No. 777,752. PATENTED DEC. 20, 1904.

L. SCHEIB, JR. & L. SCHEIB, SR.

JAW COUPLING.

APPLICATION FILED AUG. 2, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1

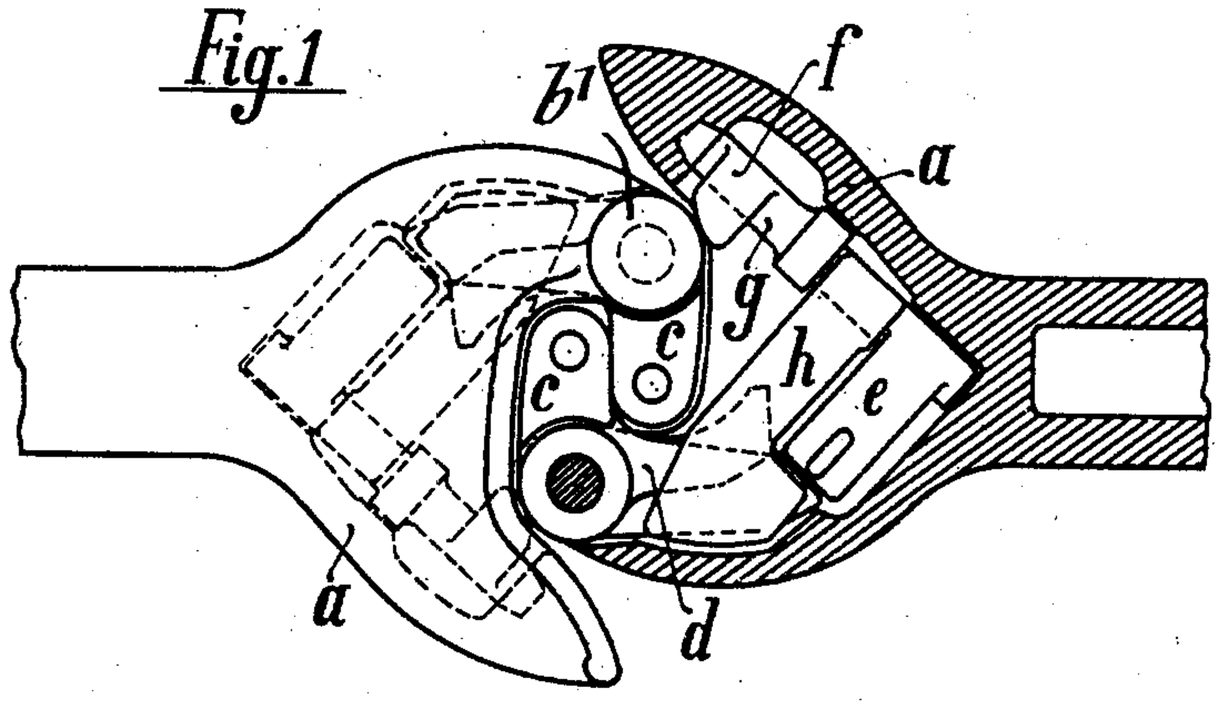


Fig. 2

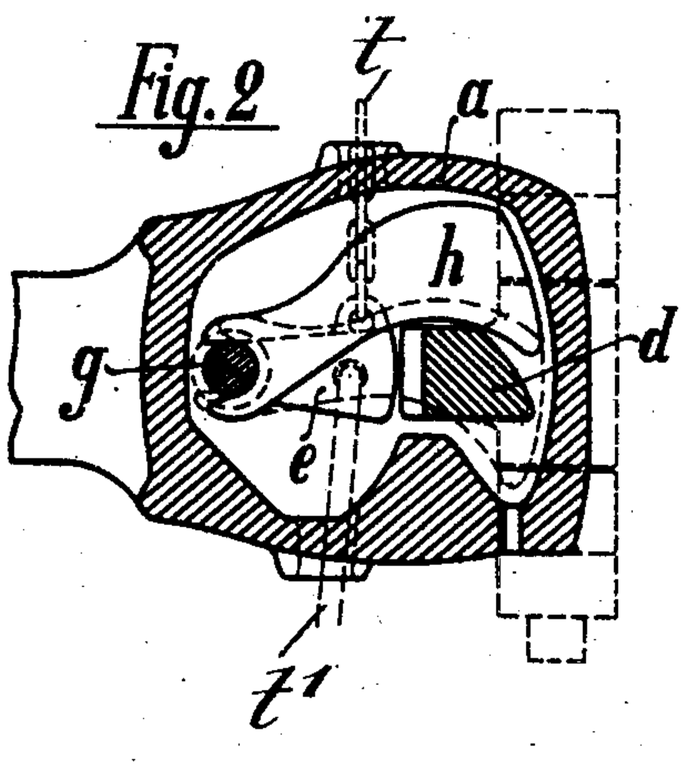


Fig. 3

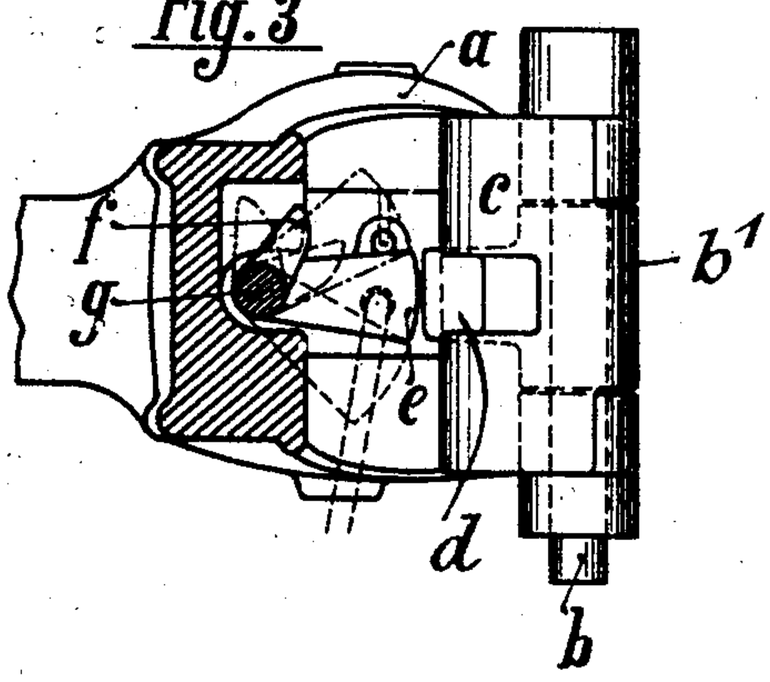
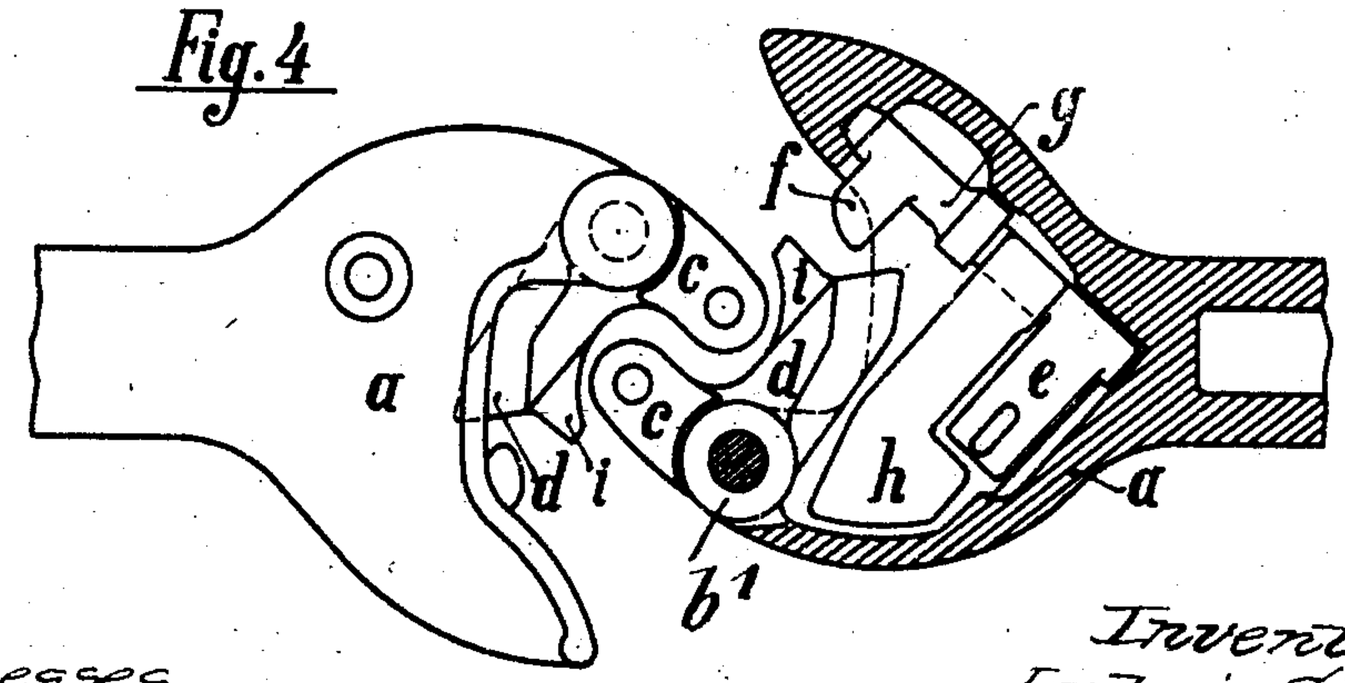


Fig. 4



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 5

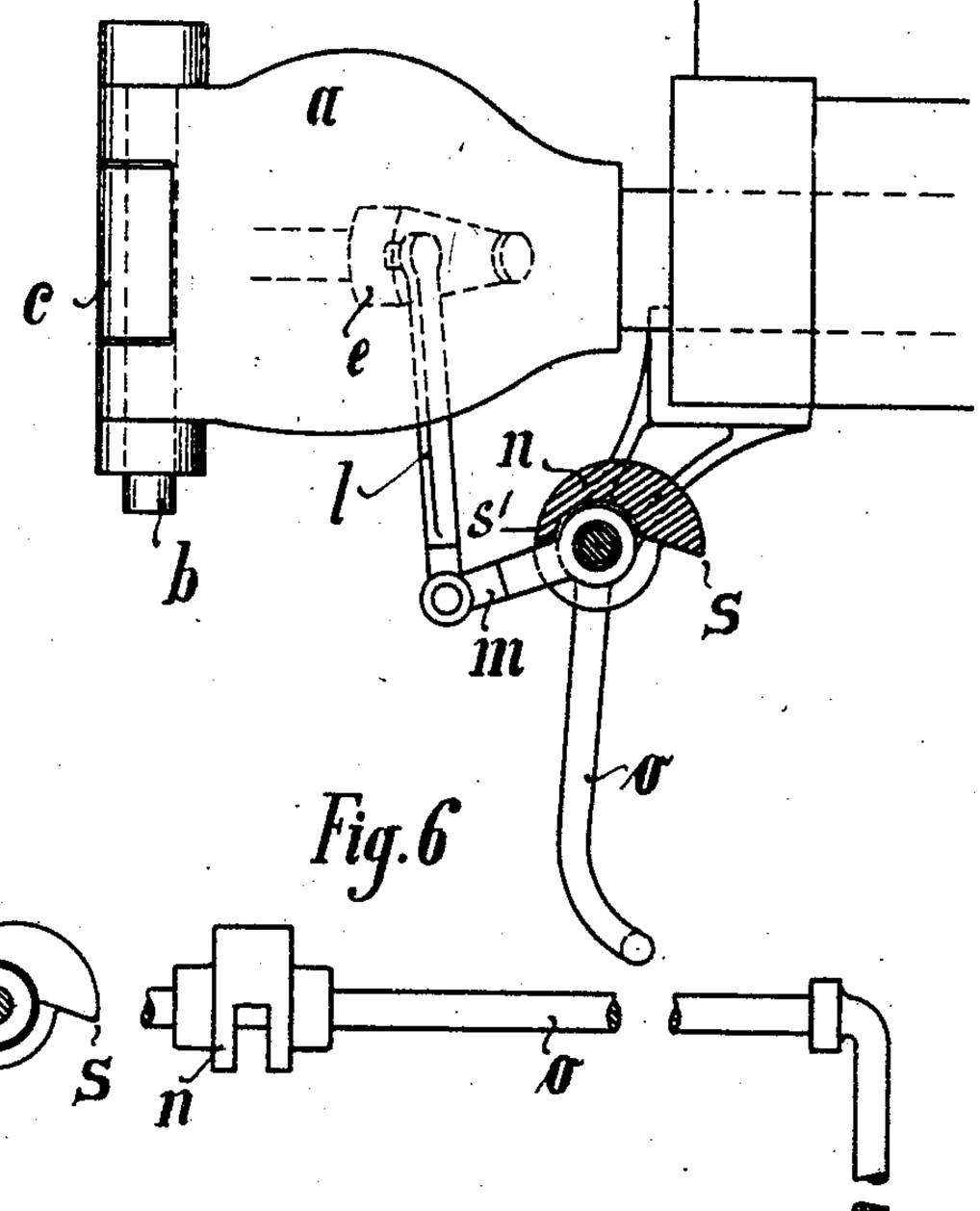
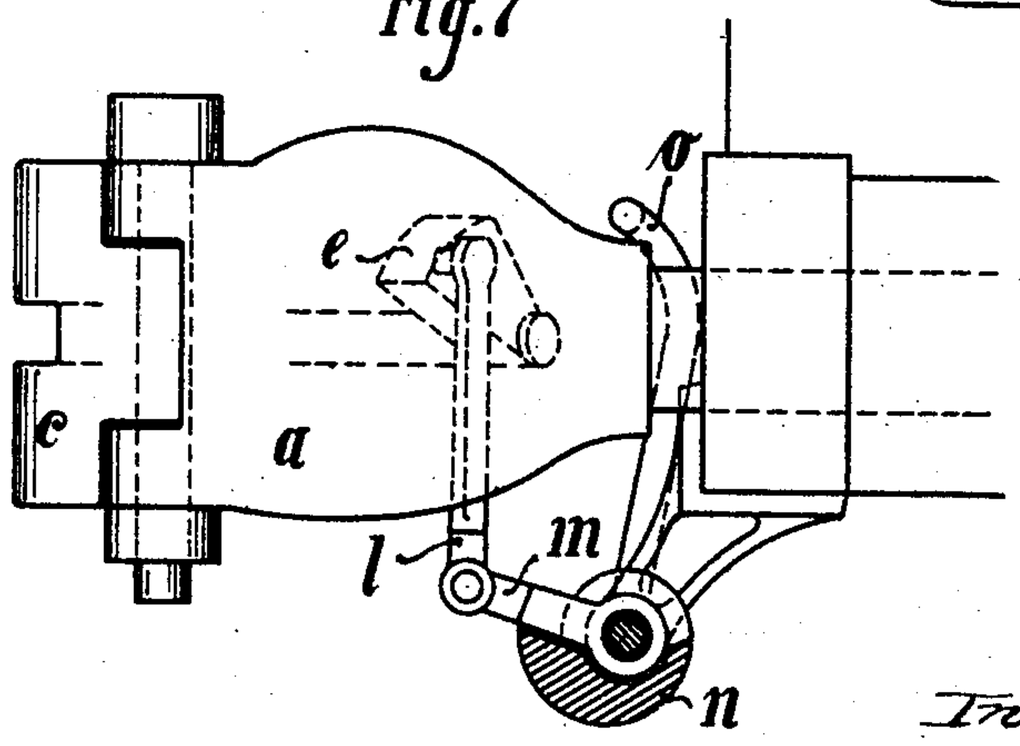


Fig. 6

Fig. 7



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No. 777,752. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

LUDWIG SCHEIB, JR., AND LUDWIG SCHEIB, SR., OF KAISERSLAUTERN, GERMANY.

JAW-COUPLING.

SPECIFICATION forming part of Letters Patent No. 777,752, dated December 20, 1904.

Application filed August 2, 1904. Serial No. 219,239.

To all whom it may concern:

Be it known that we, LUDWIG SCHEIB, Jr., and LUDWIG SCHEIB, Sr., engineers, subjects of His Majesty the Emperor of Germany, residing at Kaiserslautern, Germany, have invented certain new and useful Improvements in or Relating to Jaw-Couplings; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a jaw-coupling which is arranged between the buffers and is provided with a vertically-swinging locking arm or catch and with a device for automatically opening the jaws.

The essential advantages of the improved coupling as compared with those hitherto employed consists in the fact that that half of the complete coupling which is not unlocked automatically unlocks and opens when the cars are separated, while both the coupling-heads automatically lock and close when the cars are run together. Consequently coupling-heads cannot come into contact with each other in a locked or closed position, and injury to the coupling from this cause, a matter of frequent occurrence, is obviated.

In the annexed drawings, in which similar letters refer to corresponding parts in all the figures, Figure 1 shows in part-sectional plan two coupling-heads with the jaws closed. Figs. 2 and 3 are transverse sections of these heads, Fig. 2 being a section taken in front of the weighted swinging arm *h*, which throws the coupling-jaw outward, and Fig. 3 a section taken in front of the locking-arm *e*, which locks the coupling-jaws. Fig. 4 is a similar view to Fig. 1, showing the jaws open and the coupling-heads disengaged. Figs. 5, 6, and 7 are views illustrative of the hand-operated device by means of which the locking-arm *e* is released.

a is the coupling-head of the usual form, and *c* is the coupling-jaw, which has an arm *d* extending at about right angles from it and which oscillates on the pivot or pin *b*, passed through the bearing *b'*, provided on the head. Within the said head is journaled a rock-shaft *g*, which carries the locking-arm *e* and the lever *f*. The locking-arm *e* acts in a similar manner to the vertically-rotating catch usually employed in connection with jaw-couplings, and both it and the lever *f* are so adjusted in relation to one another that the latter extends obliquely upward when the locking-arm is in the horizontal locking position.

Between the locking-arm *e* and the lever *f* a weighted arm *h* is freely pivoted on the shaft *g*, the function of this arm *h* being to automatically swing the jaw *c* into its open position when the coupling-heads are moved apart. When the jaw *c* is in its closed position, the arm *h* bears, as seen in Fig. 2, upon the arm *d*, of which latter one face or edge is beveled or inclined, and so soon as the jaw is unlocked the weight of the arm *h* on the inclined face of the arm *d* forces the jaw *c* outward. So long as the locking-arm *e* and the lever *f* are left to themselves—that is to say, so long as they are in their lowest position—the arm *d* can move freely past the locking-arm *e* into the open position, and the coupling is in consequence not locked. Similarly, the arm *d* moves freely when the locking-arm *e* is raised to its extreme position. The jaws can therefore only be locked when the locking-arms *e* are in their intermediate or horizontal positions. If now the cars are run toward one another, the lever *f*, which extends obliquely upward, will be swung upward, owing to the bearing *b'* of the other coupling-head coming into contact with it, and will be retained in that position while the locking-arm *e* is simultaneously raised to its intermediate locking position in front of the arm *d*, thereby holding the jaw *c* closed. The lower edge or face of the locking-arm *e* may also be beveled or inclined, so that the arm *d* in moving inward may by engaging with this inclined edge assist in raising the locking-arm *e* to its intermediate position. The arm *d* when swinging into the closed position raises at the same time by means of its inclined surface the weighted arm *h*, which remains resting upon the arm *d* until the coupling is released.

Any injury likely to be caused to the wall of the head or casing *a* by the impact of the

arm *h* thereon when swung upward on the cars being run violently together may be neutralized or considerably reduced by the provision of a suitable buffer, such as a spring, india-rubber, wood, or the like. To facilitate the swinging of the arm *d* into position, it may be furnished with the curved guide-piece *i*, along which the jaw *c* of the opposite head slides.

To insure that the lever *f* shall be swung upward to its correct position when the cars are run together, even should the two coupling-heads be not absolutely on a level with each other, the head of the bolt *b* may be suitably extended to form, as it were, a prolongation of the bearing *b'*, through which it passes.

If the locking-arm *e* of one coupling-head is moved, as by the releasing device hereinafter described, the coupling becomes released and the cars can be moved apart, with the result that the lever *f* of the other head is freed and falls, together with the locking-arm *e*, thereby releasing the arm *d*, and this latter being no longer prevented from moving freely the weighted arm *h* comes into action, and in consequence of its weight pressing against the inclined face of the arm *d* swings the jaw *c* outward into the open position. Both halves of the coupling are now consequently unlocked and ready for use. The heads cannot possibly come into contact with each other in a locked position, as the locking-arms *e* can only assume the position in which they lock the jaws after both the coupling-heads have been pushed together.

The device for releasing the locking-arm *e* from engagement with the arm *d* of the coupling-jaw, which is illustrated in Figs. 5, 6, and 7, comprises a shaft *o*, journaled transversely of the car and in suitable bracket-bearings and having crank-handles at its extremities, a lever *m*, mounted freely on the shaft *o* and connected by the link *l* with the locking-arm *e*, and a projection *s*, fixed to the shaft *o*, which when the latter is rotated through half a revolution engages the under side of the lever *m* and raises the latter, thereby moving the locking-arm *e* upward out of engagement with the arm *d*, as shown in Fig. 7. When the coupling-heads have been disengaged, the releasing device is returned to its normal position, Fig. 5. The aforesaid projection *s* preferably extends from a boss *n*, keyed to the shaft *o*, and slotted to receive the end of the lever *m*. Since the latter is mounted freely on the shaft *o* and since there is a certain amount of lost motion when the latter is rotated to lift the lever *m* before the projection *s* engages with the latter, the locking-arm *e* will drop to its lowest position when the couplings have been disengaged independently of movement of the shaft *o*. Accidental lifting of the locking-arm *e* is prevented by the projection *s'*, which bears on the upper edge of *m* when *e* is in its locking position. Other suitable hand-operated means for releasing the locking-arm *e* may be employed—such, for example, as the chain *t* or rod *t'*, Fig. 2—without departing from our invention.

What we claim, and desire to secure by Letters Patent of the United States, is—

1. In a jaw-coupling the combination with a pivoted coupling-jaw having an arm *d* provided with an inclined face extending therefrom and means for locking such jaw in its closed position, of a weighted arm *h* which rests on the inclined face of the arm *d* when the coupling is closed and by its weight swings the same outward when the coupling is unlocked and its halves are moved apart, substantially as described and for the purpose set forth.

2. In a jaw-coupling, the combination of a head *a*, a coupling-jaw *c* pivoted therein and having an arm *d* extending from it, a rock-shaft *g*, a locking-arm *e* extending therefrom which when in its intermediate position locks the arm *d* aforesaid, a lever *f* also mounted on the rock-shaft and actuated by the opposite coupling-head to bring the locking-arm *e* to its intermediate locking position when the cars are run together, a pivoted weighted arm *h* which when the coupling-jaw is closed bears on an inclined surface of its arm *d* and by its weight swings such arm to automatically open the coupling-jaw when the locking-arm *e* has left its intermediate position, and means connected with said locking-arm to move the same from its locking position at will, substantially as described.

3. In a jaw-coupling, the combination with a pivoted coupling-jaw and a pivoted catch which when in its intermediate position holds the coupling-jaw closed, of means for lifting such catch to release it comprising the shaft *o* journaled transversely of the car end, a lever *m* mounted freely thereon, a link connecting the latter with the locking-arm and a projection *s* fixed to the shaft *o* which engages with the under side of the lever *m* to lift the same when the said shaft is rotated, the said projection *s* being so placed on shaft *o* that when the latter is rotated there is a certain amount of lost motion before it engages the lever *m* to lift it, substantially as described and for the purpose set forth.

In testimony whereof we have hereunto set our hands in the presence of two witnesses.

LUDWIG SCHEIB, Junior.
LUDWIG SCHEIB, Sr.

Witnesses:
Karl Grof,
Michael Zimmermann.