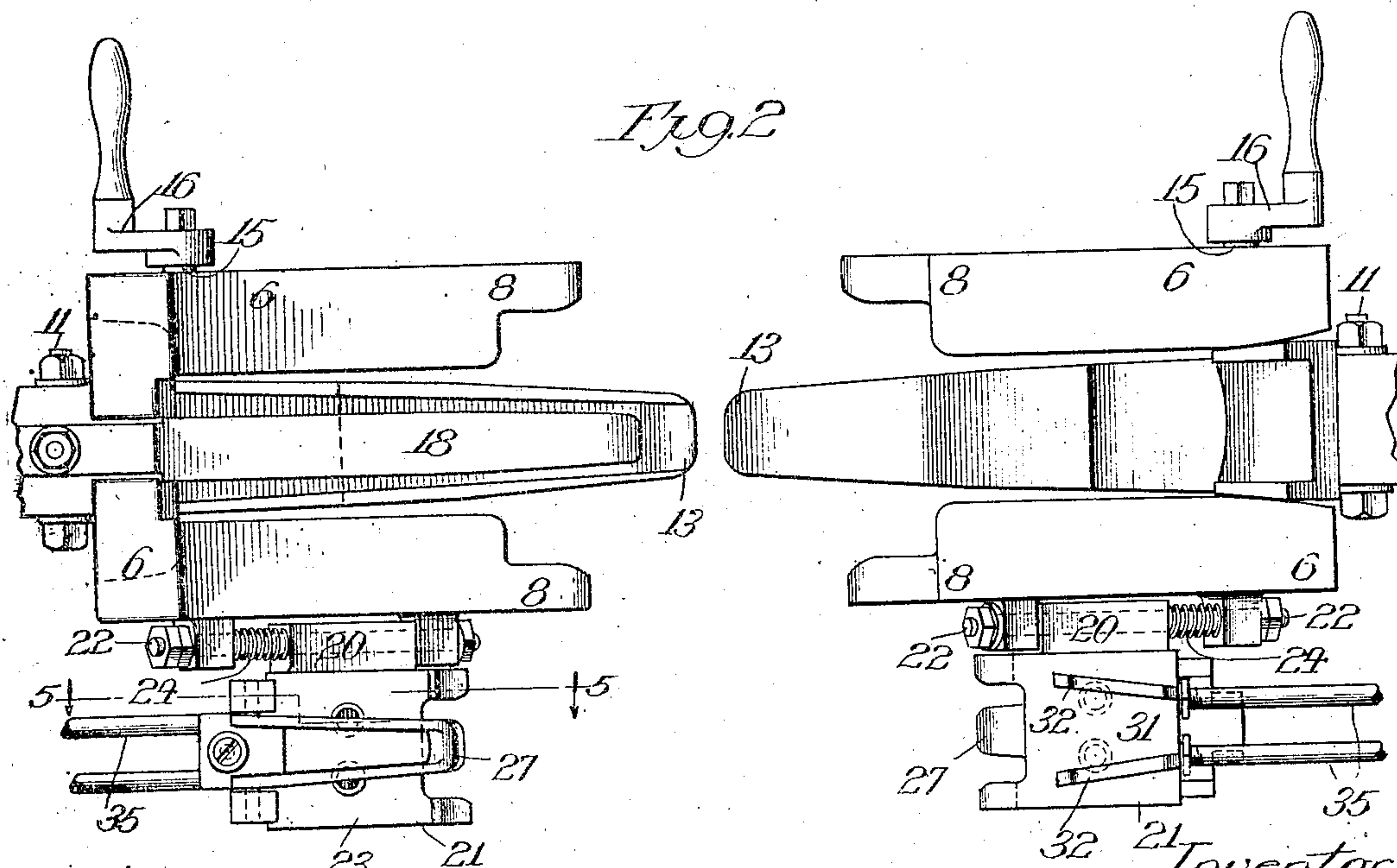
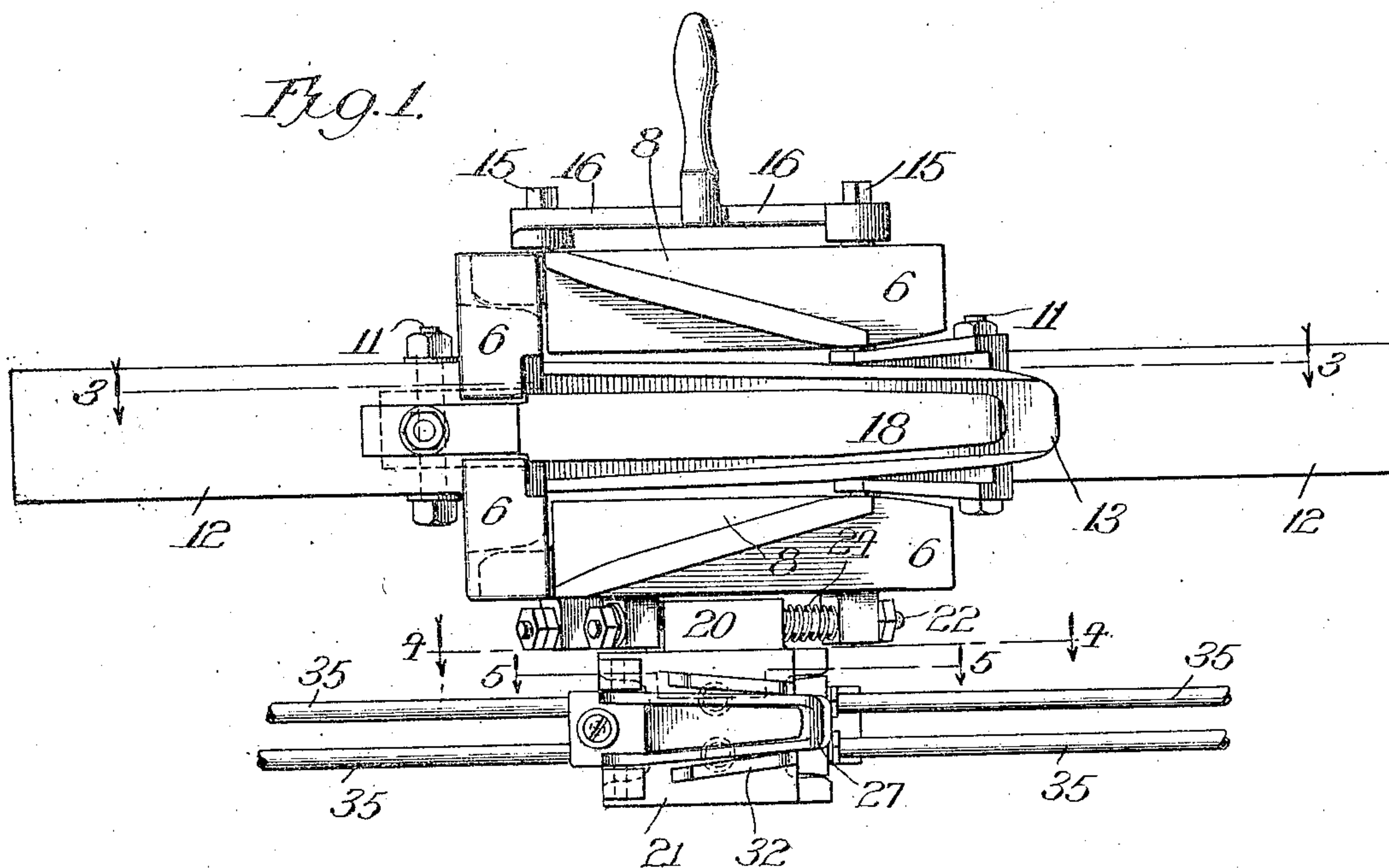


No. 819,408.

PATENTED MAY 1, 1906.

L. C. CARY.
AUTOMATIC TRAIN PIPE COUPLING.
APPLICATION FILED JULY 6, 1905.

2 SHEETS—SHEET 1.



Witnesses
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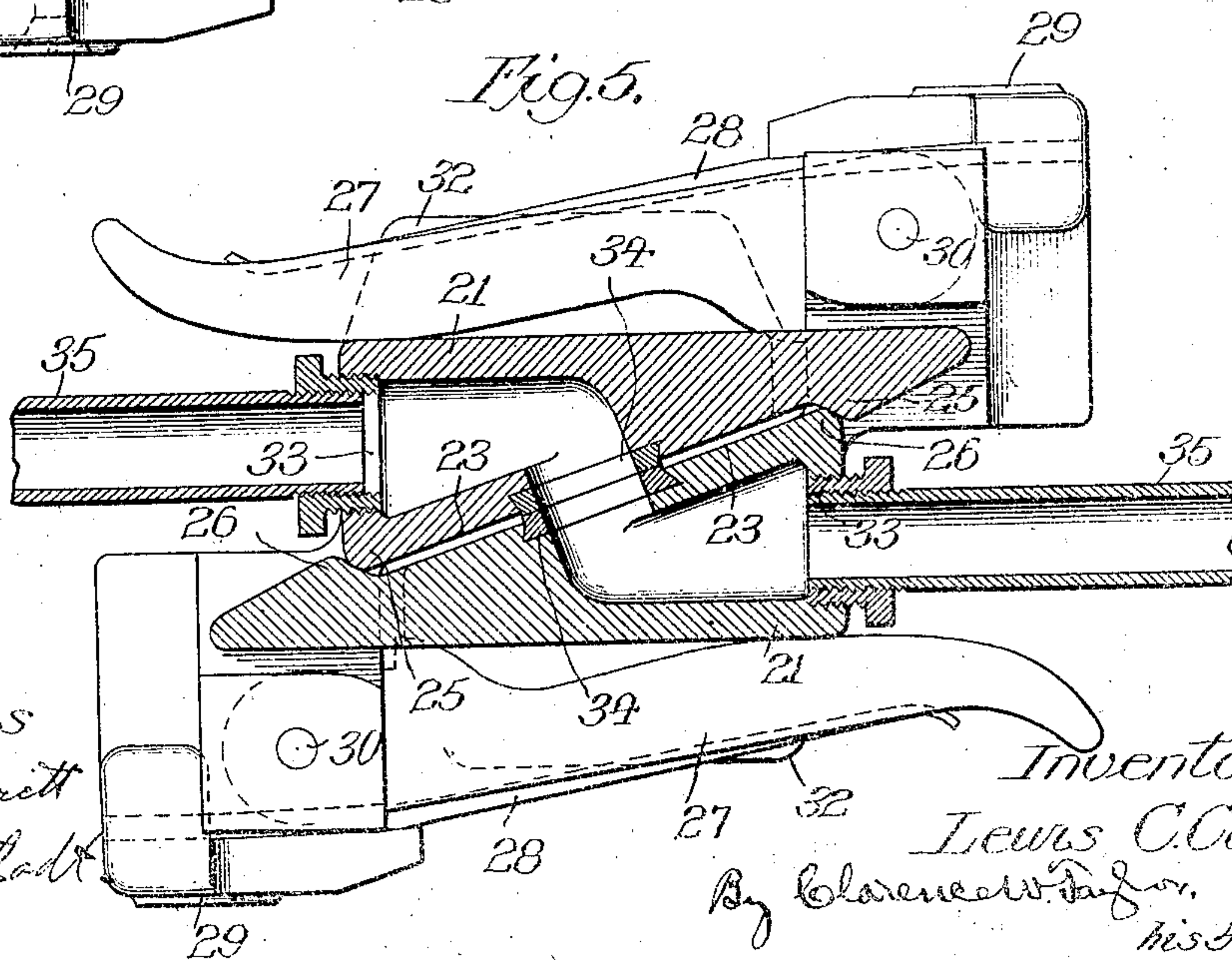
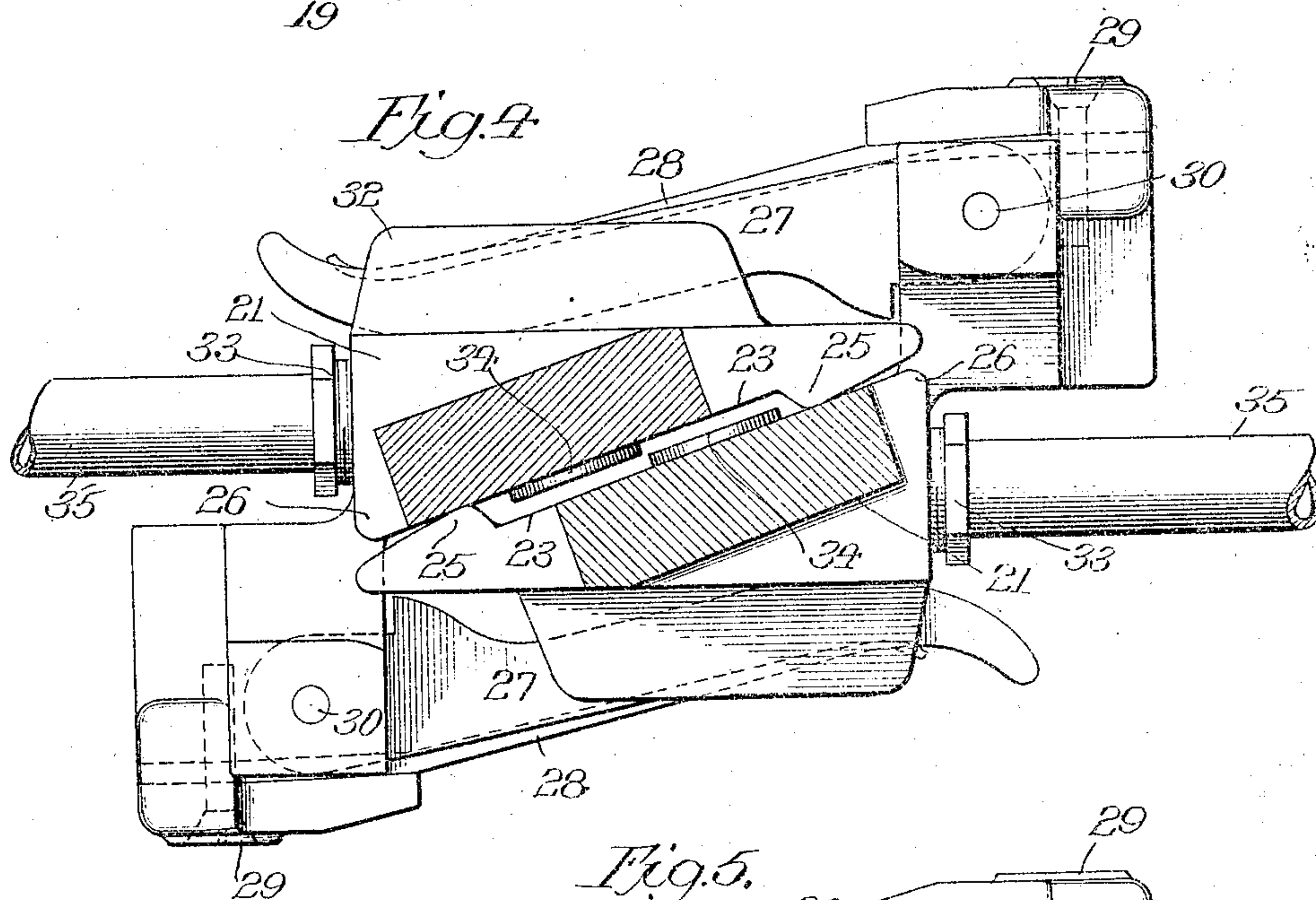
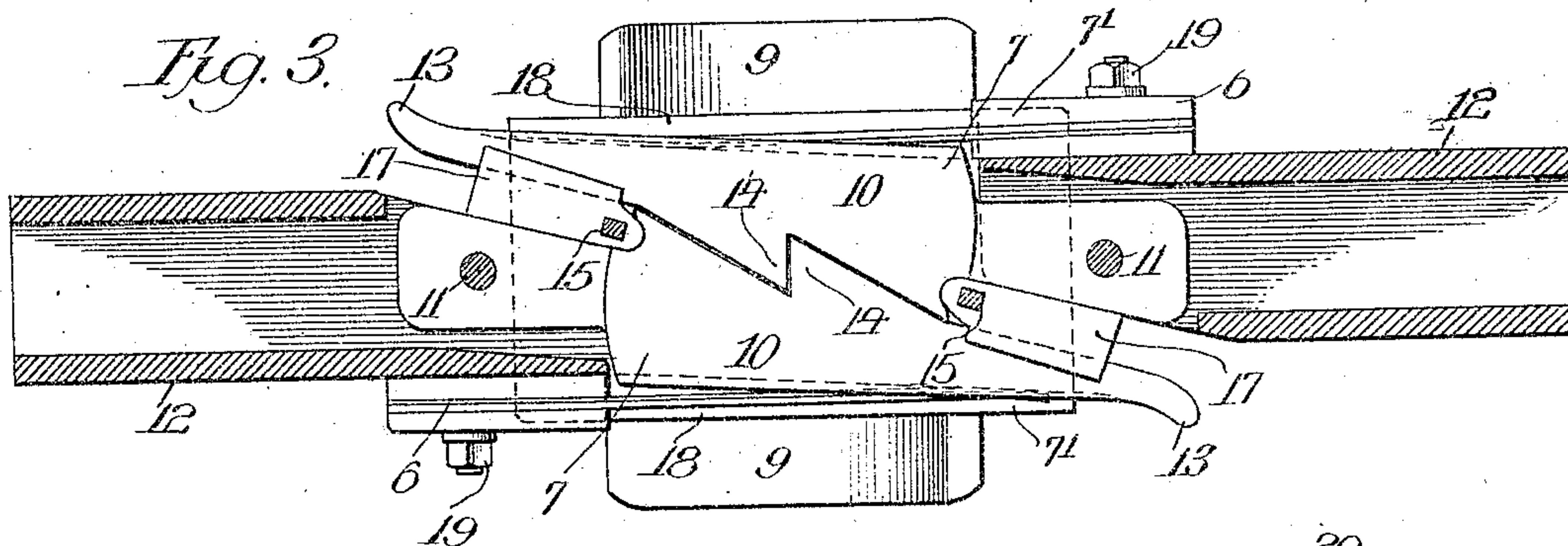
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

LEWIS C. CARY, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO CARY INVENTIONS CO., A CORPORATION OF ILLINOIS.

AUTOMATIC TRAIN-PIPE COUPLING.

No. 819,408.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed July 6, 1905. Serial No. 268,566.

To all whom it may concern:

Be it known that I, LEWIS C. CARY, residing at 358 West Belmont avenue, Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Train-Pipe Couplings, of which the following is a specification.

This invention relates to certain new and useful improvements in automatic pipe-couplings, and particularly to train-pipe couplings for air and steam.

The objects of my improvement are, first, to provide an automatic train-pipe coupling for air and steam, and, second, to provide a pair of pipe-couplings to be carried by the car-coupling heads of cars and adapted to automatically engage and lock in operative position when the heads are brought together to couple the cars.

With the above and other objects in view this invention consists of the novel form and the means for engaging and locking train-pipe couplings and the combination and arrangement of parts hereinafter more specifically described, illustrated in the drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout the several views, and in which—

Figure 1 is a side view of my train-pipe coupling and the coupling-heads of cars, each in coupling engagement. Fig. 2 is a side view of the car-coupling heads and the pipe-coupling members apart, just after disengagement. Fig. 3 is a plan section on line 3 3 of Fig. 1. Fig. 4 is a plan section on line 4 4 of Fig. 1. Fig. 5 is a section on line 5 5 of Fig. 1.

Any suitable car-coupling head may be used to carry my automatic train-pipe couplings. I have shown a preferred form of coupling-head; but it will be apparent other forms may be used.

Referring to the drawings by reference-numerals, 6 6 denote the two heads of the car-coupling. Each head is provided with a locking device 7 7', which is adapted to effect the coupling when the heads are brought together. Each car coupling head is provided

with substantially right-angled triangular jaws 8 8, positioned normally one above the other, and each having integral ribs 9 9 at a sufficient angle to facilitate the coupling of cars of variant heights of coupler positions. Each car-coupling head is also provided with a locking-lever 10, the inner end of which is pivoted on shaft 11 at the rear of the triangular jaws 8 8, but through the hollow draw-bar 12. The outer end of each locking-lever 10 extends forwardly and is curved outwardly at its free end 13 and somewhat beyond the triangular jaws 8 8 for the purpose of guiding the heads into the proper horizontal relation when opposing coupling-heads are made to approach each other for coupling engagement. The locking-lever 10 in each car-coupling head is provided with a projecting locking-shoulder 14 for the purpose of interlocking with the other locking-lever in the opposing coupling-head. Each car-coupling head is provided with a disengaging device comprising the shaft 15 through the inner ends of jaws 8 8, the crank 16, and the releasing-heel 17 for the purpose of disconnecting the car-coupling heads. Each locking-lever 10 is maintained in locking engagement by the leaf-spring 18, suitably fastened at 19 and bearing upon its outer surface. Each lug 20 20 on the coupling members 21 21 has a bar 22 therethrough for slidably suspending the pipe-coupling members 21 21 on the coupling-heads.

The pipe-couplings are preferably suspended from the car-coupling heads—that is to say, one member of the pipe-coupling is carried by one coupling-head and the other member is carried by the opposite coupling-head. These members 21 21, which have inclined engaging faces 23 23 and whose lateral surfaces are substantially right-angled triangles, are slidably suspended on bars 22 22, secured in lugs 20 20 on the coupling-heads. A helical spring 24 is arranged on each bar near the rear of the coupling member 21 to form a yielding buffer therefor. The forward end of each member is provided with an inwardly-projecting shoulder 25, which is adapted to make a locking engagement with the heel or corner 26 of the other member. Each member is provided with a yielding guide-arm 27 under the tension of a leaf-spring 28, fastened at 29. Said guide-arm is pivoted at 30. I

do not restrict myself to the use of a guide-arm under the action of a spring, but may use a guiding-arm made of resilient material, and thus dispense with the spring 28. Each coupling member is provided on the back thereof with a guideway 31, formed between flanges or ribs 32 32 at a suitable angle to facilitate coupling. The yielding guide-arms are guided into the guideway by the ribs 32 32 of the opposite member to cause the members to assume their proper relative position when the cars are brought together, even though the car-coupling heads and the pipe-coupling members may not at first lie in the same horizontal plane. In the main portion of the body of each member 21 there is provided one or more air or steam passages 33 33 extending from the rear and opening in the face of each said member. The openings in the face of each member are provided with a suitable gasket 34 34. The air or steam hose 35 35 is connected to the members 21 21 and said passages 33 33 in any suitable manner. The shoulders 25 25 on each member are provided to prevent the inclined engaging faces of the pipe-coupling members rubbing together when interlocking or unlocking for the purpose of protecting the gaskets 34 34 in the openings in said engaging faces. The shoulders 25 25 will not permit the faces to contact until each has advanced far enough to be in normal and registering position, when the yielding arm 27 will force each member into operative position and the shoulders 25 25 past the corners 26 26 into locking position. When the pipe-couplings are disengaged, the shoulders 25 25 will cause the engaging faces 23 23 to recede from each other and obviate displacement of or injury to the gaskets 34 34.

When the cars are brought together with a sharp impact upon their coupling-heads, the locking-levers 10 10 are guided into interlocking engagement, as shown in Figs 1 and 3, the several parts assuming the positions therein shown automatically. To unlock the car-coupling, one or both of the release-cranks 16 16 are operated to force the releasing-heels 17 17 outward to disengage the coupling-shoulders 14 14 on the locking-levers 10 10. When the car-coupling heads are thus unlocked and the cars are separated, the pipe-couplings will be automatically pulled apart from the position shown in Fig. 1 to that shown in Fig. 2, this operation being effected solely by the separation of the car-coupling heads.

The pipe-coupling members interlock with each other automatically when the cars are coupled together, the springs 24 24 forming yielding buffers, which enable these members to adjust themselves in proper relation to each other. The guide-arms 27 27 bear on the pipe-coupling members with sufficient force to hold them in normal relation to engage each other, and the buffer-springs 24 24 constantly push the members forward into en-

gagement and hold the shoulders 25 25 on each member interlocked with the other member, as shown in Fig. 1. The pipe-couplings are thus automatically coupled and uncoupled and this operation of the pipe-coupling is effected without the manipulation of any part other than the locking and releasing of the car-coupling heads.

I have shown a pipe-coupling adapted to air-brakes, but I do not limit myself to air-brake couplings, as the members 21 21 may be provided with a sufficient number of passages to adapt it to the use of steam and air, and I therefore do not wish to restrict myself to the details of construction hereinbefore described and as shown in the accompanying drawings, but reserve the right to make such changes, variations and modifications as come properly within the scope of the protection prayed.

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

1. In a train-pipe coupling the combination of two coupling members having inclined engaging faces and having their forward ends provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, substantially as shown and described.
2. In a train-pipe coupling the combination of two coupling members having body portions substantially triangular in cross-section and their forward ends provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member.
3. In a train-pipe coupling the combination of two coupling members having body portions substantially triangular in cross-section and inclined engaging faces, the forward ends thereof having inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member.
4. In a train-pipe coupling the combination of two coupling members having their forward ends provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member and a spring-actuated pivoted guide-arm bearing on each said member when the car-coupling heads are coupled substantially as shown and described.
5. In a train-pipe coupling the combination of two coupling members having body portions substantially triangular in cross-section and inclined engaging faces, the forward ends of said members having inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, and a spring-pressed pivoted guide-arm bearing on the back of each said member when the heads are coupled, substantially as shown and described.
6. In an automatic train-pipe coupling the

combination with two coupling members having inclined engaging faces and provided at their forward ends with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, of spring-actuated pivoted guide-arms each positioned opposite to an engaging face and pivoted adjacent to the rear end thereof and adapted to bear upon the back of the opposite member when coupled in operative engagement.

7. The combination with a pair of car-coupling heads, of a pipe-coupling comprising two members having inclined engaging faces and having their forward ends provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, substantially as shown and described.

8. The combination with a pair of car-coupling heads, of a pipe-coupling comprising two members having inclined engaging faces and each having a guideway on the back thereof, the forward ends of said members having inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, and a pivoted guide-arm bearing on the back of each said member when said heads are coupled.

9. The combination with a pair of car-coupling heads, of a pipe-coupling comprising two members having their forward ends provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, and a spring-actuated pivoted guide-arm bearing on the back of each said member when said heads are in coupling engagement.

10. The combination with a pair of car-coupling heads, of a pipe-coupling consisting of two members having body portions substantially triangular in cross-section and having the forward ends thereof provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, and a pivoted guide-arm bearing on the back of each said member when said heads are coupled.

11. The combination with a pair of car-coupling heads, of a pipe-coupling comprising two members having body portions sub-

stantially triangular in cross-section and having the forward ends thereof provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, and a spring-pressed pivoted guide-arm bearing on the back of each said member when said heads are coupled.

12. The combination with a pair of car-coupling heads, of a pipe-coupling comprising two members the forward ends of which are provided with inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, each said member having one or more air or steam passages in the body portion entering at the rear and opening in the face thereof, and a spring-actuated pivoted guide-arm adjacent to the face of each member and adapted to make sliding contact with the back of the opposite member.

13. In a train-pipe coupling the combination of two coupling members whose body portions are substantially triangular in cross-section having inclined engaging faces and a guideway on the backs thereof, the forward ends of said members having inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, and a spring-pressed pivoted guide-arm adapted to bear on the back of each said member substantially as shown and described.

14. The combination with a pair of car-coupling heads, of a pipe-coupling comprising two members having body portions substantially triangular in cross-section and having inclined engaging faces and a guideway on the back thereof, the forward ends of said members having inwardly-projecting shoulders each adapted to make locking engagement with the heel of the opposite member, and a spring-actuated pivoted guide-arm adapted to bear on each said members when said heads are coupled.

In testimony whereof I affix my signature in presence of two witnesses.

LEWIS C. CARY.

Witnesses:

ALBERT MILLER,

ERNESTINE MARSTADT.