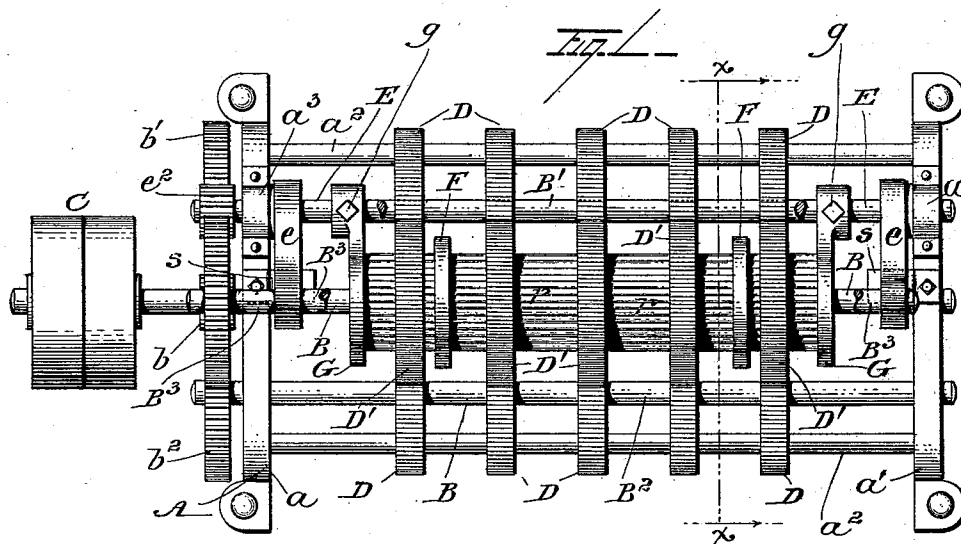
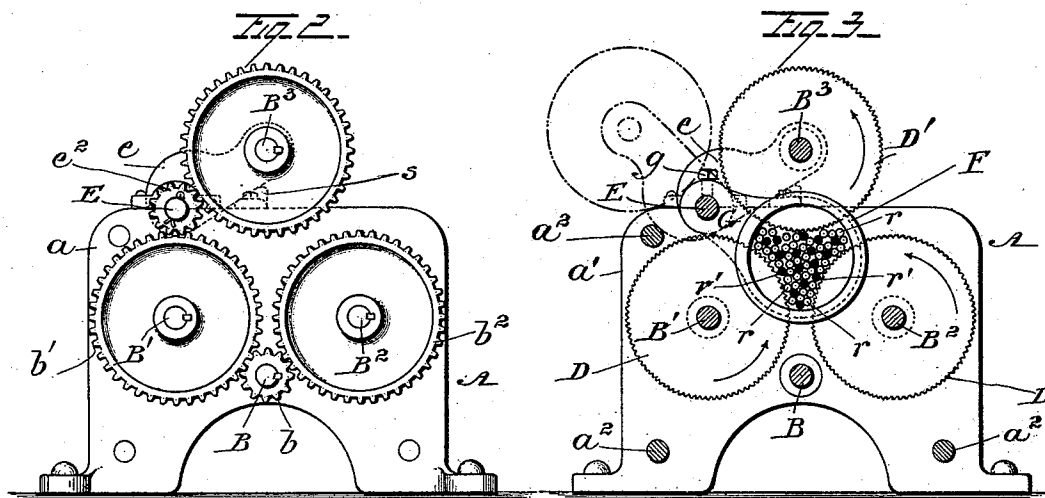


(No Model.)

C. F. WURSTER.
TEMPERING MACHINE.

No. 465,309.

Patented Dec. 15, 1891.



Witnesses:

John F. Nolan
James C. Dugan

Inventor:

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UNITED STATES PATENT OFFICE.

CHARLES F. WURSTER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
JAMES IRWIN BARNHURST, OF SAME PLACE.

TEMPERING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 465,309, dated December 15, 1891.

Application filed November 29, 1890. Serial No. 373,081. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. WURSTER, a citizen of the United States, residing at the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Tempering-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, of which—

Figure 1 is a plan view, the rock-shaft E and the upper shaft B³ being partially broken away. Fig. 2 is an end view, the driving-pulleys being removed. Fig. 3 is a transverse vertical section, as on the line *x x*, Fig. 1.

The nature of this invention is an apparatus of novel construction for use more especially in the tempering of umbrella-ribs or the like. In the well-known mode of tempering such articles they are thoroughly commingled with a number of very hot metallic rods, and upon reaching the proper temperature they are removed from the rods and plunged into a water-tank. Heretofore the commingling of the ribs and the rods has been effected by rolling the same to and fro upon a suitable table by means of a heavy implement manipulated by the operator. This is a slow and tiresome operation, which requires some experience and muscular strength in order to practice the same with success.

The primary object of my invention is to provide a simple and efficient machine whereby the commingling of the ribs and heating-rods may be accomplished with ease and dispatch, said machine consisting in the combination of a series of rotating wheels or disks arranged in respect to each other and adapted concertedly to act upon a mass of ribs, &c., interposed between the same, as hereinafter more fully described.

The invention also comprises features of construction which will be duly pointed out.

Referring to the annexed drawings, A represents the frame-work of the apparatus, consisting of two substantial end cheeks *a a'*, suitably connected and braced by stay-rods *a²*. Mounted within suitable boxes in the end cheeks are three parallel longitudinal shafts B B' B³, the lower one B of which in the present instance is the main driving-shaft,

from which motion is imparted to others, as will hereinafter appear. Those ends of the shafts adjacent to the cheek *a* extend outwardly and carry coacting gears, the gear on the low or driving shaft B being a pinion *b*, which engages with two spur-wheels *b' b²* on the shafts B' B³, respectively. The extended end of the shaft B also carries the pulleys C, to which motion may be communicated from a suitable source of power. The shafts B' B³ are disposed in the same horizontal plane, or substantially so, and they have each fixed thereon at suitable intervals apart a series of wheels or disks D, which in this instance number five, although, if desired, a less or greater number may be employed. The wheels D in one series align with those in the other series, but are out of contact therewith, as seen. The peripheries of these wheels are serrated, milled, or otherwise roughened, for a purpose hereinafter explained.

Journalled within boxes *a³* on the end cheeks *a a'* is an upper longitudinal shaft E, which is represented in line, or nearly so, with the shaft B'. This upper shaft has fixed on each end thereof, just within the adjacent end-cheek, an arm *e*. The free ends of the respective arms afford bearings for a longitudinal shaft B³, upon which is mounted, similarly to the lower shafts B' B³, a series of wheels D', which, when in active position, lie just above and between the upper inner edges of the respective wheels in the two lower series, as clearly shown in Fig. 3.

On the proper end of the shaft B³ is keyed a spur-wheel *b³*, and on the adjacent end of the shaft E is loosely mounted a pinion or idler *e²*, which gears the said spur-wheel with the lower spur-wheel *b'*. The diameters of the like gears are the same—that is to say, the two pinions are similar in all respects, and likewise the three spur-wheels. By this system of gearing it will be observed that when the main shaft is driven the shafts B', B³, and B³, with their respective series of serrated wheels, will be simultaneously rotated in the same direction and at a uniform rate of speed. It will also be observed that the shaft B³, with its immediate adjuncts, may be readily thrown or swung backward out of active position, as

indicated by the dotted lines in Fig. 3. The shaft E, turning or rocking in its boxes, permits this to be done without disengagement of the loosely-mounted pinion e^2 from the co-
 5 acting spur-wheels. Assuming these upper elements to be in this idle position, the number of ribs r to be tempered, together with the highly-heated iron rods r' , are disposed upon the two lower series of wheels D, the ribs
 10 and rods being kept in position laterally by means of two loosely-surrounding rings F. (See Figs. 1 and 3.) The upper series of wheels D' are then thrown down upon the mass, and upon motion being imparted to the
 15 driving-shaft the several series of serrated wheels are simultaneously and uniformly rotated, as above mentioned, and as a consequence their roughened peripheries "bite" and intimately mix and commingle the ribs
 20 and rods. This operation, while more positive and thorough in its results, takes much less time than formerly.

I usually mount upon the shaft E near its ends inwardly-projecting plates G, respectively, which constitute positive stops or gages
 25 to prevent longitudinal displacement of the ribs and irons while being acted upon. These plates are fitted loosely to the shaft, so as to be adjustable lengthwise thereof, and they
 30 are furnished with set-screws g , which are adapted to fix the plates at the predetermined points of adjustment. I make the plates adjustable in this way in order to provide for ribs and irons of various lengths.
 35 To guard against the straining or jamming of the gear-teeth by the heavy weight of the upper swinging shaft B² and its adjuncts when the parts are in the active position, I prefer to form upon or secure to each of the end
 40 cheeks an inwardly-projecting stop s , which limits the downward movement of the adjacent arm e . Other means to the same end may be readily devised.

I claim as new and wish to secure by Letters Patent—

45 1. In a tempering-machine, the combination, with the supporting-frame, of the shafts, the commingling wheels or disks thereon with serrated or roughened edges, and mechanism
 50 for rotating said shafts, substantially as described.

2. The combination, with the supporting-frame, of the lower shafts, the series of serrated wheels thereon, the rock-shaft, the forwardly-extending arms mounted thereon, the
 55 upper shaft mounted in and between the forward ends of said arms, the serrated wheels on said upper shaft, and gear mechanism adapted to rotate said wheel-bearing shafts
 60 concertedly in one direction, substantially as described.

3. The combination, with the supporting-frame, of the driving-shaft, the pinion thereon, the pair of upper shafts, the spur-wheels
 65 thereon engaging said pinion, the rock-shaft, the idler thereon engaging one of said spur-wheels, the single upper shaft connected with said rock-shaft, and the spur-wheel on the
 70 latter gearing with said idler, together with the commingling wheels or disks upon said single and pair of upper shafts, respectively, substantially as described.

4. The combination, with the supporting-frame, of the driving-shaft, the pinion thereon, the pair of upper shafts, the spur-wheels
 75 thereon engaging said pinion, the rock-shaft, the idler thereon engaging one of said spur-wheels, the single upper shaft connected with said rock-shaft, and the spur-wheel on the
 80 latter gearing with said idler, together with the commingling wheels or disks upon said single and pair of upper shafts, respectively, and the stop devices for limiting the descent
 85 of said single upper shaft and its connections, substantially as described.

5. The combination, with the supporting-frame, of the lower shafts, the series of commingling wheels or disks thereon, the swinging upper shaft, the commingling wheels or
 90 disks thereon, and mechanism for rotating said shafts in concert, together with the adjustable end gages and means for fixing them at the predetermined points of adjustment, substantially as described.

In testimony whereof I have hereunto af-
 95 fixed my signature this 24th day of September, A. D. 1890.

CHARLES F. WURSTER.

Witnesses:

JOHN R. NOLAN,
 JAMES C. DUGAN.