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[72] Inventors **Robert W. Lyons**
Michigan City, Ind.;
Robert R. Parmenter, Chicago, Ill.; James B. Semanick, Hammond, Ind.

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[73] Assignee **Pullman Incorporated**
Chicago, Ill.

[54] RAILROAD BOXCAR AND MOVABLE PLATFORM STOPS THEREFOR

15 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** ..... **105/366 R,** 105/366 C, 105/367, 248/119
[51] **Int. Cl.** **B60p 7/08**
[50] **Field of Search** 105/366, 368, 367; 214/38.8; 248/119, 368

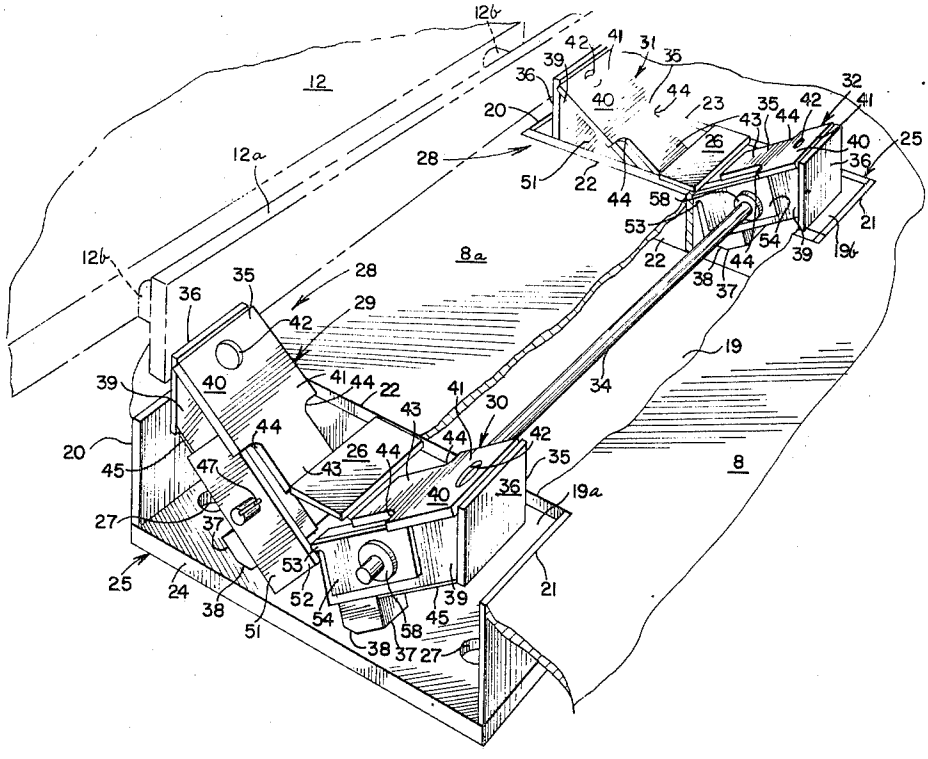
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Primary Examiner—Drayton E. Hoffman
Attorneys—Hilmond O. Vogel and Wayne Morris Russell

ABSTRACT: A railroad boxcar having fixed sidewalls at each end of the car and an open central portion enclosed by movable sidewalls and rollingly mounted platforms movable from each end to the central openable portion of the car, stop means retaining each of two platforms in its respective end position or selectively holding each of the platforms in the open central portion, the stop means, including three evenly spaced stop sets in the central portion for holding each of the platforms between two of each stop sets, each stop set including a pair of laterally spaced stop structures for limiting movement of a platform in either direction, each stop structure including a pair of longitudinally spaced pivotally mounted stops recessed within the car floor and having stop plate opposed to the stop platform plate of the other stop, and clutch means on each of the stops for simultaneously moving each stop plate from an elevated platform obstructing position to a lowered unobstructing position of the platform and shaft means interconnecting the stop of one stop structure with the stop of the other stop structure for conjunctive pivoting of each stop wherein each of the interconnected stops have their stop platform plates facing in the same direction in obstructing and unobstructing platform positions.



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SHEET 1 OF 3

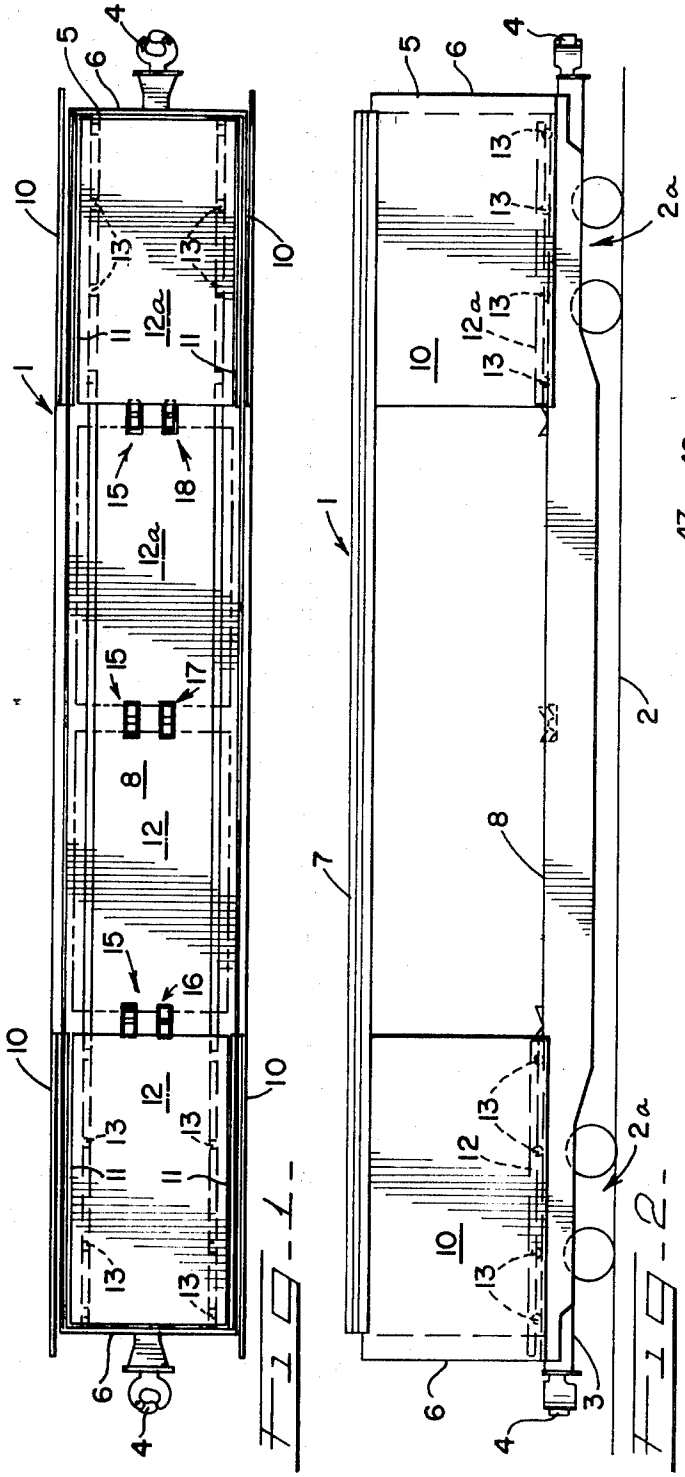


FIG-1

FIG-2

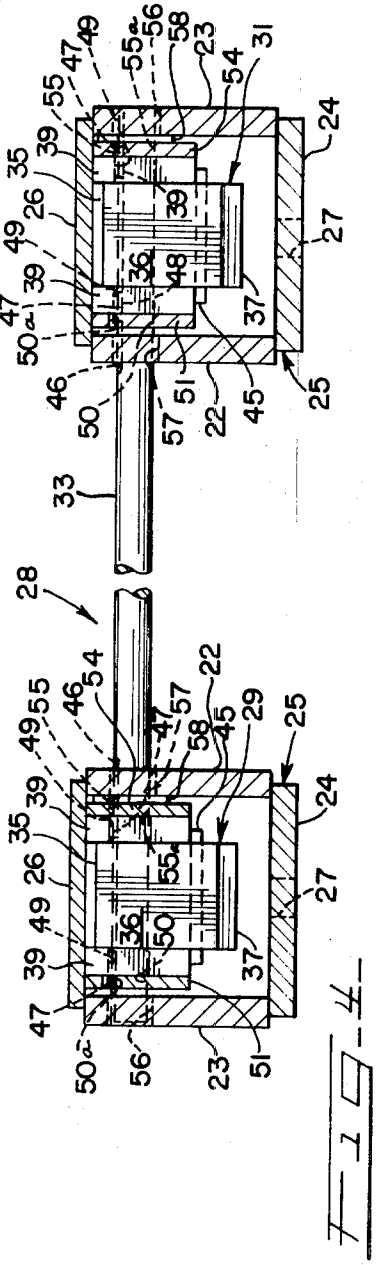


FIG-4

INVENTORS
ROBERT W. LYONS
ROBERT R. PARMENTER
JAMES B. SEMANICK

BY Richard J. Myers ATT'Y.

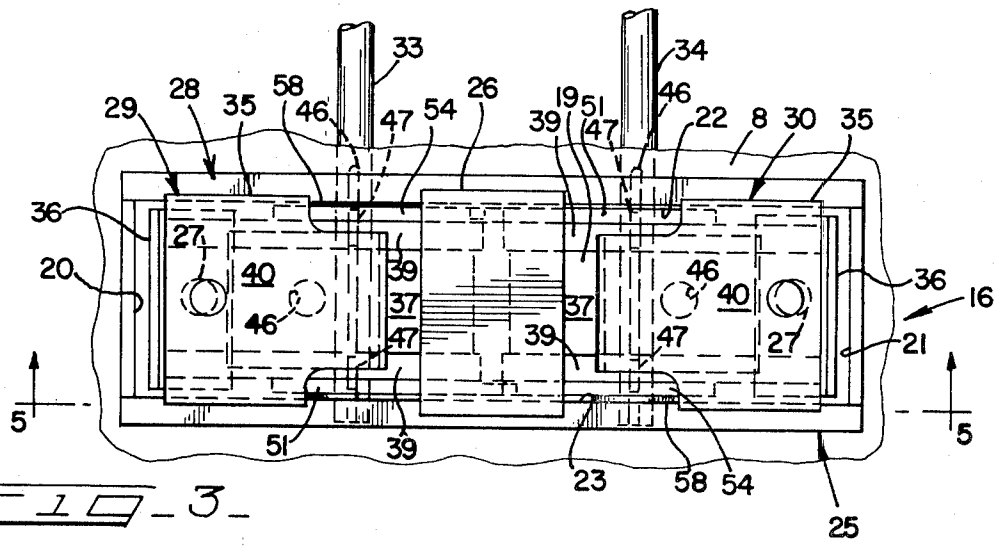


FIG. 3

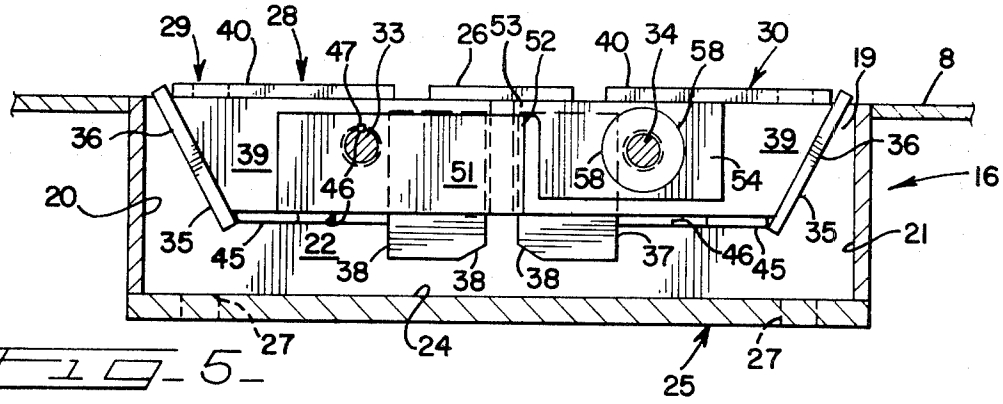


FIG. 5

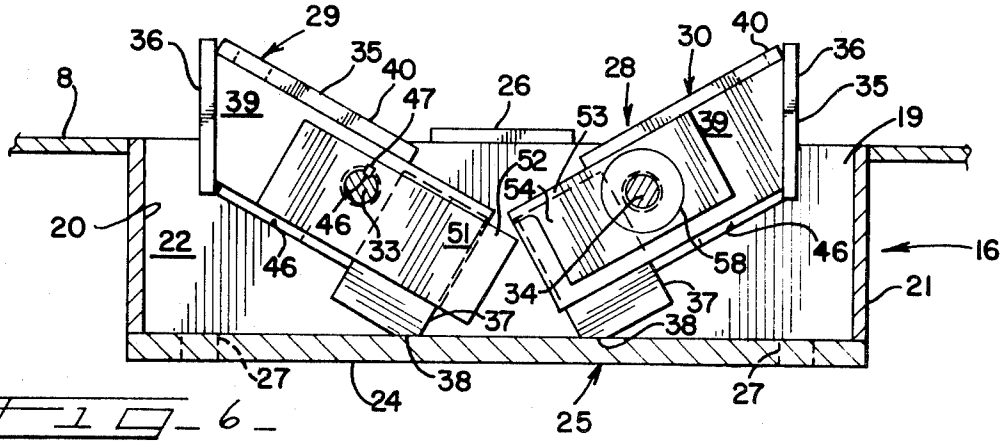


FIG. 6

INVENTORS
ROBERT W. LYONS
ROBERT R. PARMENTER
JAMES B. SEMANICK

BY Richard J. Myers
ATT'Y.

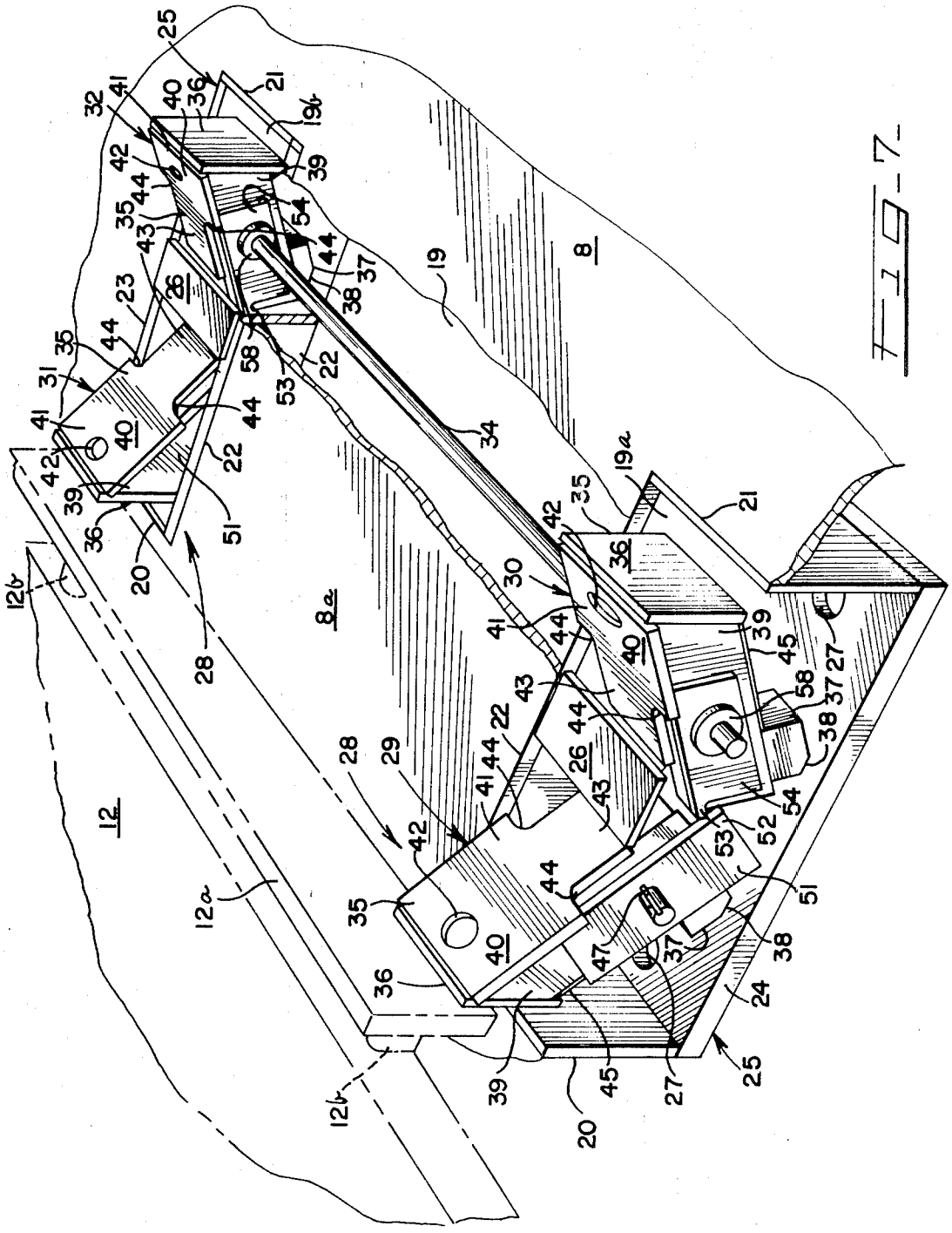


FIG. 7

INVENTORS
ROBERT W. LYONS
ROBERT R. PARMENTER
JAMES B. SEMANICK

BY Richard J. Myers ATT'Y.

RAILROAD BOXCAR AND MOVABLE PLATFORM STOPS THEREFOR

SUMMARY

This invention relates generally to movable lading bearing means and in particular to a railroad boxcar employing a movable lading bearing platform or dolly stop means for limiting movement of the dolly in various longitudinal positions on the floor of the car.

It is, therefore, a general object of this invention to provide for a railroad boxcar having a rollingly mounted platform positionable longitudinally of the car floor by stop means.

Another object of this invention is to provide for a railroad boxcar having floor-mounted movable platforms or dollies held in various positions longitudinally of the car by pivotal stop means which includes a plurality of floor-mounted stop structures facing both ends of the car, each stop structure including a pair of laterally spaced pivotally mounted stops each stop opposing the other stop and cammed with respect to it between upwardly platform obstructing position to lower recessed unobstructing platform position.

A further object is to provide for a pair of stop means for the movable platform means of a railroad boxcar, the stop means being pivotally connected with one another, each stop means including several pairs each of longitudinally spaced pivotal stop elements each being cammed with the other by clutch means for simultaneously raising each stop element from the raised platform obstructing position to the lowered platform unobstructing position.

Another object of this invention is to provide for such stops which are located in recessed manner within the deck and having spacing means to insure proper engagement for the clutch means.

Still another object of this invention is to provide for a pair of shafts for pivotally connecting each of the respective laterally aligned stop elements of each stop set for simultaneously raising and lowering each of the four stop elements by the operator depressing one of the stop elements for passage of the platform thereover.

Another object of this invention is to provide for a system of stop means which locate the platform in end or center stored position or which may locate a plurality of platforms in end or central stored position for discharging lading therefrom.

These and other objects will become apparent by reference to the following description, attached drawings and appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a plan view of a boxcar employing the novel movable platform stop arrangement;

FIG. **2** is a side elevational view of such box car;

FIG. **3** is a top plan view of a portion of the stop arrangement;

FIG. **4** is a longitudinal side elevational view of the stop arrangement;

FIG. **5** is an elevational view of the stop arrangement taken along line 5—5 of FIG. **3** and showing the stop elements in the lowered platform unobstructing position;

FIG. **6** is an elevational view similar to FIG. **5** but showing the stop elements in the raised or platform obstructing position; and

FIG. **7** is a perspective view of the stop arrangement for the movable dolly containing boxcar.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings and in particular with reference to FIGS. **1** and **2**, there is shown a railroad boxcar **1** provided with an underframe **2** mounted on trucks **2***a* and including a center sill **3** from which extend the end couplers **4** and a boxcar body **5** having end walls **6**, a top **7** including means to carry the movable or sliding side doors **10** relative to the fixed or inner side doors **11**.

The car is provided with a floor **8** in which is recessedly mounted dolly or platform supporting rails **9** over which glidingly or rollingly move end located dollies **12** and **12***a* by means of rollers **13** mounted on the underside of the dolly, which rollers engage the tracks or rails **9**. Such an arrangement is disclosed in the allowed copending U.S. Pat. application, Ser. No. 694,607 of Franklin P. Adler, assignee to Pullman Incorporated, filed Dec. 29, 1967, now U.S. Pat. No. 3,504,636 granted Apr. 7, 1970 and hereby incorporated herein by reference.

Movable stop means **15** are recessedly mounted in the floor **8** of the railroad boxcar **1**. The stop means **15** includes three pivotally mounted movable stop arrangements **16**, **17** and **18** located in the center portion of the car which may be opened on both sides by movement of the sliding doors to the ends of the car. Each stop arrangement **16**, **17** or **18** is mounted in a respective floor recess or opening **19** which contains a stop receiving housing or pivot mount assembly **25** including end walls **21** and **20** and sidewalls **22** and **23** and a floor **24** as well as an overhead centrally located laterally extending stop plate **26** and floor drains **27**. Each stop arrangement is covered by a floor section **8***a* and each recess **19** comprises a pair of longitudinally extending laterally spaced recess sections **19***a* and **19***b* as defined by the floor section **8***a*, see FIG. **7**. Each platform is provided with a stop abutment **12***a* connected by arms **12***b* to the platform or dolly **12** for engagement with the stop arrangement **16**, **17** or **18**.

Each stop arrangement includes two stop structures **28** spaced laterally of one another, as seen best in FIGS. **1**, **2** and **7**. The pair of stop structures **28**, **28** cooperate with one another to limit movement of the platform from the end of the car to the center, or, if the platform is located centrally in the car, prevents the platform from moving to the end, the one stop structure **28** having a pair of pivotal stop members **29** and **30** and the other stop member having a pair of pivotal stop members **31** and **32**, as seen in FIG. **7**. The stop member **29** is identical in construction to stop member **30** except that is is rotated 180° and spaced longitudinally from the other but does have camming or clutch engagement with the other, as will be described below. Similarly, the stop members **31** and **32** are identical in construction but oriented 180° with respect to each other for cooperative engagement to place one another in the platform obstructing position (see FIG. **7**) or the platform unobstructing position at the same time that the stop members **29** and **30** are fixedly connected with one another by a stop shaft or pivot pin **33** which extends laterally of the car. Similarly, pivotal stop members **30** and **32** are fixedly connected with one another by means of stop shaft or pivot pin **34** which extends laterally of the car, see FIGS. **3**, **4**, **5** and **6**. Each pair of pivotal stop members, **29** and **30**, or **31** and **32**, are pivotally mounted in housing or pivot mount assembly **25** in the recessed floor section **19***a* or **19***b*. Each stop member **29** or **30** or **31** or **32** is similarly constructed to the other and consists of a housing structure **35** having a back or stop plate **36** which in the elevated platform obstructing position is generally vertical (see FIG. **6**) and in the down or platform unobstructing position is in a diagonal orientation. The stop plate **36** is located at at one end of the stop member for facing and engaging with a platform and the other end of the stop member is provided with a rectangular or boxlike weighted structure or support rest **37** which has a tapered seat **38** for engaging the housing plate **24** when the stop member is normally at rest or in the platform obstructing position. The housing **35** further consists of sideplates **39** and a top limit plate **40** which engages the underside of the housing stop plate **26** when the stop member is in the platform unobstructing position, as seen in FIG. **5**. The top plate **40** has an end widened or enlarged rectangular section connecting with the back plate **36** and including a drain hole **42** and has a reduced elongated head plate section **43** engageable with the underside of the plate **26**, the elongated plate section connecting with the enlarged section **41** at the juncture by fillets **44** (FIG. **7**). The stop element housing **35** is also provided with a bottom plate **45**.

Each stop shaft or pivot pin **33** or **34** is provided with a shaft key slot **46** at each of its ends. Each key slot has affixed therein generally at each outer end thereof a key or rectangular elongated bar **47** (see FIGS. **4–7**) and each sideplate **39** has a shaft bore **48** for receiving a respective shaft **33** or **34** therethrough and each side plate **39** has a key slot **49** in it connecting with the bore **48**. A rectangular clutch plate **51**, see FIGS. **3–7**, is mounted fixedly on a sideplate **39** on one side of one stop member **29** and clutch plate **54** is mounted on a sideplate **39** on the same side of the laterally spaced and complemental clutchable stop member **30** whereas the sideplates on the other sides of members **29** and **30** respectively for clutch members **54** and **51** cooperate for complemental clutch engagement. This also holds true for clutchable pivotal members **31** and **32**. The clutching action occurs between the respective clutching edges **52** and underside of fingers or projections **53** of clutch members **51** and **54** respectively, the stop members **31** and **32** having their respective clutch members similarly constructed and arranged. The clutch plate **51** is provided with a shaft bore **50** and a key slot **50***a* and the clutch plate **54** is similarly provided with a shaft bore **55***a* and a key slot **55** cooperative and in alignment with the respective shaft bore **48** and key slot **49** of a respective side plate **39** for receiving a respective shaft **33** or **34** therethrough wherein the keys **47** lock the sideplates **39** and clutch members **51** and **54** of each of the pivotal stop members **29, 30, 31** and **32** in such a manner that depression of the elevated portion of any of the stop members by the operator's foot will cause all four stop members **29, 30, 31** and **32** to simultaneously be moved from the elevated or platform obstructing position (FIG. **6**) to the lower or platform unobstructing position (FIG. **5**) whereby the platform may pass over the top of the stop members and prevent them from going to the elevated or obstructing position so long as the platform remains over the stop members. However, once the platform is past the stop members, they will automatically move to the obstructing position because the weighted structure **37** of each of the stop elements causes the stop members to rotate about the pivot shafts **33** and **34** to raise the plate **36** and seat the member **37** on the floor plate **24**. Each key is of such extent only to cause cooperative locking and drive between the sideplates **39** of each of the pivotal stop members **31, 32, 33** and **34**. Shaft bores **56** and **57** are provided in sides **23** and **24** (see FIG. **4**) of the housing **35** and act as a bearing for the shafts **33** and **34**. Alignment of the one clutch member **54** with the other clutch member **51** is insured by the spacers or washers **58** located on one side at one plate **39** of a particular pivot stop member so that camming or clutching is also insured, a respective washer **58** being adjacent a respective sidewall **22** or **23**.

In assembling each of the movable stop arrangements **16, 17** or **18**, first, each stop member **29, 30, 31** and **32** with their respective stop shafts **33** and **34** are assembled together and located within the recessed area **19** and then the cover plate **8***a* is placed thereover with the stop plates **26**. The top plates **40** or each of the pivotal stop members **29, 20, 31** and **32** are placed on the housing **35** to form an integral unit after the lock keys **47** are tacked or affixed in the slots **49**. In some dolly arrangements in the boxcar, it may be desirable to use two independently movable laterally spaced dollies at each end of the car in which instance the shafts **33** and **34** may be eliminated between the pivot members to provide for independent pivotal action of the members **29** and **30** with respect to the pivotal stop members **31** and **32**.

As various changes could be made in the above construction without departing from the scope of the invention, it is intended that all matter contained on the above description or shorn in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. In a railroad boxcar having closed side end portions and open side central portions selectively closed by movable side doors:

a pair of laterally spaced platforms movable along the car floor,

each platform being locatable at a respective closed end portion of the car or in the alternative in a respective part of the open central portion adjacent the other platform,

stop means pivotally mounted in the car floor for retaining each platform in the end portion or the central portion,

said stop means including three stop structures spaced substantially equal longitudinally of the car from one another in the central portion of the car to accommodate either platform between a respective stop structure and the end of the car,

each stop structure including a pair of pivotally mounted longitudinally spaced stop units, each stop unit having outer and inner ends pivotal about a generally horizontal axis providing for swinging overlapping relation between the inner ends of the stop units, each stop unit having at the outer end a transverse platform stop member facing outwardly of each other toward a respective end of the car, each stop unit being weighted at its inner end to form a generally V-shaped stop structure with the stop member of each being elevated with respect to the inner end of each stop unit whereby the platform stop member of each stop unit is elevated above its respective inner end, each stop member in its elevated position being adapted to obstruct movement of a platform,

clutch means including clutch portions on the inner end of each stop unit such that when the stop member of one of the stop units is depressed to a lowered position at the car floor level or platform unobstructed position its clutch portion engages the clutch portion of the other stop unit to raise the inner end of the other stop unit therewith and simultaneously lower the platform stop member of the other stop unit to its car floor level or platform unobstructing position.

2. The invention according to claim **1**, and

pivot means in the form of a shaft extending from each stop unit laterally thereof, a second pair of stop units each connecting with a respective shaft for pivotal movement with a respective of the first mentioned pair of stop units, each of the second stop units having their inner ends weighted down to allow their respective stop members to be in an elevated position whereby lowering of any stop members of any of the stop units lowers the other three stop members and consequently raises the inner ends of all the stop units to permit passage of the respective platform thereover.

3. The invention according to claim **2**, and

each shaft having key means for keying each shaft to a pair of laterally spaced stop units attendant to conjunctive pivoting of each of the stop units.

4. The invention according to claim **1**,

whereby the upper end of a respective stop member is depressible by an operator to simultaneously move the stop units from the platform obstructing position to the platform unobstructing position.

5. The invention according to claim **1**, and

a stop limit engageable with the upper surfaces of the inner ends of each of the stop units to limit upper travel of the stop units upon pivoting of the stops to the platform unobstructing position.

6. In a railroad boxcar having closed side end portions and open side central portions selectively closed by movable side doors:

a pair of laterally spaced platforms movable along the car floor,

each platform being locatable at a respective closed end portion of the car or in the alternative in a respective part of the open central portion adjacent the other platform,

stop means pivotally mounted in the car floor for retaining each platform in the end portion or the central portion,

said stop means including three stop structures spaced substantially equal longitudinally of the car from one another in the central portion of the car to accommodate either platform between two of the stop structures or between a respective stop structure and the end of the car,

each stop structure including a pair of pivotally mounted longitudinally spaced stop units, each stop unit having a transverse platform stop member facing outwardly of each other toward a respective end of the car, each stop unit being weighted at its inner end to form a generally V-shaped stop structure with the stop member of each being elevated with respect to the inner end of each stop unit whereby the platform stop member of each stop unit is elevated above its respective inner end, each stop member in its elevated position being adapted to obstruct movement of a platform,

clutch means including clutch portions on the inner end of each stop unit such that when the stop member of one of the stop units is depressed to a lowered position at the car floor level or platform unobstructed position its clutch portion engages the clutch portion of the other stop unit to raise the inner end of the other stop unit therewith and simultaneously lower the platform stop member of the other stop unit to its car floor level or platform unobstructing portion,

each clutch portion being a clutch unit including an edge on one side of one stop unit and a projecting ledge on the other side of the stop unit, the edge of one stop unit engaging the underside of the projecting ledge of the other stop unit on each side of each stop unit.

7. The invention according to claim 6, and

spacer means on each stop unit providing the proper clutch alignment between the edges and the ledges.

8. In a railroad car,

platform means movable along the car floor,

stop means mounted on the car floor and retaining the platform in one of multiple positions along the car floor,

said stop means including a pair of pivotally mounted longitudinally spaced stops, each stop having outer and inner ends pivotal about a generally horizontal axis providing for swinging overlapping relation between the inner ends of the stops, each stop at its outer end having a transverse platform stop member facing outwardly of each other toward a respective end of the car, each stop being weighted down at its inner end to form a generally V-shaped stop structure with the stop member of each being elevated with respect to the inner end of each stop, each stop member in its elevated position being adapted to obstruct movement of the platform means,

clutch means including clutch portions on the inner end of each stop such that when the stop member of one of the stops such that when the stop member of one of the stops is depressed to a lower position at the car floor level or platform unobstructing position its clutch portion engages the clutch portion of the other stop to raise the inner end of the other stop therewith and simultaneously lowers the platform stop member of the other stop to its car floor level or platform unobstruction position.

9. In a railroad car:

platform means movable along the car floor,

stop means mounted on the car floor and retaining the platform in one of multiple positions along the car floor,

said stop means including a pair of pivotally mounted longitudinally spaced stops, each stop having a transverse platform stop member facing outwardly of each other toward a respective end of the car, each stop being weighted down at its inner end to form a generally V-shaped stop structure with the stop member of each being elevated with respect to the inner end of each stop whereby the platform stop member of each stop is elevated above its inner end, each stop member in its elevated position being adapted to obstruct movement of the platform means,

clutch means including clutch portions on the inner end of each stop such that when the stop member of one of the stops is depressed to a lower position at the car floor level or platform unobstructing position its clutch portion engages the clutch portion of the other stop to raise the inner end of the other stop therewith and simultaneously lowers the platform stop member of the other stop to its car floor level or platform unobstruction position,

each clutch portion being a clutch unit including an edge on one side on one stop and projecting ledge on the other side of the stop, the edge of one stop engaging the underside of the projecting ledge of the other stop on each side of each stop.

10. In a railroad car:

platform means movable along the car floor,

stop means mounted on the car floor and retaining the platform in one of multiple positions along the car floor,

said stop means including a pair of pivotally mounted longitudinally spaced stops, each stop having a transverse platform stop member facing outwardly of each other toward a respective end of the car, each stop being weighted down at its inner end to form a generally V-shaped stop structure with the stop member of each being elevated with respect to the inner end of each stop whereby the platform stop member of each stop is elevated above its inner end, each stop member in its elevated position being adapted to obstruct movement of the platform means,

clutch means including clutch portions on the inner end of each stop such that when the stop member of one of the stops is depressed to a lower position at the car floor level or platform unobstructing position its clutch portion engages the clutch portion of the other stop to raise the inner end of the other stop therewith and simultaneously lowers the platform stop member of the other stop to its car floor level or platform unobstruction position,

pivot means in the form of a shaft extending from each stop laterally thereof, a second pair of stops each connecting with a respective shaft and each having pivotal movement with a respective of the first mentioned pair of stops, each of the second stops having their inner ends weighed down to allow their respective stop members to be in an elevated position whereby lowering of any stop member of any of the stops lowers the other three stop members and consequently raises the inner ends of all of the stops to permit the passage of the platform means thereover.

11. The invention according to claim 8, and

a stop limit engageable with the upper surfaces of the inner ends of each of the stops to limit upper travel of the stops upon pivoting of the stops to the platform unobstructing position.

12. For a floor mounted movable platform means,

pivotal stop means on the floor swingable from an elevated platform obstructing position to a lower platform unobstructing position for movement of the platform,

said stop means including a pair of spaced stop members each having inner and outer ends pivotal about a generally horizontal axis providing for swinging overlapping relation between the inner ends of the stop members, the outer ends of each having a platform engaging surface extending toward the platform means, each stop member being weighted down at its inner end with the platform engaging surface of each stop member being elevated with respect to the inner end of each stop member, each platform engaging surface in its elevated position being adapted to obstruct movement of the platform means, the inner end of each of the stop members facing one another,

clutch means including clutch portions on the inner end of each stop such that when the stop member of one of the stops is depressed to a lower position at the car floor or platform unobstructing position its clutch portion engages the clutch portion of the other stop to raise the inner end of the other stop therewith and simultaneously lowers the platform stop member of the other stop to its car floor level or platform unobstruction position.

13. The invention according to claim 12, and

a second pair of spaced stop members and pivot means in the form of interconnecting means being connected

between each pair of stop members for pivotal movement of one stop member of one pair of stop members moving all of the stop members.

14. For a floor mounted movable platform means;

pivotal stop means on the floor swingable from an elevated platform obstructing position to a lower platform unobstructing position for movement of the platform,

said stop means including a pair of spaced stop members each having inner and outer ends pivotal about a generally horizontal axis providing for swinging overlapping relation between the inner ends of the stop members, the outer ends of each having platform engaging surface extending toward the platform means, the inner end of each of the stop members facing one another and having clutch means adapted to engage one another upon pivoting of either platform engaging surface of either stop member from an elevated platform obstructing position to a lowered platform unobstructing position,

a second pair of stop members each having inner and outer ends, the outer ends having platform engaging surface,

a pair of pivot shafts each connecting with one of each of the stop members of each pair of stop members,

the second pair of stop members being provided with clutching means at the inner ends of the second pair of stop members and engageable with one another for lowering the platform engaging surfaces from the elevated platform obstructing position to the lowered nonobstructing platform position whereby depression of any of the platform engaging surfaces of any of the stop members engages all of the platform engaging surfaces of all of the stop members.

15. The invention according to claim **14**, and

spacing means for proper alignment of the clutching means attendant to raising and lowering of the stop members between elevated and lowered positions.

* * * * *