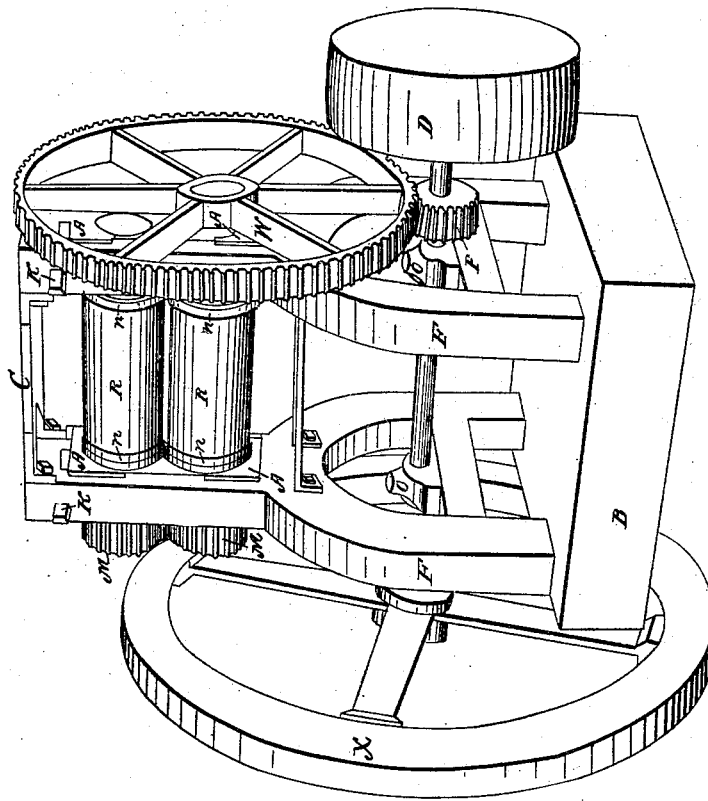


M. SEABURY.

Steel Spring Roller.

No. 1,137.

Patented April 29, 1839.



# UNITED STATES PATENT OFFICE.

MICAH SEABURY, OF WATERVILLE, NEW YORK.

IMPROVEMENT IN METHODS OF MANUFACTURING THE LEAVES OF STEEL CARRIAGE-SPRINGS.

Specification forming part of Letters Patent No. **1,137**, dated April 29, 1839.

*To all whom it may concern:*

Be it known that I, MICAH SEABURY, of Waterville, in the county of Oneida and State of New York, have invented a new and Improved Mode of Manufacturing the Leaves of Steel Springs for Carriages and other Vehicles; and I do hereby declare that the following is a full and exact description.

The nature of my invention consists in giving to each end of the plates separately of which the leaves of the springs are made the proper width and the necessary tapering shape and thickness by the use of eccentric rollers, constructed substantially according to the accompanying model and drawings, to the latter of which this specification refers by letters.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation. I construct my frame-work and gearing in any of the known forms, by the use of which rollers for rolling iron, steel, or other metal have heretofore been operated.

In describing the machine I will commence with the base or foundation—represented by the letter B in the accompanying drawings—upon which the machine stands and to which it is permanently attached by means of large bolts and nuts.

F F is the frame which supports the rollers and the other combinations of the machine.

C C are two cross-bars, which connect the two sides of the frame by means of iron bolts and nuts.

S is the driving-shaft, attached to the frame F F by means of the boxes O O, the concave surfaces of which are accurately fitted to the journals of the shaft. The boxes O O are attached to the frame by means of iron bolts and nuts.

P is a pinion or small cog-wheel attached to the driving-shaft S, the cogs of which work into the cogs of the large wheel represented by W, attached to the lower roller.

D is a drum or pulley attached to the shaft S, which communicates with the motive power by means of a belt.

X is a fly-wheel attached to the same shaft S, the object of which is to give to the revolutions of the machine power and equability.

A A A A are the boxes placed between the

upright studs of the frame F F, the concave surfaces of which are accurately fitted to the journals of the rollers R R, between which the rollers revolve, being kept by the boxes in their proper position.

K K are two steel keys inserted into the upper ends of the upright studs of the frame to maintain the boxes in their proper position by keeping them in close contact with the journals of the rollers.

R R are two eccentric rollers constructed in the manner following, to wit: In the first place there is to be affixed to their respective ends sliding or movable centers, on which they are adjusted in an engine-lathe and turned into two entirely straight and perfect cylinders, the line of their surfaces being throughout their whole length equally distant from and parallel with the line of the surfaces of the necks or journals. The next operation is to remove the sliding centers at each end of the rollers, both in the same direction from the original centers toward the circumference at equal distances and at any given point required by the eccentricity wished to be given to the rollers. Let it here be understood that the eccentricity is to be varied on the machine according to the length of taper desired to be given to the ends of the plates for the different kinds and varieties of springs. I vary the length of the taper on my rollers from two to five inches, and this is done in three variations, the intermediate one being three and a half inches. From this it will be seen that the sliding centers are to be set at as many different points from the original centers toward the circumference as there are lengths of taper to be given to the ends of the plates for the leaves of the various kinds of springs. After this is done let the rollers be again placed in the lathe, and turn out the eccentrics, according to the taper desired, leaving an inch and a half or any other sufficient length at each end of the rollers as a space for the edging-grooves and for the bearings to the rollers.

The object of the edging-grooves is to first edge the plate of steel in order that it may not extend in the operation of tapering beyond its original width, but that it shall remain after it has been tapered of an even width throughout.

*n n n n* represent the edging-grooves. These are made in the same manner as the other eccentrics, care being taken always that they should be turned of sufficient depth and width to admit the plate of steel edgewise, and that the movable centers on which they are turned should be so set that the eccentricity of them shall be proportional to the eccentricity of the rollers.

For the variations of taper on my rollers now in use I have found that eccentricity of the grooves to be right which edges the plate one-fourth of an inch in two inches and a half. *M M* are two small cog-wheels attached to one end of the rollers. Their pitch-circles are exactly equal in diameter to the diameter of the rollers as turned on their original centers, which allows their cogs to work in and out of each other with facility, while they maintain the rollers in an exact relative situation to each other.

The motive power being applied to the driving-shaft *S* through the pulley *D* causes it to revolve, carrying with it the fly-wheel *X* and the pinion *P*. The latter, through its cogs, acts upon the large cog-wheel *W*, attached to the lower roller, and causes that roller to revolve in an opposite direction. The moving power, being thus communicated to the lower roller, is carried through that to the upper roller by means of the cog-wheels

*M M*, attached to their ends, respectively. The upper roller is thus made to revolve in the same direction with the driving-shaft, and this completes the motion of the machine, as herein described.

The manner in which the labor is performed by the machine is very plain and simple. The workman stands fronting the machine as it is represented in the drawings. He in the first place inserts the plate of steel into the edging-grooves. By the action of the rollers it is forced immediately back toward the workman. He then inserts it flatwise between the main body of the rollers and into either variation of the eccentrics that he may wish, when it is again thrown back as before. This completes the working of the machine, as herein described.

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

The method herein described of giving to the metal to be made into springs the proper width, in combination with the method of giving the proper thickness and taper, in the manner and for the purpose herein described, and by means of eccentric rollers constructed substantially as herein described.

MICAH SEABURY.

Witnesses:

CHARLEMAGNE TOWER,  
JULIUS TOWER.