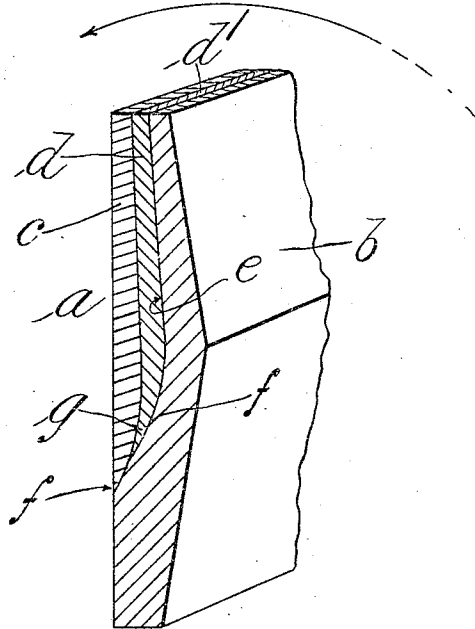


C. I. WARE.
ROLL BAR FOR PAPER PULP ENGINES.
APPLICATION FILED NOV. 24, 1909.

958,708.

Patented May 17, 1910.



WITNESSES:

R. M. Mowry
Harry W. Brown

INVENTOR,

Charles Irving Ware
BY *Chapin & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES IRVING WARE, OF HOLYOKE, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO
FRED E. MAXFIELD, OF HOLYOKE, MASSACHUSETTS.

ROLL-BAR FOR PAPER-PULP ENGINES.

958,708.

Specification of Letters Patent.

Patented May 17, 1910.

Application filed November 24, 1909. Serial No. 529,676.

To all whom it may concern:

Be it known that I, CHARLES IRVING WARE, a citizen of the United States of America, residing at Holyoke, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Roll-Bars for Paper-Pulp Engines, of which the following is a specification.

This invention relates to knife-bars for beating engines used in the manufacture of paper.

It has long been recognized by manufacturers of paper-pulp that knife-bars composed wholly or in part of steel should be employed. The use of this metal alone is objectionable because it is readily acted upon by the acids contained in the pulp, thus producing an inferior quality of paper. Heretofore knife-bars have been made with a small portion only of steel and the remainder of iron. This construction, however, results in a bar, one side and the edge of which is of steel that is exposed to the action of the chemicals contained in the contents of the beating engine, and at best reduces only by about 50% the steel surface exposed to the pulp mixture in the engine tub. This "laid" bar has, however, aside from the relatively large exposed area of the steel to the chemical action of the pulp mixture, a further disadvantage which is incidental to the process of its manufacture.

In welding the steel to the wrought iron during the various heating operations and working thereof in order to produce a bar of the correct shape or form, it is customary to use water freely to prevent the formation of scale thereon, as is of course well known; and unless extreme care is exercised in the final operations there will remain in some parts of the steel portion of the bar very hard areas from which, through careless manipulation, the temper has not been drawn and when the bar is in use and these hard spots come in contact with the bed-bar, parts of these hardened steel areas will chip off and be carried in the pulp to the great detriment of the latter.

Heretofore, it has been attempted to prevent the corroding action by coating the bar with copper but the chemicals contained in the pulp sooner or later cause this coating to peel off. Since iron resists chemical action much better than steel, I have placed a bar or covering of wrought iron on both

sides of the steel-bar thus practically preventing all chemical action, and further preventing the chipping off of particles of the steel bar when it engages the fixed bar during the beating operation.

The object of the present invention is to obviate these defects and still further reduce the area of exposed steel and prevent the chipping off of the edges of the hardened areas of the steel, as above described.

The invention is fully described in the following specification and clearly defined in the claims forming a part thereof.

The drawing, comprising only one figure, shows a bar constructed according to this invention, a portion of a bar being shown in perspective exposing the cutting edge thereof and the end being in section to show clearly the inclosure of the steel portion within the wrought iron body.

In this drawing, the bar, as a whole, is indicated by *a*, and it consists of two parts *b* and *c*, preferably of wrought iron, with a steel blade *d* located within the body portion of the bar and between the two parts *b* and *c*. The bar *a* is built up or formed by first providing the part *b* with a recessed portion, the outline or edge portion of which is indicated at *e* and extends in a curved line to the outer surface, as indicated at *f*, the steel member *d* and the wrought iron member *c* being next placed in this recess when the whole is then heated and welded together into one solid mass, as shown. This construction, therefore, provides means by which the steel bar or member *d* can be practically inclosed between the two wrought iron members *b* and *c*, thus preventing to a large extent the corroding or chemical action of the pulp on the steel member, as described above. Any other method of welding the elements constituting the bar may be employed, if desired. This manner of building up the composite bar shown in the drawing completely prevents the steel bar from becoming loosened when in use, since the end of the bar *c* is welded over the tapered or wedge-shaped end *g* of the steel bar *d* by means of the bar *c*, as shown, thus forming a smooth outer surface on the advancing side of the bar, as indicated by the arrow. This double weld results in a more perfect and stronger bar since a failure to weld would not be likely to occur at the same spot on both sides of the stock; whereas, if this

failure to weld occurs in a laid bar, the latter is no stronger at that point than the thickness of either the steel bar or iron bar alone.

5 While I have described my bar as being composed of steel and wrought iron plates, I do not limit myself to the use of these materials alone.

What I claim, is:

10 1. A roll bar for paper-pulp engines comprising a steel member inlaid between wrought iron members, substantially as described.

2. In a roll bar, substantially as described,

a steel member secured to a wrought iron 15 member, and a second wrought iron member secured to the steel member and having an end overlapping an end of the steel member.

3. A built-up roll bar for paper-pulp engines composed of a steel member overlaid 20 with wrought iron members, one edge of the iron members and the steel member lying in the same plane on the cutting edge of the bar, substantially as described.

CHARLES IRVING WARE.

Witnesses:

K. I. CLEMONS,

HARRY W. BOWEN.