M. LOUGHRAN.

Machine for Rolling Pointed Metal Articles.

No. 212,241. Patented Feb. 11, 1879

Fig. 1.

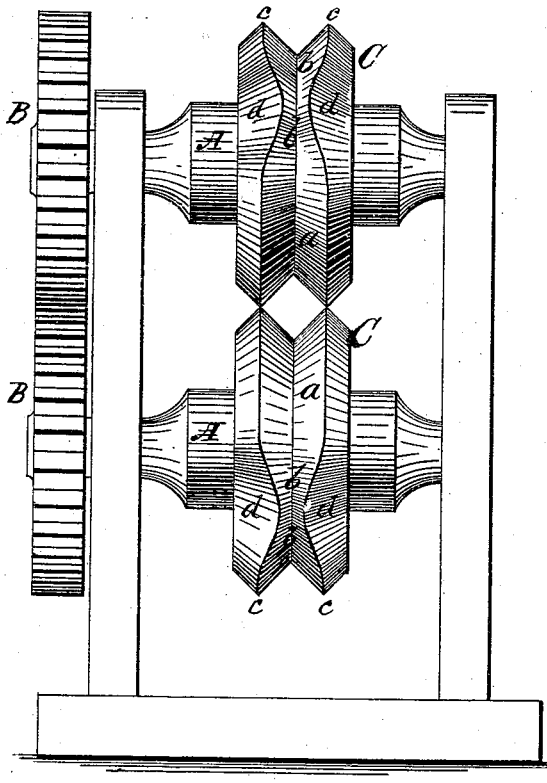


Fig. 2.

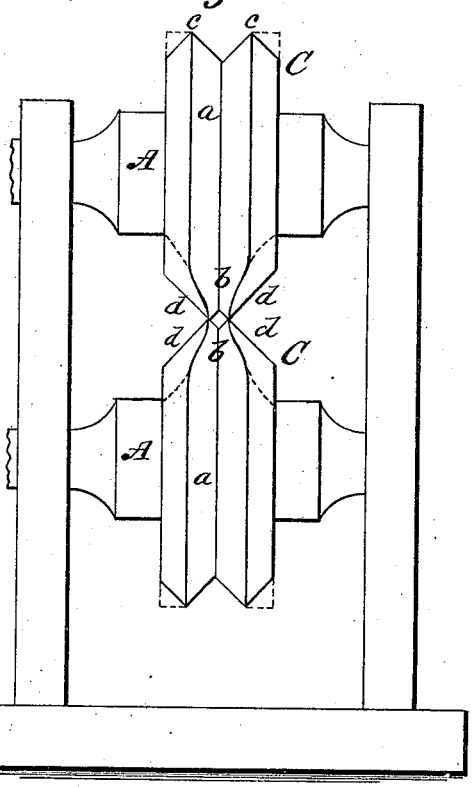


Fig. 3.

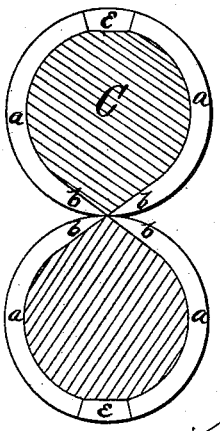


Fig. 4.



Fig. 5.

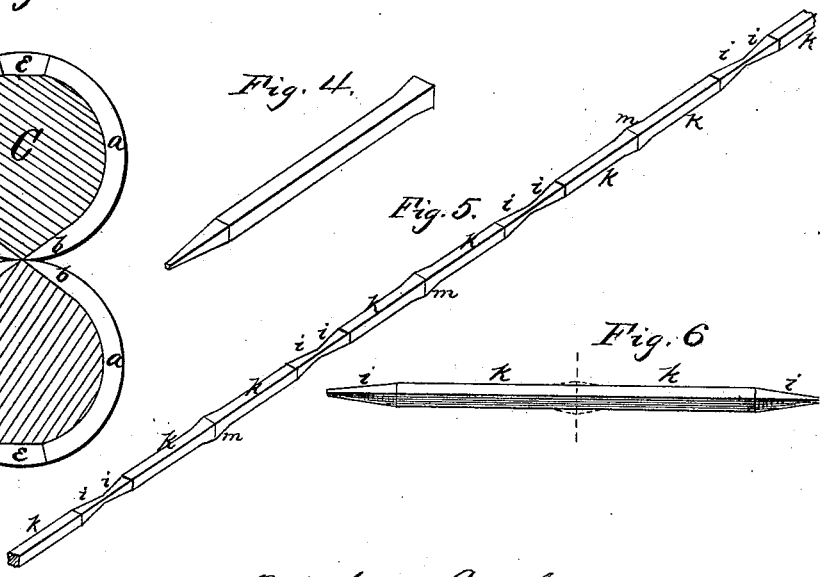


Fig. 6




Witnesses.

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MACHINES FOR ROLLING POINTED METAL ARTICLES.

Specification forming part of Letters Patent No. **212,241**, dated February 11, 1879; application filed November 1, 1878.

*To all whom it may concern:*

Be it known that I, MICHAEL LOUGHRAN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Rolling Pointed Metal Articles; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figures 1 and 2 are front elevations of my invention, showing the rolls in different phases. Fig. 3 is a transverse section. Fig. 4 is a view of a harrow-tooth made by them. Fig. 5 is a view of a blank bar produced by my rolls. Fig. 6 is a view of one section, showing two teeth rolled head to head.

This invention relates to an apparatus for rolling pointed articles of metal, such as harrow-teeth, split-link blanks, &c.; and consists in the construction and combination of parts, substantially as hereinafter fully described and claimed.

The invention may be carried into effect by altering a pair of ordinary rolls, as hereinafter explained; but I prefer to use a special pair of rolls, and therefore will illustrate the latter.

A A designate two shafts or spindles, geared together, so as to revolve in unison, by the pinions B B. C C designate my rolls placed in line with each other on shafts A A. Each roll has a groove, *a*, the main part of which has parallel sides and edges, which, at one or more points in the length of the groove, taper down laterally and vertically into a pointing-groove, *b*, the pointing-groove tapering in both directions, as shown. The groove may be square, hexagonal, oval, round, or otherwise, as desired. The faces of the rolls may be plain, as shown, by dotted lines in Fig. 2, or they may be made retreating from the edges of the grooves, as shown by full lines. The latter form I prefer, though it is not essential to successful operation.

In practice I insert a billet or bar (from the finishing-rolls) of such section—diamond form—as to just fill the main groove. The draft is just enough to crush down the diamond and fill the groove without finning. When the tapers come to bear on the bar it crushes out the extra metal in a broad fin at that point, which can readily be removed. As this thin fin does not make the best quality of scrap, I cut away the face of the roll at the taper, bringing it to a sharp edge, *c*, having a space, *d*, outside, of no draft. When this comes to bear upon the bar it acts with a shearing force, the edge *c* cutting down the metal, leaving no fin, but shearing out the metal at each side in a solid mass, and disengaging it, so as to leave the edges of the blank comparatively finished, while producing a scrap of the most desirable quality.

It being sometimes required to make harrow-teeth with a sort of head, like that shown in Fig. 4, I accomplish such result by making the groove with a flattened part, *e*, as in Fig. 3. The result, then, of the foregoing construction is a blank-rod (exhibited by Fig. 5) having alternating double tapers *i*, parallels *k*, and swellings *m*, (in producing the last, the billet ought to be slightly larger in section.) The bar is severed at the middle of each double taper *i*, giving sections, Fig. 6, of two teeth, head to head. These are divided at the middle, forming two complete pointed teeth, with or without heads.

Split-link blanks and other pointed shapes are produced in substantially the same manner.

All these articles are at present usually made by cutting a bar into lengths, reheating these, and then pointing under the hammer. They are headed by a special machine; but I take the bar while in its original heat and finish at once with the rolls, thereby producing a better texture, a perfectly uniform size, and altogether a more salable article than can be produced in the old way, while I attain great economy of time, labor, and fuel, and do away with the necessity of a steam-hammer and a heading-machine.

I claim as my invention—

The described apparatus for rolling blanks for

pointed metal articles, consisting of a pair of rolls, C, both correspondingly grooved entirely around their periphery, said grooves converging in depth and width toward a common point from both directions, and the edges of the grooves at the convergent portions formed into cutting-edges by removing the adjacent faces of the rolls, substantially as described, whereby the surplus metal at the convergences is directly severed from the bar instead of finning, and a continuous bar of blanks is formed at one pass.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

MICHAEL LOUGHRAN.

Witnesses:
PHILIP ARBERGAST,
T. J. MCTIGHE.