

(No Model.)

2 Sheets—Sheet 1.

W. J. DREW.
CARPET SWEEPER.

No. 486,371.

Patented Nov. 15, 1892.

Fig. 1.

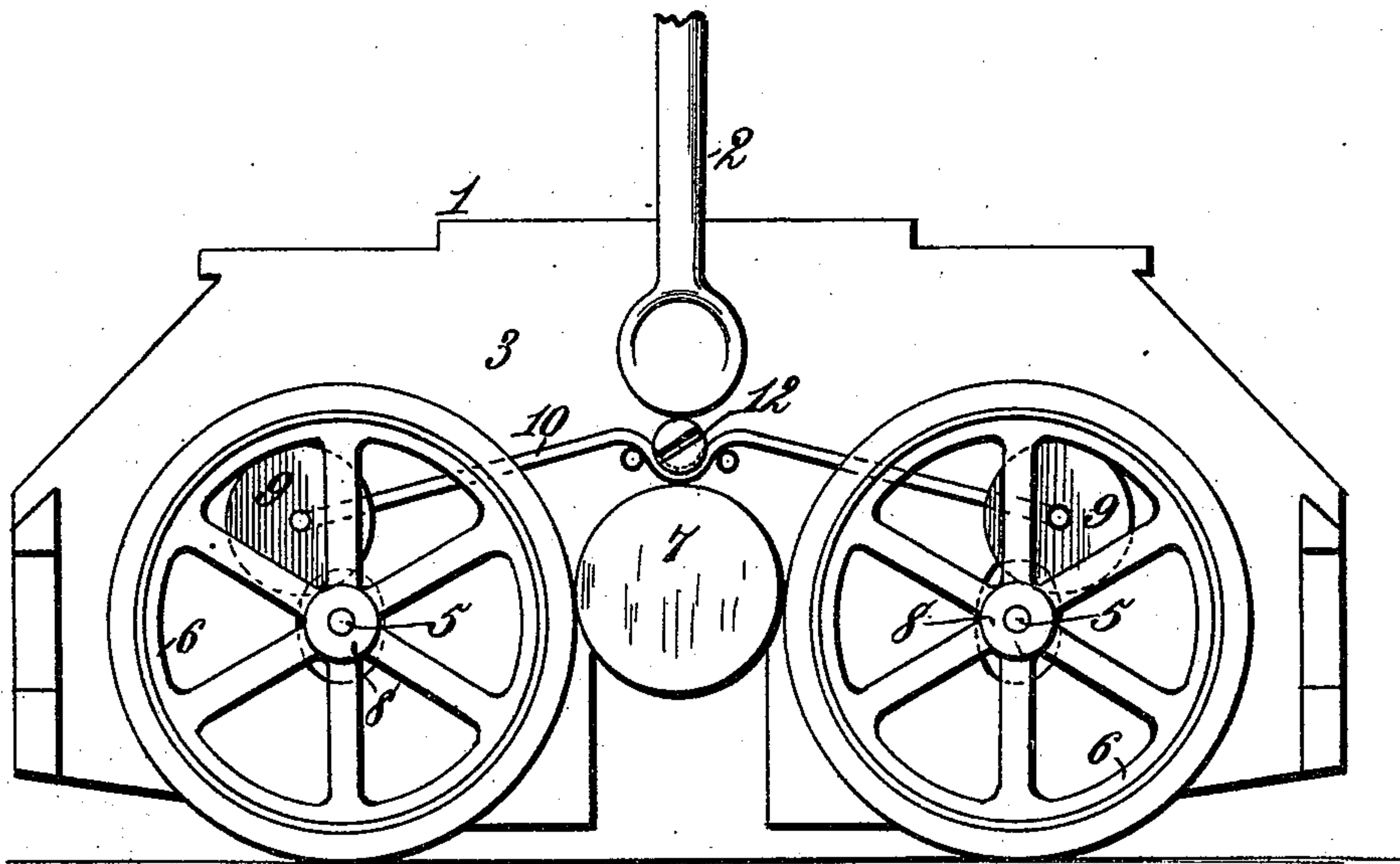


Fig. 2.

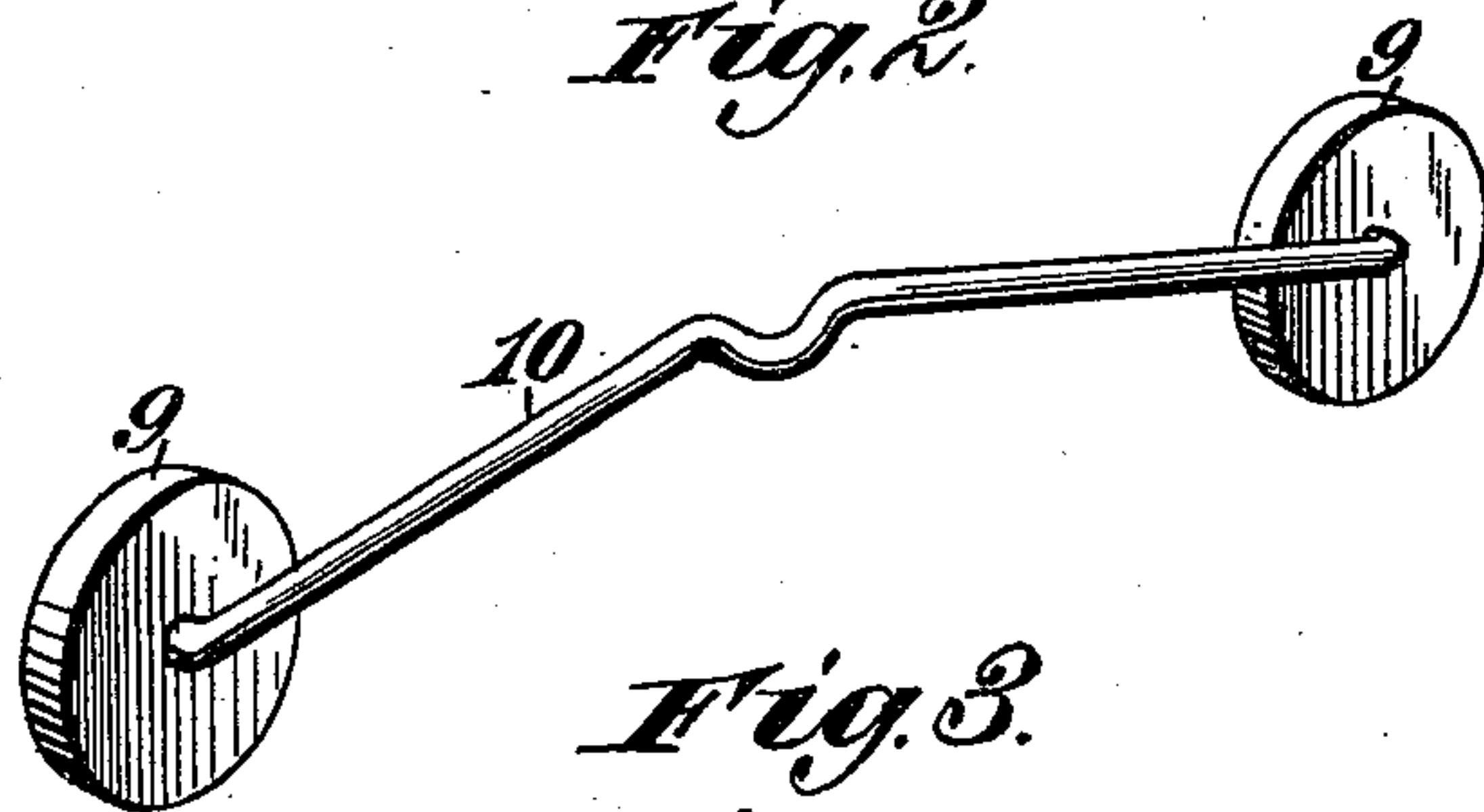
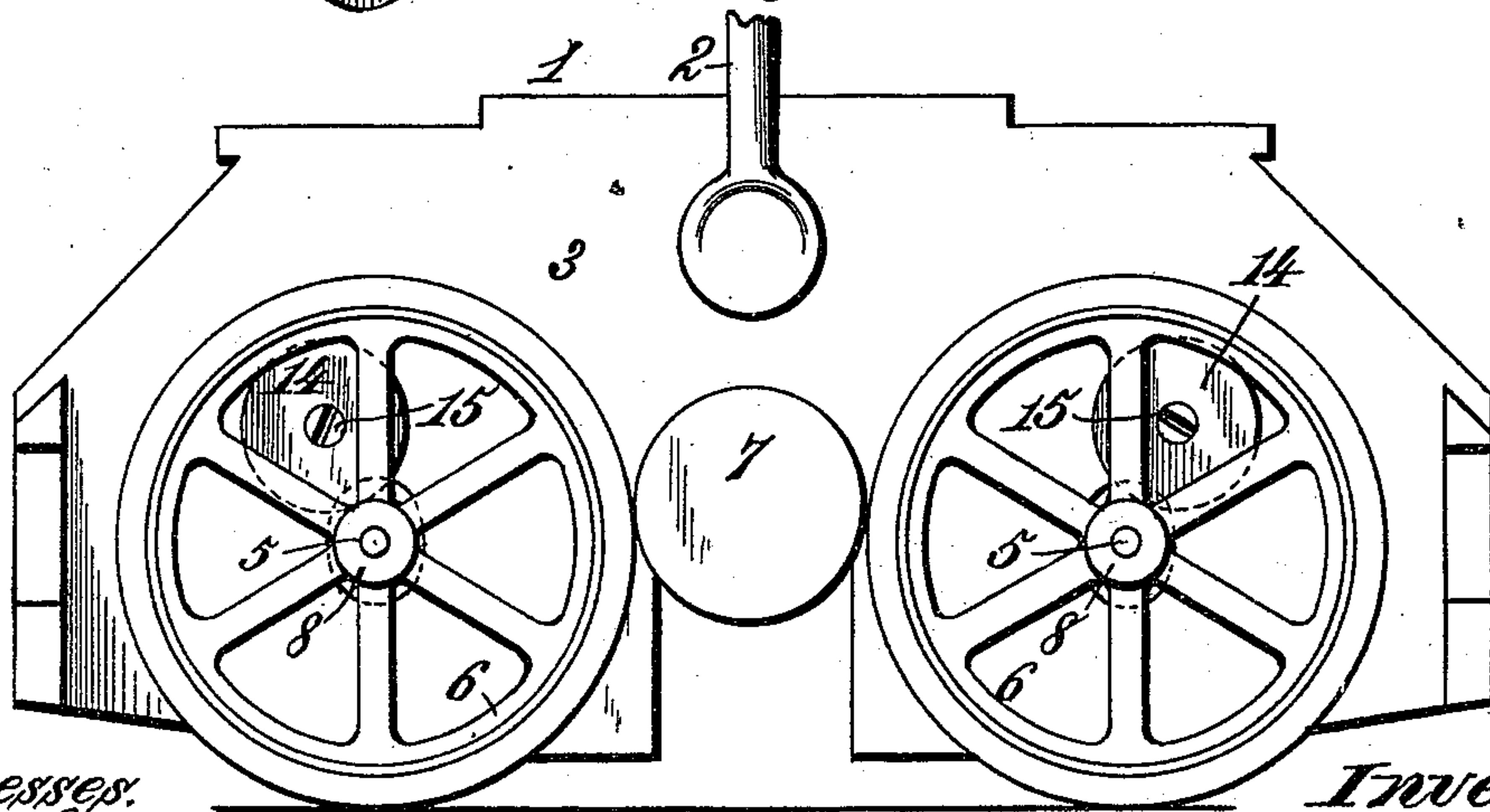


Fig. 3.



Witnesses:
Robert G. Smith.

Dennis S. Sully.

Inventor:

Walter J. Drew.
By *James L. Norris,*
Atty.

(No Model.)

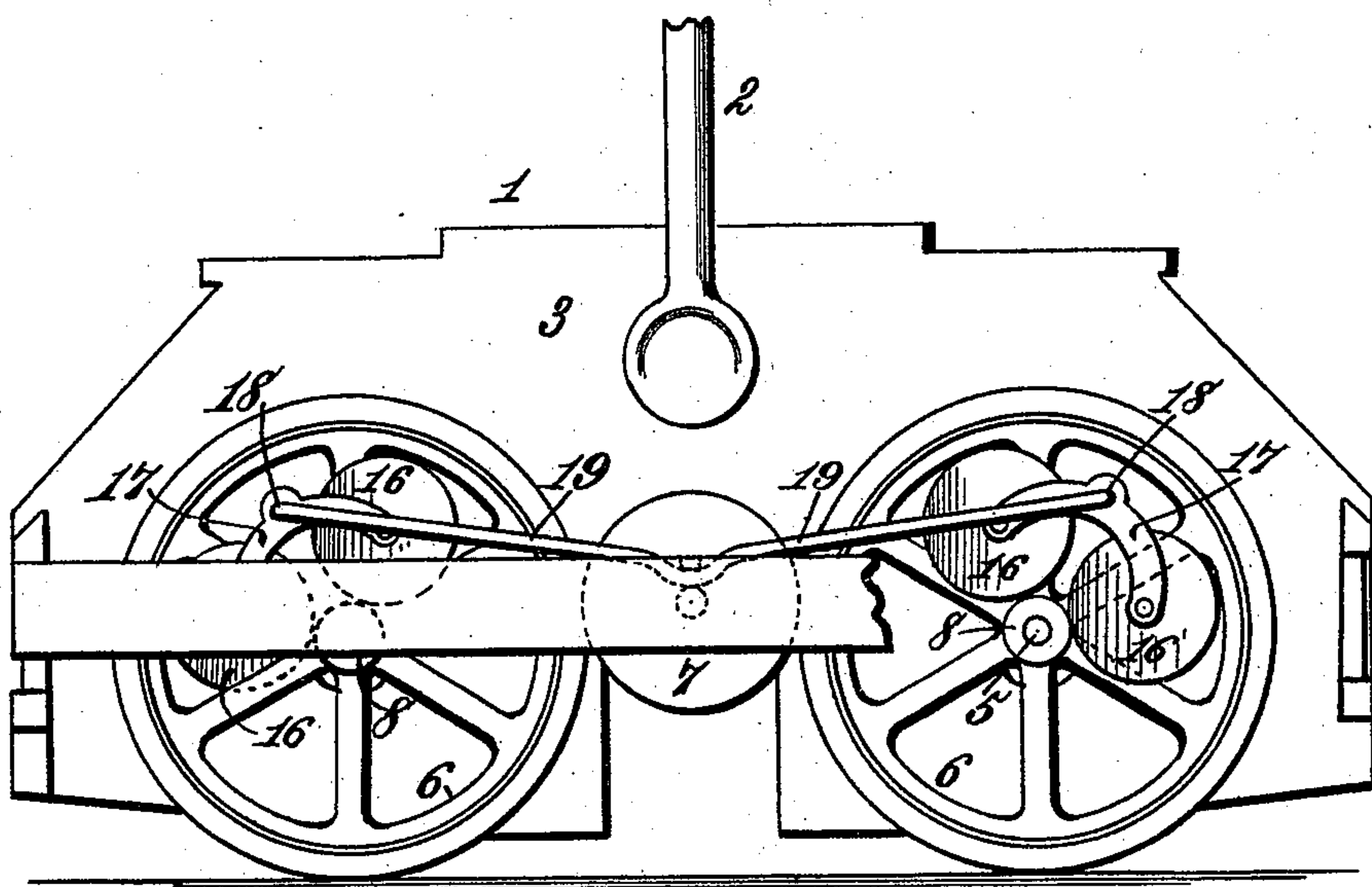
2 Sheets—Sheet 2.

W. J. DREW.
CARPET SWEEPER.

No. 486,371.

Patented Nov. 15, 1892.

Fig. 4.



Witnesses.
Robert Spruett,
Dennis Sumby.

Inventor.
Walter J. Drew.
By
James L. Norris,
Atty.

UNITED STATES PATENT OFFICE.

WALTER J. DREW, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO THE
BISSELL CARPET SWEEPER COMPANY, OF SAME PLACE.

CARPET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 486,371, dated November 15, 1892.

Application filed April 15, 1892. Serial No. 429,280. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. DREW, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Carpet-Sweepers, of which the following is a specification.

This invention has for its object to provide a new and improved antifriction-roller bearing for the drive-wheel of a carpet-sweeper, whereby the pulley on the brush-shaft forms one of the roller-bearings and one or more pulleys connected with the case and bearing upon the wheel-axle or a hub upon the wheel forms the other roller-bearing, said pulley or pulleys connected with the case and the brush-shaft or pulley thereon, together with the bearing upon the floor or carpet, supporting the drive-wheel, so that the drive-wheel will revolve with the least possible friction.

The invention also has for its object to provide novel means whereby the drive-wheel of a carpet-sweeper rests at one side of the wheel-base against the roller of the brush-shaft and the axle or hub of the drive-wheel is in contact with a friction-roller in a proper position to maintain a sufficient pressure between the brush-shaft and the drive-wheel and the drive-wheel will be held in place by the friction-roller bearings, the brush-shaft, and its contact with the floor.

The invention also has for its object to provide novel means whereby the drive-wheel of a carpet-sweeper rests at one side of the wheel-base against a roller-bearing and at the opposite side thereof against the brush-shaft, so that when pressure is applied to the sweeper-case the roller-bearing operates to force the drive-wheel toward the brush-shaft for the purpose of effectively rotating the latter.

The invention also has for its object to provide novel, simple, efficient, and economical means for obtaining the well-known broom action in a carpet-sweeper.

To accomplish these objects, my invention involves substantially the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is an end elevation of sufficient of

a carpet-sweeper to illustrate my invention, the antifriction-roller bearings being illustrated in dotted lines, as they are located between the sweeper-case and the drive-wheels. Fig. 2 is a detail side elevation of the antifriction-roller bearings and their supporting spring yoke or frame. Fig. 3 is an end elevation of a portion of a carpet-sweeper, showing a modification of my invention; and Fig. 4 is a detail end elevation of a sweeper-case, showing another modification of my invention.

It is my design to use my invention in all forms of sweepers, one form of sweeper being what is ordinarily known as the "broom-action sweeper"—that is, a sweeper in which the brush-roller can be moved toward the floor or carpet by downward pressure upon the sweeper case or handle. Another form of sweeper is the ordinary carpet-sweeper, in which the brush-roller cannot be moved appreciably to and from the floor by means of pressure upon the sweeper handle or case. The first form is illustrated in Fig. 1 and the second form by Fig. 3.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a carpet-sweeper case having a suitable handle-carrying bail 2 and an end wall 3. The axles, shafts, or supports 5 of the drive-wheels 6 are suitably arranged, so that when the latter rest upon the floor or other surface to be traversed the sweeper-case can be raised and lowered independent of the vertical movement of the drive-wheels. The brush-shaft 7 is interposed between the drive-wheels and may be of any construction suitable for the conditions required. As illustrated in Fig. 1, the drive-wheels are each provided with a hub or pulley 8, and on these hubs or pulleys at points outside of the wheel-base rests a portion of the peripheries of a pair of antifriction-roller bearings 9, composed of wheels or disks of any suitable construction, journaled on the end portions of an elastic yoke or frame 10, secured centrally between its ends, as at 12, to the end wall 3 of the sweeper-case. The drive-wheels bear against the brush-shaft at points inside the wheel-base, and obviously

if pressure is applied to the sweeper-case the antifriction-roller bearings 9 will move upward from their normal position, so that the hubs of the drive-wheels remain in frictional contact with such roller-bearings and the latter operate to force the drive-wheels in a direction toward the brush-shaft with more or less pressure, according to the force exerted on the sweeper-case in lowering it toward the floor or other surface traversed.

It will be observed that each drive-wheel has two bearings in addition to its bearing on the floor or other surface, one of such bearings being composed of the antifriction wheel or disk 9 and the other being composed of the brush-shaft, and when the drive-wheels rest upon the floor or other surface the axles or shafts of the drive-wheels are held away from frictional contact with the sweeper-case. In this example of my invention I do not wish to be understood as confining myself to any particular construction of yielding support for the antifriction-roller bearings, as the elastic yoke or frame can be variously constructed to attain the desired result or any form of support may be used without altering the character of my invention. In a carpet-sweeper constructed as above described, and as illustrated in Fig. 1, I am enabled to obtain the well-known broom action by the simple movement of the antifriction-roller bearings and yielding supports therefor.

In the modification Fig. 3 the antifriction-roller bearings are composed of wheels or disks 14, journaled on axles, shafts, or studs 15, suitably secured to the sweeper-case in such relation to the axles and drive-wheels that the antifriction-roller bearings rest against the wheel-hub or wheel-axle at suitable points for holding the drive-wheel in frictional contact with the brush-shaft at the point inside the wheel-base. In this example of my invention the antifriction-roller bearings are supported in any suitable manner by the case and are not designed to rise or fall independent thereof, but are so constructed or arranged as to retain the drive-wheel in position, so that its axle will have little or no contact with the sweeper-case when the sweeper is placed upon the floor in position for use. The roller-bearings rest upon the wheel-hubs or wheel-axles to maintain the drive-wheels against the brush-shaft with more or less pressure, and they may be so placed that the pressure will be increased by increased downward pressure through the handle or otherwise upon the sweeper-case.

It will be understood by those skilled in the art that the term "wheel-base" signifies that portion of the drive-wheel which rests upon the floor or other surface and drawing vertical lines from such points through the axes of the drive-wheels. It will be evident that antifriction-roller bearings in the form shown in Fig. 3 rest against the drive-wheels at a point outside the wheel-base, while the

drive-wheels themselves rest against the brush-shaft at a point inside the base. In the two different constructions exhibited the antifriction-roller bearings are carried by what I may term "parts" of the sweeper-case and the drive-wheels are preferably so supported as to be susceptible of being moved laterally to and from the brush-shaft, while the sweeper-case can rise and fall independent of the drive-wheels when my invention is applied to the broom-action sweeper in such manner that by pressure on the sweeper-case the antifriction-roller bearings are caused to force or press the drive-wheels against the brush-shaft with more or less pressure, according to the force exerted on the sweeper-case. I also prefer in the second form of my invention, as illustrated in Fig. 3, that the friction-pulley which bears against the hub of the wheel shall be placed so that increased friction can be produced by downward pressure upon the case through the handle or otherwise.

I do not wish to be understood as confining myself to any particular construction of sweeper-case or drive-wheels, or to any particular method of supporting the drive-wheels, nor do I wish to be understood as confining myself to a pair of drive-wheels at each end of the sweeper-case in connection with a pair of antifriction-roller bearings, for obviously if a single drive-wheel is used to act on the brush-shaft one or more antifriction roller-bearings can be employed to act on said drive-wheel for the purpose of retaining the same in proper relation to the brush-shaft and effectually rotate the latter.

I do not intend to confine my invention to one antifriction-roller, as two or more may be used; but I deem the construction with one antifriction-roller preferable, and it will be obvious that in case two or more rollers are used only such rollers will co-operate in connection with the axle of the drive-wheel as are opposite or substantially opposite the pressure exerted by the floor and the pressure exerted by the brush-roller upon the drive-wheel.

In the modification Fig. 4 two roller-bearings 16 are journaled to a segmental or curved plate 17, pivoted at 18 to one end of an elastic arm or rod 19, the opposite end of which is engaged with a part of the sweeper-case in any suitable manner. The pivotal point of attachment 18 of the plate 17 is located outside the wheel-base, so that upward pressure on the drive-wheel increases the frictional contact between the latter and the brush-shaft and the two roller-bearings equally resist the upward pressure of the drive-wheel.

Having thus fully described my invention, what I claim is—

1. The combination, with a carpet-sweeper case, a drive-wheel, and a brush-shaft, of an antifriction-roller bearing, substantially as described.

2. The combination, with the carpet-sweeper case, a drive-wheel, and a brush-shaft, of an antifriction-roller, said drive-wheel held away from frictional contact with the case
5 by means of the antifriction-roller, the brush-shaft, and its bearings upon the floor, substantially as described.

3. The combination, with a carpet-sweeper case, a drive-wheel, and a brush-shaft, of an
10 antifriction-roller bearing acting to force or press the drive-wheel toward the brush-shaft when pressure is applied to the sweeper-case, substantially as described.

4. The combination, with a carpet-sweeper
15 case and a drive-wheel, of a roller-bearing acting on the drive-wheel outside the wheel-base and a brush-shaft acted on by the drive-wheel inside the wheel-base, so that by pressure on the sweeper-case the roller-bearing

forces or presses the drive-wheel toward
20 the brush-shaft, substantially as described.

5. The combination, with a carpet-sweeper case and a drive-wheel, of an elastic support carrying a roller-bearing, substantially as described.

6. The combination, with a carpet-sweeper case and a drive-wheel, of an elastic support carrying a roller-bearing which acts on the drive-wheel outside the wheel-base and a
25 brush-shaft acted on by the drive-wheel inside
30 the wheel-base, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

WALTER J. DREW. [L. S.]

Witnesses:

EDWARD TAGGART,

HARRY P. VAN WAGNER.