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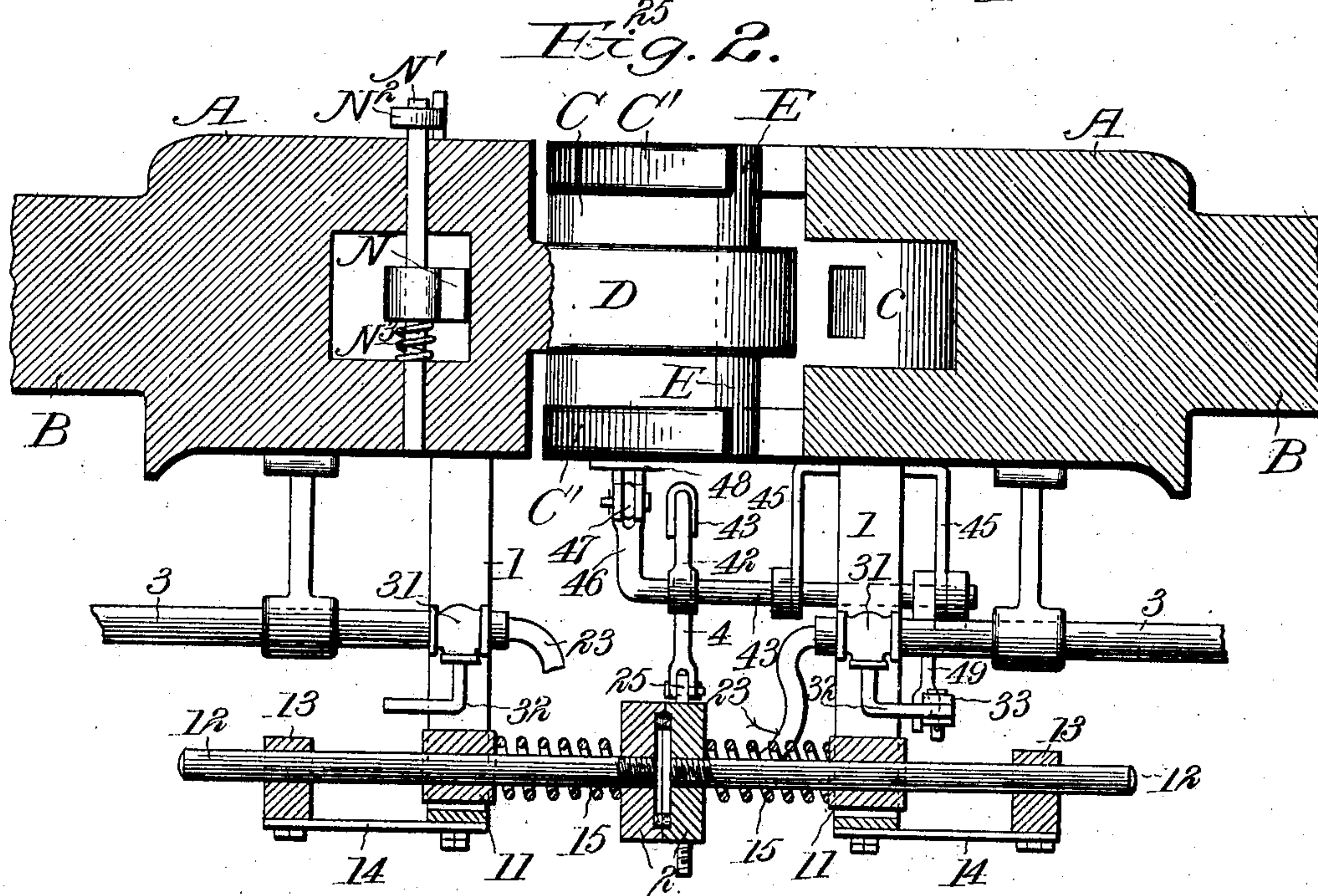
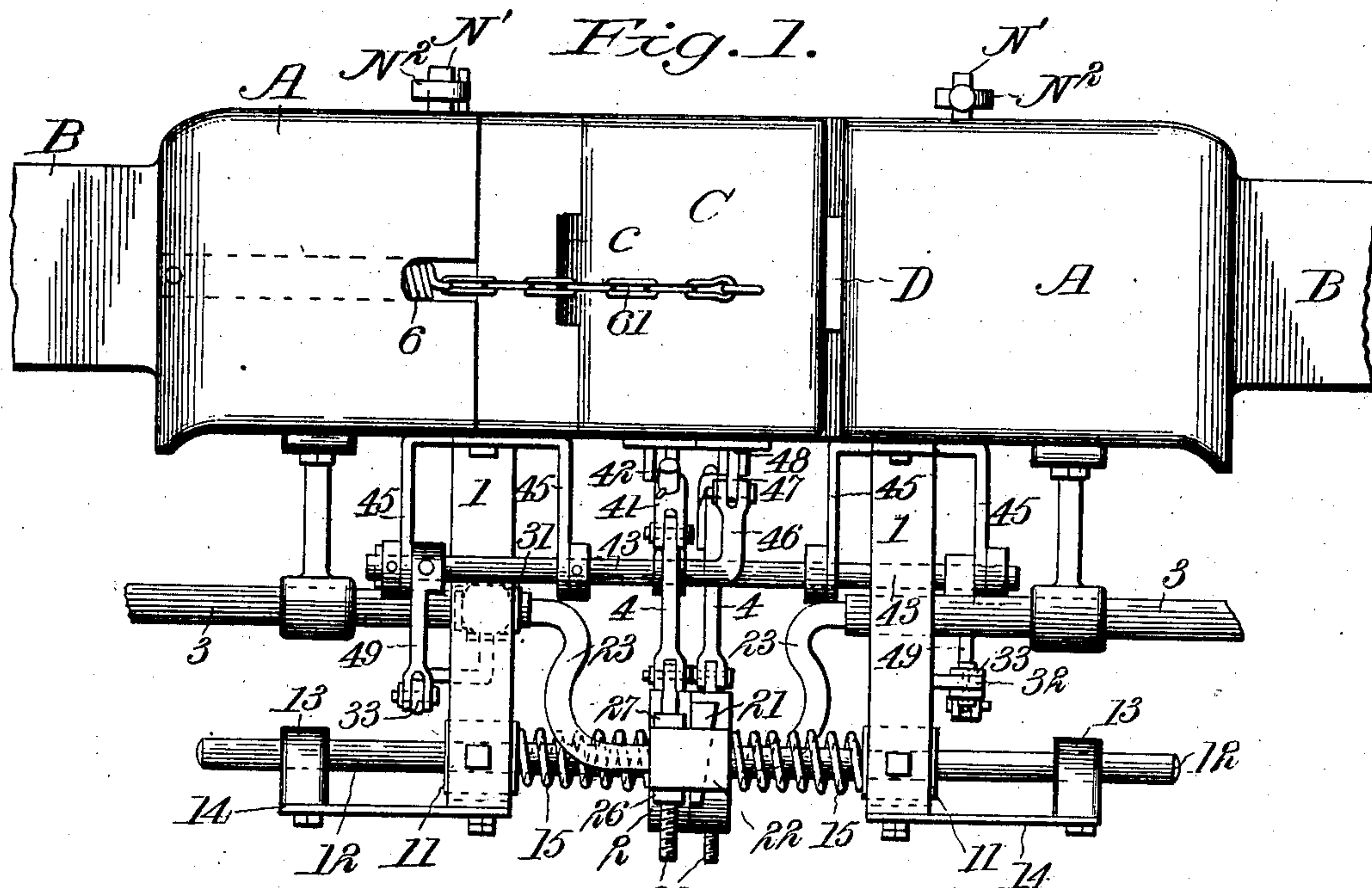
PATENTED AUG. 11, 1903.

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AUTOMATIC FLUID PRESSURE BRAKE COUPLING.

APPLICATION FILED JUNE 1, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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C. H. Walker
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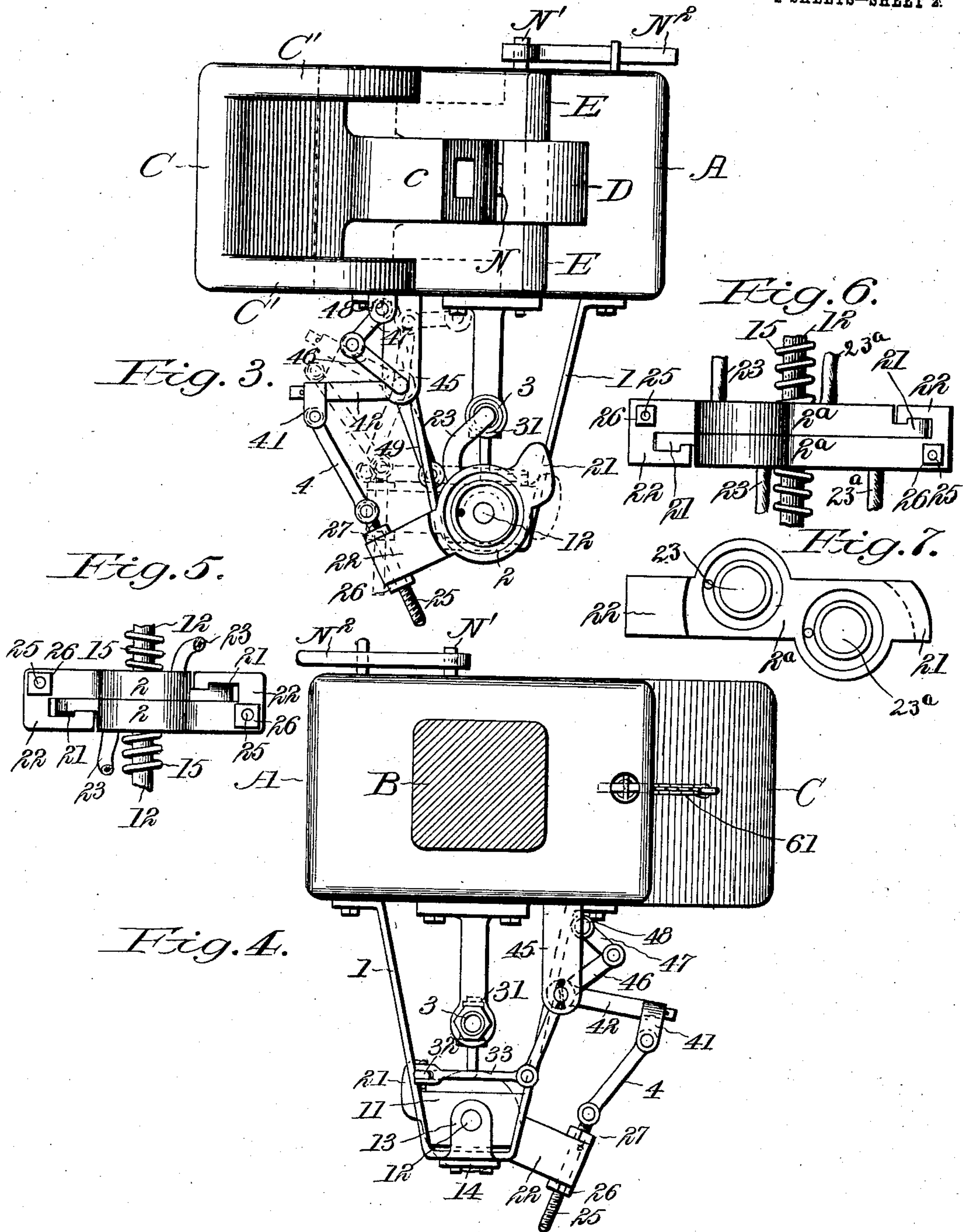
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UNITED STATES PATENT OFFICE.

HENRY KELLEY AND FRANCIS M. COLVIN, OF ANACONDA, MONTANA.

AUTOMATIC FLUID-PRESSURE BRAKE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 735,884, dated August 11, 1903.

Application filed June 1, 1903. Serial No. 159,650. (No model.)

To all whom it may concern:

Be it known that we, HENRY KELLEY and FRANCIS M. COLVIN, both of Anaconda, Deer Lodge county, Montana, have invented certain new and useful Improvements in Automatic Fluid-Pressure-Brake Couplings; and we hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an automatic coupling for fluid-pressure brakes designed to be used in connection with automatic car-couplings of the swinging-jaw type and to enable the air or steam pipes to be connected and disconnected simultaneously with the coupling and uncoupling of the cars.

The present invention utilizes the swinging movements of the coupler swing-jaws to effect the desired locking and unlocking movements of the air-pipe-coupling heads; and it consists in novel means for operating said heads from the swinging jaws; also, in the novel arrangement of and means for supporting the heads beneath or beside the car-couplings, and finally in novel details of construction and combinations of parts, as will be hereinafter described and claimed, it being understood that we do not consider our invention restricted to the specific form or construction of parts illustrated in the drawings and described with reference thereto.

In said drawings, Figure 1 is a side elevation of the complete air or steam coupling as attached to opposite car-coupling heads. Fig. 2 is a longitudinal vertical section through Fig. 1, showing the parts coupled. Fig. 3 is an enlarged front view of one of the couplings in uncoupled position in full lines and in coupled position in dotted lines. Fig. 4 is a rear view of Fig. 3. Fig. 5 is a detail top plan view of the coupling-heads coupled. Fig. 6 is a similar view of double coupler-heads coupled, and Fig. 7 is a face view of one of the double coupler-heads.

In the drawings we have shown the air-couplings as applied to and operated by the Kelley and Colvin car-couplings described and shown fully in an application, Serial No. 149,910 filed, March 27, 1903, by H. Kelley; but as the automatic air-coupling can be attached to a great variety of swinging-jaw couplings

we do not restrict ourselves to its use in connection with the particular car-coupling shown.

In the drawings the opposite car-couplings each comprise a body A, connected to a draw-bar B and provided with a rigid forwardly-projecting locking-arm D, having a vertical locking-head E on its extremity, and beside the locking-arm is a swinging jaw C, having catch portions C' on its outer part adapted to engage the locking-head of the opposed coupling member and a shank c, adapted to be engaged by a locking device of any suitable kind, and we have shown a catch N on a vertical rock-shaft N', provided with a hand-lever N² for rocking it out of engaging position, into which it is normally pressed by a spring N³. The parts mentioned, excepting the jaw-lock, are substantially as shown and described in the said Kelley application.

From the under side of the coupling depends a hanger 1, in which is mounted transversely of the draw-bar a rocking guide 11, through which passes freely a reciprocatory bar 12, supporting on its forward end the air coupling-head 2, the inner end of bar 12 being guided in a block 13, attached to the rear end of a spring-arm 14, secured to the lower end of hanger 1, as shown. This connection allows the head 2 a certain amount of play in all directions, although normally holding it and returning it to a position directly below and in line with the coupling-jaws when in closed position. Springs 15 are placed on bar 12 between the coupling-head and the hanger, so as to press the bar forwardly at all times.

The coupling-heads 2 are much similar in form to the usual air-pipe coupler-heads, having a cam-flange lug 21 on one end and a cam-flanged hook 22 on the other, the lug 21 on one head 2 engaging the hook 22 on the other and being caused to interlock or to disengage when locked by partly rotating the heads on their axes (bars 12) in opposite directions. Each head 2 is connected by a flexible air-pipe 23 with the main train-pipe 3 below the car, said pipe having a valve or cock opened and closed by a cranked stem 32, hereinafter referred to. Each head 2 is oscillated or rotated by the swinging of the superposed jaw C of the related car-coupling. To the

hook 22 of the head is secured a rod or pin 25, which can be adjusted thereon and secured by nuts 26 and 27. To upper end of pin 25 is pivoted the lower end of a link 4, the upper end of which is pivotally connected to a collar 41, loosely hung on crank-arm 42, attached to a rock-shaft 43, journaled longitudinally of the draw-bar in hangers 45, depending from the superimposed coupling-head A. On front end of shaft 43 is a crank 46, which is pivotally connected by a link 47 to a stud 48, pivotally attached to the lower side of the swinging jaw C of the superimposed car-coupling, the whole being so constructed and arranged that when jaw C swings open the head 2 will be rocked in a manner to disengage or uncouple it, and when the jaw C swings inward, so as to couple the cars, the head 2 will also be rotated as required to lock or couple it. A crank 49 on shaft 43 is connected by a link 33 with the crank 32 on the valve-stem, so that the valve 31 is opened when the head 2 is moved to coupling position and closed when the head 2 is moved to uncoupling position. The construction of the connections shown and described between the head and jaw may be modified and changed so as to operate accurately and smoothly without departing from the spirit of the invention. The jaws C may be thrown open when released by suitably-arranged springs, which will effect the opening of the jaw and the proper rocking motion of head 2 in uncoupling.

As shown, stout coiled springs 6 are concealed in pockets in the side of head A adjacent to the jaw and connected with the jaw by links or chains 61, so that the springs will be tensioned when the jaws close and will pull them open when they are released and in so doing effect the rocking of shaft 43, as described.

Operation: When two cars equipped with the described couplings are run together, the jaws C interlock with the heads E, locking the coupling-heads A A together and coupling the cars. As the cars come together just before the jaws C begin to close the heads 2 on the opposite couplings come together broadside, but inclined in opposite directions, (see Fig. 3,) so that the cam-lugs 21 and hooks 22 come into position to engage each other if the heads be rotated on their shafts 12. Then as the jaws C close they rock shafts 43, as described, which in turn imparts a rocking movement to the heads in such manner that the lugs 21 and hooks 22 are caused to engage and lock the heads together facewise, making an air-tight joint therebetween, so that air can pass from one to the other without loss, and as soon as the heads are sufficiently interlocked, but before the jaws C have entirely closed, the valves 31 are opened by the described connections with shaft 43, and thus communication established between the train-pipes on the cars. In uncoupling, after the jaws C are unlocked and the cars pull apart the jaws C swing open and in so doing rock

shafts 43 in the opposite direction, first closing valves 30 and simultaneously rocking heads 2, so as to cause the lugs 21 to disengage hooks 22, so that the cars can pull apart without damaging the air-coupling. The heads 2 being suspended beneath and from the heads A of the car-couplings and having a limited amount of movement in all directions independent of said heads can under ordinary conditions couple and uncouple effectively wherever the car-couplings can couple and uncouple. While the jaws C remain coupled the heads 2 must remain coupled, the jaws C through the described connections holding the heads 2 in coupled position.

It is sometimes desirable to use either or both air and steam on the cars, and we provide for this by making the coupling-heads double, as shown at 2^a in Figs. 6 and 7, said heads being operatively connected by the interlocking lugs 21 and catches 22, as above described. Each double head 2^a is connected with two pipes—the air-pipe 23, as described, and a steam-pipe 23^a—so that both the air and steam train-pipes are coupled simultaneously with the cars. Thus either air or steam, or both, may be used, as desired.

In the claims where “air” coupling-head is referred to we simply use the word “air” as explanatory, not as limiting, as the couplings are for air, steam, or other fluids.

Having thus described our invention, what we therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. In combination a swinging-jaw car-coupling, and an air coupling-head adjacent thereto, and means whereby the swinging jaw causes the air coupling-head to assume locking or unlocking positions as the jaw closes or opens, substantially as described.

2. In combination opposite swinging-jaw car-coupling with an air-pipe coupling comprising opposite interlocking heads respectively suspended beneath the opposed car-couplings, and connections between the air-pipe-coupling heads and the swinging jaw of the adjacent car-coupling, whereby the latter controls the former, substantially as described.

3. In combination, a car-coupling having a swinging jaw, a rocking air coupling-head suspended beneath the car-coupling, a rock-shaft and connections for oscillating said head, and connection for rocking said shaft from and by the movements of the swinging jaw, substantially as described.

4. In combination, a car-coupling having a swinging jaw, an air coupling-head suspended beneath the car-coupling, a rock-shaft and connections for oscillating said head, a valve in the air-pipe, connections for opening and closing said valve from said shaft, and means for rocking said shaft by the movements of the swinging jaw, substantially as described.

5. The combination of a longitudinally-movable and rocking air coupling-head, a rock-shaft and connections for rocking said

• head, with a car-coupling having a swinging jaw and connections between said jaw and the rock-shaft for operating the latter, substantially as described.

5 6. The combination of a longitudinally-movable and rocking air coupling-head, a rock-shaft and connections for rocking said head, a valve in the air-pipe in rear of the head, and connections between said rock-shaft and valve, with a car-coupling having a swinging jaw, and connections between said jaw and the rock-shaft for operating the latter, substantially as described.

15 7. The combination of a hanger, a rock-shaft pivoted therein, a bar sliding through said shaft, an air coupler-head mounted on the forward end of said bar, the air-pipe connecting with said head, a rock-shaft, and connections between said shaft and the head for operating the latter, substantially as described.

25 8. The combination of the hanger, the yieldingly-movable bar supported by said hanger, an air coupler-head mounted on the forward end of said bar, an air-pipe connecting with said head, a valve in the air-pipe, a rock-shaft, connections between said shaft and the head for operating the latter, and connections between said shaft and the valve, substantially as described.

9. The combination of opposite swinging-jaw car-couplings, a hanger suspended from each head, air coupler-heads supported by said hangers provided with interlocking lugs and hooks, a rock-shaft, connections between the rock-shaft and the air coupler-head, and connections between the rock-shaft and the adjacent swinging jaw, for operating the former from the latter, all substantially as described.

10. The combination of the opposite swinging-jaw car-couplings, the hangers suspended therefrom, the rock-bars on said hangers, the air coupler-heads on said shafts provided with interlocking lugs and hooks, rock-shafts, link connections between the rock-shafts and the air coupler-heads, connections between the rock-shafts and the swinging jaws, for operating the former from the latter, valves in the air-pipes, and connections between the valves and rock-shafts, all substantially as described.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

HENRY KELLEY.
FRANCIS M. COLVIN.

In presence of—
W. RHODES,
JOHN W. JAMES.