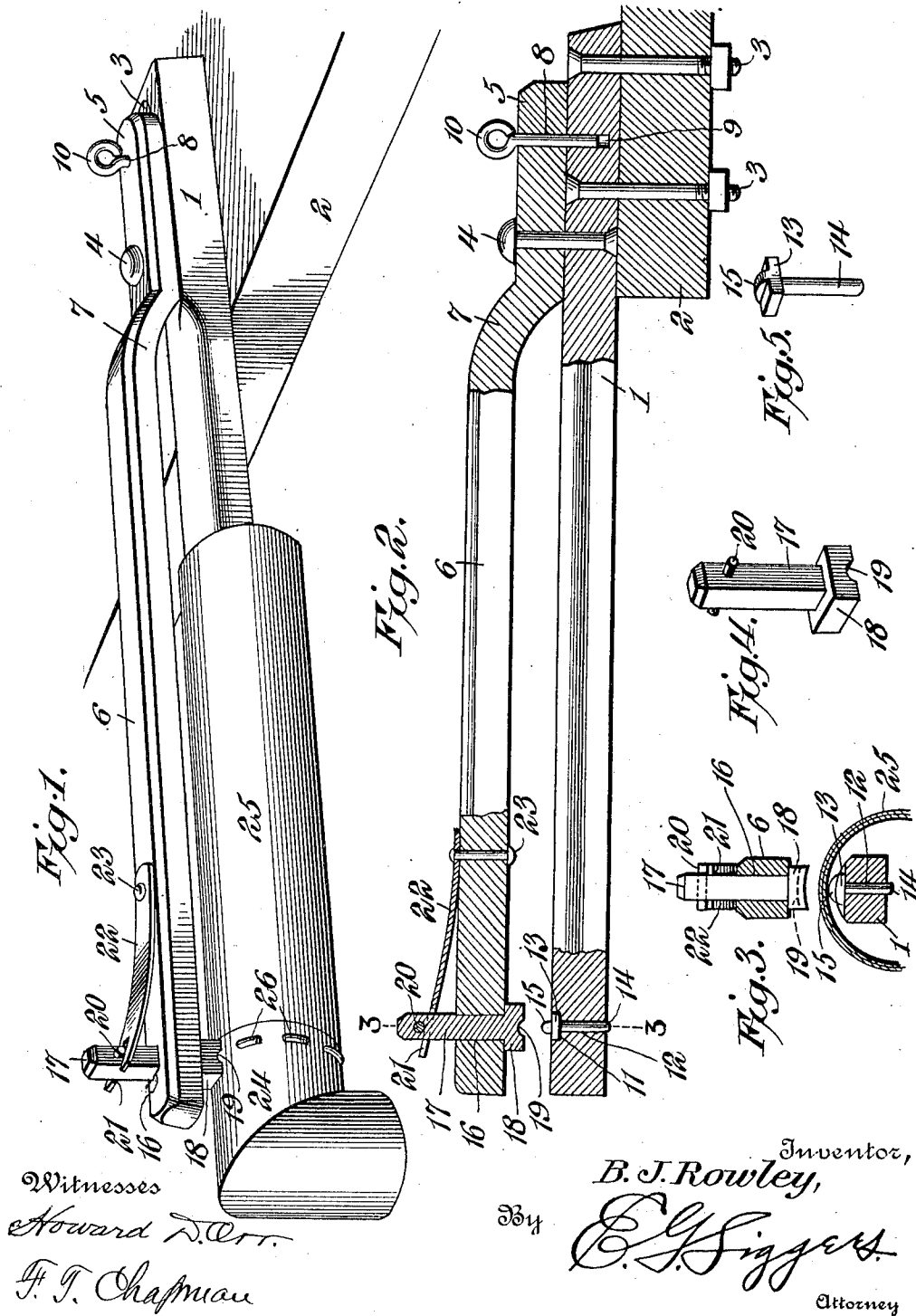


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 MANDREL FOR TINNERS.
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UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, BENJAMIN J. ROWLEY, a citizen of the United States, residing at Twisp, in the county of Okanogan and State of Washington, have invented a new and useful Mandrel for Tinnerns, of which the following is a specification.

This invention has reference to improvements in mandrels for tinnerns, and its object is to provide a means whereby lengths of knock-down stovepipe may be joined at the seams and one length connected to another positively without the use of rivets or like fastening devices. To this end the usual tinnerns' mandrel is modified to the extent of being provided near the free end with a socket for the reception of a die and the mandrel has also journaled at the bench end an arm movable into and out of overhanging relation to the mandrel and of substantially the same length as the active portion of the mandrel, said arm carrying near the free end a movable die normally held in the inactive position and yieldable to coact with the mandrel carried die to crimp or upset the telescoping ends of two stovepipe joints in a manner to unite these ends permanently. The arm is, also, provided with a locking device coacting with the bench end of the mandrel whereby the arm is positioned in a manner to hold the arm carried die in operative relation to the mandrel carried die and on the release of the arm the latter may be swung to one side out of the way about its pivot.

The invention will be best understood from a consideration of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that while the drawings show a practical embodiment of the invention, the latter is susceptible of various modifications and changes without material departure from the principles of the invention.

In the drawings:—Figure 1 is a perspective view of a tinner's mandrel with the attachment applied and showing two pipe sections in position to be united thereby. Fig. 2 is a side elevation of the mandrel shown in Fig. 1 with some parts in longitudinal

section. Fig. 3 is a section on the line 3—3 of Fig. 2 with distant parts omitted. Fig. 4 is a perspective view of an arm carried crimping die. Fig. 5 is a perspective view of the mandrel carried crimping die.

Referring to the drawings, there is shown a mandrel 1 of the general type used by tinnerns, and this mandrel is shown as connected to a bench indicated at 2 by bolts 3. So far as the general structure of the mandrel is concerned, it may be the same as that of the mandrels commonly employed by tinnerns, it being customary to use such mandrels for pounding down the joint portions of stove and like pipes, especially when such pipes are received from the manufacturers in the knock-down condition to have the joints properly hammered down when the pipe sections are wanted for use. At the bench end of the mandrel it has secured thereto a pivot pin 4 connecting to the bench end of the mandrel the corresponding end 5 of an arm 6. The end 5 is sufficiently extensive to have a good bearing surface on the mandrel and is then bent in a direction away from the mandrel, as indicated at 7, and is finally continued in substantially parallel relation to the mandrel to the free end of the latter, so that the arm 6 is in overhanging relation to the working portion of the mandrel 1. The arm 6 may be turned about the pivot 1 either into overhanging relation to the mandrel 1 lengthwise of the latter or to one side out of the way, as the operator may desire. When the arm 6 is in overhanging relation to the mandrel, it is desirable that it be held in this position fixedly, and for this purpose the bench end of the arm is provided with a passage 8 matching a passage or socket 9 in the bench end of the mandrel when the parts are in the position shown in Figs. 1 and 2, and a pin 10 adapted to the passages 8 and 9 when in coincidence, is provided for the purpose of locking the arm 6 in the position shown.

The mandrel 1 close to its free end is provided with a socket 11, and from this socket there leads a passage 12 to the underside of the mandrel, considering the latter in the usual working position. The socket 11 is designed to receive a die 13 provided with a

stem 14 adapted to the passage 12. In the particular showing of the drawings the die 13 is formed with a curved crimping lip 15. The arm 6 near its free end is provided with a passage 16 preferably of non-circular contour and in the specific instance shown, of substantially square cross-section, this passage being substantially in line with the passage 12 in the corresponding free end of the mandrel 1 when the arm is in overriding relation thereto. The passage 16 is designed for the stem 17 of another die 18, the stem being sufficiently long to traverse the passage 16 and extend beyond the same, while the die 18 is in the form of an expanded head provided on the face remote from the stem with a groove 19 corresponding to the lip 15 of the die 13. The end of the stem 17 remote from the head 18 has a pin 20 passed therethrough, this pin extending beyond opposite sides of the stem 17 for a short distance and the stem 17 adjacent to the pin 20 is straddled by the bifurcated end 21 of a spring 22, the other end of which is secured to the arm 6 by a rivet 23 or by other means. The tendency of the spring 22 is to hold the head 18 against the corresponding face of the arm 6, this being the under face of the arm in the usual working position of the parts, and the die 18 may be brought into operative relation to the die 13 by the action of a force sufficient to overcome the normal tendency of the spring 22.

Let it be assumed that two sections 24, 25 of pipe, such as stovepipe, are to be joined together with one section, say the section 25, telescoping in the section 24, for an appropriate distance as is customary. By placing the overlapping portions of the two pipe sections on the lip 15 of the die 13, and then striking the stem 17, at the end remote from the head 18, a blow with a hammer or mallet, the normal tendency of the spring 22 is overcome and the die 18 is forced into engagement with the overlapping portions of the two pipe sections, forcing them against the corresponding portion of the mandrel 1, and the groove 19 being in coincidence with the lip 15 the latter forces the metal of the pipes into the groove 19, thus forming an embossed portion or crimp 26 at the telescoping portion of the pipes, whereby the pipes are firmly united at such point. By rotating the pipe sections an appropriate distance and again striking the stem 17 on the die 18, the spring 22 having in the meantime returned it to the normal position, a second crimp 26 is formed in the pipes and this operation may be continued until a succession of crimps 26 is formed entirely around the overlapping portions of the pipe sections, whereby these pipe sections are firmly united against disarrangement of any kind.

It will be observed that the dies 13 and 18 are at the outer ends of the mandrel and arm, respectively, so that not only may two straight joints of pipe be connected, but an elbow is readily crimped on to a pipe section, the section 24 in the drawings being shown as an elbow, and this is due to the fact that the dies are located close to the free ends of the respective parts carrying them. Furthermore, the device is equally well adapted to connecting together the telescoping ends of straight pipe sections, as is often necessary. The pipe section 25 may have inserted in it at the end remote from the elbow 24 another similar pipe section, and the two sections may be united by crimps in the same manner as described with reference to the sections 24 and 25, and so any length of pipe may be made of sections of stock length with the pipe as firmly united for all practical purposes as though it were made of one piece of metal, while no rivets are needed and the metal of the pipe need not be broken to cause rust or other troubles. When it is desirable to use the mandrel for other purposes, the pin 10 is removed and the arm 6 is swung on the pivot 4 out of the way, as has already been stated.

The dies 13 and 18 may be replaced by any other form of dies, so that the pipes may be cut or otherwise treated instead of being crimped as shown.

What is claimed is:—

1. A mandrel for tinnerns having one end provided with means for connection to a suitable support and having the other end free and wholly without support thereby permitting the free passage on such mandrel of a surrounding article throughout substantially the whole length of the latter, and an arm pivoted to the supporting end of the mandrel and movable on its pivot laterally with respect to the mandrel into and out of overriding relation to said mandrel, said arm being substantially coextensive in length with the mandrel and both the mandrel and the arm having adjacent to their free ends means for carrying matching dies.

2. A mandrel for tinnerns having one end formed to support the mandrel with the other end free thereby permitting the free passage thereon of a surrounding article throughout substantially the whole length of the latter, said mandrel being provided with an arm pivoted to the supporting end of the mandrel for movement about its pivot laterally with respect to the mandrel and of a length to reach substantially to the free end of the mandrel, said arm being, except at its pivoted end, in spaced and substantially parallel relation to the mandrel when in overriding relation thereto, and locking means for holding the arm in over-

riding relation to the mandrel, said locking
means being movable to permit the swing-
ing of the arm on its pivot out of operative
relation to the mandrel, both the arm and
5 the mandrel being formed adjacent to their
free ends for the reception of matching dies.

In testimony, that I claim the foregoing

as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

BENJAMIN J. ROWLEY.

Witnesses:

EARL E. MCFADDEN,
S. B. VALENTINE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."