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Panici

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[54] **PROTECTION SYSTEM FOR BOX CAR DOORS**

[76] Inventor: **James Panici,** 3118 W. Hickory Rd., Homewood, Ill. 60430

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[52] **U.S. Cl.** **292/122,** 92/130, 292/11, 292/25, 292/201

[51] **Int. Cl.** **E05b 51/02,** E05b 65/14

[58] **Field of Search** 92/130, 133; 292/11, 25, 292/26, 30, 45, 48, 53, 96, 97, 122, 123, 127, 201, 220, 221, 223, 227

[56] **References Cited**

UNITED STATES PATENTS

658,584	9/1900	Redlefsen	292/25
1,147,322	7/1915	Hampton	292/220
1,453,510	5/1923	Lawrence	292/201

FOREIGN PATENTS OR APPLICATIONS

1,201,285	12/1959	France	292/227

Primary Examiner—Albert G. Craig, Jr.

[57] **ABSTRACT**

A latch system for box car doors comprising a pneumatic cylinder with suitable linkage to two metal arms with hooks formed at end. When air pressure is applied to cylinder, hooks unlatch. As air pressure is released, spring returns cylinder piston to original position, thereby latching doors closed.

2 Claims, 2 Drawing Figures

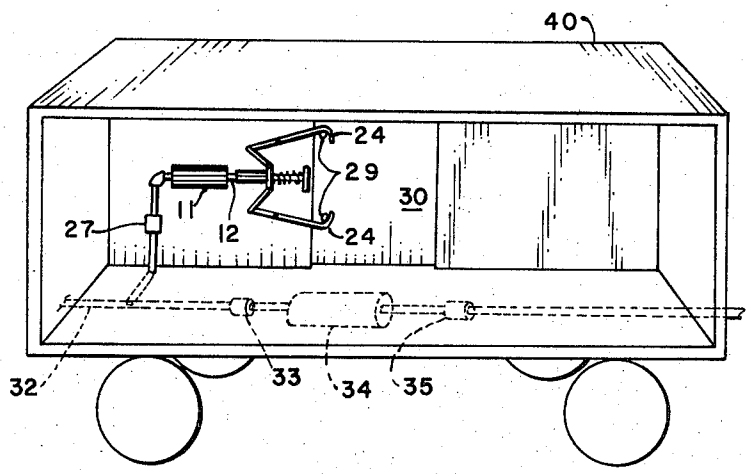


FIG. 1

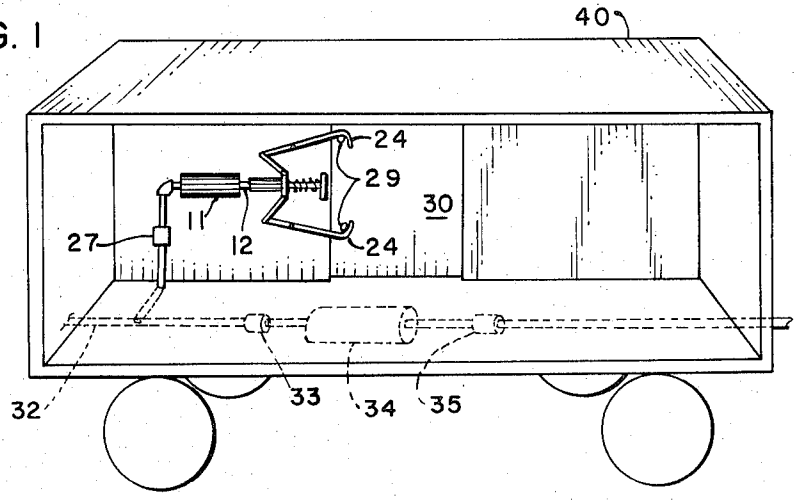
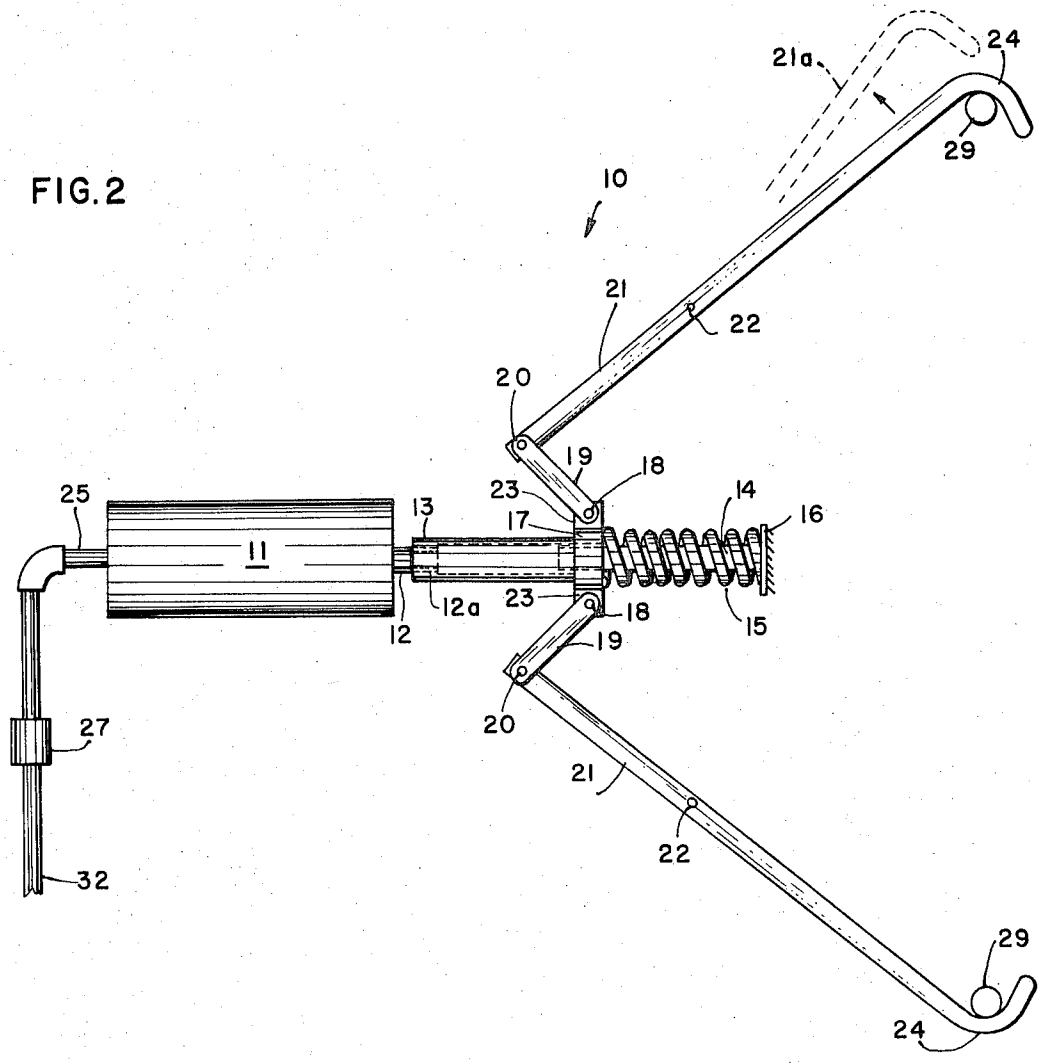

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FIG. 2


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PROTECTION SYSTEM FOR BOX CAR DOORS

BACKGROUND OF THE INVENTION

1. Field of Invention

This invention relates to a latching mechanism for sliding doors and more particularly to a pneumatic-mechanical latching means for box car doors.

2. Description of Prior Art

Prior art is described in the following United States Patents:

U.S. Pat. No. 1,828,643—Cannon
U.S. Pat. No. 2,686,577—Hoppenjans
U.S. Pat. No. 2,741,477—Mercier
U.S. Pat. No. 2,874,958—Mercier

SUMMARY OF INVENTION

It is one object of the present invention to provide an inexpensive and relatively simple latching mechanism for box car doors.

It is also an object to provide a safe latching system for box car doors, which automatically latches when air pressure to the pneumatic cylinder is released.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 shows mounted position of the device in a box car.

FIG. 2 is a side view of the device in the locked position.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring now to the drawings, wherein is illustrated a pneumatic-mechanical latch system for box car doors designated by the numeral **10,** mounted on box car **40.** The latch system **10** comprises a pneumatic cylinder **11** having shaft **12,** said shaft having male thread **12*a*,** said male thread fitting into corresponding female thread of hollow shaft extension **13.** At opposite end of said hollow shaft **13** is integrally affixed connector **17** to which links **19** are pivotally affixed by pivot pin **18.** Said connector having extensions **23,** said extensions having mating hole for pivot pin **18.** Links **19** are pivotally connected at **20** to locking arms **21.** Said locking arms also being pivoted at **22,** and having hooks **24** formed at opposite end. Said pivot **22** being integrally

affixed to wall of box car. Inner diameter of hollow shaft extension **13** accepts rod **14,** and inside diameter of compression spring **15** accepts the diameter of rod **14.** Said spring is restrained in position between connector **17** and spring mounting hardware **16,** said hardware suitably integrally affixed to box car wall.

Cylinder **11** is connected to supply line **25,** said supply line having air supply fitting **27.** Said fitting accessible from outside of box car. Check valves **33** and **35,** and surge tank **34,** shown schematically, are part of box car air system, preventing air loss when box car is disconnected from train. In operation therefore, hooks **24** latch on pins **29,** when door is locked. Said pins integrally affixed to box car sliding door **30.** To unlock door, when car is parked at siding, independent air source is brought to box car, and connected to air supply fitting **27,** allowing air pressure into cylinder **11.** Shaft **12** moves outwardly with hollow shaft **13** and connector **17,** compressing spring **15.** This movement through links **19,** forces arms **21** to pivot open through fixed pivot points **22,** as shown by broken lines **21a** in FIG. **2.** Hence, doors can be opened. In latching, after door **30** is closed, pressure in cylinder **11** is relieved, spring **15** pushes shaft back and arms **21** return to original locked position, which is, hooks **24** on pins **29.** Spring **15** is mounted in a pre-loaded condition.

I claim:

1. A protection system for box car doors, using an independent air source, comprising a pneumatic cylinder, a hollow shaft extension threaded onto the cylinder shaft and to which a connector is integrally affixed, said connector being also a spring retainer on cylinder side; said hollow shaft accepting a rod whereon a compression spring is positioned and mounting hardware attached therefrom at other end of said rod.

2. A protection system for box car doors as in claim **1** wherein said connector having extension, said extension pivotally attached to one end of link, other end of link pivotally attached to locking arm, said arm also having pivot, said pivot integrally affixed to box car wall, said arm terminating in hook, said hook locking on pin integrally affixed to box car door.

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