Nov. 24, 1925. 1,562,675

R. C. BAKER

COUPLING FOR WELL CASINGS

Filed March 7, 1923 3 Sheets-Sheet 1

Fig. 3.

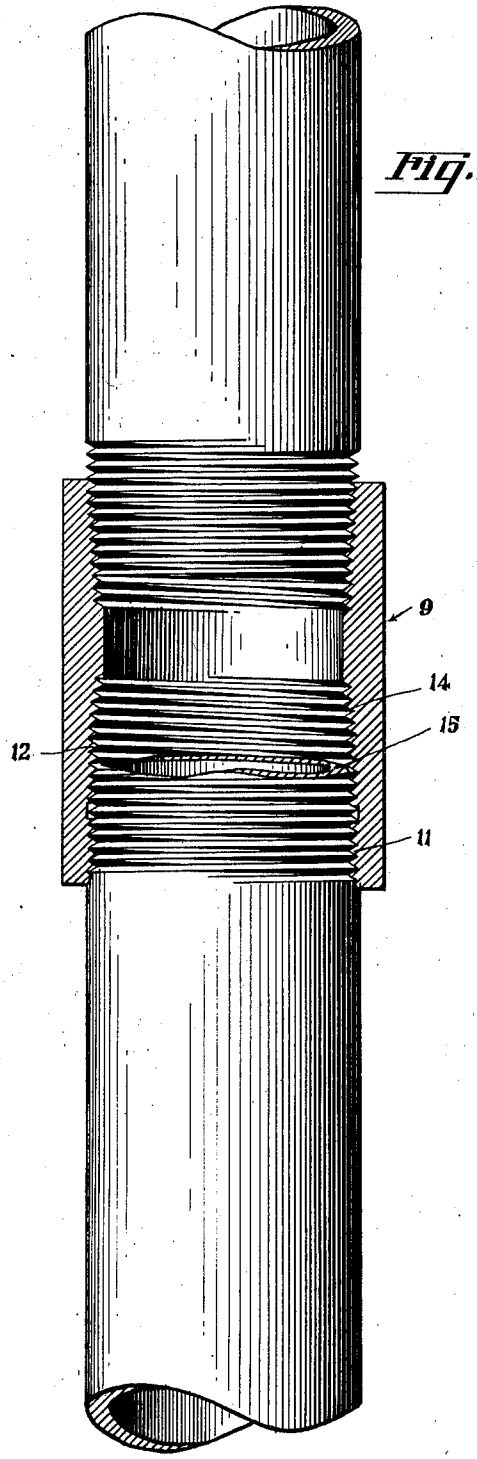


Fig. 1.

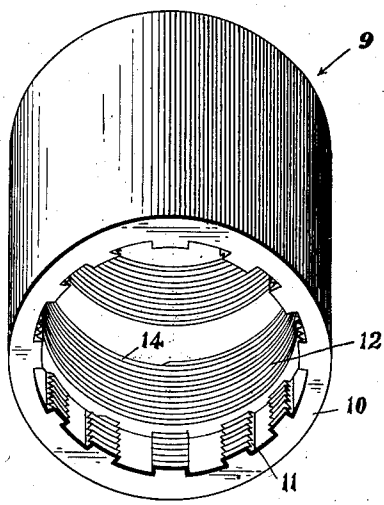
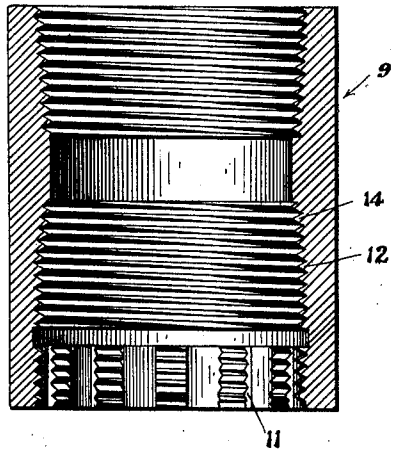


Fig. 2.



INVENTOR.
REUBEN C. BAKER.

BY Dewey, Strong, Townsend & Lofting

ATTORNEYS.

Nov. 24, 1925. 1,562,675

R. C. BAKER

COUPLING FOR WELL CASINGS

Filed March 7, 1923 3 Sheets-Sheet 2

Fig. 6.

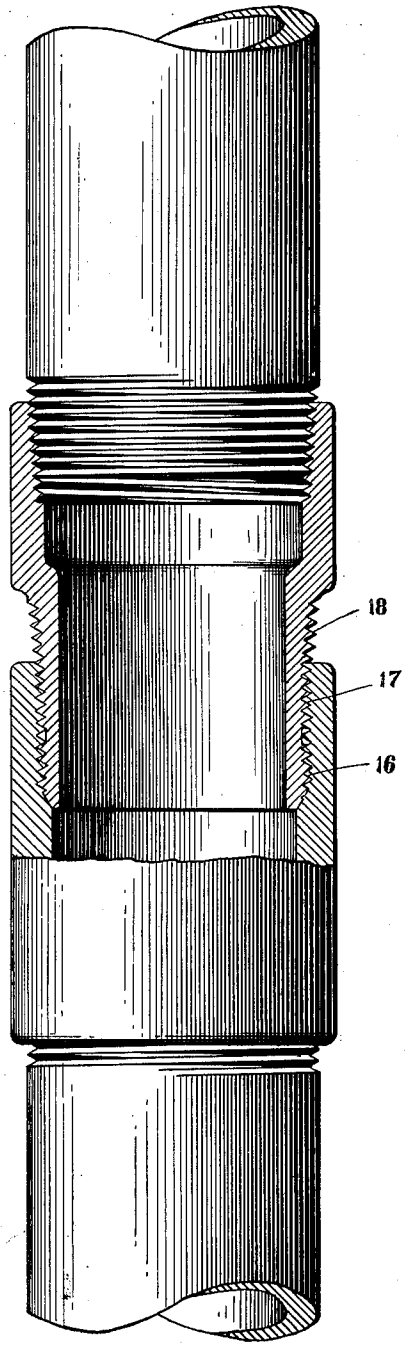


Fig. 4.

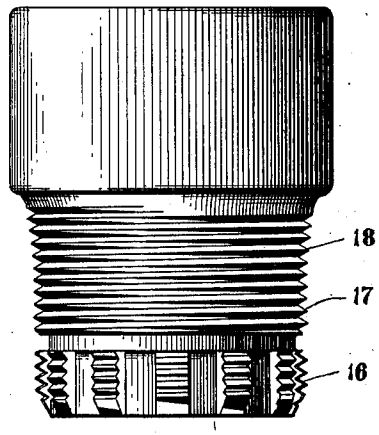
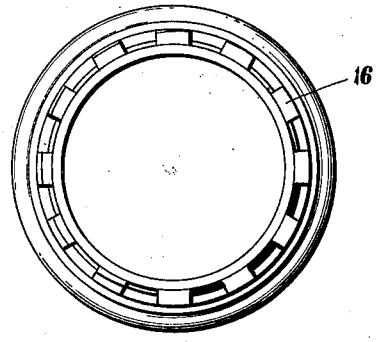


Fig. 5.



INVENTOR.
REUBEN C. BAKER.
BY Dewey, Strong, Townsend & Loftus.
ATTORNEYS.

Nov. 24, 1925. 1,562,675

R. C. BAKER

COUPLING FOR WELL CASINGS

Filed March 7, 1923 3 Sheets-Sheet 3

Fig. 6.

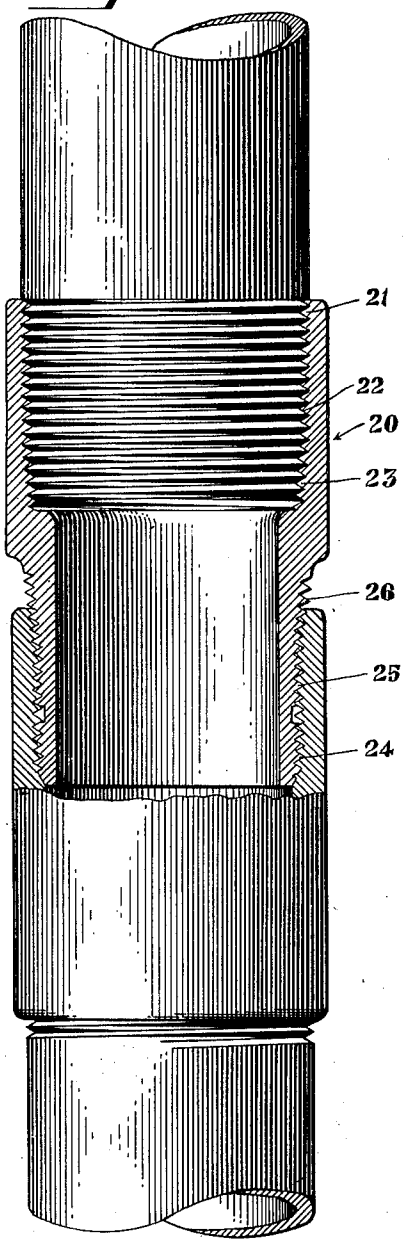
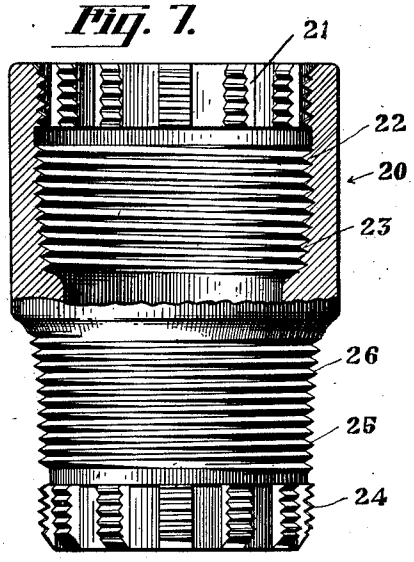


Fig. 7.



INVENTOR.
REUBEN C. BAKER.
BY Dewey, Strong Townsend & Loftis.
ATTORNEYS.

Patented Nov. 24, 1925. 1,562,675

UNITED STATES PATENT OFFICE.

REUBEN C. BAKER, OF COALINGA, CALIFORNIA, ASSIGNOR TO BAKER CASING SHOE COMPANY, A CORPORATION OF CALIFORNIA.

COUPLING FOR WELL CASINGS.

Application filed March 7, 1923. Serial No. 623,405.

To all whom it may concern:

Be it known that I, REUBEN C. BAKER, a citizen of the United States, residing at Coalinga, county of Fresno, and State of California, have invented new and useful Improvements in Couplings for Well Casings, of which the following is a specification.

This invention relates to deep well equipment and particularly pertains to coupling devices for repairing broken well casings in a well.

Prior to the present invention, the method employed to repair a casing in a well, when the threads stripped at the union of the casing sections or when the casing was broken, was to remove the upper portion of the casing from the well and then lower suitable taps or dies into the well to recut the threads on the stripped part, or to cut threads on the broken end of the well casing. The end of the removed portion of the casing was similarly repaired and when the dies or taps were removed from the well, it was lowered down into the well and threadedly connected to the lower portion of the casing.

This method has not proven entirely satisfactory, as in many cases it was difficult to obtain a perfectly water tight joint between the repaired parts. Therefore, it is the principal object of the present invention to provide a coupling with a wide range of adaptability, and which may be lowered into a well to thread damaged parts of a well casing, and to connect the same in a manner insuring a perfectly tight joint of maximum strength.

The invention contemplates the use of a member having cutting threads and follow-up threads to thread damaged parts of a casing in a well and act as a coupling to connect the damaged portions of the casing with a strong and water-tight joint.

The invention is exemplified in the following description and illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a perspective view of a die coupling embodying my invention.

Fig. 2 is a vertical section through the same disclosing its construction.

Fig. 3 is a view disclosing the application of the die coupling disclosed in the previous figures.

Fig. 4 is a side elevation of a coupling tap embodying the invention.

Fig. 5 is a bottom view of the same.

Fig. 6 is a view disclosing the application of the coupling tap.

Fig. 7 is a vertical section through a combination die and tap coupling embodying the invention.

Fig. 8 is a view in section and elevation disclosing the application of the same.

Referring to the accompanying drawings, particularly to Figs. 1 to 3 inclusive, 9 indicates a cylindrical die coupling comprising a body portion 10 formed at its lower end with parallel die threads 11. Above these threads the coupling is tapped with parallel or straight threads 12 which terminate in tapered threads 14. The upper end of the coupling is also interiorly threaded, preferably with standard tapered threads.

In Fig. 3 15 indicates a section casing in a well, the upper end of which has been broken off or the threads thereon stripped where it enters a sleeve collar. To repair this damage in a well, the upper portion of the casing is removed and the die coupling 10 is threaded on its lower end as indicated. It is then lowered into the well until the lower end of the die casing engages the stripped or broken end of the lower portion of the casing 15. It is then revolved to cause the die threads 11 to cut threads thereon. This operation is continued until die threads feed the coupling onto the casing an amount sufficient to cause the newly formed threads on the casing to engage with the tapered threads 14. This will form a water tight joint between the parts. It is seen that the straight threads 12 will serve as follow-up threads for the die to insure a joint of maximum strength.

When the die coupling is firmly on the lower section of the casing it serves as a very efficient joint between the two damaged portions of the casing and may be applied at any depth in the well.

The coupling tap illustrated in Figs. 4 to 6 inclusive is similar in every respect to the coupling die with the exception that it slower end is formed with male threads to serve

as a tap instead of a die. This device is fitted with straight tap threads 16, parallel or straight follow-up threads 17 and tapered threads 18. Also the upper end of the member is interiorly threaded for the reception of the threaded end of a well casing. This device is mainly employed to re-cut threads in a stripped or broken casing sleeve collar and in operation is exactly the same as that of the die coupling previously described.

The combination die and tap coupling illustrated in Figs. 7 and 8 comprises a cylindrical body 20 formed at one end with straight die threads 21, follow-up parallel or straight threads 22 and tapered threads 23. The other end of this member is formed with straight tap threads 24, straight follow-up threads 25 and tapered threads 26.

This form of the invention is principally used to re-cut threads on the adjoining portions of the casing and sleeve collar. In operation the upper portion of the casing is removed and its lower end re-threaded by applying the device 20 thereto. It is then lowered into the well until the lower end of the member 20 engages the lower portion of the well casing and re-threads the same. The formation of the threads on both the male and female ends of the device are such that a perfectly water-tight fit between the connected parts will be effected, and the device 20 will serve as a strong durable coupling.

From the foregoing it is obvious that a very desirable tool has been provided which may be efficiently employed to rigidly connect damaged ends of casing sections in a well and serve as a water-tight joint therebetween.

While I have shown and described the preferred forms of my invention, it is understood that various changes in the construction, combination and arrangement of parts may be made by those skilled in the art without departing from the spirit of the invention as claimed.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A coupling for connecting contiguous ends of pipes, said coupling comprising a body portion threaded at one end whereby it may be connected to the end of one of said pipes, cutting threads formed at one end of the body portion for engaging the end of the other pipe to thread the same, straight full threads formed as a continuation of the cutting threads to form a firm connection between the pipe and the coupling, and tapered full threads formed as a continuation of the straight full threads to form a tight fit between the coupling and the pipe.

2. A device for connecting contiguous ends of a pipe and a coupling, said device comprising a body portion being threaded at one end for the reception of the end of the pipe, tapping threads formed on the other end of the body portion to engage the end of the coupling to thread the same, and full straight and tapered threads formed as a continuation of the tapping threads to follow the same and form a tight fit between the device and the coupling.

3. A device for connecting contiguous ends of a pipe and a coupling comprising a body portion having die threads at one end to engage the pipe end and thread thereon and tap threads at the other end to tap the coupling and threadedly connect therewith, straight full threads following the die threads and the tap threads whereby a firm connection between the parts is made, and tapered threads formed as continuations of the straight full threads for forming a tight fit between the parts.

4. A device for connecting contiguous ends of a pipe comprising a body portion having cutting threads at opposite ends thereof, full straight threads following the cutting threads, and full tapered threads formed as a continuation of the cutting threads to form a tight fit between the parts.

REUBEN C. BAKER.