

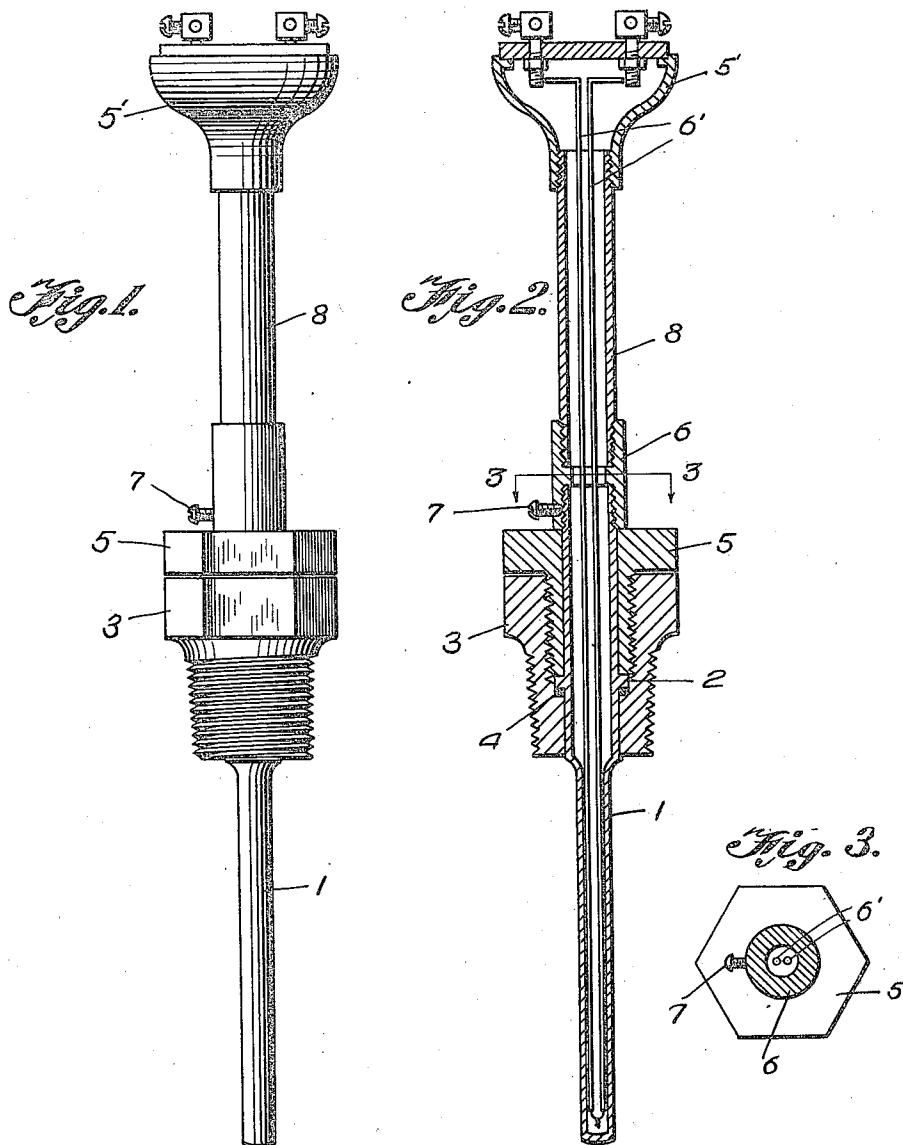
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THERMOMETER WELL

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WITNESS:

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THERMOMETER WELL.

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Our present invention has reference to a thermo-couple adapted to be connected to a pyrometer for indicating the temperature of oil, vapors, steam, water and like fluids, the object being the provision of simple means whereby the well may be arranged in or removed from the line without the liability of inflicting injury thereto and also without the liability of the opening through which the well passes being clogged when the thermo-couple is removed and a turbine is employed for cleaning out the line.

To the attainment of the above broadly stated objects and others which will present themselves as the nature of the invention is better understood, the improvement further resides in the novel features of construction, combination and operative association of parts, a satisfactory embodiment of which is disclosed by the accompanying drawings.

In the drawings:

Figure 1 is a side elevation of the improvement.

Figure 2 is a central longitudinal section therethrough.

Figure 3 is a sectional view on the line 3—3 of Figure 2.

The well for a thermo-couple as ordinarily constructed is removed when the plant is shut down so as to permit the line through which the well passes being cleaned. Because of the intense heat in the line through which the oil flows the pipe or line becomes scaled with coke and a turbine is used to break this coke loose in the cleaning of the line. Of course, the thermo-couple must be removed when the line is to be cleaned. In taking out these wells the threads on the well and in the line, due to the scale of coke or other formations frequently have their threads destroyed, and in order to put the well back in service it becomes necessary to retap the threads in the line in order to remove the scale of coke therefrom. This necessarily enlarges the threaded hole and renders the well unsafe, as there is always a pressure from ten to seven hundred and fifty pounds on the lines. Therefore, it is frequently necessary to plug up the threaded hole and again tap the same the right size. After the hole has been retapped several times it becomes necessary to throw away the well on account of bad threads, this being due to the well being made in one piece. If these holes are not retapped after every run the thermo-couple

could not properly perform its function and it is an expensive proposition to retap the well holes after every run and likewise an expensive proposition to rebuild the well holes and thereafter retap the same. The line is cleaned about every thirty days so that the number of times in which the hole must be retapped or rebuilt during the season will be appreciated. Because the wells are made in one piece it becomes necessary to remove the thermo-couple before the well can be removed. These couples are very delicate and the removal thereof from the wells leaves the same unprotected, during the entire period the plant is shut down and it is not infrequent that the couples become broken or water soaked which results in the short circuiting of the apparatus. Also there are only two kinds of metal that can be used with success that is aluminum bronze and brass, as other metals, when screwed into the steel threads in the line and subjected to intense heat will cause the corrosion and disintegration of the threads. Also dirt and other matters are liable to fall into the well after the same has been replaced so that the couple when reinserted is not afforded a snug fit which frequently results in the breakage of the porcelain on the couple and the breakage of the expensive wires of the couple, while the wrench employed in removing and replacing the well frequently flattens the mouth of the well to an extent that will not permit of the thermo-couple being inserted and the well is thus rendered useless as any attempt to enlarge the mouth of the well is liable to make too great an air space so that the couple will not give correct readings.

With our improvement we effectively obviate the above defects.

As disclosed by the drawings the well 1 has a shoulder 2. This shoulder is received in the bore of a bushing 3 that is screwed in the line. The annular shoulder 2 rests on a gasket 4 in the lower wall provided by the bore of the bushing 3. Screwed in the bushing 3 there is the threaded shank of a jamb nut 5. The bushing it will be noted may remain in the line when the jamb nut is unscrewed so that the well 1 may be withdrawn.

The outer end of the well has screwed thereon a coupling 6 which contacts with the jamb nut. Threaded through an opening in the coupling and contacting the threaded end

of the well there is a lock bolt 7. Screwed in the outer end of the coupling there is a tubular member or well extension 8 to whose outer end the head 5 of the thermo-couple is attached.

By using the bushing 3, after the same has been installed it becomes part of the line and does not have to be removed. Therefore, there is no wear and tear on the threads. The bushing is of bronze or brass so that the same can be removed from the line when occasion requires. As the bushing is ordinarily part of the line the use thereof eliminates the retapping and rethreading of the pipe line as no coke can enter into the threads. The gasket 4, when compressed by the shoulder 2 of the well, when the latter is influenced by the jamb nut 5, effectively seals the well and prevents oil and coke from entering the bushing so that the threads in the bushing and jamb nut are at all times retained clean which permits of the ready removal of the jamb nut from the bushing. By the use of our improvement the couple is fully protected at all times as the couple does not have to be removed from the well after the well has been removed from the line and therefore, there is no danger of the couple becoming destroyed by workmen or from other causes and thus with our improvement the couple will last as long as the well itself as the couple need never be disturbed at any time. With our device it is easy to remove the well, as when the jamb nut 5 is unscrewed it breaks the well loose from the gasket and pulls scale of coke from the end of the well when the latter is drawn through the bushing. When it is desired to remove the couple without removing the well, the pipe member 8 is unscrewed from the coupling 6, and the couple drawn out of the well.

Instead of threadedly connecting the parts of the improvement as above described a ground joint may be provided therebetween.

Having described the invention, we claim:—

1. A well for thermo-couples, comprising a member having an annular shoulder, a bushing adapted to be screwed in the line in which the well enters and through which the well passes, a gasket on the inner wall of the bushing against which the shoulder of the well rests and a jamb nut having an opening through which the outer end of the well passes, said jamb nut being screwed in the bushing to contact the shoulder of the well to compress the same against the gasket.

2. A well for thermo-couples, comprising a member having an annular shoulder, a bushing adapted to be screwed in the line in which the well enters and through which the well passes, a gasket on the inner wall of the bushing against which the shoulder of the well rests, a jamb nut having an opening through which the outer end of the well passes, said jamb nut being screwed on the shoulder of the bushing to contact the shoulder of the well to compress the same against the gasket, a coupler screwed on the outer end of the well and normally contacting the jamb nut, a tubular member screwed in the coupler, and a head for the thermo-couple removably secured to the outer end of the tubular member.

3. A well for thermo-couples, comprising a member having an annular shoulder, a bushing adapted to be screwed in the line in which the well enters, a jamb member having an opening therein receiving the well therethrough and being received in the bushing and contacting with the shoulder of the well and a gasket between the shoulder and the bushing compressed by contacting engagement of the shoulder thereagainst.

In testimony whereof, we affix our signatures.

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