

No. 767,042.

PATENTED AUG. 9, 1904.

E. DENEGRE.
SPRING CUSHION.

APPLICATION FILED DEC. 5, 1903.

NO MODEL.

Fig. 1.

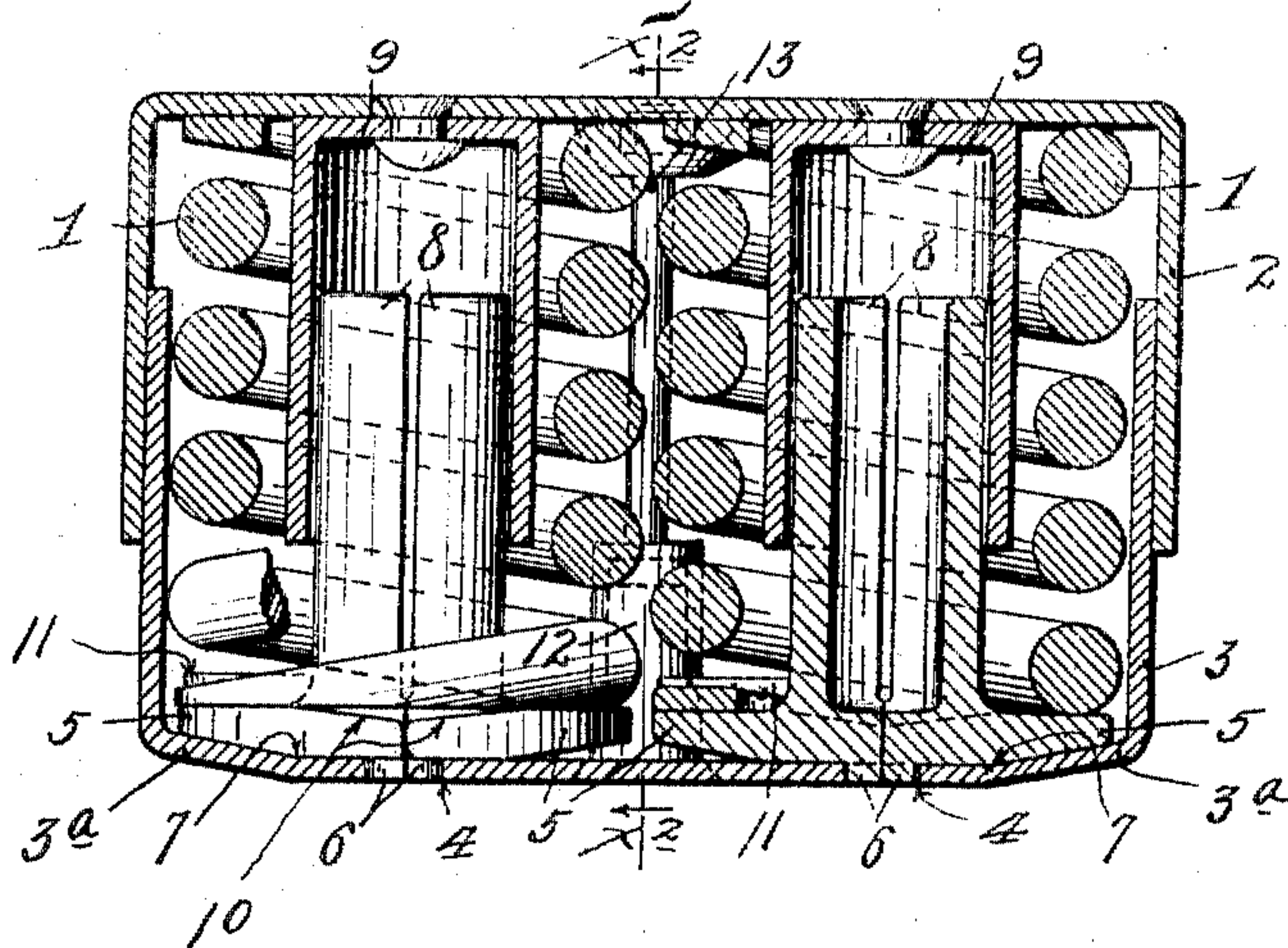


Fig. 2.

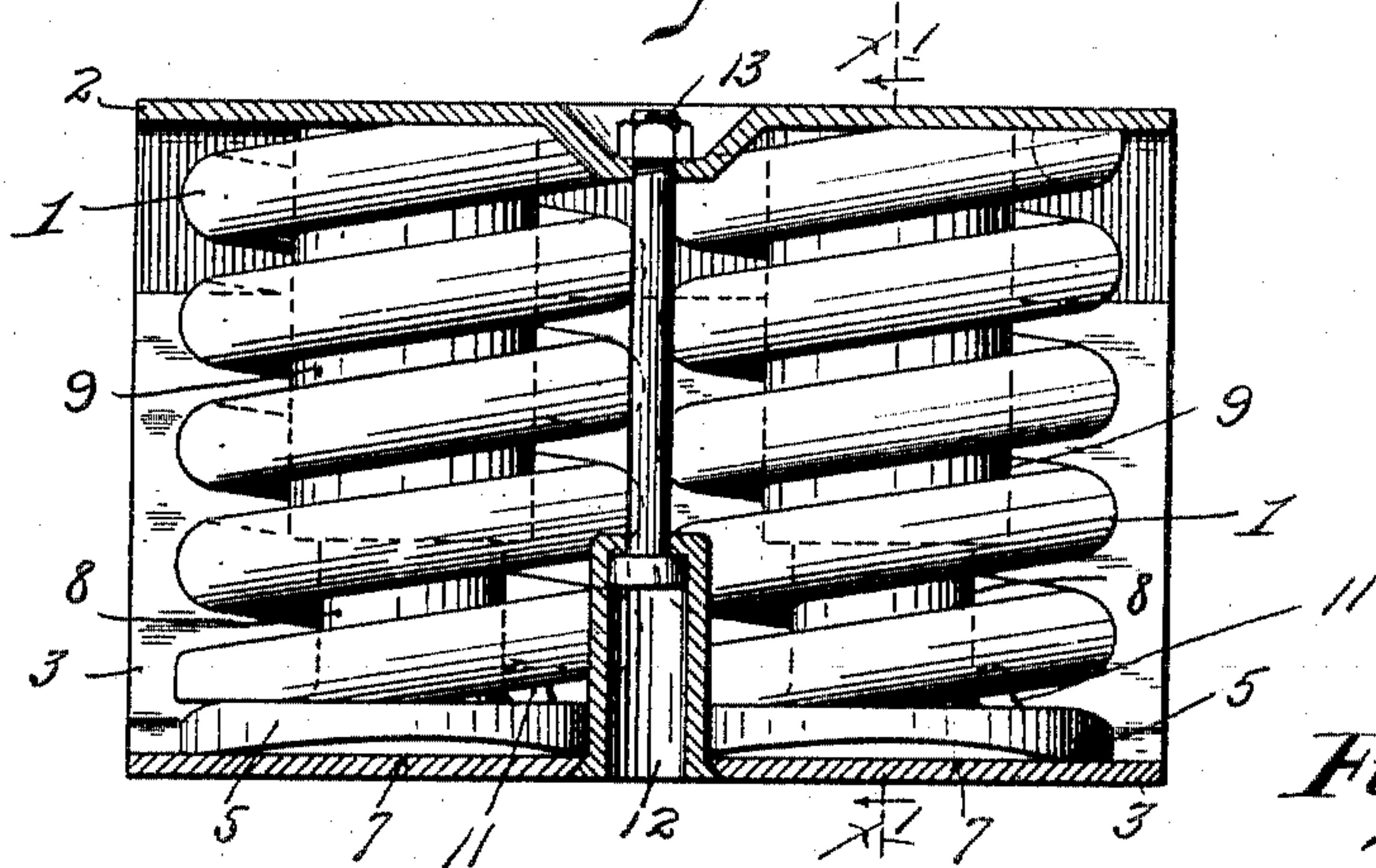


Fig. 3.

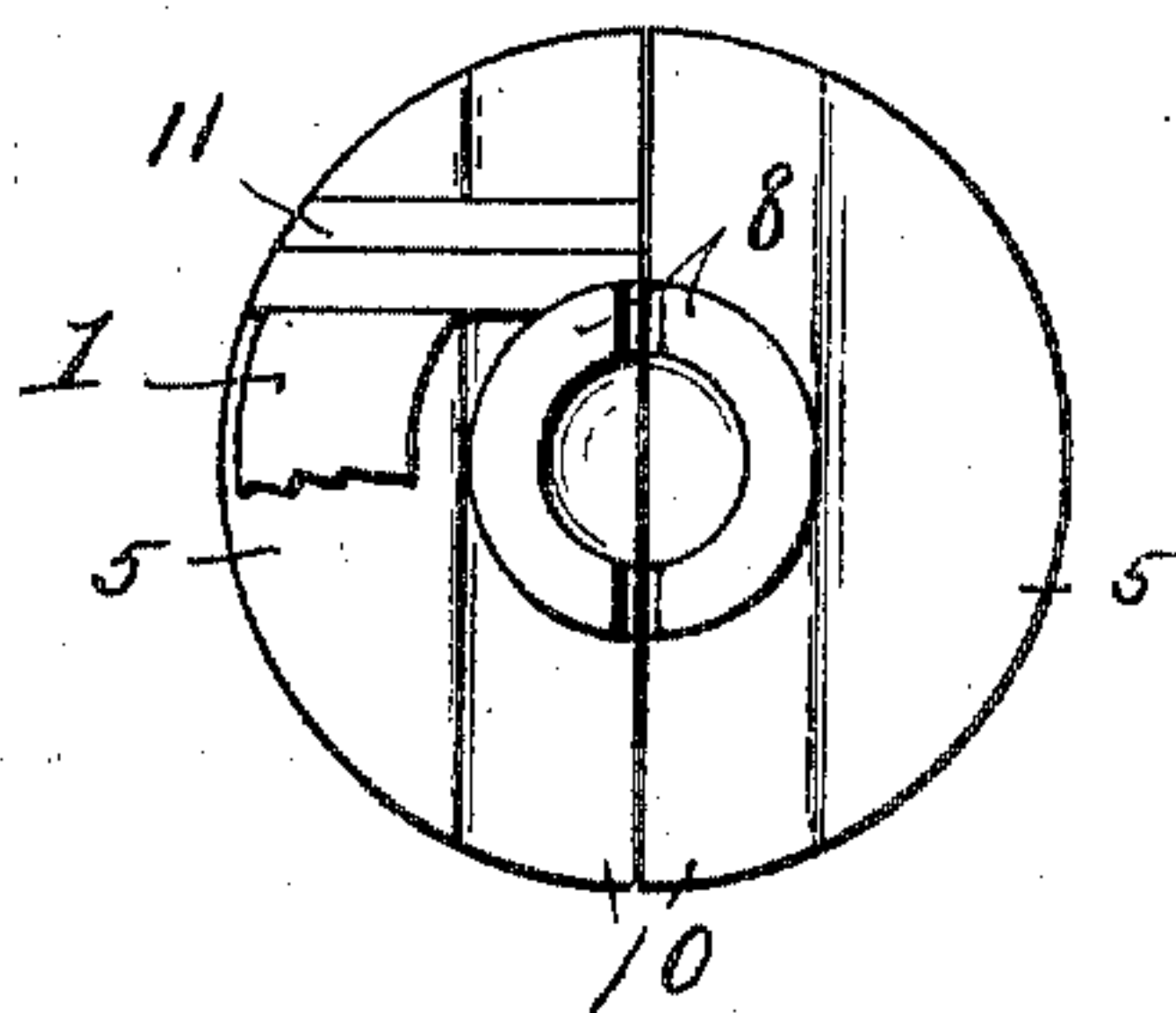


Fig. 4.

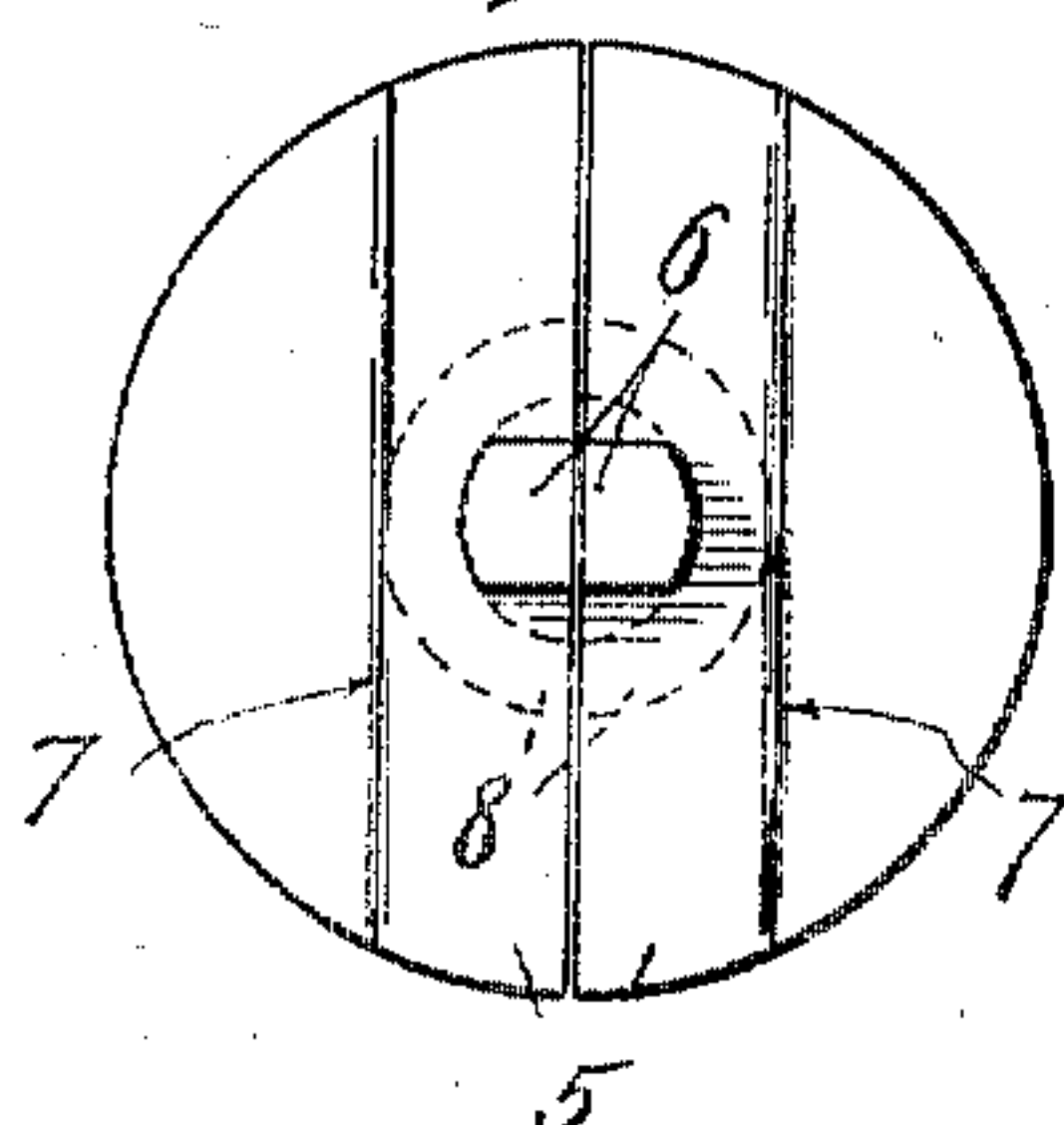
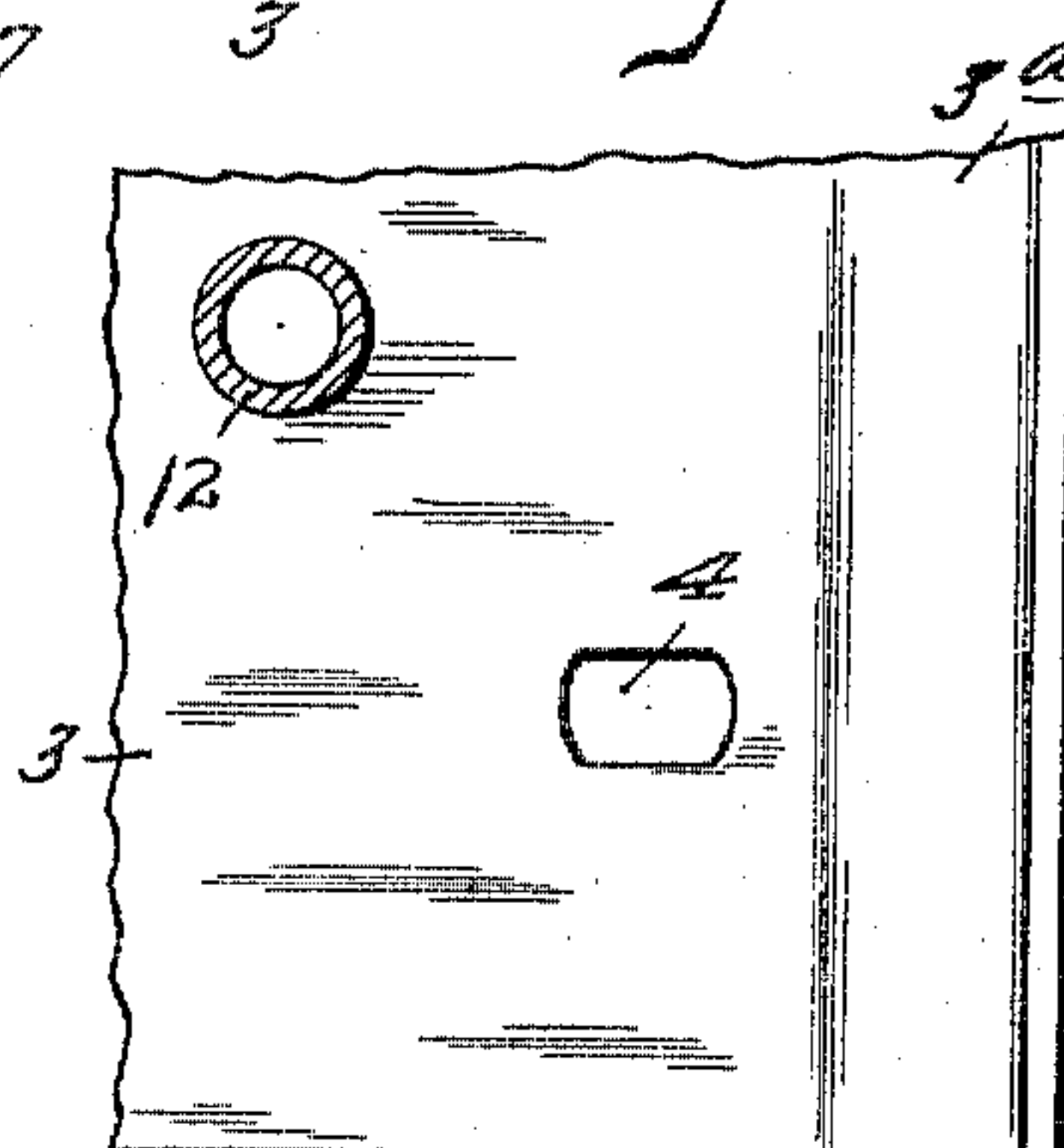


Fig. 5.



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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. 767,042, dated August 9, 1904.

Application filed December 5, 1903. Serial No. 183,844. (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." This present application discloses and claims a modification of the construction certain features of which are more broadly claimed in my companion application, Serial No. 183,845, filed of even date herewith and entitled "Spring-cushion."

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

Figure 1 is a vertical section through a spring-cushion embodying my invention, said section being taken on the line $x'x'$ of Fig. 2. Fig. 2 is a transverse vertical section taken through the cushion on the line $x''x''$ of Fig. 1. Fig. 3 is a plan view showing in detail one of the divided or split rocking spring-bases and its divided frictional sleeve. 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 has downwardly-turned ends which engage, under a sliding frictional pressure, upturned ends of the base-plate 3, the latter, as shown, engaging the inner surfaces of the

former. The bottom or base of the base-plate 3 is straight or flat throughout the main portion of its length; but near its ends—that is, near 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 spring-base 5, the sections of which have depending retaining-lugs 6, that work in said retaining-seats 4. The two sections of each base-spring 5 afford an approximately round bearing for the spring, and the bases of the springs bear upon the upper peripheral portions thereof. At points about midway between the axis of the spring-base and its peripheral portions the under surfaces of the base-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 spring-bases are formed with supplemental semitubular extensions 8, constituting divided friction-plungers which telescope into and frictionally engage with depending friction-sleeves 9, the upper ends of which are riveted or otherwise rigidly secured to the spring cap-plate 2. The provision of the divided plunger-sections 8 on the rocking bases 5 and the provision of the cooperating friction-sleeves 9 on the cap-plate 2 constitute a marked feature of departure from the construction disclosed and claimed in my said companion application above identified. The coiled springs 1 in this present construction surround the telescoping friction-sleeves 8 and 9.

The beveled under portions of the outer base-sections 5 closely engage 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 portions of 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 said base-sections on their fulcrum edges 7 and that the downward pressure on the said outer base-sections tends to press the upturned ends

of the spring base-plate into engagement with the downturned ends of the cap-plate 2 under a pressure which is dependent largely on the tension of the spring and on the weight of the load applied thereto. It is evident that when the base-sections 5 are rocked in their fulcrums 7 their retaining-lugs 6 will be raised slightly in the retaining-seats 4. To prevent the upwardly-moving intermediate portions of the rocking spring-bases 5 from engaging with the bases of the springs when thus rocked, they are beveled at their upper intermediate portions, as shown at 10. As shown, one section of each spring-base 5 is provided with a lug 11, which affords a stop against which the lower end of the spring may be set to properly position the spring rotatively.

To limit the separating movements of the cap and base plates, a telescoping stop connection is provided. This stop connection is conveniently afforded by a sleeve 12 and a nutted bolt 13, the head of which bolt works within said sleeve and is normally pressed against the upper end web of said sleeve 12. The lower end of sleeve 12 is upset or flared to prevent it from being drawn through the base-plate 3, and the nut of the bolt 13 rests in a depression of the said cap-plate 2.

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 railway-vehicles in connection with a car-truck and buffers, but is, nevertheless, serviceable generally wherever a device of its character is required.

The action, briefly summarized, is substantially as follows: When the springs are compressed, they react on the split or divided spring-bases 5 and rock the sections thereof in opposite directions on their fulcrum edges 7. Such movements of the outer sections of the spring-bases press downward or straighten out the upwardly-bent portions 3^a of the spring base-plate 3 and force the upwardly-bent ends thereof more tightly against the downturned ends of the spring cap-plate 2. Furthermore, the said rocking movements of the two sections of the spring-base 5 throw the outer surfaces of their sleeve-sections 8 into frictional engagement with the inner surface of the cooperating friction-sleeve 9. It will be noted that normally there is sufficient play between the sections of the divided sleeve 8 and the inner surface of the sleeve 9 to permit the sections of the divided spring-base to rock, as above described.

The compression of the spring can be accomplished only by telescoping movements of the spring-cap and spring-plate and of the supplemental retarding device afforded by the cooperating sleeves 8 and 9. Otherwise stated, the tendency of the springs to vibrate is resisted both by the primary and supple-

mental frictional retarding devices. Thus an extremely-efficient spring dampener or retarding device is provided.

In the foregoing description the plate 2 has been designated as a "cap-plate" and the spring-plate 3 as a "base-plate;" but it will of course be understood that these designations are used only as a matter of convenience in expression and in no wise limit the cushion to use in any particular position. On the contrary, it is perfectly obvious that the cushion might be turned upside down or into a horizontal position and would, in fact, in many instances be used in such positions.

The plates 2 and 3 form an open housing for the spring; but in some instances the said plate might be made more of cup-like form, so as to form a complete housing for the spring.

From what has been said it will be understood that the device described is capable of 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 a coiled spring, of a pair of members having frictionally-engaging parts located outside of said spring, and other frictionally-engaging members located inside of said spring, the said frictionally-engaging members having a sliding frictional engagement, under movements of the spring, substantially as described.

2. In a spring-cushion, the combination with a coiled spring, of a pair of frictionally-engaging members between which the spring is compressed, said members having frictional engagement outside of said spring, and a supplemental friction device involving telescoping parts placed axially of and within said spring, said spring being arranged to force the frictionally-engaging parts into contact, substantially as described.

3. In a spring-cushion, the combination with a spring, and a pair of frictionally-engaging members having constant frictional engagement, of a supplemental friction device, the members of which do not normally engage, of a spring cooperating with said friction devices and arranged to throw the members of said supplemental friction device into engagement, when compressed, substantially as described.

4. In a spring-cushion, the combination with a coiled spring, of a pair of frictionally-engaging members having their frictional engagement outside of said spring, one of said members having a friction-sleeve located axially of and within said spring, and a divided rocking base acting on the other of said frictionally-engaging members and subject to said spring, the sections of said divided base having supplemental plunger members telescoping into said friction-sleeve and frictionally engageable therewith, substantially as described.

5. The combination with the pair of frictionally-engaging plates or members, one thereof having a plurality of friction-sleeves and the other having a base bent out of a straight line, 5
of a plurality of divided rocking bases operating on the bent portions of the bent base of said latter member, and provided with divided plunger extensions telescoping within and frictionally engaging with the corresponding friction-sleeves, and coiled springs 10
surrounding said friction-sleeves and compressed between the corresponding rocking spring-bases and the opposite frictional plate, substantially as described.

6. The combination with the plates 2 and 3 15
having frictionally-engaging ends, the latter plate being bent out of a straight line at 3^a, of a friction-sleeve 9 secured to said plate 2, the divided rocking spring-bases 5 having 20
fulcrum edges 7, retaining-lugs 6 and divided plunger extensions 8, said lugs 6 being seated in said plate 3 and said divided sleeve telescoping within and frictionally engaging with the said sleeves 9, and the coiled springs 1 sur-

rounding the corresponding sleeves 8 and 9 25
and compressed between said plate 2 and the said rocking bases 5, substantially as described.

7. In a spring-cushion, the combination with a spring and a pair of frictionally-engaging members between which said spring 30
is compressed, said members having frictional engagement outside of said spring, and one thereof having a friction-sleeve located within said spring, and a divided rocking base 35
subject to said spring and having divided plunger projections working within said cushion-sleeve, the said rocking base acting on one of said friction engaging members, to hold the two members in frictional contact, substantially as described. 40

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

EDWARD DENEGRÉ.

Witnesses:

JAMES D. DENEGRÉ,
MORRILL DUNN.