A. N. RANKIN.

COLD PACKED PIPE JOINTS.

No. 169,659. Patented Nov. 9, 1875.

Fig 1.

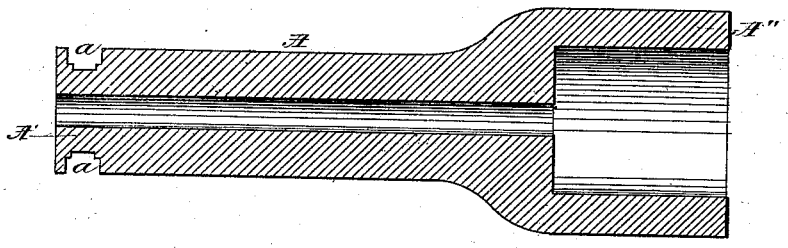


Fig 2.

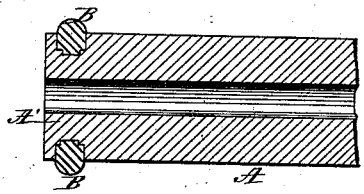
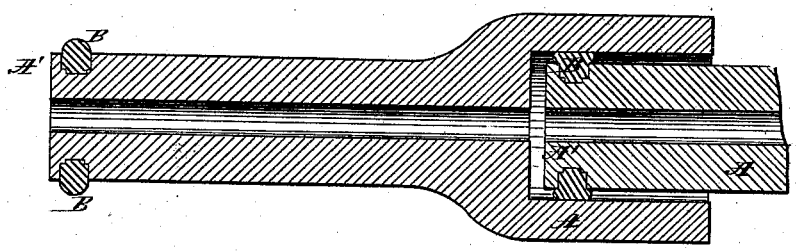


Fig 3.



WITNESSES

R. M. Barr.
E. A. Nottingham.

INVENTOR

Andrew N. Rankin.

By Leggett & Leggett ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ANDREW N. RANKIN, OF NEW YORK, N. Y.

IMPROVEMENT IN COLD-PACKED PIPE-JOINTS.

Specification forming part of Letters Patent No. **169,659**, dated November 9, 1875; application filed February 9, 1875.

To all whom it may concern:

Be it known that I, ANDREW N. RANKIN, of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Cold-Packed Pipe-Joints; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in pipe-joints.

In the drawings, Figure 1 represents a longitudinal section of one pipe-section according to my invention, before the metal packing has been applied; Fig. 2, the same, with the metal packing applied; and Fig. 3, a longitudinal section of a pipe-joint perfected according to my invention.

My invention consists of the various parts and combinations as hereinafter specified and claimed, wherein—

A is the body of one section of pipe, with its male end A^1 and female end A^2. Upon the outer surface of the male end A^1 is formed the annular groove *a*. This groove may be made of any suitable depth or fashion. The caliber of the female end A^2 is expanded or enlarged to a diameter somewhat greater than the dimensions of the male end A^1 of the pipe-section without its packing.

B is a packing of lead or any other suitable soft metal or composition, molded into and shrunk upon the groove *a* of the male end A^1 of the pipe-section. A sufficient amount of this metal or composition packing B is provided to increase the dimensions of the male end A^1 to a size somewhat greater than the expanded caliber of the female end A^2, for purposes which will hereinafter more fully appear.

As shown in Fig. 2, the different sections of my pipe are now ready to be joined. This is accomplished by forcing the male end A^1, provided with its annular metal packing B, while cold, into the expanded caliber of the female end A^2. By this operation the annular packing B, by reason of its greater dimensions as compared with the expanded caliber of the female end A^2, is made to completely and perfectly prevent all leakage or escaping whatever at the section-joint; and this without any finishing-work with calking-tools, soldering-irons, or the like.

I am aware that an annular groove or corrugation has been made upon the expanded caliber A^2, into which metal packing has been molded or inserted, by reason of which the caliber of the female end of the section has been decreased to a certain extent below the dimensions of the male end of an adjacent section, which is driven in, and the joint thus formed.

It is a well-known fact that all soft metals, upon cooling from a molten condition, undergo more or less shrinkage, and in molding such metal into a groove formed in the expanded caliber of the female end of a section, said shrinkage causes the packing to recede more or less from the surrounding groove, whereby it becomes necessary, in order to make a barely passable joint, to finish the same by calking or soldering.

By my invention, as herein described, this difficulty is entirely obviated, and the natural shrinkage of the packing serves to increase instead of decreasing the perfection of the joint. As it cools upon the annular groove *a*, it is made to shrink and thereby tighten in an obvious manner, so that when driven into the expanded caliber of the female end A^2 of an adjacent section, the packing being cold, a perfect joint is thereby accomplished, without the necessity of any additional operation.

I claim as my invention—

The pipe-joint, constructed in the manner herein described and represented in the drawings, consisting of the pipe A, formed or constructed at its male end with a groove, *a*, into which a ring of soft-metal packing, B, is shrunk, and an enlarged or straight-bore female end A^1 into which the male end of an adjacent section of pipe is inserted, as and for the purposes described.

In testimony that I claim the foregoing, I have hereunto set my hand this 5th day of February, 1875.

ANDREW N. RANKIN.

Witnesses:

LEVERETT L. LEGGETT,

WILLIAM L. BRAMHALL.