,821. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. BETTS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Auxiliary Safety-Springs; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to what I term an "auxiliary safety-spring;" and it consists, essentially, in a supplemental spring to be used in connection with vehicle-springs to prevent damage to the latter by overloading.

Referring to the accompanying drawing for a more complete explanation of my invention, the figure is a view of a spring, showing my device connected thereto.

A A' are the upper and lower members of what is termed an "elliptic spring," such as is employed upon wagons, carriages, and other vehicles. These springs usually consist of a number of superposed leaves to produce a spring of sufficient strength and flexibility, the curvature of these leaves being of any suitable or desired form, and the opposite ends of the longest leaves are connected together by a pin or bolt. The central portion of the lower member of the spring is secured by clips or otherwise to a vehicle-axle, and the vehicle-body rests upon the central portion of the upper member of the spring. These springs are more or less closed together by the weight that is being carried in the vehicle, and if overloaded they will be injuriously strained or broken by being forced too closely together. In order to overcome this, various forms of bumpers have been introduced to arrest the springs and prevent their closing beyond a certain limit.

In my invention I have shown the spring B made of two or more thin leaves of spring-steel. This spring is made straight or slightly concave on the top and has the curved ends B', so that it returns upon itself beneath the portion B, the curvature of the ends B' forming an arc which will raise the portion B to as great a height as desired above the central portion of the lower spring A', to which it is secured by bolts or clips, as shown at C. From the point C the inner ends of the spring are curved in a segment of a circle, as shown at D, so that the upper ends of these segments

which are near together will stand a short distance beneath the upper surface B of this supplemental spring.

To the center of the upper member A of the spring is fixed a block or bumper E. This block or bumper projects a short distance downward from the interior of the upper spring and has lugs at each end, as shown at F, so that it may be bolted or clipped upon the spring and secured in place. The lower face of the bumper E is made slightly convex, so that when the springs A A' are closed together by a sufficient weight the central portion of this bumper will first strike the top of the spring B, and as the weight increases the spring B will be depressed, so that its concavity will approach more nearly to the convexity of the bumper E, and thus increase the bearing-surface of the latter upon the spring as the weight is increased. If the weight is still further increased beyond the power of the spring B to sustain it, the latter will be forced downward until it comes in contact with the upturned elastic ends D D, which are beneath its center, and these ends are sufficiently stiff, by reason of their position and form, to support the springs and prevent the parts A A' from being closed any nearer together.

In order to prevent a disagreeable noise, which would be occasioned by the striking of the bumper B upon the spring E when the load is not sufficient to keep the bumper in permanent contact with the spring B, I cover it with a cap G, which is preferably made of rubber, leather, or other elastic material. In the present case I have shown this cap as being made hollow and adapted to slip over the projecting bumper E, where it may be retained by rivets, cement, or in any suitable manner.

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

1. A spring composed of the upper and lower members adapted to support a weight, and a supplemental spring B, curved upon itself and having the upturned ends D D beneath its central portion, in combination with the bumper fixed to the upper member of the main spring, having the convex lower surface adapted to come in contact with the central

portion of the supplemental spring, substantially as herein described.

2. A main spring composed of the upper and lower members, a supplemental spring
5 bent upon itself, having the upturned bearing ends between its central portion and secured to the one member of the main spring, a bumper centrally secured to the other member of the main spring, having a lower surface adapted to make a contact with the cen-
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ter of the supplemental spring when the main springs are closed toward each other, and the elastic cap or covering secured to the bumper, substantially as herein described.

In witness whereof I have hereunto set my 15 hand.

WILLIAM M. BETTS.

Witnesses:

S. H. NOURSE,

J. A. BAYLESS.