

E. E. GOLD.
HOSE COUPLING.
APPLICATION FILED DEC. 18, 1907.

963,137.

Patented July 5, 1910.

FIG. 1.

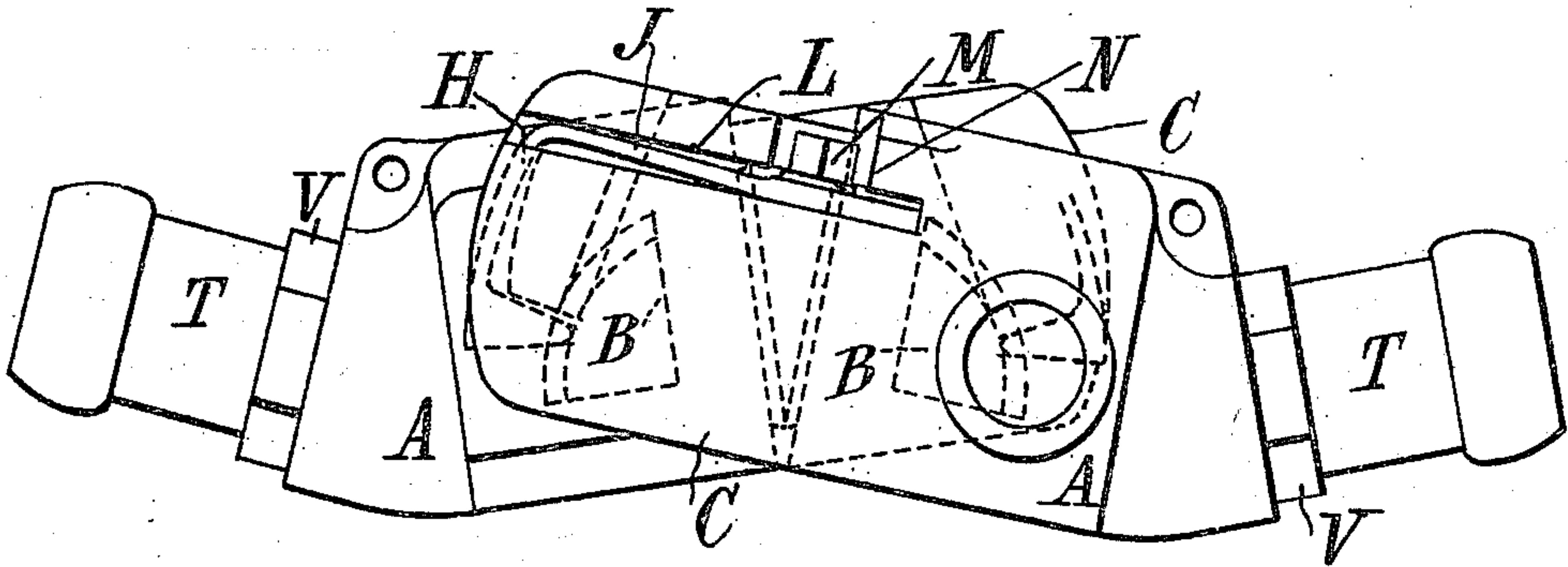


FIG. 2.

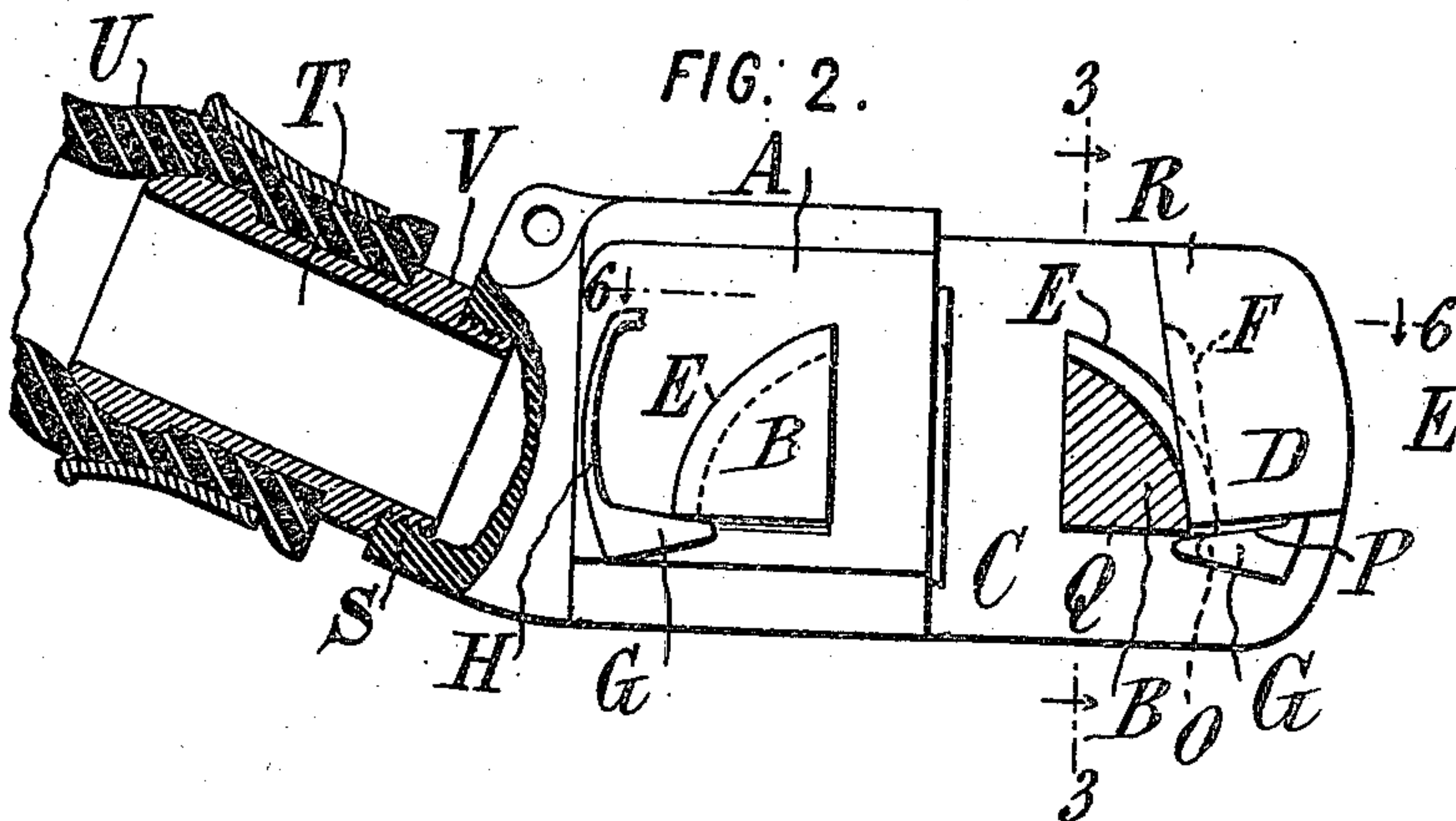


FIG. 3.

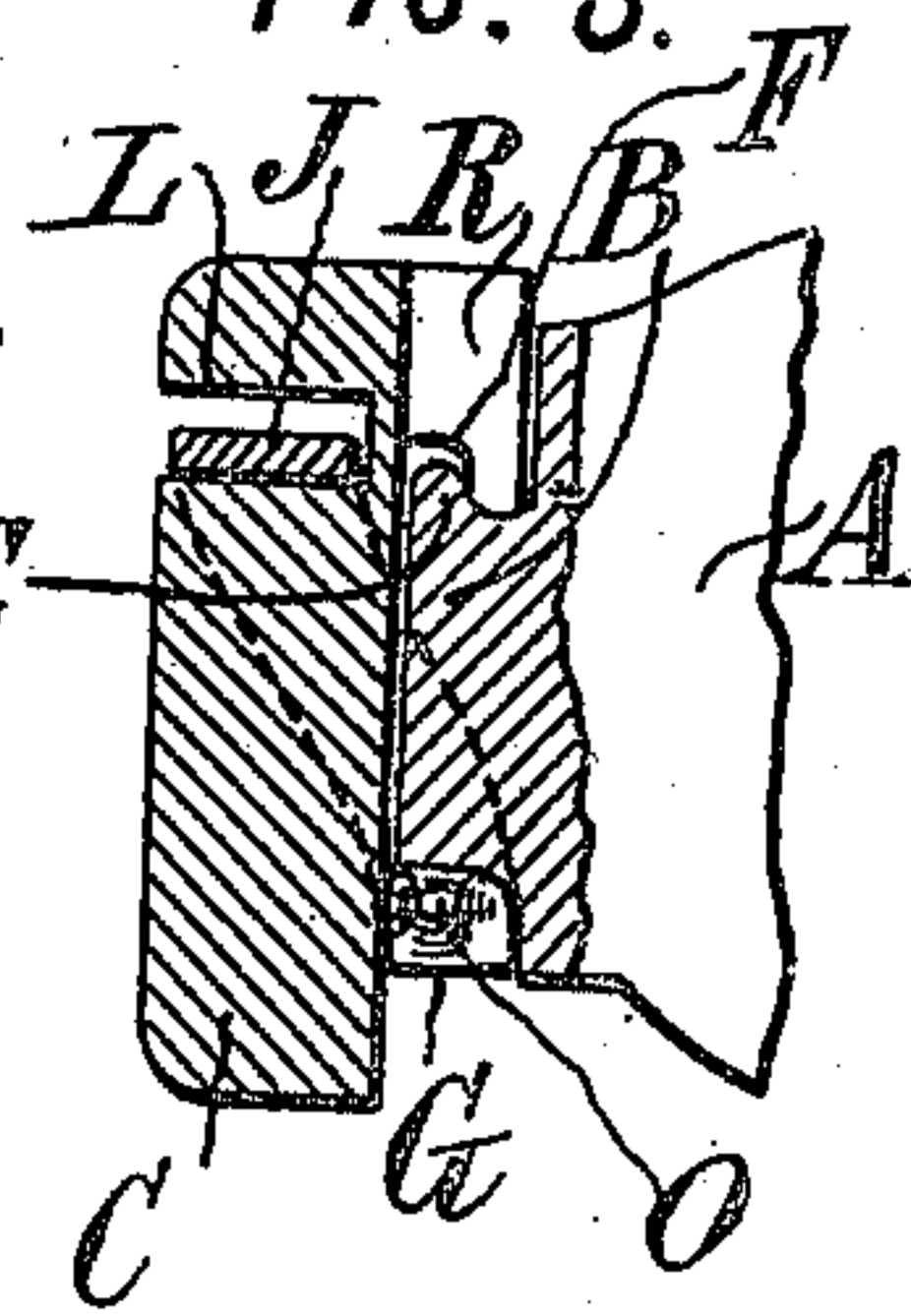


FIG. 4.

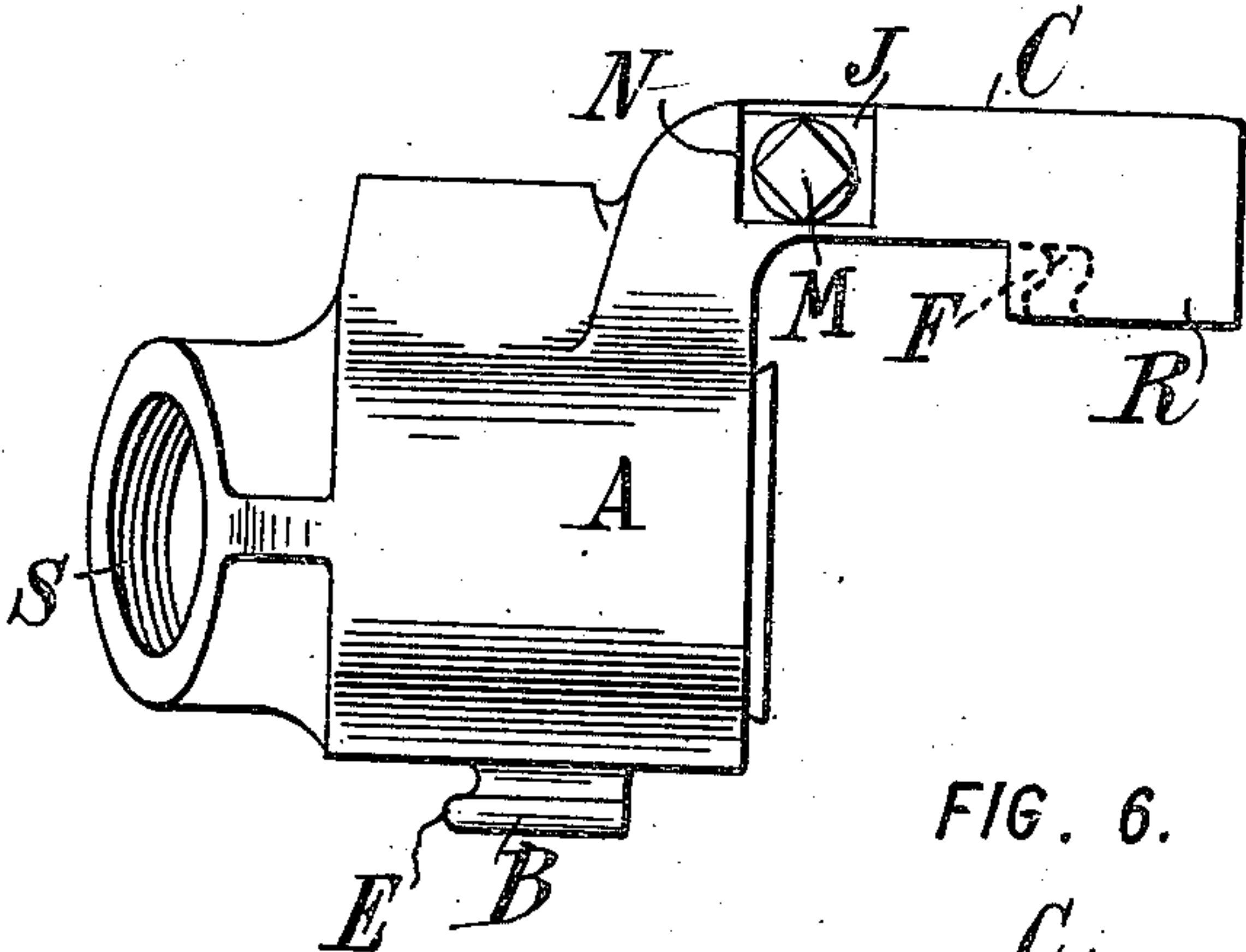


FIG. 5.

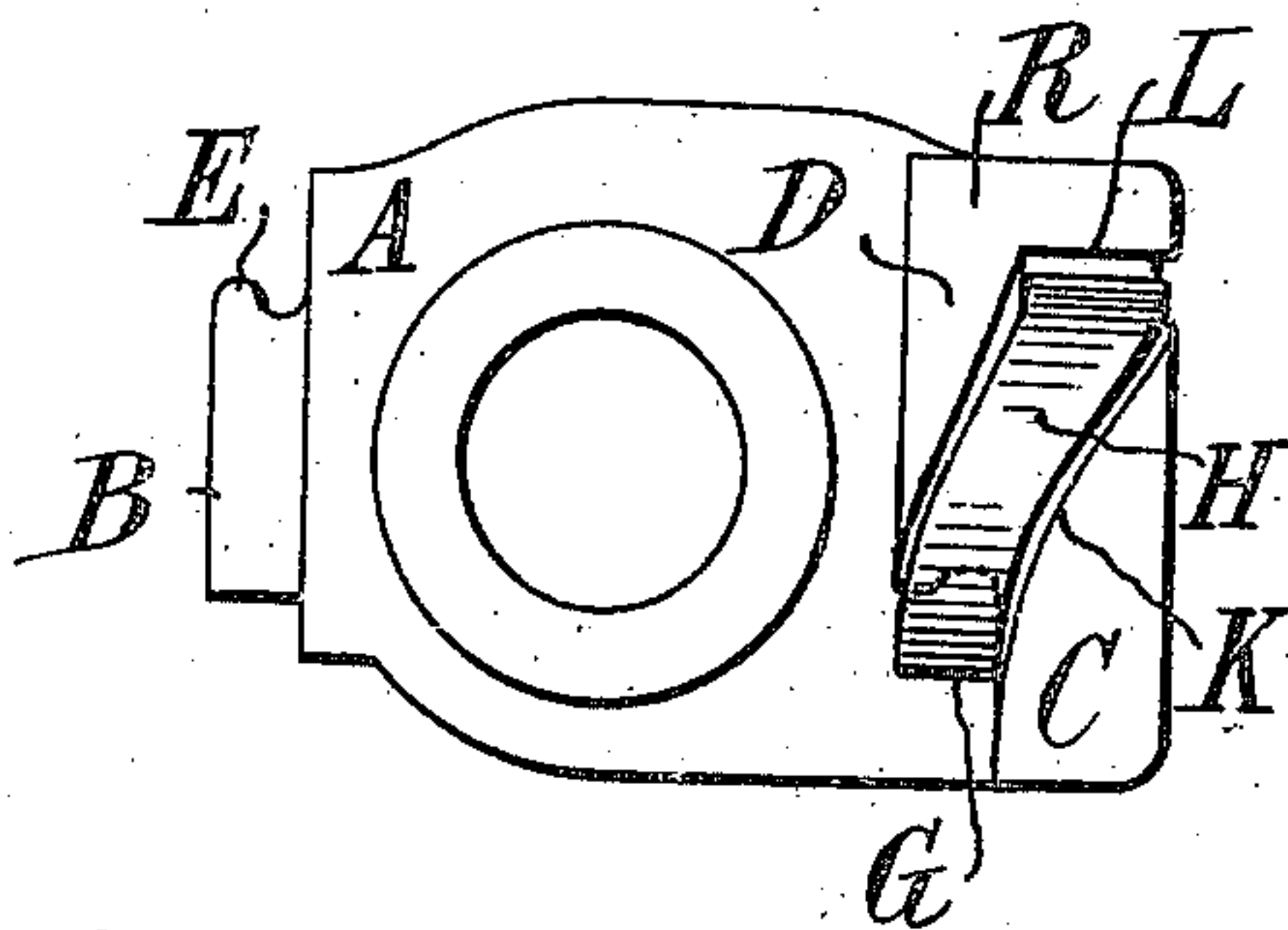
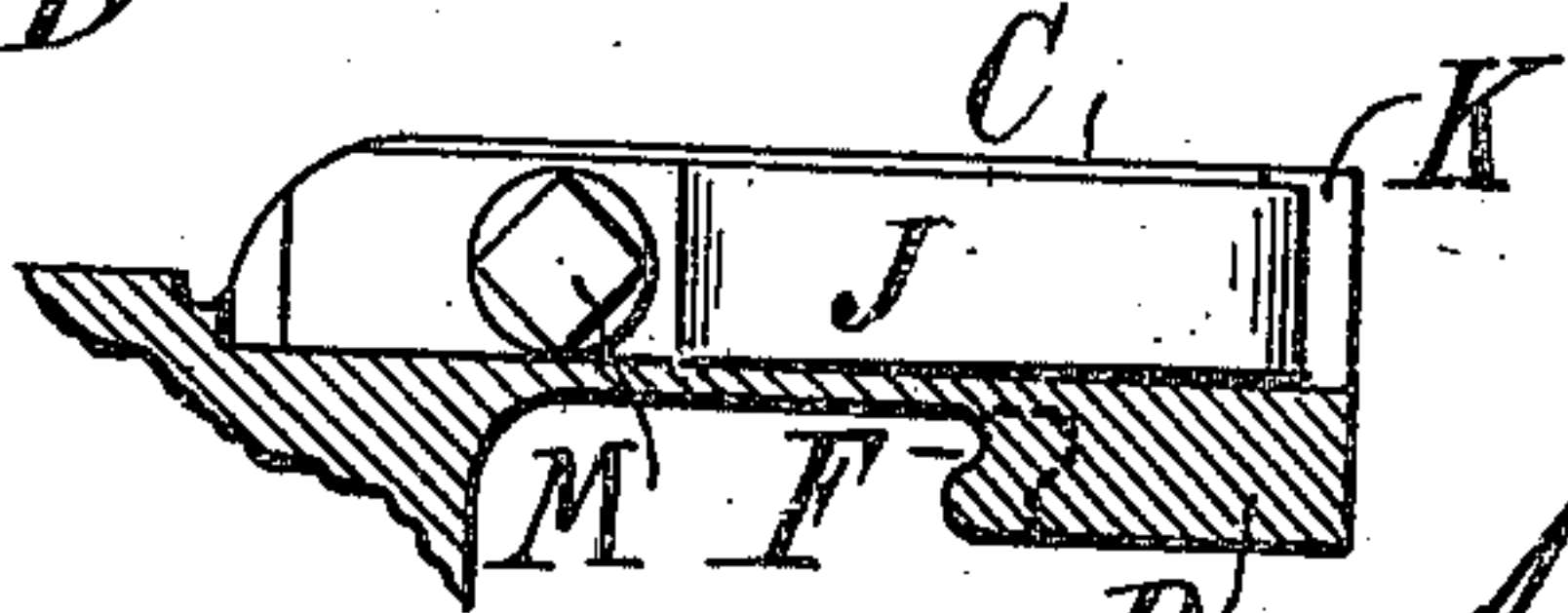


FIG. 6.



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HOSE-COUPLING.

963,137.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD E. GOLD, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Hose-Couplings, of which the following is a specification.

This invention relates to couplers specially adapted for the steam hose of railway cars. Usually these are direct port couplers having a substantially straight steam passage longitudinally through the coupling heads; and the coupling heads are adapted to lock together by gravity, a locking projection or lug on the side of each coupler head engaging an inturned flange or hook at the end of an arm of the opposite coupler.

According to this invention locking or retaining means are provided which have a locking movement in a direction substantially parallel with the side face of the coupler, so that, when used with couplers of the above described type, additional locking or retaining means are provided besides the lug and hook ordinarily utilized, and this locking means operates in a direction to interfere as little as possible with the act of coupling the two couplers together. The locking means may be either positive or impositive, but is preferably an impositive lock of the character described in my Patent No. 859,936, of July 16, 1907, which supplements the ordinary gravity locking provisions in such manner as to effectually prevent accidental uncoupling, but which does not prevent the desired automatic uncoupling when the cars are drawn apart. The locking means is preferably a yielding lock which in the coupling movement engages the edge of the ordinary locking projection, and which in the coupled position engages said projection at some point in its periphery, preferably along its under edge.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 is a side elevation indicating the position of the parts during the act of coupling. Fig. 2 is a side elevation of a single coupler in the locked position, indicating also the position of the locking parts of the opposite coupler. Fig. 3 is a vertical section of Fig. 2 on the line 3—3. Fig. 4 is a plan of a single coupler, and Fig. 5 an end eleva-

tion thereof. Fig. 6 is a partial section on the line 6—6 of Fig. 2.

Referring to the embodiment of the invention illustrated, the coupler heads A provide the passage for the steam or other fluid, and are provided at one side with locking projections or lugs B, and at the opposite side with longitudinally extending arms C, at the ends of which are inturned hooks D. The lug B is provided with an approximately circular projecting edge E which fits into the groove F of the hook of the opposite coupler so that when the ends of the couplers are elevated and the lower front edges of the coupler heads are brought together as in Fig. 1, the edges E of the lugs enter the grooves F of the hooks and permit the ends of the two couplers to be swung downwardly. The engagement of the lugs and hooks prevents lateral separation of the couplers, holding them longitudinally in line with each other, and the curved shape of the edges E of the lugs effects a gradual drawing of the two couplers together, so that when they have reached a horizontal position their gaskets are pressed tightly against each other.

The additional locking means preferably engages the edge E of the locking lug during the coupling operation, and bears against it with a pressure which tends to press the couplers toward each other, and at the end of the coupling operation projects under the edge of said lug so as to present an additional resistance to the uncoupling of the couplers. For example, the lock may consist as shown of a member G carried at or near the end of the locking arm C and pressed inward by a flat spring integral therewith, said spring having a portion H extending upward along the outer end of the coupler arm, and a portion J extending longitudinally along the arm. The parts H and J of the spring are preferably protected by being set in grooves cast or otherwise formed in the coupler arm and head, and allowing sufficient play to take advantage of the spring action. The part H of the spring is oblique (see Fig. 5) and lies in an oblique groove K, while the part J lies in a longitudinal groove L. The end of the spring is fastened by means of a bolt M having its head countersunk or set in a recess N, so that it cannot be injured by the

hammer blows which are sometimes given by brakemen in bringing the couplers together. The spring is similarly protected by the grooves in which the two parts of it lie.

The end of the locking member G is preferably provided with a groove O corresponding with the groove F of the ordinary locking hook, so that the edge E of the locking lug enters the edge of the locking member G and the two remain in engagement throughout the whole or the greater part of the locking movement. The upper edge P of the locking member G is inclined upwardly relatively to the lower edge Q of the locking lug, so that the wear of these parts will be taken up by the action of the spring H forcing the locking member G farther inward.

In the beginning of the coupling operation the upper part of the edge E of the locking lug is fitted into the groove O in the end of the supplementary locking member G, and in the continued movement the edge moves through said groove as well as through the groove F of the ordinary locking hook D; the member G being pressed back sufficiently for this purpose, and the spring thereof yielding readily to the pressure necessary to start the operation. The continuance of the operation involves merely the overcoming of the frictional engagement of the edge of the lug with the yielding member G. The pressure of the member G serves at the same time to force the two coupling heads together, and to that extent frees the operator from any care in holding the parts together at first. When the coupling position is reached the locking member G moves under the edge of the locking lug B, and moves so far inward as to maintain its upper inclined edge P in engagement with the under side of the lug. In uncoupling there is not only the weight of the parts and the frictional engagement of the usual lug and projection to be overcome, but the lug must be pressed downward with a sufficient force to bend the spring of the locking member G, so that the latter yields outwardly sufficiently to allow the edge E to enter the groove O. After this first uncoupling effort there is a continuous pressure of the spring lock against the edge of the locking lug so as to maintain a friction and extend the period of extra resistance until the uncoupling is substantially completed. This prolonging of the supplementary locking effort is particularly advantageous in preventing uncoupling by sudden blows the force of which would be expended in the first effort, and in yielding to a continuous strain such as occurs when two cars are pulled apart. An important advantage of this construction lies in the capability of using one of the improved couplers with a

coupler of the old style, that is, lacking the supplementary lock, so that a railroad might use couplers with the supplementary lock and have no difficulty in coupling its cars with those of other railroads using the old style simple lock.

In order to strengthen the arm and to permit the use of deep grooves for the spring, it is preferable to extend its thickness at the top, as by means of an extension R corresponding to the thickness of the hook carried by said arm.

Preferably the coupler head is provided with a threaded socket S at its inner end, and the nipple T which is clamped into the end of the hose U is screwed into the socket S, its inward movement being limited by the shoulder V provided with a polygonal edge for engagement by a wrench. This adapts the coupler for use with larger or smaller hose, the nipples for the different sizes of hose having their threaded portions of the same diameter so that they will fit the sockets S of the couplers. This is a particularly valuable feature in this type of coupler, which is especially designed to be used with cars having the old style equipment of simple couplers and small hose, as distinguished from the new style with couplers having supplementary locking means and having ports and hose of larger diameter. By making the nipples of noncorrodible metal, such as brass, so that the usually cast or malleable iron couplers may be readily unscrewed therefrom, I provide also a convenient means of quick repair in case of breakage or leakage of rubber hose. It is only necessary to carry an extra length of hose with such a threaded nipple clamped in the coupler end of the hose, and a similar nipple, as is usual, in the other end. When the hose breaks or is damaged, it may be detached at both ends, and the new length substituted without having to change couplers. According to the present general construction in which the nipple and the coupler are integral, it is necessary to send a damaged hose to the shop with a coupler attached thereto before the hose can be removed and the coupler used again.

Where the under edge of the lug B joins the vertical side face of the head A of the coupler, a fillet is preferably provided as in Fig. 3. The cross-section of the locking member G is preferably such as to fit the under face of the lug B so as to secure as wide a bearing as possible. With the shapes of the locking member and of the under edge of the lug B shown, the locking member G will spring with a snap under the lug, and in the first portion of the uncoupling movement it will be practically bent out of the path of the lug B by a lever action.

By giving the upper face of the locking member G a greater inclination downward

toward the end (or by correspondingly modifying the shape of the locking lug B) the locking will take effect with a less sudden snap, and the removal of the locking member G from the path of the lug in uncoupling will partake more of the nature of a wedging action than of that of a lever action, and it is within this invention to modify the shapes of the parts so as to vary the nature of this operation to any desired extent depending upon weights, strains, and other conditions. In this way also the extent to which the lock approaches a positive lock, that is to say, the extent of the force necessary to release it, may be increased or diminished, from a hook passing under the lug in such a direction as to be retained more firmly as the couplers are pressed in the uncoupling direction, to a mere frictional engagement with the locking member pressing longitudinally against the outer lower corner of the locking lug. This frictional engagement, whether constituting the entire locking effort, or whether existing only during a part of the coupling or a part of the uncoupling operations, is of importance in that it presses the two couplers together and tends to diminish the friction between the ordinary locking lug and hook. It makes the coupling operation easier, in lessening the amount of effort which with the old style couplers has been expended by the operator in holding the two couplers with their ports properly in engagement during the first part of the coupling movement.

What I claim is:—

1. A gravity coupler having a head with a lug on one side thereof and an arm projecting forward from the opposite side of said head and having a hook adapted to engage a corresponding lug on a mating coupler by an angular movement to lock the couplers together, and an additional impositive lock pressed in a direction substantially parallel to the side face of the coupler.

2. An end port gravity coupler having a head with a lug on one side thereof and an arm projecting forward from the opposite side of said head and having a hook adapted to engage a corresponding lug on a mating coupler by an angular movement to lock the couplers together, and an additional impositive lock acting in a longitudinal direc-

tion to press the couplers toward each other in the longitudinal direction during the earlier portion of the coupling movement.

3. An end port gravity coupler having a head with a lug on one side thereof and an arm projecting forward from the opposite side of said head and having a hook adapted to engage a corresponding lug on a mating coupler by an angular movement to lock the couplers together, and an additional impositive lock acting in a longitudinal direction to press the couplers toward each other in the longitudinal direction during the later portion of the uncoupling movement.

4. An end port gravity coupler having a head with a lug on one side thereof and an arm projecting forward from the opposite side of said head and having a hook adapted to engage a corresponding lug on a mating coupler by an angular movement to lock the couplers together, and an additional impositive lock adapted to lie in the path of said lug and to be moved out of said path in the first portion of an uncoupling movement, and adapted to frictionally engage the edge of said lug and press the two couplers toward each other in the longitudinal direction during another portion of such uncoupling movement.

5. A gravity coupler having a head with a lug on one side thereof, and a grooved arm projecting forward from the opposite side of said head and having a hook adapted to engage a corresponding lug on a mating coupler, by an angular movement to lock the couplers together, and an additional impositive lock adapted to engage the under side of said lock, and having a spring which extends upwardly along the outer end of said arm and backwardly within the groove in the outer face of said arm, and which is fastened at its rear end, said groove being sufficiently wide to permit the play of said spring in a direction parallel to the plane of said arm.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD E. GOLD.

Witnesses:

DOMINGO A. USINA,
THEODORE T. SNELL.