

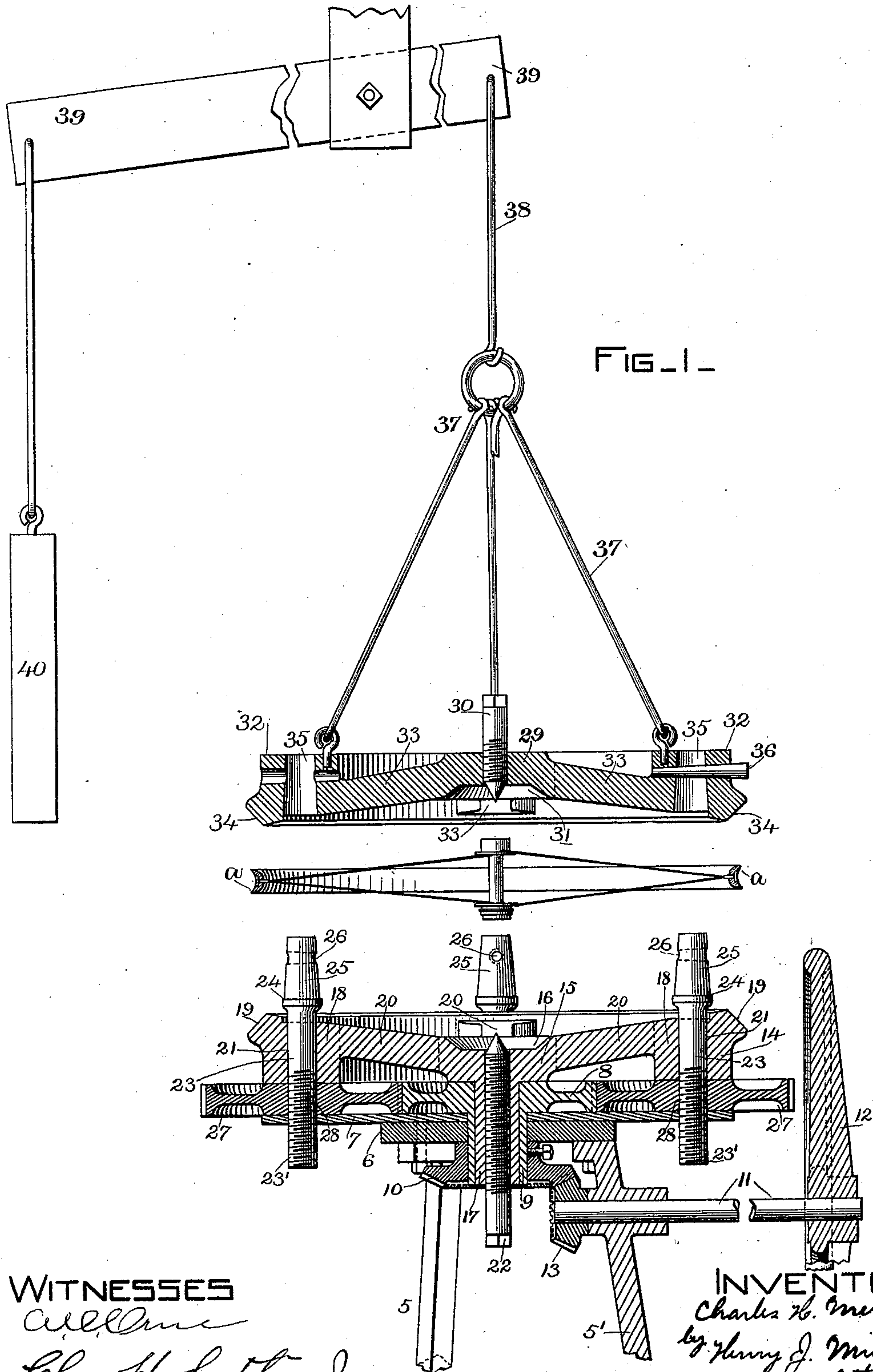
(No Model.)

2 Sheets—Sheet 1.

C. H. METZ.  
WHEEL SETTING MACHINE.

No. 557,002.

Patented Mar. 24, 1896.



WITNESSES

*allame*

*Chas. H. Luther Jr*

INVENTOR

*Charles H. Metz*  
*by Henry J. Miller*  
*att'y.*

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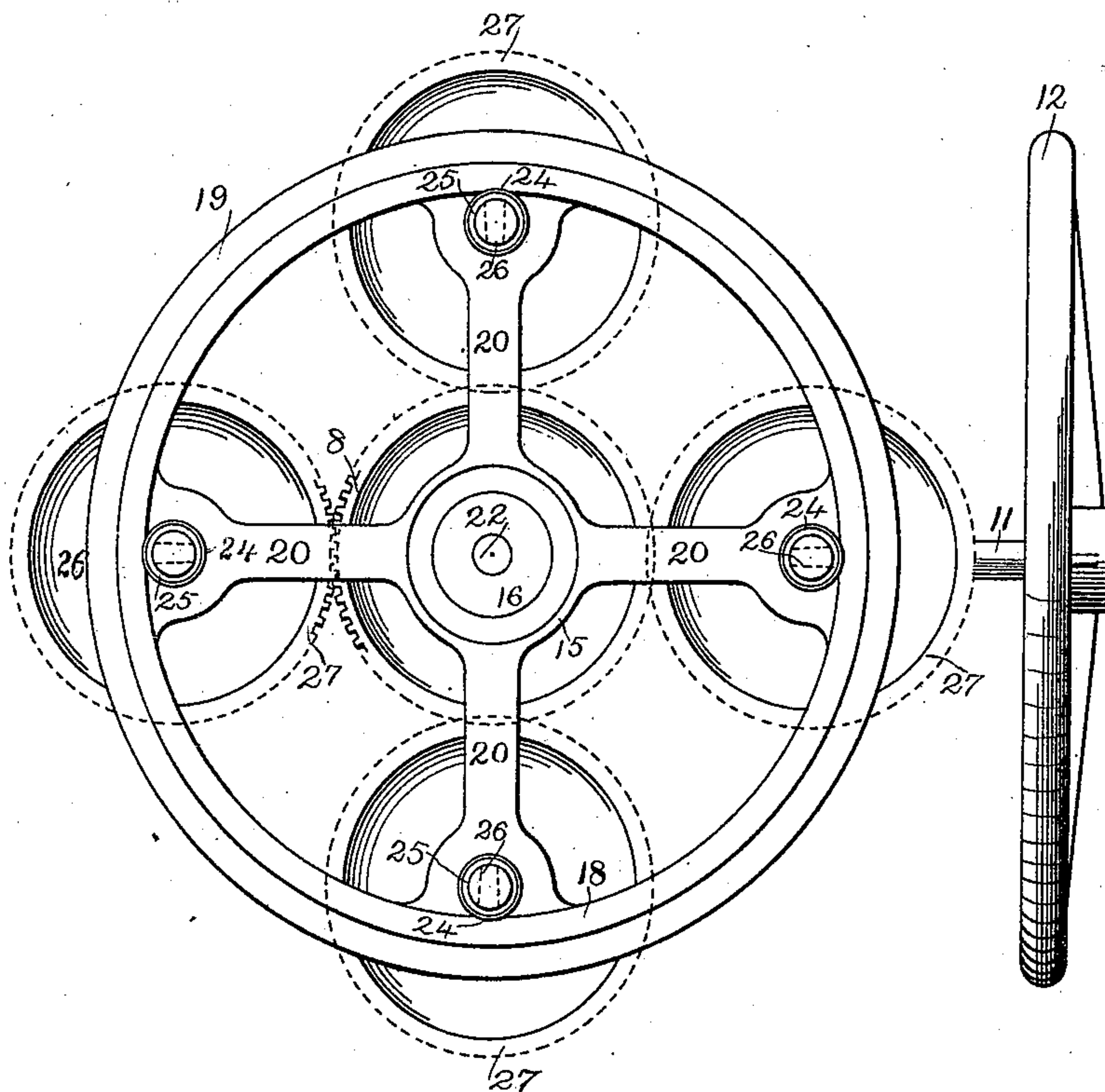
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FIG. 2.



WITNESSES

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# UNITED STATES PATENT OFFICE.

CHARLES H. METZ, OF WALTHAM, MASSACHUSETTS, ASSIGNOR TO THE  
WALTHAM MANUFACTURING COMPANY, OF SAME PLACE.

## WHEEL-SETTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 557,002, dated March 24, 1896.

Application filed September 6, 1895. Serial No. 561,660. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. METZ, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain  
5 new and useful Improvements in Wheel-Setting Machines; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this  
10 specification.

This invention has reference to improvements in machines for setting and truing wheels.

The object of the invention is to hold the  
15 wheel-rim concentric with its axis while the spokes are being secured.

Another object is to so construct a machine of this nature that an outward concentric pressure may be exerted on the wheel-rim,  
20 while the outer surface of the rim is exposed.

The object is also to more accurately center the wheel-hub.

The invention consists in two circular members having inwardly-beveled peripheries,  
25 connections for the members, and take-up devices acting on said connections to draw the two members together.

The invention also consists in the lower stationary member and the registering-pins  
30 operatively mounted therein, together with the upper member adapted to receive said pins and the manner of mounting the upper member.

The invention also consists in the upper  
35 circular member, supported by a counterbalanced arm and having an inwardly-beveled periphery and the adjustable screw-center, together with the lower stationary member, and connections between the two whereby  
40 they are drawn together.

The invention also consists in the means for drawing the members together.

The invention still further consists in such other peculiar features of construction and  
45 combination of parts as will hereinafter be more fully described, and pointed out in the claims.

Figure 1 represents a vertical sectional view of the machine, with a sectional view of a  
50 wheel between the two members, also show-

ing the pivoted counterweighted lever by which the upper member is supported when not in use. Fig. 2 represents a plan view of the lower member, with the gears for operating the connecting and registering pins. 55

Similar numbers of reference designate corresponding parts throughout.

In the drawings, 5 indicates a tripod or any similar and well-known support, provided with the top 6, on which is secured the plate  
60 7. On this plate is rotatable the central gear 8, having the depending sleeve 9, which is journaled in the central perforations of the plate 7 and top 6. On its lower portion this sleeve 9 is provided with a beveled gear 10. 65  
In the standard 5' of the support or tripod is journaled the shaft 11, having the hand-wheel 12 at its outer end and the beveled gear 13 at its inner end intermeshing with the gear 10.

On the central gear 8 is supported the lower  
70 member 14, having the hub 15 furnished with the depression 16, the sleeve 17 depending from the hub, screw-threaded on its inner surface and loosely fitting the bore of the gear-sleeve 9, and the rim 18 furnished with  
75 the inwardly-beveled periphery 19 and the arms 20, connecting the rim with the hub. In the rim 18 is formed a series of vertical perforations 21 21, and in the sleeve 17 is mounted the screw-center 22, having a wrench-  
80 shoulder at its lower end and a center-point at its upper end.

The connecting and registering pins 23 23 are vertically movable in the perforations 21  
85 21 of the lower member 14 and in corresponding perforations of the plate 7. They have the lower screw-threaded portions 23', the abutments 24 24 and tapering portions 25 25 above the abutments 24, which are furnished with transverse tapering perforations 26 26. 90

Operatively located between the rim 18 and the plate 7 are the gears 27 27, which intermesh with the central gear 8 and have axial bores 28 28 furnished with screw-threads, with which the screw-threaded ends 23' of the  
95 pins 23 engage. It will thus be seen that the rotation of the central gear by means of the shaft 11 and the gears 13 and 10 will cause the rotation of the gears 27, and by means of the screw engagement of these latter gears 100



with the pins 23 these pins will be moved vertically up or down, depending on the direction in which the gears 27 are rotated.

The upper member consists of a hub 29 axially perforated to receive the screw-center 30, having a center-point and a wrench-shoulder. In the lower surface of the hub is formed the recess 31, and connecting the hub with the rim 32 are the arms 33 33. The rim 32 has the lower inwardly-beveled periphery 34 and is furnished with the upwardly-contracting vertical openings 35 35, shaped to fit the tapering portions 25 of the pins 23, the material forming the walls of these openings 35 being transversely perforated to receive the securing-pegs 36.

To the upper member is secured the frame 37, which is connected by a rod 38 to the lever 39 pivoted above the machine. On the opposite end of this lever is hung a counterweight 40, which is adapted to counterbalance the weight of the upper member. In setting up a wheel having loose spokes with this machine the wheel  $\alpha$  is placed on the lower member, its hub being received in the recess 16 and the pins 23 extending between the wheel-spokes. The lower convex edge of the wheel-rim will now rest on the beveled periphery of the lower member, and the screw-center 22 may be raised or lowered to adjust it for engaging the axial opening in the wheel-hub. The upper member is now drawn down into place, the tapering portions 25 of the pins 23 entering the openings 35 in the upper member and serving as registering devices to accurately locate this member with reference to the lower member.

When the upper member is brought into place, the pegs 36 are passed through the perforations in the walls surrounding the openings 35 and through the perforations 26 of the pins, thus securing the upper member to these pins in a plane exactly parallel to the plane of the lower member. The screw-center 30 is now adjusted to engage the upper end of the wheel-hub, which is now held from lateral movement by the upper and lower centers. The hand-wheel 12 is now rotated in a direction which, when the rotation is transmitted through the gears 13, 10 and 8 to the gears 27, will cause these gears to so rotate that their axial screw-threads will act on the screw-threaded portions of the pins 23 to draw the same downward. As these pins are drawn equally, the upper member will be drawn by the pins toward the lower member, while at any point in its movement this member will be parallel to the lower member. As the upper member is drawn downward, its beveled periphery 34 will bear against the upper inner edge of the wheel-rim, and this rim will be spread outward by the oppositely-beveled portions 19 and 34 of the upper and lower members and will be securely held against inward pressure exactly concentric with the hub.

The beveling of the peripheries of the up-

per and lower members serves not only to spread the wheel-rim, but also allows of ready access to the outer surface of the rim, whereby the spoke attachments or devices for securing the spokes to the rim may be operated on by means of a screw-driver or other tool.

When the wheel-spokes have all been tightened, the hand-wheel 12 is rotated in a direction opposite to that in which it was first rotated. The pins 23 will now be raised by means of the gears and the screw-threads, and the upper member rising with the pins will release the wheel. The pegs 36 are now withdrawn and the upper member being raised by hand will be sustained by its counterweight.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a wheel-setting machine, the combination with two members each of which has a circular beveled portion, of connections between the members and gears for operating the connections to draw said members together.

2. In a wheel-setting machine, members adapted to act on opposite sides of the wheel, in combination with connections between the members and mechanism for simultaneously acting on all the connections to draw the members together.

3. In a wheel-setting machine, the combination with a lower member having a circular beveled periphery, and an adjustable center axially disposed in said member, of an upper member having a circular beveled periphery, an adjustable center axially disposed in said member, and a counterbalance for supporting said member when not in use.

4. In a wheel-setting machine, an upper and a lower member between which a wheel may be secured, vertically-movable connections carried by one member and adapted to be secured to the other member, a system of gears acting on said connections, and means for rotating the gears.

5. In a wheel-setting machine, the combination with a lower member having a circular beveled periphery and vertical perforations adjacent to the periphery, an adjustable screw-center axially disposed in said member, posts or pins working in the vertical perforations and means for operating the same, of an upper member having a circular beveled periphery, an adjustable screw-center axially disposed in said member and means for securing the upper member to the movable pins of the lower member.

6. In a wheel-setting machine, the combination with a lower member having a circular beveled portion, vertical perforations adjacent thereto, and a central sleeve, a screw-center mounted in the sleeve, pins movable in the perforations and having screw-threaded portions, a gear rotatable on the central sleeve of said member, an outer series of gears each meshing with the central gear and having a screw-threaded axial perforation in which the



threaded portion of one of said pins engages, and means for rotating the central gear, of an upper member adapted to be secured to the vertically-movable pins.

5 7. The combination with the tripod 5 having the perforated table-top 6, the shaft 11 journaled in the tripod, the bevel-gear 13 and the hand-wheel 12 on said shaft, the plate 7 mounted on the top and having central and  
10 radially-disposed perforations, the central gear 8 having the sleeve 9 rotatable in the central perforation of the top 6 and plate 7, the bevel-gear 10 secured to said sleeve and meshing with the gear 13, the lower member hav-  
15 ing the rim 18 furnished with the periphery 19 and the perforations 21, the hub 15 having the depression 16 and the sleeve 17 loosely fitting within the sleeve 9, the screw-center 22

adjustable in the sleeve 17, the pins 23 screw-threaded at their lower portions, vertically 20 movable in the perforations 21 and transversely perforated at their upper ends, and the gears 27 meshing with gear 8 and having axial threaded perforations engaging the threaded portions of the pins 23, of the upper 25 member having the periphery 34, the openings 35 and the recessed hub 29, the adjustable screw-center 30 working in said hub, and means for securing the upper ends of the pins 23 in the openings 35. 30

In witness whereof I have hereunto set my hand.

CHARLES H. METZ.

Witnesses:

THOS. CURLEY,

DUDLEY ROBERTS.