June 7, 1949. J. G. ALLEN 2,472,508

DOOR CHECK AND CLOSER

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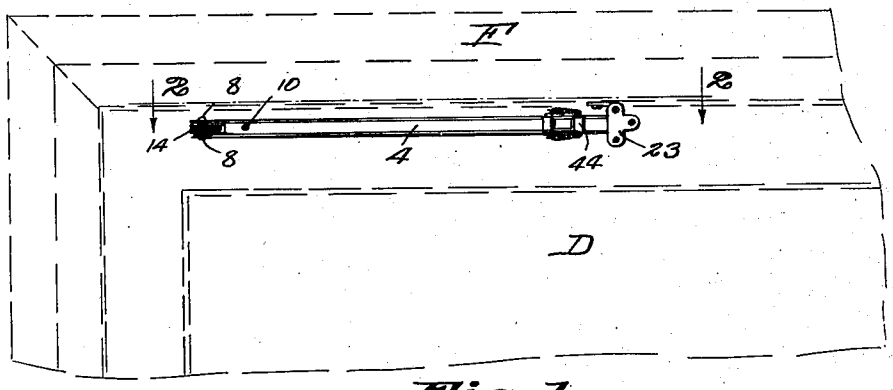


Fig. 1.

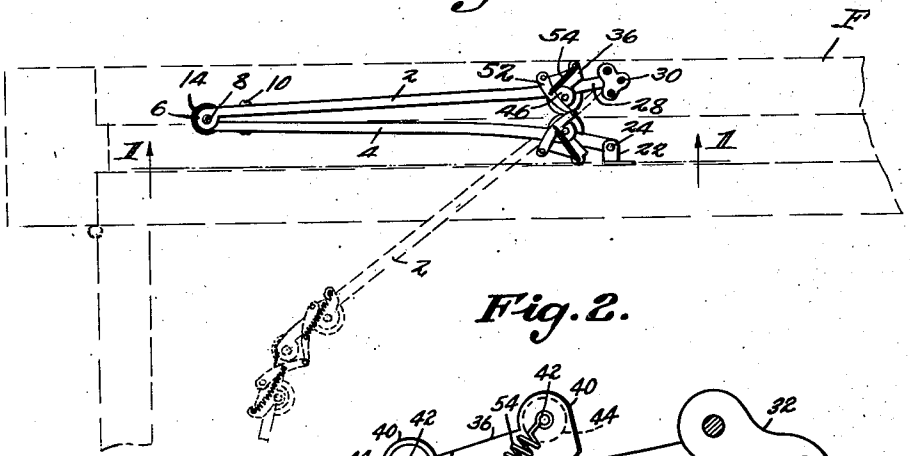


Fig. 2.

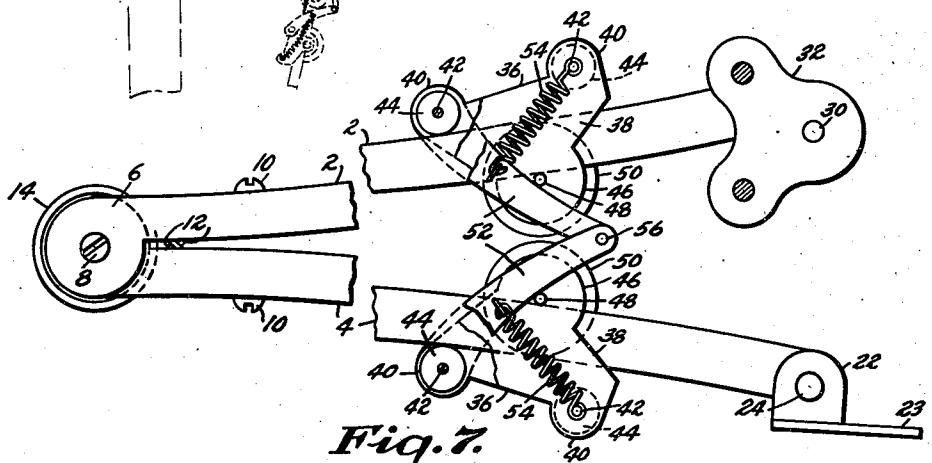


Fig. 7.

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DOOR CHECK AND CLOSER

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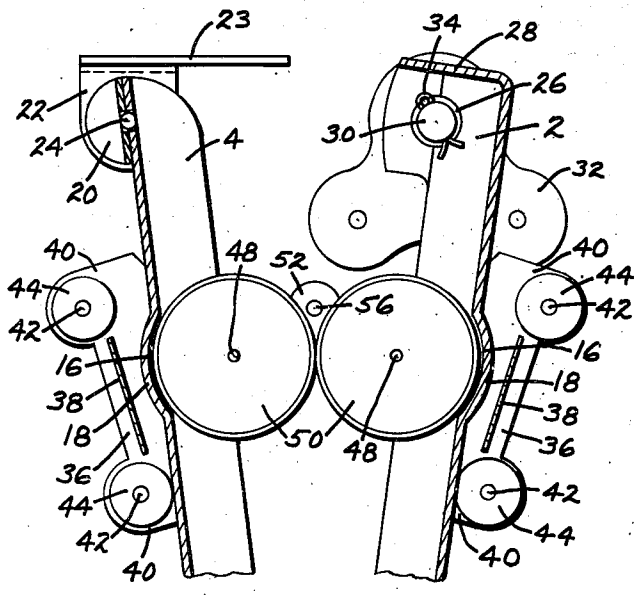


Fig. 3

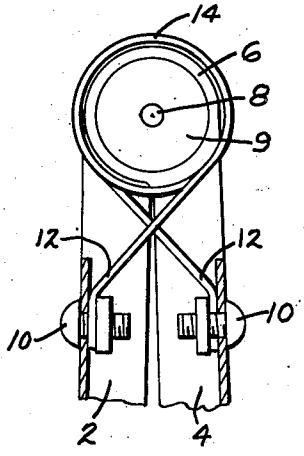


Fig. 5.

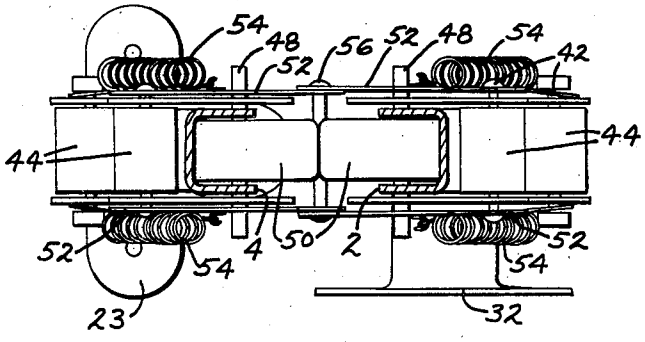


Fig. 4.

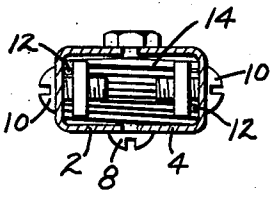


Fig. 6.

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DOOR CHECK AND CLOSER

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5 Claims. (Cl. 16—80)

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My present invention relates to an improved door check and closer of the type generally comprising a pair of spring pressed pivoted arms, one of which is adapted for mounting on the door and the other on the door frame, and including friction means traveling along the arms to effect a limitation to the opening of the door and then to effect a gentle closing of the door.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention according to the best mode I have thus far devised but it will be understood that various changes and alteration may be made in the exemplified structure within the scope of the appended claims.

In the drawings:

Figure 1 is an end elevational view of the check and closer of my invention shown as mounted on a door and its frame.

Figure 2 is a top plan view thereof.

Figure 3 is a partial horizontal sectional view showing the latch means for the travelers.

Figure 4 is a vertical sectional view showing the structure of Figure 3.

Figure 5 is a partial horizontal sectional view showing the spring closer means for the pivoted arms.

Figure 6 is a horizontal sectional view showing the structure of Figure 5.

Fig. 7 is a plan view of the whole device on an enlarged scale, portions being broken away to show details of inner construction.

Referring now to the drawings wherein like characters are indicative of like parts, I have illustrated the present embodiment of my invention as comprising a pair of channeled arms 2 and 4 having end bearing disks 6 and secured in pivotal relation by the bolt 8. A spacer disk is located between the bearing disks or ears of the arms as at 9, and the bolts 10 secure the ends 12 of the coil spring 14 located about the spacer disk.

Near the free ends of the arms 2 and 4 I have slotted the channels as at 16 to form the strips 18 which are expressed from the base of the channel curving from end to end for the purpose to be hereinafter described.

On the free end of the arm 4 I employ a pair of spaced ears 20 having a bracket 22 to which is secured an attaching flange 23, and the bracket is pivotally secured to the ears by pin 24. This bracket is attached suitably to the door D.

On the free end of the arm 2 I have provided a collar 26 disposed within the U-frame 28 that is rigid with the arm 2. A pivot pin or stud 30

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extends through the collar and is rotatable therein. The stud projects above and below the arm 2 and at one end is secured against accidental withdrawal by a cotter pin 34, while the opposite end of the stud has suitably secured thereto, as by welding, an attaching flange 32 adapted for mounting on the frame F of the door D. By removing the pin 34 and reversing the position of the flange 32 and the stud with relation to the arm 2, the door check and closer may be adapted for doors opening either to the left or right.

In order to limit the outward movement of the door and to retard the closing of the door against the tension of the spring 14, I employ on each arm a traveler 36 having flanges 38 shaped to encompass the channeled arms and the flanges are formed with ears 40 carrying axles 42 and rollers 44 which bear in the opening movement upon the outer surface of the arms.

In addition, the journal disks 46 extending inwardly from the flanges beyond the arms carry axles 48 journaling the rollers 50 which ride in the channel of the arms and bear against the inner surface during the closing movement of the arms. During the closing movement these latter rollers abut each other as well as the arms and the frictional contact between the rollers 50, and between the rollers 50 and the arms retards the closing of the door.

The travelers 36 are connected by means of the arms 52 pivotally secured to the rear axles of the rollers 44 and urged against the extending axles 48 by springs 54 thereby pressing the travelers away from each other during the closing of the door, thus to force the rollers 50 against the inner surfaces of arms 2 and 4. The arms 52 are pivotally connected by pin 56.

From the above description of the structure of my invention it will be apparent that as the door is opened the arms 2 and 4 will swing on their pivot 8 against the tension of the spring 14 and the travelers will leave the depressed strip in which the rollers 50 are detachably retained. The arms 52 will pivot on 56 and will assume an aligned position pressing all the rollers 44 against the outer surface of the channel arms. According to the structure illustrated, the arms 52 may swing about their pivot until they are aligned, but any suitable means may be employed to further limit the movement of the arms 52 if so desired.

When the door is released from the opening pressure the spring 14 will urge the arms in reverse movement, whereupon the connecting arms

52 will break from their extended position and will be urged against the axles 48 thus pressing the rollers 50 into the channels of the arms 2 and 4. The friction thus created between the rollers abutting, and the rollers and the channels of the arms will retard and slow the movement of the arms until the rollers reach the depressed strips 18 at which point the movement stops and the door is closed.

Having thus fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. A door check and closer comprising a pair of pivoted, spring-pressed arms adapted for mounting respectively upon a door and its frame, connected travelers on the arms, rollers on the travelers engaging the outer surfaces of the arms as the door is opened, and friction rollers on the travelers disposed between the arms and engageable with each other and the inner surfaces of the arms as the door is closed under tension of spring pressure and retarding the closing.

2. A door check and closer comprising a pair of pivoted, spring-pressed channel arms, each arm having a bracket and adapted for mounting respectively upon a door and its frame, travelers on the arms, rollers on the travelers engaging the outer surfaces of the arms as the door is opened, friction rollers on the travelers disposed between the arms, said latter rollers engageable with each other and with the channel surfaces inwardly of the arms, said latter rollers being operable only as the door is closed under tension of spring pressure and retarding the closing, and spring pressed arms connecting the travelers.

3. A door check and closer comprising a pair of pivoted, spring pressed channel arms, each arm having a bracket and adapted for mounting respectively upon a door and its frame, travelers on the arms, rollers on the travelers engaging the outer surfaces of the arms as the door is opened, journal disks on the travelers and axles in the disks, friction rollers engaging each other and mounted on the axles, said latter rollers engageable with the channels of the arms as the door is closed, spring-pressed arms connecting the travelers, and means operable under control of

movement of the latter arms urging the latter rollers into contact with the channels.

4. A door check and closer comprising a pair of pivoted spring-pressed channel arms adapted for mounting respectively upon a door and its frame, travelers on the arms, rollers journaled on the travelers and engageable with the outer surfaces of the arms as the door is opened, journal disks on the travelers and extended axles in the disks, friction rollers on the axles engageable with each other and engageable with the channels of the arms as the door is closed, pivotally connected arms between the travelers, the said extended axles being in the path of movement of the connected arms to press the friction rollers into contact with the channels of the arms.

5. A door check and closer comprising a pair of pivoted spring pressed channel arms adapted for mounting respectively upon a door and its frame, the said arms being slotted near the mounting ends and the strip between the slots being expressed outwardly to form a concave depression in the channels, travelers on the arms, rollers journaled on the travelers and engageable with the outer surface of the arms as the door is opened, journal disks on the travelers and extended axles in the disks, friction rollers on the axles engageable with each other and engageable with the channels of the arms as the door is closed whereby engagement of the latter rollers in the said depression will releasably secure the arms in contracted position, and pivotally connected arms between the travelers, the said extended axles being in the path of movement of the pivotally connected arms to press the friction rollers into contact with the channels of the arms.

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The following references are of record in the file of this patent:

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