I. COPELAND.

Wringing-Machine.

No. 203,818. Patented May 21, 1878.

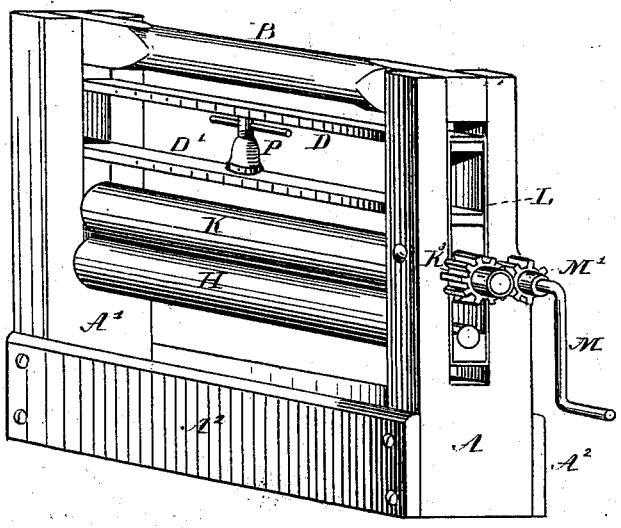

Fig. 1.

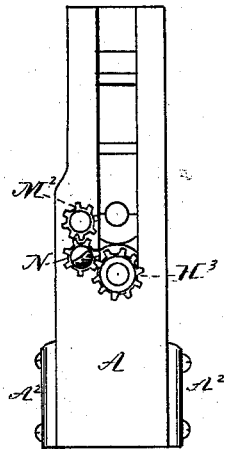

Fig. 2.

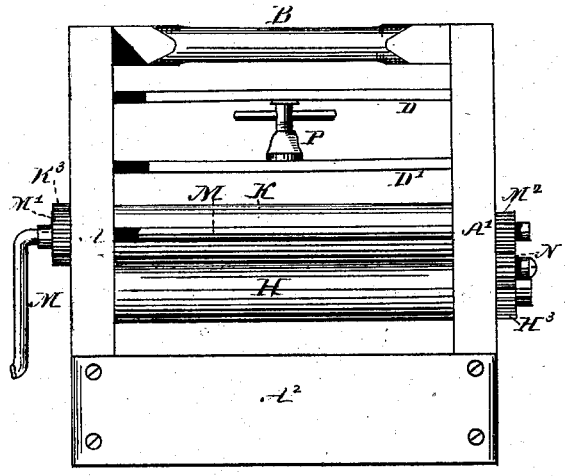

Fig. 3.

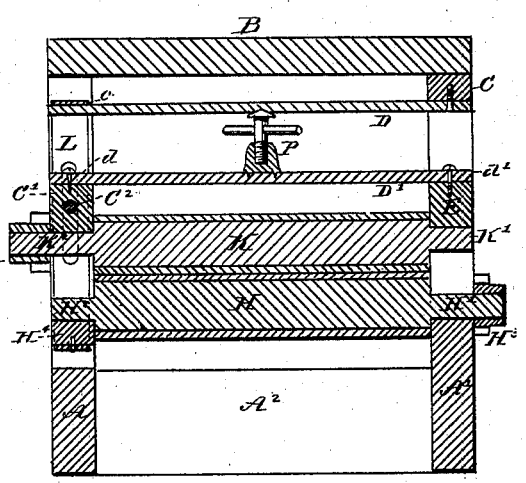

Fig. 4.

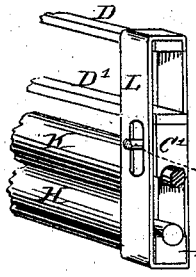

Fig. 5.

WITNESSES

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IMPROVEMENT IN WRINGING-MACHINES.

Specification forming part of Letters Patent No. **203,818**, dated May 21, 1878; application filed April 9, 1878.

To all whom it may concern:

Be it known that I, IRA COPELAND, of Brockton, in the county of Plymouth, in the State of Massachusetts, have invented a new and useful Improvement in Wringing-Machines, of which the following is a specification:

The nature of my invention consists in supporting the alternate ends of the elastic rolls upon fixed bearings, while the opposite ends of each are supported upon yielding spring-bearings, so that, although each roll has one fixed bearing upon which the cog-gear may be attached, the two rolls may be separated or yield to the pressure of the article between them to any desired degree, the said rolls separating with equal readiness at either end.

Also, in combining with the above a spring, which consists of two bars, with an adjusting-screw. The bars which compose the said spring have at alternate ends fixed supports or bearings, while their opposite ends act respectively upon the free ends of the rolls.

Also, in combining with the rolls a system of gears, each one of the system revolving on a fixed axis, and having teeth of ordinary construction and of regular dimensions.

In the drawings, Figure 1 is a perspective view of my invention. Fig. 2 is an end elevation, the end shown being opposite to the end shown in Fig. 1. Fig. 3 is a rear side elevation. Fig. 4 is a longitudinal vertical section. Fig. 5 is a perspective view of the yoke used to connect one end of one of the spring-bars to the free end of one of the rolls.

Let A, A^1, A^2, and B represent the frame of my machine, and H K the rubber rollers, which may be made in any desirable style and dimensions. The end H^1 of the lower roll H is held in a fixed bearing, while its opposite end H^2 is in a movable bearing, the construction of which will be explained hereinafter. The roller K has one end, K^2, in a fixed bearing and its opposite end in a yielding bearing.

By the above arrangement of one fixed and one free bearing for each roll I am enabled to use an ordinary spur-gear wheel at the fixed end of each roll, and to communicate motion to the rolls by means of a system of ordinary gears, which I will now describe.

The roll K has a spur-gear, K^3, at its fixed end, (see Figs. 1 and 3,) which engages with the gear M^1, affixed to the crank-shaft M, and is thus driven. The crank-shaft M passes across the back of the machine, as shown in Fig. 3, and has at the end opposite the crank a gear-wheel, M^2, Figs. 2 and 3. This gear M^2 engages with a reversing-gear, N^2, which, in turn, engages with the gear H^3, Figs. 2, 3, and 4. Thus both rolls are driven by the same crank-shaft, and all of the gears revolve on fixed centers.

By this arrangement of driving-gears and rolls I can maintain an equal speed of revolution of rolls, and can obtain any desired degree of purchase by varying the proportions between the gears M^1 and K^3, which drive the upper roll, and the gears M^2 and H^3, which drive the lower roll H.

D is a spring-bar, having one of its ends rigidly fixed to the frame, as shown at C, Fig. 4, while its other end, *c*, is affixed to a loop, L. (See Figs. 1, 4, and 5.) This loop L (shown in detail in Fig. 5) is free to slide up and down past the fixed housing C^1, Figs. 4 and 5, the housing C^1 being fastened by a pin, C^2, Figs. 4 and 5, which connects it rigidly to the frame, said pin passing through a slot in L, so as not to interfere with the motion of the loop L.

In the lower end of the movable loop L, I affix the housing H^4 for the bearing of the lower roll H, so that the spring-bar D acts directly upon one end of the lower roll H, and allows it freedom of motion. The other spring-bar, D′, has one end, *d*, rigidly attached to the fixed housing C^1, Figs. 4 and 5, and its other end, *d′*, fixed to the movable housing E, Fig. 4, of the bearing K^1 of the roll K, so that the spring D′ acts directly upon the free end of the upper roll K. These spring-bars D D′ are united by an adjusting-screw, P, Figs. 1, 3, and 4, so that they act conjointly upon both rollers, as has been described. Any reasonable degree of tension may be imparted to this compound spring by turning the screw P, thus pressing the bars apart.

Having now described the construction and operation of my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. In a wringing-machine, the combination of the roll K, having one of its ends in a fixed bearing and the other in a yielding bearing,

with the roll H, having one of its ends in a fixed bearing and the other in a yielding bearing, the yielding bearings of the said rolls being at alternate ends, all substantially as described, and for the purpose set forth.

2. The combination of the rolls H and K, having alternate free bearings, with the compound spring D D′, loop L, and movable housings E and H^4, all operating together substantially as described, and for the purpose set forth.

3. The combination of the rolls H K, having alternate free bearings, with the system of gears K^3, M^1, M^2, N, and H^3, and crank-shaft M, all operating together substantially as described, and for the purpose set forth.

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Witnesses:
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