

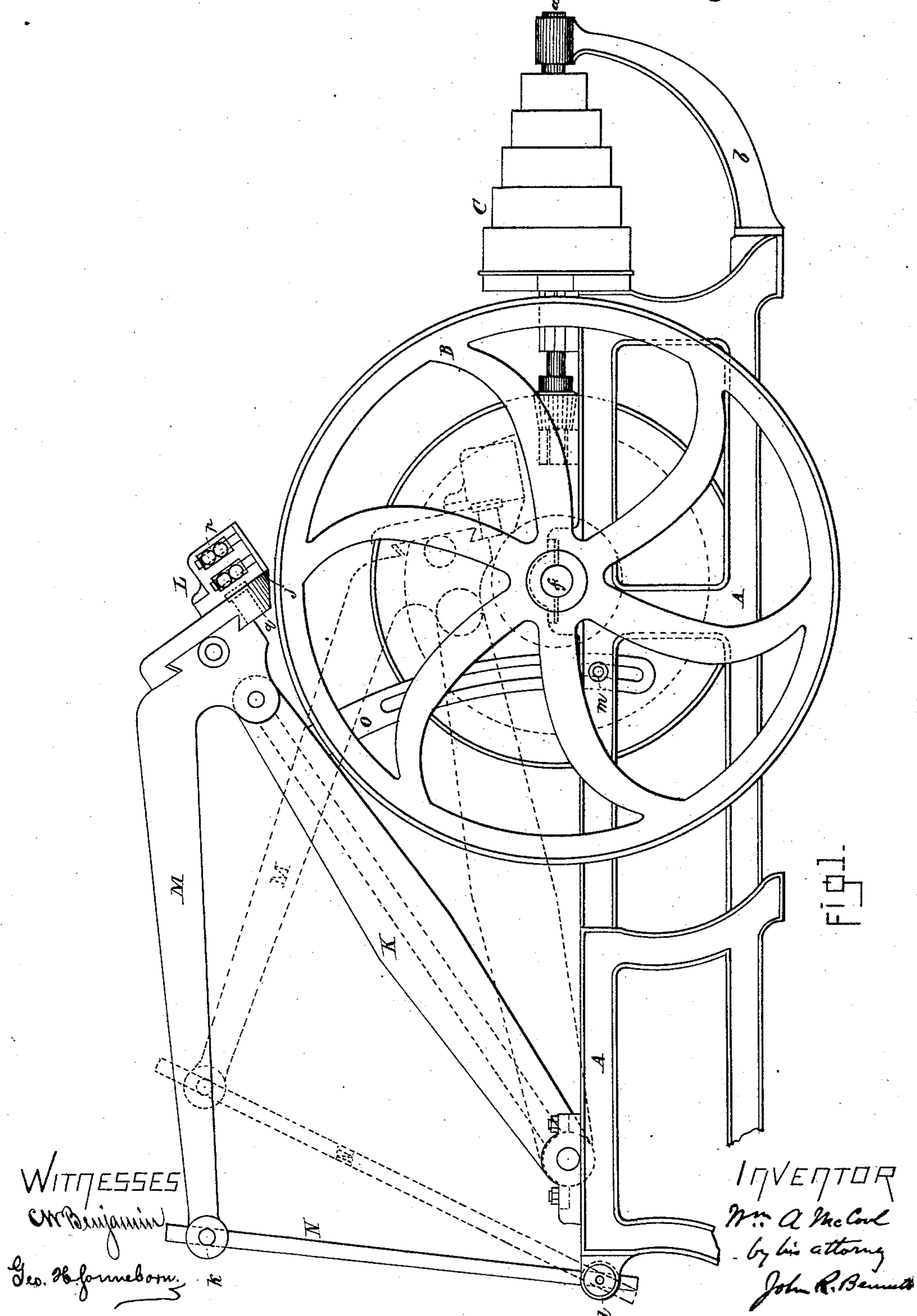
(No Model.)

2 Sheets—Sheet 1.

W. A. McCool.  
BICYCLE TIRE MACHINE.

No. 367,721.

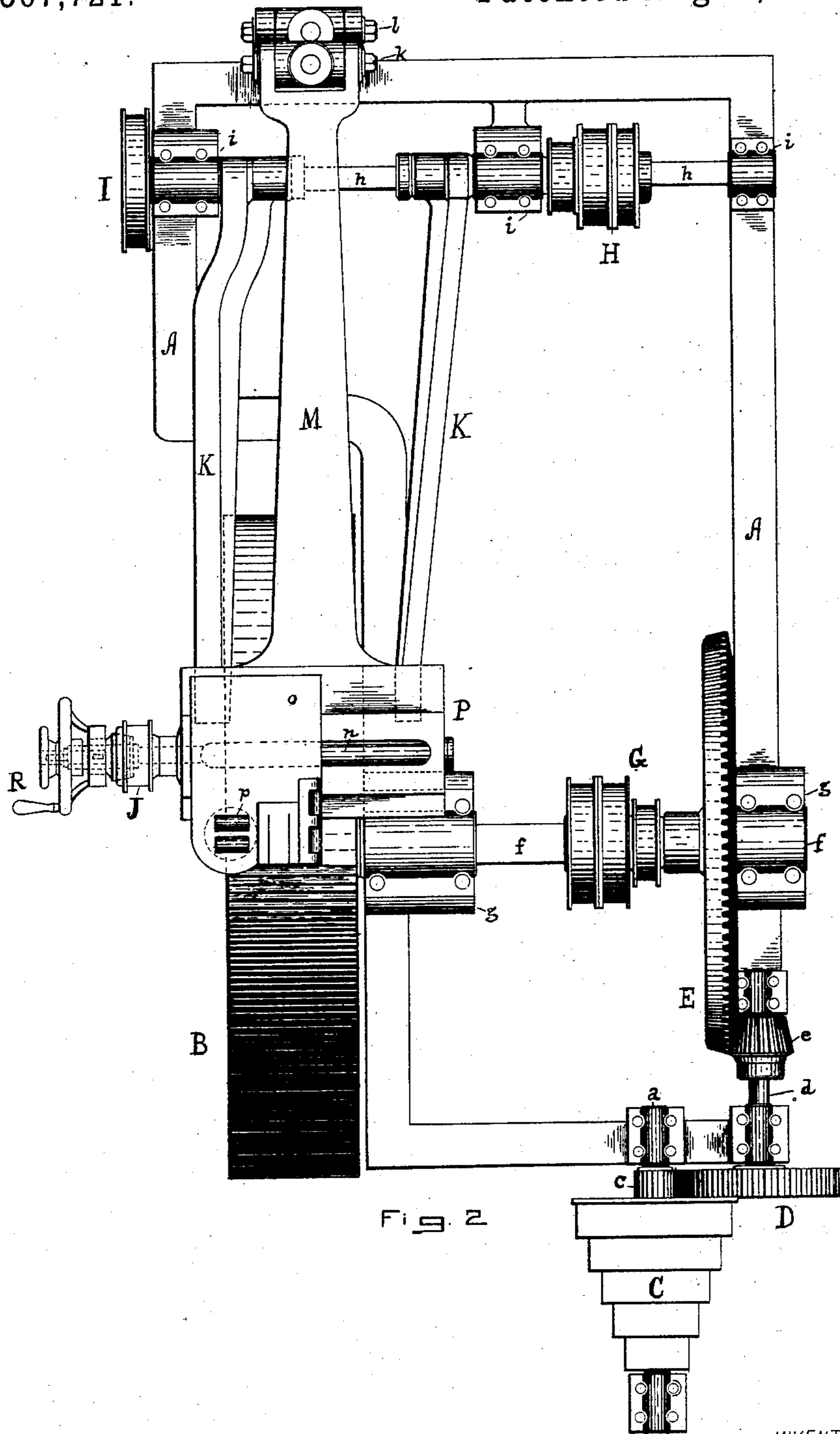
Patented Aug. 2, 1887.



2 Sheets—Sheet 2.

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# UNITED STATES PATENT OFFICE.

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## BICYCLE-TIRE MACHINE.

SPECIFICATION forming part of Letters Patent No. 367,721, dated August 2, 1887.

Application filed November 26, 1886. Serial No. 219,990. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. MCCOOL, a citizen of the United States, residing at Perrysville, Ashland county, State of Ohio, have invented a new and useful Improvement in Bicycle-Tire Machines, of which the following is a specification.

The object of my invention is to provide a machine in which strips of metal are properly bent and formed into tires over a revolving drum or wheel made of the desired size to correspond to the wheel actually used in the bicycle, and adapted to have said drum replaced by other drums of varying sizes, so that one machine is capable of producing any sized bicycle-tires that may be desired. One means of accomplishing this result is shown in the accompanying drawings, in which—

Figure 1 represents a side view of the machine, the part of the revolving drum which penetrates below the floor not being shown. Fig. 2 is a top plan.

Similar letters indicate similar parts in both of the figures.

A is the frame of the machine.

B is the revolving wheel or drum.

C represents the pulleys for driving the machine connected by belting with the source of power. (Not shown.) These pulleys are mounted on the shaft *a*, the outer end of which is journaled in the grooved arm *b* and the inner end of which is journaled in the frame-work.

Upon the shaft *a* is the pinion *c*, which gears with the gear-wheel D, mounted upon the shaft *d*, journaled in the frame-work and carrying the beveled gear *e*, which in turn engages the beveled gear E, which is mounted upon the main shaft of the machine, *f*. This main shaft *f* is mounted in journal-boxes *g g* upon the frame of the machine, and carries upon its outer end the drum or wheel B, before mentioned. On the shaft *f* is a set of pulleys, G, connected by belts with a corresponding set of pulleys, H, upon secondary shaft *h*, mounted in journal-boxes *i i*, secured to the frame-work of the machine. On the outer end of this shaft *h* is the pulley I, connected by a belt to a pulley on the shifter J. The object of this shifter J is to move the entering-die gradually across the surface of the drum B, as hereinafter explained.

Mounted loosely upon a shaft, *h*, are the arms K K, which support the entering-die L, through which the rod is fed to the drum, and which by its inclined surface *j* holds the rod firmly to the surface of the drum to make it take the shape of the drum, and therefore cling to the same during its revolution.

Auxiliary support to the die L is furnished by the arm M, pivoted at *k* to the rod N, the other end of which is pivoted to the frame-work at *l*.

The slotted guide O is provided, for enabling this swinging support for the die L, composed of the arms K K, M, and N, to be raised or lowered to bring it into close contact with the different-sized drums employed. This slotted guide is a grooved piece rigidly secured at its upper end to the arm K, and provided with a long longitudinal slot moving upon a set screw or pin, *m*, threaded into the frame-work of the machine. It is readily seen that by loosening the grip of this screw *m* the whole arrangement of the die, with its supporting-arms, may be lowered from the position shown in Fig. 1, full lines, to that shown by dotted lines, where it is held by turning in the screw; or it may be held at any intermediate division that is desired.

The plate P, Fig. 2, which holds the entering-die, is constructed as follows: A central slot, *n*, runs nearly the whole width of this plate P, and the platform *o* is mounted over this slot in such a way that when the pulley on the adjuster J revolves this platform is fed along over this slot *n* away from the pulley. In one corner of this platform are the two rollers *p*, between which the rod is fed to the drum through the die *q* and back under the inclined surface *j*, above mentioned. When the platform *o*, with the die, rollers, and inclined surface, has been fed through the full length of the slot *n*, the machine is stopped, the tires that have been formed are removed from the drum B, and the platform *o*, &c., are thrown back to their starting-point by the handle and hand-wheel R.

The operation of the machine may be readily understood, and is as follows: The end of a long strip of metal capable of making a large number of tires is inserted between the rollers *p* and the machine started by the revolution of the pulleys C, which, acting through

pinion *c*, gear-wheel *D*, beveled gear *e* *E*, revolve the drum *B*. Meanwhile, by means of the belt connecting the pulleys *G* and *H* and the pulleys *I* and *J*, the pulley *J* revolves and  
5 gradually feeds the platform *o*, with the entering-die and rollers, along the plate *P*. The end of the tire-rod, passing through the rollers *p* and the die *q*, is bent back under the inclined surface *j* upon the drum *B*, and is then  
10 secured to the surface of the drum at its extreme outward point in any usual manner, and thereby the rotation of the drum draws the rest of the rod through the die and rollers and winds it around the surface of the drum.  
15 By the time the drum has made one revolution the shifter has so changed the position of the entering rollers and die, with their accompanying devices, that the rod is fed alongside of the tire formed by the first revolution with-  
20 out overlapping. This is continued until the whole rod surface of the drum is covered with tires, and the machine is then stopped, the tires cut apart and removed from the drum, and the drum replaced. If desired, the drum,  
25 with its encircling tires, may be removed and a new drum substituted, so that the individual

tires may be removed and sprung into shape as convenience permits.

I claim—

1. The above-described bicycle-tire machine 30 provided with a revolving drum for forming the tires, and an entering-die mounted on a vertically-adjustable support for conveying and shaping the tire to and about said drum.

2. A bicycle-tire machine provided with a 35 revolving drum capable of forming and holding a large number of tires, an entering-die and its supporting platform arranged on a vertically-adjustable frame, and an adjuster arranged and adapted to move said platform 40 and die gradually across the surface of said drum.

3. In a bicycle-tire machine, an adjustable support for holding the entering-die rollers and folding-edge, which consists of the arms 45 *M K K*, rod *N*, and slotted arm *O*, arranged and adjusted substantially as described, and for the purposes specified.

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Witnesses:

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