

No. 768,590.

PATENTED AUG. 30, 1904.

E. DENEGRÉ.
SPRING CUSHION.

APPLICATION FILED DEC. 5, 1903.

NO MODEL.

Fig. 1.

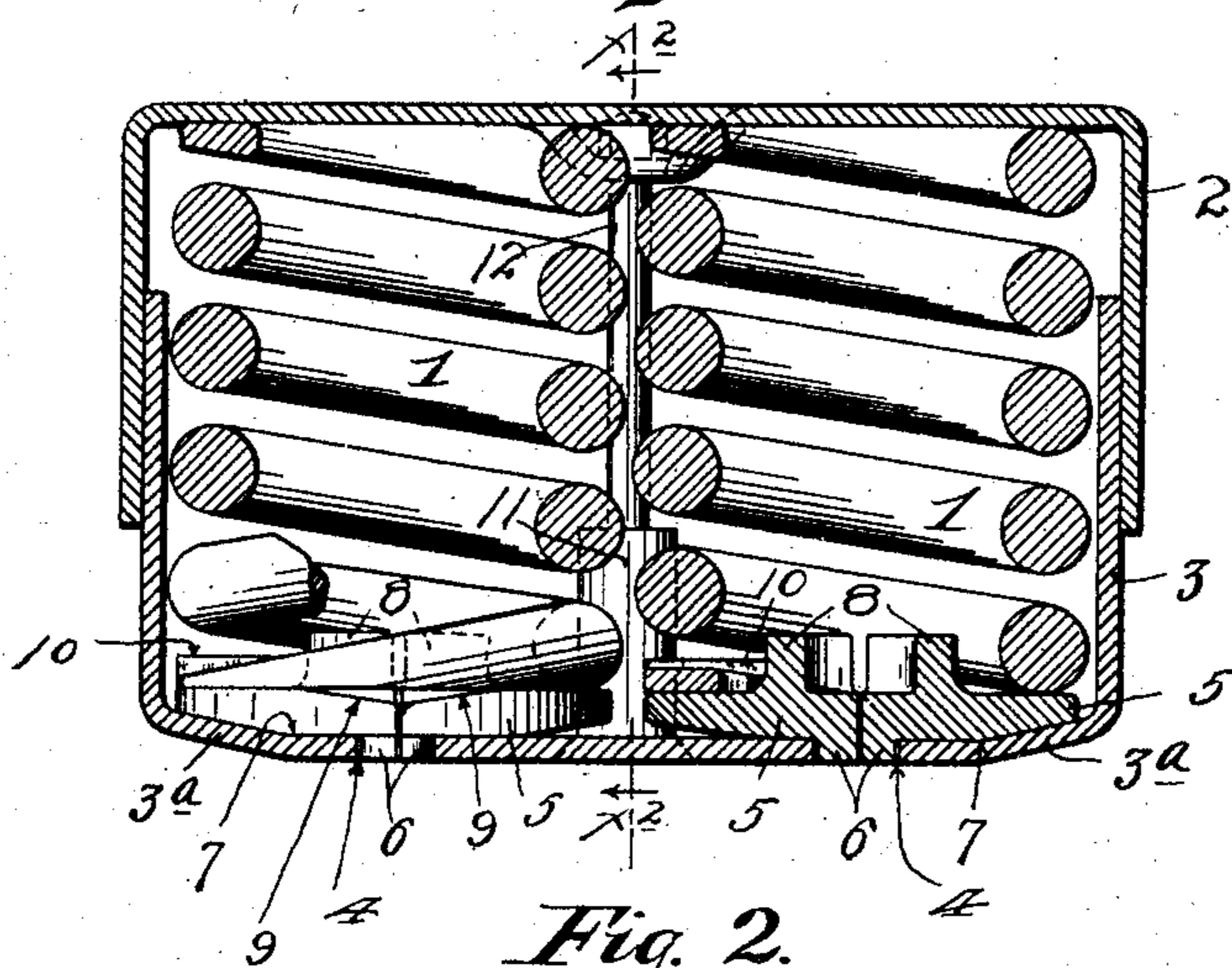


Fig. 2.

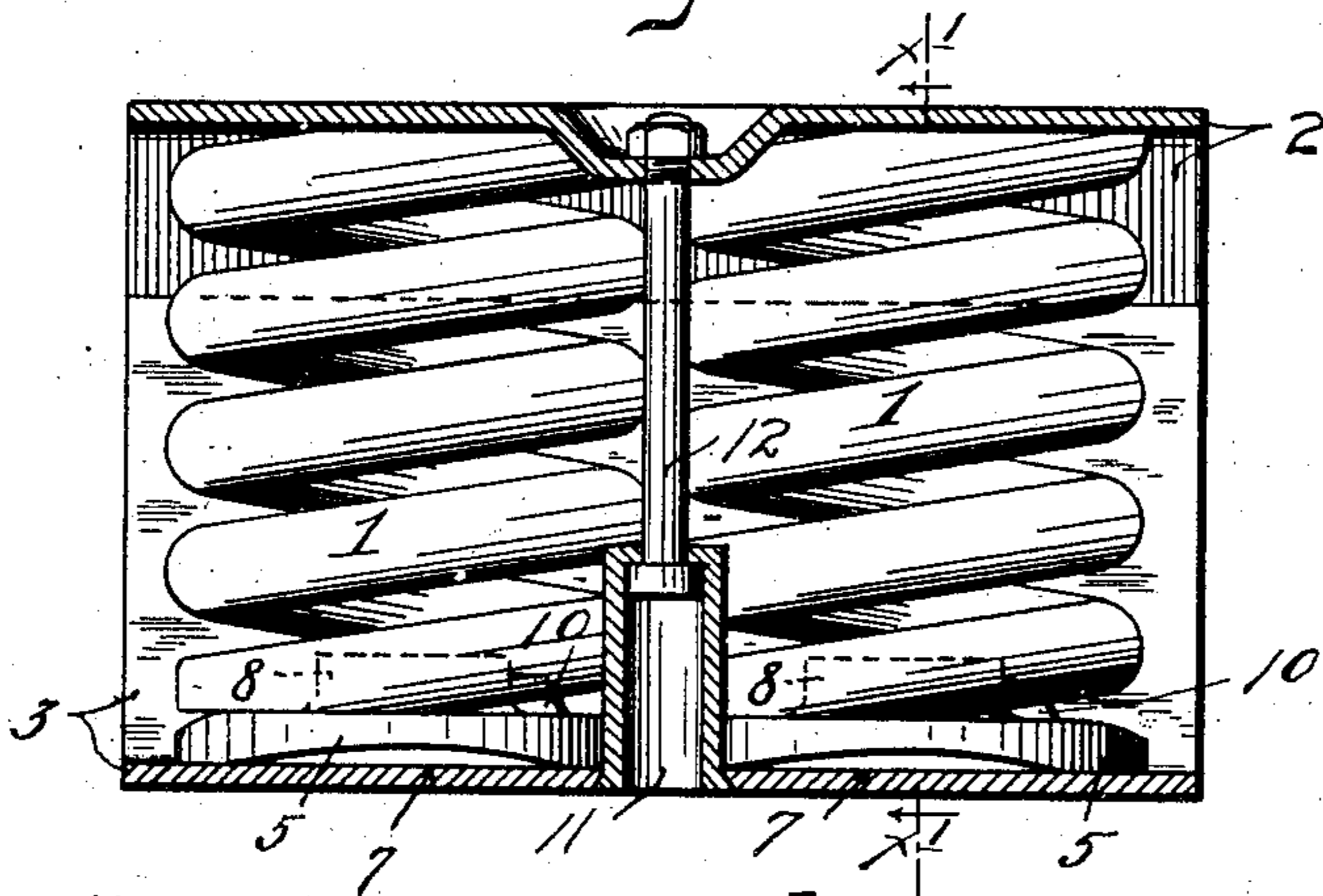


Fig. 3.

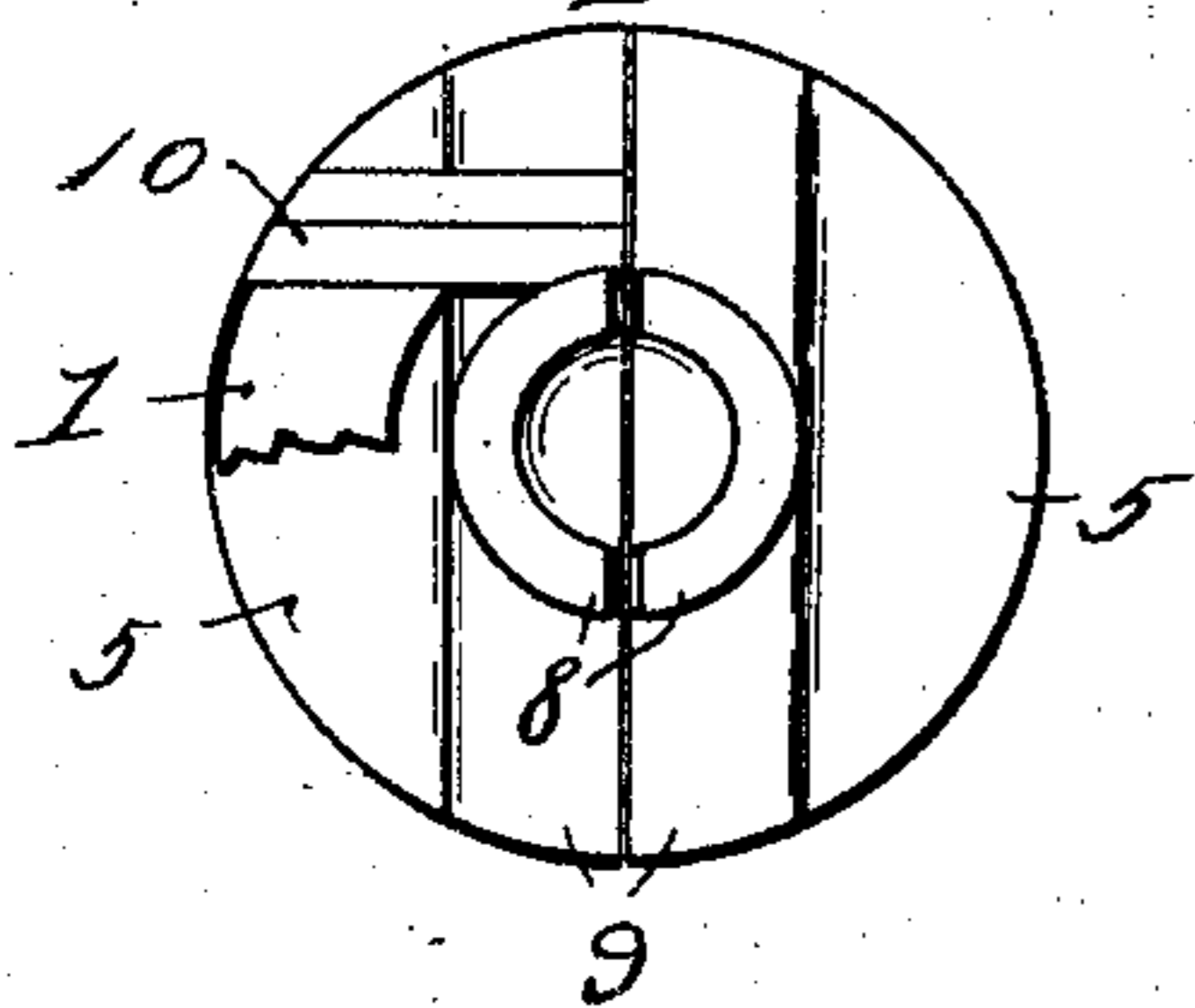


Fig. 4.

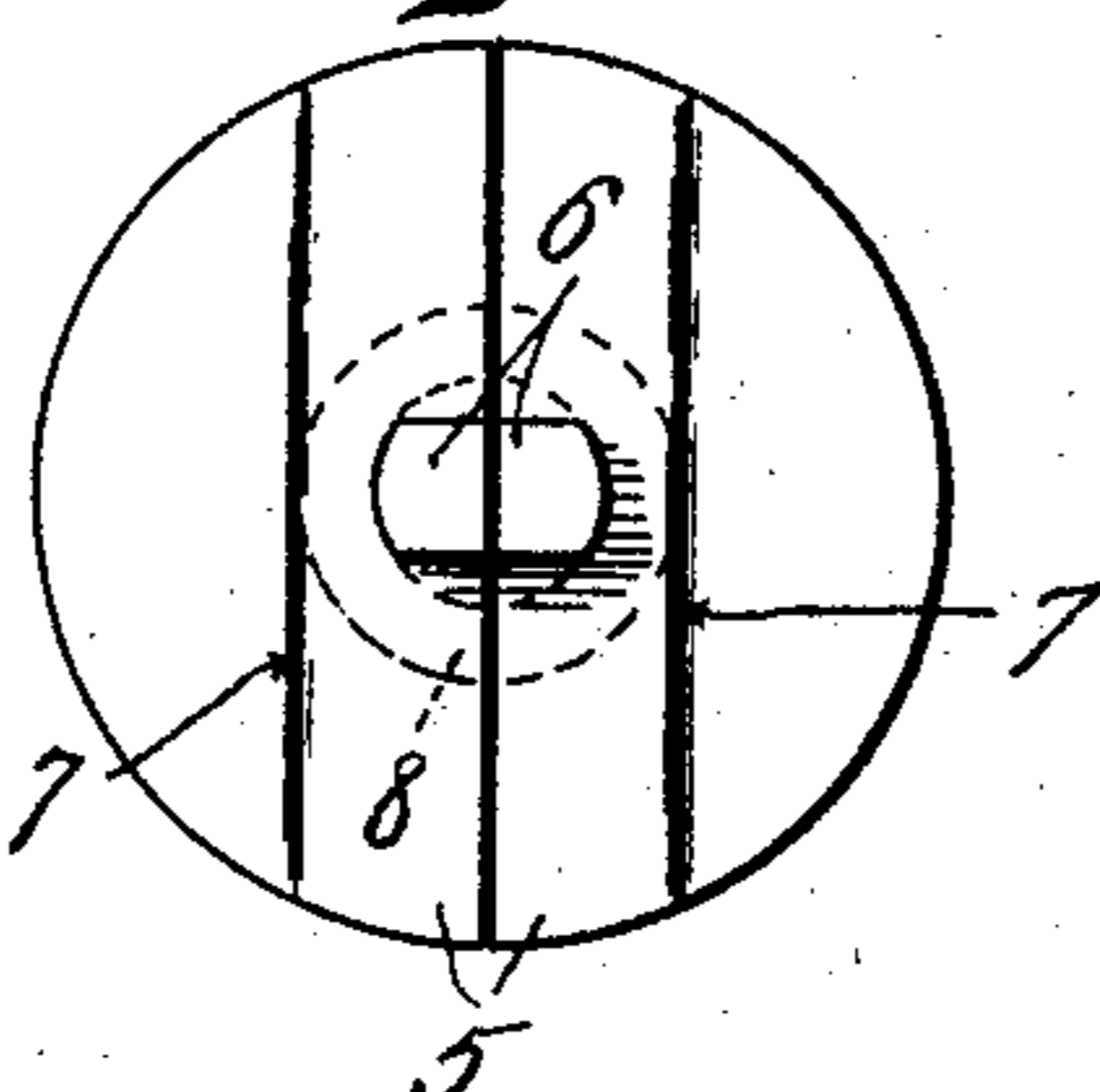
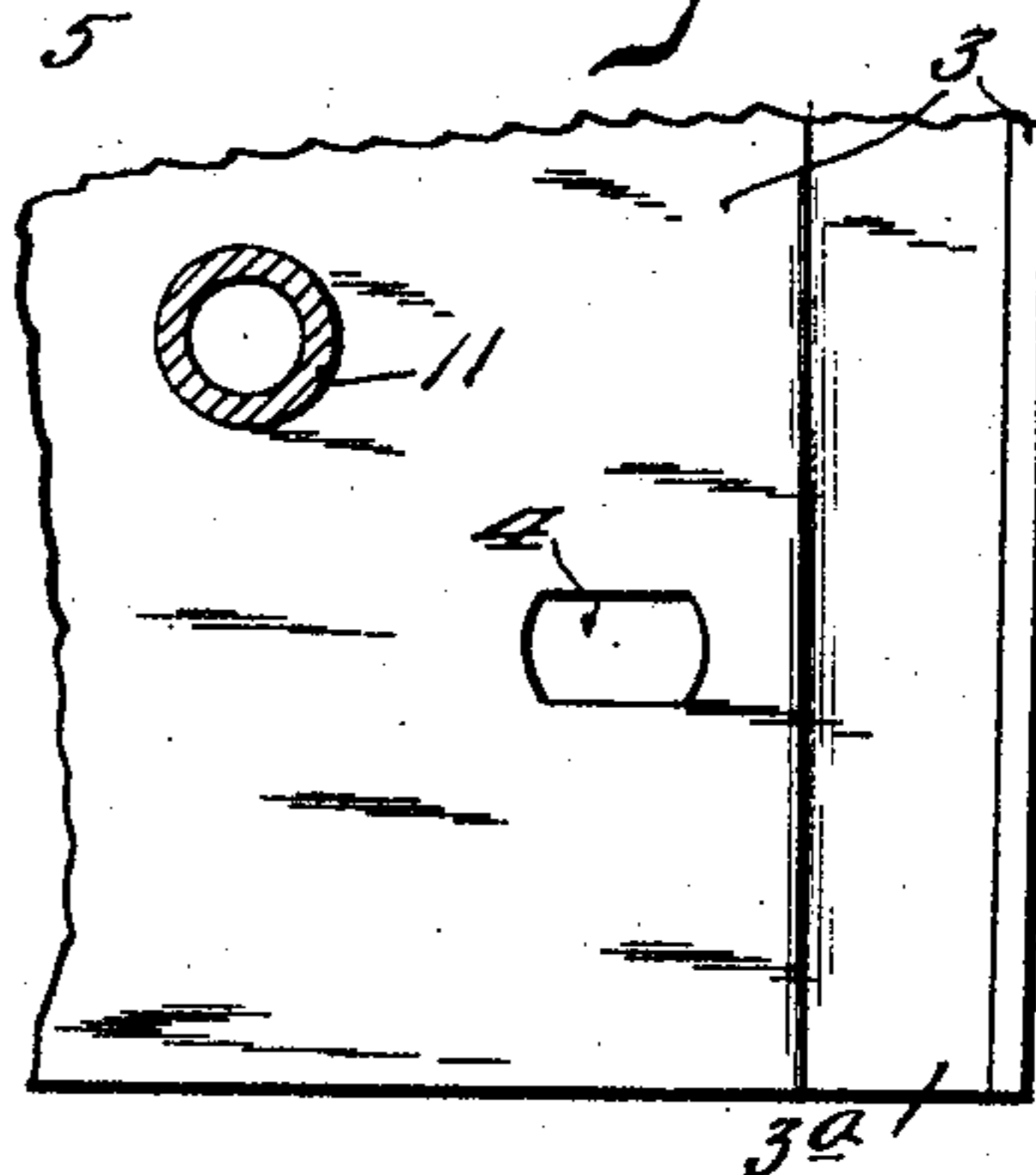


Fig. 5.



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UNITED STATES PATENT OFFICE.

EDWARD DENEGRÉ, OF CHICAGO, ILLINOIS, ASSIGNOR TO McCORD & COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

SPRING-CUSHION.

SPECIFICATION forming part of Letters Patent No. 768,590, dated August 30, 1904.

Application filed December 5, 1903. Serial No. 183,845. (No model.)

To all whom it may concern:

Be it known that I, EDWARD DENEGRÉ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring-Cushions; and I do hereby 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.

My present invention relates to spring-cushions combined or incorporated with frictional retarding devices, and is in the nature of an improvement on the device set forth and claimed in the prior patent to A. C. McCord, No. 709,998, of date September 30, 1902, and on the device set forth and claimed in my own prior patent, No. 709,969, of the same date, both entitled "Spring-cushion."

My present invention embodies the best features of the devices disclosed in said two prior patents and accomplishes this result by extremely simple, inexpensive, and efficient construction.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a vertical section taken through a spring-cushion embodying the features of my present invention, said section being taken on the line $x'x'$ of Fig. 2. Fig. 2 is a transverse vertical section taken through the said cushion on the line x^2x^2 of Fig. 1. Fig. 3 is a plan view showing in detail one of the divided or split rocking spring-bases. Fig. 4 is a bottom plan view of the parts shown in Fig. 3; and Fig. 5 is a detail in plan, showing a portion of the spring base-plate, some parts being sectioned and others being broken away.

The coiled springs 1, of which, as shown, there are four, react against an upper cap-plate 2 and indirectly on a lower base-plate 3. The top of the cap-plate 2 is straight or flat, and it has downturned ends with which engage under a sliding frictional pressure upturned ends of the base-plate 3, the latter, as shown, engaging within the former. The bottom of the base-plate 3 is straight throughout the

main portion of its length; but near its ends—that is, near the points where its sides turn vertically upward—it is bent to give the same an upward incline, as indicated at 3^a . In line with the axes of the several springs 1 the base-plate 3 is formed with perforations or retaining-seats 4. The base of each spring rests upon a split or divided rocking base 5, the sections of which have depending retaining-lugs 6, that work in the retaining-seats 4. The two sections of the divided base 5 afford approximately round bearings for the springs, and the bases of the springs bear upon the upper peripheral portions thereof. At points about midway between the axis of the divided base and its peripheral portions the under surfaces of the sections are beveled so as to afford fulcrum edges 7, that extend transversely of the spring base-plate 3. On their upper surfaces the sections of the divided bases 5 are formed with supplemental bosses 8, that serve to keep the springs properly centered thereon.

It will be noted that the beveled portions of the outer base-sections 5 closely engage with the beveled portions 3^a of the spring base-plate 3, while the corresponding beveled portions of the inner base-section 5 normally diverge upward from the intermediate base portions of the said base-plate 3. With this construction it is evident that the pressure of the springs on the peripheral portions of the split bases 5 tends to rock the said base-sections on their fulcrum edges 7 and that the downward pressure on the outer base-sections tends to press the upturned ends of the divided bases 3 tightly into engagement with the downturned ends of the cap-plate 2, and it will be further understood that the greater the pressure of the spring the greater will be the frictional engagement between the said cap and base plate.

It is of course evident that when the base-sections 5 are rocked on their fulcrum edges 7 their retaining-lugs 6 will be raised slightly in the retaining-seats 4. To prevent the upwardly-moving intermediate portions of the rocking bases 5 from resisting the above rocking movements of the base-sections 5 by their

engagement with the bases of the spring, they are beveled at their upper intermediate portions, as shown at 9. To properly position the bases of the springs rotatively for the best
 5 actions on the divided bases 5, one section of each divided base, as shown, is provided with a stop-lug 10, with which the lower end of the coöpreating spring is engaged.

To limit the separating movements of the
 10 cap and base plate, a telescoping stop connection is provided. This stop connection is conveniently afforded by a sleeve 11 and a nutted bolt 12, the head of which bolt works within said sleeve and is normally pressed against the
 15 upper end web of the sleeve 11. The lower end of said sleeve 11 is upset or flared to prevent it from being drawn through the base-plate 3, and the nut of the bolt 12 rests in a depression of the cap-plate 2.

20 The parts between which the cushion is to be applied will engage one with the upper surface of the cap-plate 2 and the other with the lower surface of the spring base-plate 3. The cushion is especially adapted for use in rail-
 25 way-vehicles in connection with car-trucks and buffers, but is nevertheless serviceable generally wherever a device of its character is required.

The action of the cushion is probably clear
 30 from the foregoing description; but the following statement with respect thereto is deemed advisable: When the springs are compressed, they react on the split or divided spring-bases 5 and rock the sections thereof
 35 in opposite directions on their fulcrum edges 7, and such movements of the outer sections of the said spring-bases press downward or straighten out the upwardly-bent portions 3^a of the spring base-plate 3 and force the up-
 40 wardly-bent ends thereof more tightly against the downturned ends of the spring cap-plate 2. The compression of the springs can be accomplished only by telescoping movements of the spring cap-plate and base-plate, and hence
 45 the frictional sliding engagements of the overlapping parts of said plates produce a frictional resistance to the movements of the spring, which is dependent to a considerable extent on the force applied to the springs and
 50 to the strength of the springs themselves. This frictional resistance, as is obvious and has been demonstrated in practice, acts as a dampener and overcomes to a very great extent the tendency of the springs to vibrate,
 55 except to assume positions to properly carry the load with a yielding or cushioning action.

In the foregoing detail description the plate 2 has been designated as a "spring-cap" and the plate 3 as a "spring base-plate;" but it
 60 will of course be understood that these terms are not used to limit the device as one adapted for use in any particular position, but simply for the purpose of definiteness in describing the device in the position illustrated in the
 65 drawings. It is of course perfectly obvious

that the device might be turned upside down or into a horizontal position and would in many instances be used in each of these positions. The plates 2 and 3 form an open hous-
 70 ing for the spring; but in some instances the said members might be made more of cup-like form, so as to form a more complete housing for the spring.

From what has been said it will be understood that the device described is capable of
 75 modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a spring-cushion, the combination with
 80 frictionally-engaging members, of a split or divided rocking spring-base, independent of said two frictional members, acting on one of said members, to maintain the frictional en-
 85 gagement between said two members, and a spring compressed between said divided base and the other of said frictional members, substantially as described.

2. In a spring-cushion, the combination with
 90 a pair of frictionally-engaging members, one of said members having a base bent out of a straight line, of a plurality of divided rock-
 95 ing bases, one section of each of which acts upon the bent base portion of the corresponding frictional member, to maintain the fric-
 100 tional engagement of the two members, and coiled springs compressed between said di-
 105 vided bases and the other of said frictional members, substantially as described.

3. In a spring-cushion, the combination with
 100 a cap-plate 2 and a spring base-plate 3, said members having frictionally-engaging parts, the said members 3 having its base bent at 3^a and having retaining-seats 4, of the divided
 105 rocking bases 5 reacting on the base of said base-plate 3 and having retaining-lugs 6 working in said seats 4, and being beveled to form the fulcrum edges 7 engaging the base of said
 110 plate 3, the coiled springs 1 compressed between the said divided bases and the said spring-cap 2, and means for limiting the separating movements of the said plates 2 and 3, substantially as described.

4. In a spring-cushion, the combination with
 115 a pair of frictionally-engaging members, of a divided rocking base, independent of said two frictional members, applied to one of said members and movable to maintain the fric-
 120 tional engagement between said two members, and springs compressed between said divided base and the other of said frictional members, substantially as described.

5. In a spring-cushion, the combination with
 125 a pair of frictionally-engaging members, of a divided rocking base 5, made up of the rock-
 130 ing section having retaining-lugs 6 engaging a seat in one of said frictional members, said rocking base-sections being beveled to form the fulcrum edges 7 and being further beveled at 9, to clear the spring, and a coiled spring

compressed between said divided bases and the other frictional member, substantially as described.

5 6. The combination with the spring cap-plate 2 and the spring base-plate 3, said plates having frictionally-engaging ends, and the said plate 3 having its base bent at 3^a, of the divided rocking bases 5 having retaining-lugs 6 fitting the seats of said base-plate 3, the sections of said base-plate being beveled to form
10 the fulcrum edges 7, and being beveled at 9, to clear the springs 1, the springs 1 compressed between the said divided bases and the said cap-plate 2, and the telescoping bolt and sleeve
15 limiting the separating movements of said members 2 and 3, substantially as described.

7. The combination with frictionally-engaging members and a spring compressed between them, of a divided rocking spring-base interposed between said spring and one of said 20 members, the sections of said divided spring-base having adjacent retaining-lugs seated in the engaged member, and frictional spring retarding-surfaces thrown into engagement by the pressure of the spring on said divided 25 spring-base, substantially as described.

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

EDWARD DENEGRÉ.

Witnesses:

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MORRILL DUNN.