Nov. 27, 1928. 1,693,481

S. A. HARPER

BAR DOOR LOCK

Filed Feb. 1, 1928 3 Sheets-Sheet 1

Fig. 1.

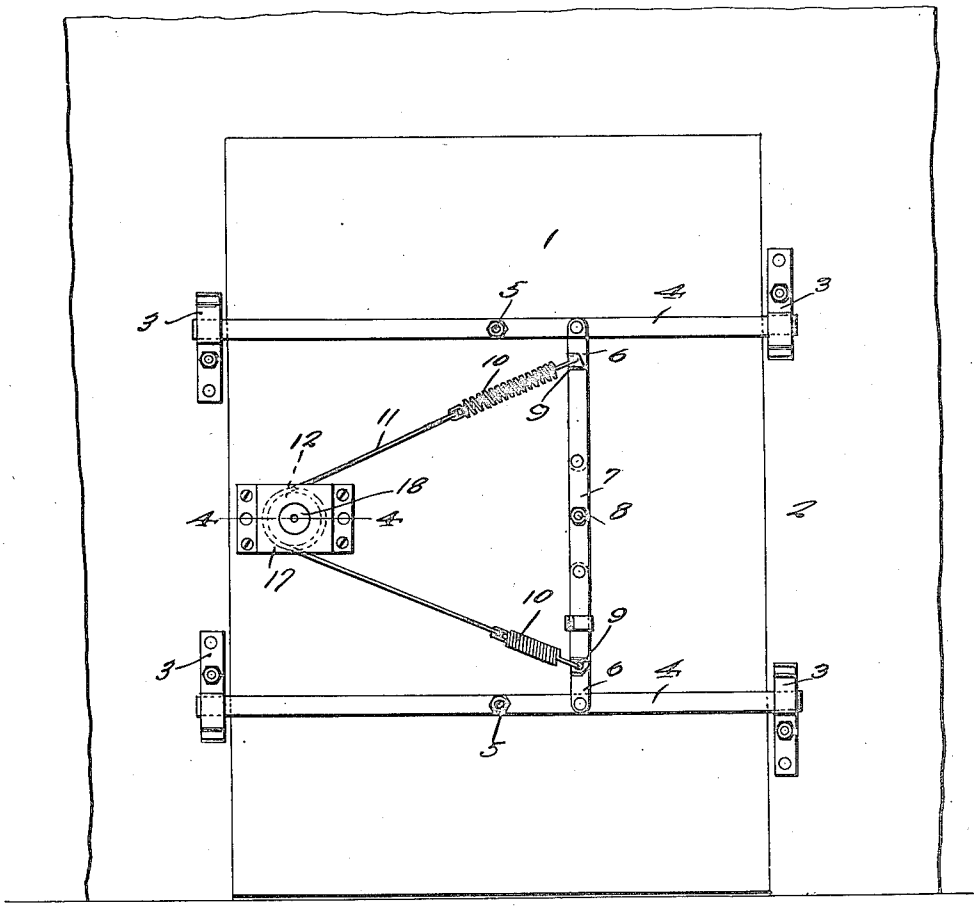
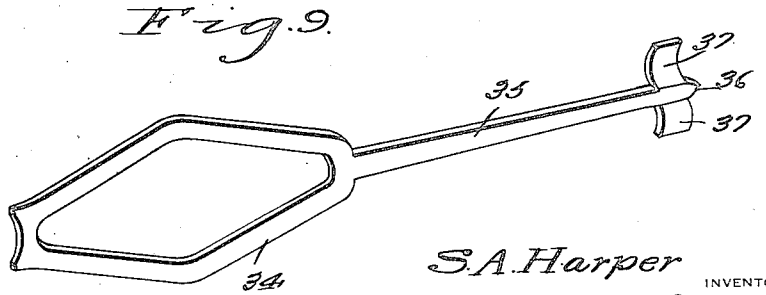


Fig. 9.



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WITNESS:

Nov. 27, 1928. 1,693,481

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BAR DOOR LOCK

Filed Feb. 1, 1928 3 Sheets-Sheet 2

Fig. 2.

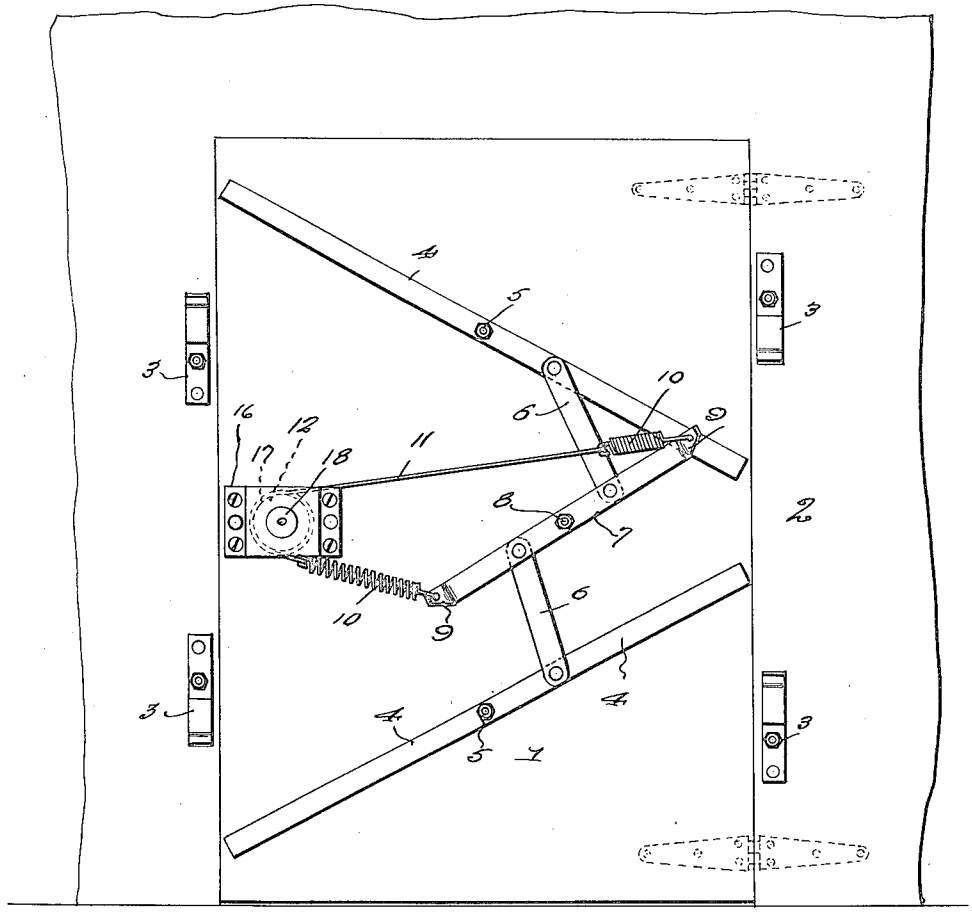
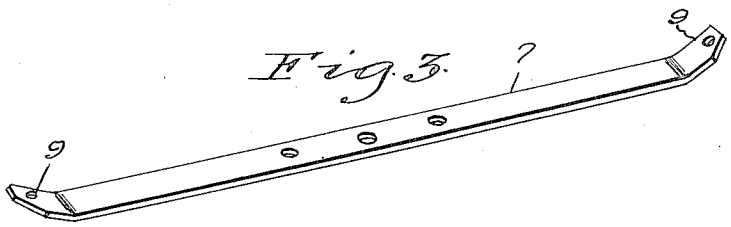


Fig. 3.



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Filed Feb. 1, 1928 3 Sheets-Sheet 3

Fig. 4.

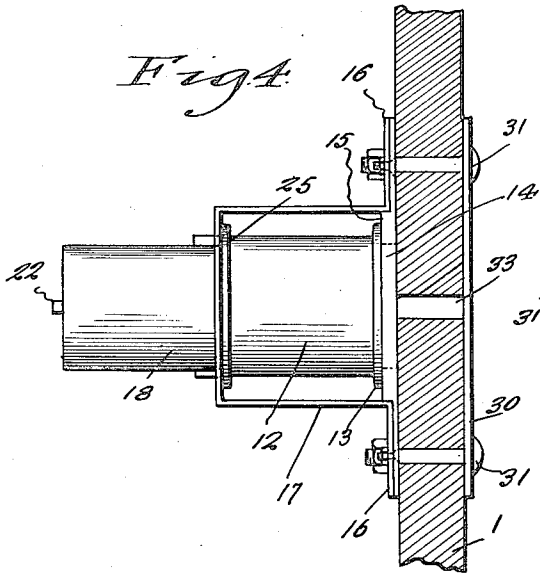


Fig. 5.

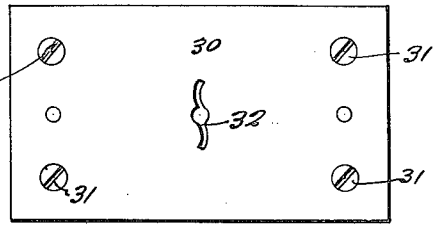


Fig. 7.

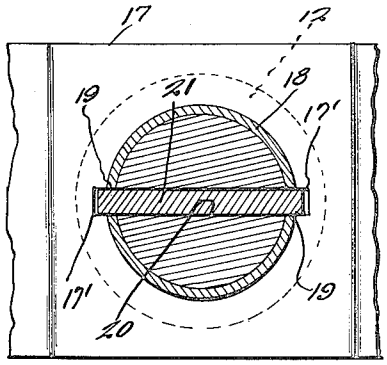


Fig. 6.

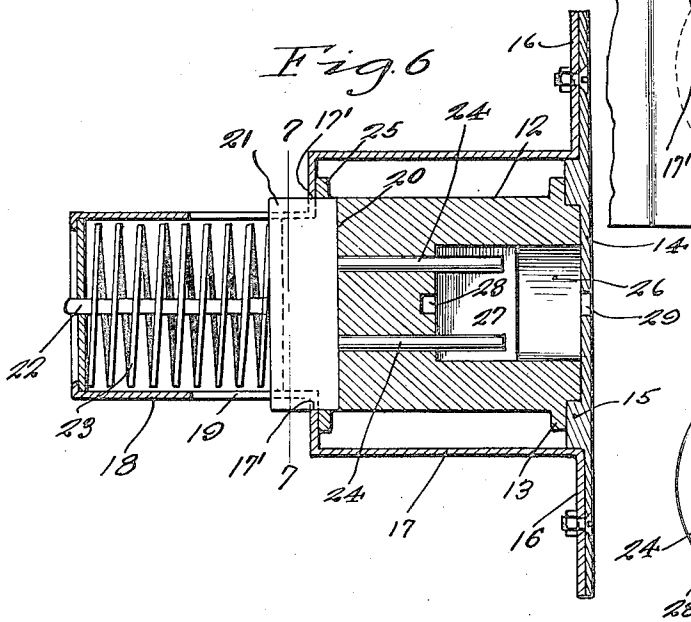
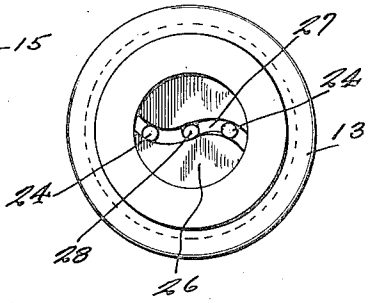


Fig. 8.



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WITNESS:

Patented Nov. 27, 1928. 1,693,481

UNITED STATES PATENT OFFICE.

SAMUEL A. HARPER, OF JONESBORO, LOUISIANA.

BAR DOOR LOCK.

Application filed February 1, 1928. Serial No. 251,185.

My present invention has reference to a locking means for doors, and is particularly adaptable for use in securely locking the doors of garages, storage houses, barns, etc.

My primary object is the provision of a locking means that shall comprise a pair of bars which are centrally pivoted to the inner face of the door and which are movable into keepers in the frame for the door, together with key actuated means of a novel and peculiar and particular construction for swinging the bars to cause the same to enter their keepers when the door is to be locked and to move such bars out of their keepers when the door is to be unlocked.

A further object is to provide a hinged door with pivotally supported cross bars that are movable into keepers in the frame for the door, a centrally pivoted bar or plate being arranged between the locking bars and links pivotally connecting the said plate with the latching bars, together with a flexible element which is always retained in a taut condition and which is wound around a drum that is associated with a key operated lock of a particular construction which will prevent the actuation thereof except when actuated by a key of a particular type, and which key, even when the same is inserted in the key hole slot, cannot be made to actuate the release means for the drum and consequently the turning of the drum, except by a person acquainted with such operation, and as a result to produce a bar lock for doors which shall be thief-proof.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawings which form part of the application, with the understanding, however, that the improvement is capable of extended application and is not confined to the exact showing of the drawings nor to the precise construction described and, therefore, such changes and modifications may be made therefrom as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claims.

In the drawings:

Figure 1 is a view looking toward the inner face of a door equipped with my improved lock.

Figure 2 is a similar view but showing the locking bar swung to unlocking position.

Figure 3 is a perspective view of the actuating bar or plate for the lock bars.

Figure 4 is an enlarged sectional view approximately on the line 4—4 of Figure 1, the cable being removed from the drum.

Figure 5 is a view of an escutcheon plate for the lock.

Figure 6 is a plan view of the lock with parts in section.

Figure 7 is a sectional view approximately on the line 7—7 of Figure 6.

Figure 8 is a view looking toward the outer face of the drum.

Figure 9 is a perspective view of the key.

In the drawings the numeral 1 designates a hinged door, and 2 the frame of the door. Secured to the frame, adjacent to the top and bottom thereof, there are oppositely arranged pairs of keepers 3. The keepers are of the usual construction, having the body plates which are fixed to the frame or like support and the hooked or U shaped extensions that provide the keepers proper. Each pair of keepers is reversely arranged, and these pairs of keepers are designed to receive therein the locking bars 4. Each of the locking bars is pivotally secured, as at 5, to the inner face of the head and each locking bar, to one side of the pivot 5, has pivotally connected thereto a link 6. The links are directed toward each other and the outer ends thereof are pivotally connected to what I will term an actuating bar or plate 7. The bar or plate 7 is centrally pivoted, as at 8, to the inner face of the door 1.

The actuating bar 7 has its ends flanged or offset, as at 9, respectively, and to these ends there are connected coiled springs 10. The second or inner end of each coil spring 10 has secured thereto one end of a cable 11, and the cable 11 is wound around a drum 12.

The drum 12 has its outer face provided with a peripheral depression and with an annular shoulder 13 at the terminal of the said depression. The reduced end of the drum provided by the mentioned depression is received in an annular groove or depression in the inner face of a plate 14, and this plate, as disclosed by the drawings, has an inner annular shoulder 15 that is received against the flange 13.

The plate 14 has bolted or otherwise secured thereto the outwardly directed arms 16 of a substantially U-shaped member or yoke 17. The second end of the drum has a shoulder 25 that contacts with the inner

face of the yoke 17 and is likewise provided with a cylindrical extension 18 which passes through a round opening in the end of the yoke. The cylinder 18 has a closed end but is provided, adjacent its inner end or the end thereof connected with the drum with elongated, longitudinally arranged slots 19 which, when the drum is in one position, register with notches 17′ in the yoke 17. The end of the drum on which the cylindrical member is formed or connected is provided with a keeper notch 20 which at all times registers with the slots 19, and when the drum is in one position, with the slots 17′ of the yoke 17.

Designed for slidable movement through the notches 19 and 17′ and the notches in the yoke and to be received in the keeper notch 20 of the drum 12 there is a flat plate that provides a bolt member 21. The bolt 21 is centrally formed with a rod extension 22, and surrounding this rod and exerting a pressure between the bolt 21 and the closed end of the cylinder 18 there is a coil spring 23, the spring, of course, urging the bolt into the keeper notch 20 in the yoke.

The inner end of the bolt 23 is formed with pin or rod extensions 24 that are freely received through suitable openings in the drum 12. Any desired number of the pins 24 may be employed.

The end of the drum journaled in the plate 14 has a centrally disposed circular depression 26 therein, and inward of the depression the said drum is formed with an oppositely curved key slot 27, and in this key slot the pins 24 are received. The inner wall provided by the slot 27, at the center thereof, has a depression 28, and the plate 14, in a line with this depression is formed with an oppositely curved key hole opening 29 that is arranged at a right angle with respect to the key hole opening 27 when the drum is locked from turning on the yoke 17, by the engagement of the bolt 21 therewith.

The escutcheon plate for the lock is disclosed by Figure 5 of the drawings and is indicated by the numeral 30 and bolt members 31 pass through this plate, the door and openings in the plate 14 and in the ends 16 of the yoke. These bolt members are engaged by suitable nuts. The escutcheon plate has a key hole opening 32 therethrough in a line with the key hole opening 29 in the plate and with the key hole opening 33 through the door.

The key for operating the drum is shown by Figure 9 of the drawings and includes a handle portion 34 having a shank extension 35 whose outer end is pointed, as at 36, and inward of the pointed end the said shank is formed with oppositely rounded bits 37, respectively. The bits of the key are inserted through the key hole openings and the said bit will be received in the annular depression 26 in one end of the drum. Unless the operator is acquainted with the manner in which the key is to be manipulated he is not liable to turn the key one-fourth of a revolution to arrange the bits thereof so that the same will enter the oppositely curved key slot 27 in the drum. The bits must be arranged within this slot before the same will contact with the pins 24, and it is by virtue of such contact that the pins move the bolt 21 out of the keeper notch 20 and into the notches of the drum 12 of the cylinder and a further turning of the key will revolve the drum to cause the cable to be wound therearound to swing the actuating bar 7 to cause the links 6 to swing the lock bars 4 out of the keepers 3. Of course, the cylinder 18 being formed with the drum or connected with the drum revolves therewith, and the bolt 21 being brought out of its keeper slot 20 and received in the slots 19 will rest upon the yoke 17 in a position that will hold the bolt in unlocked position until the key is again manipulated to bring the said bolt in a line with the notches 17′ of the yoke, before the spring influenced bolt can enter the keeper notch 20 and thereby hold the drum from further turning. It is thought the constuction, operation and advantages of the improvement will be understood and appreciated when the foregoing description has been carefully read in connection with the accompanying drawings and that further detailed description will not be required.

Having described the invention, I claim:

1. The combination with a door and a frame to which the door is hinged, together with oppositely disposed keepers on the frame, and lock bars pivoted to the door and swingable into the keepers, of links pivotally connecting the lock bars, an actuating bar centrally pivoted to the door and to which the links are connected, a lock including a drum, a flexible element trained around the drum, means connecting the ends of the flexible element to the ends of the actuating bar and for retaining the flexible element taut, and the drum for the lock being key actuated.

2. A means for swinging lock bars which are pivoted on the inner face of the door into and out of keepers on the frame for a door, which includes a pivotally supported actuating bar that has link connections with the lock bars, a cable and springs connecting the ends of the cables to the ends of the actuating bar, said means comprising a drum around which the cable is wound, a yoke in which the drum is journaled secured to the inner face of the door, a keeper notch in the drum opposite the connecting element of the yoke, and the connecting element of the yoke having notches to aline with the keeper notch, a closed barrel on the drum journaled through the yoke, a spring influenced bolt member

guided through the barrel designed to be received through the notch of the yoke and in the keeper slot of the drum and key actuated means for moving the bolt out of the keeper slot in the drum and out of the notches in the yoke, and for likewise turning the drum, to wind the cable in either of two directions therearound.

3. The combination with swingable bar locks on a door, keepers on the frame for the door in which the bars are to be received, pivotally associated brakable means for swinging the bars into and out of the keepers and spring tensioned flexible means for actuating the brakable means, of a locking means for permitting or preventing the swinging of the brakable means and the bars associated therewith, comprising a drum around which the flexible element is trained, a yoke in which the drum is journaled, said drum having at one end a keeper notch and the drum having notches to aline with said keeper notch, a closed cylindrical member extending from the notched end of the drum and journaled through the yoke and having spaced elongated slots, a spring influenced plate comprising a bolt movable through the notches and into the keeper slot of the drum, pins extending from the inner face of the bolt and freely entering the drum, said drum, outward of the pins having an annular depression and the inner wall of the said depression having an oppositely curved key slot in which the ends of the pin are received and the central wall provided by said slot having a depression therein, a plate to which one end of the yoke is connected and in which one end of the drum is journaled, said plate having a key slot therethrough opposite the depression in the drum and arranged at a right angle with respect to the key slot in the drum, in combination with an escutcheon plate on the door having a key opening therein complementary to the key opening in the plate, and the said door having a key opening between said key slots.

In testimony whereof I affix my signature.

SAMUEL A. HARPER.