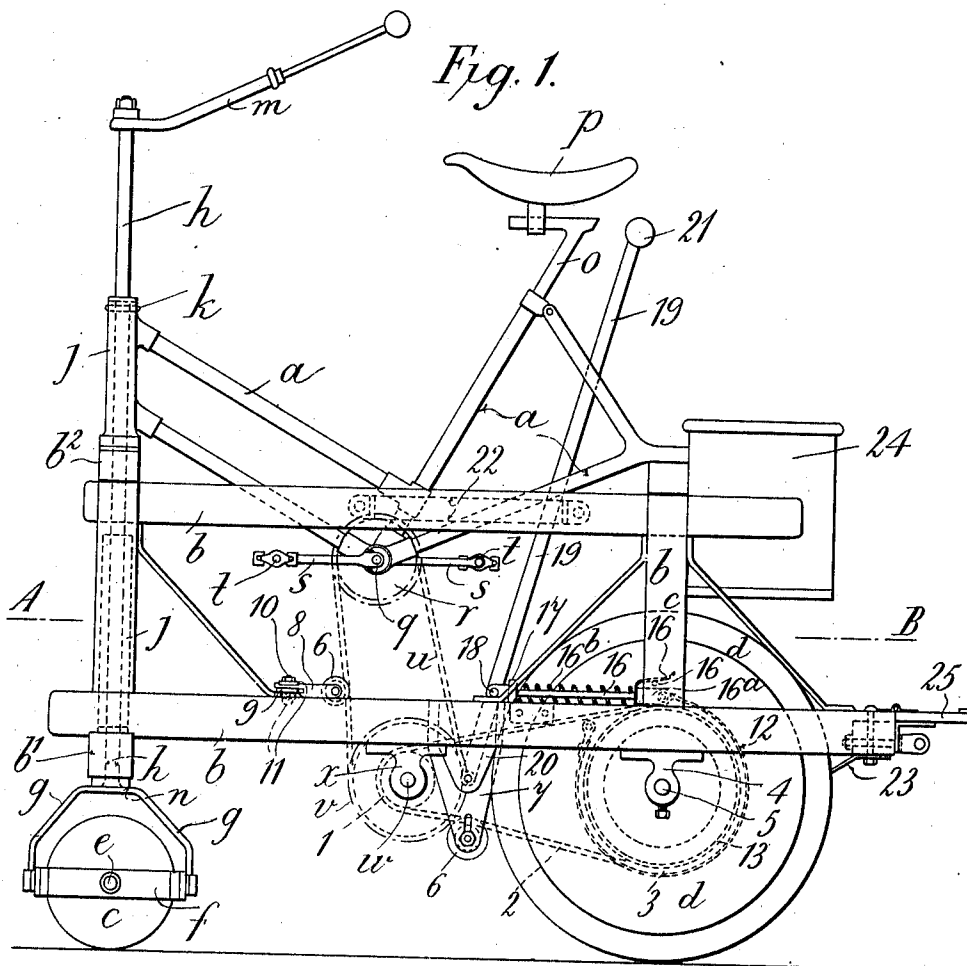


A. S. F. ROBINSON.
GARDEN AND ROAD ROLLER.
APPLICATION FILED SEPT. 9, 1909.

988,818.

Patented Apr. 4, 1911.
4 SHEETS—SHEET 1.



Witnesses
C. R. Wright, Jr.
L. L. Barker,

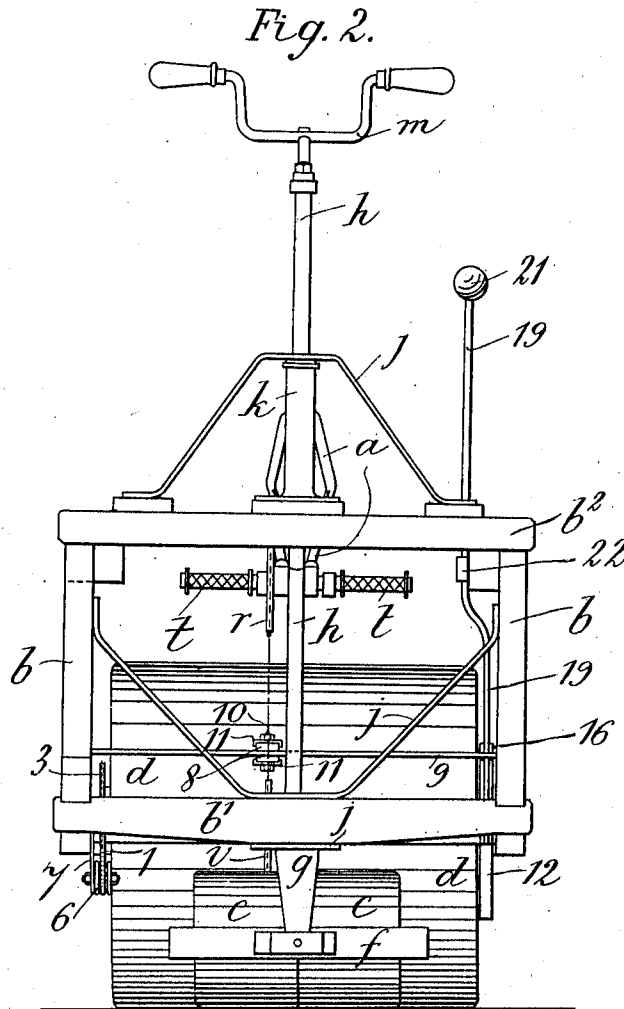
Inventor
A. S. F. Robinson
by H. E. Brady
att'y

A. S. F. ROBINSON.
GARDEN AND ROAD ROLLER.
APPLICATION FILED SEPT. 9, 1909.

988,818.

Patented Apr. 4, 1911.

4 SHEETS—SHEET 2.



Witnesses
C. R. Wright, Jr.
L. L. Buckner.

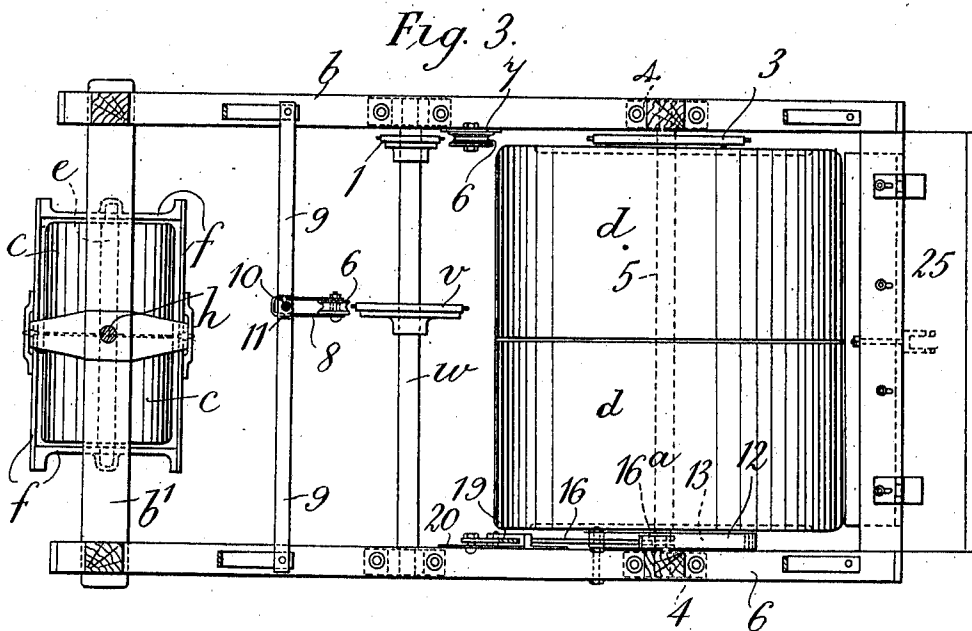
Inventor
A. S. F. Robinson
by H. A. Dush,
att'y

A. S. F. ROBINSON.
GARDEN AND ROAD ROLLER.
APPLICATION FILED SEPT. 9, 1909.

988,818.

Patented Apr. 4, 1911.

4 SHEETS—SHEET 3.



Witness
C. R. Wright Jr.
L. L. Baker.

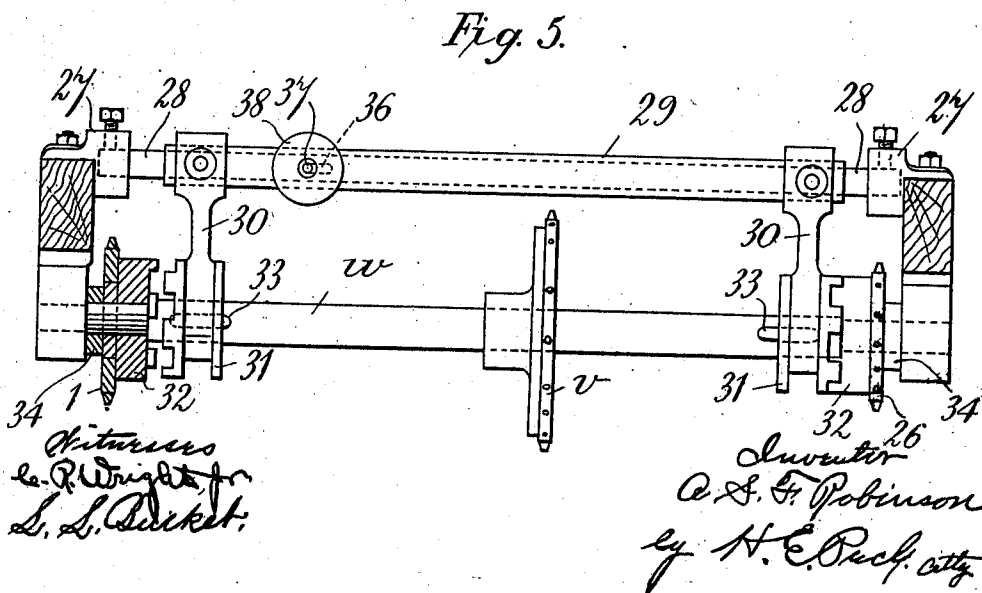
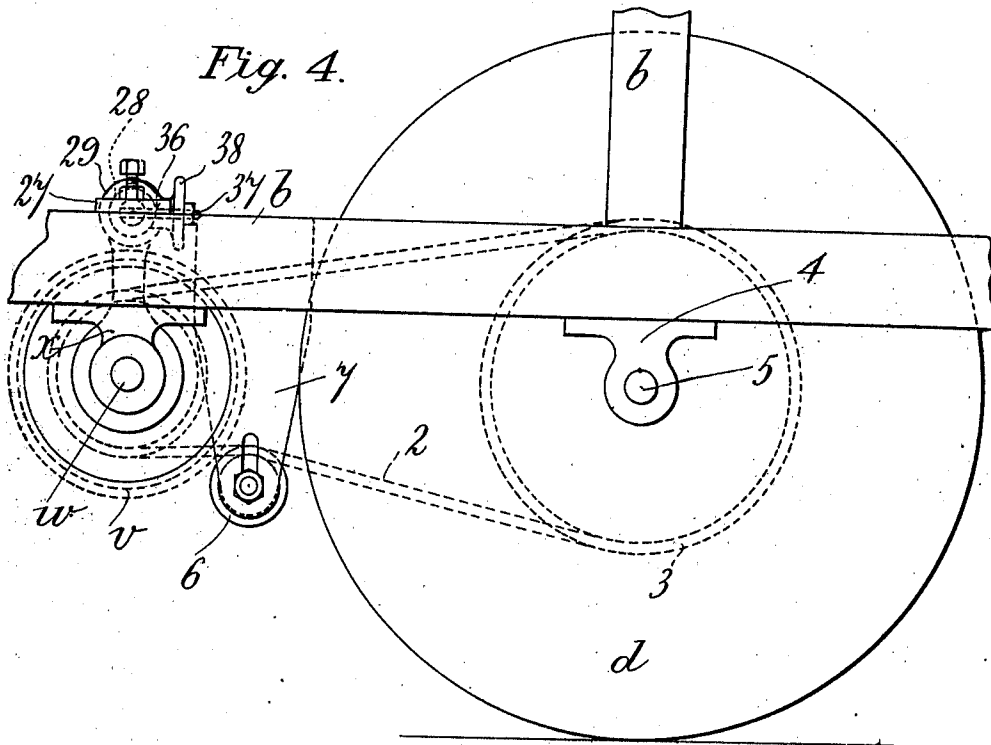
Inventor
A. S. F. Robinson
by H. C. Pack
att.

A. S. F. ROBINSON.
GARDEN AND ROAD ROLLER.
APPLICATION FILED SEPT. 9, 1909.

988,818.

Patented Apr. 4, 1911.

4 SHEETS—SHEET 4.



UNITED STATES PATENT OFFICE.

ARTHUR SAMUEL FRANCIS ROBINSON, OF BECCLES, ENGLAND.

GARDEN AND ROAD ROLLER.

988,818.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed September 9, 1909. Serial No. 516,863.

To all whom it may concern:

Be it known that I, ARTHUR SAMUEL FRANCIS ROBINSON, a subject of the King of Great Britain and Ireland, residing at Beccles, in the county of Suffolk, England, have invented Improvements in Garden and Road Rollers, of which the following is a specification.

This invention relates to garden and road rollers.

An object of this invention is to provide a roller in which the necessity of laboriously pulling it along a lawn or road is obviated and which while of sufficient weight to effect the desired rolling can be moved along the lawn or road with relative ease and in comfort. For this purpose according to this invention the improved roller is adapted to be driven by cranks and pedals actuated by a person carried by the machine and whose weight is consequently added to the weight of the roller.

The front wheel of a roller according to this invention is mounted to rotate in a carrier to which the front steering fork is pivoted in the horizontal plane containing the front wheel spindle or pivots.

The main roller wheel can be driven from the crank shaft of the pedals in any suitable manner, for example through chain or other gearing or belt pulleys and belt.

Figure 1 of the accompanying illustrative drawings shows in side elevation one construction of garden or road roller embodying this invention. Fig. 2 shows the roller in front elevation. Fig. 3 is a horizontal section corresponding to the line A, B of Fig. 1. Fig. 4 is a side elevation and Fig. 5 a transverse sectional view showing a modified arrangement.

In this construction a bicycle or similar frame *a* is mounted on the wooden frame *b* of a roller comprising a front steering roller wheel *c* and a back or main roller wheel *d* of larger diameter, both roller wheels being composed of two cylinders as usual. The steering roller *c* is mounted on a spindle *e* supported in the end members of a rectangular frame *f* to which at its longitudinal center and at right angles to the roller *c* is pivoted on either side the forked end *g* of a rod *h* that extends vertically through the bolster *b*¹ and cross member *b*² of the frame *b*, iron brackets *j* fixed to such frame, and also through the steering bracket *k* of the bicycle frame *a*. The upper end of the rod *h* is

furnished with a steering hand lever *m*. It will be seen that the fore carriage fork or jaw *g* has its ends pivoted in the same horizontal plane as the roller spindle *e* which is parallel with the ground, by which arrangement the steering roller can tilt in passing over uneven ground or obstacles without undue strain on the fork or jaw of the steering rod and without any appreciable oscillatory movement to the fore part of the roller frame. The top *n* of the forked lower end *g* of the steering rod *h* forms the bearing on which the roller frame *b* rests. Steering is effected by the lever *m* direct but in some cases the steering may be through chains attached to the steering or front roller frame *f*, or by worm and pinion the latter being attached to the steering rod *h* in place of the hand lever *m*.

The bicycle frame *a* is fitted with a saddle pillar *o* and saddle *p*, crank shaft *q*, chain wheel *r*, cranks *s* and pedals *t* as usual in cycle construction. The wheel *r* drives through a chain *u* a wheel *v* on an intermediate shaft *w* mounted in bearings *x* fixed to the roller frame *b* below the cycle crank shaft *q*. Near each end of the intermediate shaft *w*, or near one end only, as in the example under notice, is fitted a chain pinion 1 which through a chain 2 drives a much larger chain wheel 3 fixed on the end of the corresponding cylinder of the main roller *d*.

The bearings 4 for the main roller shaft 5 can be mounted to slide in guides fixed to the roller frame *b* and fitted with screws whereby they can be moved for the purpose of adjusting the driving chain 2, and the chain *u* can be adjusted by packing pieces between the ends of the bicycle frame *a* and the roller frame *b* but preferably, as shown both the chains are adjusted by means of flanged jockey pulleys 6. The jockey pulley 6 of the chain 2 is adjustable in a bracket 7 fixed to the frame *b* while the jockey pulley 6 of the chain *u* is mounted in a stirrup shaped carrier 8 that is adjustably secured to a transverse bar 9, embraced by the slotted end of the carrier, by means of a bolt 10 and clip plates 11. One of the chain wheels may be connected to its shaft by a free wheel clutch device of any suitable type.

Brake blocks and levers or screw down brakes of any usual construction can be provided, the controlling lever or handle being located close to the rider's seat convenient for use. In the machine under notice a

brake band 12 is provided, arranged to grip a brake drum 13 formed in one with the main roller wheel *d* at the opposite end thereof to that at which the chain wheel 3 is located. The movable end of the brake band 12 is connected to one end of a rod 16 which passes through a slot formed in a fixed guide bracket 17 and the other end of which is pivoted at 18 to a hand lever 19 pivoted to a fixed bracket 20 and furnished with a suitable handle 21.

22 is a guide bracket for the hand lever 19.

Threaded on the rod 16 between the bracket 17 and a fitting 16^a screwed to the rod and to which the brake band is connected, is a spring 16^b that tends to keep the band clear of the drum 13, to facilitate which a slightly inclined plate 16^c fixed to the rod end is arranged to bear on a fixed pin 16^d so located that as the rod 16 is moved by the spring into the brake off position the plate rides over the pin and raises the corresponding end of the rod and the brake band clear of the drum.

Near its rear end the frame *b* has fixed to it a scraper 23 for the roller wheel *d*.

24 is a ballast tank or box fixed to the back of the frame *b* and 25 is a foot board extending rearwardly from the frame *b*. The tank or box 24 is also adapted to form a seat for a number of persons whose weight would be consequently added to the weight of the roller. The footboard 25 is hinged to the main part of the frame *b* so that when not in use it can be turned up and over out of the way.

In the arrangement shown in Figs. 4 and 5 the intermediate shaft *w* is provided with two chain pinions 1 and 26. The chain pinion 1 is arranged to drive the roller at a quicker speed than the chain pinion 26 and the pinions are adapted to be fixed to the shaft by clutches so that by clutching either pinion into engagement a greater or lower speed of the roller can be obtained at will, the speed of the crank shaft remaining the same in either case. Such an arrangement may be so constructed that it is not possible to clutch in both pinions at the same time.

27, 27 are two brackets bolted to the frame *b* and supporting a shaft 28 on which is mounted to slide a tube 29 on which are fixed by keys or set screws two arms 30 with crutched ends which each fit in the groove of a sliding clutch part 31 on the intermediate shaft *w*. On each end of the shaft *w* which is turned down to form a slight shoulder, is freely mounted a clutch part 32 to which is fixed the corresponding chain pinion. The corresponding clutch parts 31 are each slotted to slide on a key 33 fitted to the shaft *w* and by sliding the tube 29 on the shaft 28 the clutch parts 31 are made to gear with a pinion on one side or the other. The

clutch parts 32 when free rotate between the shoulder on the shaft and collars 34 which are fixed to the shaft next the bearings.

36 is a slot in the tube 29 and 37 a stud on the shaft 28; the stud 37 has screwed on it a hand nut 38 to enable the tube to be clamped in either position for faster or slower speed.

The clutches may be arranged so that both can be held out of gear at the same time. In another arrangement one clutch pinion may be arranged to act in one direction and the other in the opposite direction.

In cases where the shaft *w* is provided with two chain pinions arranged to simultaneously drive the main roller wheel *d*, they may be secured to such shaft by clutch devices in such way as to drive in one direction only so that while both chains transmit the power, differential movement of the two parts of the main roller is provided for. Differential gear and variable speed gear in any of the recognized forms may be provided where desired as will be understood. When the driving is effected by belts, the belts employed can be of the common flat type or belts of triangular section such as frequently used on motor cycles.

As the speed of a roller is necessarily slow a low gear is required, and the rider has therefore such great power at command that instead of the heretofore irksome work of pulling, the working of the roller becomes a pleasant form of exercise while the weight of the rider is of useful effect. The improved machines can be constructed suitable for operation by persons of either sex.

As with the improved roller the feet of the operator are not on the ground there is no possibility of damage to a lawn by treading on it, when rolling in damp weather or after and during heavy rain.

What I claim is:—

1. In a garden or road roller, a front roller, a back roller, a frame in which said rollers are mounted, a frame mounted on said roller frame adapted to support a rider, a driving shaft adapted to be rotated by a person riding on said rider supporting frame, an intermediate shaft, gearing between said driving shaft and said intermediate shaft, gearing between said intermediate shaft and said back roller, an approximately vertical rod the lower end of which is forked, a steering handle on the upper end of said rod, and a frame in which said front roller is mounted pivoted to the forked end of said rod at right angles to said front roller in the plane containing the axis of said front roller.

2. A garden or road roller comprising a front roller, a back roller, a frame adapted to support a rider and carried by said rollers, a driving shaft adapted to be rotated by a person riding on said frame, and a ballast

box carried by said frame adapted to serve as a seat.

3. A garden or road roller comprising a front roller, a back roller, a frame adapted to support a rider and carried by said rollers, a driving shaft adapted to be rotated by a person riding on said frame, a ballast box carried by said frame adapted to serve as a seat, and a footboard hinged to said frame.
4. A garden or road roller comprising a front roller, a back roller, a frame adapted

to support a rider and carried by said rollers, a driving shaft adapted to be rotated by a person riding on said frame, and a water tank constituting a ballast box carried by said frame adapted to serve as a seat.

Signed at London England this 26th day of August 1909.

ARTHUR SAMUEL FRANCIS ROBINSON.

Witnesses:

CHARLES COPS,
H. D. JAMESON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
