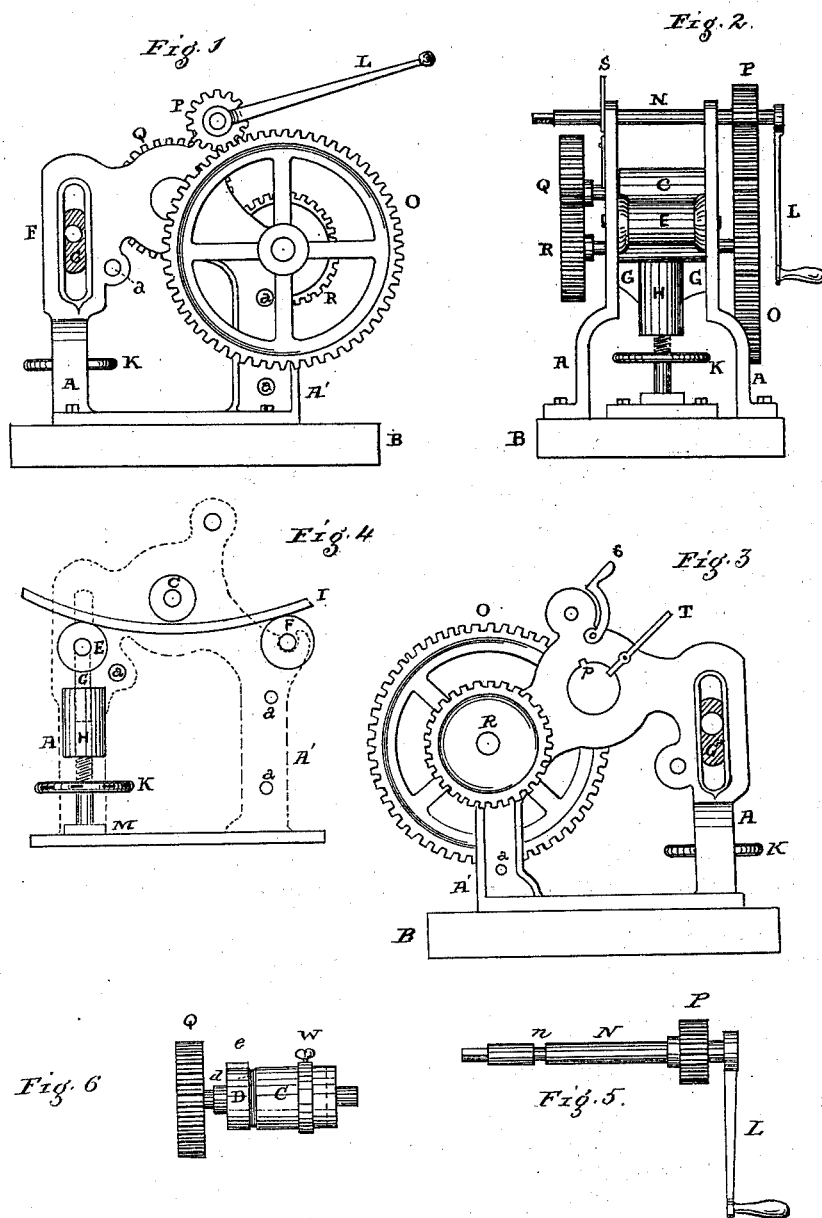


J. F. BENDER.
Tire-Bending Machine.

No. 216,254.

Patented June 10, 1879.



WITNESSES.

Chas. E. Long
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JACOB F. BENDER, OF LANCASTER, PENNSYLVANIA.

IMPROVEMENT IN TIRE-BENDING MACHINES.

Specification forming part of Letters Patent No. **216,254**, dated June 10, 1879; application filed December 16, 1878.

To all whom it may concern:

Be it known that I, JACOB F. BENDER, of the city of Lancaster, in the county of Lancaster, State of Pennsylvania, have invented certain Improvements in Tire-Benders, of which the following is a specification.

The nature of my invention consists in the means for adjusting and securing the upper central roller, the same being more fully described hereinafter, and pointed out in the claim.

The accompanying drawings, with the letters of reference marked thereon, and a brief explanation of the construction and operation of the machine, will enable those skilled in the art to make and use this invention.

In the drawings, Figure 1 is a side elevation, showing the lever-handle and pinion and large cog-wheel on one side of the frame; Fig. 2, a rear elevation, showing the turn-wheel for elevating and lowering the screw-box and its followers to adjust the bearings of the rear roller; Fig. 3, a side elevation, showing the opposite side, with the pinion-shaft and upper roller withdrawn to show the notch and latches for holding them laterally in their place. Fig. 4 illustrates the position of the three rollers and the adjustment, with a portion of a tire being bent. Fig. 5 shows the handled shaft of the pinion with its groove; Fig. 6, the detached upper roller, with the cog-wheel attached, journal with flange to enter slot in the frame, and in which journal the shaft of the roller revolves.

The supporting-frames A A', forming bearings for the gear and rollers, are composed each side of a single stout casting, secured together at three or more points by strong cross-pieces, (marked *a*.) The rear ends, A, of said frame are flared out below, to admit the windlass-wheel K between, and the front upright ends, A', have deep rounded notches, to form bearings for the shaft of the front roller and wheels in the upper portion; and near the center of the side pieces of the frame are formed perforated lugs, through which is passed the handled pinion-shaft N. One side of said frame-pieces has a large circular opening, with a notch, *p*, in its upper portion, so as to admit the upper central roller, C, and a surrounding collar or annular journal, D, with an outer

shoulder, and a conic longitudinal lug or flange, *e*, to fit in the aforesaid notch *p* in the frame. Thus the collar is held in place, and the shaft revolves freely in it. To prevent lateral motion of roller C, I employ a lever, T, that locks against the outer shoulder on the annular journal D of said roller.

On my working machine a perforation is made through a side lug in the frame, and a pin, T, thrust through into the hole *d* aforesaid. I also show a shifting collar with a set-screw, W, that may be slipped onto the rollers as a gage for bending narrow tires or such matter, as a fifth-wheel, Fig. 6.

The pinion-shaft N, Fig. 5, has a groove, *n*, into which the curved latch *s* on the frame locks to prevent lateral motion of said shaft when in place. Both ends of said shaft N are adapted for a crank-handle, L. Near one end of the shaft the pinion P is affixed, so that with the handle on one end only the whole can be withdrawn when unlatched and readily replaced. So, also, by turning lever T, the upper central roller, C, with its cog-wheel Q and journal D, may be withdrawn.

To facilitate the placing of heavy tires over the rollers, the forward roller, F, with the large and smaller cog-wheels, O R, can also be readily lifted out of the bearings when the pinion-shaft is removed. The rear roller, E, with its bearings, can be elevated or depressed with ease by means of the box-like arms of the cylinder H traversing long open slots in the frame-castings. Said cylinder H is perforated longitudinally, and provided with a strong internal screw-thread, to receive a vertical screw-shaft, the lower end of which rests upon a step, M, on the floor or bottom plate. The hand-wheel K, operating the screw, can have square openings made at intervals around its periphery to receive the end of a lever.

The operation is readily understood.

I am aware that three rollers have been employed, as also a vertical screw, for spreading the lower pair of rollers apart in order to adjust them for bending tire. I therefore do not broadly claim the rollers or adjusting-screw apart from the manner of removing and adjusting them, thereby facilitating the introduction and removal of the bent tire made of a continuous straight piece. The strength of

the machine and practical test are such as to meet favor, as it saves time and labor.

What I claim, and desire to secure by Letters Patent, is—

In combination with the two frame housings or casting A A', the detachable roller C, having the journal-collar D *e* and annular projection *d*, the lever T, arranged to engage the

shoulder of said roller, and the cog-wheel Q, the whole arranged and operating substantially as and for the purpose specified.

JACOB F. BENDER.

Witnesses:

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