

Remains secured in rigid head.

F. D. BROGA.

FASTENER.

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942,129.

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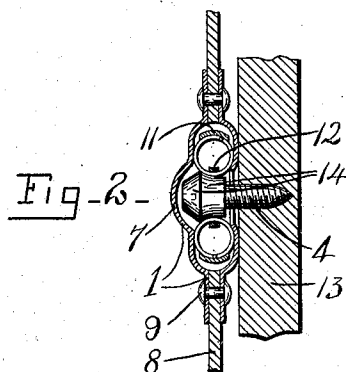
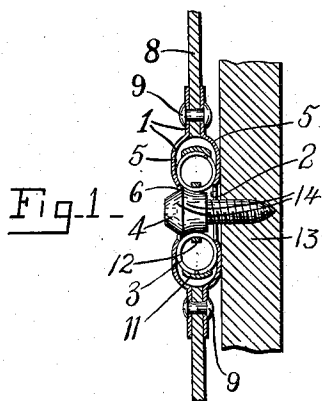


Fig-4-

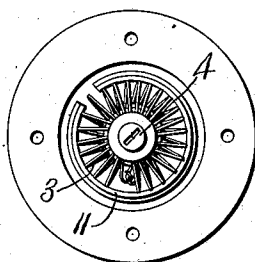
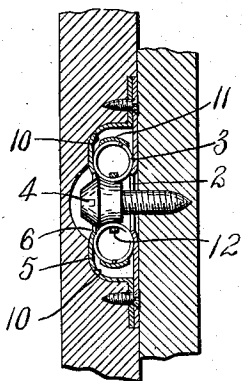


Fig-3-



WITNESSES:

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FASTENER.

942,129.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANKLIN D. BROGA, of Oneida, in the county of Madison and State of New York, have invented a new and useful Fastener, of which the following is a specification.

My invention has for its object the production of a fastener which is particularly simple in construction and highly efficient and durable in use; and it consists in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing in which like characters designate corresponding parts in all the views.

Figures 1, 2 and 3 are sectional views of different forms of my fastener and contiguous parts of the articles with which the same are associated. Fig. 4 is a view of parts seen in Figs. 2 and 3.

This fastener comprises a socket member 1 associated with one of two articles or parts to be detachably fastened together, said member having a passage 2 in one side thereof, an expansible and contractile element 3 loosely arranged in the socket member and having an opening for registering with said passage 2, and a button member 4 associated with the other of said two parts and movable through the passage 2 into the opening of the expansible and contractile element 3.

The socket member 1 preferably comprises front and rear plates having central portions 5 pressed outwardly forming a circular chamber for receiving the element 3, one of said portions 5 being formed with the passage 2 of the socket member. The central portion 5 of the other plate of the socket member may also be provided with a passage 6 arranged substantially in axial alignment with the passage 2 as seen in Figs. 1 and 3, but as seen at 7 in Fig. 2 said other plate may be unprovided with the passage 6 and may be provided with a central outwardly deflected extension.

The central portions 5 of the front and rear plates of the socket member form opposing side walls for holding the element 3 from movement in opposite directions lengthwise of the axis of the passage 2, and the marginal edges of said plates are deflected toward each other for forming an annular circumferential wall which is

united to said side walls, or fixed relatively thereto, and holds the element 3 from undue lateral movement relatively to the axis of said passage 2.

The plates of the socket member 1 may receive between their margins the article or part, as a curtain 8 with which said socket member is associated, and may be secured to such article by rivets 9 passing transversely through the margins of said plates and the curtain 8. However, as seen in Fig. 3 the socket member may be associated with any part as a rigid structure, and if desired, a portion of such structure may be recessed, as at 10, to receive the socket member 1. Moreover, but one of the plates forming the socket member may have its central portion 5 extended laterally to form the chamber for receiving the element 3, and the other plate may be substantially flat. If desired the plate extending into the recess 10 may be omitted, and said recess may form the chamber for receiving the element 3.

The expansible and contractile element 3 is preferably ring-shaped and circular in cross-section, and as here shown is an annular coiled spring. This element 3, being loosely arranged in the chamber formed in the socket member and being unattached to the walls of said chamber, is capable of a limited movement in such chamber laterally in all directions relatively to the axis of the passage 2, or to the button member 4. Thus when the button member 4 is passing through the central opening of the annular spring 3 said spring is free to expand and contract within the socket member.

Owing to the described construction of the element 3, its central opening is formed with surfaces increasing in diameter in opposite directions toward the ends of such opening from a point intermediate of said ends.

As here illustrated, Fig. 4, a spring band 11 encircles and fits the annular spring 3 and resists expansion of said spring, the band 11 being freely movable in the socket member with the annular spring. The annular spring 3 is also provided with expansible and contractile reinforcing means extending around the central opening of said spring, said means being here shown as a transversely split or divided spring band 12 extending through the coils of the spring 3, and preferably having its ends lapping each other so that should the spring 3 become

broken into segments the band 12 will hold the segments in position and maintain the annular form of the element 3.

To those skilled in the art it is apparent that the spring bands 11 and 12 may be dispensed with if desired.

The button member 4 may be of any desirable form, size and construction and is preferably provided with a threaded shank for attachment to any suitable part 13 to be fastened to another part, and with a head having oppositely inclined cam faces 14 which increase in diameter in opposite directions and coact respectively with the expansible and contractile element 3 when the button member 4 is passing into and out of the socket member. The cam face 14 nearest the threaded shank of the button member increases in diameter toward the free end of the button member in the same direction that the inner portion of the central opening of the spring 3 increases in diameter, and when the button member is in operative position said cam face 14 coacts with the inclosing wall of the inner portion of the central opening of the spring 3. The button member 4 may be secured to its support in any suitable manner instead of being secured thereto by a threaded shank.

In connecting together the two parts of my fastener the button member 4 is moved axially through the passage 2 into the central opening of the element 3, whereupon the outer cam face 14 on the extremity of the member 4 engages the outer portion of the central opening of the element 3, and spreads apart the coils of said element. The free end of the button member then passes through said central opening into the passage 6 of the opposing plate of the socket member, as shown in Figs. 1 and 3, or into an outwardly deflected part of said opposing plate, as shown in Fig. 2, and the inner cam face 14 then coacts with the contiguous inner portion of the central opening of the spring 3. When detaching the two parts of the fastener the button member is moved axially in the reverse direction and the inner face 14 then separates the coils of the spring 3.

It will be noted that the two parts of the fastener are separated without requiring any movement of the button member relatively to the part 13 with which said button member is associated.

What I claim is:—

1. A fastener comprising a socket member associated with one of two parts to be detachably fastened together, said member having a passage in one side thereof, an annular coiled spring loosely arranged in the socket member and having its axial opening registering with the passage, said spring having a limited movement laterally relatively to the axis of the passage, and the socket member being provided with means

for holding the spring from movement in opposite directions lengthwise of the axis of the passage and for holding said spring from undue lateral movement, and a button member associated with the other of said two parts and movable through the passage of the socket member into the axial opening of the spring, the button member detachably engaging said spring and being detachable therefrom by movement axially of said passage and without movement of said button member relatively to said part with which the button member is associated, substantially as described.

2. A fastener comprising a socket member associated with one of two parts to be detachably fastened together, said member having a passage in one side thereof, an annular coiled spring loosely arranged in the socket member and having its central opening registering with the passage, said spring having a limited movement as a whole laterally relatively to the axis of the passage, and the socket member being provided with opposing walls for holding the spring from movement in opposite directions lengthwise of the axis of the passage, and with an annular wall for holding said spring from undue lateral movement, and a button member associated with the other of said two parts and movable through the passage of the socket member into the central opening of the spring and into and out of engagement with said spring, substantially as described.

3. A socket member, for a detachable fastener, comprising a helix arranged in the form of a ring and having its ends connected, and a chamber for confining the ring-shaped helix, said chamber being of greater diameter than the ring-shaped helix, whereby the latter is free to shift laterally therein, and being provided with means coacting with the ring-shaped helix for preventing substantial movement of the same in the direction of the axis of the chamber and ring-shaped helix, substantially as described.

4. A fastener comprising a socket member associated with one of two parts to be fastened together, said member having a passage in one side thereof, an annular coiled spring loosely arranged in the socket member and having its central opening registering with the passage, the spring having a limited movement laterally relatively to the passage, a transversely split band around the annular spring for resisting expansion of said spring, and a button member associated with the other of said two parts and movable through the passage of the socket member into the opening of the annular spring, substantially as and for the purpose specified.

5. A fastener comprising a socket member associated with one of two parts to be fastened together, said member having a

passage in one side thereof, an annular coiled spring loosely arranged in the socket member and having its central opening registering with the passage, reinforcing means 5 around said opening of the spring, and a button member associated with the other of said two parts and movable through the passage of the socket member into the opening of the annular spring, substantially as and 10 for the purpose specified.

6. A fastener comprising a socket member associated with one of two parts to be fastened together, said member having a passage in one side thereof, an annular coiled spring loosely arranged in the socket member and having its central opening registering with the passage, expansible and contractile reinforcing means extending through the coils of the spring, and a button 15 member associated with the other of said two parts and movable through the passage of the socket member into the opening of the annular spring, substantially as and for the purpose set forth. 20

25 7. A fastener comprising a socket mem-

ber associated with one of two parts to be fastened together, said member having a passage in one side thereof, an annular coiled spring loosely arranged in the socket member and having its central opening registering with the passage, the spring having a limited movement laterally relatively to the passage, a transversely split band around the annular spring for resisting expansion of said spring, a transversely split band extending through the coils of the spring, and 30 a button member associated with the other of said two parts and movable through the passage of the socket member into the opening of the annular spring, substantially as 35 and for the purpose specified. 40

In testimony whereof, I have hereunto signed my name in the presence of two attesting witnesses, at Oneida, in the county of Madison, in the State of New York, this 45 29th day of June, 1908.

FRANKLIN D. BROGA.

Witnesses:

CHARLES H. PERRY,
FLOYD D. POTTER.