Dec. 23, 1924. 1,520,183

L. S. HAMER

WELL CAP

Filed May 9, 1922 2 Sheets-Sheet 1

Fig. 1.

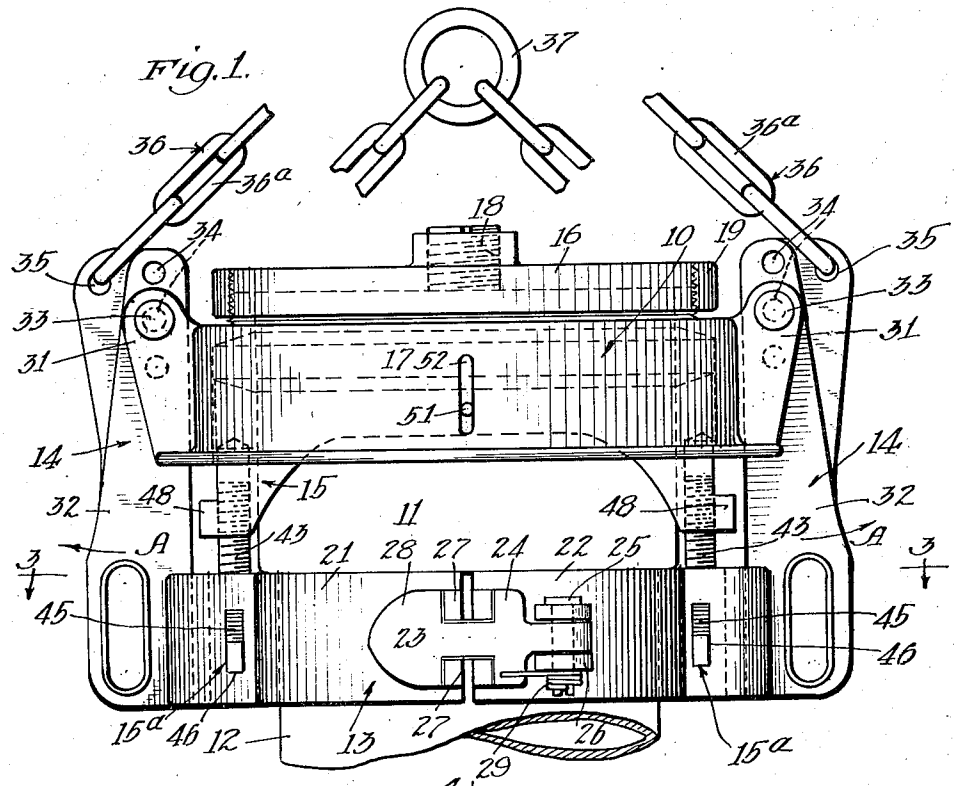
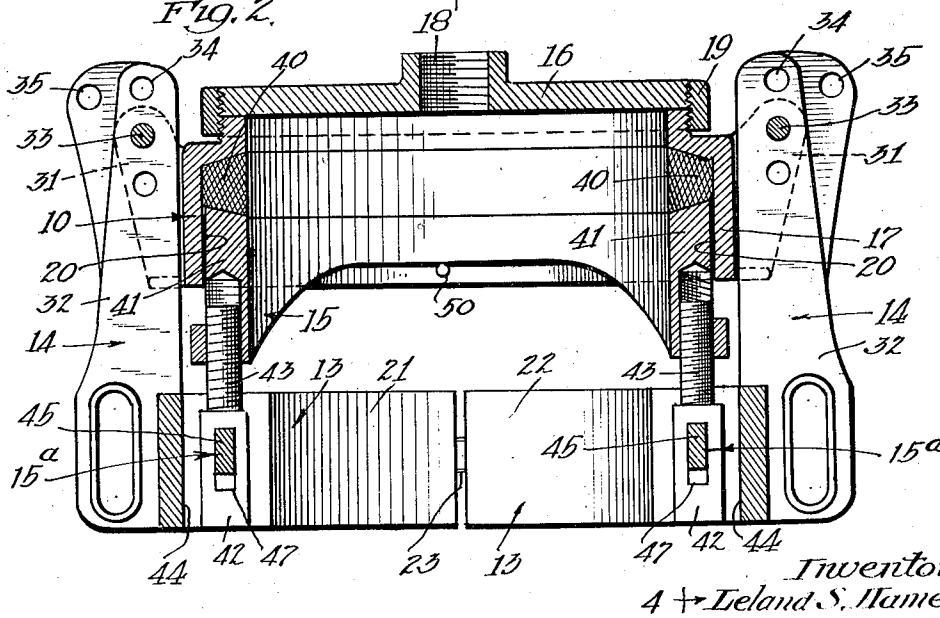



Fig. 2.




Inventor:
Leland S. Hamer
By James T. Berkelew.
his Attorney

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WELL CAP

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Fig. 3.

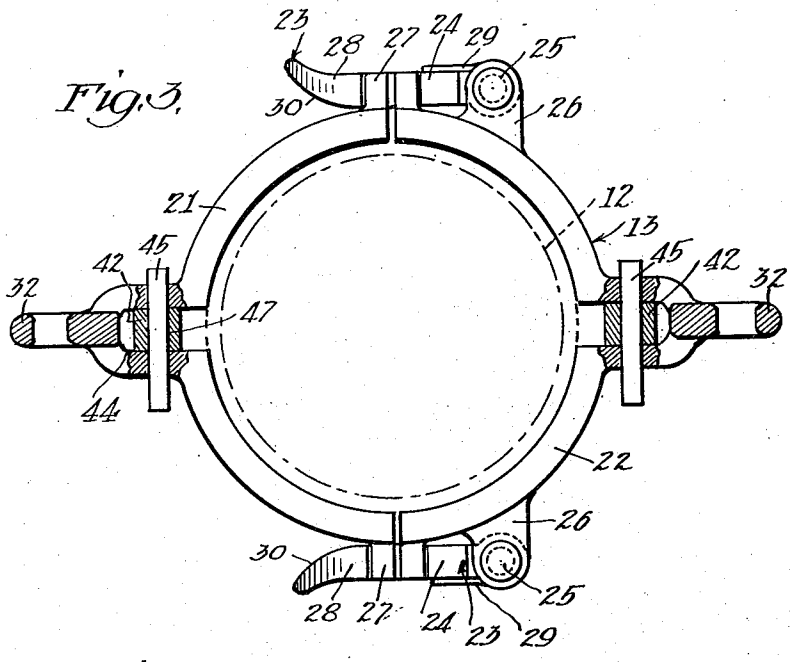
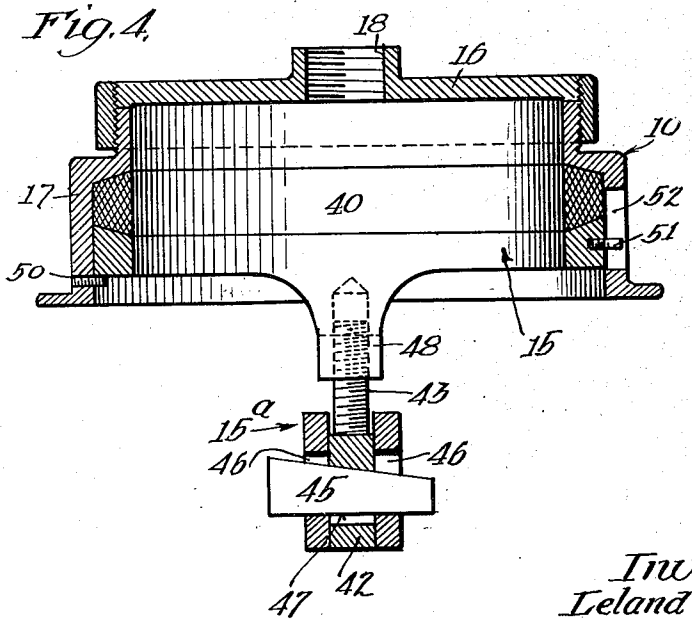



Fig. 4.




Inventor:
Leland S. Hamer.

By James T. Barkley.

his Attorney.

Patented Dec. 23, 1924. 1,520,183

# UNITED STATES PATENT OFFICE.

LELAND S. HAMER, OF FULLERTON, CALIFORNIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-THIRD TO L. D. HILTON, OF LONG BEACH, CALIFORNIA, AND TWO-NINTHS TO RAY W. ELLIOTT, AND ONE-NINTH TO LEONARD S. LYON, OF LOS ANGELES, CALIFORNIA.

## WELL CAP.

Application filed May 9, 1922. Serial No. 559,531.

*To all whom it may concern:*

Be it known that I, LELAND S. HAMER, a citizen of the United States, residing in Fullerton, in the county of Orange, State of California, have invented new and useful Improvements in Well Caps, of which the following is a detailed specification.

This invention relates to a well or casing cap and it is an object of the invention to provide a device of this character which is simple, effective, and easily and quickly operated.

In cementing off oil wells and in controlling flowing wells it is very desirable to have a cap or gland which can be applied and removed quickly. For instance, in the operation of cementing off a well, when a casing has been lowered to within two hundred feet or so of the bottom there is an accumulation of débris that prevents the casing being lowered further so this accumulation is washed up around the casing by pumping water down through the casing, the casing being lowered as the accumulation is washed up around the outside. The lowering of the casing, of course, requires the addition of casing joints and every time a casing joint is added the cap, on the upper end of the casing, through which the water is pumped must be removed and placed on the new joint and the new joint connected. With the ordinary type of cap or gland now in use, it requires from fifteen to thirty minutes to take it off or to apply it. During these periods the pumping operation is, of course, stopped, often allowing the matter being washed up around the outside of the casing to settle on a collar or at some restricted point and quite often sets the casing and clogs the opening so that the pumping and washing operation cannot be continued, neither can the casing be moved to shake loose or break the obstruction. After the washing out of the débris is successively accomplished, the cement must be introduced. This involves first the insertion of a swab which necessitates taking off the cap and putting it back on again, next pumping in the charge of concrete, then taking off the cap again and putting in the second swab with a stick or pole beneath it (usually a two by four about twenty feet long) and then putting the cap back on again. When any considerable length of time is consumed in removing or putting on the cap the space around the casing is of course very apt to become clogged and the casing at the same time become set so that it cannot be moved or put down to remove the clog. If at any time during these operations the sand and other débris, clog around the pipe the operation of cementing off the well cannot be successfully carried on. It is highly desirable and in fact practically necessary to the success of such an operation that once the operation has been started it be carried through to completion just as quickly as possible, or in other words practically continuously.

It is a general object of the present invention to provide a cap or gland that will securely and effectively cap the top of the casing and which can be easily and quickly applied and removed.

The various objects and features of the invention will be best and more fully understood from the following detailed description of a typical preferred embodiment of the invention throughout which reference is had to the accompanying drawings in which:

Fig. 1 is a side elevation of the cap showing it applied to the end of a section of casing; Fig. 2 is a vertical detailed sectional view of the cap; Fig. 3 is a plan section of the cap taken as indicated by line 3—3 on Fig. 1 and Fig. 4 is a vertical detailed sectional view taken as indicated by line 4—4 on Fig. 2.

The cap provided by the present invention comprises, generally, a cap 10 adapted to fit over, or to close the outer end of the coupling 11 which is carried on the end of the casing 12, a ring 13 comprising two parts adapted to be arranged together around the casing 12 under the coupling 11, connecting means 14 between the cap 10 and ring 13 whereby the parts of the ring are connected with the cap, packing means 15 carried by the cap 10 to form a tight joint between the cap 10 and coupling 11, and means $15^a$ for actuating the packing means.

The coupling 11, which I herein refer to as being secured on the end of the casing 12, may be a plain coupling such as is ordi-

narily employed in connecting sections of casings. The cap 10 comprises two parts, an end part 16 adapted to close the end of the coupling and an annular flange part 17 which extends over the outer part of the coupling 11. The end 16 is provided with an opening 18 through which fluid can be supplied into or allowed to escape from the casing 12. In accordance with the preferred form of the invention the end 16 and flange part 17 of the cap are separate pieces and are detachably connected by a coupling part or ring 19. This particular construction is noteworthy in that it allows for removal of the end part 16 of the cap if it is desired to attach a large valve or other device to the cap. The flange part 17 is provided in its inner side with a recess 20 which carries the packing means 15 as hereinafter described.

The ring 13 is made in two parts, preferably two halves, 21 and 22 adapted to fit together around the casing 12 so that they will not pass the coupling 11 when they are together. The present invention provides means for releasably securing the parts 21 and 22 of the ring 13 together around the casing, and in its preferred form provides spring catch devices 23 for this purpose. Each of the catch devices 23, comprises a latch 24 pivotally connected at 25 to a lug 26 extending from one of the sections, a lug 27 extending from the other section, a head 28 on the latch adapted to seat behind the lug 27, and a spring 29 in connection with the latch 24 normally yieldingly holding the latch in, or in the position where the head 28 is seated back of the lug 27. When the parts 21 and 22 are separated the latch 24 is held in about the position it is in when seated back of the lug 27 by a part of the section of the ring to which it is pivotally connected. Further, the inner part 30 of the head 27 of the latch 24 is curved so that the latch is automatically swung out against the resistance of spring 29 upon the parts of the ring 13 being moved together. Upon the two parts of the ring being moved completely together the latches 24 of the two catch devices 23 automatically snap back of the lugs 27 to secure the parts firmly together. Although I have herein specified a particular form of catch device for securing the parts of the ring 15 together it is to be understood that the broader aspects of the present invention provide for any suitable means for this purpose, and it will be obvious that various forms of spring catch devices other than the one just specified may be employed in the event that it is desired to use a spring catch.

Each of the connecting means 14, which I have illustrated in the drawings as a typical preferred form of connecting means, comprises a pair of spaced lugs 31 extending outwardly from the flange part 17 of the cap, and an arm 32 extending upwardly from the ring part between the lugs 31. The arm 32 preferably extends from a point on the ring part about equal distance between its ends. A pivot pin 33 extends between the lugs 31 so that it extends through an opening 34 in the arm 32 thus pivotally connecting the arm with the cap. In practice I prefer to provide the arm 32 with several openings 34 any one of which will receive the pivot pin making it possible to connect the arm with the cam so that the ring 13 is spaced various distances from the cap 10 and thus making the device adjustable to be applicable for use in connection with collars of various lengths.

In accordance with the present invention the arms 32 of the connecting means 14 are provided with openings 35 at points outward of the pivotal connection between the arms and the lugs for the reception of a bail member 96. The bail may, as I have illustrated in the drawings, be a chain bail comprising two chain sections $36^a$, the upper links of which are connected by a ring 37 and the lower links of which are carried in the openings 36. The lugs 31 are so proportioned and shaped, and the pivot pin so carried by the lugs 31 that upward strain on the chain sections, or bail, such as occurs when the device is lifted by means of the ring 37, tends to swing the lower part of the arms 32 outwardly, as indicated by the arrow A—A in Fig. 1 and thus tends to separate the two parts of the ring 13. When the device is constructed with this feature it can be very easily and quickly detached from the casing and coupling, in that it is merely necessary for the operator to release the catch devices 23 and then lift the entire device by means of the bail 36. When the catch devices are released lifting of the device by pulling upwardly on the bails automatically releases or opens the ring 13 so that it will freely pass over the coupling 11. Further, it is preferred to design and proportion the various parts so that the arms 32 remain out with the ring parts separated at all times when the coupling is released from the casing and is suspended by the bail. This allows the device to be very easily and quickly applied to a casing and coupling for when the ring parts are separated it is merely necessary to lower the device over the coupling allowing the cap 10 to engage the coupling after which further lowering of the bail releases the arms allowing the ring parts to be easily brought together so that the catch devices automatically secure them together around the casing 12.

The packing means 15, which I have illustrated in the drawings, comprises a body of packing 40 carried in the upper part of the recess 20, and a packing ring 41 carried

in the lower part of the recess 20 and adapted to be moved upwardly in the recess to compress the packing 40 so that it makes a tight joint between the cap and the coupling.

The packing operating means 15ª, provided by the present invention, each comprises a block 42 adjustably connected with the packing ring 41, say for instance by a screw 43, and which is adapted to be in a recess 44 in the ring 13 when the ring is assembled around the casing, and a wedge 45 carried in openings 46 in the ring so that it extends through an opening 47 in the block in a manner to wedge the block, and therefore the packing ring, upwardly upon being driven into place. In accordance with the preferred form of the invention, I provide only two packing operating means 15ª and therefore locate them at diametrically opposite points and preferably, as I have shown in the drawings, so that the recesses 44 which receive the blocks 42 are at the portions of the ring parts from which the arms 32 extend. The recesses 42 open inwardly so that the ring parts can be swung in and out independently of the blocks when the wedges are removed. In the preferred form of construction, the screws 43 extend from the blocks 42 and screw thread into lugs 48 which extend downwardly from the packing ring 41. The screws 43 allow for adjusting the positions of the blocks 42 so that the packing will be properly compressed and provide for varying the positions of the blocks when the position of the ring 13 is changed relative to the cap 10 in the manner above described. For the purpose of preventing the packing ring 41 and the parts attached to it from dropping out of the recess 20 I screw thread a pin 50 into the flange part 17 of the cap at one side thereof so that it extends into the recess 20 under the ring 41 and screw thread a pin 51 into the ring 41 so that it operates in a vertical slot 52 formed in the flange part 17 at a point diametrically opposite the pin 50. The pin 50 operating in the slot 52 prevents the ring 41 from rotating in the recess and thus prevents the blocks 42 from getting out of place so that they will not register with the recesses 44 upon the ring being assembled around the casing 12. When the wedges 45 are driven into place they not only operate to wedge the ring 41 upwardly and thus compress the packing 40 but also operate to hold the parts of the ring 13 together around the casing.

From the foregoing description it is believed that the operation of the device will be obvious. To apply the cap it is preferably suspended by means of the bail 36 so that the parts of the ring 13 are separated allowing it to be conveniently arranged in place with the cap 10 engaging the upper end of the coupling 11 so that the ring parts 20 and 21 are in position to be moved together around the casing 12 immediately below the coupling 11. When the cap is thus in place the bail 36 is released allowing the ring parts 21 and 22 to swing together and be secured by the catch devices 23. When the ring 13 is assembled around the casing below the coupling 11 the cap 10 is positively held on the upper part of the coupling 11. To make the connection between the coupling 11 and cap 10 tight the wedges 45 are driven tightly in place causing the packing ring 41 to be wedged upwardly thus causing the packing 40 to be compressed and to be spread between the flange part 17 and the coupling 11 to make a tight joint.

Having described only a typical preferred form of my invention I do not wish to limit myself to the particular details hereinabove set forth but wish to reserve to myself any changes or variations that may appear to those skilled in the art or that may fall within the scope of the following claims.

Having described a preferred form of my invention, I claim:

1. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, a structure adapted to be arranged on the casing under the coupling including two relatively movable parts and catch means for releasably securing the parts in position on the casing, and connecting means between said structure and the cap whereby the cap is held on the coupling by said structure.

2. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, the cap including two detachable parts, one an end part adapted to close the end of the coupling and the other an annular flange part adapted to extend over the coupling, a structure adapted to be arranged around the casing under the coupling, and connecting means between the structure and cap whereby the cap is held on the coupling by the structure.

3. A device to be used in combination with a casing having a coupling on its end embodying a cap adapted to close the coupling, the cap including an end part adapted to close the end of the coupling, an annular flange part adapted to extend over the coupling, and a ring screw threaded to the end part and flange part to detachably connect them, a structure adapted to be arranged around the casing under the coupling, and connecting means between the structure and cap whereby the cap is held on the coupling by the structure.

4. A device to be used in combination with a casing having a coupling on its end embodying a cap adapted to be arranged on

the coupling, the cap including an end part, an annular flange part adapted to extend over the coupling, and means connecting the end part and flange part and embodying a screw threaded connection, a structure adapted to be arranged on the casing under the coupling, and connecting means between said structure and the cap whereby the cap is held on the coupling by said structure.

5. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, a ring adapted to be assembled around the casing under the coupling, the ring including two separable parts and catch means for releasably securing said parts together to form a ring, and connecting means between the ring and cap whereby the cap is held on the coupling by the ring.

6. A device to be used in combination with a casing having a coupling on its end embodying a cap adapted to close the coupling, a ring adapted to be assembled around the casing under the coupling, the ring including separable halves and spring catch means for securing the halves together, and connecting means between the ring and cap whereby the cap is held on the coupling by the ring.

7. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, a ring adapted to be assembled around the casing under the coupling, the ring including two separable halves and spring catch means in connection with the ends of said halves for securing the halves together, the catch means including latch parts adapted to be automatically opened during placing the halves together and to automatically close to secure the halves together upon the halves coming together, and connecting means between the ring and cap whereby the cap is held on the coupling by the ring.

8. A device adapted to be used in combination with a casing having a coupling on its end including, two parts one a cap adapted to close the coupling, the other a structure adapted to be arranged on the casing under the coupling and connecting means between the cap and structure whereby the cap is held on the coupling by the structure, said means including a lug extending from one of the parts and an arm extending from the other part and attaching to the lug.

9. A device adapted to be used in combination with a casing having a coupling on its end including, two parts one a cap adapted to close the coupling, the other a structure adapted to be arranged around the casing under the coupling, and connecting means between the cap and structure whereby the cap is held on the coupling by the structure, said means including a lug extending from one of the parts and an arm extending from the other part and pivotally attaching to the lug.

10. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, a structure adapted to be arranged around the casing under the coupling, and connecting means between the structure and cap whereby the cap is held on the coupling by the structure, said means including a lug extending from the cap and an arm extending from the structure and pivotally connecting to the lug.

11. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, a structure adapted to be arranged around the casing under the coupling, and connecting means between the structure and cap whereby the cap is held on the coupling by the structure, said means including a part extending from the cap, a part extending from the structure, and a pivot pin carried by one of the parts and extending through an opening in the other part to pivotally connect the parts, the part through which the pivot pin extends being provided with a plurality of openings whereby the parts can be connected in different relative positions.

12. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, a ring adapted to be arranged around the casing under the coupling, the ring including two relatively movable parts and catch means for releasably securing said parts together to form a ring, and connecting means between the ring and cap whereby the cap is held on the coupling by the ring, said connecting means including lugs extending from the cap and an arm extending from each part of the ring, each arm being pivotally connected to one of the lugs.

13. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, a ring adapted to be assembled around the casing under the coupling, the ring including two separable parts and means for releasably securing said parts together to form a ring, connecting means between the ring and cap whereby the cap is held on the coupling by the ring, said connecting means including an arm extending from one of the ring parts and pivotally connecting with the cap, and a bail connected with the arm outward of the pivotal connection so that lifting on the bail causes said ring part to move away from the other ring part when said means is released.

14. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the cou-

pling, a ring adapted to be assembled around the casing under the coupling, the ring including two separable parts and means for releasably securing said parts together to form a ring, connecting means between the ring and cap whereby the cap is held on the coupling by the ring, said connecting means including arms extending from the parts of the ring and pivotally connecting with the cap, and a bail connected with the arms outward of their pivotal connections with the cap so that lifting on the bail causes the ring parts to be moved apart when the said means is released.

15. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling and recessed at its inner side, a structure adapted to be arranged around the casing under the coupling, connecting mean between the structure and cap whereby the cap is held on the coupling by the structure, and packing means carried in the recess in said flange part to make a tight connection between the cap and the coupling.

16. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling and recessed at its inner side, a structure adapted to be arranged around the casing under the coupling, connecting means between the structure and cap whereby the cap is held on the coupling by the structure, packing carried in the recess in the flange part, and means at the structure adapted to be operated to actuate the packing to make a tight connection between the cap and coupling.

17. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling, a structure adapted to be arranged around the casing under the coupling, connecting means between the structure and cap whereby the cap is held on the coupling by the structure, packing means carried by the flange, and means for actuating the packing means to make a tight joint between the cap and coupling including, a block connected with the packing means, and a wedge adapted to cooperate with the structure and block to move the block.

18. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling, a structure adapted to be assembled around the casing under the coupling, and having openings in it, connecting means between the structure and cap whereby the cap is held on the coupling by the structure, packing means carried by the flange, and means for actuating the packing means to make a tight joint between the cap and coupling including, blocks connected with the packing means, and wedges adapted to be arranged in said openings to cooperate with the blocks to move them.

19. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling, a structure adapted to be assembled around the casing under the coupling, the structure including two relatively movable parts each having an opening in it, connecting means between the structure and cap whereby the cap is held on the coupling by the strcture, packing means carried by the flange, said packing means including a body of packing and a packing ring adapted to compress the body of packing, and means for actuating the packing means to make a tight joint between the cap and coupling including blocks connected with the packing ring, and wedges adapted to be arranged in said openings to cooperate with the blocks to move them so that they move the packing ring to compress the body of packing.

20. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling, a structure adapted to be arranged around the casing under the coupling, and including two relatively movable parts each having a recess and an opening at the recess, connecting means between the structure and cap whereby the cap is held on the coupling by the structure, packing means carried by the flange, and means for actuating the packing means to make a tight joint between the cap and coupling including, blocks connected with the packing means to be within said recesses when the structure is arranged on the casing, and wedges adapted to be arranged in the openings in the ring parts to cooperate with the blocks to move them to actuate the packing.

21. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling, a structure adapted to be arranged around the casing under the coupling and including two relatively movable parts each having a recess and an opening at the recess, connecting means between the structure and cap whereby the cap is held on the coupling by the ring, packing means carried by recess in the flange, and means for actuating the pack-

ing means to make a tight joint between the cap and coupling including, blocks connected with the packing means to be within said recesses when the ring is assembled, each block having an opening, and wedges adapted to be arranged through the openings in the ring parts and blocks to connect the ring parts and blocks and to cooperate with the ring parts and blocks to move the blocks to actuate the packing means.

22. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling and recessed at its inner side, a ring adapted to be assembled around the casing under the coupling, the ring including two separable parts each having an opening in it, adjustable connecting means between the ring and cap whereby the cap is held on the coupling by the ring, packing means carried in the recess in the flange, and means for actuating the packing means to make a tight joint between the cap and coupling including, two blocks, screws connecting the blocks with the packing means, and wedges adapted to be arranged in the openings in the ring parts to cooperate with the blocks to move them so that the packing is actuated.

23. A device adapted to be used in combination with a casing having a coupling on its end including, a cap adapted to close the coupling, the cap including a flange part adapted to extend over the coupling and recessed at its inner side, a ring adapted to be assembled around the casing under the coupling, connecting means between the ring and cap whereby the cap is held on the coupling by the ring, said connecting means including a part extending from the cap, a part extending from the ring, and a pivot pin carried by one of the parts and extending through an opening in the other part to pivotally connect the parts, the part through which the pivot pin extends being provided with a plurality of openings whereby the parts can be connected in different relative positions, packing carried in the recess in the flange part, and means for actuating the packing including an adjustable part adapted to be at the ring.

24. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, a structure adapted to be arranged on the casing under the coupling, said structure including relatively movable sections and spring catch means for securing the sections on the casing, and connecting means between said structure and the cap whereby the cap is held on the coupling by said structure.

25. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, a structure adapted to be arranged on the casing under the coupling, the structure including two separable sections, and catch means at the ends of the sections for securing them together upon their being arranged together, and connecting means between said structure and the cap whereby the cap is held on the coupling by said structure.

26. A device adapted to be used in combination with a casing having a coupling on its end including, two parts one a cap adapted to close the coupling, the other a structure adapted to be arranged on the casing under the coupling, and connecting means between the cap and structure whereby the cap is held on the coupling by the structure, said means including an arm rigidly connected with one part and pivotally connected with the other.

27. A device adapted to be used in combination with a casing having a coupling on its end including, two parts one a cap adapted to close the coupling, the other a structure adapted to be arranged on the casing under the coupling, and connecting means between the cap and structure whereby the cap is held on the coupling by the structure, said means including an arm rigidly connected with one part and means adjustably pivotally connecting the arm with the other part.

28. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling, a ring adapted to be arranged around the casing under the coupling, the ring including two relatively movable parts and means for securing the parts in position around the casing, and means independently connecting the parts of the ring with the cap so that the cap is held on the coupling by the ring.

29. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, a structure adapted to be arranged on the casing under the coupling and including two relatively movable parts and means for securing the parts on the casing, means connecting the structure and cap embodying an arm extending from a part of the structure and pivotally connecting with the cap, and a bail connected with the arm at a point outward of the pivotal connection.

30. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to close the coupling and including a part extending over the coupling, a structure adapted to be arranged around the casing under the coupling, connecting means between the cap and structure whereby the cap is held on the

coupling by the structure, and packing means carried by said part of the cap to make a tight connection between the cap and coupling.

31. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, packing carried by the cap, a structure adapted to be arranged on the casing under the coupling, connecting means between the cap and structure whereby the cap is held on the coupling by the structure, and means operable when the structure is on the casing to actuate the packing to make a tight connection betwen the cap and coupling.

32. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, packing carried by the cap, a structure adapted to be arranged on the casing under the coupling, connecting means between the cap and structure whereby the cap is held on the coupling by the structure, and means at the structure adapted to be operated to actuate the packing to make a tight connection between the cap and coupling.

33. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, packing carried by the cap, a structure adapted to be arranged on the casing under the coupling, connecting means between the cap and structure whereby the cap is held on the coupling by the structure, and wedge means for operating the packing to make a tight connection between the cap and coupling.

34. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, a structure adapted to be arranged on the casing under the coupling, connecting means between the cap and structure whereby the cap is held on the coupling by the structure, and means for packing the cap tight with the coupling including, packing, operating means for the packing and adjusting means in connection with the packing and operating means.

35. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, and two parts connected with the cap to swing in opposite directions to engage the casing under the coupling and hold the cap on the coupling.

36. A device to be used in combination with a casing having a coupling on its end embodying, a cap adapted to be arranged on the coupling, and a device adapted to be releasably arranged around the casing under the coupling and being connected with the cap so that it can be swung clear of the casing and cap.

37. A cap device for a coupling, or the like including, a cap adapted to be arranged on the coupling, and means for releasably securing the cap on the coupling embodying, a part adapted to engage under the coupling and connected with the cap so that it is moved by gravity to a position clear of the coupling.

38. A cap device for a coupling, or the like including, a cap adapted to be arranged on the coupling, and means for releasably securing the cap on the coupling embodying, a part adapted to engage under the coupling and pivotally connected with the cap so that it is moved by gravity to a position clear of the coupling.

39. A cap device for a coupling, or the like, including, a cap adapted to be arranged on the coupling, and means for releasably securing the cap on the coupling embodying, a part adapted to engage under the coupling, means for releasably securing the part in that position, and means pivotally connecting said part with the cap so that it swings by gravity to a position clear of the coupling when it is released.

40. A cap device for a coupling, or the like including, a cap adapted to be arranged on the coupling, and means for releasably securing the cap on the coupling embodying, a part adapted to engage under the coupling, and means pivotally connecting the part with the cap about an axis spaced outward of the center of gravity of the part when the part is in position under the coupling.

In witness that I claim the foregoing I have hereunto subscribed my name this 10th day April, 1922.

LELAND S. HAMER.