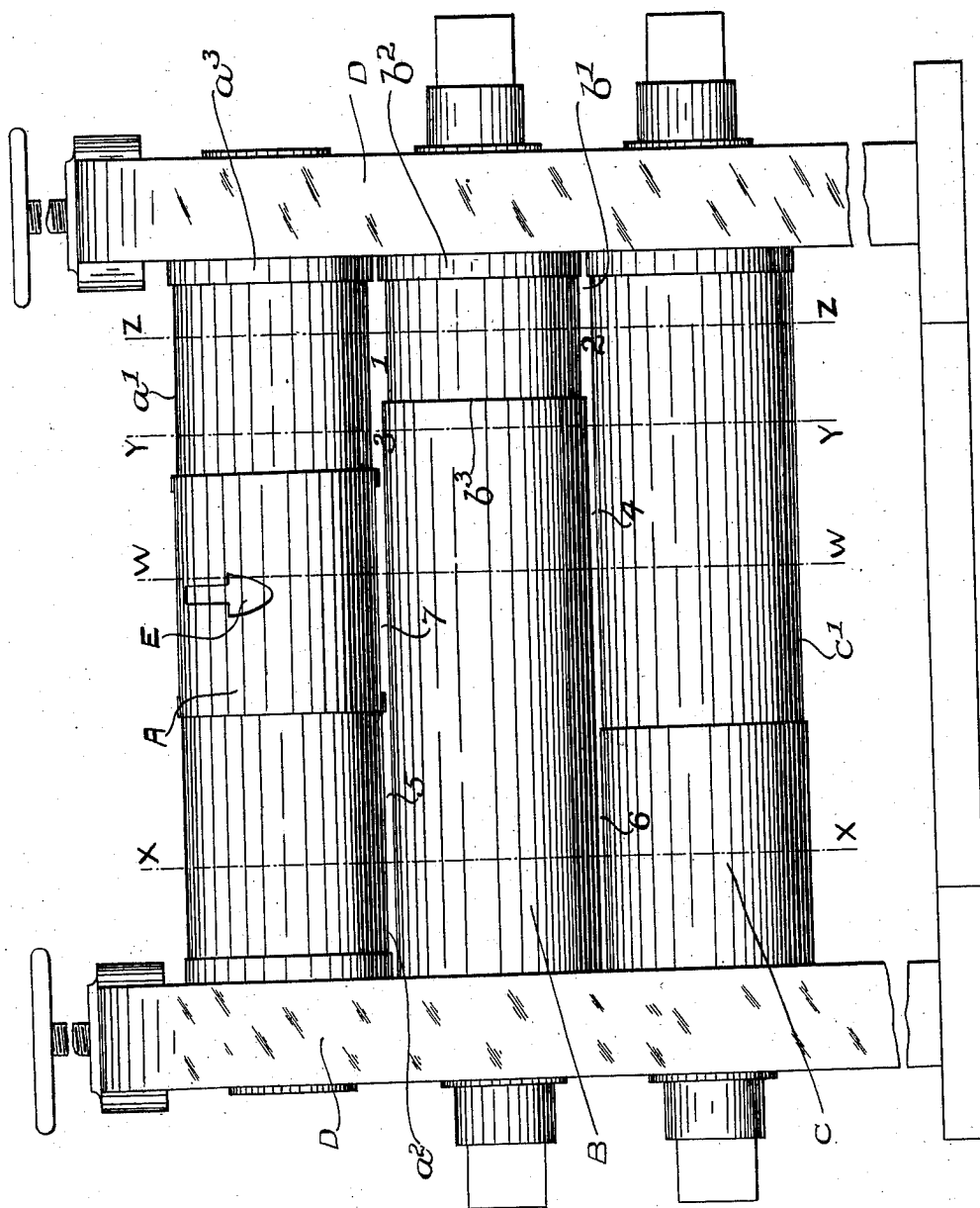


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 ROLLS FOR THE MANUFACTURE OF SHOVELS, SPADES, &c.,  
 APPLICATION FILED OCT. 4, 1909.

985,099.

Patented Feb. 21, 1911.



Witnesses.

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# UNITED STATES PATENT OFFICE.

JOHN ATKINS, OF SHEFFIELD, ENGLAND.

ROLLS FOR THE MANUFACTURE OF SHOVELS, SPADES, &c.

985,099.

Specification of Letters Patent.

Patented Feb. 21, 1911.

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*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 relates to improvements in rolls for manufacture of shovels and spades and its object is to enable the breaking down and finishing processes hitherto employing several men and machines, to be carried out on a single machine whereby the amount of time and labor incurred in the production of the articles are substantially reduced without prejudicing in any way the quality or finish of the goods turned out, while the invention is also characteristic in that the whole of the processes before mentioned may be effected at a single heat, it being thereby unnecessary to return the articles to the furnace either for the purpose of reheating or for conserving the heat between the various stages of the processes from which it will be obvious that a considerable economy is effected in the fuel consumed and in the number of attendants required for the furnaces.

According to this invention the various rolls which are necessary to effect the "breaking down" and "finishing" processes are combined in one machine, and the different prints or recesses are so disposed and arranged on the periphery of the rolls that substantially the entire surface thereof is utilized and instead of several pairs of rolls being required the number is reduced to one set of "three high rolls". The prints are arranged in such relation to each other that the blanks are adapted to successively traverse the rollers in alternate directions so that the blank is fed by one attendant from his side of the machine and passing therethrough it is reversed by the attendant on the other side and so on until the blank arrives at the "finished" condition, that is, ready to be sheared to the correct dimensions which may be done by any suitable machine. Further, for convenience of manipulation the steps or stages may advantageously be such that the one attendant feeds the blanks to the upper roller and the

attendant on the opposite side delivers them to the lower spaces by which arrangement it will be seen that liability to error on the part of the attendant is materially reduced.

In order that this invention may be clearly understood and more easily carried into practice reference may be had to the appended explanatory sheet of drawings upon which the figure is a diagrammatic front elevation of a set of rolls constructed and arranged according to the present invention, the depth of the prints or passes being exaggerated for the purpose of more clearly illustrating the improvements.

In an embodiment of this invention such as illustrated by the drawings the machine comprises three rolls A, B, C, disposed one above the other and journaled in suitable housings D, the middle and lower rolls B, C being driven by pinions (not shown) and the upper roll A by friction from the central roll B. The upper roll A has two main prints or recesses  $a'$   $a''$  therein each about one third of the length of the roller, the middle roll B has one narrow print  $b'$  near its one extremity and the lower roll C has one print  $c'$  extending over rather more than half of its length. To render the sequence of the passage of the blank through the rolls quite clear I have designated the point at which the stages of reduction takes place by numerals arranged in order corresponding with the sequence aforesaid and it will be noted that the blank emerges from the rolls after its final pressing, on the opposite side to that wherein it was first inserted as a bar, which system is advantageous by reason of the raw material being located on the one side and the "finished" article on the other.

Following the progressive action of the material through the machine, the bar is first heated to a temperature appropriate for the purpose in view and inserted at 1 where it undergoes the first step of the "breaking down" process, the collars  $a^3$ ,  $b^2$  and shoulder  $b^3$  preventing the bar from spreading out to an excessive degree, the blank subsequently passing through the various stages in alternate directions as denoted by the numerals 2, 3, 4, 5, 6 until it passes through the last print 7 which is provided with a recess E for forming the extra thickness of the langet and its con-

necting part leaving the rolls ready for shearing the blank thus the screws for adjusting the relative distances apart of the rollers remained fixed during the operations and as such screws together with the housings are sufficiently well known to those skilled in the art, further description of them is unnecessary.

The rolls are adaptable to langet spades and shovels, open socket, stamp steel and other types of shovels and the invention is not restricted to the particular disposition of the prints or passes provided that the progressive or cumulative effect of the stages is obtained from a single set of rolls.

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

In the hereinbefore described device for the manufacture of shovels and spades, the combination of an upper roll having three prints of approximately equal length, a lower roll having a print extending about two-thirds of its length, and an intermediate roll having a short print near one extremity.

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

JOHN ATKINS.

Witnesses:

GEO. MOUNT,  
D. P. MOSBY.