2 Sheets--Sheet 1.

C. ANDERSON.

Regulating and Adjusting Bands used in Driving Machinery.

No. 164,411. Patented June 15, 1875.

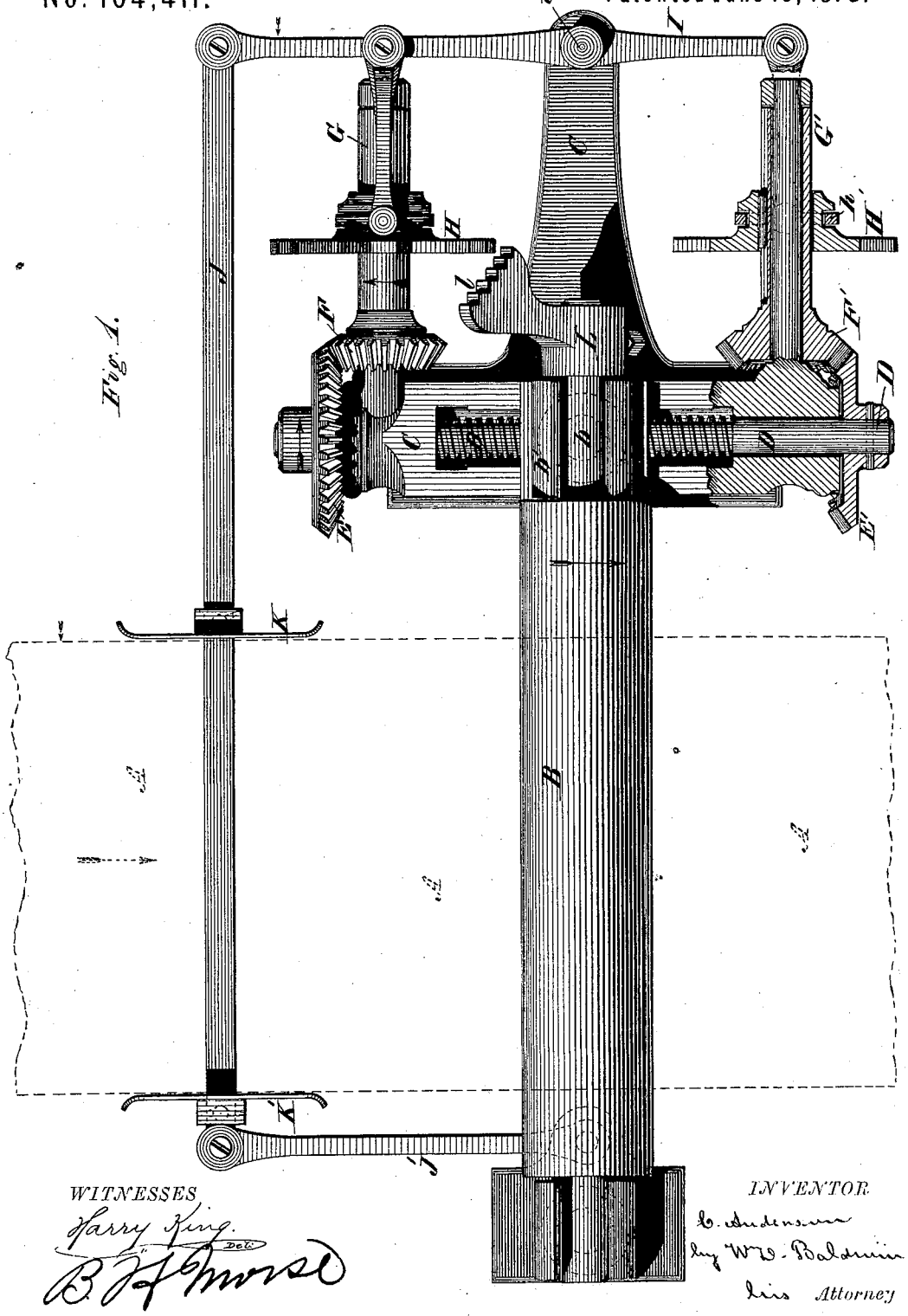

Fig. 1.

WITNESSES

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2 Sheets--Sheet 2.

C. ANDERSON.

Regulating and Adjusting Bands used in Driving Machinery.

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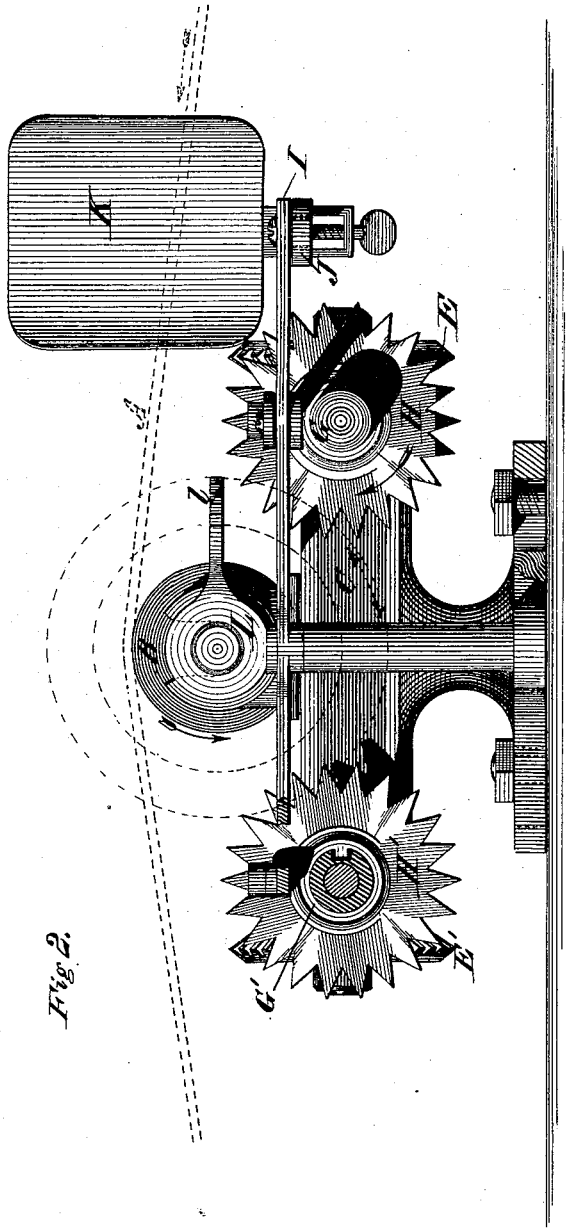

Fig. 2.

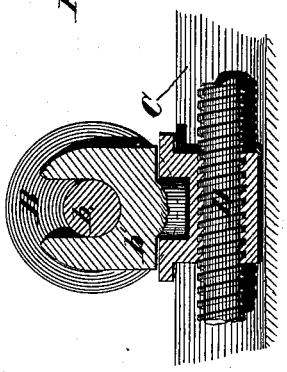

Fig. 3.

WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES ANDERSON, OF FETTYKIL, LESLIE, NORTH BRITAIN, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO PUSEY, JONES & CO., OF WILMINGTON, DELAWARE, AND CARL HOFMANN, OF CARLSRUHE, GERMANY.

IMPROVEMENT IN REGULATING AND ADJUSTING BANDS USED IN DRIVING MACHINERY.

Specification forming part of Letters Patent No. **164,411**, dated June 15, 1875; application filed April 23, 1875.

To all whom it may concern:

Be it known that I, CHARLES ANDERSON, of Fettykil, Leslie, in the county of Fife, North Britain, a subject of the Queen of Great Britain, have invented certain new and useful Improvements in Apparatus for Regulating or Adjusting the Position of Endless Traveling Webs or Bands employed in various kinds of machinery; and I do hereby declare the nature of my said invention, and the manner in which the same is to be performed, to be particularly described and ascertained in and by the following statement.

My said invention relates to an improved system or combination of mechanism, for the purpose of regulating or controlling endless traveling webs or bands employed in various kinds of machinery, when such webs or bands depart from their usual course. The subject-matter claimed is hereinafter specifically designated.

To carry out the objects of my invention, I employ a guiding or conducting roller, which is supported on a framing in suitable bearings. The band or web rests on and passes over this roller, and when at work gives it a revolving motion. Stretching across the web or band is a rod or bar supported on a lever or levers turning on a stud or studs on the framing or other suitable place. On this rod are fixed guide-blades close to but clear of each edge of the web or band. The conducting-rollers are mounted in bearings in a bush movable in a box by means of a screw-shaft turning in bearings in the said box, and passing through the bush. Gear-wheels mounted on the screw-shaft mesh with corresponding gears mounted loosely on stud-axes. Star or ratchet wheels mounted upon the collars of the gears, and movable endwise upon but turning with said collars, are connected by a suitable clutch to a rocking lever pivoted on the frame, and connected with the rod carrying the guide-blades. A crank-arm, having a beveled or ratcheted end, is secured on the spindle of the conducting-roller, which lies equidistant between the two star-wheels. When the web or band is in its true position the star or ratchet wheels clear the bevel-plate.

It results from the organization of the mechanism above described that any lateral movement of the web or band carries the guide-plates, and consequently the rocking lever and star-wheels, with it, so that one of the latter will be brought within range of the crank-arm, and will be revolved by it, thereby revolving the screw-shaft, and moving the bush lengthwise of the box, thus moving one end of the guiding-roller laterally, and stretching the web or band on that side, which change not only prevents further lateral displacement of the web or band, but corrects the tendency to such displacements, and restores the web or band to its normal position.

In order that my said invention may be properly understood, I now proceed more particularly to set forth the system, mode, or manner in or under which the same is or may be used, or practically carried into effect, reference being had, for the sake of more complete elucidation, to the accompanying drawings, in which—

Figure 1 is a plan of so much of my improved apparatus as is necessary to illustrate the subject-matter herein claimed; Fig. 2, an end view thereof; and Fig. 3, a transverse section through the traveling bush or bearing of the conducting-roller.

A web or band, A, (shown in dotted lines in the drawing,) passes over a guide or conducting roller, B, one of the journals, *b*, of which is mounted in a bush, *b'*, movable freely lengthwise in a box, C, by means of a screw-shaft, D, mounted in suitable bearings in the box. Bevel-wheels E E', mounted on and turning with this screw-shaft, mesh with corresponding bevel-gears F F', turning freely on stud-axles G G'. Star-wheels H H' move freely endwise upon but turn with their respective bevel-gears, being mounted on collars or sleeves projecting from said bevel-gears, and connected with them by a spline, or in any other equivalent well-known ways. Each star-wheel is connected by means of a grooved collar, *h*, and yoke of well-known construction, with a lever, I, rocking on a fulcrum, *i*, and pin-jointed to one end of a slide rod or bar, J, which carries guide-plates K K', between which the web

or band travels. The other end of this slide-rod is supported by a pivoted radius bar, J′, or in other well-known ways. A crank, L, having a beveled or ratcheted edge, *l*, is mounted on the movable end of the guide or conducting roller, and revolves with it equidistantly between the star-wheels, provided the band be running straight. The other end of the conducting-roller is mounted in suitable bearings on the frame.

The operation of the machine is such that when the web or band is traveling in the direction indicated by the arrows, Figs. 1 and 2, should it run toward the right side, or that side which is opposite the movable end of the conducting-roller, it would bear against the guide-plate K, and draw the slide-bar J to the right, thus forcing the star-wheel H to the right, as indicated by the small arrow on the rocking lever I. This lateral movement of the star-wheel would bring it within range of the crank L on the conducting-roller, which would revolve it, the bevel-gear F, the bevel-wheel E, and the screw-shaft D in the direction indicated by the arrow thereon.

The revolution of the screw-shaft would move the bearing of the conducting-roller away from the bevel-wheel that actuates it, and thus tighten the web or band on the side from which it was deflected, the effect of which would be to bring the web or band back to its normal condition. As it returns to this position it, of course, moves the guide-plate K′, and, through the slide-bar and rocking lever, releases the star-wheel from the path of the crank-arm, and consequently stops the movement of the screw-shaft, which remains quiescent so long as the band works truly.

The operation above described would be performed by the other set of gears were the web or band traversing in the opposite direction to that indicated by the arrows—that is, supposing the deflection to be toward the right, or were the deflections to take place toward the left instead of toward the right, with the band running in the direction indicated in the drawings.

I claim as of my own invention—

1. The hereinbefore-described apparatus for regulating or adjusting the position of endless traveling webs or bands employed in various kinds of machinery, said apparatus consisting of the combination of an endless traversing web or band, a conducting-roller revolved by the band, and having one of its bearings movable, a screw-shaft traversing said bearing, gearing actuating said screw-shaft, and driven by a rotating arm on the conducting-roller, and clutch mechanism operated by the lateral deflection of the web or band itself, to actuate the gearing, substantially as hereinbefore set forth.

2. The combination of the endless traversing web or band, the conducting-roller, actuated thereby, the movable bearing of the conducting-roller, the screw-shaft traversing said bearing, a revolving arm or crank on the conducting-roller, gearing for actuating the screw-shaft on each end thereof, and clutch mechanism actuated by the lateral deflection of the guide itself, arranged on opposite sides of the revolving arm, whereby the screw-shaft is revolved in opposite directions, according as the web or band is deflected to one side or the other by means of a crank-arm revolving continuously in one direction.

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Witnesses:

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