3 Sheets—Sheet 1.

E. D. CLAPP & F. VAN PATTEN.

Machine for Rolling Blanks for Carriage-Axle Clips.

No. 200,603. Patented Feb. 26, 1878.

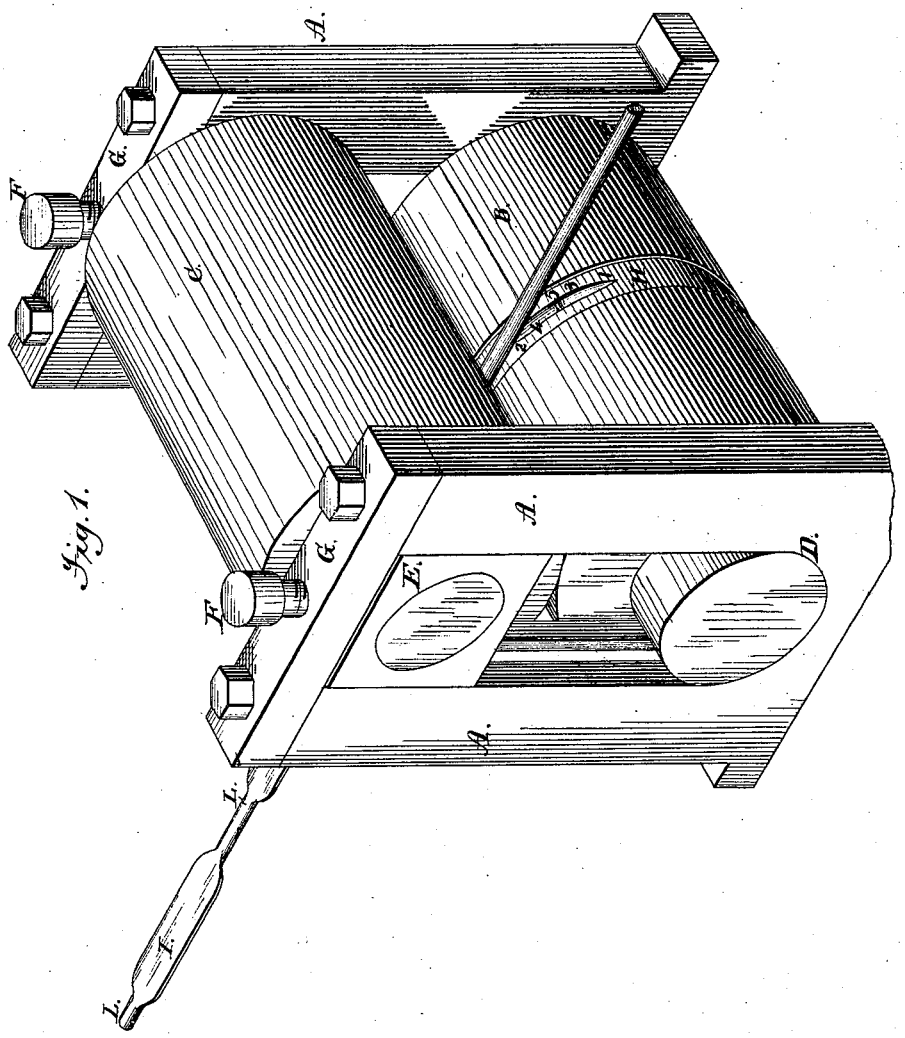

Fig. 1.

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Fig. 2.

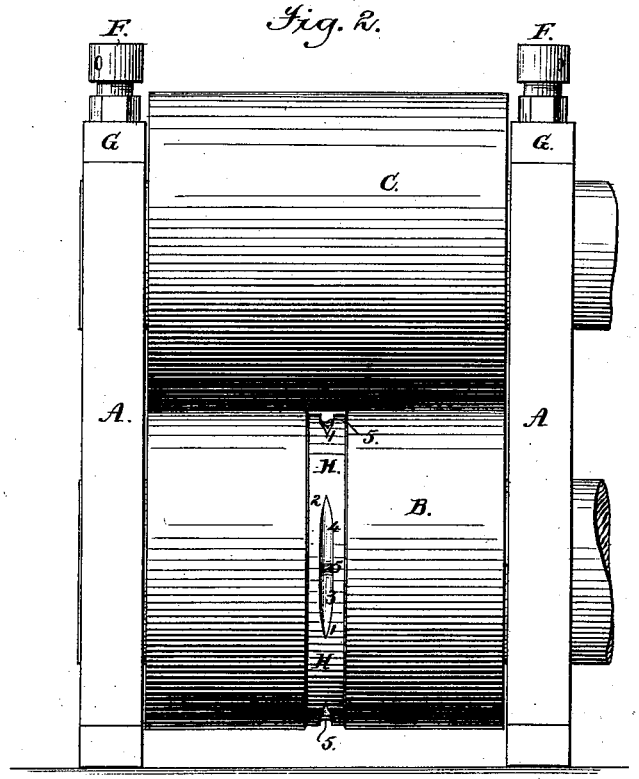

Fig. 3.

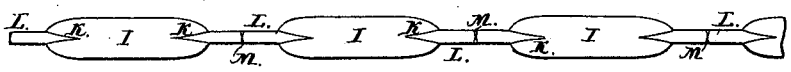

Fig. 4.

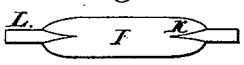

Fig. 5.

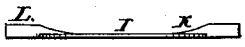

Fig. 6.

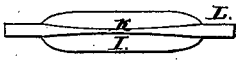

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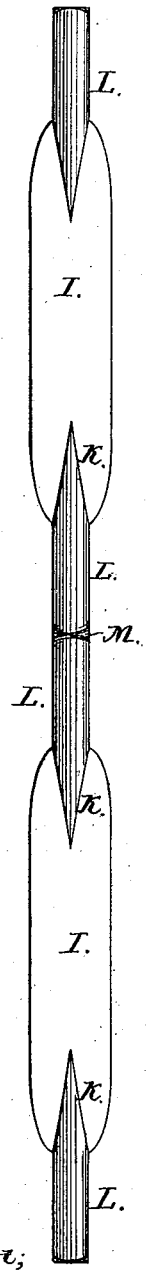
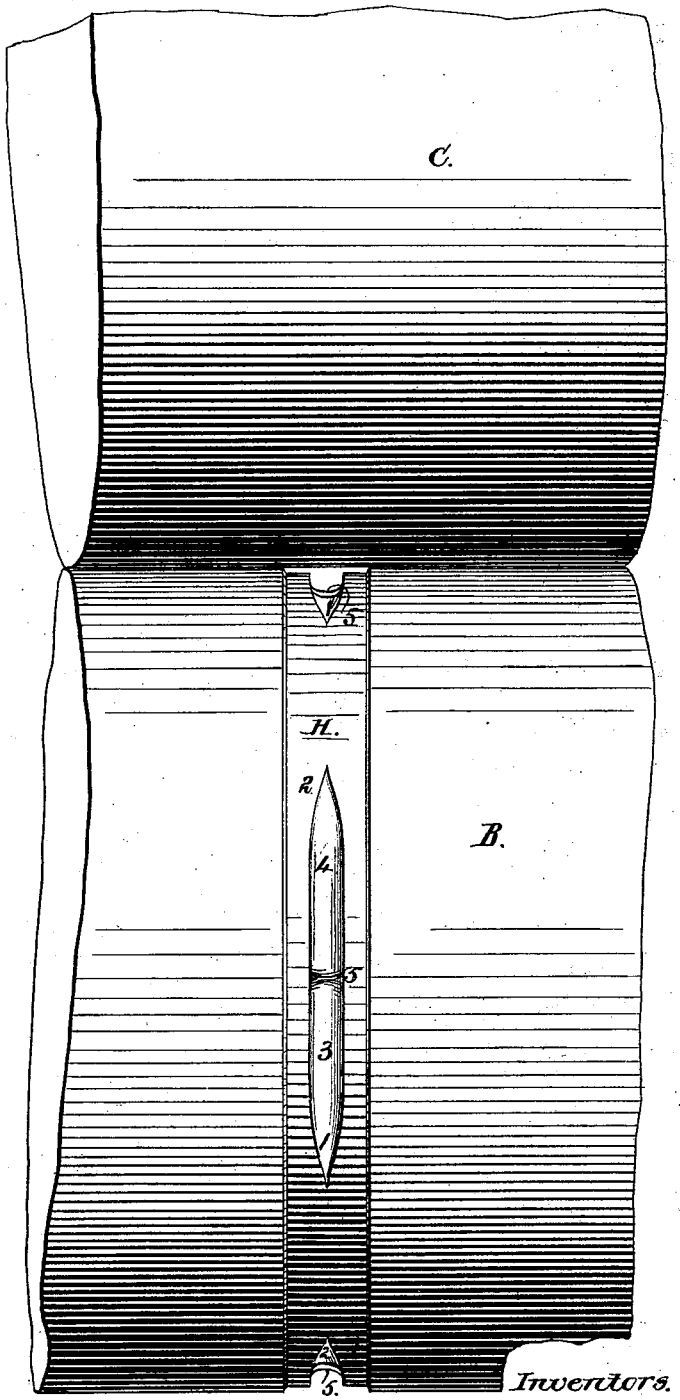
Fig. 8.





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UNITED STATES PATENT OFFICE.

EMEROUS D. CLAPP AND FREDERICK VAN PATTEN, OF AUBURN, N. Y.

IMPROVEMENT IN MACHINES FOR ROLLING BLANKS FOR CARRIAGE-AXLE CLIPS.

Specification forming part of Letters Patent No. **200,603**, dated February 26, 1878; application filed December 26, 1877.

To all whom it may concern:

Be it known that we, EMEROUS D. CLAPP and FREDERICK VAN PATTEN, of the city of Auburn, county of Cayuga, and State of New York, have invented certain new and useful Improvements in the Manufacture of Carriage-Axle Clips; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

Heretofore carriage-axle clips have been made by dies, one of which was secured in a drop-hammer and the other in an anvil, the two having suitable depressions and raised portions, to give the proper form of the clip to the heated blank when placed between and subjected to their action. This method of manufacture was expensive, because the workman had to prepare a separate blank for each clip, then place it in the lower die on the anvil, then trip the drop, then wait for the upper die to strike and recede, then remove the clip from the die, and then remove the pins formed by the dies on the clip by trimming-dies, thus consuming time and wasting material that ought to be saved, and because the dies thus used wore away rapidly, and had to be frequently replaced.

Efforts have been made to produce clips with greater rapidity and with less wear upon the dies by causing the latter to revolve instead of move in straight lines. In all cases, however, where this has been attempted, a separate blank for each clip had to be first prepared, and then, when heated, fed to the revolving dies with extreme care and precision, the difficulty in doing this successfully being very great, if not insurmountable.

The object of our invention is to produce these clips without the necessity of preparing and properly feeding a separate blank for each clip with greater rapidity and economy than can be done with the old methods; and it consists in the means employed, as will be hereinafter fully pointed out and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a pair of rolls for carrying out our invention, with their housings and adjusting means, a bar of metal being shown entering between the rolls and a series of clips issuing from them formed from said bar. Fig. 2 is an elevation of the rolls and their housings, the ends of the rolls being broken away where the power is applied to revolve them. Fig. 3 is a plan view of a series of clips as they come from the rolls shown in Figs. 1 and 2. Fig. 4 is a plan view of one of said clips severed from the series, ready to have the screws cut in its round or bolt ends. Fig. 5 is a side elevation of the same. Fig. 6 is a plan view of a clip with the strengthening-rib running entirely across its flat. Fig. 7 is a side elevation of a portion of the rolls shown in Figs. 1 and 2, enlarged. Fig. 8 is a plan view of two of a series of clips enlarged as they come from the enlarged rolls.

A are housings, in which are journaled rolls B C, the lower one, B, of which turns in bearings D in the housings A, and the upper one, C, in boxes E in said housings. Screws F, passing through bars G on top of the housings, and impinging upon the boxes, keep the rolls B and C in contact.

The housings, boxes, bearings, means of holding the rolls in contact, and means of driving them are of the common and well-known construction, form no part of our invention, and may be of any other suitable construction.

The roll B is provided with a recess, H, extending around it, of a depth equal, or nearly equal, to the desired thickness of the flat I, and of a width equal, or nearly equal, to the said flat I of the clips to be produced. In the bottom of this recess are depressions 1 2 3 4, the depressions 1 2 gradually increasing in width and depth until they meet the depressions 3 4, which latter extend to and are partially separated by lips 5. The depressions 1 2 are the reverse in shape of the strengthening-ribs K of the clips which are to be formed in them.

The depressions 3 4 are of a width, at the parts where they meet the bottom of the recess H, equal, or nearly equal, to the diameter of the round or bolt ends L of the clips, and at the bottom are rounded the reverse of one-half of said ends L, and of a depth on a radial line drawn from the center of the roll B to its periphery, passing through their bottom, equal, or nearly equal, to the diameter of said ends L.

The lip 5 serves to partially sever the contiguous ends L of the clips, and marks the point at which they are to be completely severed when used.

The roll C is made cylindrical where it covers the recess H, and runs in contact with the roll B just beyond said recess.

In the drawings we have shown four sets of depressions, 1 2 3 4, and lips 5, at such distances apart that four clips may be formed at each revolution of the roll B.

In carrying out our invention we first pass a heated billet of metal through reducing-rolls of the common construction, in order to form a bar of proper shape, size, and length. The shape of the bar may be round or slightly oval, its diameter equal, or nearly equal, to that of the ends L of the axle-clips to be produced, and of a suitable length to form two or more clips. The bar, still hot from the reducing-rolls, is then entered, with its largest diameter preferably in a plane, or nearly in a plane, at right angles to the axis of the rolls in the recess H, and between the rolls B C, as shown in Fig. 1, and as the rolls revolve it is forced into the depressions 1 2 3 4 and recess H in the roll B by the roll C, filling the depressions, to form the strengthening-ribs K and part of the ends L of the clip, and spreading out in the recess H to form the flat I of the clip and the rounded ends, the clip 5 partially severing and marking the point where the contiguous ends L are to be completely severed.

As shown in the drawings, by means of the rolls B C four clips may be formed, each time they revolve, from the heated bar, and clips continue to be formed until the bar is used up. Another bar, properly reduced, can then be inserted, and clips again produced, as just described. The clips, after issuing from the rolls, are joined together, and are separated at the points M midway between the contiguous ends L. These ends, as they come from the rolls, are slightly flat on one side, and not entirely round.

If found desirable or necessary, after the clips are severed these ends may be rounded by a few strokes of a hammer, or under a drop.

No fins that have to be removed by trimming-dies are formed in the rolling.

The depressions 1 2 may be varied in shape from that shown in the drawings, and extended to meet each other, so as to form a continuous strengthening-rib, K, on the clip, as shown in Fig. 6.

The iron bar from which the clips are formed may be round, if desired, and, if oval, may be introduced between the rolls, with its largest diameter in a plane parallel, or nearly parallel, with the axis of the rolls, and yet clips may be produced therefrom properly.

The lip 5 may be omitted, if desired, though we prefer to use it as a convenient means of partially severing and marking the point at which the contiguous clips are to be separated.

Although we have shown four sets of depressions, 1 2 3 4, in the recess H, it is to be understood that less or more than four sets of such depressions may be employed to carry out our invention.

By our invention carriage-axle clips can be produced with a great saving of labor and material and wear upon the operative parts.

Having thus described our invention and the merits it possesses, what we claim as new, and desire to secure by Letters Patent, is—

1. The roll B, provided with one or more sets of depressions, 1 2 3 4, and with a recess, H, in combination with the roll C, having a cylindrical surface, substantially as described.

2. The roll B, having one or more sets of depressions, 1 2 3 4, and a recess, H, with means for forcing the metal therein, substantially as described.

3. The combination of a pair of rolls one of which is provided with a recess, H, two or more sets of depressions, 1 2 3 4, and one or more lips, substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EMEROUS D. CLAPP.
FREDERICK VAN PATTEN.

Witnesses:
HORACE T. COOK,
D. E. CLAPP.