

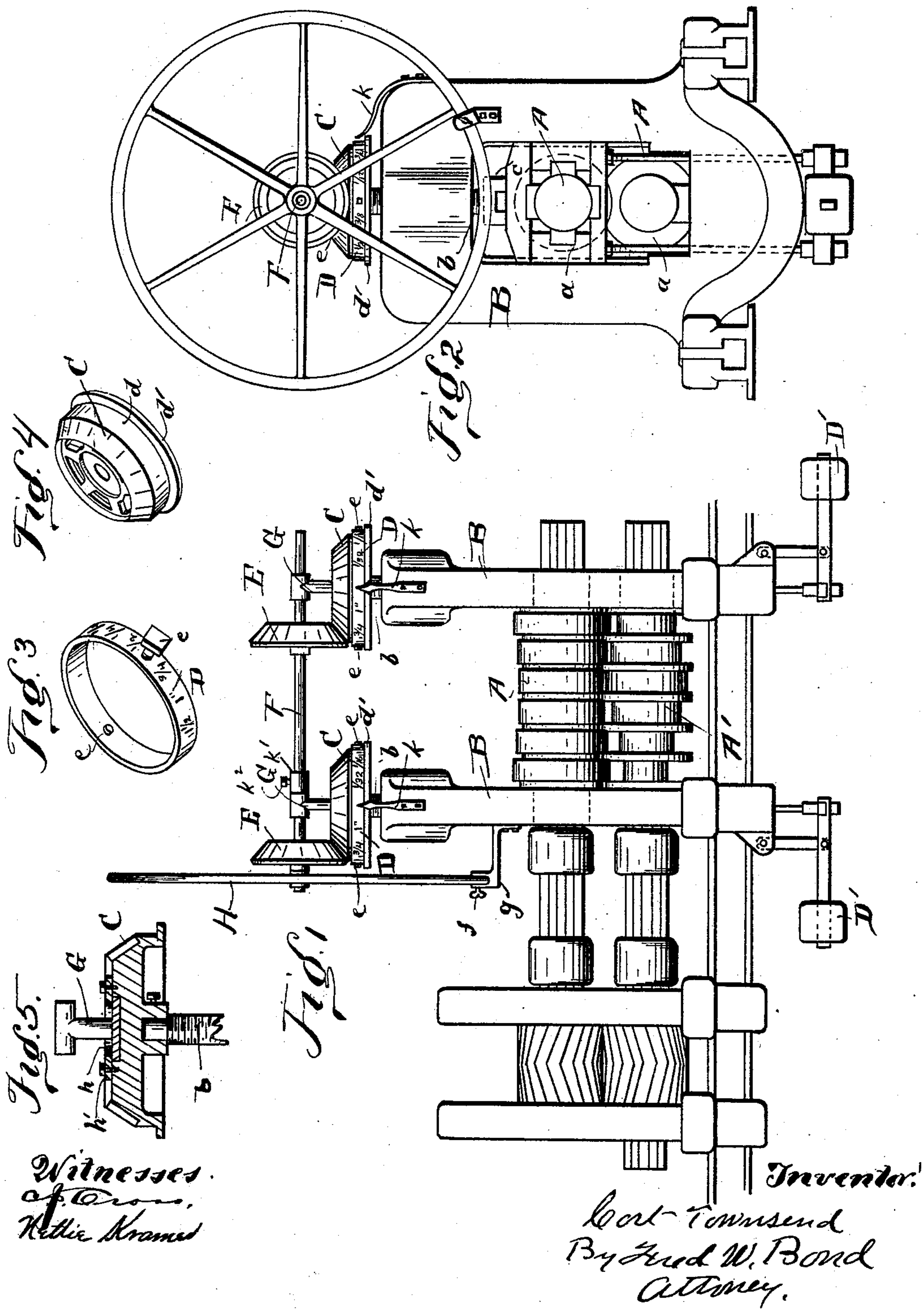
(No Model.)

C. TOWNSEND.

ATTACHMENT FOR ADJUSTING ROLLS OF ROLLING MILLS.

No. 523,296.

Patented July 17, 1894.



UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR ADJUSTING ROLLS OF ROLLING-MILLS.

SPECIFICATION forming part of Letters Patent No. 523,296, dated July 17, 1894.

Application filed April 25, 1894. Serial No. 508,924. (No model.)

To all whom it may concern:

Be it known that I, CORT. TOWNSEND, a citizen of the United States, residing at Apollo, in the county of Armstrong and State of Pennsylvania, have invented certain new and useful Improvements in Rolling-Mill Attachments; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters marked thereon, in which—

Figure 1, is a side view, showing a set of rolls properly arranged with reference to their housings, showing my improvement properly attached for use. Fig. 2, is an end view, showing my improvement properly attached. Fig. 3, is a detached view of the gage-band. Fig. 4, is a detached view of one of the gage-band miter or beveled wheels. Fig. 5, is a transverse section of one of the screw shafts beveled wheels showing the different parts belonging thereto properly attached.

The present invention has relation to rolling mill attachments designed and calculated to gage the space or spaces between the rolls, and it consists in the novel construction hereinafter described, and particularly pointed out in the claims.

Similar letters of reference indicate corresponding parts in all of the figures of the drawings.

In the accompanying drawings A, represents the upper roll, and A' the lower roll, these rolls may be of the form shown, or they may be of any other desired form, inasmuch as the rolls proper form no particular part of the present invention, except that a set of rolls must necessarily be employed to carry out the object and purpose of the present invention, and it will be understood that the rolls A and A' are to be constructed and arranged with reference to the kind of work they are to perform.

The roll A, is properly journaled by means of suitable boxes, which boxes are held in proper position by means of the housings B, which housings are, or may be constructed in the ordinary manner, except to provide the necessary changes, if any, to properly attach and adjust my improvement; but in ordinary cases

my improvements can be attached to the housings in common use.

It will be understood that the boxes *a* move vertically in the housings B, as the roll A, moves vertically, or in other words as the upper roll A comes and goes to and from the lower roll A'.

For the purpose of causing the rolls to be easily separated, the proper distance apart as the billets are run between the rolls, the counter-balances D' are provided, which counter-balances are located and attached in the ordinary manner. The object and purpose of providing the counter-balances are to provide a means for relieving the weight of the upper roll, and thereby causing the upper roll to easily assume the position it is intended to occupy during the time the billets or bars are passing between the rolls A and A'. Directly over the sliding boxes *a* are located the screw-threaded shafts *b*, which screw-threaded shafts turn in screw-threaded apertures formed in the top or upper ends of the housings B.

The sliding boxes *a* may be provided with the extensions *c*, the top or upper ends of which receive the bottom or under ends of the screw-threaded shafts *b*, thereby limiting the upward movement of the sliding boxes *a*, and the upper roll A.

It will be understood that the screw-threaded shafts *b* are to be adjusted vertically as hereinafter described so that the upper roll will be held against upward movement at the desired gage.

To the top or upper ends of the screw-threaded shafts *b*, are attached the beveled wheels C, which beveled wheels are of equal size, and are provided with an equal number of teeth or cogs. The beveled wheels C, are provided with the faces *d*, and the flanges *d'*.

Around the wheels C are located the gage bands D, which gage-bands rotate with the wheels C, and are held in proper adjustment by means of the set-screws *e* or their equivalents. The flanges *d'* are for the purpose of supporting the gage bands D during the time said gage bands are released from the wheels C. The outer peripheries are provided with numbers, which numbers indicate the size of the finishing pass between the rolls A and A'.

For the purpose of causing the wheels C, together with their gage-bands to rotate in unison, the beveled wheels E are provided, which beveled wheels mesh with the wheels C, as illustrated in Fig. 1. The wheels E, are securely attached in any convenient and well known manner to shaft F, which shaft is properly journaled to the top or upper ends of the posts or standards G. To one end of the shaft F, is attached the wheel H, which wheel is for the purpose of rotating the shaft F together with the wheels attached thereto, and for the purpose of preventing the shaft F from rotating after the rolls have been set to the desired gage, the wheel H is clamped by means of the set-screw *f* and the arm *g*, or their equivalents.

For the purpose of properly supporting the posts or standards G, their bottom or lower ends are provided with the flanges *h*, which flanges rest upon the top or upper side of the beveled wheels C, and for the purpose of securely holding the posts or standards G in an upright position, the retaining plates *h'* are provided, which retaining plates overlap the flanges *h*, and are securely attached to the wheels C.

In use the last or finishing pass between the rolls A and A' is set to the desired gage, and when it is desired to change the gage, the wheel H is rotated, which rotates the wheels C, and the gage-bands D; the figures upon the gage bands when brought under, or in line with the indicator *k* give the exact size of the finishing pass. In order to accomplish this result, the pitch of the screws upon the screw-threaded shafts *d*, must be so inclined that the screw-threaded shafts will be moved up or down the same distance that is indicated by the travel of the gage bands, for instance, if it is desired to change the finishing space from three-fourths of an inch to one thirty-second of an inch, the gage band together with the wheels C is rotated until the point marked one thirty-second on the gage band comes directly under the indicator *k*.

It will be understood that as the finishing pass between the rolls is changed as to size, the other passes of the rolls will be changed in the same proportion.

For the purpose of providing a means for rotating the wheels C independent of each other, the shaft F is provided with the collar *k'*, which collar is provided with the set-screw *k²*, and when it is desired to rotate the wheels C independent of each other, the collar *k'* is loosened, at which time the shaft F is free to be moved end-wise, thereby throwing the wheels E out of mesh. It will be understood that when this operation is performed, the clamping arm *g* should be removed so as not to interfere with the lateral movement of the wheel H. The object and purpose of providing for rotating the wheels

C, independent of each other are to properly line up the upper roll A, and after this has been done the wheels C, are properly connected so as to rotate in unison.

It will be understood that by providing the set-screws *e* the gage bands D, can be rotated independent of the wheels C, thereby providing a means for properly setting the gage bands.

In the drawings I have shown a gage-band located upon each of the wheels C, but inasmuch as the wheels C rotate in unison a gage-band located upon one of the wheels C will accomplish the desired result.

It will be understood that the wheels C should be of considerable diameter in order to provide room upon the gage band to indicate the various-sized passes for the finishing pass. It will also be understood that the diameter of the gage bands should correspond with the diameter of the wheels C, for the purpose of indicating that the wheels C have traveled at their peripheries the same distance that the gage bands have traveled.

In the drawings I have illustrated but one gage-band upon each of the wheels C, but it will be understood that two or more gage-bands can be placed upon the wheels without departing from the nature of my invention.

It will be understood that it is not absolutely necessary to place a gage-band or bands upon each of the wheels C, as the same object can be accomplished by the use of a gage-band or bands upon one of the wheels.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of suitable housings, such as B, provided with sliding boxes, carrying the roll A, the screw-threaded shafts *b*, provided with the beveled wheels C, said wheels C being of uniform diameter, and meshing with the wheels E, and provided with the faces *d*, and a gage band, adjustably attached to, and located around one or both of the wheels C, and means for rotating the wheels C, in unison, substantially as and for the purpose specified.

2. The combination of rolls and housings, and screw-threaded shafts, provided with beveled gear wheels C, of equal diameter and provided with the faces *d*, and the flanges *d'*, a gage band or bands located around the face or faces *d*, an indicator *k*, and means for rotating the wheels C, in unison, substantially as and for the purpose specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

CORT. TOWNSEND.

Witnesses:

GEO. L. TEETERS,
JNO. Q. COCHRANE.