To all whom it may concern:

Be it known that I, Edwin M. Perry, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented new and useful Improvements in Thread-Reforming Devices, of which the following is a specification.

The object of this invention is to provide a device for re-forming mutilated threads so that a nut can be turned off from a threaded shank or bolt.

My invention includes a pair of bars having on their coating faces one or more sets of reforming dies, the bars being united by a floating pivotal connection with which the bars coact in such a manner that when the bars are closed together, the dies will automatically be in accurate registry.

A further feature consists in a novel construction whereby the dies are extended substantially completely about the threaded portion to be re-formed so that when the device is operated in a crowded location where it can be oscillated about a very limited arc, the threads will nevertheless be completely reformed entirely about the circumference.

A further feature consists in providing abutments between the dies so that when the bars are closed, there will be a series of abutments in engaged relation whereby a firm grip of the bars may be had about the threaded portion engaged thereby.

A further feature consists in the provision of clearance openings in such a novel disposition that even when the device can only be oscillated through a very limited arc, the dirt and cuttings will freely discharge.

Like characters of reference designate similar parts throughout the different figures of the drawing.

My invention, as shown, includes handle bar members 1 and 2 of substantially coextensive length and having handle portions 3 and 4, respectively. At the opposite ends, said bars are provided with pivot bosses 5 and 6. A floating pivotal connection is provided which, as shown, consists of links 7, of identical construction. Said links are connected with said bosses by pivots 8 and 9. It will be noted that links 7, have oppositely disposed alining abutments 10 and 11. Said bars have shoulders 12 and 13, for engagement with abutment 10, when in the adjustment shown in Fig. 1, and shoulders 14 and 15, for engagement with abutment 11, in the adjustment shown in Fig. 3.

It will now be clear that when shoulders 12 and 13, or 14 and 15, are in engagement with alining abutments 10 or 11, respectively, that the bars 1 and 2, must necessarily be in a predetermined longitudinal relation with respect to each other. Thus, the dies, which will be presently described, are accurately brought into registry, when the bars are brought into closed relation as shown either in Fig. 1 or 3. By means of this construction, I avoid the interposition of such means between the bars and thus I can dispose the bars in absolute abutting relation, a feature which cannot be otherwise attained. Further, this novel type of floating connections enables me to utilize both sides of each bar and adjust either companion sides into coacting relation.

Said bar 1, has on one of its sides or faces one half of a series of thread reforming dies which I will designate by numerals 16 to 20, and which are, in the preferred construction of one type, such for instance the standard threads. The remaining half of this series is on one face of bar 2, and are designated by numerals 21 to 25. When the bars 1 and 2, are in the adjustment shown in Fig. 1, the series of dies are in coacting relation for reforming threads of standard type. The term “Standard” has a well known meaning in this connection. The opposite sides of said bars 1 and 2, are each provided with a half series of dies designated by numerals 26 to 30, as regards bar 1, and by a coacting half series designated by numerals 31 to 35, as regards bar 2, and this complete series is...
of the S. A. E., type of threads. Thus, in reforming the S. A. E., type of threads, the device would be adjusted into the position shown in Fig. 3. As most every machine has bolts some of which are provided with one and some with the other type of threads, I regard this as a very important feature of my invention as it enables me to extend the utility of my improved device to both types of threads.

In many instances, it is necessary to reform threads on a bolt, the end of which is in such a crowded location and so difficult of access that when the device is applied there to, the device can only be oscillated through a very short arc. It is therefore a feature of my invention to provide a device of this character by means of which threads can be reformed on any bolt end onto which the device can be applied.

Thus, it will be seen that the dies are sunk into the bars to the extent of providing each half dies with a semi-circumference of substantially one hundred and eighty degrees so that when the dies are closed about a threaded shank, they will substantially completely embrace the same throughout the circumference thereof. Thus, it will now be clear that the shortest possible extent of oscillation will reform the threads completely throughout the circumference of the threaded portion upon which the device is applied. If the dies did not completely embrace the threaded portion, it would require an oscillation of the device through a correspondingly greater arc.

It is also a feature of my invention to provide an abutment between each set of dies so that when the bars 1 and 2 are closed together there will be a stable engagement such as will prevent any tendency of one bar to work under stress from a true relation with its coaxing bar. This feature affords another advantage since it limits closing movement of the bars and hence prevents the dies from cutting deeper in reforming the mutilated threads, than it should, in order that the reformed threads may be an exact continuation of the original threads, or in other words, the remaining threads of the bolt which for a continuation of the reformed threads.

Bar 1 has on one face thereof, stop abutments 36 to 40 and bar 2, likewise has stop abutments 41 to 45. These are the stop abutments which are in functioning engagement in the adjustment shown in Fig. 3, and as the stop abutments in engagement in Fig. 1, are identical, they need not be separately described.

I will next describe another important feature of my invention which is intimately related to that feature whereby the dies completely embrace the threaded portion to be repaired. It will be clear, that in re-threading a bolt or reforming the threads, clearance must be provided for discharge of cuttings and dirt to prevent clogging. Hence the structure which I will next describe.

Each die half is provided with a clearance opening 46 to 50, as shown in Fig. 3. In addition, each die half has cut away portions 51 to 55, which, when coating with the corresponding cut away portions 56 to 60, will jointly form clearance openings at their meeting junctures, when the bars 1 and 2 are in the adjustment shown in Fig. 1. Identical cut away portions are formed for the remaining series of dies, which need not be described in detail. Thus, each complete die has a series of clearance openings whereby effective clearance for dirt and cuttings will be afforded even in short oscillating movement of the device.

It will also be clear that the dies are of different sizes to take bolts of different diameter.

Said bars 1 and 2, have V-shaped notches 61 and 62, and 63 and 64, for respective co-action in the two adjustments of the device for gripping the shank of a tap when it is desired to thread a bogue.

At the ends of the handle portions 3 and 4, I provide means for tightly closing the selected dies about an interposed bolt. As shown, a threaded shank 65 is pivoted at 66, to handle 3, and extends through a slot 67 in the end of handle 68. A winged nut 69, may be tightened to hold the bars 1 and 2, in closed relation.

I have shown the device applied to the end of a bolt 70, the latter being embraced by die halves 20 and 25. Now when the device is applied to mutilated threads, the latter of course will not permit the bars 1 and 2 closing so completely as to initially embrace the bolt, throughout its circumference, and the stop abutments will be in slightly spaced relation. However, the nut 69, will be turned tightly against handle 4, to slightly spring the bars 1 and 2, about the interposed bolt and after one or two oscillations of the device, as indicated by the double arrow, the threads will have been reformed and the bars 1 and 2, will automatically recoil thereby permitting those stop abutments immediately opposite the bolt, to come into contact and thereby limit the depth of the reformed threads to correspond to the depth of the remaining and intact threads of the bolt. Even when the bars are slightly sprung, all the stop abutments will not be out of contact, but only those most adjacent to the location of the bolt.

While this locking means is very advantageous on bolts of large diameter, especially if the latter are of very hard metal, I do not deem this means essential to all utilities.
of the device. For instance, with a bolt of small diameter, ample leverage may be obtained by a hand grip on the handles 3 and 4.

It is believed that the device of my invention will be fully understood from the foregoing description, and while I have herein shown one specific form of my invention, I do not wish to be limited there-tol to except for such limitations as the claims may import.

I claim:—

1. A thread reforming device comprising a pair of bars having on their adjacent faces a series of sets of coaxing thread reforming dies, a link having its ends pivoted to the ends of said bars and provided between its ends with an aligning abutment, and each bar having a shoulder for engagement with said abutment whereby when said bars are closed against each other said sets of dies will be in registry.

2. A thread reforming device comprising a pair of bars having a series of sets of coaxing thread reforming dies on opposite sides thereof, a link having its ends pivoted to the ends of said bars to form a floating pivotal connection whereby said bars may be reversibly adjusted to dispose either sides of said bars in thread reforming relation, said link having oppositely disposed aligning abutments, and each bar having a shoulder for engagement with each abutment to register the sets of coaxing dies in either position of adjustment of said bars.

In testimony that I claim the foregoing as my own, I hereby affix my signature.

EDWIN M. PERRY.