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PATENTED JAN. 10, 1905.

J. A. HINSON, DEC'D.
M. HINSON, ADMINISTRATRIX.

CAR COUPLING.

APPLICATION FILED JUNE 24, 1903.

3 SHEETS—SHEET 1.

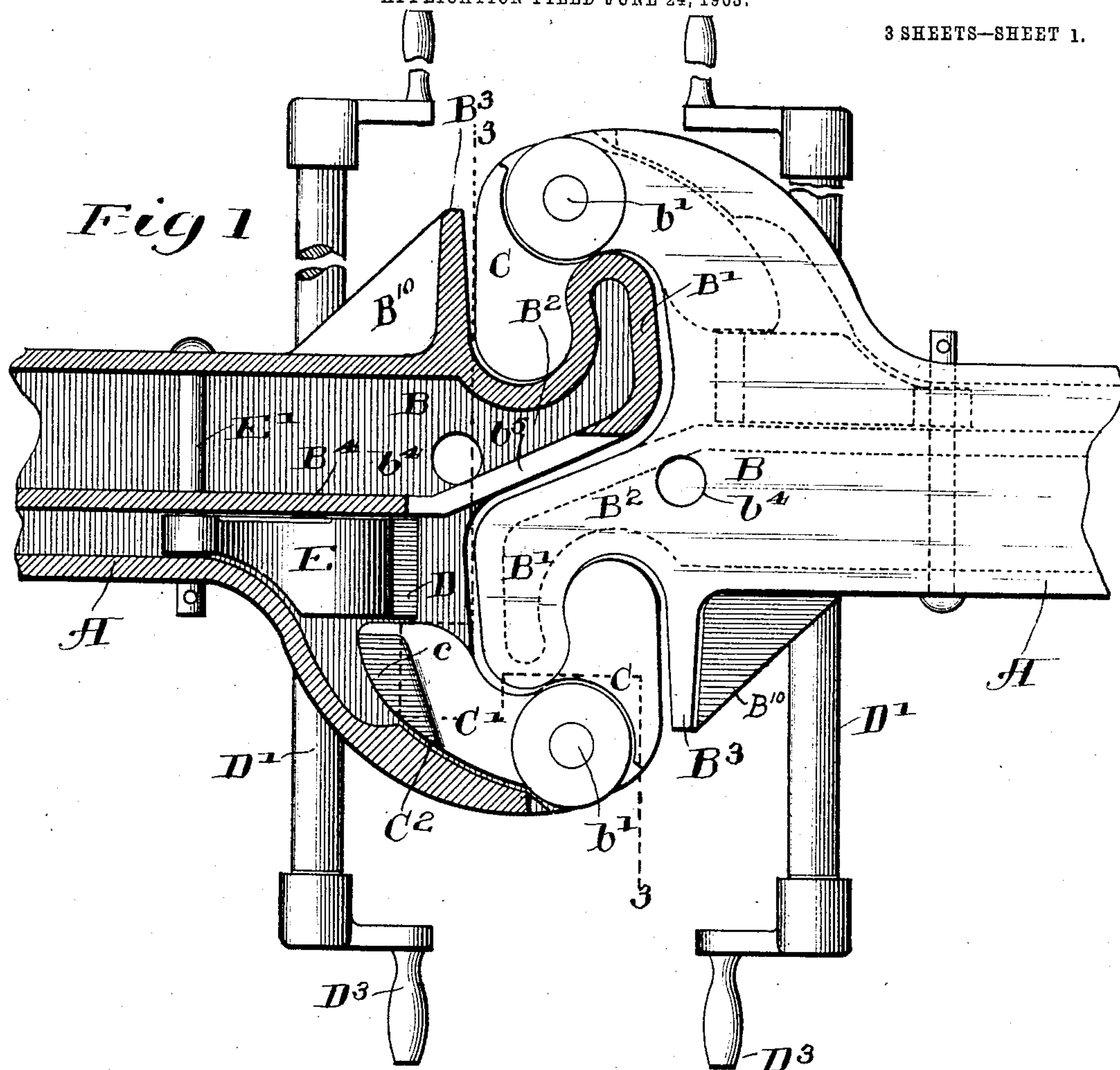
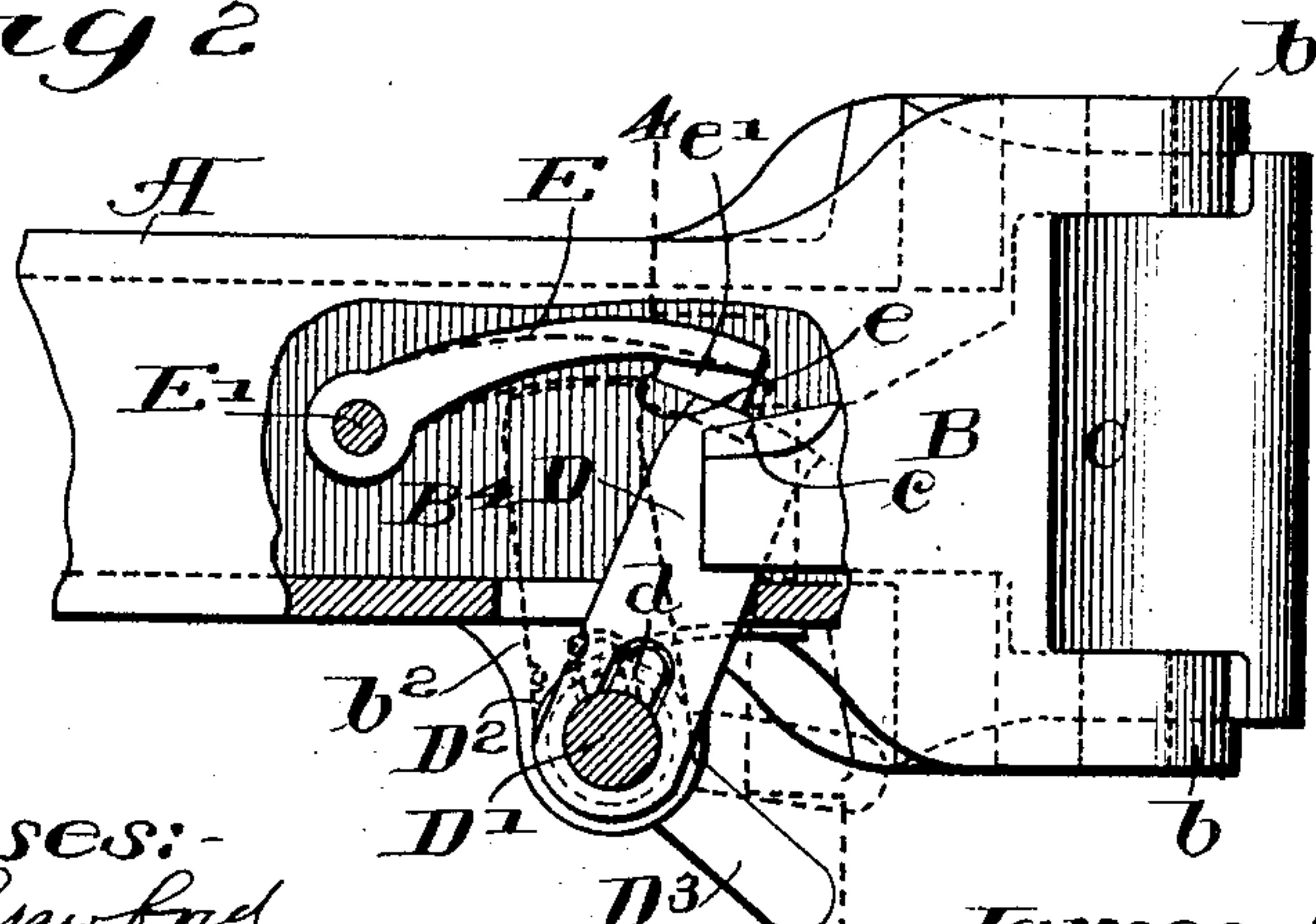


Fig 2



Witnesses:
Carl M. Crawford
William H. Hill

Inventor
James A. Hinson
by Robert Brown
his Attorneys

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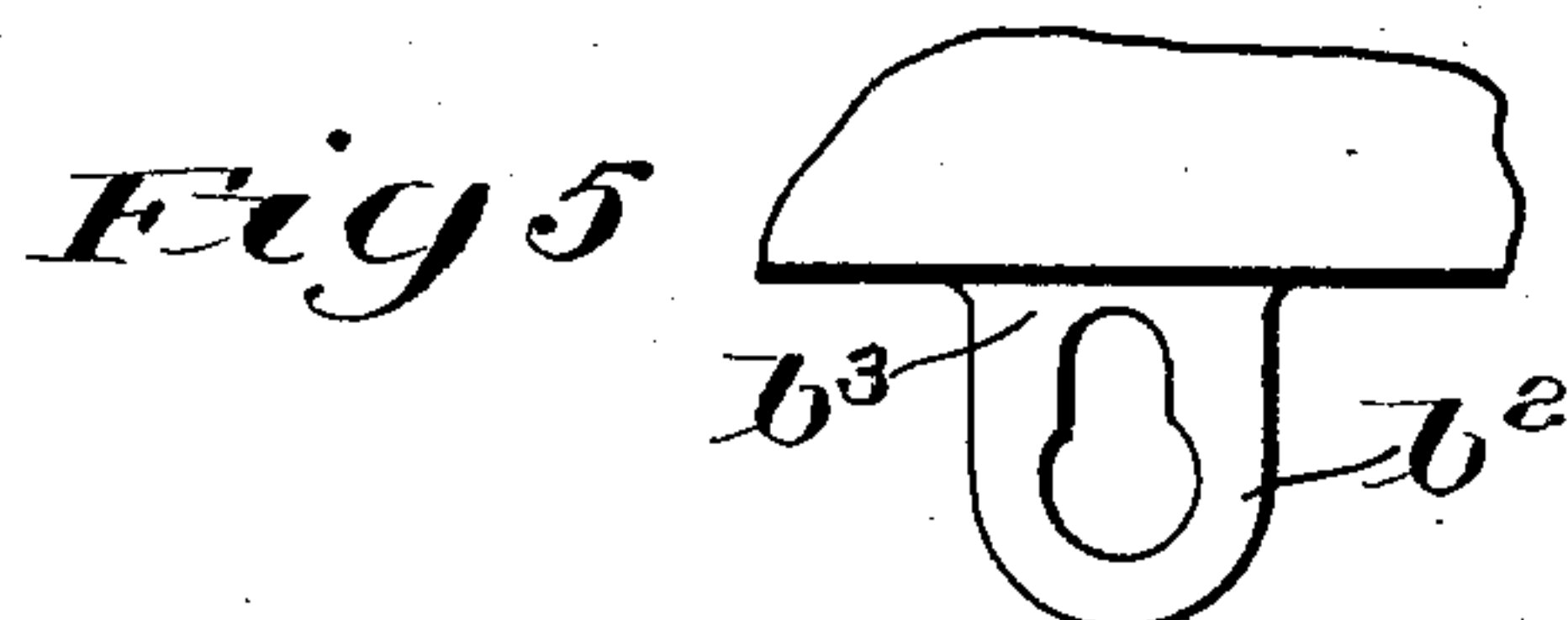
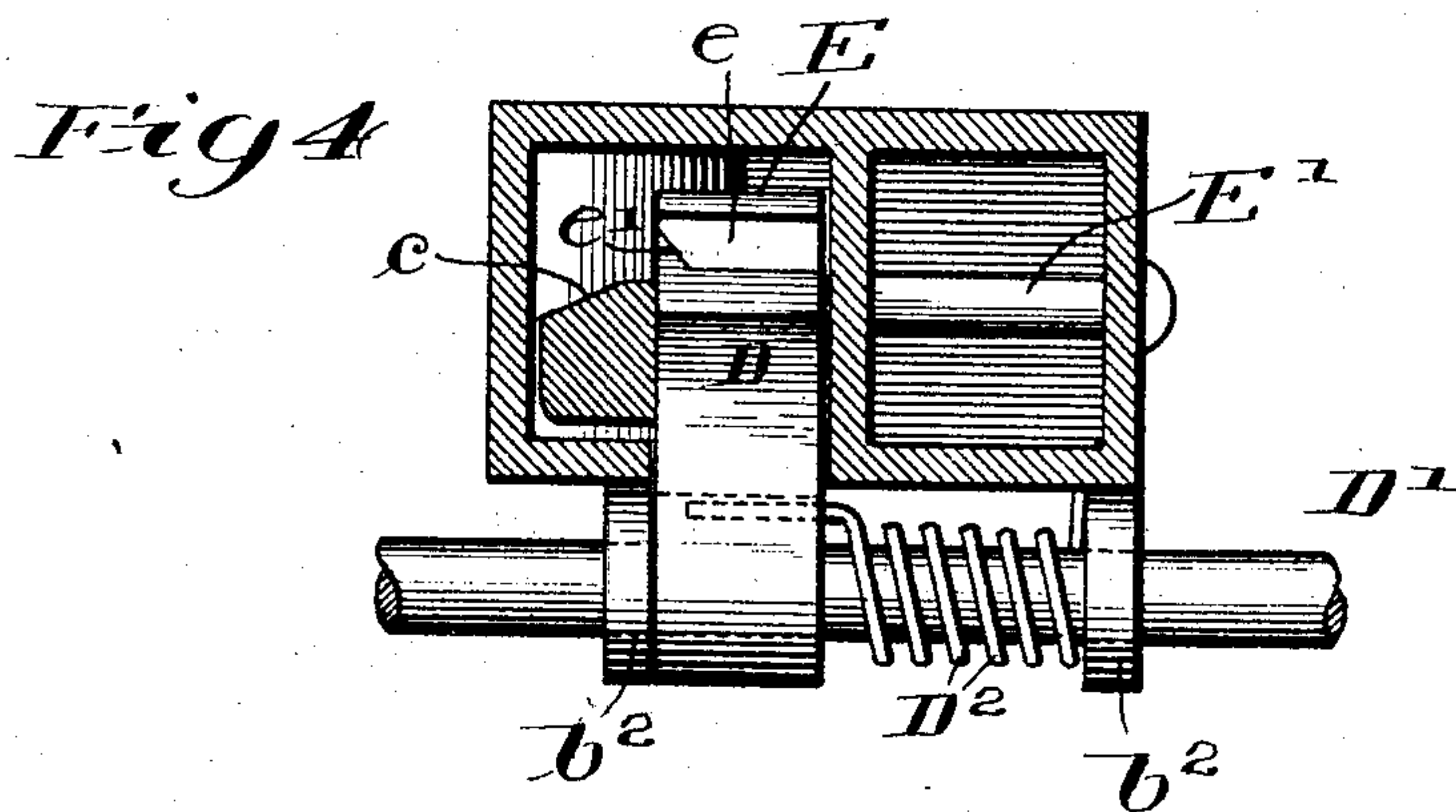
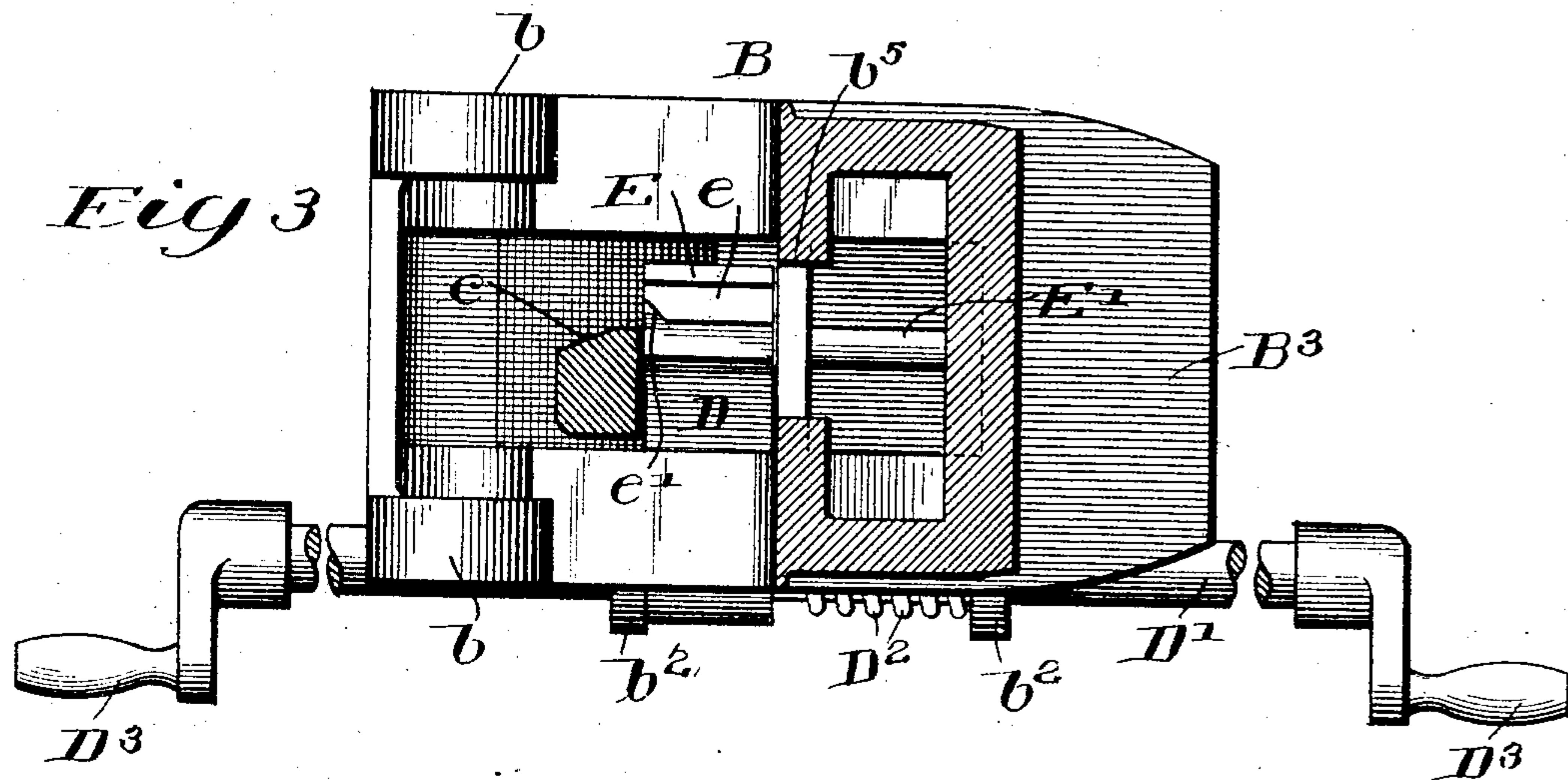
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Witnesses:

Carl H. Crawford
William H. Hall

Inventor.

James H. Hinson
by Robert V. Brown
His Attorneys

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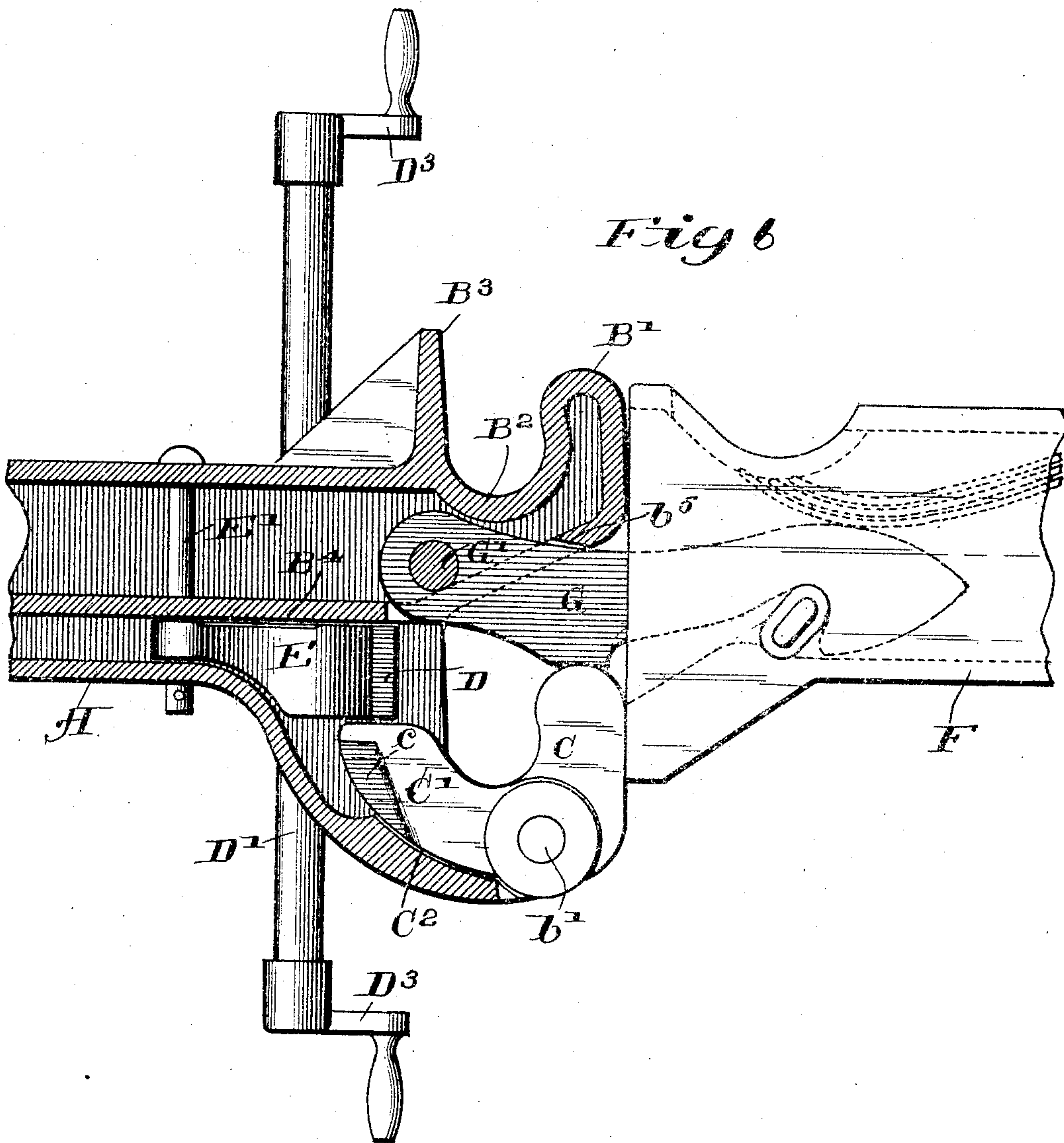
J. A. HINSON, DEC'D.

M. HINSON, ADMINISTRATRIX.

CAR COUPLING.

APPLICATION FILED JUNE 24, 1903.

3 SHEETS—SHEET 3.



Witnesses:-

Carl S. Crawford
William Hall

Inventor;

James H. Hinson
by Violet Brown
his Attorneys

UNITED STATES PATENT OFFICE.

JAMES A. HINSON, OF CHICAGO, ILLINOIS; MARGARET HINSON ADMINISTRATRIX OF SAID JAMES A. HINSON, DECEASED.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 779,601, dated January 10, 1905.

Application filed June 24, 1903. Serial No. 162,860.

To all whom it may concern:

Be it known that I, JAMES A. HINSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in car-couplers; and the invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a top plan view of two connected couplers embodying my invention, one coupler being shown partly in section. Fig. 2 is a side view of one of the couplers with parts broken away to show the interior construction. Fig. 3 is a transverse section of one of the coupler-heads, taken on the indirect line 3 3 of Fig. 1. Fig. 4 is a transverse section taken on the indirect line 4 4 of Fig. 2. Fig. 5 is a detail illustrating a fragment of the coupler-head hereinafter to be explained. Fig. 6 is a top plan view, partly in section, illustrating the manner of connecting my improved coupler with couplers now in use, the type of old coupler herein shown being the Van Dorn coupler.

As shown in the drawings, A A designate the draw-bars of two adjacent couplers, B B the hollow draw-bar or coupler-heads thereof, and C C horizontally-swinging knuckles pivoted to and between laterally-projecting upper and lower arms *b b* at the sides of said heads by means of vertical pivot-pins *b'*. Each of said heads is provided on the side thereof opposite to its swinging knuckle C with a rigid forwardly-extending hook B', which is directed laterally away from the knuckle of said head and pointing in the same direction as the hook end of the knuckle. Said hook B' of each head is connected with the coupler-head by means of a stem or shank B². Preferably the said hook B' and its shank B² are made hollow.

B³ B³ designate laterally-directed guard-

arms, one on each coupler-head just in rear of its hook B', and between each guard-arm B³ and the adjacent hook B' is provided a space which receives the hooked end of the knuckle of an associated coupler, the hook of one coupler having interfitting connection with the knuckle of an associated or connected coupler. Said guard-arms are strengthened by suitable webs or braces B¹⁰. When the couplers of my improved type are brought together in coupling relation, the shanks of the hooks of the two couplers lie together side by side with their hooks directed laterally and oppositely, as clearly shown in Fig. 1, and the knuckles of two adjacent couplers pass over the lateral hooks from the outside thereof in the act of coupling. The arrangement herein shown constitutes, therefore, a double coupler wherein the knuckles of two adjacent couplers instead of intercoupling, as in the ordinary type of couplers now in use, interfit with the rigid hooks B' of the connected couplers. The parts are so proportioned and arranged as to rigidly connect the same, so that the flexure which occurs when two coupled cars are rounding a curve takes place at the hinged connection between the couplers and the cars.

The tailpiece C' of each knuckle projects rearwardly into the hollow head of the couplers, as clearly shown in Figs. 1, 2, and 6, and is locked in its closed position by a lock-arm D, which is rigidly attached to a horizontal rock-shaft D', extending transversely beneath the head and rotatively mounted in depending lugs or ears *b² b²*, formed on said head, as more clearly shown in Figs. 2, 4, and 5. Said lock-arm D extends upwardly into the rear end of the hollow head through an opening in the bottom wall thereof and when in its locking position is located inside of the tailpiece C' of the knuckle, and therefore in the path of the knuckle, so as to prevent said knuckle swinging outwardly on its pivot *b'*. The said lock-arm D is shown as made separated from the rock-shaft and is provided at its lower end with a transverse aperture through which the rock-shaft extends, and the rock-shaft is pro-

vided with a radial lug d , (more clearly shown in Fig. 2,) which fits a complementary socket in the arm, intersecting its transverse aperture, whereby rotation of the arm on the shaft is prevented. One of the ears or lugs b^2 , in which the shaft is mounted, is provided with a notch b^3 , as shown in Fig. 5, through which said lug d of the rock-shaft may pass when inserted in place. The lock-arm of the rock-shaft is given a normal tendency to swing forwardly with its upper end in the path of the tailpiece of the knuckle when the knuckle is closed, by means of a spiral spring D^2 , which surrounds the rock-shaft and bears at one end against the coupler-head and at its other end against the lock-arm, as shown in Fig. 4. The forward wall of the opening in the coupler-head through which the lock-arm D extends upwardly constitutes a stop which limits the forward throw of the lock-arm. Such tendency of the lock-arm to swing forwardly may be accomplished by the equivalent expedient of weighting or overbalancing the arm in a manner to bring the center of gravity forwardly of its pivot.

The lock-arm is swung rearwardly from its locking position by rocking the shaft D' in its bearings, and this is effected in this present instance by means of cranks D^3 , attached to the opposite ends of said rock-shaft, said rock-shaft being extended sufficiently beyond the coupler-head, on each side thereof, to be readily accessible for the purpose of throwing the lock-arm backwardly when the coupler is in place upon a car. The lock-arm is swung into its unlocking position against the action of the spring D^2 by manual force applied to the cranks D^3 , and when such manual force is released the spring D^2 throws or tends to throw the lock-arm forwardly into the path of the tailpiece of the knuckle, as shown in full lines in Fig. 2, and therefore in its locking position.

The coupler is provided with an interior web or partition B^4 , located on the side of the lock-arm opposite to the rear end of the tailpiece of the knuckle when the latter is closed and extends, as herein shown, from the upper to the lower wall of the hollow draw-bar. Said web or partition constitutes an abutment against which the said lock-arm D is laterally pressed by the tailpiece of the knuckle to resist the opening movement of the knuckle when said lock-arm is in its locking position. Said web or partition B^4 , as herein shown, is a rearward continuation of the inner wall of the shank of the hook B' . The abutment afforded by said web or partition may be afforded by other constructions.

The lock-arm D is adapted to be set or locked in its rearward or unlocking position by means of a generally horizontal vertically-swinging latch E , which is pivoted at its rear end to a horizontal pin E' , which extends

transversely across the draw-bar in rear of the coupler-head. Said latch is provided on its under face with a detent e , Fig. 2, which is adapted to engage the forward upper corner or other part of the lock-arm when the latter is thrown in its rearward position, as shown in dotted lines in Fig. 2. When said lock-arm is locked in its rearward position by the latch E , the tailpiece of the knuckle is free to pass said arm to permit the knuckle to open. The detent of said latch is provided at the side thereof adjacent to the tailpiece of the knuckle when the knuckle is closed with a downwardly and laterally oblique face e' . When the lock-arm D is in its locking position, as shown in full lines in Fig. 2, the detent bears upon the upper end of the lock-arm, which holds the same above the level of the upper face of the tailpiece of the knuckle. When said lock-arm is swung backwardly into its unlocking position and is set or held in such position by the latch, the detent of said latch drops downwardly inside of the tailpiece, with its inner end below the level of the upper face of the tailpiece of the knuckle, as shown in dotted lines in Fig. 2. After the lock-arm is set, therefore, in its unlocking position and held therein by the latch and when the knuckle is opened the tailpiece in swinging inwardly strikes said oblique surface e' on the detent of the latch and raises the latch sufficiently to disengage the latch from said lock-arm. When the lock-arm is thus released, it swings forwardly under the action of its spring D^2 against the outer curved face C^2 of the tailpiece, which at this time is located in front of said lock-arm. During the time the opening movement of the knuckle occurs and while it stands open said lock-arm bears against the said curved outer face C^2 of the knuckle-tailpiece, and when the knuckle is again closed said tailpiece forces the lock-arm backwardly as it closes until it has passed said lock-arm, whereupon said lock-arm is swung into the path of said tailpiece and locks the knuckle in its closed position. The tailpiece does not swing the lock-arm backwardly sufficiently during the closing movement of the knuckle to engage the upper end of the arm with the detent of the latch in a manner to set or lock the arm.

The tailpiece of the knuckle is provided on its upper outer corner with an upwardly and laterally facing oblique surface c , which engages the forward end of the latch during the closing movement of the knuckle, so as to raise said latch out of its way in case the forward end of the latch be dropped below the level of the upper face of the tailpiece.

When two connected couplers are to be uncoupled or disconnected, the lock-arms of both couplers are swung into their rearward or unlocking positions and locked or set by their latches E , so that when the cars with

which the couplers are connected are separated the knuckles are free to open. During the opening movement of said knuckles the tailpieces thereof strike the oblique faces c' of the latches and raise the latter sufficiently to release the lock-arms, whereupon the latter are swung forwardly by their springs D^2 against the outer curved faces C^2 of the tailpieces of the knuckles and remain in this position so long as the knuckles are open. When the knuckles are closed, the outer laterally-curved faces C^2 of the tailpiece, against which the lock-arms bear, swing said lock-arms rearwardly until the tailpieces pass said arms, at which time the arms are swung forwardly into the paths of said tailpieces to lock the knuckles closed. If after the knuckles have been opened the latches are swung backwardly and are set or locked in their rearward positions and the detents at the forward ends of the latches are therefore below the level of the upper faces of the tailpieces of the knuckles, the oblique faces c of the tailpieces strike said latches and raise them, so as to allow the tailpieces to pass freely thereunder and also to release the lock-arm, whereupon the lock-arms swing forwardly against the side curved margins C^2 of said tailpiece in the manner before stated.

The coupler herein shown is designed to be used with other forms of couplers now in common use and is shown in Fig. 6 as connected with the Van Dorn type of coupler F. In order to provide for such adaptation of my coupler, the coupler-head is provided with a forwardly-directed opening b^5 , through which may be inserted a suitable form of link G, and which link extends sufficiently beyond the end of the coupler to engage the coupler F. The opening b^5 herein shown is provided in the inner wall of the shank B^2 of the hook B' , said opening being made of sufficient width to receive the rear end of the link and permit a limited swinging movement thereof. Said rear end of the link is apertured to receive a vertical pivot or hinge-bolt G' , which extends vertically through an opening b^4 in the upper and lower walls of the coupler-head.

I claim as my invention—

1. A car-coupler comprising a coupler-head provided on one side with a rotative knuckle or hook and provided on its other side with a forwardly and laterally directed hook rigid with said head and in rear of the laterally-directed part of the rigid hook with a laterally-projecting guard-arm.

2. A car-coupler comprising a coupler-head provided on one side with a rotative knuckle or hook and provided on its other side with a forwardly and laterally directed hook rigid with said head and in rear of the laterally-directed part of the rigid hook with a laterally-projecting guide-arm, and a strengthening web or brace between the guide-arm and the body or shank of the coupler.

3. A car-coupler comprising a head provided on one side with a laterally and forwardly directed rigid arm having at its forward end vertically-separated lugs or ears, a rotative knuckle pivoted between said lugs or ears and having a tailpiece which extends rearwardly through said arm and into the coupler-head, said head being provided on its other side with a forwardly and laterally directed hook, the laterally-directed part of which extends in the same direction as the hook of the laterally-directed knuckle when in its closed position.

4. A car-coupler comprising a head provided on one side with a laterally and forwardly directed rigid arm having at its forward end vertically-separated lugs or ears, a rotative knuckle pivoted between said lugs or ears and having a tailpiece which extends rearwardly through said arm and into the coupler-head, said head being provided on its other side with a forwardly and laterally directed hook, the laterally-directed part of which extends in the same direction as the hook of the laterally-directed knuckle when in its closed position, and a guard-arm extending laterally from the head in rear of the rigid hook.

5. A car-coupler comprising a hollow draw-bar head provided with a hooked, swinging knuckle having a tailpiece which extends rearwardly into said hollow head, a swinging lock-arm adapted to stand normally in the path of said tailpiece to lock the knuckle closed, means for swinging said lock-arm out of the path of said tailpiece to permit the knuckle to open, a latch which is contained wholly within the hollow head and is provided with a detent which engages the lock-arm when the latter is swung out of the path of the tailpiece to hold the arm in its retracted position, and means whereby said arm is automatically released from said latch during the opening movement of the knuckle.

6. A car-coupler comprising a hollow draw-bar head provided with a hooked, swinging knuckle having a tailpiece which extends rearwardly into said hollow head, a swinging lock-arm which extends upwardly through an opening in the bottom wall of the head, in rear of said tailpiece, and which normally stands in the path of said tailpiece, a rock-shaft mounted on the draw-bar beneath said opening, means for swinging said rock-shaft to move the lock-arm out of the path of said tailpiece to permit the knuckle to open, a movable latch in said head which engages the lock-arm to hold it in its retracted position and co-acting parts on the tailpiece and said latch constructed to automatically release the latch from the tailpiece during the opening movement of the knuckle.

7. A car-coupler comprising a hollow draw-bar head provided with a hooked, swinging knuckle having a tailpiece which extends

rearwardly into said hollow head, a swinging lock-arm which is adapted to normally stand in the path of the tailpiece to lock the knuckle closed, means for swinging said lock-arm out of the path of the tailpiece to permit the knuckle to open, a vertically-swinging latch which is pivoted to a part in rear of the lock-arm and extends forwardly and rides on the upper end of said lock-arm, said latch being provided at its forward end with a detent which, when the lock-arm is retracted, engages the arm in a manner to lock the arm in its retracted position, said detent, when thus engaged with the arm, projecting forwardly from said arm and being adapted for engagement with the tailpiece of the knuckle during the opening movement of the latter, whereby the latch is lifted to release the said detent from said lock-arm.

8. A car-coupler comprising a hollow draw-bar head provided with a hooked, swinging knuckle having a tailpiece which extends rearwardly into said hollow head, a swinging lock-arm which is adapted to normally stand in the path of the tailpiece to lock the knuckle closed, means for swinging said arm away from said tailpiece to permit the knuckle to open, a vertically-swinging latch which is pivoted to a part in rear of the lock-arm and extends forwardly from its pivot and rides at its forward end on said lock-arm, said latch being provided with a detent which is adapted to engage a part on the lock-arm when the latter is retracted to hold said arm in its retracted position, and coacting parts on the forward end of said latch and on the tailpiece acting during the opening movement of the knuckle to release the latch from said lock-arm.

9. In a car-coupler, the combination with the knuckle-tailpiece provided with a rearwardly and laterally curved face, of a lock-arm which is adapted to normally stand in the path of the tailpiece to lock the knuckle closed, means for retracting said arm out of the path of said tailpiece to permit the knuckle to open, said lock-arm engaging said curved face of the tailpiece during the opening movement of the knuckle, and when the knuckle stands open, a latch hinged to a part in rear of the lock-arm and supported at its forward end on said lock-arm and adapted to interlock therewith when the arm is retracted to hold the arm in its retracted position on the tailpiece and latch constructed to release the latch from the lock-arm during the opening movement of the knuckle.

10. In a car-coupler, the combination with a knuckle-tailpiece provided with a rearwardly and laterally curved face, a swinging lock-arm which is adapted to normally stand in the path of the said tailpiece and to rest against said curved face during the opening movement of the knuckle and when the knuckle

stands open, and a swinging latch which rides on an upwardly-facing surface of the lock-arm and is provided with a detent adapted to drop into engagement with a forwardly-facing surface of the lock-arm when the latter is retracted to hold said arm away from the tailpiece, and means for automatically releasing said latch from the arm during the opening movement of the knuckle.

11. In a car-coupler, the combination with a knuckle-tailpiece provided with a rearwardly and laterally curved face, a swinging lock-arm which is adapted to normally stand in the path of the said tailpiece and to rest against said curved face during the opening movement of the knuckle and when the knuckle stands open, and a swinging latch which rides on an upwardly-facing surface of the lock-arm and is provided with a detent adapted to drop into engagement with a forwardly-facing surface of the lock-arm when the latter is retracted to hold said arm away from the tailpiece, and coacting parts on the tailpiece and latch constructed to swing the latch out of engagement with the lock-arm during both the opening and closing movements of the knuckle.

12. A car-coupler comprising a hollow head provided on one side with a hooked, swinging knuckle having a tailpiece which extends rearwardly into said hollow head, and on its other side with a forwardly and laterally directed hook adapted for engagement with the knuckle of an associated coupler, a lock-arm adapted to normally stand in the path of the tailpiece to lock the knuckle closed and to be swung rearwardly away from said tailpiece to permit the knuckle to open, and an abutment in said head against which said lock-arm bears and which acts through said lock-arm and tailpiece to resist the opening movement of the knuckle.

13. A car-coupler comprising a hollow draw-bar head provided on one side with a hooked knuckle having a tailpiece which extends rearwardly into said hollow head and on its other side with a forwardly and laterally directed rigid hook adapted for engagement with the knuckle of an associated coupler, a lock-arm adapted to normally stand in the path of the tailpiece of the knuckle to lock the knuckle closed and to be swung rearwardly out of the path of said tailpiece to permit the knuckle to open and a vertical partition in said head extending rearwardly from and integral with one side of said rigid hook, and serving as an abutment against which said lock-arm bears on its side remote from said tailpiece.

14. A car-coupler comprising a hollow head and provided on one side with a hooked knuckle having a tailpiece which extends rearwardly into the hollow head, and on its other side with a forwardly and laterally directed rigid hook adapted for interlocking engagement with the knuckle of an associated coupler,

said coupler being provided at the base of said rigid hook with a forwardly-directed opening adapted to receive a link which extends forwardly therefrom for engagement with an associated coupler.

5 In testimony that I claim the foregoing as my invention I affix my signature, in presence

of two witnesses, this 18th day of June, A. D. 1903.

JAMES A. HINSON.

Witnesses:

WILLIAM L. HALL,
GEORGE R. WILKINS.