

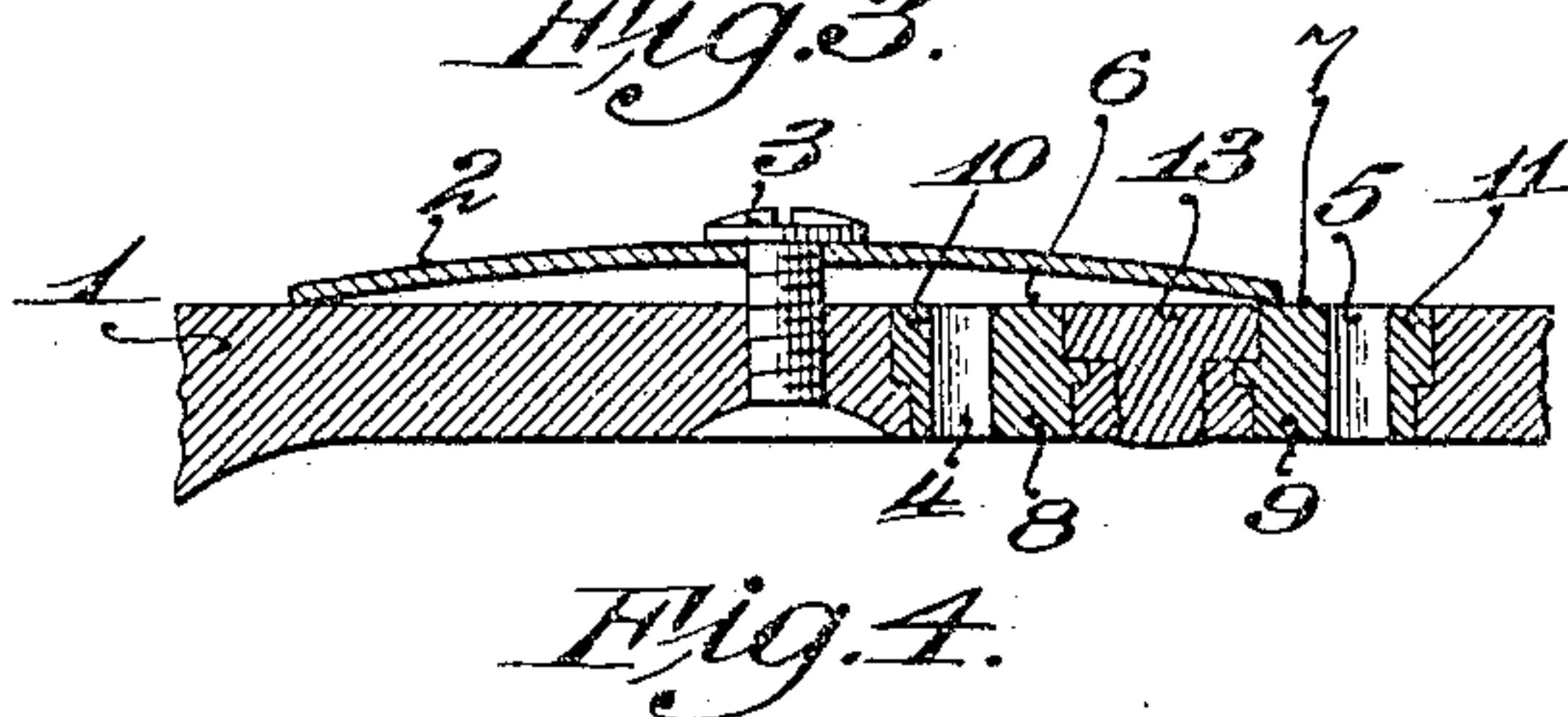
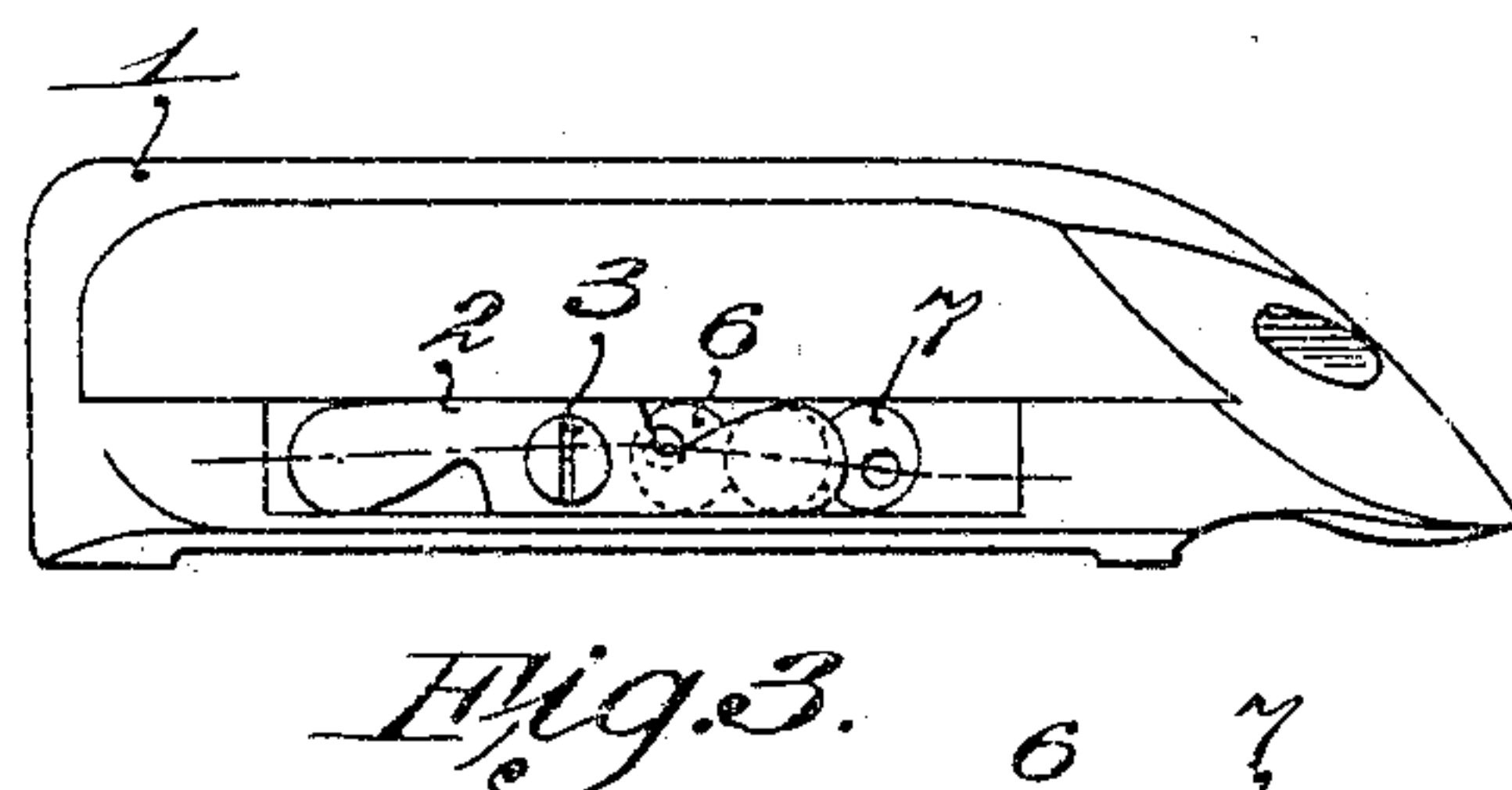
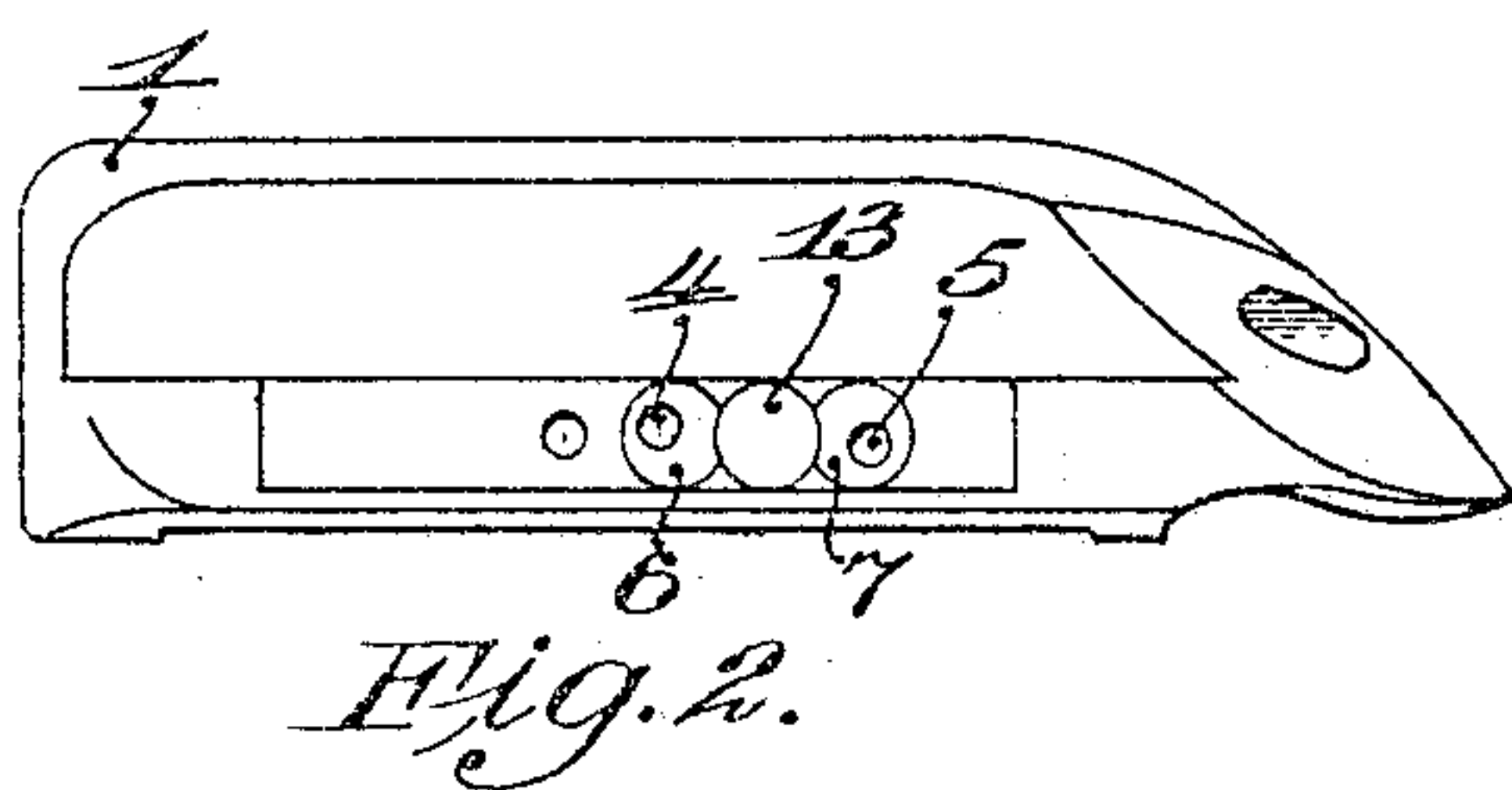
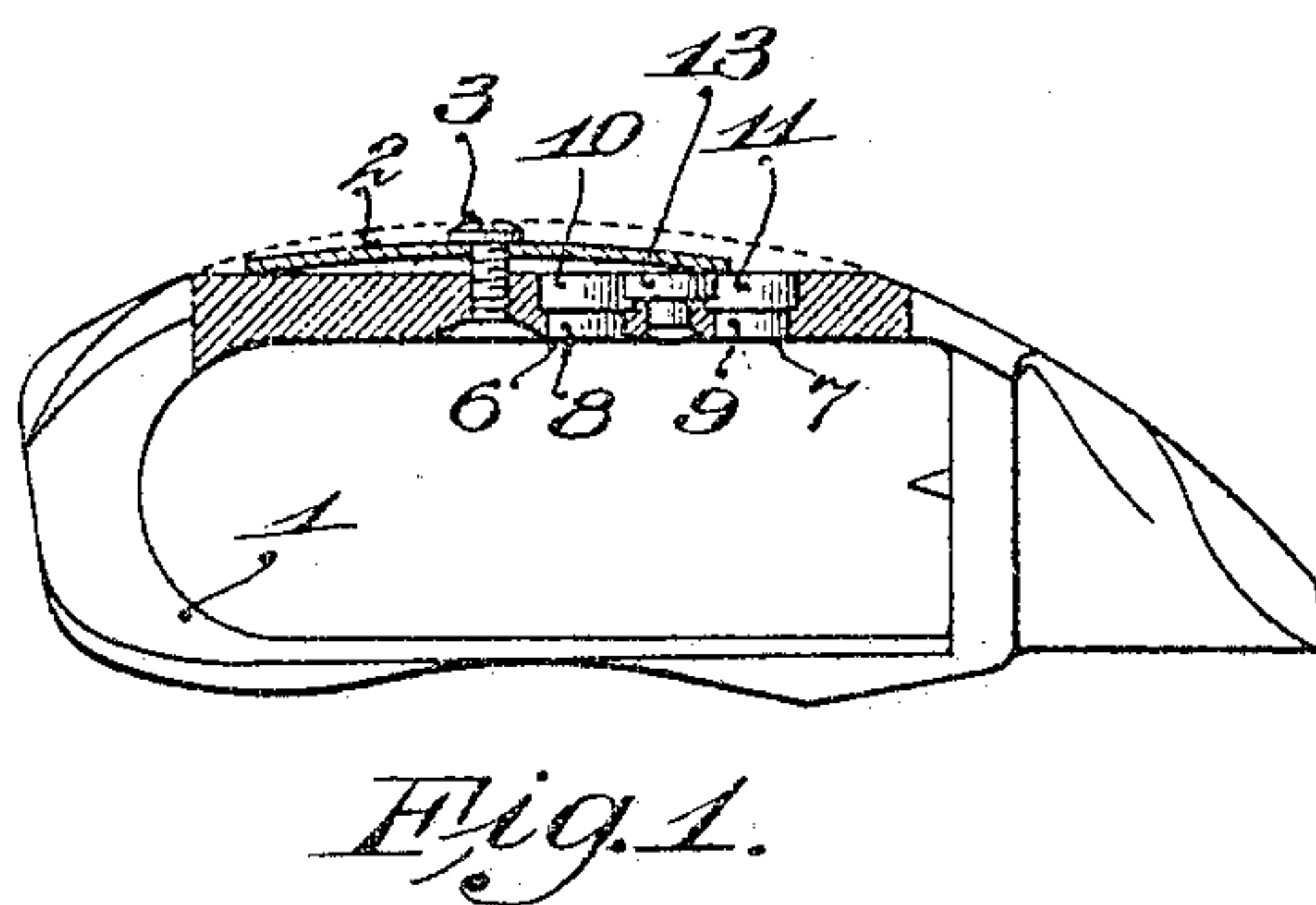
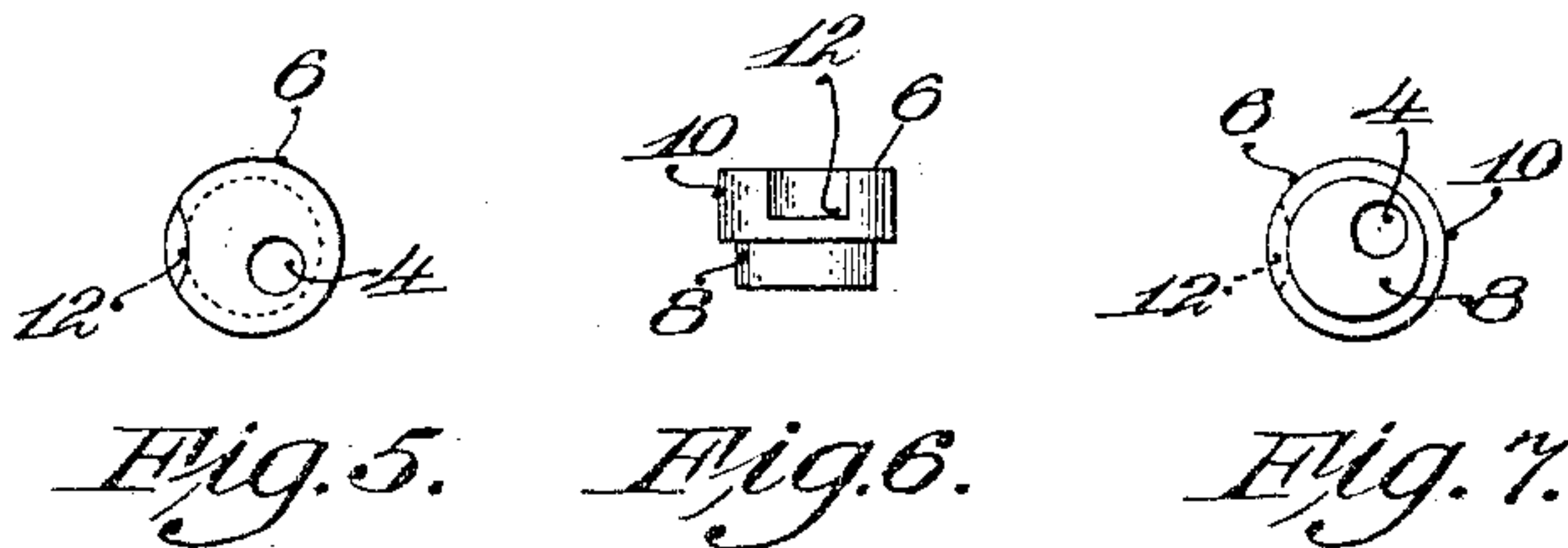
No. 775,362.

PATENTED NOV. 22, 1904.

H. A. DODGE.
SEWING MACHINE SHUTTLE.

APPLICATION FILED MAY 19, 1904.

NO MODEL.



Witnesses
Edward S. Day
Jarnum F. Dorsey

Inventor
Henry A. Dodge
by his Attorneys
Philip Van Eenam & Fish

UNITED STATES PATENT OFFICE.

HENRY A. DODGE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO CAMPBELL-BOSWORTH MACHINERY COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 775,362, dated November 22, 1904.

Application filed May 19, 1904. Serial No. 208,648. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. DODGE, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Shuttles; 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 ap-
 10 pertains to make and use the same.

The present invention relates to an improvement in shuttles for sewing-machines, and more particularly to an improvement upon the shuttle described and claimed in the Pat-
 15 ent No. 759,082, granted May 3, 1904, to the Campbell-Bosworth Machinery Company upon my application.

In lock-stitch sewing-machines it has long been recognized as important to pull off from the shuttle the precise quantity of thread re-
 20 quired in forming each stitch, and in sewing-machines employing shuttles of the character illustrated in the accompanying drawings difficulty has been experienced in securing the
 25 pulling off of the correct amount of thread, by reason of the fact that the eye of the shuttle from which the thread leads to the material is subjected to very considerable wear. It has been found impracticable to harden the
 30 steel of which the shuttle-body is composed so as materially to reduce this wear, owing to the shocks to which the shuttle is subjected in its rapid oscillation, which precludes the use of brittle material in the body of the shuttle.
 35 The thread-eye therefore of the shuttle has been gradually enlarged by the passage of the thread therethrough, and the length of the thread extending from the shuttle to the work has been varied by such enlargement. The
 40 increase in the size of the thread-eye and the consequent variation of the length of the thread pulled off by the shuttle has caused the position of the thread-lock in the materials to change after the shuttle has been in use for
 45 some time, necessitating the renewal of the entire shuttle when only the thread-eye has become substantially worn and while the remainder of the shuttle is in substantially per-

fect condition. It is proposed, therefore, by me to provide means for securing wear-pieces
 50 or thread-eye bushings in the shuttle-body, through which bushings the thread-eye is formed, so as to afford an inexpensive and convenient means of renewing a worn thread-eye without renewing the entire shuttle.
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The object of the invention, therefore, is to improve the construction of sewing-machine shuttles, and particularly to improve the construction of shuttles formed as illustrated in the said patent.
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To the above ends the present invention consists in the improved shuttle hereinafter described, and particularly defined in the claims.

In the drawings, Figure 1 is a front elevation of a shuttle embodying the present inven-
 65 tion, the tension device being shown in section. Fig. 2 is a plan view of the shuttle with the tension-spring removed. Fig. 3 is a similar view of the complete shuttle. Fig. 4 is an enlarged sectional view similar to the section
 70 of Fig. 1 in which the thread-eyes are shown in section; and Fig. 5 is a top plan view, Fig. 6 a side elevation, and Fig. 7 a bottom plan, of one of the thread-eye bushings.

The illustrated embodiment of the inven-
 75 tion has a hollow shuttle-body 1, in which a bobbin of thread may be mounted. A tension-spring 2 of ordinary form is adjustably secured to the body by the screw 3. The thread-eyes 4 and 5 serve as guides to direct
 80 the thread under the end of the tension-spring, the thread passing out through the eye 4, thence under the end of the tension-spring, and into the eye 5, from which it leads to the work. The thread-eye 4 is formed in a bushing 6,
 85 and the thread-eye 5 is formed in the bushing 7. These bushings 6 and 7 have shanks 8 and 9 and heads 10 and 11. The shanks are cylindrical, and the heads are cylindrical except for recesses 12, which are cut therein to re-
 90 ceive the wear-plate 13. The bushings 6 and 7 fit correspondingly-shaped sockets in the side of the shuttle-body and are held in place by the wear-plate 13, which is formed in the manner illustrated in said patent.
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The bushings 6 and 7 are identical in shape

in the preferred embodiment of the invention. This is of advantage for the reason that the wear of the thread upon the bushing 6 is not as severe as the wear of the thread upon the bushing 7, owing to the fact that the thread has turned more corners and been subjected to the tension exerted by the spring 2 between these two points. It is therefore possible after the bushing 7 has become so worn, especially on its inner end, to change the bushings the one for the other, and thus without other change materially to prolong the life of the shuttle. The wear-plate 13 is provided, as in said patent, with a shank extending through a hole in the side of the shuttle-body, and it is preferably slightly riveted upon the inside of the shuttle to prevent it from falling out when the spring is removed.

It has been found by practical experience that the thread-eye 5 is worn by the thread most severely at the inner rear edge of the said eye. By making the bushings 6 and 7 of hardened steel this wear is materially reduced and the life of the shuttle is much prolonged. It will be recognized, of course, by those skilled in the art that the shuttle is an expensive article, as it is required to be made with the utmost nicety, every exterior surface thereof being required to be finished to a precise form in order to secure the proper operation of the sewing-machine, and that the present improvement provides means for replacing that portion of the shuttle which is subjected to the most serious wear and which most materially contributes to the successful operation of the device.

It is an important feature of the present invention that the tension wear-plate serves as the means for holding the thread-eye bushings in position in the shuttle. This contributes to simplicity of construction and facility of replacement of a worn thread-eye bushing.

The feature by virtue of which the thread-eye bushings may be exchanged the one for the other is a matter of practical convenience in the carrying out of the invention.

While the thread-eye bushings in the illustrated embodiment of the invention are shown eccentric to the thread-eye, the invention is not limited to this form of bushing. It is also to be remarked that the thread-eye bushings might be provided with more than one recess for the reception of the wear-plate 13 and that the form of the wear-plate 13 and of the bushings is not material to the carrying out of the present invention, as the wear-plate and bushings may be differently shaped, if desired, by the constructor, except where in the claims the invention is specifically limited thereto.

Having thus described the invention, what is claimed is—

1. A shuttle for sewing-machines, having, in combination, a body provided with thread-eye sockets and a wear-plate socket, thread-eye bushings mounted in the thread-eye sockets, and a wear-plate mounted in the wear-plate socket and engaging the thread-eye bushings and holding them in place, substantially as described.

2. A shuttle for sewing-machines, having, in combination, a body provided with a thread-eye socket, and a wear-plate socket, a thread-eye bushing provided with a recess in its side, a wear-plate mounted in the wear-plate socket and entering the recess in the thread-eye bushing for holding the thread-eye bushing in place, substantially as described.

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

HENRY A. DODGE.

Witnesses:

HORACE VAN EVEREN,
FARNUM F. DORSEY.