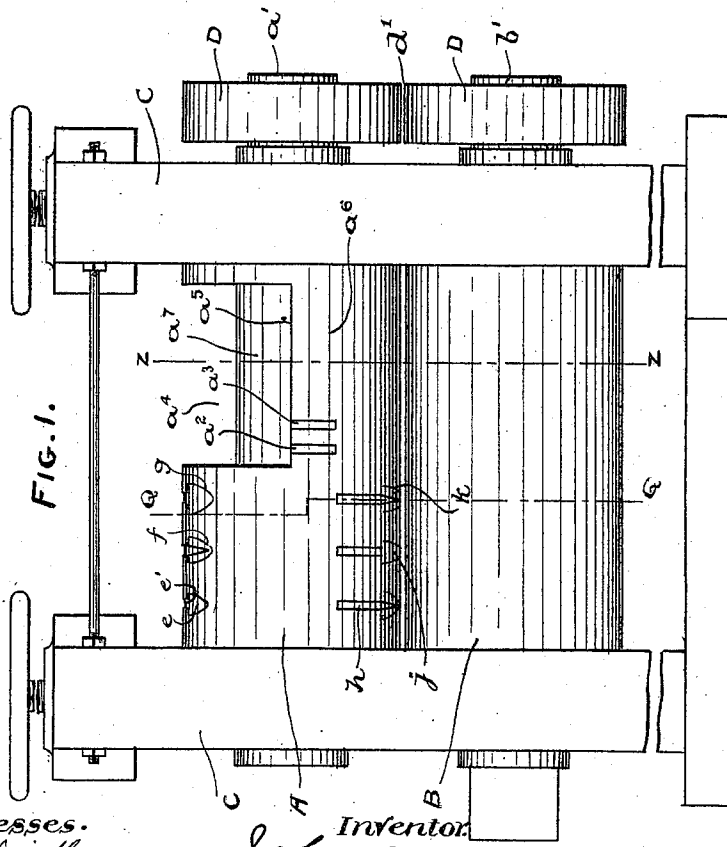


ROLLS FOR THE MANUFACTURE OF SHOVELS, SPADES, AND SIMILAR ARTICLES.
APPLICATION FILED OCT. 4, 1909.

Patented Feb. 21, 1911.



Witnesses.
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Inventor:

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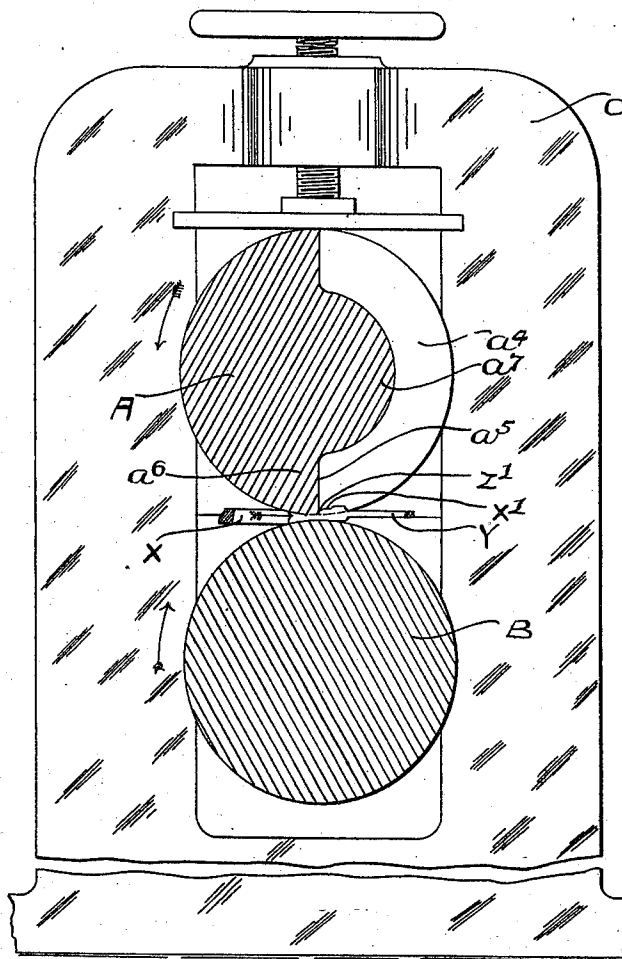
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2 SHEETS—SHEET 2.

FIG. 3.



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UNITED STATES PATENT OFFICE.

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ROLLS FOR THE MANUFACTURE OF SHOVELS, SPADES, AND SIMILAR ARTICLES.

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Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed October 4, 1909. Serial No. 521,002.

To all whom it may concern:

Be it known that I, JOHN ATKINS, a subject of the Kingdom of Great Britain, residing at 51 Snape Hill, Dronfield, Sheffield, in the county of York, England, have invented certain new and useful Improvements in Rolls for the Manufacture of Shovels, Spades, and Similar Articles, of which the following is a specification.

This invention comprises improvements in the manufacture of shovels, spades and similar articles, and it has for its object to reduce the cost of manufacture without in any way detrimentally affecting the quality of the finished article.

The class of apparatus to which the present improvements relates is that wherein the tang is introduced from the side at which the workman stands and is delivered toward him, such tang being operated upon by a roll having differential diameters the larger of which rolls the tang and the smaller constitutes a recess to accommodate the blade. This invention is differentiated therefrom inasmuch as in a single set of rolls mounted in one housing prints are combined with the differential roll in such a manner that the blank which enters the rolls finally leaves with the blade finished and the tang flattened.

According to this invention the blank is passed through the rolls to draw the blades and form the strengthened portion around the foot of the tang and in the same rolls the tang is rolled and flattened to a suitable condition for bending into the required configuration to form the socket, the blade being unaffected during the rolling of the tang, thereby enabling a single heat to serve for carrying out such processes and obviating the necessity for reheating which has hitherto existed. The prints in the rolls for stiffening the blade are similar to those used heretofore but are all arranged on the one roll, so as to enable different strengths and shapes of shovels to be operated upon while reducing the number of rolls required to a minimum. On the outer extremities of the roll spindles, spreaders of the known type are secured for pressing out the tang to an increased width at its outer end so as to enable the socket when finished to efficiently fit around the taper handle of the shovel.

In order that this invention may be clearly understood and more easily carried into

practice reference may be had to the drawings, upon which—

Figure 1 is a front elevation of a set of rolls constructed according to my present invention. Fig. 2 is a sectional elevation on line Q Q of Fig. 1 showing the rolls during the process of drawing and stiffening the blade around the root of the tang. Fig. 3 is a sectional elevation on line Z Z of Fig. 1 showing the rolls during the operation of rolling the tang.

In an embodiment of this invention such as illustrated by the drawings the machine comprises two rolls A, B journaled in suitable housings C with spreaders D secured to the outer ends a' b' of the rolls A, B. The prints or recesses e , f , g , h , j , k , are provided to enable various shapes and thicknesses of shovels to be dealt with for the purpose of obtaining an increased thickness or rib around the root of the tang, the tang X itself lying in the upper elongated portion e' of the print e during such operation. In such process of rolling the blade the workman stands at the front of the rolls, places the tang X and rib portion X' of the blank in one of the prints e , f , g , h , j , or k and allows the blank to pass through the rolls as shown by Fig. 2 to have the blade rolled and be discharged on the rear or reverse side of the machine. After the blade Y has been finished by the print the tang X is inserted and successively passed through the prints a^2 a^3 so as to partially draw it and prepare it for its final passage shown by Figs. 1 and 3, the roll A being of differential diameters a^4 , a^7 the latter of which forms an opening a^4 wherein the blade Y may lie clear of the enlarged portion a^6 while such portion a^6 performs the operation of rolling the tang. The shoulder a^5 of the large diameter a^6 is adapted to commence its contact with the blank at the junction Z' of the tang X and blade Y as shown by Fig. 3. For shaping the tang the man goes to the rear of the rolls and places the tang in the space a^4 in such a position that when the edge a^5 of the roll A arrives at the center, the shoulder of the tang is gripped and goes in flush with such edge a^5 and is carried through by the approaching solid face a^6 of the roll A in a direction toward the man, being held by him until released from the rolls. It will be readily understood that several of the processes for

rolling the tang may be effected by the workman without releasing the blank by reason of the latter approaching instead of receding from him, as is usually the case.

5 The tang X which is then of a uniform width is gradually and laterally spread by traversing the space d' intermediate to the spreaders D, until the width at its outer end is sufficient to form the enlarged portion of the taper socket, the subsequent operations
10 of shaping such socket and attaching the handle being effected in any convenient manner.

15 Having now described my invention I declare that what I claim is:—

1. A pair of rolls for the manufacture of shovels, spades and similar articles, one of which has two portions of differential diameters arranged in such relation that the
20 larger of such portions is adapted to roll the tang of the shovel or other article, and the smaller or cut away portion forms an opening wherein the blade thereof may lie clear of the rolls when rolling the tang, in
25 combination with prints whereby the blank

which enters the rolls finally leaves with the blade "finished" and the tang flattened substantially as herein set forth.

2. A pair of rolls for the manufacture of shovels, spades and similar articles, one of which has two portions of differential diameters arranged in such relation that the larger of such portions is adapted to roll the tang of the shovel or other article, and the smaller or cut away portion forms an opening wherein the blade thereof may lie clear
35 of the rolls when rolling the tang, in combination with prints whereby the blank which enters the rolls finally leaves with the blade "finished" and the tang flattened, and
40 spreaders whereby the tang is gradually spread ready for being formed into the socket, substantially as herein set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses. 45

JOHN ATKINS.

Witnesses:

GEO. MOUNT,
D. P. MOSBY.