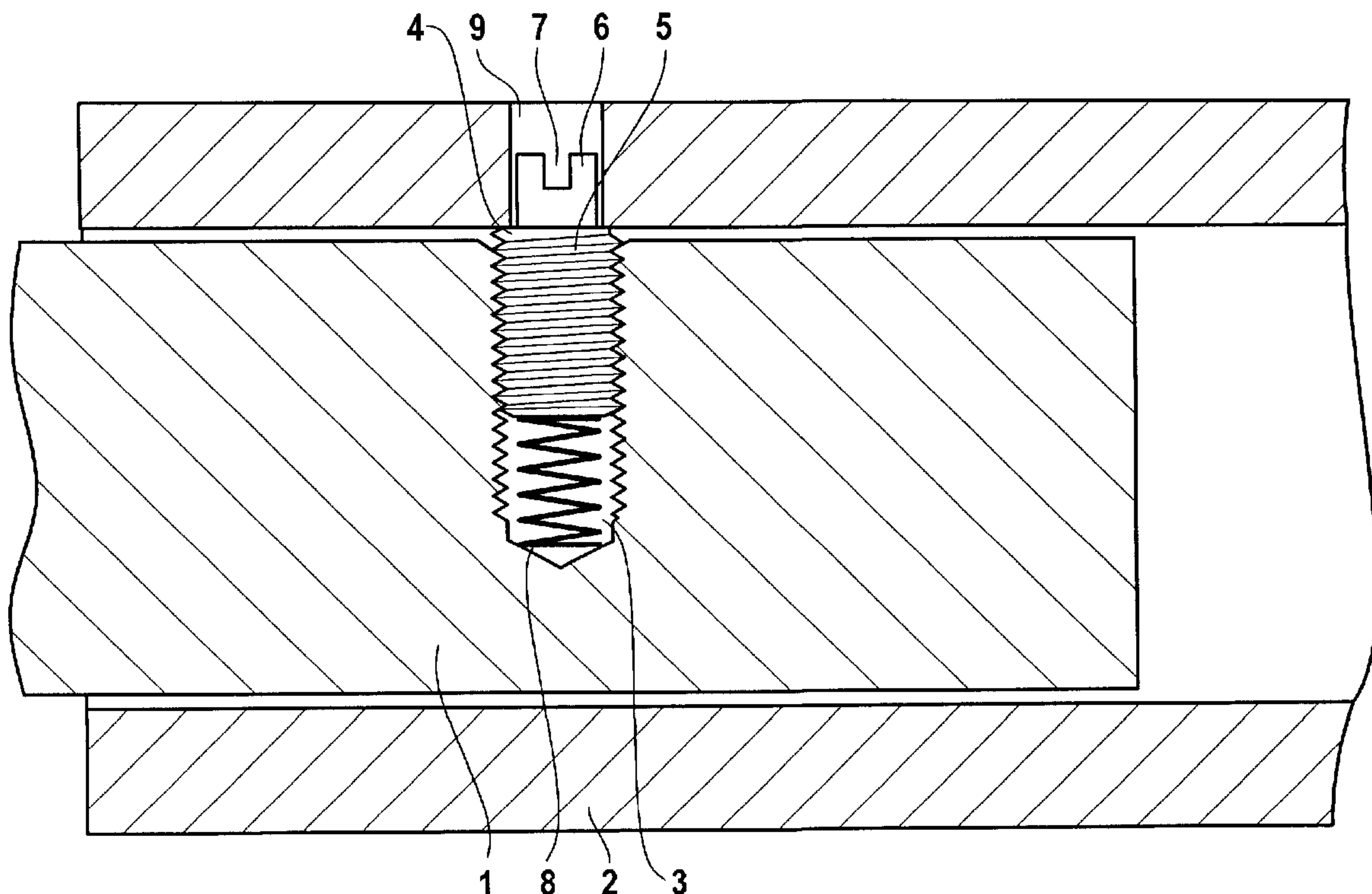




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(54) Titre : PROTHESE OU INSTRUMENT CHIRURGICAL DOTE D'UNE VIS DE FIXATION
(54) Title: PROSTHESIS OR SURGICAL INSTRUMENT EQUIPPED WITH A FIXING SCREW



(57) **Abrégé/Abstract:**

The invention concerns a prosthesis or a surgical instrument comprising two parts (1, 2) one sliding on the other, the lower part (1) being provided with a threaded bore (3) and the upper part (2) being provided with a passage orifice (9) for receiving a fixing screw (4). The invention is characterized in that a set screw (5) can be introduced over its entire length beneath the upper part (2) in the threaded bore (3), said screw including at its upper end a dog point, which is thinner than the threaded part (5) and which is provided with a groove for screwdriver (7). The diameter of the passage orifice (9) is smaller than that of the threaded part and larger than that of the dog point (6). In a preferred embodiment, an elastic device (8) pushes the fixing screw into fixing position.

Abstract

Surgical implant or instrument with two parts (1, 2), one sliding on the other, the lower part (1) being provided with a threaded bore (3) and the upper part (2) being provided with a passage orifice (9) for receiving a fixing screw (4). According to the invention, the set screw (5) can be received over its entire length beneath the upper part (2) in the threaded bore (3) and includes, at its upper end, a dog point which is thinner than its threaded part (5) and which is provided with a groove (7) for a screwdriver, the diameter of the passage orifice (9) being smaller than that of the threaded part and larger than that of the dog point (6). An elastic device (8) is preferably provided which pushes the fixing screw into the fixing position.

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Surgical implant or instrument with fixing screw

The invention relates to a surgical implant or instrument with fixing screw.

In surgical implants or instruments, it is sometimes necessary for two mutually displaceably guided parts to be secured against displacement by means of a screw. It is known to do this by screwing a fixing screw through a passage orifice in the upper of the two parts and into a threaded bore in the lower of the two parts until its head sits firmly on the top face of the upper of the two parts. This has the disadvantage that the screw can be lost, which can have serious consequences in the confined operating site.

The invention avoids this disadvantage. It likewise proposes a threaded bore in the lower of the two parts, and a passage orifice in the upper part. For fixing purposes, the invention chooses a screw which is designed as a set screw and can be accommodated over its entire length in the threaded bore (in any case beneath the lower face of the upper of the two parts). It has an upper, thinner dog point which contains a groove for a screwdriver. The diameter of the passage orifice is smaller than that of the screw thread but larger than that of the screw dog point.

Before the parts are joined together, the screw is screwed into the threaded bore to such a depth that it disappears completely therein or at any rate lies so deep that the upper of the two parts can slide over it. The screwdriver is then engaged through the passage orifice of the upper part and is used to turn the

screw upward until its dog point lies in the passage orifice. The two parts are now secured against relative displacement. The screw cannot escape upward because the diameter of its threaded portion is larger than that of the passage orifice. The threaded bore is expediently designed as a blind bore, or the screw and the lower part are provided with limit stops which also prevent downward escape of the screw.

The screw is generally held in the fixed position by being turned tight, i.e. the end face of its threaded part being tensioned against the upper of the two parts that are to be fixed. More substantial fixing against the fixing screw falling back into the threaded bore can be achieved by the fact that it is acted upon from beneath by an elastic force, for example a spring.

The terms „upward“ and „downward“ used in this text and in the claims are not to be interpreted in the sense of a geodetic height, but instead signify the position relative to the observer seeking access to the fixing screw. The lower part is, generally speaking, the part covered by the upper part.

The invention is explained in greater detail below with reference to the drawing which depicts an advantageous illustrative embodiment in cross section.

A bolt 1 is to be connected to a sleeve 2 which, having a slightly greater diameter, is pushed over the bolt. Their interacting surfaces provide a guide which permits a relative movement between the two parts only parallel to their longitudinal axis.

The bolt 1 has a threaded bore 3 extending transversely with respect to its longitudinal axis. The threaded screw 4, which has a threaded portion 5 and an upper dog point 6, sits in said

threaded bore 3, and the upper dog point 6 has a slit or hexagon socket 7 for connection to a screwdriver. The dog point 6 has a smaller diameter than the threaded portion 5. A compression spring 8 is located between the bottom of the threaded bore 3 and the bottom of the screw 4. The threaded bore 3 has a length which, disregarding the length required for receiving the compressed spring 8, is greater than that of the screw 4. The passage orifice 9 in part 2 has a diameter which is smaller than that of the threaded portion 5 and larger than that of the dog point 6 of the screw 4.

Before assembly, the screw 4 is sunk fully into the threaded bore 3. It should at least not protrude from the threaded bore 3 any more than a distance corresponding to the play between the mutually facing surfaces of the parts 1 and 2. The parts 1 and 2 are then pushed together until the passage orifice 9 lies over the screw 4. A screwdriver is then used to unscrew the screw 4 until its dog point 6 lies inside the passage orifice 9. If so desired, it can be turned until the shoulder of its threaded portion 5 bears sufficiently tightly on the edge of the passage orifice 9.

The latter is not absolutely essential if the spring 8 is present. This is because the latter pushes the screw 4 upward, so that it cannot sink back into the threaded bore 3 under the effect of any forces that occur.

It will be appreciated that the spring 8 represented as helical spring can be replaced by other spring means, for example by a foam plug made of an elastic synthetic material.

Patent claims

1. A surgical implant or instrument with two parts (1, 2), one sliding on the other, the lower part (1) being provided with a threaded bore (3) and the upper part (2) being provided with a passage orifice (9) for receiving a fixing screw (4), characterized in that the set screw (5) can be received over its entire length beneath the upper part (2) in the threaded bore (3) and includes, at its upper end, a dog point which is thinner than its threaded part (5) and which is provided with a groove (7) for a screwdriver, and in that the diameter of the passage orifice (9) is smaller than that of the threaded part and larger than that of the dog point (6).
2. The implant or instrument as claimed in claim 1, characterized in that the threaded bore (3) is a blind bore.
3. The implant or instrument as claimed in claim 1 or 2, characterized in that the fixing screw (4) and the threaded bore (3) have interacting limit stops to secure against downward removal of the fixing screw (4) from the threaded bore (3).
4. The implant or instrument as claimed in one of claims 1 through 3, characterized in that an elastic device (8) is provided for pushing the fixing screw (4) into the fixing position.

