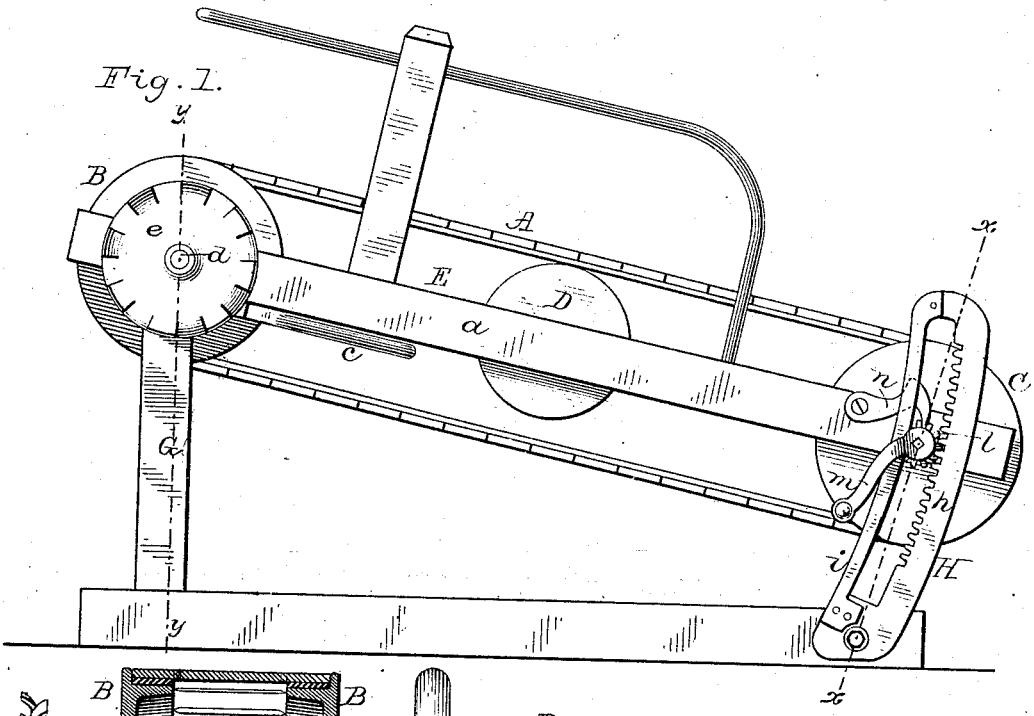
(No Model.)

B. N. VAN NETTE.

TREAD MILL.

No. 267,042. Patented Nov. 7, 1882.

Fig. 1.



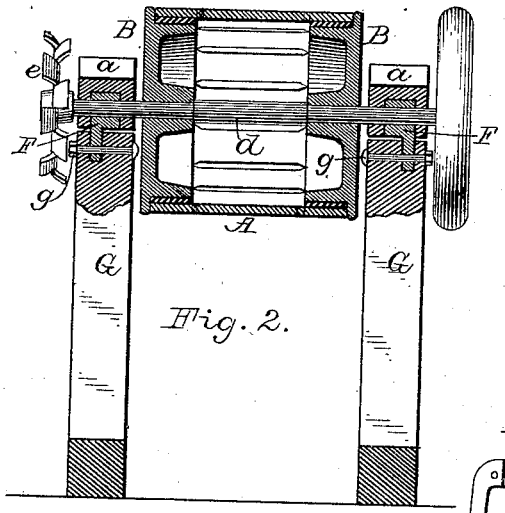


Fig. 2.

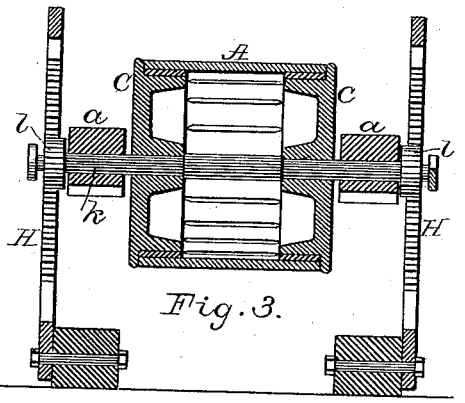


Fig. 3.

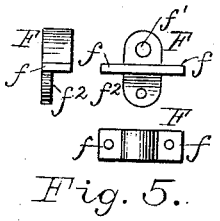


Fig. 5.

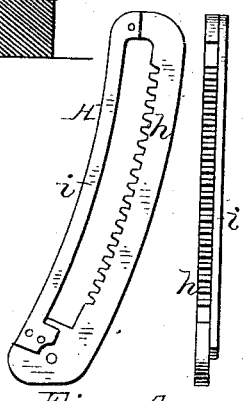


Fig. 4.

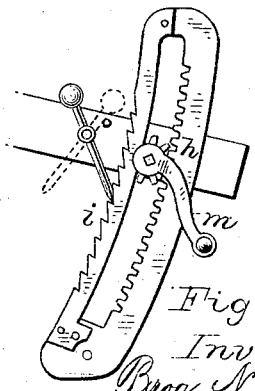


Fig. 6.

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UNITED STATES PATENT OFFICE.

BROG. N. VAN NETTE, OF TIFFIN, OHIO.

TREAD-MILL.

SPECIFICATION forming part of Letters Patent No. 267,042, dated November 7, 1882.

Application filed September 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, BROG. N. VAN NETTE, of Tiffin, in the county of Seneca and State of Ohio, have invented certain new and useful Improvements in Tread-Mills; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of the several features of my invention.

My said improvements relate to that class of tread-mills which involve the use of an endless sectional tread-bed, which is adjustable at various inclinations, and my object is to provide for convenience and ease in effecting said adjustment of the tread-bed, and for firmly locking it at any desired adjustment, and also to provide a strong, effective, and reliable pivotal connection between the front roll-shaft or driving-shaft of the tread-mill and the front standards upon which said shaft is mounted.

After a full description of a tread-mill embodying my said improvements, the features deemed novel will be specified in the several claims hereunto annexed.

Referring to the drawings, Figure 1 is a side elevation of a tread-mill as constructed by me. Fig. 2 is a lateral vertical section on line *y*, showing the front standard, the front bed-roll, its shaft, driving-pulley, and pivotal connections. Fig. 3 is a lateral vertical section of the same on line *x*, showing the rear standards, the rear bed-roll, its shaft, and crank. Fig. 4 is an edge and a side view of one of the rear standards detached. Fig. 5 are views of one of the front pivotal connections or driving-shaft boxes detached. Fig. 6 is a side view of the rear portion of the tread-mill, illustrating a variation in the locking mechanism.

The sectional tread-bed A is in the form of an endless web, substantially as heretofore, and the same is true of the front bed-roll, B, rear bed-roll, C, and the midway supporting-roll, D. The bed-frame E is composed of the two side bars, *a*, coupled firmly together by transverse bars, substantially as heretofore. Upon the under side of one of the side bars *a*, opposite the front bed-roll, B, there is a lever-brake, *c*, which at its inner end bears against the coincident face or end of said roll, for aiding in stopping the mill when desired.

The front shaft, *d*, is keyed to the front bed-roll, and serves as a front bed-roll shaft, and also as the driving-shaft, and carries at its end the usual grooved belt or chain pulley, *e*. Its bearings or boxes F are of peculiar construction, and are united to the side bars, *a*, and to the front standards, G, in a peculiar manner. Each of said boxes has a flange, *f*, provided with holes for bolts or screws, by which it is secured to the under surface of a side bar *a*, said bar being mortised to receive the main or upper portion of the box, and transversely bored to admit the shaft-journal into the box-bearing *f'*. From the under side of said box there is a depending web, f^2, transversely bored to receive a pivot-bolt, *g*, secured in a hole through the standard G, so that when the rear end of the bed and its frame are raised or lowered the pivotal connection between said frame and the standard is upon the pivot-bolt, and that the weight of said frame is wholly supported by said bolts or pivots.

The rear standards, H, are composed of metal, and embody a vertical curved segmental rack, *h*, and a correspondingly-curved guiding-bar, *i*, these two occupying different vertical planes, as is clearly indicated in Fig. 4. The rear roller shaft, *k*, is rotative independently of the roller, and has at each end a pinion, *l*, keyed thereto, and at one or both ends a crank, *m*. Each pinion meshes with the teeth of its coincident rack-bar, and each guiding-bar at its inner edge affords a running-bearing for the shaft closely adjacent to the side of the adjacent pinion, so that said pinion is firmly maintained at all times with the teeth of its rack-bar. The flange of the crank adjacent to the shaft also has a side bearing against the coincident or outer side of the guide-bar, thus assuring a true and easy movement of the shaft up or down, according to the direction in which the crank is turned.

For locking the tread-bed at any desired adjustment I employ either locking-pawls *n*, pivoted to the sides of the side bar, and arranged to engage with the teeth of the pinions, and thereby prevent their rotation and locking them to their respective rack-bars, or said pawls, as in Fig. 6, are weighted and arranged to engage with teeth or serrations in the edge of the guiding-bar *i*, and in this latter case the

pawl will automatically pass from tooth to tooth during the lifting movement, and it can be readily thrown out of service, as indicated in dotted lines, during the lowering movement. Other means for locking the bed may be used in lieu of the pawls without departure from certain features of my invention.

For simplicity and economy I utilize the rear or roller shaft, *k*, as the adjusting-shaft; but it is obvious that I can employ a special shaft for adjusting purposes, and can locate it immediately in front of the rear roller and mount it in suitable bearings in the side bars, and it is to be distinctly understood that said variation in arrangement will be no departure from certain features of my invention.

It is obviously important that an animal in working a tread-mill should be variously positioned in accordance with the degree of power or labor required from time to time, and frequent variations in position, even with unvaried use of power, are found to enable an animal to perform his work with more vigor and less fatigue than when kept steadily at work upon an unvaried inclination of the tread-bed.

With my improvements, as described, the variations in inclination of the tread-bed are so readily and easily accomplished as to afford no reasonable excuse for ever neglecting to give an animal, while at work thereon, the full benefits of frequent adjustments.

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

1. The combination, with a pivoted tread-mill bed-frame, of an adjusting-shaft extended laterally across and through said frame near its rear end, a pair of curved rack-bars, pinions at each end of said shaft for engaging with the teeth of said rack-bars, a crank or handle for rotating said shaft, and a locking device for maintaining the rear end of said frame at any desired height, substantially as described.

2. The combination, with a pivoted tread-mill bed-frame, of the rear roller-shaft having bearings in said frame, the pinions, crank, rack-bar, and locking device, substantially as described.

3. The combination, with the bed-frame, adjusting-shaft, pinions, rack-bars, and crank, of a pawl, substantially as described, for locking the bed-frame at any desired position of adjustment.

4. The combination, with the bed-frame, adjusting-shaft, pinions, crank, and rack-bar, of guiding-bars which have bearings against the shaft adjacent to the pinions, substantially as described, for maintaining said pinions in proper engagement with the teeth of the rack-bar.

5. The combination, with a tread-mill bed-frame, its driving-shaft, and its front standards, of boxes for said shafts, which are secured to said frame and pivotally connected to said standards, substantially as described.

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Witnesses:
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