C. T. SCHWING

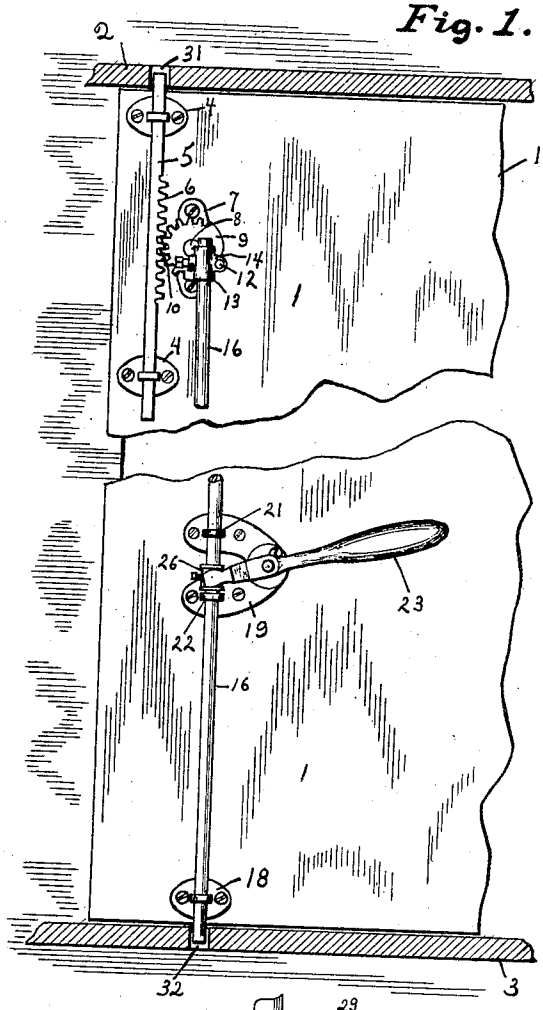
EXTENSION BOLT.

APPLICATION FILED OCT. 13, 1908.

909,462.

Patented Jan. 12, 1909.

Fig. 1.



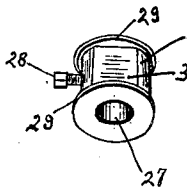


Fig. 3.

Fig. 4.

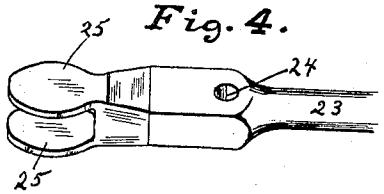


Fig. 5.

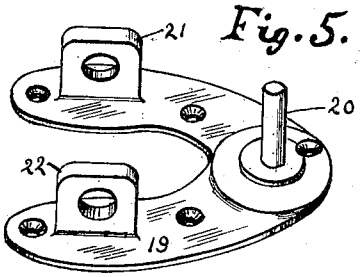
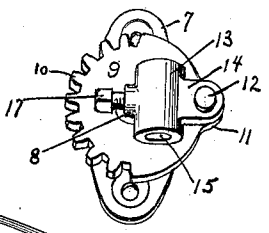


Fig. 6.



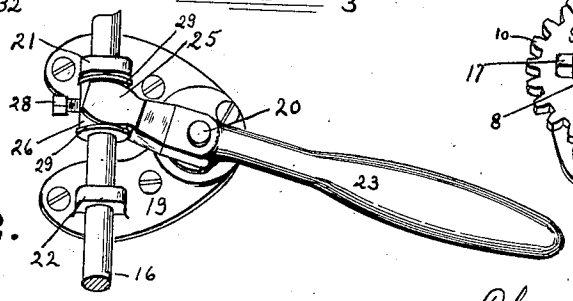


Fig. 2.

Witnesses

Ray L. List

Sylvia Boron.

Inventor

Charles T. Schwing

By Bond & Miller

Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES T. SCHWING, OF CANTON, OHIO, ASSIGNOR OF ONE-HALF TO LOUIS N. LEY, OF CANTON, OHIO.

EXTENSION-BOLT.

No. 909,462. Specification of Letters Patent. Patented Jan. 12, 1909.

Application filed October 13, 1908. Serial No. 457,452.

To all whom it may concern:

Be it known that I, CHARLES T. SCHWING, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Extension-Bolt, of which the following is a specification.

My invention relates to improvements in means for bolting or locking doors, especially double doors, and the prime object of my improvement is to produce a bolt which will fasten the door both at the top and at the bottom and in such manner that one movement will operate both of said fastenings and that said movement may be accomplished with great ease. In school-houses, theaters and other public buildings it is especially important that the fastenings of the doors be so arranged that the doors may be easily and quickly unfastened in case the persons in said school-house, theater or other building desire to rush from said building in case of fire and the like.

The object noted, with other objects readily apparent, I attain by the device illustrated in the accompanying drawing, in which—

Figure 1 is an elevation of a door provided with the present invention, the said door being broken in order to reduce the size of the figure, and the lintel and the sill shown in cross section. Fig. 2 is an enlarged view of the handle and immediately related mechanism. Fig. 3 is a perspective view of the adjustable handle-connecting thimble. Fig. 4 is a perspective view of a portion of the handle. Fig. 5 is a perspective view of the handle base-plate. Fig. 6 is a view of the pinion with the immediately related parts.

Throughout the several views similar numerals of reference indicate similar parts.

The numeral 1 indicates a door located between the lintel 2 above, and the sill 3 beneath.

4—4 are upper bolt keepers within which is adapted to slide longitudinally the upper bolt 5 provided with the integral rack portion 6.

The pinion base 7 is fastened to the door and is provided with the round pin or stud 8 upon which is rotatably mounted the pinion 9 having a portion of its circumference provided with the teeth 10. On the opposite side of the pinion from the teeth just mentioned is an integral extension 11 carrying the round pin or stud 12 upon which is pivotally mounted the sleeve 13 by means of the integral extension 14 of said sleeve. The sleeve 13 is provided with an opening 15 running through the same and adapted to receive the lower bolt 16 upon which the said sleeve 13 may slide longitudinally for the purpose of adjustment. For the purpose of holding the sleeve 13 in fixed adjustment with relation to the lower bolt 16 the set screw 17 is provided which is arranged in a screw threaded aperture in the side of the sleeve 13 and may be screwed through said side into engagement with the bolt 16. The bolt 16 extends from the pinion 9 to the bottom of the door where the lower bolt keeper 18 is provided, which holds the bolt in place upon the door while permitting said bolt to slide longitudinally.

At a suitable height on the door is arranged the handle base-plate 19, which has the form illustrated in Fig. 5, and includes a pin 20 and the spaced, combined handle stops and bolt keepers 21 and 22. The handle 23 is provided with the aperture 24 adapted for the reception of the pin 20 and with said pin provides pivotal attachment as between the handle 23 and the handle base plate 19. Extending in one direction from the pivotal attachment of the handle 23 is an enlarged portion adapted to be grasped by the hand and extended in the other direction is the thimble engaging portion provided with the parallel, spaced spatulate portions 25, between which is located the handle connecting thimble 26. The thimble 26 is of the form shown in Fig. 3 and is provided with a longitudinal opening 27 adapted for the reception of the lower bolt 16. The thimble is thus adjustable upon said lower bolt and a set screw, 28, is provided for the purpose of holding the said thimble in fixed adjustment upon said bolt. The integral flanges 29 are provided and the barrel of the thimble is flattened at 30 and upon the diametrically opposite side (not shown) and the distance between the surface of the flattened portion 30 and the flattened portion diametrically opposite is equal to the distance between the spatulate portions 25. The curves of the sides of the spatulate portions with reference to the location of the pin 20 and other related parts is such that the curved edges of said portions are at all times in

engagement with the flanges 29—29 while permitting the necessary sliding movement as between the thimble 26 and the spatulate portions, which must necessarily take place when the handle is moved upon its pivotal connection.

In the lintel 2 and in the sill 3 should be arranged the mortises 31 and 32 or their equivalents for the reception of the ends of the bolts, in order to provide means for fastening said doors when the upper and lower bolts are at their relatively greater extension.

An extension bolt of the character described having been provided as illustrated in Fig. 1, the operation of the same is as follows. Fig. 1 shows the device in the locked or extended position. When it is desired to unlock the door the grip portion of the handle 23 is pushed downward, this moves the handle 23 upon the pin 20 and raises the portions 25, which engage the flanges 29 upon the thimble 26 and raise said thimble carrying with it the lower bolt 16. This will draw the said bolt out of the mortise 32. At the same time, the raising of the bolt 16 will move the sleeve 13 in an upward direction, rotating the pinion 9 upon the stud 8. The teeth of the pinion 9 are in engagement with the teeth of the rack portion 6 of the upper bolt and rotation of the pinion produced by the upward movement of the bolt 16 will draw the upper bolt downward and out of engagement with the mortise 31. The movement of the upper bolt 5 and the lower bolt 16 are simultaneous and the door will be freed instantly. If it is desired to adjust either upper or lower bolts, either to be thrown farther or less as desired, the adjustment of the thimble 26 and the sleeve 13 upon the bolt 16 will accomplish that purpose.

It will be noted that the plate 19, may be placed quite low upon school-house doors and other doors used by children, and that in case of panic, fire drill and the like the handle 23 being of considerable size may be readily grasped and pulled downward by a child and it should be also noted that such movement on the part of the child is more natural under such circumstances than the turning of a knob or the pushing of a handle in an upward direction, the natural tendency being to extend the hands against the door and push and pull in a downward direction.

The device herein described is very easily operated by reason of the length of the handle 23 and it will be seen that the object of the invention is fully attained. Furthermore the device may be used on doors of different lengths without cutting the lower bolt 16, as the sleeve 13 may be adjusted upon said lower bolt in accordance with the varying lengths of different doors upon which the device is to be used. It will be noted that no cutting of the door is necessary, and that the device may be attached by the use of a few screws, and that an unskilled mechanic may attach the same with but few and simple tools.

I claim:

1. The herein described extension bolt comprising upper and lower bolts, upper and lower bolt keepers, said upper and lower bolts arranged in said keepers and adapted to slide longitudinally therein, the upper bolt provided with an integral rack portion, a pinion provided with teeth, said teeth in engagement with the teeth in the rack portion of the upper bolt, a stud arranged upon said pinion, a sleeve pivotally attached to said stud, the upper end of the lower bolt arranged in said sleeve, and adapted for longitudinal adjustment therein, means for holding said sleeve in fixed adjustment upon said lower bolt, a handle base-plate provided with bolt keepers, the lower bolt arranged in said keepers and adapted to slide longitudinally therein, a handle pivoted to said base plate, said handle having a grip portion at one side of its pivotal attachment and integral, spaced portions arranged on the other side of the point of pivotal attachment, a handle-connecting thimble arranged upon said lower bolt between the bolt keepers on the handle base-plate, said thimble adapted for longitudinal adjustment upon said bolt, means for holding said thimble in fixed adjustment upon said bolt, said thimble provided with integral flanges and flattened portions and the spaced portions of the handle arranged upon said thimble and in engagement with said flattened portions and said integral flanges.

2. The herein described extension bolt comprising upper and lower bolts, the upper bolt provided with a rack portion, a rotatable pinion provided with teeth, the teeth on said pinion in engagement with the teeth of the rack portion of said bolt, a stud arranged upon said pinion, a sleeve pivotally attached to said stud, said sleeve adapted to receive the upper end of the lower bolt and to be longitudinally adjustable thereon, means for holding said sleeve in fixed adjustment upon said lower bolt, and means for moving said lower bolt longitudinally, whereby the pinion may be rotated to move the upper bolt.

3. The herein described extension bolt comprising upper and lower bolts, bolt keepers for said bolts, said bolts arranged in and adapted to slide longitudinally in said bolt keepers, pinion connection between said upper and lower bolts, said connection adapted to produce longitudinal sliding movement in one direction on the part of one of the bolts when the other bolt is

moved longitudinally in the other direction, a handle base-plate, a handle pivoted to said base-plate, said handle provided with a grip portion and integral spaced portions, a handle-connecting thimble arranged upon said lower bolt, said thimble adapted for longitudinal adjustment upon said bolt, means for holding said thimble in fixed adjustment and the spaced portions of said handle in engagement with said thimble.

4. An extension bolt comprising upper and lower bolts, intermediate means arranged between said upper and lower bolts for producing longitudinal movement on the part of one bolt in one direction when the other bolt is moved longitudinally in the other direction, longitudinally adjustable connection between said intermediate means and said lower bolt, a pivoted handle, a longitudinally adjustable thimble arranged upon said lower bolt, said handle in engagement with said adjustable thimble, means for holding said thimble in fixed adjustment upon said bolt, and said handle adapted to be moved upon its pivotal attachment and to move said lower bolt in a longitudinal direction by said movement upon the said pivotal connection.

5. In an extension bolt of the class described, a door, bolt keepers arranged upon said door, upper and lower parallel bolts arranged in said bolt keepers and adapted to slide longitudinally therein, the upper bolt provided with a rack portion, a rotatable pinion mounted upon said door, the teeth of said pinion in engagement with the teeth of the rack portion of the upper bolt, said pinion provided with a stud, connecting means between said stud and said lower bolt, said connecting means pivoted to said stud and adapted for longitudinal adjustment upon said bolt, means for holding said adjustable means in fixed adjustment, a handle base-plate provided with bolt keepers arranged upon said door, the lower bolt arranged within the bolt keepers of said handle base-plate, a handle connecting thimble arranged upon said lower bolt between the bolt keepers of said handle base-plate, a handle pivoted to said handle base-plate, said handle including a grip portion and an integral thimble engaging portion and said thimble engaging portion in engagement with the handle connecting thimble.

6. In an extension bolt of the class described, the combination of a door, bolt keepers arranged upon said door, upper and lower bolts arranged in said bolt keepers and adapted for longitudinal sliding movement therein, connecting means between said upper and lower bolts for producing simultaneous sliding movement of said bolts in opposite directions, said lower bolt adjustably connected to said connecting means, a pivoted handle arranged upon said door and adjustable connection between said pivoted handle and said lower bolt.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

CHARLES T. SCHWING.

Witnesses:
WILLIAM H. MILLER,
JOHN H. SPONSELL.