HENRY CHISHOLM.

Improvement in Rolls for Utilizing the Fag Ends of Railroad Rails.

No. 124,116. Patented Feb. 27, 1872.

Fig. 1.

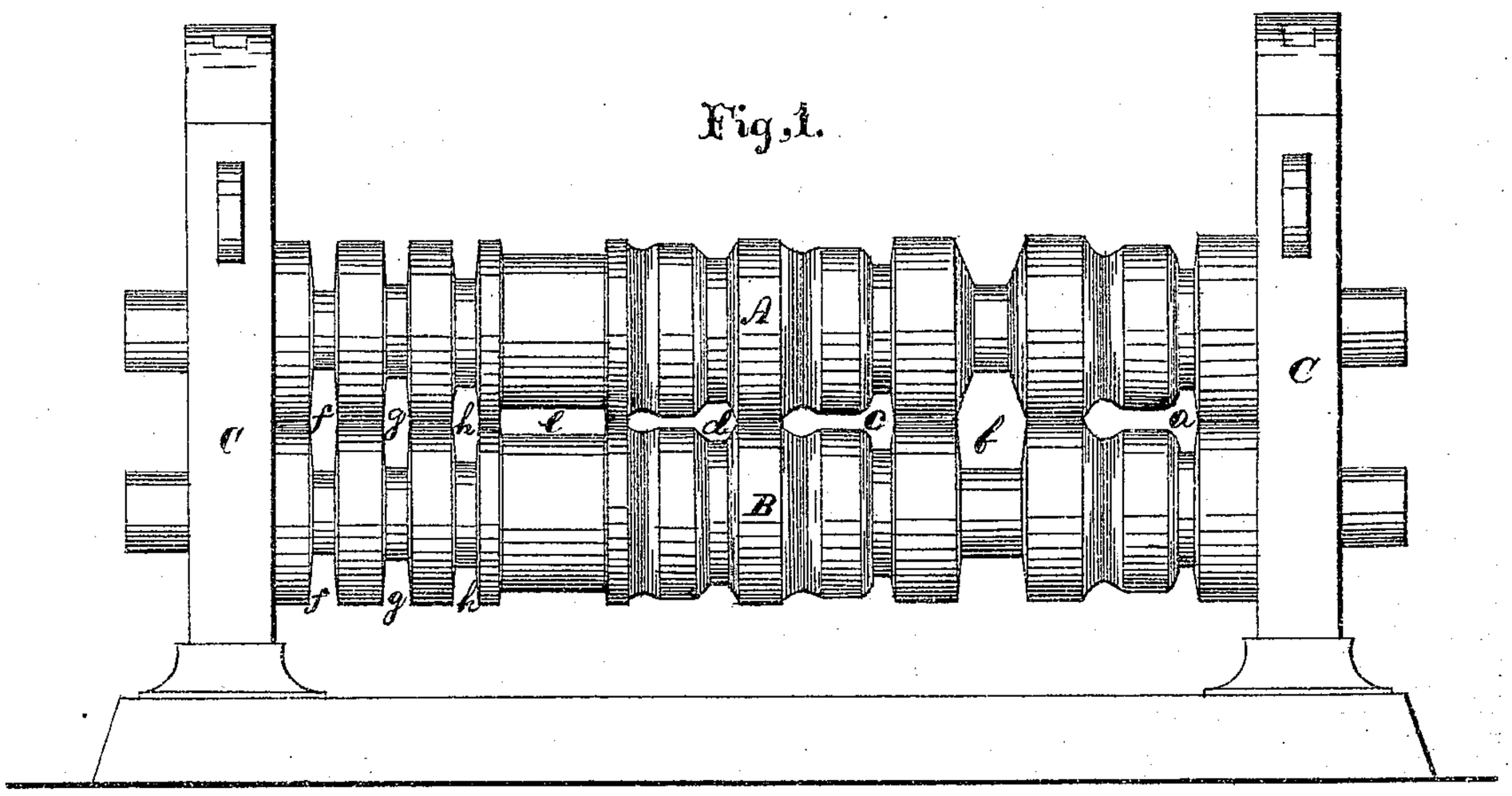


Fig. 2.

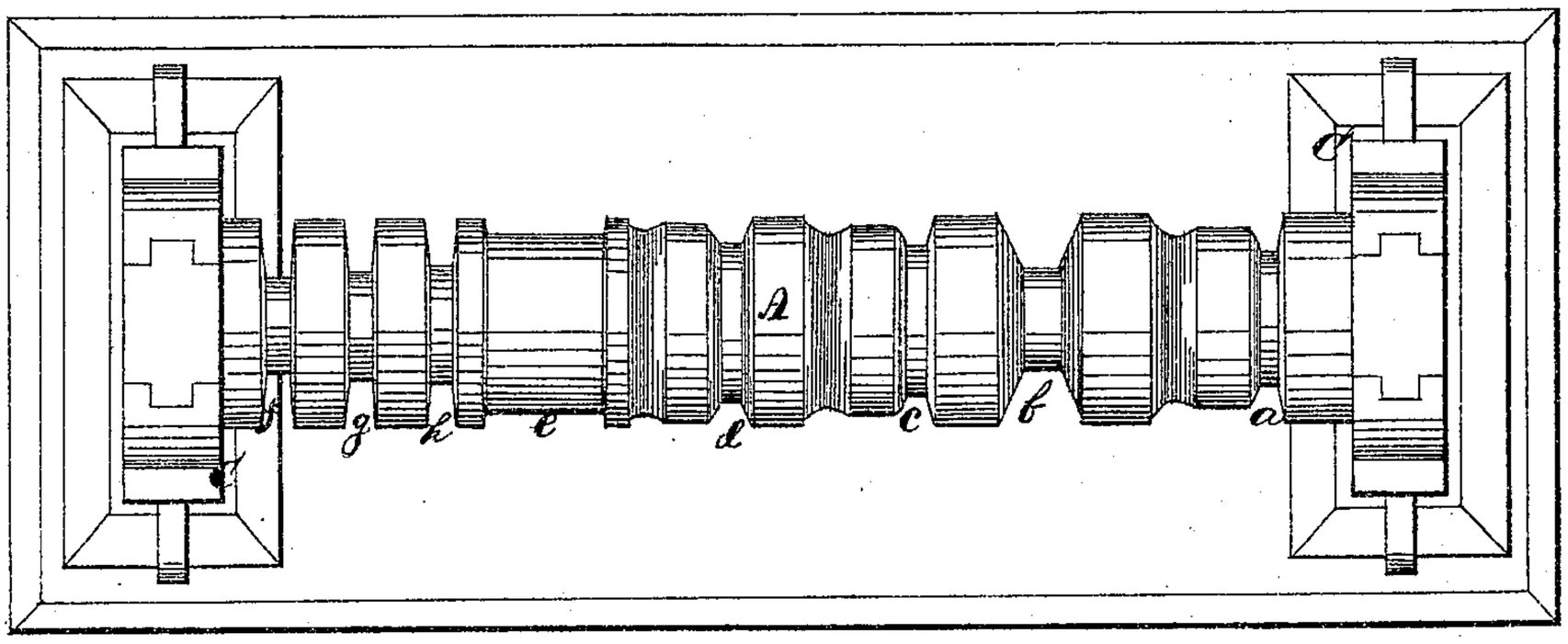
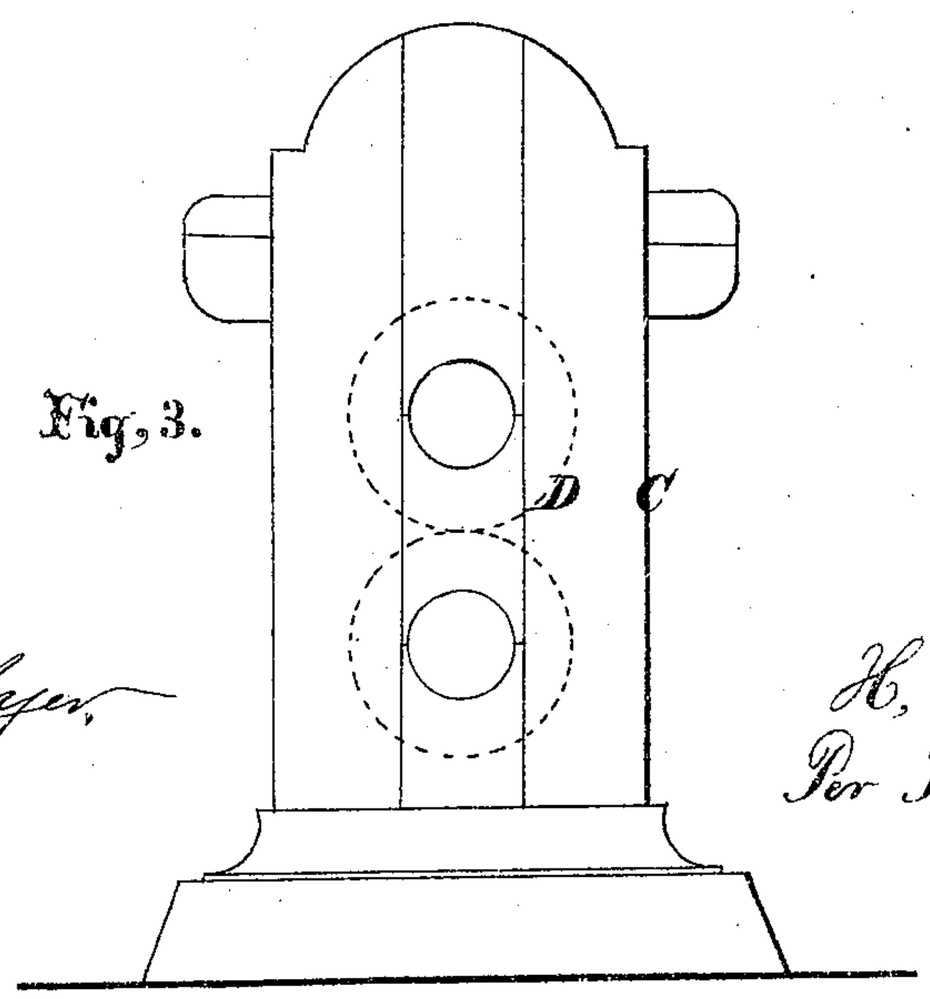


Fig. 3.



Witnesses.

Henry E. Mayer

D. L. Humphreys

Inventor.

H. Chisholm.

Per Burridge & Co.

Attys

124,116

UNITED STATES PATENT OFFICE.

HENRY CHISHOLM, OF CLEVELAND, OHIO.

IMPROVEMENT IN ROLLS FOR UTILIZING THE FAG-ENDS OF RAILROAD RAILS.

Specification forming part of Letters Patent No. 124,116, dated February 27, 1872.

To all whom it may concern:

Be it known that I, HENRY CHISHOLM, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and Improved Rolls for utilizing worn and crop ends and other parts of steel and iron railway T-rails; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawing making part of the same.

SPECIFICATION.

Figure 1 is a side view of the chilled cast rolls and housing; Fig. 2, top view; Fig. 3, end view.

Like letters of reference refer to like parts in the several views.

The nature of my improvement consists in the peculiar formation or construction of cast rolls for the purpose of utilizing the butts, fag ends, worn-out, or old steel railway rails.

It is well known among those skilled in the art to which this invention belongs that steel cannot be perfectly welded together without much expense in time and labor, and requiring borax or other flux in the operation. It is also well known that it cannot be piled either alone or with iron or other steel, and united by welding, hammering, or rolling into a compact and homogeneous mass, without resorting to the use of flux, much skill and labor. By piling, lapping, fagoting, or folding of steel pieces together and alone, subjecting the same to a welding heat and the action of compression by rolls or hammering, seams will occur throughout the entire mass when the surface of the pieces are in contact, which prevents the pile or fagot sought to be welded together from being intimately combined and having that homogeneous character, free from flaws and seams, so essential and important to the products of this manufacture.

Various expedients have been resorted to for the purpose of utilizing the butts or fag-ends cut off steel railway rails during the process of their manufacture, but which are found to be too expensive or impracticable, when compared with the improvements herein described; and which, in part, consists in the peculiar construction and arrangement of chilled cast rolls for reducing the fag-ends or butts of steel rails to the desired shape and size without cutting, lapping, piling, fagoting, and folding.

In Fig. 1, A represents the top roll, and B the lower one, which are mounted and supported in housing C in any of the usual modes. On the shaft, at the outer ends of the rolls, are attached gearing, as noted at D, Fig. 3, for the purpose of turning said rolls in the proper direction by the usual means. It will be observed that a section of the rolls, at *a*, is so turned out as to be in form similar to an ordinary railway rail, and through which, between the rolls, is first passed the piece of steel rail. In making this pass, the piece or butt is reduced in size and extended in length in the same proportion. After having passed through the rolls at *a*, it is then entered between the rolls at *b*, which compresses the metal vertically. The next passes are then through between the rolls at *c*, and afterward at *d*, the object being to reduce the fag-end or piece of steel to a bar or rod. This is attained by subjecting the metal, as it comes from the rolls at *d*, to a further compression and reduction by being again passed through between the rolls at *e* or *f*, as may be found expedient in the manipulation. In some cases it may be advisable to pass the piece, as it comes from *d*, through between the rolls at *f*, so as to compress the steel vertically. After the butt or piece has passed through between the rolls at *e* or *f* it no longer partakes of the form of a rail, but assumes that of a steel bar, which is again reduced by compression in passing between the rolls at *g*, and afterward between the rolls at *h*.

By this operation the butt or steel rail is reduced, by the action of the rolls, to a steel bar or rod of any desired size, and of a perfectly homogeneous character, without the seams or flaws consequent upon lapping, piling, or fagoting.

It will be noted that the foot and head of the rail is rolled down, without lapping or folding, onto the neck or web of the rail, or being compressed upon it. The head and foot are so compressed and rolled out by the rolls, having such peculiar form or construction, that the rail or piece of steel, during the series of passes, is reduced from an irregular shape to that of a uniform bar or rod.

By this process the metal is worked or rolled

out longitudinally on its flat side, and vertically; and, by the influence of the rolls, the head, foot, and neck are all worked out at the same time, but independently of each other, to the extent that the different members of the rail do not lap or fold into each other during the process of conversion to a bar or rod.

It is not absolutely essential that the same order of passes through the rolls should be observed in all cases, as herein specified, as the order of the series is susceptible of various changes.

The rolls may also be modified, so that the same order of grooves as herein shown need not be strictly followed, as the pass or groove *b* may be in some other part of the rolls. The same may be the case with *a*, *d*, *f*, and the others. The order herein shown is considered the most or as convenient as any system for the purpose desired.

Claims.

1. The rolls A B, provided with the series or system of grooves, of the form or construction described and shown, and arranged in relation to each other substantially as and for the purpose set forth.

2. The rolls A B, having the series of irregular-shaped and graduated grooves, of the form or construction shown at *a c d*, operating conjointly as and for the purpose substantially described.

HENRY CHISHOLM.

Witnesses:
J. H. BURRIDGE,
D. L. HUMPHREY.