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BOLT ASSEMBLY

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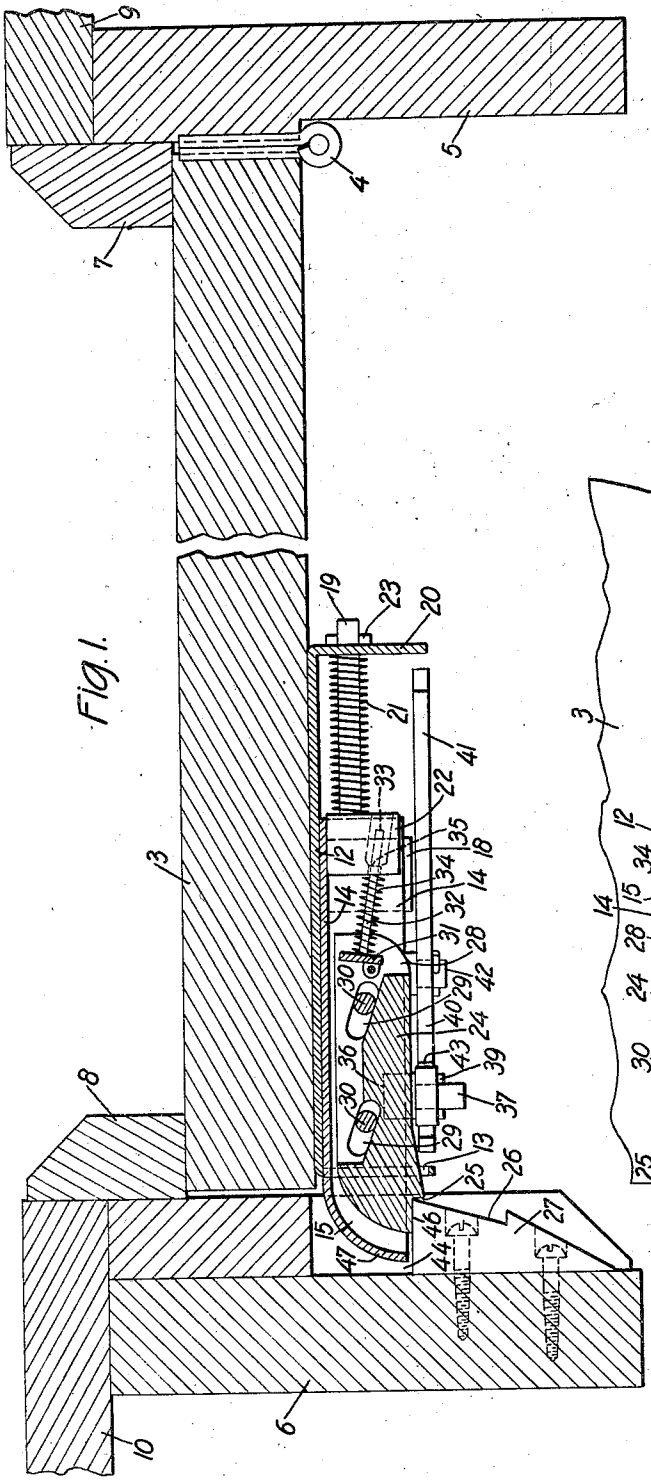


Fig. 1.

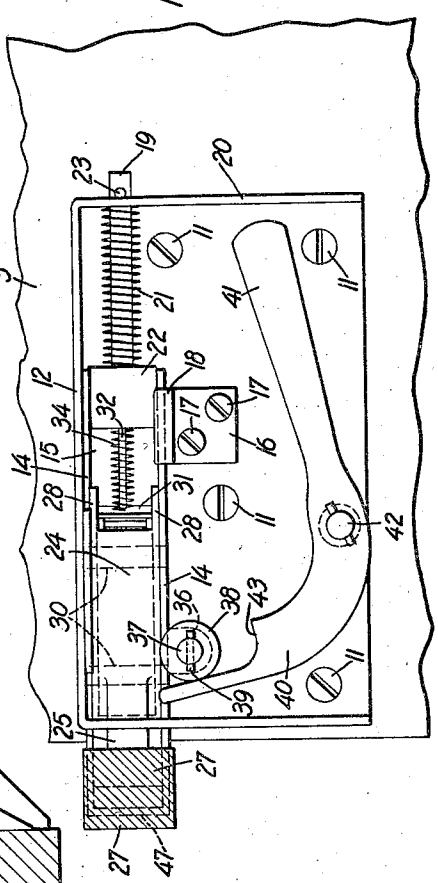


Fig. 2.

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BOLT ASSEMBLY

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7 Claims. (Cl. 292—173)

This invention relates to a bolt assembly adapted for use with a door which, when in operation will not only hold the door in tight position, but will eliminate the cause for rattles and noises.

A principal object of the invention is to provide a bolt assembly having in itself antirattling properties.

Another principal object of the invention is to provide a bolt assembly having a main bolt and a butt bolt, adapted under compression to hold a closed door against rattling.

Another principal object is to provide for contacting with the face plate of the door post, of the butt bolt before the main bolt has been extended its full length, and contemporaneously with such further extensions, to frictionally engage said face plate.

Other objects will be apparent from reading this specification in connection with the accompanying drawing, in which,

Figure 1 represents a cross section of a bolt assembly embodying my invention; and

Figure 2 is a side elevation of such an assembly, looking at the same from the top.

Referring now in detail to the drawing, 3 is a door, adapted to swing on the hinge 4, which hinge is mounted on the door post 5. The opposite door post is shown at 6. The door casing, of which the door posts are a part, is provided with the usual stops 7 and 8, and the facing of the door casing is shown at 9 and 10.

Mounted on the door 3, by means of the fastenings 11, is a housing 12 for the bolt assembly, which housing has a bolt-hole 13 to permit the sliding of the main and butt bolts therethrough. A main bolt 14 is provided, having a chamber 15 therein, said main bolt being supported at one end by the walls forming the bolt-hole 13 and at the other end by the bracket 16, which is secured to the housing 12 by the fastenings 17. This bracket 16 is provided with a flange 18 which extends over the main bolt 14. This flanged bracket with the walls of the bolt-hole, maintains the main bolt in constant alignment.

Extending from the main bolt 14 and fixedly secured thereto is a spring support 19, which support protrudes freely through an opening in the wall 20 of the housing 12. Mounted on said spring support is a compression spring 21 which presses against the wall 20 at one end and the block 22 at the other end. This block is integral with the main bolt 14, and the action of said compressed spring keeps said main bolt extended when such action is not overcome by manipulation of the bolt. A pin 23 extends through the spring support 19 at the end which protrudes through the wall 20 of the housing, to limit the inward movement of said spring support and with it the main bolt.

Adapted to be carried by and slide in the main bolt 14, is a butt bolt 24, so named because a nose or projection 25 thereon is adapted to butt against the outer face 26 of the face plate 27. The butt bolt 24 is provided with two walls 28, parallel with each other, and extending longitudinally of the butt bolt at the opposite sides thereof. Slots 29 are provided in each of said walls, and are arranged in pairs, one slot of each pair being in each of said walls, and the slots of such pair being located in parallel with each other. Extending through the main bolt 14 and through each pair of slots 29, is a pin 30, said pin being integrally connected with the side walls of bolt 14, and extending across the chamber 15 thereof.

Between the two walls 28 of the butt bolt 24, is a block 31, which is integrally supported in said walls. A spring support 32 is fixedly carried by said block 31 and has a sliding contact support with the block 22 at its opposite end 33. Carried by said spring support 32 is a coiled spring 24 which is normally compressed between the block 31 and the block 22. A collar 35 is fixedly secured to the end 33 of the spring support 32 to limit the extending movement of said support.

The main bolt 14 is provided with a bracket 36 fixed thereto, which carries the cylindrical support 37, for the roller 38. A pin 39 is passed through said support to secure the roller in place. An operating lever 40, having the handle 41, is swivelled at 42, which lever has a rolling contact with the roller 38. The said lever is provided with a stop surface 43 to limit the swing of the lever and with it the withdrawn position of the moving parts of the bolt assembly.

In the drawing, the assembly is shown fitted to a door in closed position. In order to open the door 3, the lever handle 41 is pressed downwardly, which, operating on the swivel 42, will enable the lever 40 to swing, and thereby through its rolling contact with the roller 38 on the bearing of the fixed bracket 36 of the main bolt 14, will draw back the said bolt until the further movement thereof is arrested by the stop 43 of the lever 40 coming into contact with the said roller 38, at which position the bolt will have been withdrawn sufficiently to enable it to clear the face plate 27, and permit the opening of the door. In closing the door the main bolt 14 will ride down the face of the plate 27, and because of the spring mount-

ing of said bolt, will be forced by the face of the rigidly mounted plate to be pressed inwardly until it clears the plate, when by spring pressure the bolt will be forced into the opening **44** where it will remain until released by the operation of the lever **40** as already described.

Upon the door being closed, the spring **21** pressing against the block **22**, stationary in the main bolt **14**, will press the bolt forward until further pressure is restrained by the stop action of the pin **23** against the wall **20** of the housing. The pressure thus exerted on the block **22**, will be communicated to the block **31**, hinged in the butt bolt **24**, through the compressing of the spring **34**, and will force said butt bolt forward until the nose or projection **25** thereof butts against the face plate as shown. In its travel forward the said butt bolt rides upwardly on the pins **30** through their cam action with the walls of the slots **29**, thereby raising the butt bolt sufficiently to force the end thereof beyond said nose or projection, into frictional contact with the face **46** of the plate **27**. It will be seen that the butt bolt by such action will have a dual frictional contact with the face plate **27**, namely, one, by reason of the pressure exerted by the spring **34**, and the other, by reason of the cam action in the pins **30** cooperating with the walls of the slots **29**. Upon the main bolt **14** being withdrawn, the end **47** thereof will engage the butt bolt **24** and carry the same backward with it, and contract the same to clear the face plate **27**.

I have shown and described what I believe to be the best embodiment of my invention. I do not wish to be limited in patent protection, however, to such embodiment, but what I desire to cover by patent is set forth in the accompanying claims.

1. In a bolt assembly, a main bolt and a butt bolt, in combination with a face plate, said butt bolt being slidably mounted within prescribed limits in said main bolt, and adapted to ride therewith, and means for expanding said butt bolt with reference to said main bolt upon said butt bolt contacting with the aforesaid face plate, and thereby increase the frictional contact between said butt bolt and said face plate.

2. The structure defined in claim 1, in which the means for expanding the butt bolt with reference to the main bolt consists of cam elements in the main bolt and butt bolt respectively, said cam elements being adapted to cooperate with each other.

3. The structure defined in claim 1, in which the butt bolt is provided with a projection a predetermined distance from its service end, which projection is adapted to contact with the face plate, and thereby arrest the further forward ride of the butt bolt with the main bolt.

4. In a bolt assembly, a main bolt and a butt bolt, means for thrusting forward said main bolt, and with it said butt bolt, means for arresting the forward movement of said butt bolt while the thrust of the main bolt is continuing, and means operable by the relative sliding of the main bolt on the butt bolt to expand said butt bolt with reference to said main bolt.

5. The structure defined in claim 4, in which the means for thrusting forward the main bolt and with it the butt bolt, consists of a compression spring operating on an integral part of the main bolt so as to exert its pressure thereon.

6. The structure defined in claim 4, in which the means for arresting the forward movement of the butt bolt comprises a projection on said butt bolt adapted to engage a face plate in combination with which said bolt assembly is operated.

7. The structure defined in claim 4, in which the main bolt and the butt bolt are each provided with a block carried respectively thereby, and a compressed spring between said blocks adapted to exert pressure against the block of the butt bolt.

EUGENE VAN NOTE.