

Aug. 1, 1933.

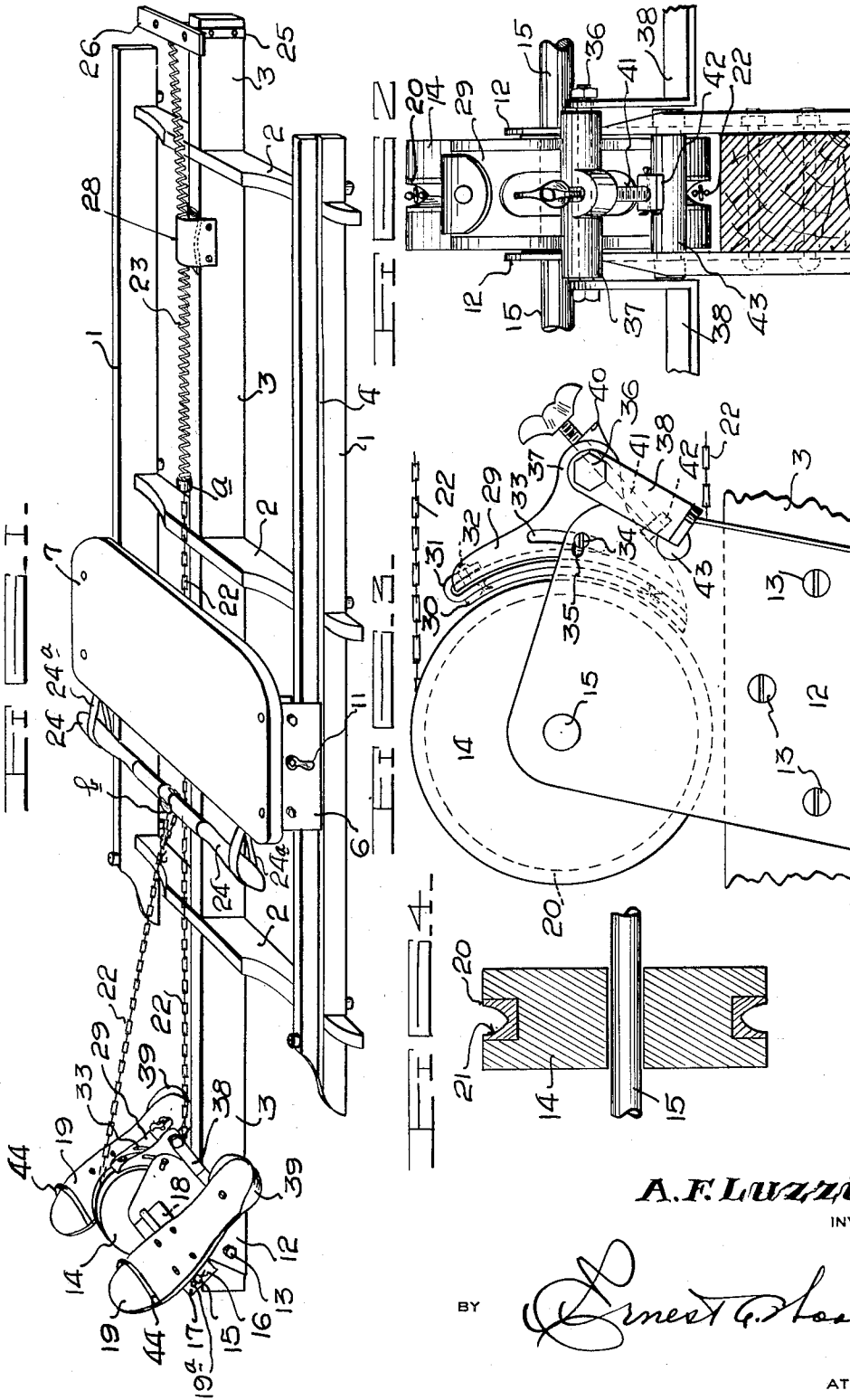
A. F. LUZZI

1,920,574

EXERCISING MACHINE

Filed Jan. 14, 1932

2 Sheets-Sheet 1



A. F. LUZZI

INVENTOR

BY

Ernest G. Head

ATTORNEY

Aug. 1, 1933.

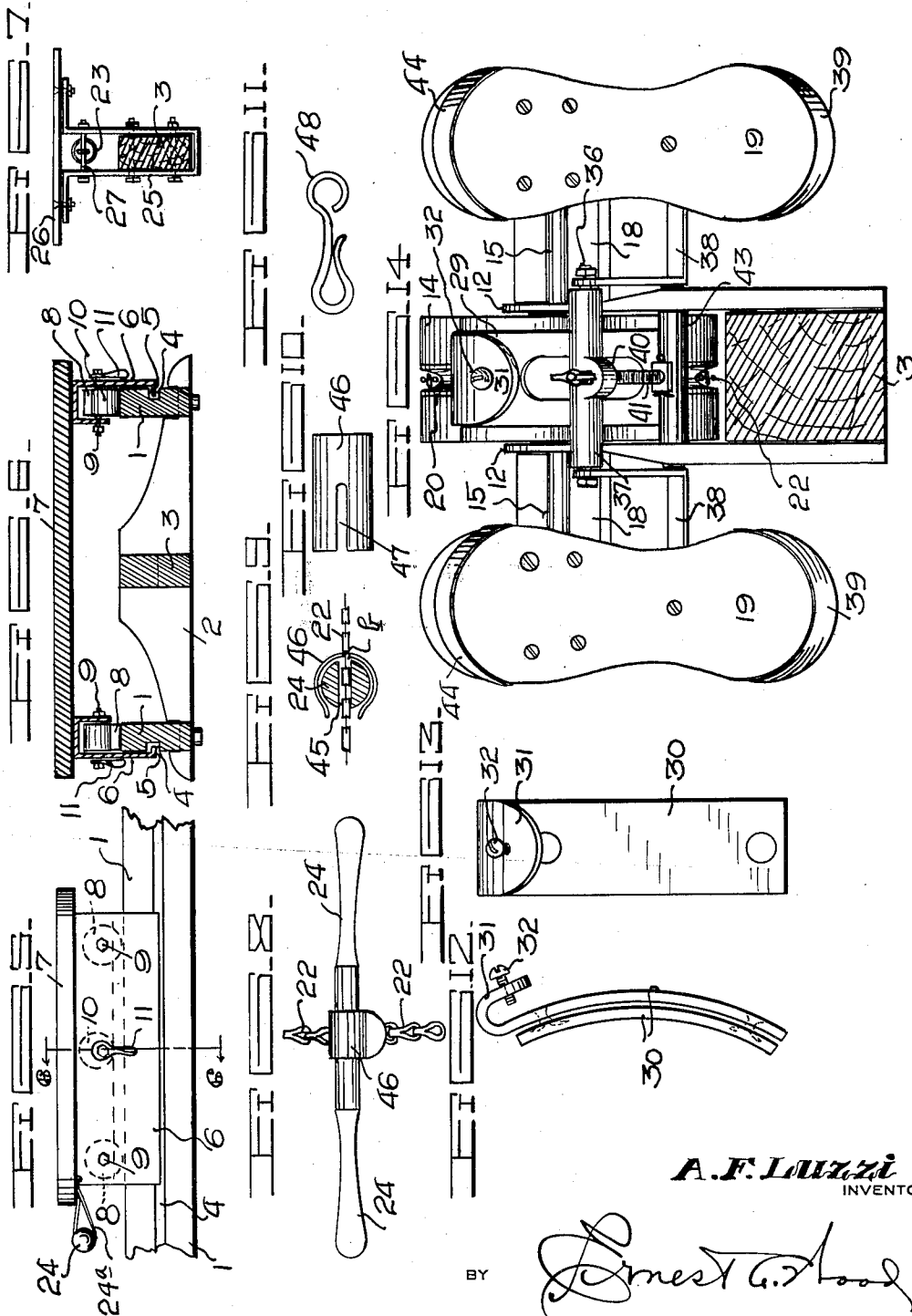
A. F. LUZZI

1,920,574

EXERCISING MACHINE

Filed Jan. 14, 1932

2 Sheets-Sheet 2



A. F. LUZZI
INVENTOR

BY

Ernest G. Hood

ATTORNEY

UNITED STATES PATENT OFFICE

1,920,574

EXERCISING MACHINE

August F. Luzzi, Wichita Falls, Tex.

Application January 14, 1932. Serial No. 536,536

12 Claims. (Cl. 272-72)

This invention relates to exercising devices and it has particular reference to a device of the character specified constructed to possess the characteristics of a row boat for the physical development of the human body. The principal object of the invention is to provide an assembly of elements, cooperating to bring about a definite result, that of stimulating the muscular and physical development of the human body and for minimizing or retarding corpulency.

Another object of the invention is to provide a continual resistance against the muscular prowess of the operator and to function as a gauge for gradually increasing the resistance as the operator or user increases his muscular development. The element of resistance above mentioned operates in the nature of a braking means of a simple and economical construction and is of such nature that there will be no additional strain upon the machine as the resistance is increased and has simple adjustments which may be instantaneously made by the operator without necessarily interfering with the operation of the machine.

Another and important object of the invention is to provide against accidental slippage or displacement of the chain or flexible line, which has the quality of yielding as the machine is operated, due to the presence of a spring or other resilient element. This feature, combined with a back rest prevents injury of the operator in event of careless manipulation or excessive exertion upon the moving parts of the machine.

Yet another object of the invention is to provide an exercising machine of the character specified, possessing all of the features necessary to adapt the same for exercising the legs, torso, arms and even the neck by merely interchanging certain parts and detachments on the machine.

Broadly, the invention comprehends the provision of an exercising machine capable of producing the physical developments which might be obtained through the medium of a row boat, with a view of bringing the cost thereof down to the minimum, yet maintaining a high degree of perfection in construction and performance. Moreover, due to the novel method of tension adjustment, the machine may be used by a child or by an adult, with equal effectiveness.

With the foregoing objects as paramount, the invention has particular reference to its salient features of construction and arrangement of parts, which will become manifest as the de-

scription proceeds, taken in connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of an exercising device constructed according to the present invention.

Figure 2 is a detail view in elevation showing the brake and tensioning arrangement.

Figure 3 is a side elevation of Figure 2.

Figure 4 is an axial section of the brake drum or grooved pulley shown in Figures 2 and 3.

Figure 5 is a side elevation showing the seat illustrated in Figure 1.

Figure 6 is a view on line 6-6 of Figure 5.

Figure 7 is a detail view in elevation showing the back rest and connection for the tensioning element.

Figure 8 is a detail view of the handle bar or hand grip to which is connected the chain or cable constituting a part of the tensioning assembly.

Figure 9 is a transverse section through the middle of the handle bar.

Figure 10 is a side elevational view of the chain or cable retaining clip embracing the handle bar in the manner shown in Figure 9.

Figure 11 is a detail view of a hook carried by the end of the chain.

Figure 12 is a side elevation of the brake or friction member.

Figure 13 is another view of the brake or friction member, and

Figure 14 is a detail view of the foot rests, disposed forwardly of the machine and the braking assembly.

Continuing with a more detailed explanation of the drawings, 1 designates parallel tracks, spaced apart by means of transverse braces 2 of the peculiar design shown in Figures 1 and 6. The peculiar method of joinery employed in assembling the frame structure, which includes the central member 3, is such that it will resist considerable strain.

It will be noted that the tracks 1 are provided with longitudinal grooves 4 and reference to Figure 6 will disclose the purpose of the grooves 4 which are in the outside faces of the said tracks 1. Inwardly turned edges 5 of a pair of plates 6 repose within the grooves 4, the plates 6 being provided for supporting the seat 7. It is intended that the seat 7 be nonfrictionally moved to and fro along the tracks 1 and for this purpose, rollers 8 are provided and which are mounted on stub shafts 9 having their ends journaled in bearings afforded by the peculiar shape of the seat supporting plates 6. An example of

this structure is shown clearly in Figures 5 and 6.

In event it is desired to lock the seat 7 against movement on the tracks 1, a pair of cams 10 are provided, one of which is rotatably mounted intermediate the rollers 8 in each of the seat supporting plates 6. A thumb lever 11 extends through the plate and is accessible on the exterior surface thereof, immediately below the side edges of the seat 7. It is necessary only for the operator to pull upward upon the levers 11 to rotate the cam or eccentric 10 and thereby move the same against the surfaces of the tracks 1, thereby lifting the seat 7 and bringing the flanges or inwardly turned edges 5 of the plates 6 into frictional engagement with the sides of the grooves 4. The seat is thus securely locked in any position desired on the tracks 1.

In Figure 1, it will be observed that the centrally disposed member 3, situated intermediate the tracks 1 extends well to the front of the machine frame just described. Plates 12 are affixed by means of bolts or screws 13 to either side of the centrally disposed member 3 at its extreme forward end and are provided with strengthening flanges as shown. The member 3 may also be hereinafter referred to and identified as a beam or bar. The plates 12, as apparent in Figures 3 and 14, are spaced apart to receive therebeneath a pulley or drum 14, which may be hereinafter referred to and identified as a brake drum. The drum 14 is rotatably mounted upon a shaft 15, the ends of which extend well outward from the plates 12 and to which is secured blocks 18, which in turn, support the foot pieces 19. The block 18 is secured to the shaft 15 by cotter pins 19a. The particular arrangement just described can be seen only in Figure 1, although the general combination is shown in Figures 2 and 14.

Referring specifically to the drum 14, attention is directed to Figure 4, in which the drum is shown in diametrical cross section. The drum is provided with a peripheral groove, as shown, in which is embedded an inner liner 20 composed of a material having the characteristics of rubber, so that when it is distorted, it will return immediately to its original shape. The inner liner is likewise grooved at 21, as shown in Figure 4 so as to receive a chain or pull line 22, one end of the chain being connected at a to a spring 23, as shown in Figure 1, while the opposite end is adjustably connected at b to the hand grip or handle bar 24. At the point of connection a between the chain 22 and spring 23, there is a stop which prevents jamming of the spring between the beam 3 and the brake assembly at the front of the machine. The opposite end of the spring 23 is jointed to the rearmost end of the beam 3, there being provided a strap 25 so shaped as to provide a connection for the spring 23 as well as affording a back rest 26. An example of the arrangement just described is shown in Figure 7 in detail, which illustrates clearly the manner in which the strap 25 surrounds the beam 3 and supports the back rest 26 and further shows a transverse pin 27, which is the specific element affording a connection for the end of the spring 23.

With further reference to the spring 23, attention is again directed to Figure 1 in which is shown a saddle 28 embracing the spring 23 midway of its ends and which saddle is joined to the beam 3. The saddle 28 functions in the capacity of a silencer in that it eliminates any resounding effects in the contraction and expansion of the spring. This feature is important in

the construction of the present invention in that silent operation is a desideratum in the performance of a machine of this nature.

Returning to the drum 14 and its associated elements, it will be noted that the brake shoe 29 is suspended adjacent the periphery of the drum 14 and has a liner 30, which is removably connected thereto and is so shaped that it will conform to the periphery of the drum 14. The peculiar construction of the brake shoe 29 offers a sort of wedge, which in co-operating with adjacent elements will offer greater resistance when desired, and which feature will be described more fully later. An example of the construction of the liner 30 is shown in Figures 12 and 13 and is connected to the shoe 29 by means of the downwardly turned upper end 31 having a set screw 32 therein. Opposed slots 33 are provided in the brake shoe 29, as apparent in Figure 3 and a pin 34 passes through the slots 33 and through slots 35 in the plates 12, which pin limits the upward movement of the brake shoe 29. The slots 35 enable the brake shoe 29 to be adjusted toward and away from the periphery of the drum 14 to increase or decrease the friction upon the surface of the drum, while the slots 33 enable the brake shoe 29 to be adjusted endwise, which fact will increase or decrease the tension or resistance of the drum through the medium of foot pressure brought upon the foot pieces 19, as will be presently described.

It will be observed that the brake shoe 29 is suspended at two points, it being pointed out that one point of suspension is through the medium of a bolt 36, extending through the bushing 37, which is an integral part of the brake shoe 29 and another point of suspension is through the medium of the pin 34, which latter point of suspension is fixed, yet through the medium of the slots 33, the brake shoe 29 may be moved up and down.

A pair of L-shaped members 38 are connected to the protruding end of the bolt 36 and function to support the heel portion of the foot pieces 19, which are provided with retaining flanges 39.

It will be noted in Figures 2, 3 and 14 that the bushing 37 has an integral boss 40 midway of its ends. This boss has an interiorly threaded aperture therethrough into which is threaded a bolt 41, as shown in Figure 14 and upon the end of the bolt 41 is a block 42. The block 42 rests upon the surface of a stationary pin 43, which has its ends journaled in the opposed plates 12. Obviously, by rotating the bolts 41, the brake shoe 29 pivots at the pivot point 34, thereby increasing or decreasing the frictional engagement of the liner 30 on the brake drum 14.

The foregoing description clearly defines the manner in which the foot pieces 19 are supported. They are rockably supported on the shaft 15 which carries the drum 14 while the heel portions of the foot pieces 19 are supported by the L-shaped members 38, which are indirectly connected to the braking elements, previously described. When greater resistance is desired, greater pressure of the heels is brought upon the pedal members 38, and due to their operative connection at 36 to the wedge shaped brake shoe 39, the curved under portion thereof slidably engages the pin 43, thus forcing the brake shoe 30 against the drum 14 by the wedging action thus created. By pressing down with the heel upon the foot pieces 19, the brake shoe 29 is urged against the brake drum 14 with the assistance of the wedge shape, to the extent permitted by the

bolt 41, which is adjustable to limit the movement of the brake shoe against the brake drum. By advancing the bolt 41 against the lateral pin 43, the frictional engagement between the brake shoe and brake drum is diminished. However, by oppositely rotating the bolt 41, pressure upon the foot pieces 19 will increase the braking action and will therefore retard or resist the rotation of the brake drum 14, and accordingly require a greater amount of exertion upon the chain or pull line 22 to rotate the drum 14.

In operation, the operator seats himself on the seat 7, placing his feet upon the foot pieces 19 so that the toes will extend beneath the straps 44 on the foot pieces and the heels will be retained by the flanges 39. In this position, the operator holds the handle bar or hand grip 24 in both hands and pulls himself forwardly by the strength of the arms, allowing the seat 7 to travel along the tracks 1. Having pulled himself to the extreme forward end of the machine, the operator then pushes himself backwardly by the strength of the legs, against the resistance offered by the spring 23 and at the same time bends his body backwardly to strengthen the muscles in the arm.

When the machine is operated in the manner described in the foregoing, the forward movement obtained by the strength of the arms may be gradually rendered more difficult by making intermediate adjustments on the brake assembly, which is done by simply rotating the threaded bolt 41 in the manner described in the foregoing. The ease and readiness by which braking tension may be adjusted makes it possible for a child as well as an adult to use the machine with equal effectiveness in the muscular and physical development of the body.

For adjusting the chain or pull line 22 to correspond with the size of the operator, an opening 45 is made in the handle bar 24, as shown in Figure 9 and through which the chain or pull line 22 is passed.

In order to lock the chain securely against slippage, a clasp 46 is provided and which has a slot 47 for conformably receiving the links of the chain, thereby avoiding the possibility of accidental release of the chain or pull line from the handle bar. The surplus amount of chain is held up by means of a hook 48, carried by the extreme end of the chain and is hooked into the links of the chain at a point below its point of securement to the handle bar 24. In addition to its usefulness in the development of the arms and legs and the removal of surplus flesh on the body and especially about the waist, the machine is also useful in exercising muscles of the neck through the medium of other attachments not shown, since they do not form a part of the present invention. By locking the seat 7 against movement, the operator may stand upon the seat and exercise the muscles of the back by holding the handle bar 24 in both hands and bending over and raising the body against the resistance of the spring 23.

Straps 24a are provided to lock the handle bar 24 in inoperative position when the machine is not in use.

The foregoing and many other methods of exercising the body for the promotion of physical and muscular development may be carried out and it is understood that the invention is not limited to the specific construction described, to the modes of operation set forth or to the specific combination of elements and their relationship and that certain changes and modifications may

be resorted to from time to time without departing from the spirit and intent of the invention as set forth in the following claims therefor.

What is claimed is:

1. An exercising machine including tracks in parallel relationship having a seat constrained to travel from end to end thereof, a grooved drum rotatably disposed forwardly of said machine, foot pieces lockably disposed to either side of said drum, friction means arranged to be brought against the surface of said drum and indirectly controlled by said foot pieces, and means surrounding said drum having yieldable connection to a stationary part of said machine and accessible to an operator on said machine.

2. An exercising machine including parallel tracks, a seat arranged to move on said tracks, means for locking said seat against movement, a beam intermediate said tracks whose ends extend beyond the ends of said tracks, a drum rotatably carried by one end of said beam and having a peripheral groove, a pliable liner in said groove, a chain surrounding said drum, expandible means having one end connected to one end of said chain and the other connected to a stationary part of said machine, a pair of foot pieces supported upon the shaft of said drum on either side thereof, means for resisting the rotation of said drum when a pull is exerted on said chain, means for actuating said resisting means when pressure is applied to said foot pieces and means for adjusting the amount of resistance on said drum.

3. An exercising machine including a pair of tracks, a seat mounted for movement on said tracks, means for locking said seat against movement, a drum rotatably mounted forwardly of said seat and having a peripheral groove therein provided with a pliable liner, foot pieces disposed on either side of said drum, a flexible pull line surrounding said drum and having one end connected to a stationary part of said machine whereby to effect rotation of said drum, means for indirectly increasing said resistance by pressure applied to said foot pieces and means for adjusting the amount of resistance imparted to said drum.

4. An exercising machine having a reciprocating seat and a pair of rockable foot pieces disposed forwardly of said seat, an annularly grooved drum interposed between said foot pieces, flexible pull line surrounding said drum, means for resisting rotation of said drum by pressure applied to said foot pieces and means for tensioning said resisting means.

5. An exercising machine including a reciprocating seat portion and a stationary back rest, an annularly grooved drum rotatably mounted forwardly of said seat portion, foot pieces rockably disposed adjacent said drum, means bearing against the face of said drum to resist rotation thereof, a flexible pull line surrounding said drum and means for adjusting the tension of said resisting means.

6. An exercising machine including a movable seat and a back rest, means for locking said seat against movement, a grooved, rotatable member mounted forwardly and in line with the plane of travel of said seat, a flexible pull line surrounding said drum and having one end fixed to a stationary part of said machine, foot pieces pivotally mounted on the axis of said rotatable means, frictional means for resisting the rotation of said rotatable means, means to effect control of said friction means by pressure ap-

plied to said foot pieces and means for adjusting the tension of said friction means.

7. A machine of the character described including a movable seat portion and rockable foot pieces, a pull line, a portion of which is capable of expansion and contraction, means rotatably mounted forwardly of said seat about which said pull line extends, means for frictionally resisting rotation of said latter means through pressure applied to said foot pieces and means for changing the degree of resistance of said resisting means.

8. A machine of the character described including a movable seat and a pair of rockable foot pieces mounted forwardly and in the line of travel of said seat, a pull line composed of yieldable and non-yieldable sections, rotatable means about which the non-yieldable section of said pull line surrounds, means for resisting the rotation of said latter means by pressure applied to said foot pieces and means for changing the effects of the resistance of said resisting means.

9. In an exercising machine, the combination of a pair of tracks having longitudinal grooves in their sides, a seat, mountings for said seat comprising plates having their lower edges engaging in the grooves of said tracks to hold said seat against other than reciprocating movement, rollers mounted in said seat mounting for supporting said seat for movement on said tracks, means for locking said seat against movement, a rotatable brake drum in advance of said seat, foot pieces mounted on either side of said brake drum and having operative connection therewith

to resist rotary motion thereof, a flexible pull line capable of length adjustment surrounding said drum, means for holding said pull line against displacement during the operation of said machine and means for locking said pull line in inoperative position.

10. In a machine as set forth in claim 9, a brake shoe pivotally mounted adjacent said brake drum, said brake shoe having a substantially wedge-shaped body, means against which said brake shoe is urged to cause the same to increasingly bear upon the periphery of said brake drum.

11. A machine of the character specified in claim 9, a brake drum, foot pieces rockably connected to the axis of said brake drum, a substantially wedge-shaped brake shoe, means indirectly connecting said foot pieces to said brake shoe whereby movement thereof will effect movement of said brake shoe and means against which said brake shoe is urged to cause the same to bear with increasing force on the periphery of said brake drum to resist rotation thereof.

12. In a machine of the character specified in claim 9, a pair of tracks having longitudinal grooves therein, a seat, mountings for said seat, said mountings having their lower edges slidably engaging said grooves, rollers for non-frictionally supporting said seat, cams held normally in inoperative position during movement of said seat, and means for moving said cams to cause the same to frictionally engage said tracks to lock said seat against movement.

AUGUST F. LUZZI.

40 115

45 120

50 125

55 130

60 135

65 140

70 145

75 150