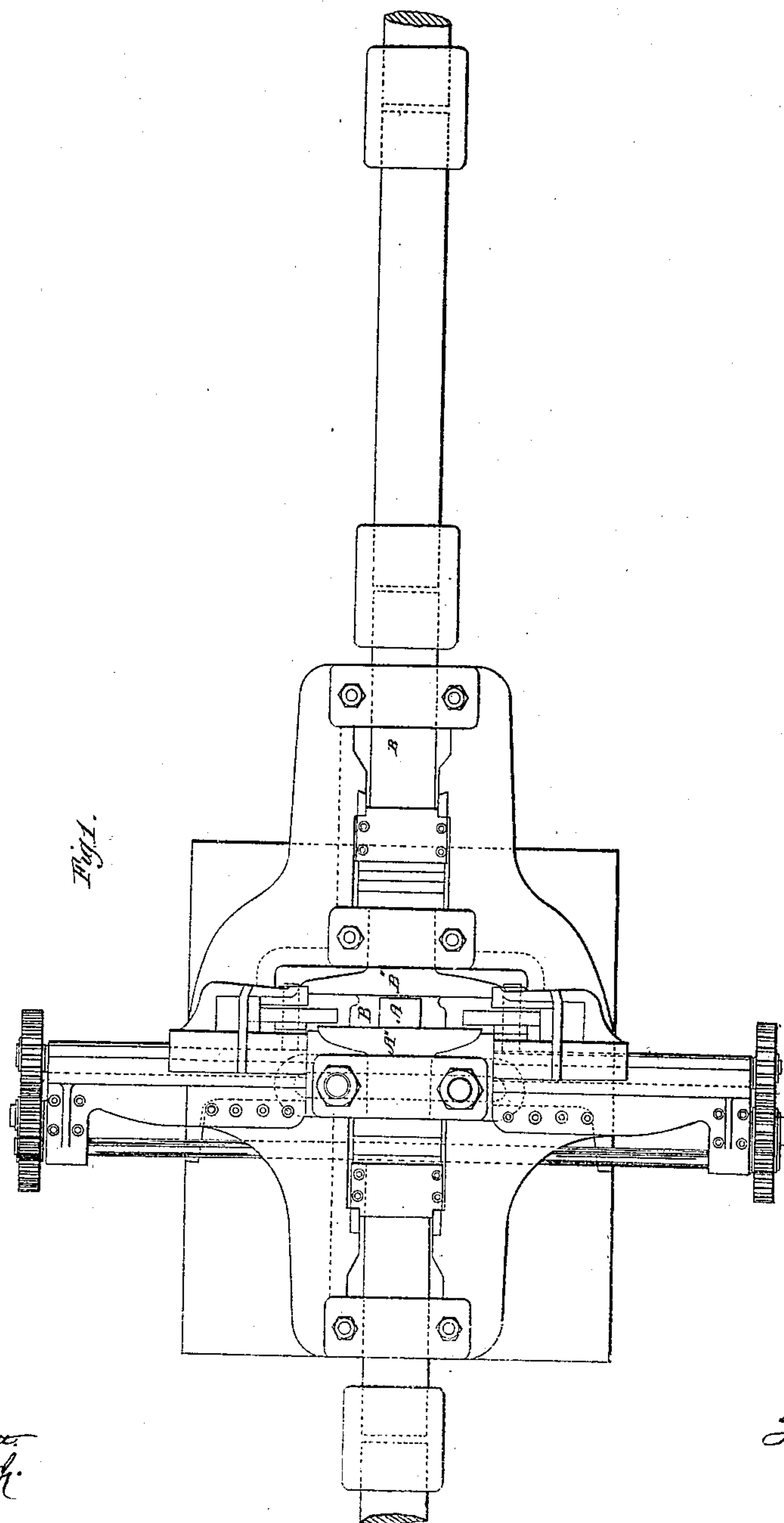


T. E. VICKERS.
MACHINE FOR ROLLING TIRES.

No. 79,416.

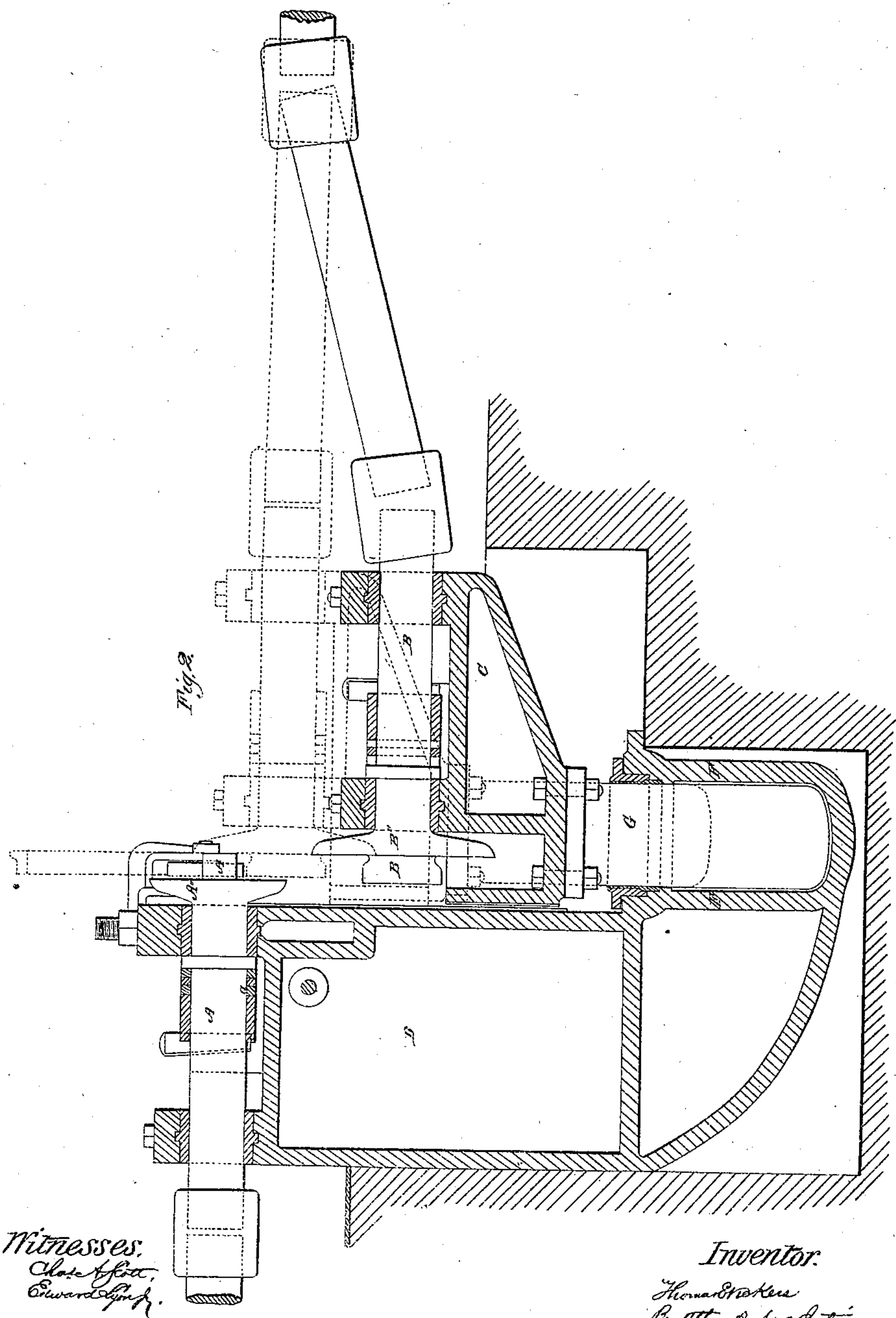
Patented June 30, 1868



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United States Patent Office.

THOMAS EDWARD VICKERS. OF SHEFFIELD, ENGLAND.

Letters Patent No. 79,416, dated June 30, 1868.

IMPROVED MACHINE FOR ROLLING TIRES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN :

Be it known that I, THOMAS EDWARD VICKERS, of Sheffield, in the county of York, England, have invented certain new and useful "Improvements in Machinery for Rolling Hoops or Tires for Wheels or other purposes;" and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention consists in so arranging a rolling-mill that the parts of the rolls between which the work is performed are made to overhang their bearings, and the remaining parts of the rolls, instead of being placed side by side, or one above the other, as is usual, are extended in opposite directions, so that the hoop to be rolled or the work to be performed may be placed and confined between collars or flanches, of which only one is upon each roll, and which flanch, from its position, may pass, if required, up to or beyond the centre of the other roll. In the accompanying drawing—

Figure 1 is a plan view, and

Figure 2 a sectional elevation of one of my improved machines, constructed for rolling hoops or tires for railway-wheels.

A is the roll intended to operate on the inside of the tire or hoop, and is called the inner roll, and is provided with a flanch, A". B is another roll for rolling or forming the outside or periphery of the tire; this is also provided with a flanch, B". The faces of the flanches or collars A" and B" are so arranged, that when at work, they are at the same time in contact with the ends of the opposite rolls, that is to say, the flanch A" is in contact with the end of the roll B, and the flanch B" is in contact with the end of the roll A, thus enabling the working part of the rolls, or of one of them, such as the roll A, to be made of small diameter, so as to be capable of operating upon a hoop having a small hole, say of only six or eight inches diameter in the centre, and having the outside diameter much greater, say three or four times as much. As all the work is performed between the collars or flanches A" and B" of the rolls A and B, all undue lateral spreading of the tire will be prevented. One of the rolls is to be made movable by hydraulic power, or by screws or other known means, in order to effect the compression of the metal whilst rolling, and to enable the hoops to be put on or taken off the inner roll. In the drawing, the roll B is shown as turning in bearings attached to the movable carriage C, which is capable of being raised and lowered by the ram G of the hydraulic cylinder F, and thus may be raised and lowered, so as to give the tire or hoop the required pressure, and allow it to be put on or taken off the inner roll. The upper part of the carriage C is steadied by guides fixed in the framing D. It will now be understood that if the several parts be in the position shown in fig. 2, a rough hoop for a railway-tire, when heated, may be placed on the roll A, and then, by pumping water into the cylinder F, the ram G, and with it, the carriage C and outer roll B, will be raised, and the latter brought up and made to bear against the outer periphery of the hoop or tire, and by compressing it between the two rolls A and B, the tire will be rolled into the required form.

The invention also consists in applying driving-power separately and independently to the rolls A and B, so that each of these latter may be driven at its proper speed in proportion to its diameter, and to the varying difference between the internal and external diameters of the tire or hoop which is being operated upon.

As in the improved rolling-mill the driving-ends of the rolls project from opposite sides of the machine, this separate driving of the rolls can be effected without difficulty or complication of parts. The mode of actuating the working-rolls in machinery of this kind is so well known, that I have not thought it necessary to show the gearing in the drawing, nor to give any detail description of it, as it need not differ in principle or construction from the toothed gearing usually employed for analogous purposes.

Having now described my "improvements in machinery for rolling hoops or tires for wheels or other purposes," and having explained the manner of carrying the same into effect, what I claim as new, and desire to secure by Letters Patent, is—

So arranging a rolling-mill that the parts of the rolls between which the work is performed shall overhang their bearing, and the remaining parts of the rolls be extended in opposite directions, as described, when the rolls are provided with flanches, the whole constructed to operate as and for the purposes set forth.

In witness whereof, I have hereunto set my hand and seal, this fourteenth day of February, in the year of our Lord one thousand eight hundred and sixty-eight.

T. EDWARD VICKERS. [L. s.]

Witnesses:

HENRY VICKERS, *Solicitor, Sheffield.*

CHAS. E. VICKER., *his Clerk.*