

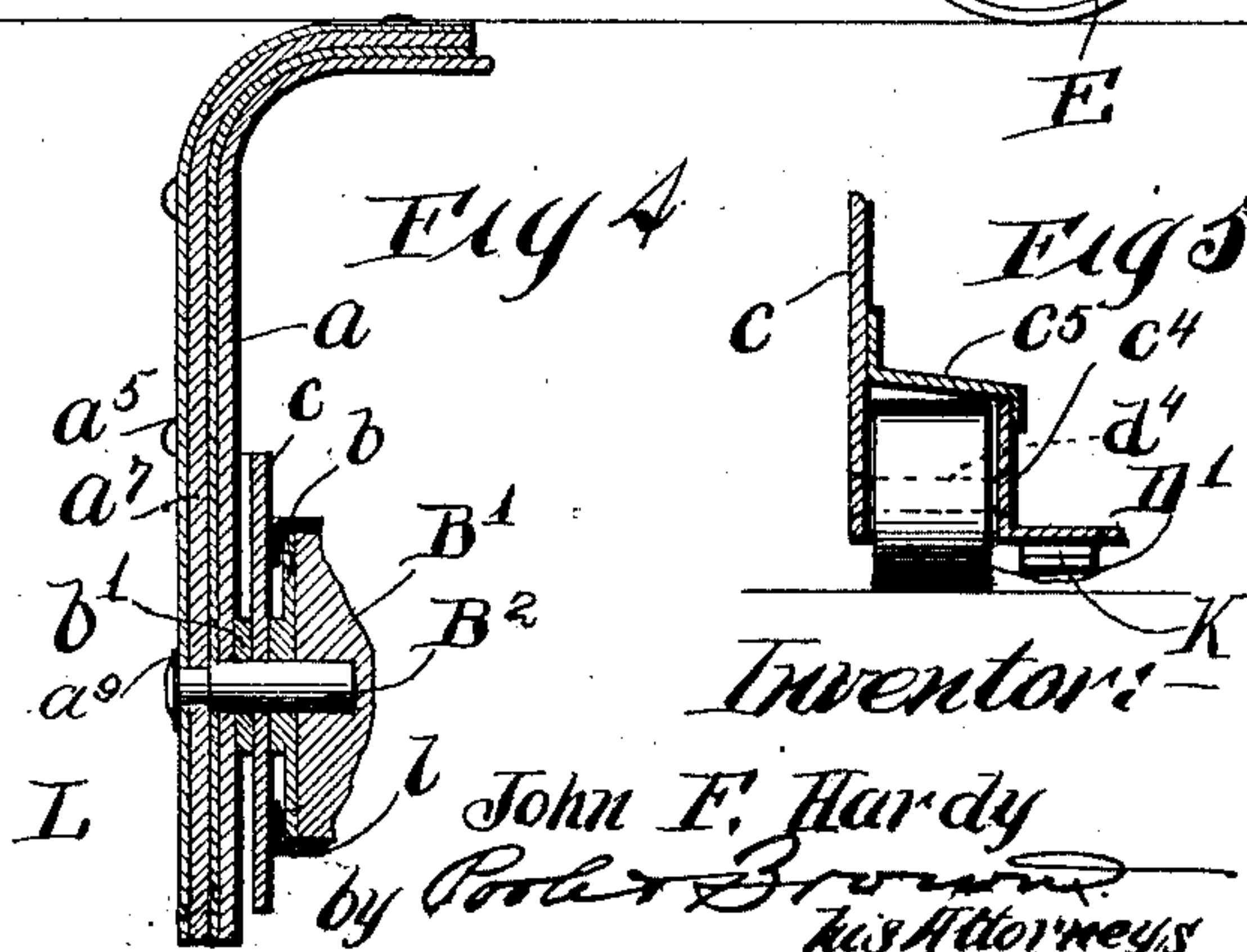
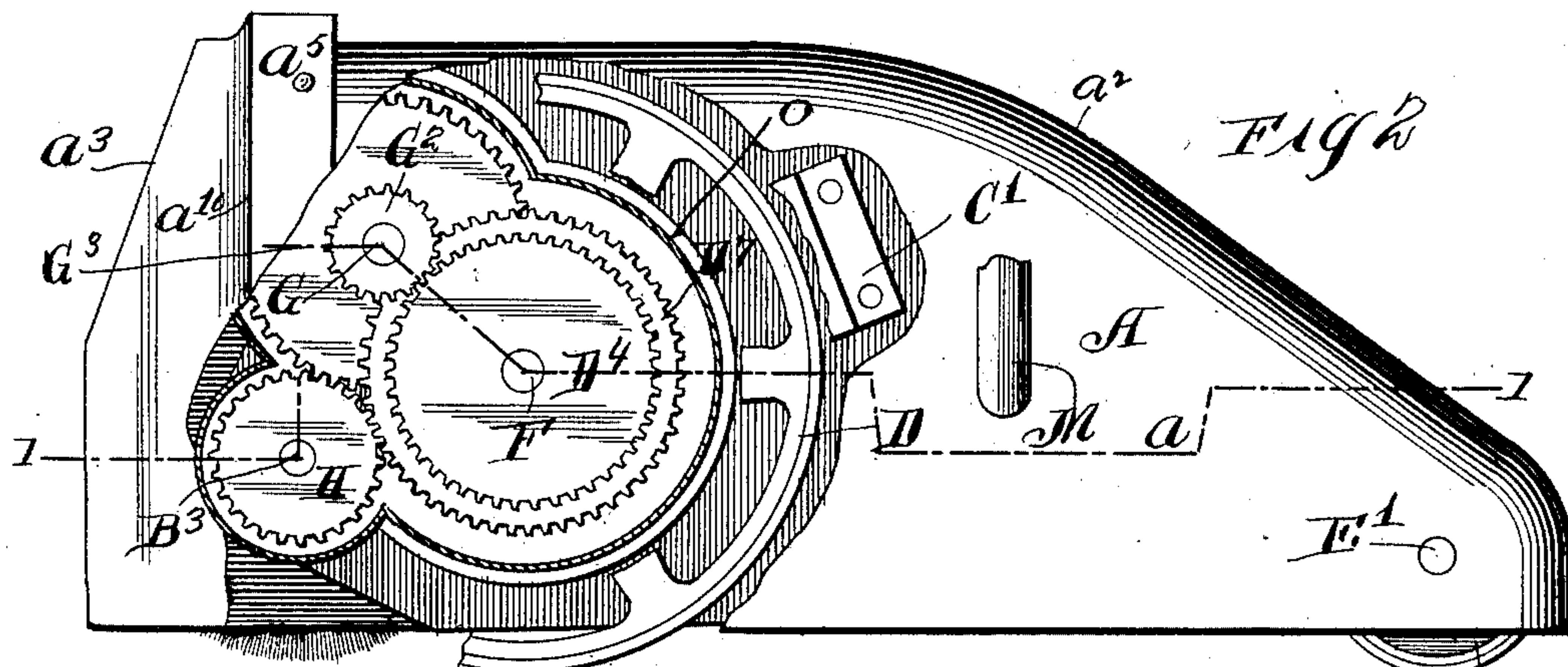
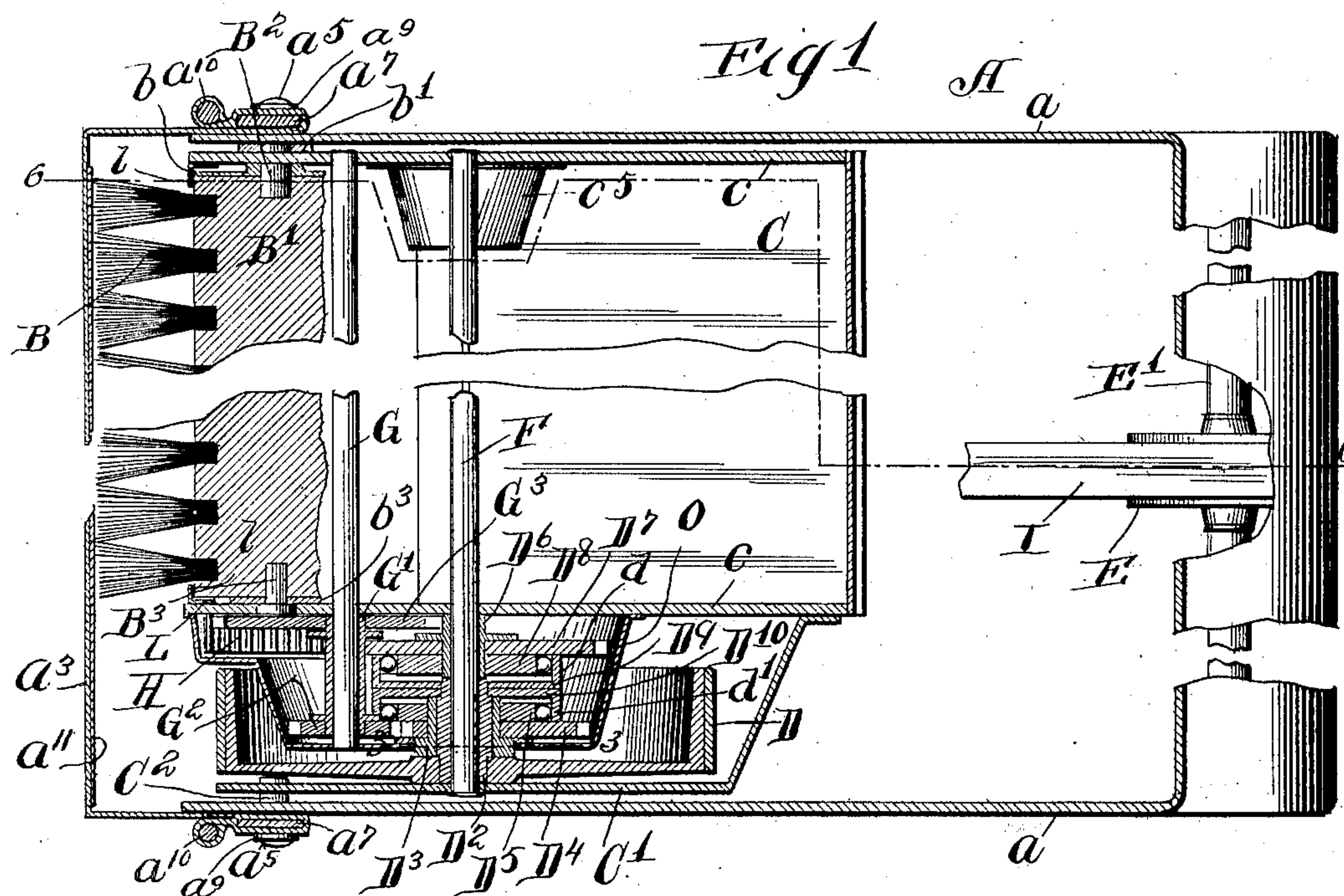
No. 756,359.

PATENTED APR. 5, 1904.

J. F. HARDY.
CARPET SWEEPER.
APPLICATION FILED FEB. 8, 1900.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
Carl H. Crawford
William Hall

John F. Hardy

by Robert Brown
his Attorneys

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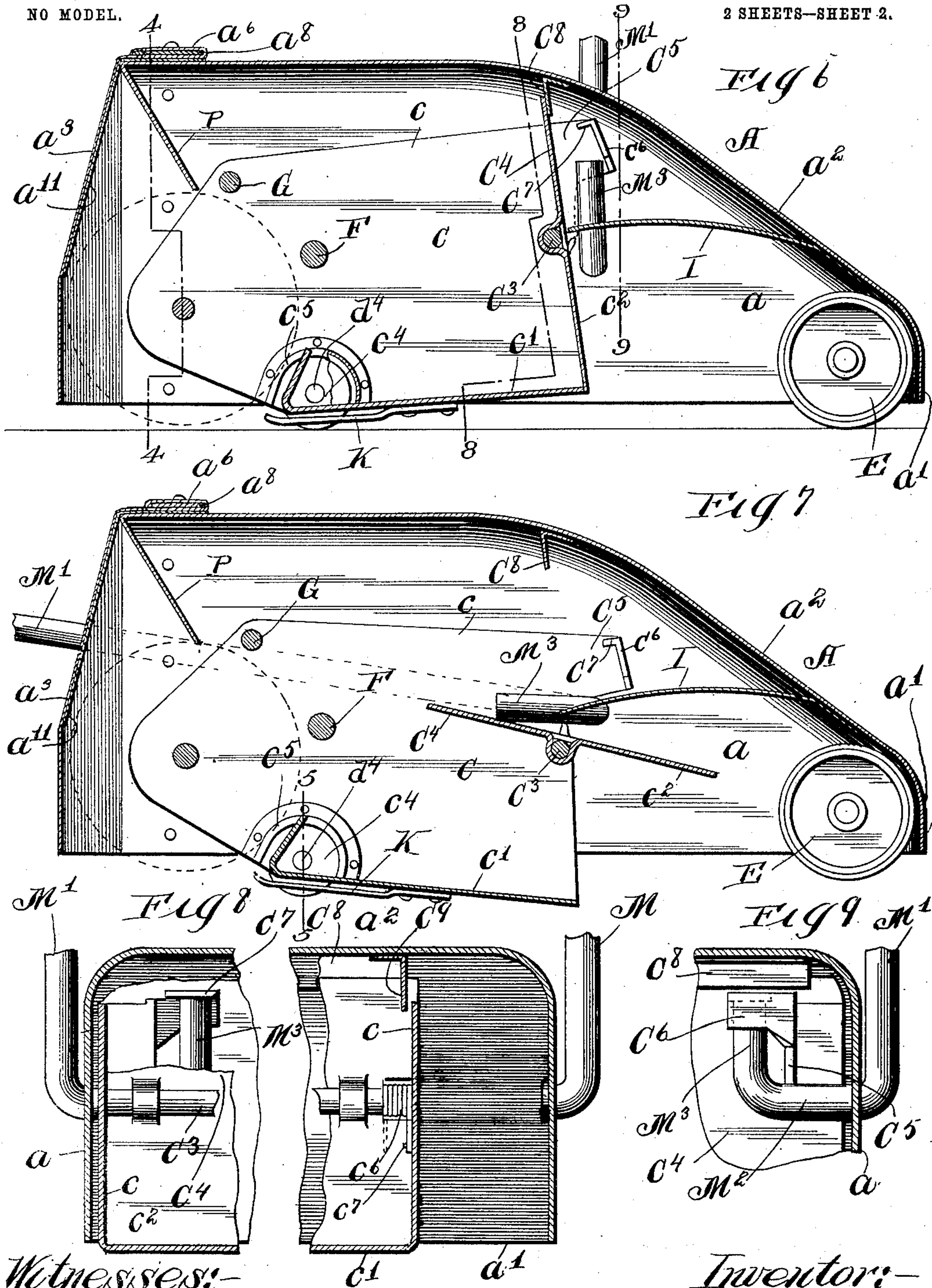
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UNITED STATES PATENT OFFICE.

JOHN F. HARDY, OF CHICAGO, ILLINOIS.

CARPET-SWEEPER.

SPECIFICATION forming part of Letters Patent No. 756,359, dated April 5, 1904.

Application filed February 8, 1900. Serial No. 4,441. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. HARDY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
 5 Improvements in Carpet-Sweepers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon,
 10 which form a part of this specification.

This invention relates to improvements in carpet-sweepers of that class comprising a casing, a rotative brush therein, and a pan which is located inside the casing in position
 15 to receive the sweepings from the brush.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a longitudinal
 20 horizontal section of a sweeper made in accordance with my invention, taken on line 1 1 of Fig. 2, with parts broken away. Fig. 2 is a side elevation thereof with parts broken away to show the construction of the driving
 25 mechanism. Fig. 3 is a detail of the clutch constituting a part of the driving mechanism, said view being taken on line 3 3 of Fig. 1 and breaking away parts of the view to better illustrate other features thereof. Fig. 4
 30 is a vertical detail section taken on line 4 4 of Fig. 6, illustrating the means for attaching the collapsible end of the casing to the rigid part thereof. Fig. 5 is a detail vertical section taken on line 5 5 of Fig. 7. Fig. 6 is a longitudinal vertical section of the sweeper, taken
 35 on line 6 6 of Fig. 1. Fig. 7 is a similar view taken on the same line, showing the sweepings-pan in its lower or dumping position. Fig. 8 is a transverse section taken on line 8 8
 40 of Fig. 6 with the dumping-pan in a lower position than shown in Fig. 6 and with parts broken away. Fig. 9 is a transverse detail section taken on line 9 9 of Fig. 6, the sweepings-pan being in the same position as shown
 45 in Fig. 8.

As shown in said drawings, A designates the casing, which contains the operative parts of the sweeper. Said casing consists of side walls a a , a rear wall a' , a top wall a'' , and a
 50 front wall a''' . The top, side, and rear walls

of the casing will desirably be made from a single piece of sheet metal bent to proper form. The front wall is made collapsible and is shown as made from flexible material, such as canvas.

B designates a brush which is rotatively mounted at the front end of the casing, adjacent to the collapsible end thereof.

C designates a sweepings-pan which is located inside of the casing in rear of the brush.
 60 The sweepings-pan is made generally rectangular and consists of side walls c c , a bottom wall c' , and a rear pivoted wall c'' , having the form of a gate, which closes the rear end of the pan and adapted to be opened when
 65 the sweepings are to be dumped from the pan. The said pan is pivoted at its forward end at places in alinement with the axis of the brush and is supported at its rear end on the wheels
 70 D D'. The wheel D is made of greater diameter than the wheel D' and constitutes the driving-wheel of the sweeper and is connected by suitable driving connections with the brush, whereby motion is transmitted from
 75 the wheel to the brush. Said mechanism is so constructed that the brush will be driven forwardly during both the forward and backward movements of the sweeper. The sweepings-pan is not made the full width of the casing and is located at one side thereof. A
 80 space is left on the other side of the casing between the pan and casing-wall for the driving-wheel D and the connections between the same and the brush B. Said pan is pivoted at one side on a part on which the brush rotates
 85 and is provided at its other side with an arm C', which extends laterally outside of the driving-wheel and driving connections and is pivoted to a pintle C² on the casing-wall in line with the axis of the brush. The pan serves
 90 as a support for the driving-wheel D and supporting-wheel D'.

The rear end of the casing is supported on a trailing wheel E, which is rotatively mounted on a transverse shaft E', which latter is secured at its ends to the side walls of the casing. The shaft E' is made somewhat resilient, so that the wheel E is yieldingly connected with the casing. The supporting-wheel D' is mounted on a shaft d' , which is connected rig-
 100

idly at one end with a side wall of the pan and at its other end with a vertical lug c^4 , which is turned upwardly from the bottom of the pan. Through the opening from which
 5 said lug is turned the supporting-wheel D' projects, as shown more clearly in Fig. 5. A shield c^5 is provided in the pan, which protects said wheel D' and prevents sweepings coming in contact with the rotating part thereof.

10 A spring I , having the form of a leaf-spring, is attached at its rear end to the upper wall of the casing, at the rear end thereof, and projects forwardly and acts with a downward pressure on the rear end of the sweepings-pan
 15 and tends to normally hold the rear end of the pan depressed and the brush elevated out of contact with the supporting-surface. When pressure is applied to the casing through the medium of the handle, the spring yields and
 20 permits the rear end of the pan to rise and the brush to be lowered to the surface on which the driving-wheel rests.

Next, referring to the construction of the brush and the manner of mounting the same
 25 in the casing, the parts are made as follows: The brush-core B' extends from one side of the sweepings-pan to the other at the front end of the pan. B^2 designates a short pintle which extends through one of the side walls
 30 of the casing and through a pivot-opening in the adjacent side wall of the sweepings-pan and engages an axial bearing in the brush-core, and upon such pintle the brush rotates. Said pintle B^2 is rigidly connected with the side wall
 35 of the casing in a manner hereinafter to be described. Between the side wall of the casing and the side of the sweepings-pan is interposed a washer b' , which maintains said parts properly separated. The end of the brush-
 40 core is provided with a metal facing-plate b , which is centrally apertured for the passage of the pintle therethrough. Within the opposite end of the brush-core is tightly driven a shaft B^3 , which extends at its outer end
 45 through the adjacent wall of the sweepings-pan. A washer b^3 is interposed between the end of the brush-core and the adjacent wall of the sweepings-pan, and the shaft is provided with an enlargement, which is driven
 50 tightly against the washer b^3 . The said shaft B^3 extends a distance outside of the sweepings-pan, and to the outer end thereof is attached a brush-pinion H , having a relatively wide face.

55 It will be seen that the brush has bearing at one end on the pintle B^2 , which is rigid with one wall of the casing, and at its other end has bearing in the opposite side wall of the sweepings-pan. Said pan is pivoted through
 60 the arm C' and pintle C^2 in line with the brush-axis, and said brush is thereby maintained in proper alinement, and the pan oscillates about an axis coincident with the brush-axis.

The brush end of the casing, as before stated,
 65 is made of flexible material, such as canvas,

and is provided at its rear margin with two side hems a^5 a^5 and an intermediate hem a^6 , which overlie the side and top walls of the casing at the front ends thereof. Within said
 side hems are contained rigid strips a^7 a^7 , 70 which are attached by rivets or the like to the vertical side walls of the casing and serve to hold the parts of the flexible wall engaged with the side walls of the casing in place. The upper
 75 ends of said strips a^7 are bent at an angle to the main parts of the strips, and said bent portions extend a short distance over the top wall of the casing on each side thereof and are located in parts of the horizontal hem of the
 80 flexible-brush end a^3 , overlying said top wall. A like rigid strip a^8 is contained within intermediate part of the hem a^6 on the top wall and fastened by rivets or like means to said top wall. The bending or folding of the upper
 85 ends of the side fastening-strips over the upper wall of the casing, as above described, serves to strengthen the metal forming the casing at the junction of the side and top walls and tends to prevent the side walls of the casing from being spread outwardly. 90

The pintle B^2 , on which one end of the brush-core rotates, is fastened to the adjacent fastening-strip a^7 . The outer end of said pintle is reduced, and said reduced part extends
 through said strip and its investing-hem, 95 whereby is formed on said pintle an outwardly-facing annular shoulder, which bears against the inner face of the strip a^7 . A washer a^9 is riveted on the extreme outer end of said pintle, outside the hem a^5 , and fastens the pintle rigidly to the fastening-strip and therethrough
 100 to the wall of the casing. The pintle C^2 on the other side of the casing is similarly attached to the adjacent fastening-strip a^7 . In order to prevent the washers at the end of the
 105 pintles B^2 C^2 from coming in contact with articles on the floor which is being swept, cushioning-cords a^{10} are located in front of the side hems a^5 a^5 and contained, as herein shown, in smaller hems formed from the same material 110 of which the hems a^5 are made.

The provision of the collapsible end of the casing enables the sweeper to sweep entirely to perpendicular objects higher than the casing, such as the base-board of a room or an
 115 article of furniture on the floor, and thereby enables the brush to contact with the floor at the angle between the floor and perpendicular objects. Moreover, the presence of said collapsible end located in front of the brush prevents the brush coming in contact with such
 120 perpendicular objects and depositing thereon sweepings which may cling to the brush. Furthermore, said collapsible end of the casing, while permitting the sweeper to be moved
 125 closely to perpendicular objects, prevents the brush from throwing dust clinging thereto outwardly into the room in front of the brush.

The driving-wheel D is provided with a central hub D^2 and is mounted to rotate on a shaft 130

F, which extends transversely across the sweeping-casing and is attached at one end to the side wall of the pan by riveting. Said shaft passes through the other wall of said pan and extends laterally outside thereof and is attached at its end to the pan-arm C'. On the hub D², which is slipped over the shaft F, is rotatively mounted a sleeve D³. On said sleeve is rigidly mounted a gear-wheel D⁴ and a disk D⁵, the disk and wheel being located side by side on the sleeve and connected rigidly. D⁶ designates another sleeve, which is is mounted on the shaft inside the sleeve D³ and rotates thereon. Said sleeve D⁶ carries a gear-wheel D⁷ and a disk D⁸, like the similar parts D⁴ and D⁵ above mentioned. The wheel D⁷ meshes with the brush-pinion H. The said disks D⁸ and D⁵ are on proximate sides of the wheels D⁴ D⁷ and are separated a distance from each other. The sleeve D⁶ and hub D² are held from endwise movement on the shaft between the adjacent side of the sweepings-pan and the arm C' of said pan. Rigidly mounted on the inner end of the said hub D² are two circular plates D⁹ D¹⁰, which are arranged face to face and closely adjacent each to one of the disks D⁵ D⁸. Said plates D⁹ D¹⁰ are provided on their peripheries with oppositely and laterally extending annular flanges d' d' of slightly greater diameter than the disks D⁵ D⁸. The flange d' surrounds the disk D⁵, and the flange d' surrounds the disk D⁸. The disks D⁵ D⁸ are provided with peripheral recesses d², constituting races, and within said recesses and between the same and flanges d' d' of the plates are located spherical rollers or balls d³. Said recesses are each of a depth at one end to entirely contain a ball d³, but shallow at its opposite end, and the shallow parts of all the recesses of each disk are disposed in the same circumferential direction, while the arrangement of the recesses of the two disks is reversed. The plates D⁹ D¹⁰ rotate together, and the flange of one of the plates when the plate is rotated passes over the balls in the recesses of one of the disks by reason of their being in the deeper parts of the recesses; but the balls in the other sets of recesses are pinched between the flange of the other plate and the shallow bottom of the recesses, so that rotary motion is communicated to the associated disk and gear-wheel. A reversal of rotation of the plates locks the second disk and gear-wheel to the driving-wheel and releases the first gear-wheel and disk.

G designates a shaft located in the front end of the side walls of the sweepings-pan and above and slightly forward of the shaft F. Said shaft is attached at one end to the side wall of the pan and passes at its other end through the other side wall of the pan and extends a distance laterally outside of the same. Rotatively mounted on said shaft G outside of the wall of the pan is a sleeve G'.

Said sleeve carries at its outer end a gear-pinion G², rigid therewith, which meshes with the gear-wheel D⁴ on the shaft F, and said sleeve carries at its inner end a gear-wheel G³, rigid therewith, which meshes with the gear-pinion H. Said pinion H has a wide face to provide space for the gear-wheels G³ and D⁷.

The construction of the driving mechanism described is such that when the sweeper is being moved in a forwardly direction the clutch mechanism will lock the gear-wheel D⁴, so as to rotate with the driving-wheel D, and said gear-wheel acts through the pinion G², the sleeve G, and the gear-wheel G³, and the brush-pinion H to drive the brush in a forwardly direction. When, however, the sweeper is being moved in a rearwardly direction, the said clutch mechanism locks the gear-wheel D⁷ to rotate with the driving-wheel, and said gear-wheel D⁷ acts directly on the brush-pinion H to drive the brush in a forwardly direction.

If the brush be rotated at equal speeds both when the sweeper is being moved forwardly and when it is moved rearwardly, it will be obvious that the sweeping efficiency of the brush will be much greater when moving rearwardly than when moving forwardly. It is desirable that the efficiency of the brush be maintained substantially uniform, and I have constructed the driving mechanism between the driving-wheel and the brush to produce this result. For this purpose the gear-wheels D⁴ G³ and the gear-pinion G² are made of such size that they transmit a higher speed to the brush when the sweeper is moving forwardly than is transmitted by the gear-wheel D⁷ when the sweeper is moving rearwardly.

The sweepings-pan will preferably be connected with the operating-handle in such manner that said pan may be dumped of its contents by the proper manipulation of the handle. The construction by which this result is effected is as follows:

The rear wall of the sweepings-pan, as before stated, is pivoted upon a transverse rod C³, which is rigidly connected at its outer ends to the side walls of the sweepings-pan. Said pivoted wall acts as a gate to close the rear end of the pan. C⁴ designates an upward extension of said gate, which extends almost to the upper wall of said casing and affords a partition above the pan which prevents sweepings from being thrown backwardly over the pan. The said pivoted wall is provided in line with the spring I with a lug on which said spring rests, so as to exert pressure on the pan. The gate is held in its closed position by means of a spiral spring c⁶, Fig. 8, which is wound around the rod C³ and secured at one end to the casing by means of a pin c⁷ and with the other end thereof bearing against the outer face of the gate or wall below the pivot.

The operating-handle is made of usual form

and is provided at its lower end with fork-arms M M', which are pivoted to the side walls of the casing. The arm M' is extended inwardly through the wall of the casing in the rear of the sweepings-pan and is provided in its inner end with a horizontal part M² and a right-angle part M³, forming a crank. The right-angle part of said crank is located in the rear of the upward extension C⁴ of the gate and in position to engage the same when the handle is moved forwardly beyond the perpendicular. With this construction when the handle is thrown toward the brush end of the casing the said crank portion M³ engages the extension C⁴ and acts to move the same forwardly and the lower end of the gate rearwardly, as shown in Fig. 7, thereby opening the rear end of the pan. The crank-arm and the adjacent parts of the pan are so constructed that at this time the rear end of the pan is free to fall downwardly to permit the proper inclination of the pan for dumping the same.

The rear end of the pan is provided on the upper part thereof adjacent to the crank-handle with a rearwardly-projecting arm C⁵, which projects over the horizontal part of the crank-arm, as shown in Figs. 7 and 9, and is located normally above the horizontal part of the crank a distance to permit the proper drop of the pan to give the required inclination thereto when the pan is being dumped and strikes the horizontal part of the crank to limit the dumping movement of the pan. The said arm C⁵ is herein shown as having the rear end thereof bent inwardly away from the side wall of the casing for the purpose of preventing the same from coming in contact with the curved wall of the casing between the top and side walls thereof as here constructed. In case the angle between the top and side walls be a right angle said arm may be modified accordingly. The horizontal portion of the crank-arm affords a convenient stop for the sweepings-pan. The said arm C⁵ is so formed that it coacts with the crank when the handle is in a substantially vertical position, and the sweeper is lifted by the handle from the floor, whereby it holds the casing and the pan in a substantially horizontal position, so that it may be carried without danger of the contents of the pan being dumped or the sweeper-casing swinging out of its proper relation with respect to the handle. The construction by which this result is secured is as follows: The arm C⁵ is provided on its rear end with a right-angle bend, forming a lateral stop C⁶, which is perpendicular to the side wall of the casing, and said stop C⁶ is provided on its upper edge with a forwardly-directed horizontal stop C⁷. Said stop C⁶ is just in rear of the upper end of the crank-arm M³, and the stop C⁷ when the sweeper is resting on the floor is located above and out of contact with the upper end M³ of said crank-arm, as shown in Fig. 6, but in posi-

tion to engage said arm when the pan drops a short distance, as shown in Figs. 8 and 9. The stop C⁶, which is in rear of the upper end of the crank-arm, is so formed as to permit the crank-arm and the operating-handle to be swung rearwardly into the operative position for the handle when the sweeper is resting on the floor, as shown in Figs. 6 and 9. With this construction when the handle is moved to a substantially vertical position and the sweeper is lifted off the floor thereby the pan will drop until it is arrested by contact of the stop C⁷ with the upper end of the crank-arm, as shown in Figs. 8 and 9. Said stop-arm will prevent the pan from dropping farther, and the sweeper will be prevented from tilting forwardly by engagement of the laterally-directed stop C⁶ with the rear surface of the crank-arm M³. The sweeper may then be carried in this position, and when it is desired to dump the same the handle will be moved toward the front end of the sweeper until it is out of line with the stop C⁷, when the pan may be further dropped until arrested by engagement of the stop-arm C⁵ with the horizontal portion M² of the crank. The operation of dumping the pan may be effected by grasping the lower front corner of the casing and the handle and bringing the same together.

In order to permit the pan to have the proper oscillatory movement in the sweeper-casing, the upper edge thereof should be separated from the upper wall of the casing when the parts are in the position shown in Fig. 6. In order to prevent the dust from being thrown backwardly by the brush over the extension C⁴, I have provided a downwardly-extending portion C⁸, which is connected with the top wall of the casing and fits against the rear surface of said upward extension when the gate or rear wall of said partition is in its normal position. Similarly, a flange or partition C⁹ is provided at the upper edge of the side of the pan adjacent to the driving connections to prevent the dust from being thrown over the side walls of the pan and into the space between said pan and the adjacent side wall of the casing.

As shown in Fig. 1, a dust-shield O is attached to the outer wall of the pan adjacent to the driving connections and extends over the driving connections inside of the driving-wheel. The spokes of said driving-wheel are located at the outer side of the rim thereof to provide space for said driving connections. The outer end of the shaft G is extended into contact with said shield O, as shown in said Fig. 1. Between said shield and the gear-wheel D⁴ around the hub of the driving-wheel is inserted a washer to prevent access of dust to the driving mechanism.

The upper wall of the casing, at the front end thereof, is turned downwardly to form a shield P, which extends at its lower end in rear of the central axis of the brush to pre-

vent sweepings from falling on top of the brush. The said part P also engages the brush and acts as a scraper to prevent the accumulations of sweepings on the brush.

5 The material forming the flexible wall a^3 is continued rearwardly at its sides to form parts of the side walls of the casing, as clearly shown in Figs. 6 and 7. The said wall is held outwardly away from the brush by means of
10 a spring-guard a^{11} , which is attached at its upper edge to the casing and extends obliquely downwardly in front of the brush. Said spring-guard acts to hold the flexible front wall of the casing in place and also serves
15 to prevent small objects, such as the legs of a chair and the like, from being pressed inwardly into the brush and damaging the same.

As the supporting-wheel D' is made of relatively small diameter, it may be desirable
20 in some instances to provide a shoe, as K, Figs. 5, 6, and 7, adjacent to said wheel, which will cooperate therewith to support the pan and therethrough the casing. Such shoe will be found to be useful in sweeping soft
25 carpets, such as moquettes or the like, and will tend to prevent the wheel from sinking deeply into the carpet. Said shoe is above the level of the bottom of the supporting-wheel, so that when the wheel is passing over
30 a hard surface, such as a floor, the shoe will be out of contact therewith. Both wheels D and D' will desirably be provided with yielding tires. Said shoe also extends at its forward end in front of the wheel D' and is
35 curved at its forward end concentric, or approximately so, with the axis of the wheel D. The purpose of this arrangement is to enable the shoe to take the weight of the sweeper when the pan is tilted to bring the brush in
40 contact with the floor. When the pan is so tilted by reason of the differences of diameters of the wheels D and D' and the fact that the axes of the wheels are located in the same vertical plane, the wheel D' will be raised off
45 the supporting-surface, so that the adjacent side of the casing will drop down and the adjacent end of the brush will bear with greater pressure against the surface being swept than the other end thereof. The shoe K, located
50 as shown in Figs. 6 and 7, takes the weight of the sweeper when the pan is tilted to raise the wheel D' from the floor. The wheel D' may, however, be located with its axis slightly in advance of the axis of the wheel D, so as
55 to be approximately in the correct position for holding the sweeper horizontal when the brush is in its average or mean depressed position.

60 In order to prevent the sweepings from entering between the ends of the brush-core and the walls of the sweepings-pan, plates L are attached to said pan and provided with inwardly-extending annular flanges l , which surround and closely fit upon the ends of the

brush-core, as more clearly shown in Figs. 1 65 and 4.

I claim as my invention—

1. The combination with a casing and a rotative brush therein, of a transverse shaft connected with and supported in the casing, a 70 driving-wheel on said shaft, laterally-separated rotative gear-wheels on said shaft, disks on the adjacent faces of the wheels and rigid therewith, annular gripping-flanges rotating with the driving-wheel and surrounding the 75 disks, ball-races in the peripheries of said disks, balls in said races adapted for engagement by the gripping-flanges and connections between said gear-wheels and the rotative 80 brush.

2. The combination with a casing and a rotative brush therein, of a transverse shaft connected with and supported in the casing, a driving-wheel rotative on said shaft provided with an inwardly-extending hub, a gear-wheel 85 rotating on said hub, a second gear-wheel laterally inside of the hub rotating on said shaft, means for locking one of said gear-wheels to the driving-wheel when the driving-wheel is rotating in one direction, and for locking the 90 other gear-wheel to rotate with said driving-wheel when said driving-wheel rotates in the opposite direction, and operative connections between said gear-wheels and the rotative 95 brush.

3. The combination with a casing, a rotative brush therein, a transverse shaft connected with and supported in said casing, a driving-wheel on said shaft provided with an inwardly-extending hub, a gear-wheel mounted to rotate 100 on the driving-wheel hub, a second gear-wheel laterally inside of said hub which rotates on the shaft, a pinion on the brush-shaft which meshes with said second gear-wheel, a transverse shaft in front of said driving-wheel 105 shaft, an idle pinion which rotates on said shaft and which meshes with the first gear-wheel, an idle gear-wheel rotating with the idle pinion and meshing with the brush-pinion, and means for locking said first gear-wheel 110 to rotate with the driving-wheel when the sweeper is being moved in one direction, and for locking the second gear-wheel to rotate with the driving-wheel when the sweeper is being moved in the opposite direction. 115

4. The combination with a casing, a rotative brush therein and a pinion on the brush, of transverse shaft connected with and supported in the casing, a driving-wheel rotatively 120 mounted on said shaft provided with an inwardly-extending hub, a gear-wheel loosely mounted on said hub, a second gear-wheel rotatively mounted on said shaft laterally inside the hub and meshing with the brush-pinion, disks 125 on the proximate faces of said gear-wheels and rotating therewith, two annular gripping-flanges connected with the driving-wheel and surrounding said disks, said disks being pro-

vided in their peripheries with ball-races, balls in said races adapted for engagement by said gripping-flanges, a second transverse shaft in front of the driving-wheel shaft, an idle pinion rotating on said shaft and meshing with the first-mentioned gear-wheel, and an idle gear-wheel rotating with the idle pinion and meshing with the brush-pinion.

5. The combination with a casing, a rotative brush therein, and a sweepings-pan in rear of said brush, of a shaft extending transversely across and rigidly attached at its ends to the side walls of the pan, a driving-wheel rotative on said shaft provided with an inwardly-extending hub, a gear-wheel rotative on said hub, a second gear-wheel rotative on the shaft laterally inside the hub, annular gripping-flanges rotating with the hub, disks on the proximate faces of said gear-wheels surrounded by said gripping-flanges and provided in their peripheries with ball-races, balls in said races adapted for engagement by said gripping-flanges, and operative connections between the said gear-wheels and brush-shaft.

6. The combination with a casing and a rotative brush and driving-wheel therein, of a sweepings-pan located within the casing, said pan being made of less width than the casing and located at one side thereof, and pivoted at its forward end to the casing in advance of the driving-wheel and supported at its rear end directly upon the floor, said driving-wheel being located between the pan and casing-wall, and operative connections between the driving-wheel and brush-shaft.

7. The combination with a casing and a rotative brush and driving-wheel therein, of a sweepings-pan within the casing, pivoted at one end to the casing-wall in advance of the driving-wheel and supported at its other end directly upon the floor, said pan being located on one side of the casing, and said driving-wheel being located between the pan and the side wall of the casing and provided with a wide rim having the spokes thereof located on one side of the rim, and driving connections between said driving-wheel and brush, which are located within the space surrounded by said driving-wheel rim.

8. The combination with a casing, and a rotative brush therein, of a pan in the rear of the casing which is made narrower than the casing, an arm on the pan projecting laterally therefrom, said arm and the opposite wall of the pan being pivoted to the casing in line with the axis of the brush.

9. The combination with a casing and a brush in one end thereof, of a sweepings-pan in the casing in rear of the brush said pan being made narrower than the casing and located at one side thereof, a driving-wheel between said sweepings-pan and one wall of the casing, driving connections between the wheel and said brush, and an arm on the pan projecting laterally outside of said driving-wheel and piv-

oted at its forward end to the casing-wall in line with the axis of the brush, the opposite wall of the pan being pivoted in line with the axis of the brush.

10. The combination with a casing and a rotative brush in the forward end thereof, of a sweepings-pan within the casing in rear of said brush, said brush being rotatively mounted at one end on a pintle which projects through the side wall of the casing, a shaft on the other end of the brush having bearing in the opposite wall of the sweepings-pan, and an arm on the pan projecting laterally outside thereof and pivoted at its forward end to the casing in line with the axis of the brush.

11. A carpet-sweeper having a casing, the main portion of which is rigid and the brush end of which is made flexible, hems in the rear margin of said flexible brush end which overlie the top and side walls of the casing, attaching-strips inserted in the side hems, and fastened to the side walls of the casing, said attaching-strips being provided at their upper ends with bent-over portions which overlie the upper wall of the casing, and a third attaching-strip in the hem overlying the upper wall of the casing and attached to the upper wall of the casing.

12. A carpet-sweeper comprising a casing, a rotative brush in the front end thereof, a sweepings-pan in the casing in rear of brush and pivoted to the casing, a driving-wheel designed for contact with the floor and rotatively mounted in one side of the pan driving mechanism connecting said wheel with the brush, a wheel journaled on the other side of the pan and a third wheel supporting the rear end of the casing and located between the sides thereof.

13. A carpet-sweeper comprising a casing, a rotative brush in the front end thereof, a sweepings-pan in the casing pivoted in line with the axis of the brush, a driving-wheel mounted on the sweepings-pan at one side of the casing, driving mechanism connecting the driving-wheel and brush, a supporting-wheel mounted on the opposite side of the pan, a spring on the casing bearing yieldingly against the pan when downward pressure is exerted on the casing, and a supporting-wheel at the rear of the casing located between the sides thereof and yieldingly connected with the casing.

14. The combination with a casing and a rotative brush therein, of a wheel located between the ends of the casing on a support, connected with the casing in a manner to oscillate about an axis coincident with the brush-axis, a spring on the casing bearing yieldingly against said support when downward pressure is exerted on the casing, and a shoe stationary with the wheel and adapted to cooperate therewith to support the sweeper.

15. The combination with a casing and a rotative brush therein, of two laterally-separated

wheels located between the ends of the casing on a support, connected with the casing in a manner to oscillate about an axis coincident with the brush-axis, one of said wheels being
5 larger than the other, a spring on the casing bearing against said support when downward pressure is exerted on the casing, and a shoe stationary with and adjacent to the smaller wheel, and having a part which is curved con-
10 centric with the axis of the larger wheel.

16. The combination with a casing and a ro-
tative brush therein, of a sweepings-pan in said casing which is pivoted in line with the axis
of the brush, two laterally-separated wheels
15 supporting the rear end of the pan, one of which is made larger than the other, and constituting the driving-wheel, driving connections between said driving-wheel and the
brush, and a shoe connected with the pan ad-
20 jacent to the smaller wheel, and having a part

which is curved concentric with the axis of the larger wheel.

17. The combination with the casing and a rotative brush therein, of a sweepings-pan piv-
oted at one end to the casing, and supported 25 at its other end from the floor, a gate closing the rear end of the pan, which is provided with a movable partition extending almost to the top wall of the casing, and a stationary par-
30 tition depending from the top wall of the cas- ing and overlapping said movable partition.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 6th day of February, A. D. 1900.

JOHN F. HARDY.

Witnesses:

C. W. HILLS,
GERTRUDE BRYCE.