(No Model.)

2 Sheets—Sheet 1.

J. M. BAKER.

MANUFACTURE OF LINKS.

No. 249,871. Patented Nov. 22, 1881.

FIG. 1.

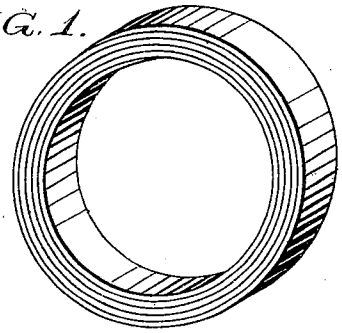


FIG. 2.

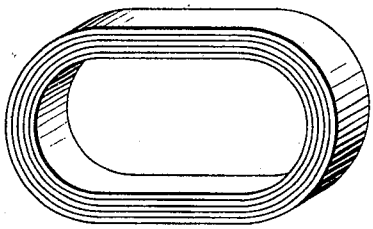


FIG. 3.

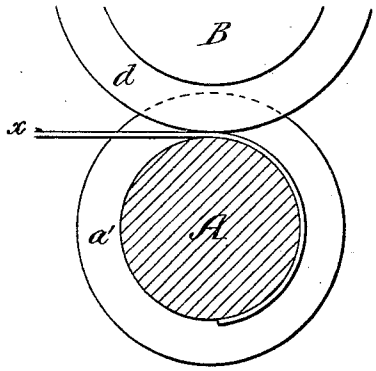


FIG. 4.

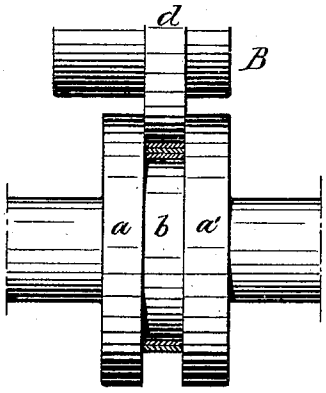
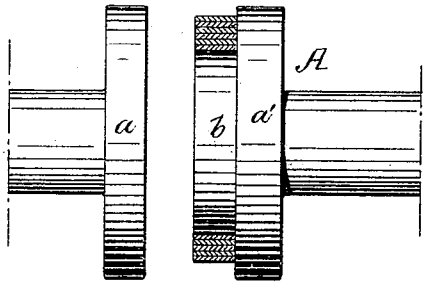


FIG. 5.



Witnesses.
James F. Tobin.
Henry Fulenwider

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(No Model.) 2 Sheets—Sheet 2.

J. M. BAKER.

MANUFACTURE OF LINKS.

No. 249,871. Patented Nov. 22, 1881.

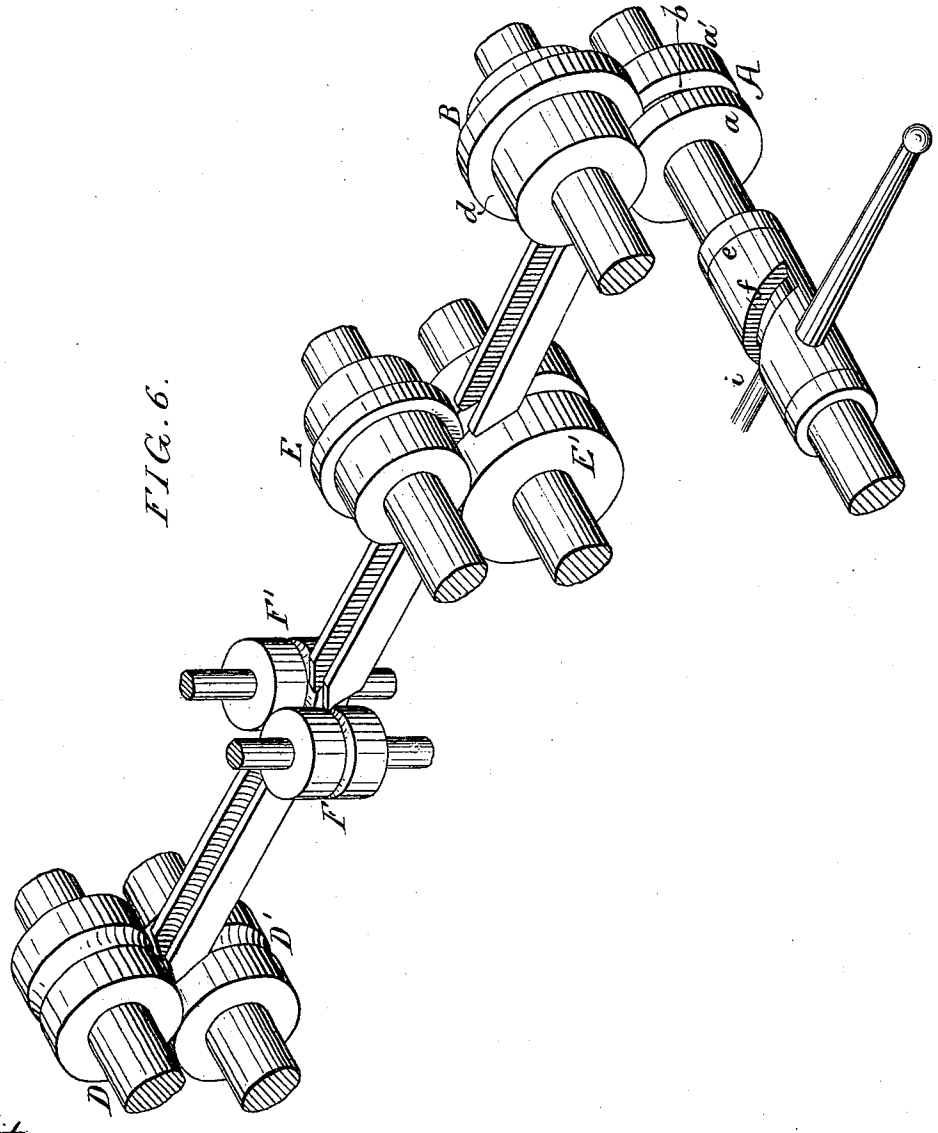


FIG. 6.

Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN M. BAKER, OF ALLENTOWN, PENNSYLVANIA.

MANUFACTURE OF LINKS.

SPECIFICATION forming part of Letters Patent No. 249,871, dated November 22, 1881.

Application filed June 17, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. BAKER, a citizen of the United States, residing in Allentown, Lehigh county, Pennsylvania, have invented certain Improvements in Links and in the Manufacture of the Same, of which the following is a specification.

My invention relates to certain improvements in machinery for manufacturing that class of links which consist of a strip of metal coiled around a roll or mandrel, and having the coils welded together by pressure, the objects of my invention being to provide simple and efficient coiling mechanism for making such links, and to dispense with all heating or handling of the metal in making the same from a bloom or ingot into a coiled and welded link.

In the accompanying drawings, Figures 1 and 2, Sheet 1, are views showing the character of the link which it is the aim of my invention to produce; Figs. 3, 4, and 5, views showing the construction and operation of the coiling and welding rolls; and Fig. 6, Sheet 2, a perspective diagram, showing a train of rolls whereby the bloom or ingot is made into a coiled and welded link without heating or handling.

In making links it has been proposed to take a comparatively thin strip of the desired width, this strip being then coiled under pressure on a roll or mandrel until the desired thickness of metal has been attained, as shown in Fig. 1, the coils being welded together by the pressure to which they are subjected, so as to form a homogeneous ring, which can afterward be flattened, as shown in Fig. 2. A link thus made is much stronger than one made in the usual way by bending a bar of the proper dimensions and welding the ends of said bar, for in the latter case defects in the structure of the bar or in the weld serve to directly weaken the link, as they must necessarily receive the full amount of the strain exerted upon the link, whereas a coiled link made according to my invention forms a practically continuous bar, without the usual welded joint, and any defect in one of the coils is counteracted by the sound metal of the adjacent coils.

The device which I use for coiling and welding the strip is shown in Figs. 3, 4, and 5, in which A represents a lower roll, having flanges *a a'* and a central groove, *b*, and B an upper roll, having a central flange, *d*, adapted to the groove of the roll A. The strip being fed to the rolls is pressed against the lower roll, to which it adheres, the end of the strip being carried around by the roll, and the strip being thereby coiled into a ring, the upper roll rising as the coiling progresses, but exercising at all times such pressure upon the strip as to cause the welding of the coils together as they are wound, it being understood that the strip has been previously heated, so as to permit this welding action.

The roll A is made in two parts, the flange *a* and its shaft being separate from and laterally adjustable in respect to the other portion of the roll, so that when the coiling operation is completed said flange *a* can be moved away from the body of the roll, as shown in Fig. 5, thus permitting the lateral withdrawal of the coiled strip from the roll, the flange being then readjusted prior to the coiling of a fresh strip. If desired, the ring may, after this operation, be reheated and rerolled, in order to insure the perfect welding of the coils, and the link may be subjected to the action of such rolls or dies that the outer portion of the same will be rounded.

In carrying out my invention I prefer to combine the coiling device just described with reducing-rolls, and with intervening guides or troughs, in such a manner that an ingot or bloom can be made at one operation into a coiled and welded link without handling or reheating. Such a train of rolls is shown in Fig. 6, and comprises the horizontal or top pressing-rolls, D D' and E E', the vertical or side pressing-rolls, F F', the coiling-rolls A B, and the troughs or guides intervening between the rolls to conduct the strip from one set of rolls to the succeeding set. The number of reducing-rolls may, if desired, be increased, as the character of the ingot or bloom to be reduced or that of the link to be produced may suggest.

The device for adjusting the flange *a* of the roll A consists of a sleeve, *e*, confined between collars on the shaft carrying said flange, the sleeve having a cam-slot, *f*, to which is adapted a fixed pin, *i*, so that by partially turning said sleeve *e* by means of a suitable arm or handle the lateral adjustment of the flange *a* can be readily effected.

I claim as my invention—

1. The combination of the lower grooved roll, A, having a laterally-adjustable flange, *a*, with the upper roll, B, free to yield vertically, and having a flange, *d*, adapted to the groove *b* of the lower roll, as set forth.

2. The combination, in a continuous train, of a series of vertical and horizontal reducing-rolls, a pair of coiling-rolls, A B, and troughs or guides intervening between the rolls, whereby a bloom or ingot is formed into a coiled and welded link without reheating or handling, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN M. BAKER.

Witnesses:

JAMES F. TOBIN,

HARRY SMITH.