

No. 632,879.

Patented Sept. 12, 1899.

E. NORTON.

ART AND PROCESS OF ROLLING THIN SHEETS OF STEEL OR IRON IN PACKS.

(Application filed Jan. 23, 1899.)

(No Model.)

FIG. 1.

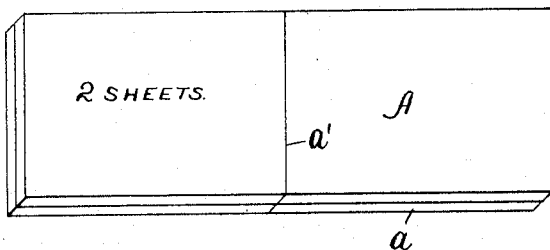


FIG. 2.

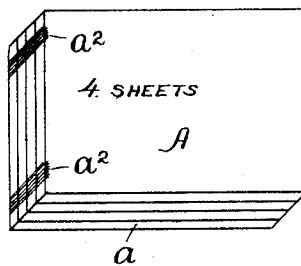


FIG. 3.

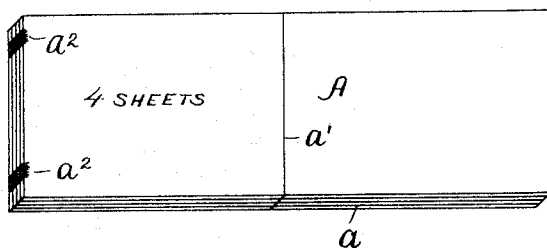


FIG. 4.

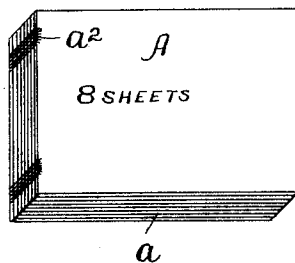


FIG. 5.

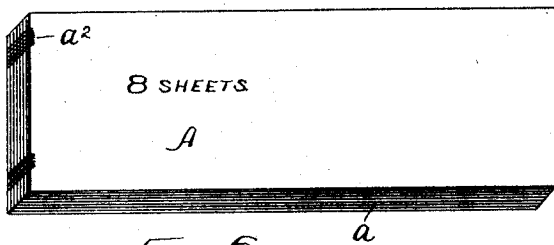


FIG. 6.

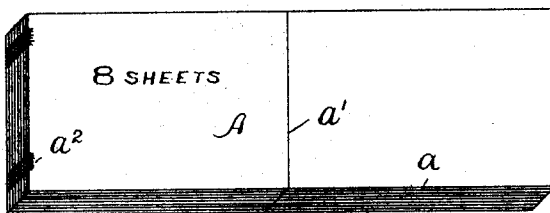


FIG. 7.

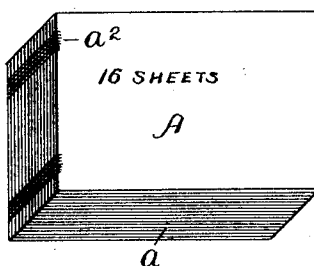
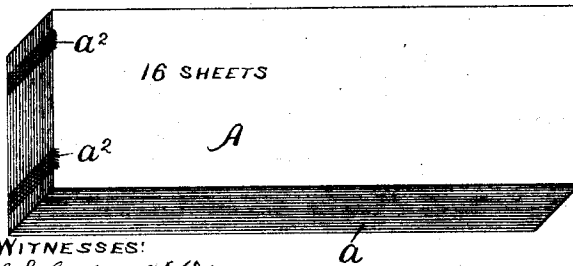


FIG. 8.



WITNESSES:

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EDWIN NORTON, OF MAYWOOD, ILLINOIS.

ART AND PROCESS OF ROLLING THIN SHEETS OF STEEL OR IRON IN PACKS.

SPECIFICATION forming part of Letters Patent No. 632,879, dated September 12, 1899.

Application filed January 23, 1899, Serial No. 703,024. (No specimens.)

To all whom it may concern:

Be it known that I, EDWIN NORTON, a citizen of the United States, residing in Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in the Art or Process of Rolling Thin Sheets of Steel or Iron in Packs, of which the following is a specification.

My invention relates to improvements in the art or process of rolling thin sheets of iron or steel in packs, and more particularly to certain improvements upon the invention described in my pending application, Serial No. 700,712, filed December 30, 1898, on the art of rolling sheets of steel or iron in packs.

In the invention of my said former application after the pack of two sheets has been rolled and increased in length ready to be formed into a pack of four sheets the pack of two sheets is cut in two in the middle and the parts thereof superimposed and matched evenly together to form the pack of four sheets, and after the pack of four sheets thus formed has been rolled it is cut in two in the middle and the parts thereof superimposed and matched to form the pack of eight sheets, this cutting and matching taking the place of the customary doubling and folding operations previously employed in the rolling of thin sheets in packs and resulting in a great saving of material heretofore lost or wasted, as well as saving the labor of repeated shearings of the pack after each doubling and folding operations. As an additional or further improvement upon the invention or process of my said former application after the cut or severed parts of the pack are superimposed and matched together I tack or secure the superimposed and matched sheets of the pack together at one or more of their edges in any suitable manner that will not interfere with the passage of the pack through the rolls in the next succeeding step or operation—as, for example, by passing one or more small rivets through the sheets of the pack near the edge thereof or by fusing or electrically welding the edges of the several sheets of the pack together, which latter is the means I prefer to employ for this purpose in practicing my invention or process. By this improvement the several sheets of the pack may be kept perfectly matched and absolutely even dur-

ing the repeated or successive rolling steps of the process, thus reducing to a minimum the necessary wastage of material required to be trimmed or cut from the edge or edges of the finished pack, and I also, as all the sheets of the pack are secured together during each rolling step of the process, effectually prevent all crawling or creeping of the sheets in respect to each other during the rolling, a difficulty which has heretofore been experienced in rolling sheets in packs, whether the packs are formed by folding and doubling, as heretofore, or otherwise, and which increases the unevenness of the edges of the packs and the wastage on the material required to be trimmed off. By this improvement also I am enabled to materially increase the number of sheets that can be practically rolled together in a pack, as by my improvement I am enabled to roll sixteen or more sheets in a pack, whereas the practice heretofore has been to roll only eight. I thus materially increase the capacity of the mill and materially diminish the time and labor required to turn out a given amount of product.

In the accompanying drawings, forming a part of this specification, I have, to enable my improvement to be more readily understood by those skilled in the art, shown a pack in the several steps or stages of my improved process.

In said drawings, Figure 1 represents the pack of two sheets after it has been rolled and cut in two in the middle ready for the parts thereof to be superimposed and matched to form the pack of four sheets. Fig. 2 represents the pack of four sheets after the several sheets composing the pack have been secured together at their edges by fusing or electrically welding the edges of the sheets or other suitable means. Fig. 3 represents the pack of four sheets after it has been reheated and rolled and cut in two in the middle ready to form the pack of eight sheets. Fig. 4 represents the pack of eight sheets after its edges have been secured together ready to be reheated and again rolled. Fig. 5 represents the pack of eight sheets after it has been finally rolled and ready to be trimmed and subdivided into sheets preparatory to tinning. Fig. 6 represents a pack of eight sheets after it has been rolled and cut in two in the mid-

dle preparatory to forming a further rolling pack of sixteen sheets. Fig. 7 represents the pack of sixteen sheets after the several sheets of the pack have been secured together at their edges. Fig. 8 represents the pack of sixteen sheets after it has been finally rolled.

In the drawings like letters of reference indicate like parts throughout all the figures.

In said drawings, A represents the pack, the same being composed of two, four, eight, or more sheets *a a*, according as to the different step or stage which is represented in the process. The line upon which the pack is divided at its middle in order to form a succeeding pack of double the number of sheets is represented in the drawings at *a' a'*, and *a²* represents the fusing, electrically welding, riveting, or other means employed to tack or secure the sheets of the pack together at their edges.

I claim—

1. The improvement in the art of rolling thin sheets of iron or steel in packs, consisting after each roll of the sheet-pack in cutting the pack in two in the middle and matching the parts so cut evenly together to increase the thickness of the pack and the number of sheets therein for the next succeeding reduction, and in securing the sheets of the pack together near their edge to facilitate the handling of the pack and prevent the creep-

ing of the sheets therein in respect to each other during the rolling, substantially as specified.

2. The process or improvement in the art of rolling thin sheets of iron or steel in packs, consisting in first rolling the pack then cutting it in two in the middle and superimposing and matching the parts thereof evenly together, then fusing or electrically welding the edge of the sheets in the pack together and again rolling, substantially as specified.

3. A pack of iron or steel sheets for rolling, consisting in a number of sheets matched and secured together one to another at one of their edges to facilitate the handling of the pack and prevent crawling of the sheets in respect to each other in rolling, the sheets of the pack being uninclosed and having their edges exposed and free to permit the necessary extension or elongation of the pack in rolling, substantially as specified.

4. A pack of steel or iron sheets for rolling fused or electrically welded together at their edge to facilitate the handling of the pack and prevent crawling of the sheets in respect to each other in rolling, substantially as specified.

EDWIN NORTON.

Witnesses:

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