

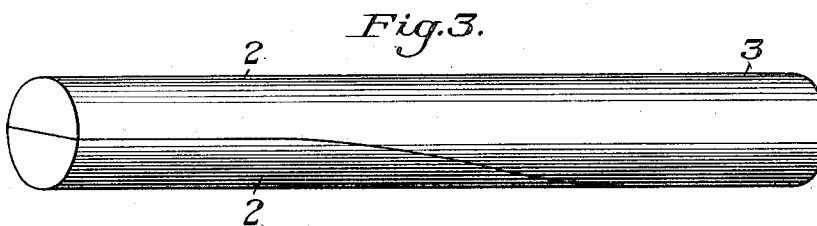
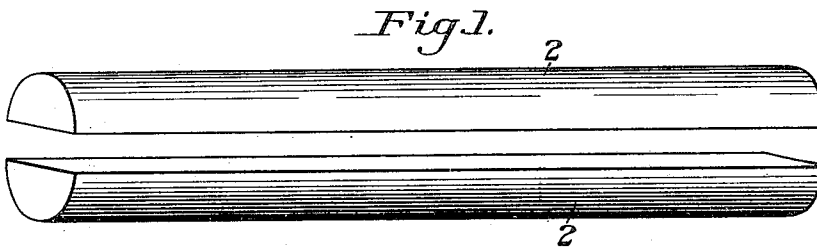
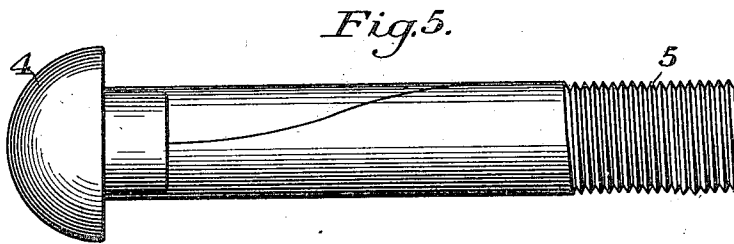
E. I. DODDS.
RESILIENT BOLT.

APPLICATION FILED APR. 9, 1913. RENEWED APR. 10, 1916.

1,204,254.

Patented Nov. 7, 1916.

2 SHEETS—SHEET 1.



WITNESSES

R. H. Balderson
Jesse B. Heller.

INVENTOR

E. I. Dodds,
by Baker, Byrnes & Carmichael,
Attys.

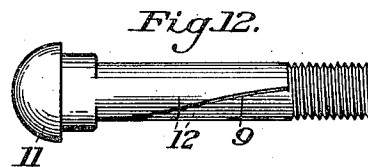
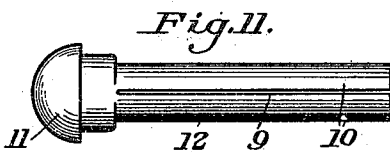
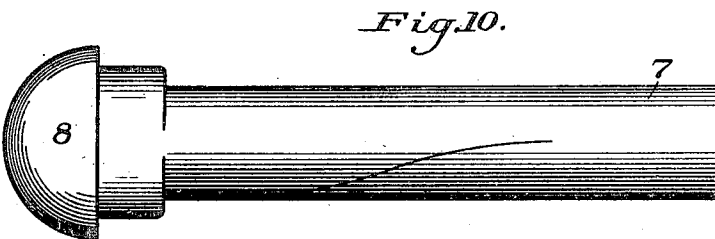
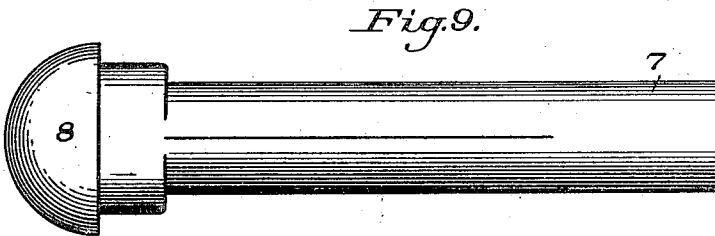
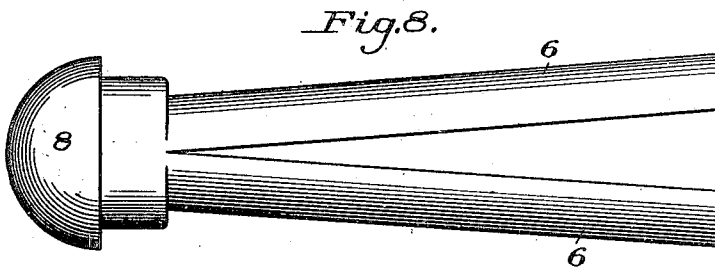
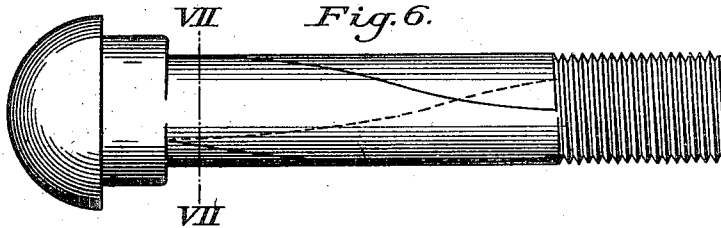
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2 SHEETS—SHEET 2.



WITNESSES

R. A. Balderson
Jesse B. Heller

INVENTOR

E. I. Dodds,
by Bahrwer, Bymer, Parmelee,
Attys.

UNITED STATES PATENT OFFICE.

ETHAN I. DODDS, OF CENTRAL VALLEY, NEW YORK, ASSIGNOR TO KERNER MANUFACTURING COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

RESILIENT BOLT.

1,204,254.

Specification of Letters Patent.

Patented Nov. 7, 1916.

Application filed April 9, 1913, Serial No. 759,916. Renewed April 10, 1916. Serial No. 90,232.

To all whom it may concern:

Be it known that I, ETHAN I. DODDS, a citizen of the United States, and a resident of Central Valley, Orange county, New York, have invented a new and useful Improvement in Resilient Bolts, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view showing half-round bars from which I may make my improved bolt. Fig. 2 is a similar view showing the bars welded at one end. Fig. 3 shows the blank when twisted. Figs. 4 and 5 are side elevations of the finished bolt. Fig. 6 is a view similar to Fig. 4, showing the bolt made of three bars instead of two. Fig. 7 is a cross section in the form of Fig. 6. Fig. 8 is a side elevation showing another method of making my bolt from an ordinary bolt. Fig. 9 shows the blank of Fig. 8 with the end portion welded. Fig. 10 is a side elevation of the finished blank before threading. Fig. 11 is a view similar to Fig. 8 showing another method of making the bolt; and Fig. 12 is a side elevation of the bolt formed from the blank of Fig. 11.

My invention relates to the class of bolts wherein longitudinal elasticity or resiliency is desired. Its principal use is in railway track structures, but may be used in other locations where elasticity is desired.

In carrying out my invention in its preferred form, I take a plurality of separate bars, preferably rolled, such as the two half-round bars shown at 2, 2, in Fig. 1. These are laid together with their flat surfaces in engagement, and one end of the pile is locally heated preferably to a sweating heat, and such end portions then welded together to give the solid portion 3 shown in Fig. 3. The separate bar portions 2, 2 are then twisted to an angle of less than 180 degrees, thus allowing the bolt to yield or elongate under tensile strain. The blank after twisting is shown in Fig. 3, where the twist is illustrated as 90 degrees. The other end of the blank is then locally heated preferably to a sweating heat for a length sufficient to form the desired head, and this portion is then upset and welded either by simultaneous or successive operations.

In Figs. 4 and 5, I show the head 4 of

the ordinary track bolt. The non-headed end portion is, of course, screw-threaded, as shown at 5. The twisting of the bars may be carried out after the head 4 is formed, but I prefer to twist these bars before the head is formed. When this bolt is applied to the splice bars of a track, the spreading action of the splice bars as loads pass over the rails tends to elongate the bolt, and as my bolt has suitable longitudinal elasticity, this slight elongation is provided for by the bolt returning to substantially its original length. At the same time, the cross sectional area of the bolt is substantially the same as that of the ordinary bolt, and the bolt gives the necessary resistance to hold the bars in place. The bolt therefore provides for absorbing excessive shocks without destruction or injury thereto, as the elastic limit of the material will not be passed.

I may use more than two bars; for example in the form of Figs. 6 and 7, three bars are employed, the forming operation being the same as the operation above described in the two-bar form. Instead of taking separate bars, I may split an ordinary bolt blank, as shown in Fig. 8, wherein the split lengths of the bolt are shown at 6, 6. The end portions of these split bars are then locally heated and welded together to form the solid portion shown at 7 in Fig. 9; and the split portions are then twisted on each other to less than 180 degrees, as shown in Fig. 10. In these views 8 is the ordinary head of the bolt. I may also take an ordinary bolt and saw a slot lengthwise thereof, as shown at 9 in Fig. 11. The end portions 10 are then heated and welded together, and the split portions twisted as before. In this form, 11 represents the ordinary head, and 12 the split bar portions.

I have found that in order to give the desired longitudinal resiliency and elasticity to the bolt, the twist of the bars upon each other must be through an angle of less than 180 degrees. If the twisting reaches or passes this angle, the desired resilient action is not obtained.

The advantages of my invention result from the fact that the bolt possesses a desirable amount of longitudinal elasticity, which allows it to yield under excessive strains, without injury, while at the same time the necessary holding power is afforded.

The bolt may be made in other ways than those above disclosed; the size and shape of the bolt may be varied; the bar portions may be of any desired cross section other than half-rounds; and other changes may be made without departing from my invention.

I claim:

1. A bolt having an integral plain head at one end, the body of the bolt having at the other end a threaded portion of a diameter not larger than that of the body, the said body having between the threaded portion and the head connecting members with substantially flat faces contacting with each other and twisted through an angle of less than 180 degrees, substantially as described.

2. A track bolt having an integral plain head with a shouldered portion at one end, the body of the bolt having at the other end a threaded portion of a diameter not larger than that of the body, the said body having

between the threaded portion and the head connecting members with substantially flat faces contacting with each other and twisted through an angle of less than 180 degrees, substantially as described.

3. A bolt having an integral plain head at one end, the body of the bolt having at the other end a threaded portion of a diameter not larger than that of the body, the said body having between the threaded portion and the head connecting members, said members being divided transversely through the entire thickness of the body and having substantially flat faces contacting with each other and twisted through an angle of less than 180°; substantially as described.

In testimony whereof, I have hereunto set my hand.

ETHAN I. DODDS.

Witnesses:

JESSE B. HELLER,
H. M. CORWIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."