July 10, 1951 J. L. SJOLANDER 2,559,903

SPRING DAMPENER

Filed Jan. 31, 1947

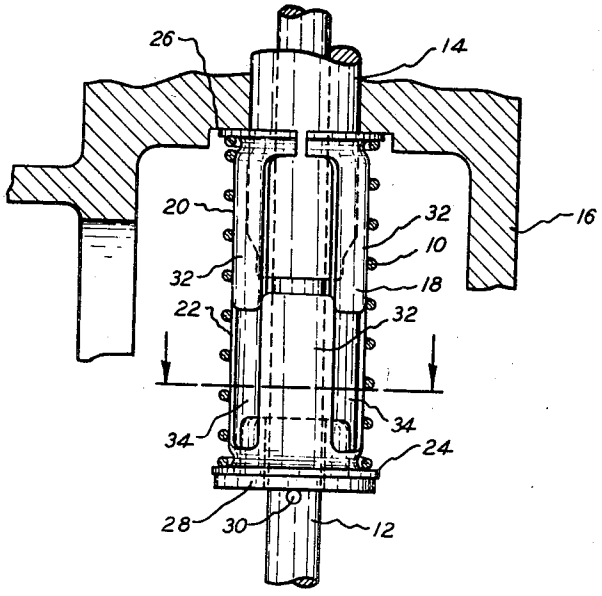


FIG. I.

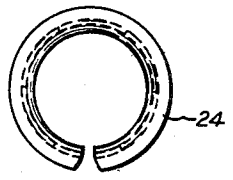


FIG. V.

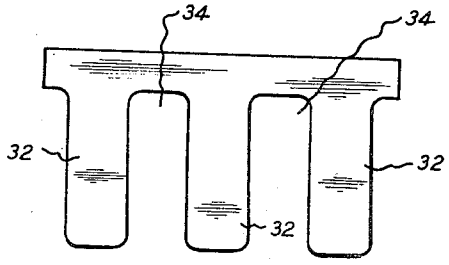


FIG. III.

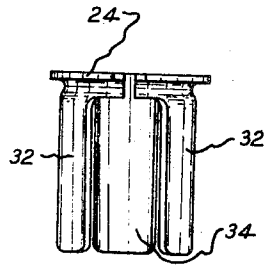


FIG. IV.

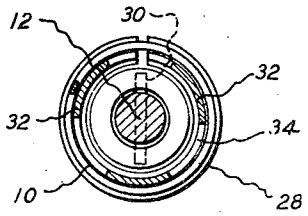


FIG. II.

INVENTOR.
JOHN L. SJOLANDER
BY
Beaman & Patch

Patented July 10, 1951

2,559,903

UNITED STATES PATENT OFFICE

2,559,903

SPRING DAMPENER

John L. Sjolander, Cleveland, Ohio, assignor to Cleveland Wire Spring Company, Cleveland, Ohio, a corporation of Ohio

Application January 31, 1947, Serial No. 725,547

1 Claim. (Cl. 267—1)

1

The present invention relates to improvements in spring dampeners, being an improvement upon the construction disclosed in my Patent No. 1,988,341 granted January 15, 1935.

Because of the arrangement disclosed in the aforesaid patent, of necessity only a portion of the convolutions of the valve spring are in frictional engagement with the dampener structure, although the dampener is located in the spring at the point of greatest lateral surge and vibration.

According to the present invention, telescoping or nesting dampener sections are employed which place substantially all the convolutions of the spring under vibration control.

Thus, one of the objects of the invention is to provide a dampener having a plurality of coacting sections.

Another object is to provide a multi-sectional dampener for compression springs which follows the change in over-all length of the spring in its operation.

Another object is to provide a dampener of the type described comprising two sections having resilient nesting fingers.

A further object is to provide a dampener for compression springs having a pair of split bushings of resilient material with nesting circumferentially spaced portions.

These and other objects and advantages residing in the construction and combination of parts will be more fully appreciated from a consideration of the following specification and the appended claim.

In the drawings,

Fig. I is a side elevational view of a spring and dampener assembly with the spring shown in vertical cross-section, as applied to a valve stem,

Fig. II is a cross-sectional view taken on line II—II of Fig. I,

Fig. III is a blank development of the dampener structure.

Fig. IV is a side elevational view of one section of the dampener structure, and

Fig. V is a top view of Fig. IV.

In the illustrated form, the coil spring 10 for the valve stem 12 is shown operating in the bushing 14 in the cylinder block 16.

The dampener generally designated 18 comprises an upper section 20 and a lower section 22; the sections 20 and 22 being preferably identical and fabricated from resilient spring material. Each dampener section 20 and 22 has an outturned flange 24, with the flange 24 of the upper section 20 abutting the countersink 26 of the block 16 and the flange 24 of the lower section 22

2

abutting the spring seat 28 supported on the stem 12 by the pin 30.

As more clearly shown in Figs. I and II, the resilient fingers 32 of each section of the dampener 18 are slightly narrower than the slot 34 to enable the sections 20 and 22 to nest, one within the other. In Fig. I, the spring 10 is in its fully extended position, in which position the ends of the fingers 32 of each section are only slightly nested in the slot 32 of the opposed section. The lift of the valve stem 12 will determine the extent of the nesting of the finger and slot arrangement to permit the dampener structure to follow the action of the spring 10.

In Fig. III is shown a development of the resilient sheet metal blank from which the sections 20 and 22 are formed in to the shape shown in Figs. IV and V.

From Fig. I it will be seen that substantially all the convolutions of the spring 10 will be subjected to the frictional pressure of the split resilient sections 20 and 22 with the result that the vibration and surge of the spring 10 are effectively dampened.

Having thus described my invention, what I claim is new and desire to cover by Letters Patent is:

An internal dampener for valve springs of relatively high speed internal combustion engines and the like comprising a pair of resilient longitudinally split tubular bushings having resilient longitudinally extending fingers circumferentially spaced from split tubular end portions to provide longitudinally extending slots between said fingers, said bushings being associated in opposed relationship with the respective slots and fingers being disposed in staggered nesting relationship, said slots and fingers being substantially the same width whereby a substantially solid tubular friction surface is presented to the coils of the valve springs.

JOHN L. SJOLANDER.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
803,413	Gallagher	Oct. 31, 1905
1,988,295	Berry	Jan. 15, 1935
1,988,341	Sjolander	Jan. 15, 1935
1,989,433	Symington	Jan. 29, 1935
2,042,647	Wine	June 2, 1936
2,189,208	Holland	Feb. 6, 1940