

W. E. KLEIN.
DOOR ALARM.
APPLICATION FILED JUNE 4, 1910.

1,041,811.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 1.

Fig. 1

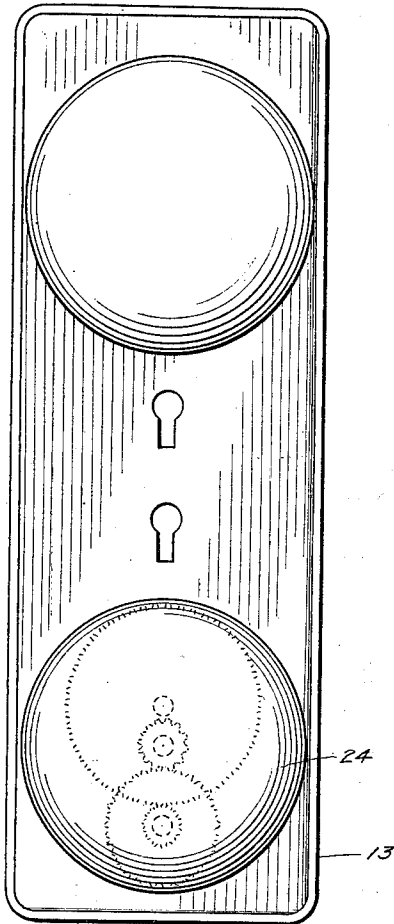


Fig. 2

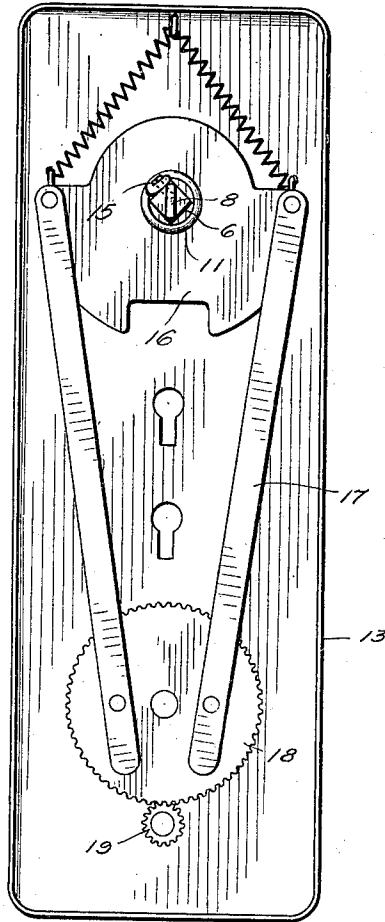


Fig. 3

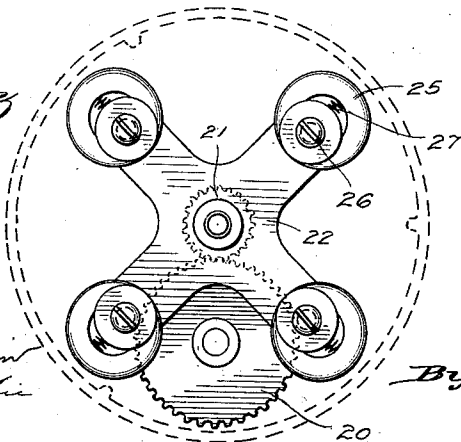
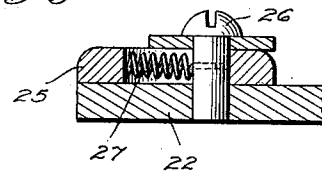


Fig. 4



Witnesses
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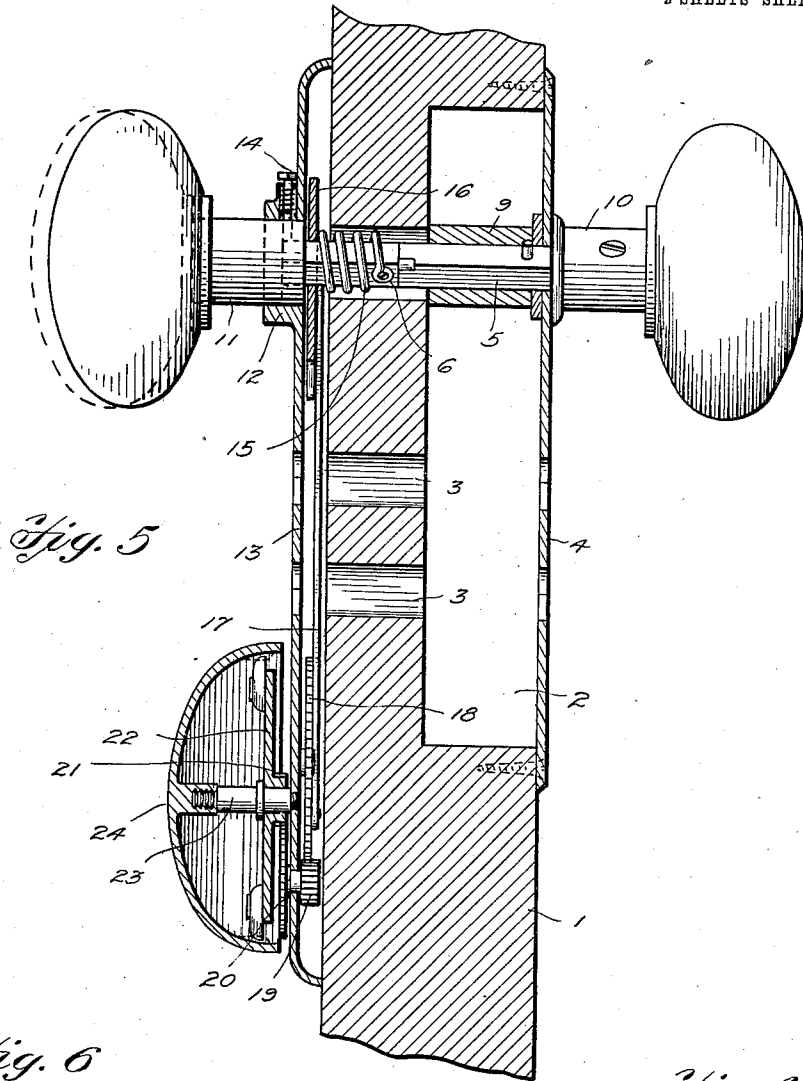


Fig. 5

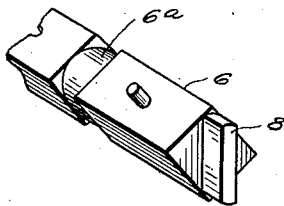


Fig. 6

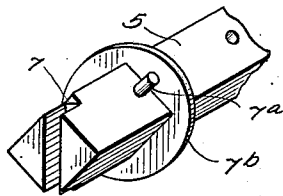


Fig. 7

Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM E. KLEIN, OF CHICAGO, ILLINOIS.

DOOR-ALARM.

1,041,811.

Specification of Letters Patent.

Patented Oct. 22, 1912.

Application filed June 4, 1910. Serial No. 565,109.

To all whom it may concern:

Be it known that I, WILLIAM E. KLEIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Door-Alarms, of which the following is a specification.

This invention relates to improvements in door alarms and has for its general object the construction of a simple alarm connectible to a door knob shaft whereby the alarm will be actuated when the door is opened by operating the knob shaft in the usual manner.

Another object of the invention consists of an improved connection between the door knob and the alarm mechanism whereby the door knob can be made to operate the alarm when turned in either direction.

Another object of the invention is the construction of an improved knob shaft, formed in sections.

With the above and other objects in view the invention consists in certain novel combinations, constructions and arrangements of parts, clearly described in the following specification and clearly illustrated in the accompanying drawings, in which,

Figure 1 is a rear elevation of the door alarm casing and the door knob, Fig. 2 is an inside elevation showing the connection between the door knob and the alarm mechanism, Fig. 3 is a detail view in elevation showing the construction of the alarm, Fig. 4 is a detail sectional view showing the construction of one of the bell hammers, Fig. 5 is a vertical sectional view showing the entire device in operative position of a door, Fig. 6 is a detail perspective view showing the male member of the door knob shaft, and Fig. 7 is a detail perspective view showing the female member of the door knob shaft.

Referring to the accompanying drawings illustrating the preferred embodiment of the invention 1 denotes the door which carries the various parts of the improved alarm mechanism, and which is formed with the usual recess 2 for the reception of the lock mechanism, with which the key holes 3 communicate. Against the outer side of the door 1 and over the recess 2 the plate 4 is mounted. Through the plate 4 and the recess 2 the female member 5 of the knob shaft projects to engage the male member

6 of said knob shaft. The female member 5 is formed with the end slot 7 to receive the end lug 8 of the male member 6. The portion of the female member 5 of the knob shaft lying between the side wall of the recess 2 and the inner surface of the plate 4 is supported in a sleeve 9, whereby the female member of the knob shaft is held in place. The outer portion of the female member 5 is provided with a sleeve 10 abutting against the outer face of the plate 4. The male member 6 of the knob shaft is provided with a shoulder 11 which bears against the bearing 12 of the plate 13, which is mounted on the inside of the door 1. The bearing 12 carries a spring controlled pin 14 which is adapted to engage with its inner end the end of the shoulder 11 when the male member of the knob shaft is withdrawn from engagement with the female member thereof. A coiled spring 15 is mounted by one end on the male member of the knob shaft and bears with the other end against the plate 16 which is mounted on said male member, whereby the two sections of the knob shaft are held in normal engagement with each other. The plate 16 is pivotally connected to two depending links 17, the lower ends of which are pivotally connected to the gear 18, which gear is pivoted to the plate 13. The gear 18 engages the small gear 19, which is pivoted to the plate 13. The shaft of the gear 19 is provided with a larger gear 20 which engages the gear 21 of the bell hammer plate 22, which is pivotally mounted upon the shaft 23, one end of which carries the bell 24 and the other end of which is threaded to the plate 13. The bell hammer plate 22 is provided with four arms on each of which a hammer 25 is mounted by means of the pin 26. Each hammer 25 is provided with an opening greater than the shank of the pin but smaller than the head thereof, whereby said hammer can slide on the pin.

A coiled spring 27 is placed between the pin 26 and the hammer 25 so that the hammer will be held normally out of engagement with the bell 24, but may be thrown against the bell when the plate 22 is rotated at sufficient speed, as by the turning of the knob shaft. When the knob shaft is turned to operate the door locking or latching mechanism the links 17 will be operated, thereby imparting motion to the gear 18, which will

rotate the small gear 19 and the hammer plate 22, thereby throwing the hammers 25 against the bell 24 and consequently sounding an alarm. To disconnect the two
5 sections or members of the knob shaft the male section or member 6 is withdrawn from the inside of the door, as indicated in dotted lines in Fig. 5, thereby removing the
10 lug 8 from the slot 7 of the female member 5 and allowing the spring controlled pin 14 to drop into engagement with the shoulder 11 of the member 6, whereby the two
15 sections or members will be held apart from each other and the outer section of the knob shaft may be turned without operating the alarm mechanism and yet opening the door, through its connection with the usual door latching mechanism.

The shaft section or male member 6 is
20 provided with a circular portion 6^a, whereby the section can be turned without operating the alarm mechanism. The portion 6^a is normally out of alinement with the member 16 and can be brought into aline-
25 ment with said member by partly withdrawing said shaft section from the door. The female member or section 5 is provided

with a pin 7^a and a collar 7^b adapted to hold said member in place in the door 1.

Having described my invention I claim:— 30

In combination a door lock having a separable operating shaft, a spring adapted to hold said shaft normally connected, means for holding said shaft separated, means for
35 sounding an alarm when said shaft is connected and rotated, said means consisting of a plate mounted on said shaft, an escutcheon having springs secured thereto adapted to hold said plate in a normal position, a gear
40 pivotally mounted on said escutcheon, arms connected to the opposing sides of said plate and to the opposing sides of said gear whereby said gear may be rotated, a pinion mounted on a shaft on said escutcheon meshing
45 with said gear, a bell on the opposing side of said escutcheon, and means on said last-named shaft for actuating said bell.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM E. KLEIN.

Witnesses:

ADOLPH OLAISSON,
FRED BOHNENBERGER.

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