P. M. KLING.

BOLT.

APPLICATION FILED MAR. 2, 1912.

1,075,919.

Patented Oct. 14, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

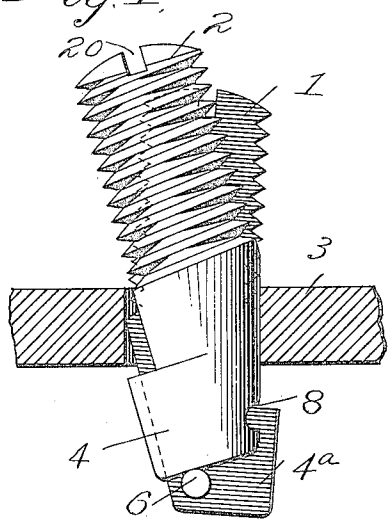


Fig. 2.

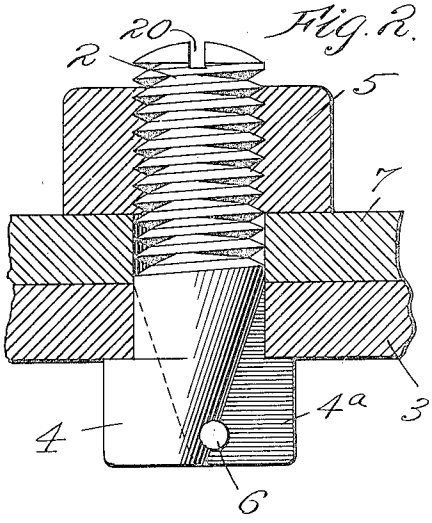


Fig. 3.

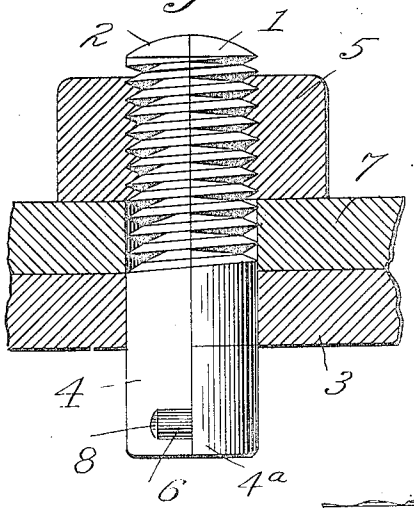


Fig. 4

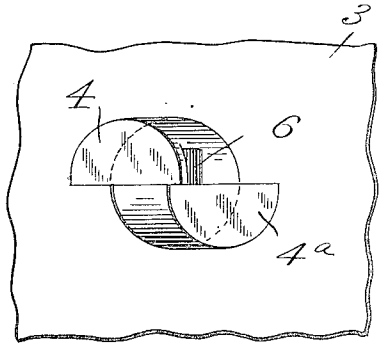


Fig. 5.

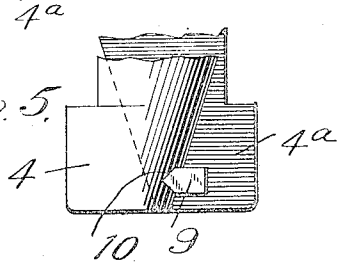
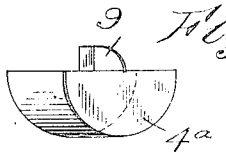


Fig. 6.



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2 SHEETS—SHEET 2.

Fig. 7.

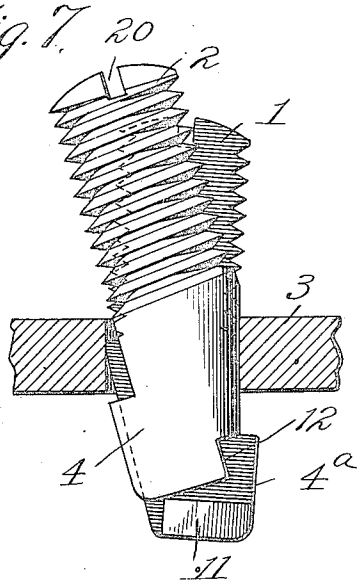


Fig. 8.

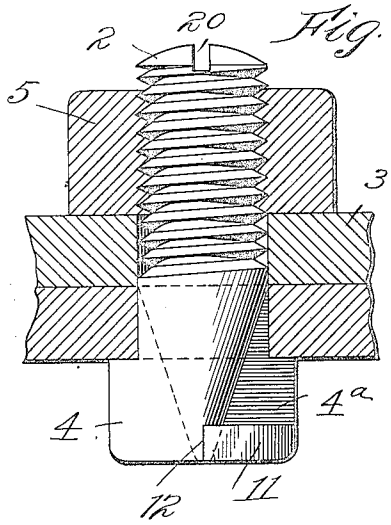


Fig. 9.

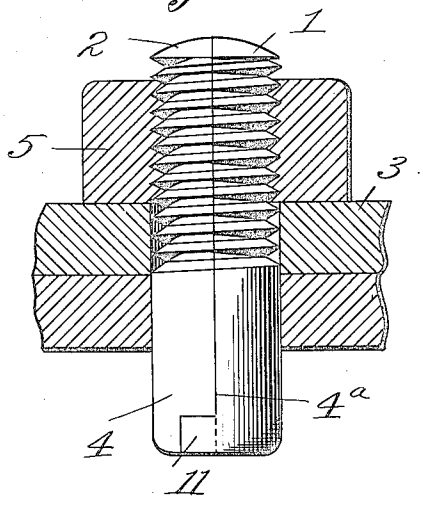
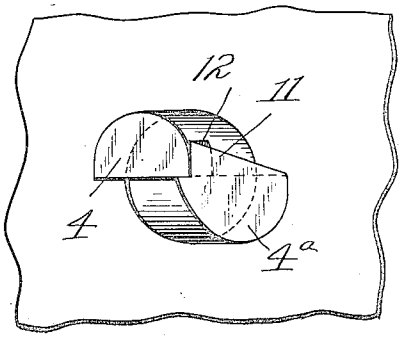


Fig. 10.



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UNITED STATES PATENT OFFICE.

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BOLT.

1,075,919. Specification of Letters Patent. Patented Oct. 14, 1913.

Application filed March 2, 1912. Serial No. 681,128.

To all whom it may concern:

Be it known that I, PETER M. KLING, a citizen of the United States, and a resident of Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Bolts, of which the following is a specification, illustrated in the accompanying drawings, the novel features being more particularly pointed out in the annexed claims.

My invention relates to bolts by means of which objects may be attached to sheet metal plates or pipes into which, owing to the thinness of the metal threads cannot be cut and where it is impossible to put the bolts through the hole in the metal from the rear and where it is desirable not to have the hole in the metal substantially larger than the diameter of the bolt. Bolts of this character are described and broadly claimed in my Patent No. 1,055,330, granted to me on March 11, 1913.

The construction described in the present application constitutes an improvement on some of the forms of bolts described in aforesaid patent, as will be pointed out more explicity hereinafter.

The general form of bolts for the purpose set forth above consists of two longitudinal complementary bolt sections each having a head offset oppositely to the direction in which the head of the other section is offset and each section having its cross sectional area adjacent to the bolt smaller than the cross sectional area of the remainder of the bolt section. The accompanying drawings aside from showing the improvement over said aforesaid bolt, also show the general form of bolt described and claimed in my aforesaid application.

In these drawings Figure 1 is a side elevation of the bolt in the position in which it is inserted through the hole in the sheet metal. Fig. 2 is a like view showing the bolt and the object to be supported by the bolt attached to the sheet metal. Fig. 3 is a side view at right angles to the view shown in Fig. 2. Fig. 4 is a bottom view of the bolt shown in Fig. 2. Fig. 5 is a side view of the head portion of the bolt similar to the view shown in Fig. 2 in which the locking means are modified. Fig. 6 is a bottom view of one of the bolt heads of the form shown in Fig. 5. Figs. 7, 8, 9 and 10 are views of a modified form of the locking means, the views corresponding with Figs. 1, 2, 3 and 4, respectively.

The bolt illustrated in Figs. 1 to 4 consists of two complementary threaded portions or sections 1 and 2 each section having at its end which is to be inserted in the sheet metal 3, a head indicated at 4^a for section 1 and at 4 for section 2. Each head is offset in the direction of the plane in which the two sections join and each head is offset oppositely to the direction in which the head of the other section is offset. Moreover one of the characteristic features of the bolt is that each section has its cross sectional area adjacent to its head, smaller than the cross sectional area of the remainder of the bolt section which is brought about preferably by tapering each section opposite to the side to which the bolt is offset as shown for instance in Figs. 1 and 2. By this construction I am enabled to enter the bolt sections through a hole substantially of the same size as the diameter of the assembled bolt. In entering the two sections I may for instance enter one section first and tilt the other section so that the shank portion of the section to be entered is thrown out of alinement with the section already entered, as shown for instance in Fig. 1 with reference to section 2, so that thereby the head of the section 2 is brought into lateral alinement with section 1 or with its head and in this position section 2 can be inserted into the hole as shown in Fig. 1. If then the two shank portions of the two sections are assembled to receive the nut in order to attach for instance plate 7 to sheet metal 3, the two heads move away from each other and lock the bolt behind the sheet metal whereby the nut, the farther it is screwed down, tends the more to hold the two heads apart from each other. Thus far the bolt is substantially of the same construction as shown and described in my aforesaid patent.

I find that under ordinary conditions the necks of the two bolt sections will amply withstand bending strain set up by any longitudinal axial strain to which the bolt may be subject, which bending strain tends to bring the heads into alinement. Since the bolt is intended principally for use in comparatively thin sheet metal, the sheet metal gives way under heavy strain, long before

the necks of the bolt sections yield to a bending strain. However, in exceptional cases where the bolt is locked for instance back of a plate of hard metal and of sufficient thickness to withstand a heavy pulling strain, I find it advisable to provide locking means which after the two bolt heads are once in place back of the metal, lock the heads against movement toward each other. Such means greatly add to the rigidity of the bolt and render it substantially as strong as a solid bolt. As will be seen from Figs. 1 to 4, bolt head 4^a is provided on the surface at which it touches the complementary head, with an abutment 6 correspondingly with which a notch is provided at the edge of the other bolt section 2 opposite to the head 4 of that section. Thus when the two sections are entered in the manner shown in Fig. 1, section 2 may rest on abutment 6 until it has been inserted far enough to permit its head 4 to slide laterally, whereafter section 1 may be raised again until its head abuts against the underside of the sheet metal. Thereby abutment 6 falls into notch 8 as shown in Fig. 2. If now, after thus assembling the two complementary sections 1 and 2, the nut is screwed onto the sections, any lateral strain, which might tend to move the heads toward each other, is prevented by abutment 6 from becoming effective. This abutment thus forms a very effective lock of the two heads against each other and simultaneously facilitates the assembling of the bolt sections with their threaded portions properly registering upon each other. This form of lock may be obviously modified to suit any particular requirement as to strength. For instance as shown in Figs. 5 and 6 instead of shaping the abutment 6 as a pin, as previously described, it may have the form of a V-shaped nose 9 rising from the face of head 4^a, which coöperates with a correspondingly disposed V-shaped notch 10 in head 4. Also the head 4^a may be provided on its face with a nose 11 of the form shown in Figs. 7 to 10 which, when the bolt sections are assembled, registers with a cut-away portion 12 provided at the lower end of section 2. In every instance, however, it will be noted that the general effect of locking the bolts against each other and of facilitating the registering of the threaded portions of the bolt is the same, with the only difference that for instance nose 11 shown in Figs. 7 to 10 by virtue of its shape is able to withstand a greater strain than the pin 6 shown in Figs. 1 to 4.

Similar to the manner in which I have shown in my aforesaid patent means which prevent the turning of the bolt when the nut is applied, I also provide in the forms of bolt shown in the present application means for holding the bolt in position when the nut is applied such as for instance slot 20, which extends across the upper ends of the two sections transversely to the dividing plane of the sections.

What I claim is:

1. A screw bolt of the character described, comprising two complementary bolt sections each having a head offset oppositely to the direction in which the head of the other section is offset, and an abutment on one of said heads located adjacent to the other head for locking said heads against movement toward each other when said bolt sections are assembled to receive the nut.

2. A screw bolt of the character described, comprising two complementary bolt sections each having a head offset oppositely to the direction in which the head of the other section is offset, and an abutment rising from one of said heads and located adjacent to the edge of the other bolt section, the edge of said section having a notch adapted to be engaged by said abutment for preventing both sections from moving axially upon each other and for locking said heads against movement toward each other when said bolt sections are assembled to receive the nut.

3. A screw bolt of the character described, comprising two complementary bolt sections each having a head offset to one side oppositely to the direction in which the head of the other section is offset, and each section having its cross sectional area adjacent to said head smaller than the area of the remainder of the bolt section to permit said heads when in lateral alinement to enter a hole not substantially larger than the diameter of the bolt, said heads moving away from each other when the two complementary bolt sections are assembled to receive the nut, and means for locking said heads against movement toward each other after said sections are assembled to receive the nut.

4. A screw bolt of the character described, comprising two complementary bolt sections each having a head offset substantially in the direction of the plane in which the bolt is divided into said sections and each head being offset oppositely to the other head, the diameter of each section in the direction of said plane being smaller adjacent to its head than at the remainder of the section to permit said heads when in lateral alinement to enter a hole not substantially larger than the diameter of the bolt, said heads moving away from each other in said plane when the two complementary bolt sections are assembled to receive the nut, and means on one of said heads for preventing reverse movement of said heads after the sections have been assembled to receive the nut.

5. A screw bolt of the character described, comprising two complementary bolt sections each having a head offset substantially in the direction of the plane in which the bolt is divided into said sections and each head be-

ing offset oppositely to the other head, the diameter of each section in the direction of said plane being smaller adjacent to its head than at the remainder of the section to permit said heads when in lateral alinement to enter a hole not substantially larger than the diameter of the bolt, said heads moving away from each other in said plane when the two complementary bolt sections are assembled to receive the nut, and an abutment rising from the surface of one of the heads adjacent to the other bolt section and adapted to engage the other head for preventing reverse movement of said heads after the sections have been assembled to receive the nut.

6. A screw bolt of the character described, comprising two complementary bolt sections each having a head offset substantially in the direction of the plane in which the bolt is divided into said sections and each head being offset oppositely to the other head, the diameter of each section in the direction of said plane being smaller adjacent to its head than at the remainder of the section to permit said heads when in lateral alinement to enter a hole not substantially larger than the diameter of the bolt, said heads moving away from each other in said plane when the two complementary bolt sections are assembled to receive the nut, and an abutment rising from the surface of one of said heads adjacent to the edge of the other bolt section, said edge having a notch adapted to be engaged by said abutment for preventing said sections from moving axially upon each other and for locking said heads against movement toward each other when said sections are assembled to receive the nut.

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