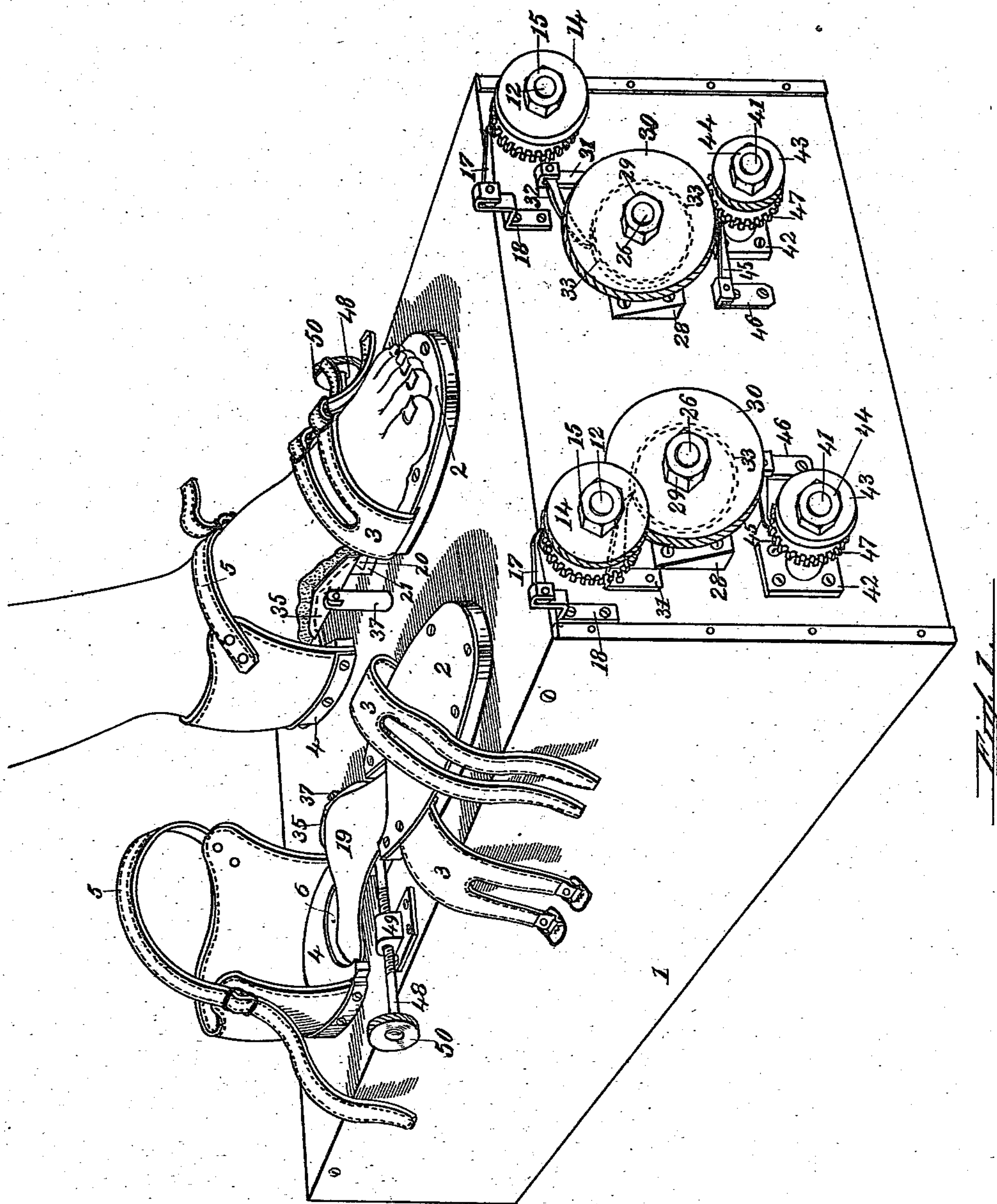


J. H. NORTON & W. H. MANNIX.
 DEVICE FOR OBTAINING A MOLD OF THE FOOT ARCH.
 APPLICATION FILED JUNE 21, 1909.

964,119.

Patented July 12, 1910.

3 SHEETS—SHEET 1.



Witnesses:
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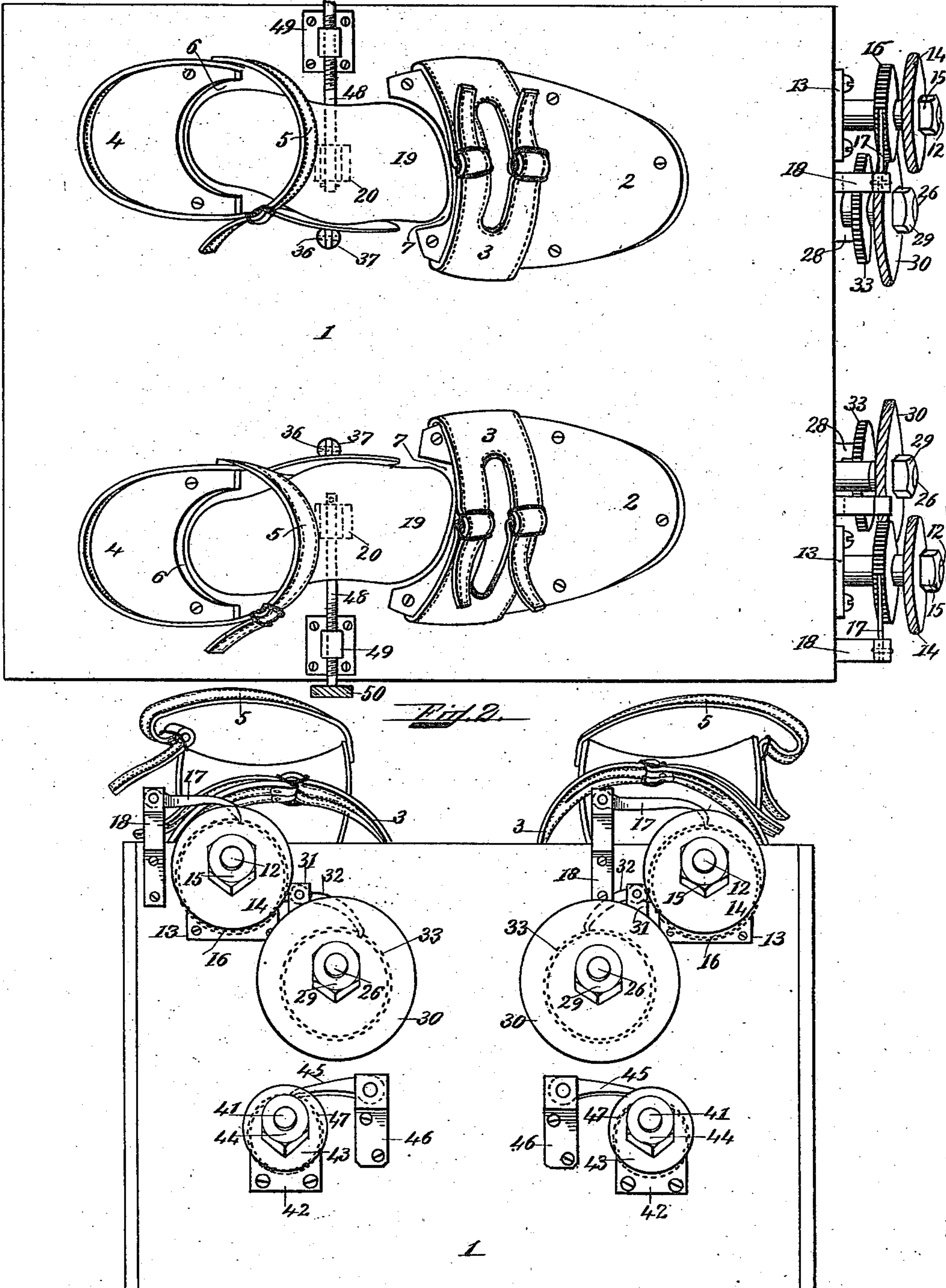
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3 SHEETS—SHEET 2.



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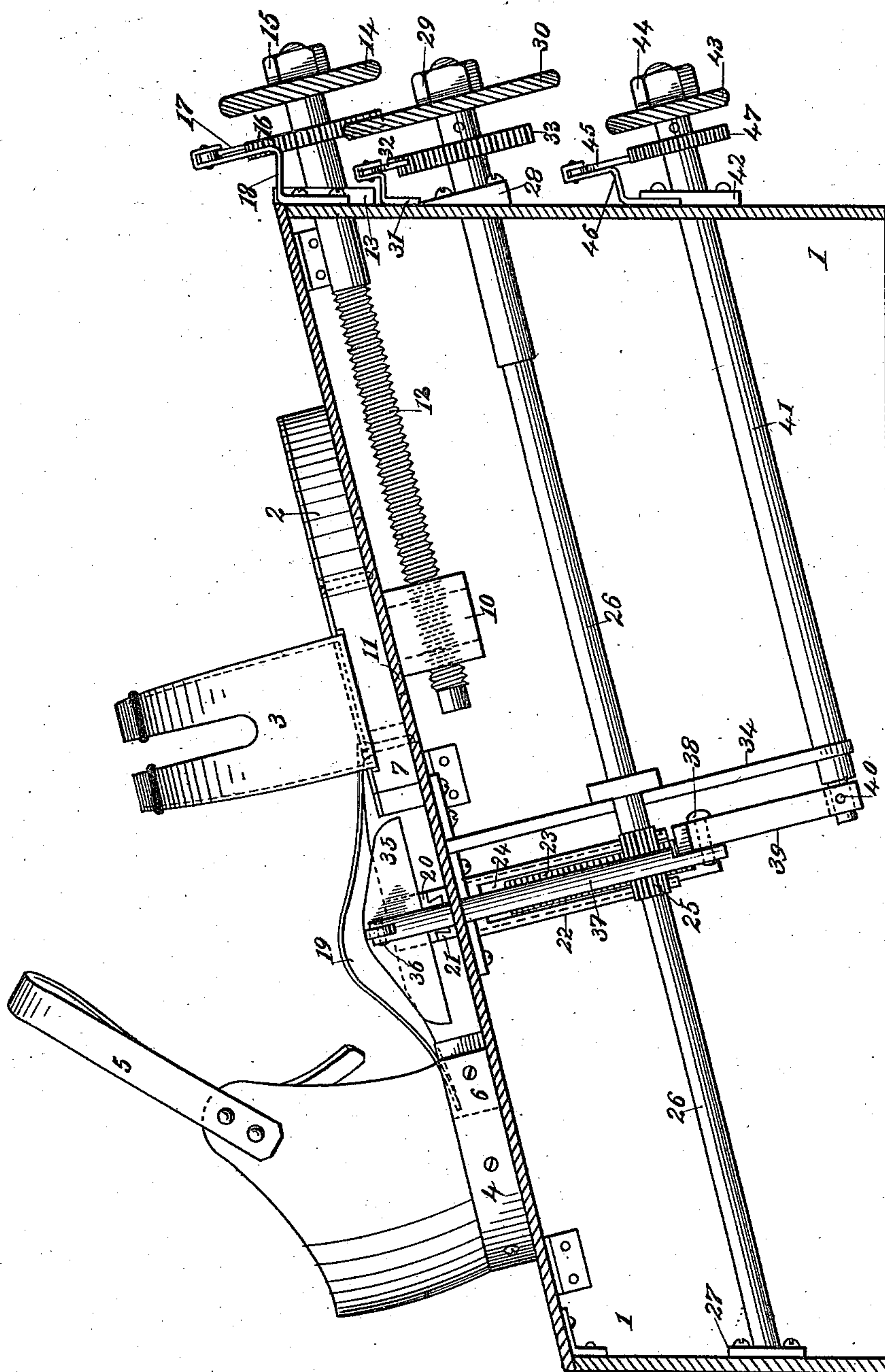
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JOHN H. NORTON, OF BOSTON, AND WILLIAM H. MANNIX, OF MALDEN,
MASSACHUSETTS.

DEVICE FOR OBTAINING A MOLD OF THE FOOT-ARCH.

964,119.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed June 21, 1909. Serial No. 503,334.

To all whom it may concern:

Be it known that we, JOHN H. NORTON, of Charlestown, Boston, in the county of Suffolk, and WILLIAM H. MANNIX, of Mal-

den, county of Middlesex, State of Massachusetts, have invented certain new and useful Improvements in Devices for Obtaining a Mold of the Foot-Arch, of which the following is a specification.

Our invention relates to improvements in a device for obtaining a mold or impression of the arch of the foot in its natural position, and its object is to provide means whereby a fallen or broken arch is elevated and adjusted to practically its normal position and a mold or impression taken of the same while in adjusted position. From this mold or impression, a suitable metal or permanent arch support may be made which will exactly conform to the arch of the foot. Heretofore, casts of plaster have been taken of the arch of the foot in its fallen or abnormal position from which the arch support has been made to conform as near as possible to the lines of the arch in its normal position.

In the accompanying drawings which illustrate a construction embodying our invention, Figure 1 is a perspective view of the device showing the arch of the foot elevated and an accurate mold of same being taken. Fig. 2 is a top plan view. Fig. 3 is a front elevation; and Fig. 4 is a vertical section through the center of the device showing the operating mechanism.

Like characters of reference refer to like parts throughout the several views.

1 represents a frame or box having mounted on its upper side a left and right foot support, the left foot support comprising the adjustable sole support 2 with the strap 3 and the stationary heel support 4 with ankle supporting strap 5. The movable sole support 2 carries a lug 10 (Fig. 2) movably mounted within a slot 11 in the top of box 1. Threaded in this lug 10 is a rod 12 rotatably mounted in a bearing 13 in the face of box 1 and projecting therethrough.

14 is a knurled disk or handle secured to the outer end of the rod 12 by a nut 15 and is adapted to be operated to rotate the rod 12 to adjust the sole support 2 to fit the length of the foot.

17 is a pawl pivoted in a bracket 18 secured to the face of box 1 and adapted to

engage the gear or ratchet wheel 16 secured to rod 12 to maintain the adjustment of the same.

19 is a metal arch suitably mounted between and adapted to be adjusted within the recess 6 in heel support 5 and recess 7 in sole support 2. This arch 19 is secured to the upper end of a post 20, the lower end of which is dovetailed and laterally adjustable within the upper end of post 21 which passes through the top of box 1 and is adjustably mounted in a sleeve 22 secured within said box.

23 is a rack secured to post 21 and movable within and projecting through a slot 24 in sleeve 22 and which rack is engaged and operated to move the post 21 and metal arch 19 up or down, by pinion 25 secured to rod 26. Rod 26 is rotatably mounted at one end in a bearing 27 at the rear of box 1 and at the other end in a bearing 28 in the face of said box 1 through which said rod projects and has secured thereto by nut 29 a knurled disk or handle 30 for operating the same.

32 is a pawl pivoted in the holder or bracket 31 which is secured to the face of box 1 and is adapted to engage the gear or ratchet wheel 33 fixed to the rod 26 to retain the adjustment of the same.

34 is a suspended bearing mounted within box 1 and secured to the upper side thereof and supports the central portion of rod 26.

35 is a supporting member pivoted at 36 to the upper end of the post or rod 37 which is movable in the top of the box 1. The lower end of said rod 37 is pivoted at 38 with the crank 39 pinned at 40 to the shaft 41 which is rotatably mounted in the suspended bearing 34 and is adapted to act through the crank 39 and rod 37 to raise the supporting member 35 against the elevated portion of the metal arch 19. The shaft 41 at its outer end is mounted in and projects through the bearing 42 on the face of the box 1 and carries secured thereto by the nut 44 the knurled disk or handle 43 for operating the same.

45 is a pawl pivoted in the bracket 46 secured to the face of said box 1 and is adapted to engage with the ratchet wheel or gear 47 to hold the shaft 41 and the supporting member 35 in adjusted position. Rotatably mounted in the post 20 which carries the metal arch 19 is a rod 48 which is

threaded into the bearing 49 secured to the top of the box 1 adjacent the metal arch 19 and is adapted to be operated by the handle 50 secured to the outer end of said rod 48 to give a lateral adjustment to said metal arch 19.

The right foot support and the mechanisms for operating the same, and the metal arch for taking the impression or mold are identical in construction and operation with the parts described for the left foot, and it is unnecessary to repeat the description.

The operation of taking an impression or mold of the arch of the foot in its natural position, for instance, the left foot, is as follows: Assuming the mechanism of the left foot support is initially in the position shown by the right foot support, as shown in Fig. 1, a suitable plastic material or preferably a blank of material which is cut to conform to the general outline of the arch of a foot and which may be heated to render the same plastic, is placed directly upon the metal arch 19. The foot is placed on the support, the heel resting on the heel support 4 and the sole on the sole support 2. The sole support 2 may now be adjusted by the handle 14 until the foot is in proper position, when the ankle strap 5 and the toe strap 3 may be buckled securing them firmly in place. The metal arch 19 is now laterally adjusted by means of the handle 50 until the metal arch 19 is in proper position under the arch of the foot. The handle 30 is now operated which movement acting through shaft 26 and its pinion 25, rack 23, posts 21 and 20, elevates the metal arch 19 while the material is still in a plastic condition raising the bones or fallen arch of the foot until a suitable pressure is applied to the same and the arch has reached its normal or natural position. The handle 43 is now operated raising the supporting member 35 which gathers up and supports any of the plastic material which may have worked over the edge of the elevated portion of the metal arch 19, holding said material firmly against the arch. The foot is allowed to remain within the support until the plastic material has fully hardened when the foot may be released and the mold removed from the metal arch 19.

The mold thus produced is a true impression of the arch of the foot in its natural position and may be suitably trimmed by removing the rough or overrunning edges and used as a plate or mold to obtain a casting or permanent metal arch to be worn without discomfort inside the shoe.

It will be understood that the above description is also equally applicable to obtaining a mold of the right arch, the operation being identical.

Having thus described the nature of our invention and set forth a construction em-

bodying the same, what we claim as new and desire to secure by Letters Patent of the United States is:

1. In an apparatus of the character described, a support for the foot, an adjustable arch support independent of said foot support and located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, and means for adjusting said adjustable arch support with said material thereon to apply pressure to the arch of the foot and thereby obtain a mold of the sunken portion of the same from said material.

2. In an apparatus of the character described, a support for the foot, means for securing the foot to said support, an adjustable arch support independent of said foot support and located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, and means for adjusting said adjustable arch support with said material thereon to apply pressure to the sunken portion of the arch of the foot and thereby obtain a mold of the same from said material.

3. In an apparatus of the character described, a support for the foot, means for securing the foot to said support, an adjustable arch support independent of said foot support and located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, and means for vertically adjusting said adjustable arch support with said material thereon to apply pressure to raise the sunken portion of the arch of the foot to its natural position and thereby obtain a mold of the same from said material.

4. In an apparatus of the character described, a support for the foot, means for securing the foot to said support, an adjustable arch support located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, means for vertically adjusting said adjustable arch support with said material thereon to apply pressure to raise the sunken portion of the arch of the foot to its natural position and thereby obtain a mold of the same from said material, and means for laterally adjusting said adjustable arch support to bring the same into proper position beneath the arch of the foot.

5. In an apparatus of the character described, a heel support, an adjustable sole support, an adjustable arch support located between said heel support and said sole support and adapted to receive material in a plastic condition thereon and hold the same against the arch of the foot, means for

securing the foot to said heel and said sole support, and means for adjusting said adjustable arch support with said material thereon to apply pressure to said plastic material and the sunken portion of the arch of the foot whereby the arch of the foot is raised to its natural position and a mold of the same is thereby obtained from said material.

10 6. In a device for obtaining a mold of the natural foot arch, a support for the foot, an arch support independent of said foot support for applying pressure to said foot arch to bring the parts in the proper position and adapted to receive material in a plastic condition to be applied to the foot arch and allowed to harden under pressure, and means for applying pressure to the sunken portion of the foot arch to raise the foot arch to its natural position and thereby obtain a mold of the same from said plastic material.

7. In an apparatus of the character described, a support for the foot, means for securing the foot to said support, an adjustable arch support independent of said foot support and located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, means for adjusting said adjustable arch support with said material thereon to apply pressure to the sunken portion of the foot and thereby obtain a mold of the same from said material, and means for maintaining the adjustment of said arch support.

8. In an apparatus of the character described, a support for the foot, means for securing the foot to said support, an adjustable arch support independent of said foot support and located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, means for vertically adjusting said adjustable arch support with said material thereon to apply pressure to raise the sunken portion of the arch of the foot to its natural position and thereby obtain a mold of the same from said material, and means for maintaining the vertical adjustment of said arch support.

9. In an apparatus of the character described, a heel support, an adjustable sole support, an adjustable arch support located between said heel support and said sole support and adapted to receive material in a plastic condition thereon and hold the same against the arch of the foot, means for securing the foot to said heel and said sole support, means for adjusting said adjustable arch support with said material thereon to apply pressure to said plastic material and the sunken portion of the arch of the foot

whereby the arch of the foot is raised to its natural position and a mold of the same is thereby obtained from said material, and means for maintaining the adjustment of said sole support.

10. In an apparatus of the character described, a heel support, an adjustable sole support, an adjustable arch support located between said heel support and said sole support and adapted to receive material in a plastic condition thereon and hold the same against the arch of the foot, means for securing the foot to said heel and said sole support, means for adjusting said adjustable arch support with said material thereon to apply pressure to said plastic material and the sunken portion of the arch of the foot whereby the arch of the foot is raised to its natural position and a mold of the same is thereby obtained from said material, means for maintaining the adjustment of said sole support, and means for maintaining the adjustment of said foot arch support.

11. In an apparatus of the character described, a support for the foot, means for securing the foot to said support, an adjustable arch support independent of said foot support and located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, means for adjusting said adjustable arch support with said material thereon to apply pressure to the sunken portion of the arch of the foot and thereby obtain a mold of the same from said material, and a supporting member for supporting the plastic material at the edge of the arch support.

12. In an apparatus of the character described, a support for the foot, means for securing the foot to said support, an adjustable arch support independent of said foot support and located beneath the arch of the foot and adapted to receive material in a plastic condition thereon and apply the same against the arch of the foot, means for adjusting said adjustable arch support with said material thereon to apply pressure to the sunken portion of the arch of the foot and thereby obtain a mold of the same from said material, a supporting member for supporting the plastic material at the edge of the arch support, and means for maintaining the adjustment of said supporting member.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses, this 16th day of June, A. D. 1909.

JOHN H. NORTON.

WILLIAM H. MANNIX.

Witnesses:

A. L. MESSER,

L. G. BARTLETT.