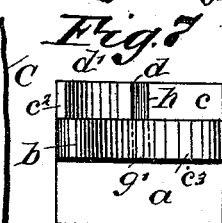
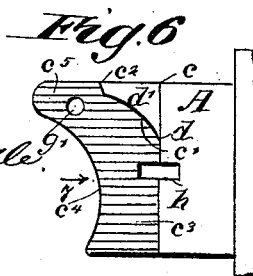
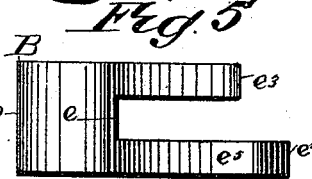
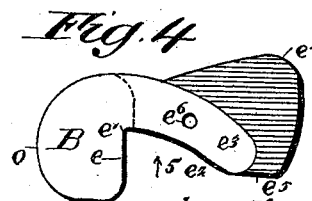
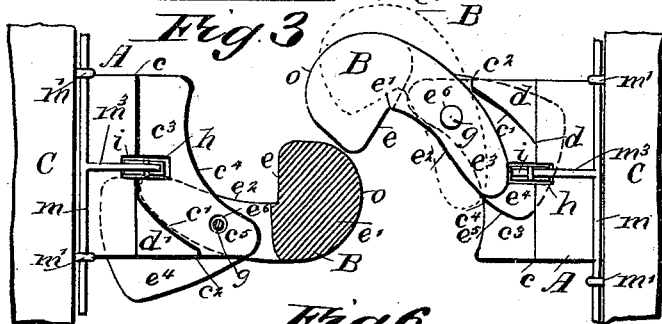
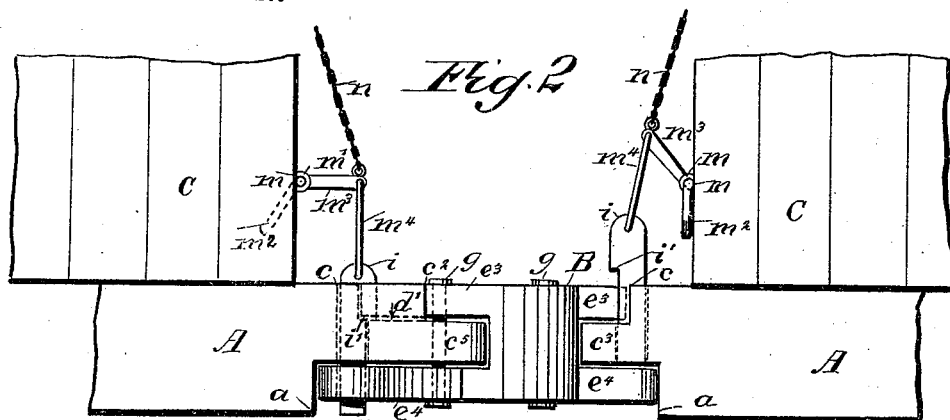
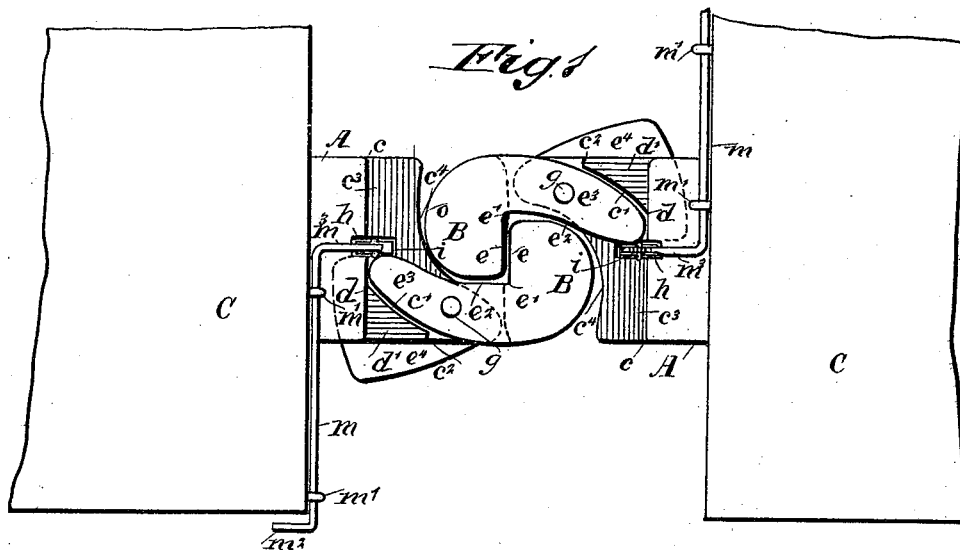


(No Model.)

W. W. SMITH.
CAR COUPLING.

No. 494,512.

Patented Mar. 28, 1893.



WITNESSES:
J. M. Ardle
C. Sedgwick

INVENTOR
A. W. W. Smith
BY Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM W. SMITH, OF TRAVERSE CITY, MICHIGAN.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 494,512, dated March 28, 1893.

Application filed January 25, 1893. Serial No. 459,681. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. SMITH, of Traverse City, in the county of Grand Traverse and State of Michigan, have invented a new and useful Improvement in Car-Couplings, of which the following is a full, clear, and exact description.

This invention relates to improvements in car couplings of the side latching type, and has for its object to provide a novel, simple and efficient car coupling of the class indicated, which will be of a cheap and durable construction, automatic as to the joining of two couplings of the improved form, and that may be quickly and safely detached either from the side of two connected cars or from their roofs, as may be desired.

To these ends my invention consists in the peculiar construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of two car couplings of improved form in a coupled condition, on two adjacent cars shown in part. Fig. 2 is a side view of the same, one coupling having its parts adjusted to release it from the other coupling. Fig. 3 is a broken plan view, partly in section, of the same, the couplings being adjusted to form a coupled connection with each other. Fig. 4 is a plan view of a latch jaw forming a part of the improvement. Fig. 5 is a side view of the same, opposite the arrow in Fig. 4. Fig. 6 is a plan view of the front end of the drawhead forming a part of the improvement; and Fig. 7 is a front end view of the same, looking in the direction of the arrow 7 in Fig. 6.

The drawhead A consists of an elongated metallic bar nearly square in cross section and adapted for connection to the end of a car on a median line by any preferred means. The drawhead is cut away on its lower side to form a square shoulder at *a* transversely thereon at a proper distance from the front end, the flat surface of the reduced portion being located in a parallel plane with the lower side of the drawhead body rearward of the shoulder *a*.

On the upper surface of the drawhead A,

another vertical shoulder *c*, is produced which is formed by a proper removal of material from the front terminal of the drawhead to a point that is a sufficient distance in front of the shoulder *a*, to adapt the drawhead to receive a peculiarly constructed latch jaw B, and co-act therewith, efficiently in service.

The shoulder *c* extends from one side of the drawhead body across at a right angle thereto for a suitable distance, and at *d*, which point is beyond the longitudinal center of the drawhead, the shoulder *c* is merged into a forwardly curved shoulder *c'*, that terminates forwardly and near the opposite side of the drawhead as at *c''*, thereby producing an abutment wall *d'* integral with the drawhead and corresponding in height to the top surface of the drawhead body.

By the reduction of the thickness at the forward part of the drawhead A, a tongue *c''* remains, that projects of a proper length and thickness integrally therefrom, and as the shoulders *a c* are preferably made of equal height, the tongue is located near the center of the drawhead body vertically considered. At the front edge of the tongue *c''* a rearward incurve *c'''* is produced, which is the arc of a circle that has its center on one side of a median line, and of such a radius as will permit a forward extension *c''''* of the tongue beyond the incurved edge to provide the material for the support and pivoted attachment thereto of the latch block B.

The part B consists of an elongated block of metal, the thickness of which is nearly equal to that of the drawhead A. The front end of the latch block B is curved from side to side, and at a sufficient distance from this front face a transverse latching shoulder *e* is formed, which is vertical on the face and projects from one side of the block toward the other side a proper distance to afford a hook formation that is completed by a return curved wall *e''*, which is produced on the block and extends from the inner terminal *e'* of the shoulder *e* rearwardly and outwardly to a point near the rear end of the block on its upper side, the outer corner of said shoulder being perfectly rounded as shown. The piece B is slotted from the rear end forwardly to a point near the shoulder *e* at its center of thickness, and parallel with the top and bot-

tom sides of the same, which slot is of such a proportionate width between the parallel faces that define it, that the tongue c^3 of the drawhead A, may be introduced between said faces at the top flange e^3 and lower flange e^4 and loosely fit therein. The upper flange e^3 is preferably made shorter than the lower flange e^4 and has its outer side face curved and nearly concentric with the curved wall e^2 , the rear end of the top flange being rounded from side to side as indicated in Fig. 4. The lower flange e^4 is made of a greater length than the upper flange, as before stated, and has its inner edge portion e^5 located in the same vertical plane with the rear terminal of the inner surface of the curved wall e^2 , extending therefrom rearwardly in a nearly straight line, as shown in Fig. 4.

An increased width is given to the lower flange e^4 of the latch block B at its rear end, and it is regularly diminished forwardly to a point near the shoulder e , thus producing an outer side wall on the lower flange that tangentially diverges from the outer curved wall of the upper flange e^3 .

The rear end of the lower flange e^4 , is curved from side to side, the arc of a circle that defines the degree of curvature therefor having for its radial center the center of the vertical perforation e^6 , that is formed through the upper and lower flanges of the latch block at such a proper distance rearward of the latching shoulder e , as will secure efficiency in service for the latch block; said perforation being designed to receive the pintle bolt g , that also passes through a perforation g' , formed in the tongue extension c^5 , when the latch block is pivotally secured upon the tongue c^3 , of the drawhead A shown in Fig. 6. The length of the lower flange e^4 , from the pivot bolt g , to its free rear edge is so proportioned that said edge will lie close to the shoulder a , on the drawhead A.

A rectangular slot h , is formed in the drawhead A, at its transverse center, which slot is longitudinally elongated, and has its center of length coincident with the transverse top shoulder c , so that one half of the slot is located in the tongue c^3 and the other half in the thicker portion of the drawhead body, as shown in Figs. 1, 2 and 3.

The relative position of the latch block B, on the tongue c^3 , is such, as will adapt the inner edges of the flanges e^3 , e^4 , thereon to align with the vertical side wall of the slot h , that is nearest to the abutment wall d' , so that a key i , that is of proper dimensions to slide neatly in the slot h , will have one side of its body near its upper end, in contact with said inner edges of the latch block flanges, when the latch block is to be held with its shoulder e , in a proper position to interlock with a similar shoulder on another coupling of the improved construction, as shown in Fig. 1.

There is an increased breadth given to the upper portion of the key i , which produces a

shoulder i' , on its forward edge, and as the parallel edges of the main portion of the key body fit without improper freedom between the front and rear walls of the slot h , it will be seen that the shoulder i' , will prevent the key from passing below said shoulder, in the slot mentioned.

The length of the upper flange e^3 , from the pivot bolt g , to its rounded rear end is proportioned to allow this end to slide clear of contact with the narrower portion of the key i , when said key is elevated a proper degree in the slot it is located in; the increased width of the part of the key above the shoulder i' , causing said portion of the key to form an abutment against which the inner side edge of the flange e^3 will impinge, and the flange be locked between the key and the abutment wall d' , on the drawhead A, as shown in Fig. 1. The increased width and length of the flange e^4 , as compared to the upper flange e^3 , adapts the former to support the key i , elevated until there is a latched connection effected between two of the improved couplings.

It will be seen, that when the key i , is resting on its shoulder i' , in the slot h , the lower portion of said key will loosely engage the inner side wall of the lower flange e^4 , so that both flanges will be interlocked with the key when the latter is in lowered adjustment, the elevation of the key a proper degree, effecting the release of the latch block B, in an obvious manner.

The vertical sliding movement of the locking key i , is by preference produced with a rock shaft m , that is held horizontally across the end wall of a car C, by staples or boxes m' , so as to be permitted to receive a rocking movement; there being a crank arm m^2 formed on its outer end to permit the shaft to be manipulated by an operator at the side of the car. On the inner end of the rock shaft m , a lifter arm m^3 , is formed at a right angle to said shaft, or may be thereto secured, so as to project its outer end directly over the key i , when the arm is in a nearly horizontal position as indicated at the left side of Fig. 2. The outer end of the lifter arm m^3 , is loosely connected to the upper end of the key i by a link m^4 , so that the rocking movement of the shaft m , in a proper direction will elevate the key, as represented at the right side of Fig. 2, and it will there be seen that when the key i , is raised a proper extent to release its shoulder i' , and its lower end from contact with the flanges e^3 , e^4 , the crank arm m^2 , will hang in a vertical plane, so that its weight will be adapted to retain the key elevated, until there is a sufficient shock sustained by the car to cause the key to descend by its gravity and the added weight of the lifter arm, the parts then assuming the relative positions shown in Fig. 2, at the left side.

A chain n , or device that is its equivalent in action, is loosely connected by one end to the outer end of the lifter arm m^3 , and thence up-

wardly extended to the roof of the car, thereby affording means for an operator to rock the shaft *m*, so as to lift the key *i*, and detach two cars that are connected by the improved

5 couplings.

In order to release two connected latch blocks B, it is only necessary to draw the key *i*, that engages one block, which will permit the freed block to swing laterally a sufficient

10 degree to detach it from the secured latch block.

It will be evident that there may be a number of cars simultaneously coupled together by the improved couplings, if the key *i* of one

15 coupling in each pair that are to be connected, is elevated and so retained temporarily, as before explained, so that the impact of the several cars when brought together will jar the elevated keys and cause them to drop into

20 a locked condition.

In effecting a connection of two of the improved couplings, when the latch block on one coupling is released from its key *i*, and laterally vibrated, it will be apparent that

25 the flanges *c*³, *c*⁴, on said block will be disposed with their inner edges far enough in advance of the incurved edge *c*⁴, of the tongue *c*³, to adapt them to receive the impinge of the front curved face *o*, of an approaching

30 latch block B, this position of the free latch block being shown by dotted lines in Fig. 3; so that the impact of the face *o*, will first be sustained by the flanges *c*³, *c*⁴, and the free

35 latch block they are upon be rocked into a locked engagement with the impinging latch block, which will then strike the tongue *c*³, and cause the key *i* to drop, thereby securing the interlock of the heads B, until the key of either coupling is elevated to release them

40 from a coupled condition.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a car coupling, the combination with

45 a draw-head having an integral forward horizontal tongue, of a latch block slotted horizontally, forming two horizontal flanges, the top flange incurved and the bottom flange sector-shaped, a pivot bolt connecting said

50 flanges and the tongue, a key adapted to vertically slide in a slot of the draw-head and bear laterally on the inner edges of the latch block flanges, and a latching shoulder later-

ally and forwardly formed on the latch block, substantially as described.

55

2. In a car coupling, the combination with a draw-head body, a horizontal tongue forwardly thereon, and an abutment wall curved on its inner face and projected upwardly from the tongue near one side, and an extension

60

on the same side of said tongue, of a latch block rounded forwardly and having a lateral latching shoulder thereon near the front, two parallel horizontal flanges rearwardly extended on the latch block and spaced by a

65

slot, the upper flange incurved and rounded on its rear end, and the lower flange sector-shaped and longer than the top flange, a pivot bolt engaging the flanges and intervening tongue, in its extension, a key sliding in a

70

vertical slot of the draw-head at its transverse center and adapted to lock the latch block when lowered and release said block when raised, and means to move the key by manipulation from the side or roof of a car, substantially as described.

75

3. In a car coupling, the combination with a draw-head body, a thinner horizontal tongue forwardly projected therefrom at the center of thickness, and incurved on its front edge, a forward extension on said tongue at one side, an upwardly projecting abutment wall on the tongue at the rear of its extension and incurved on its inner side, a pivot hole in the extension of the tongue forward of the abut-

85

ment wall, and a vertical rectangular and longitudinal slot at the transverse center of the drawhead, partly opposite the curved inner face of the abutment wall, of a latch block having a rounded front end, a transverse

90

latching shoulder laterally formed near the front end, two spaced horizontal flanges rearwardly on the latch block, the upper flange incurved laterally and the lower flange sector-shaped and longer than the top flange, a

95

key shouldered on one edge, fitting the slot with its narrow part and adapted to receive the impingement of the latch block flanges laterally when lowered, and means to move the key from the side or roof of a car, sub-

100

stantially as described.

WILLIAM W. SMITH.

Witnesses:

GEO. W. HALL,

J. T. HANNOT.