

G. B. DEACON.
CARPET SWEEPER.

APPLICATION FILED MAY 20, 1907.

Patented Sept. 14, 1909.

3 SHEETS—SHEET 1.

933,893.

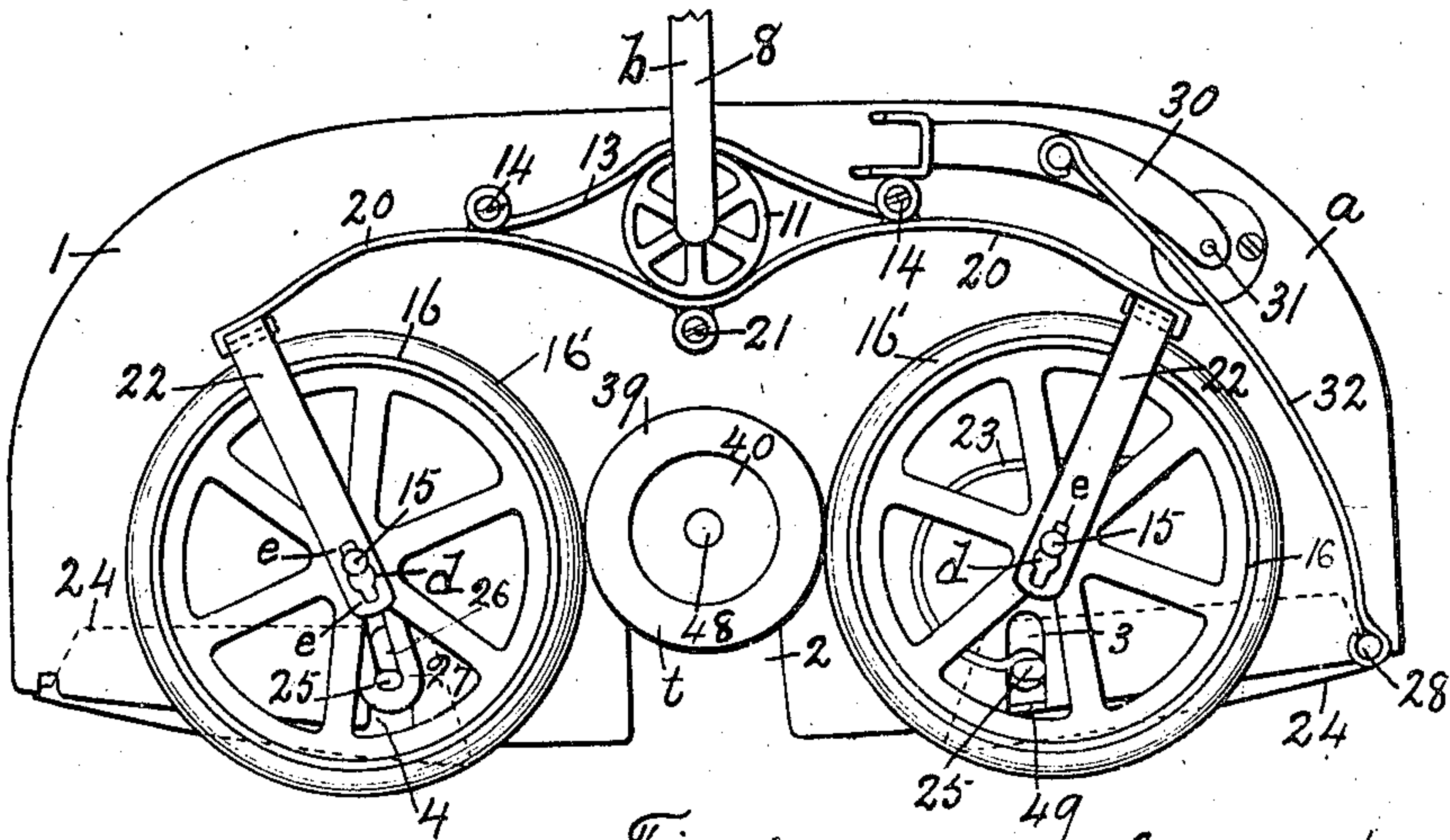
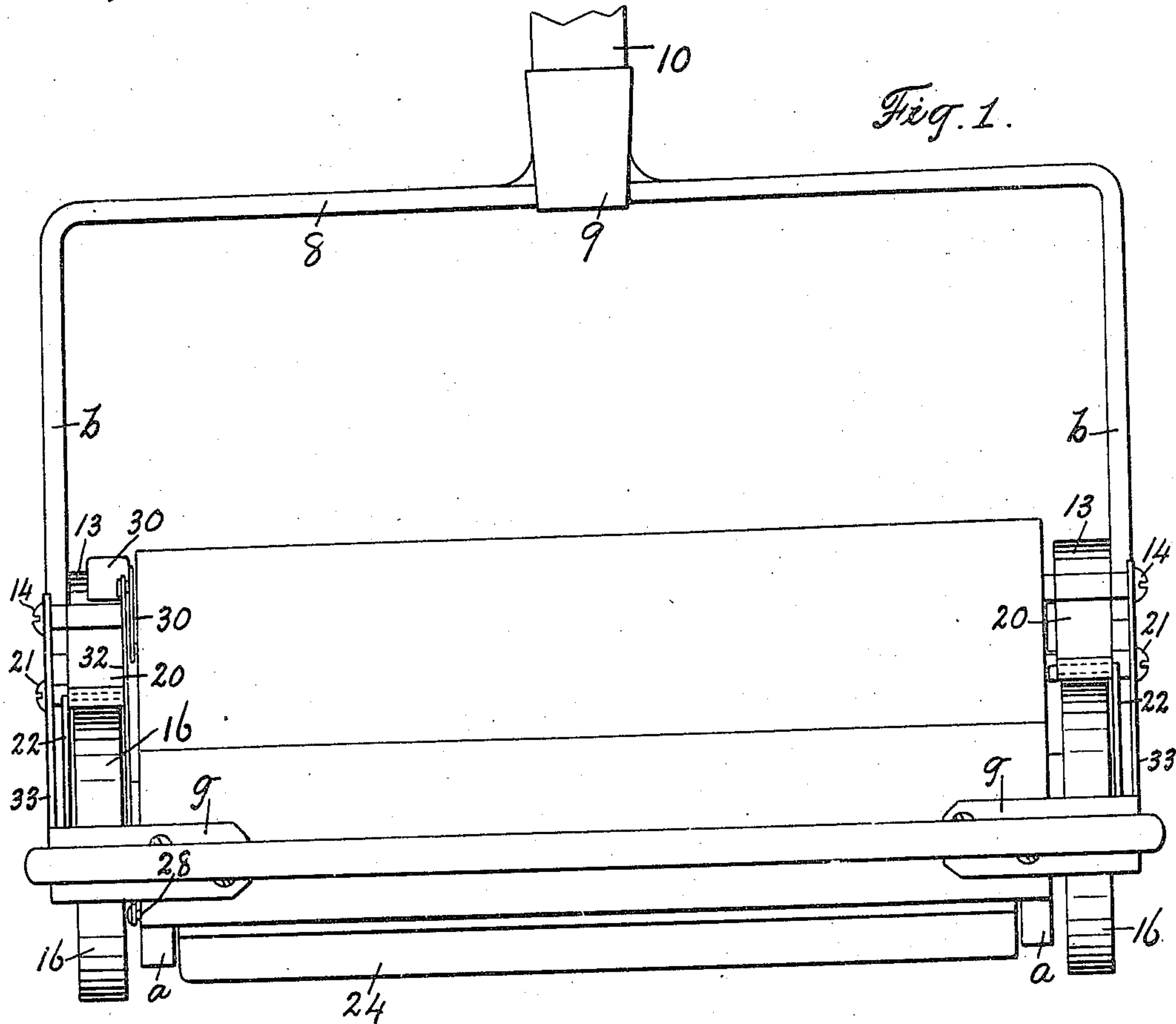


Fig. 2.

Witnesses
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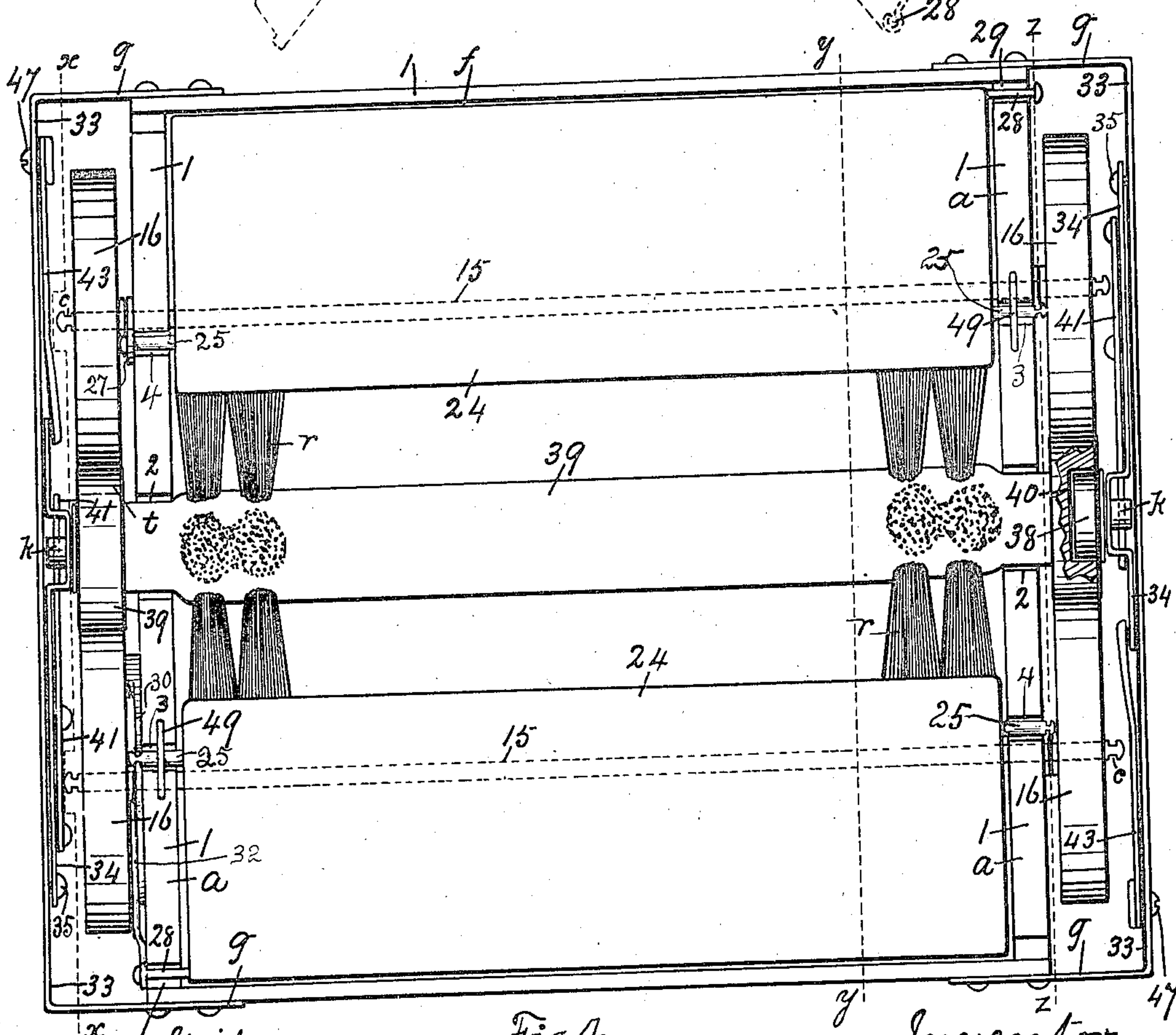
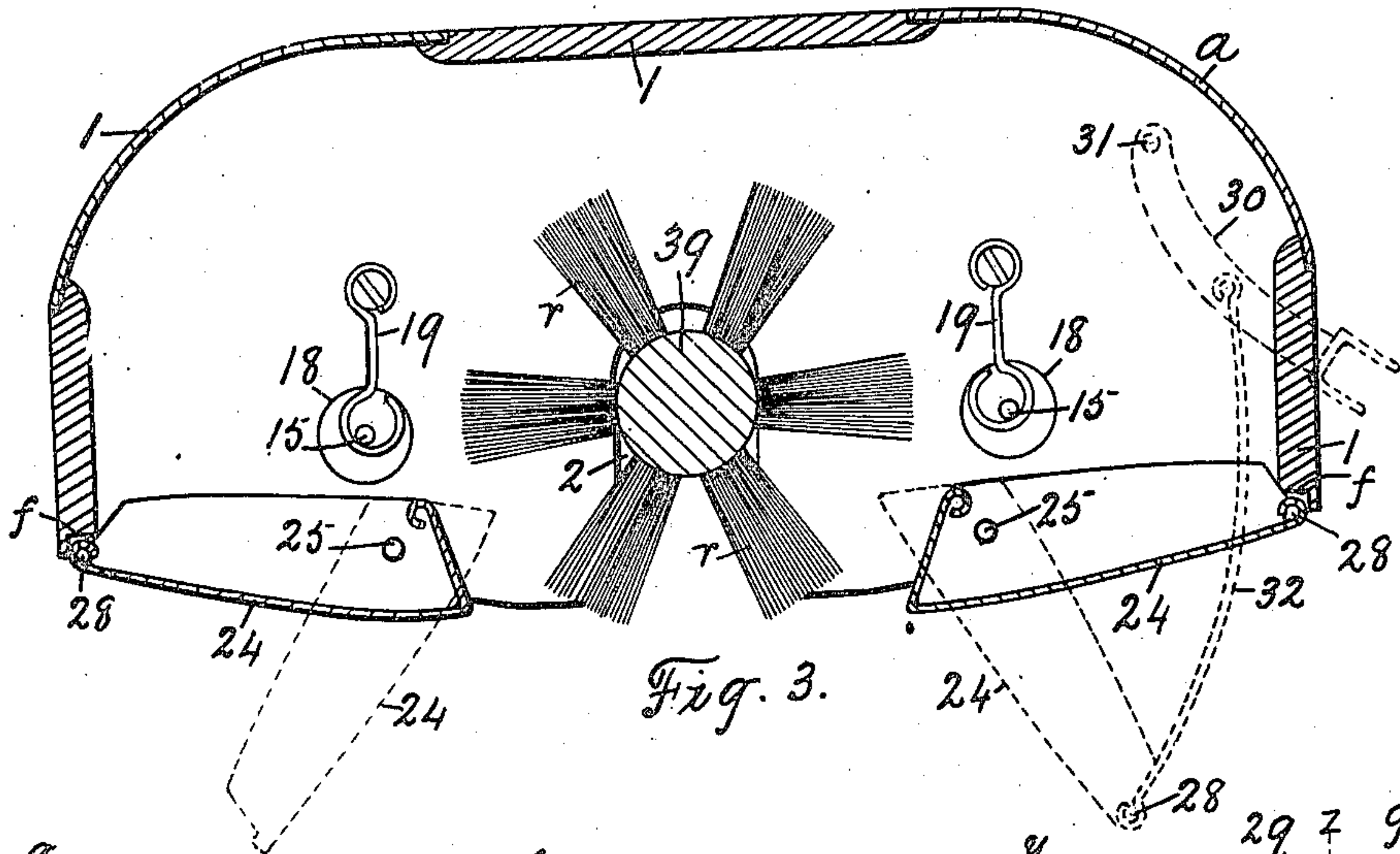
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Fig. 4.

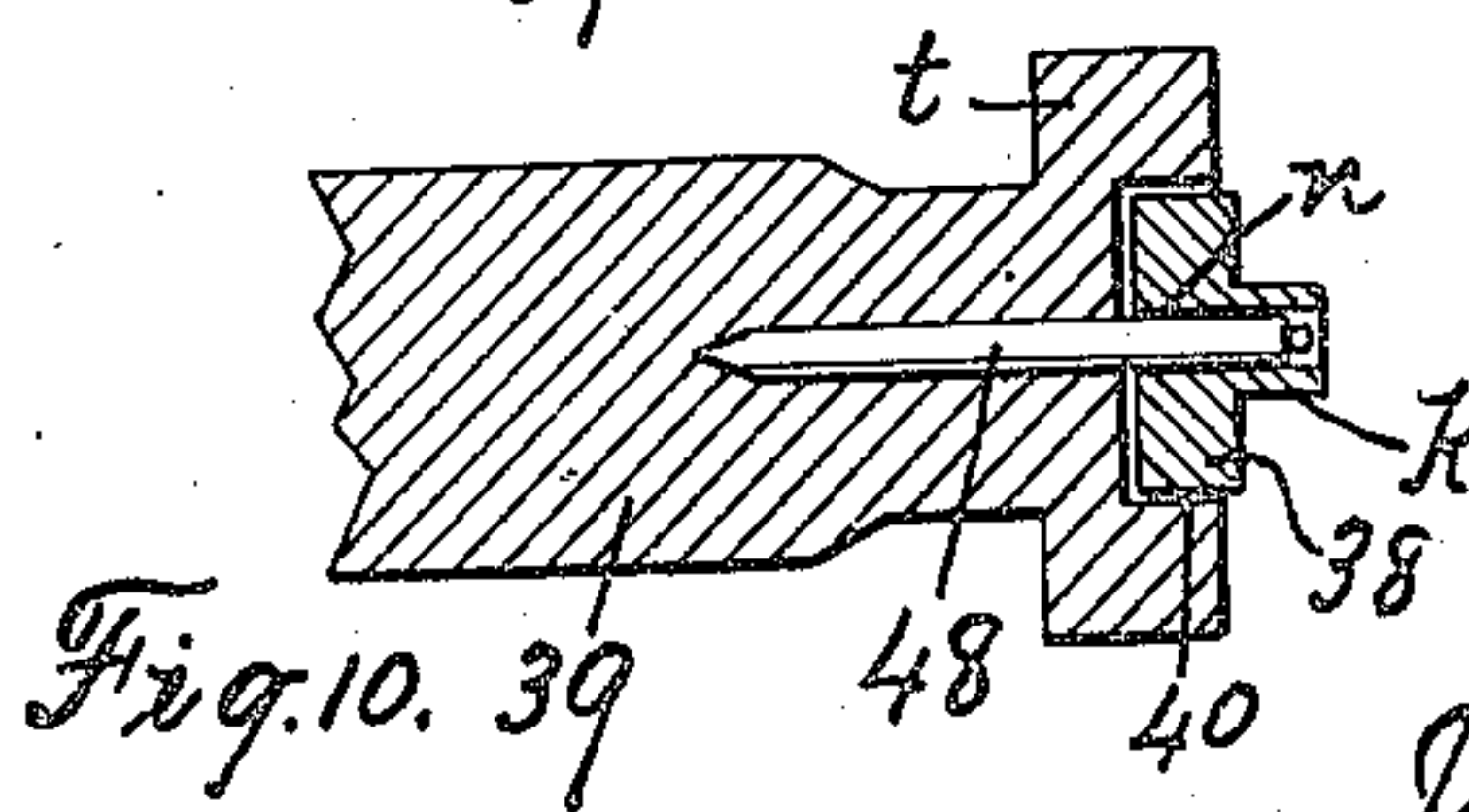
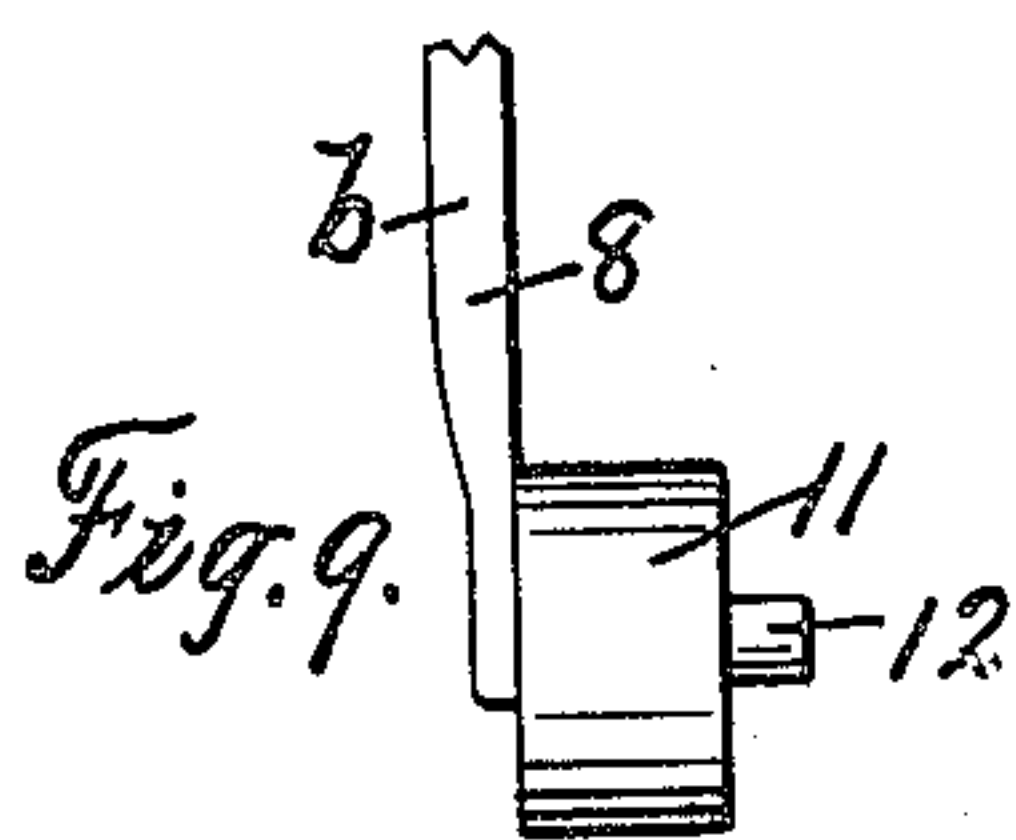
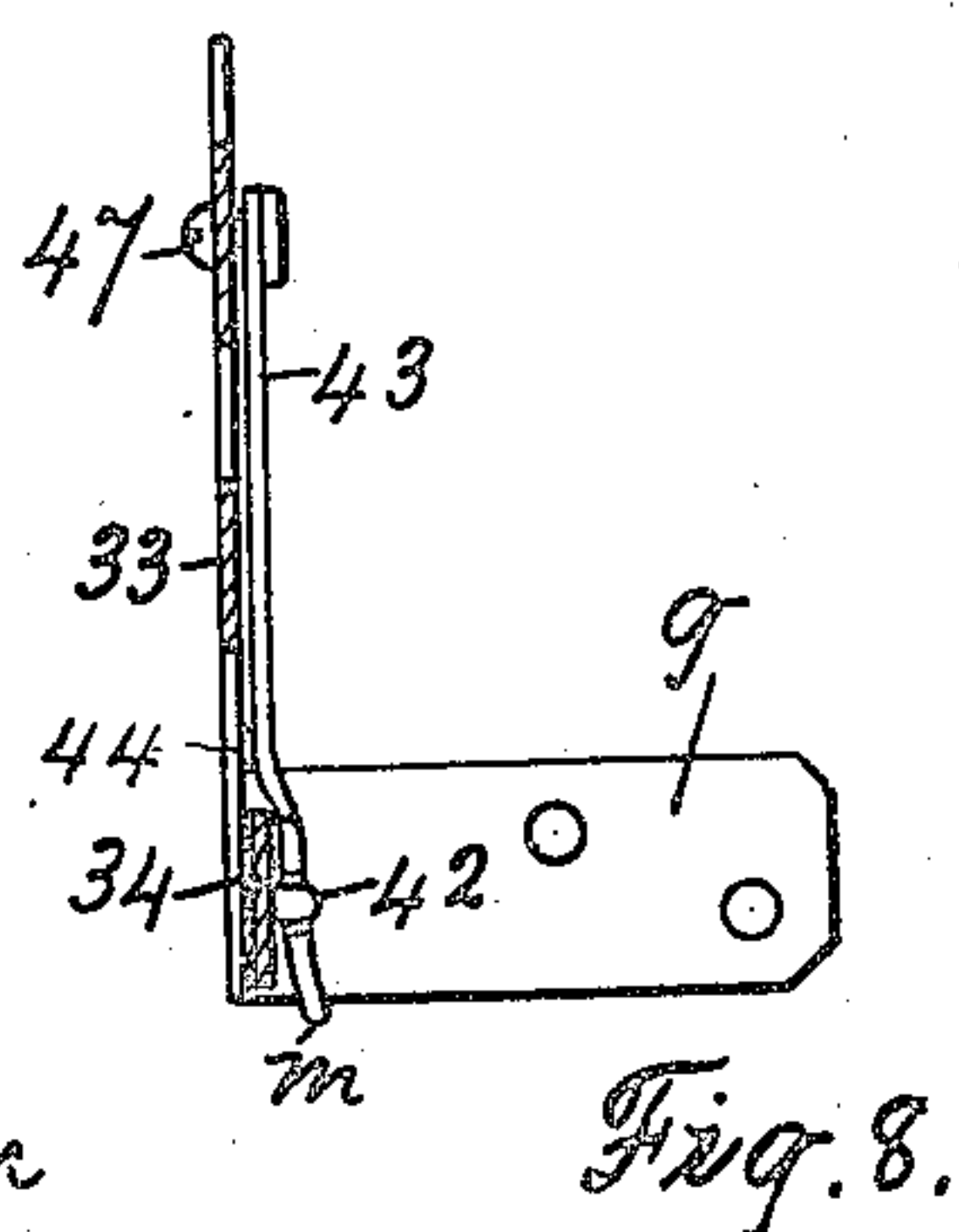
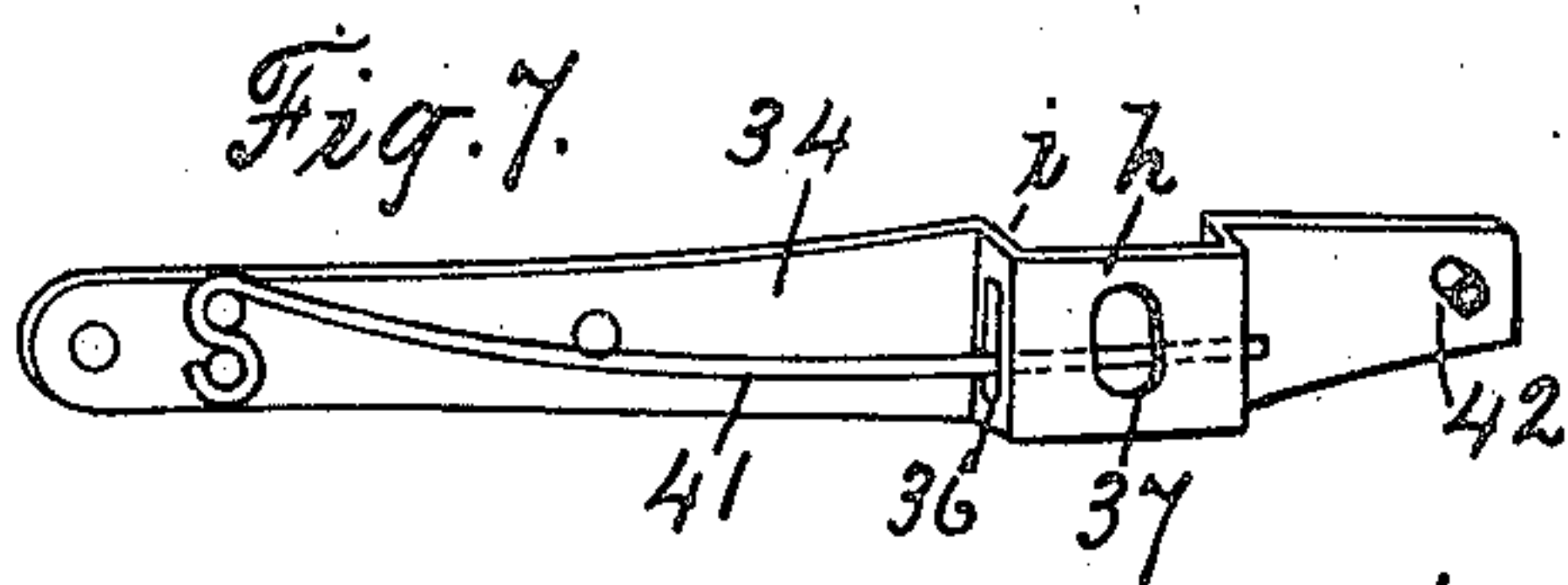
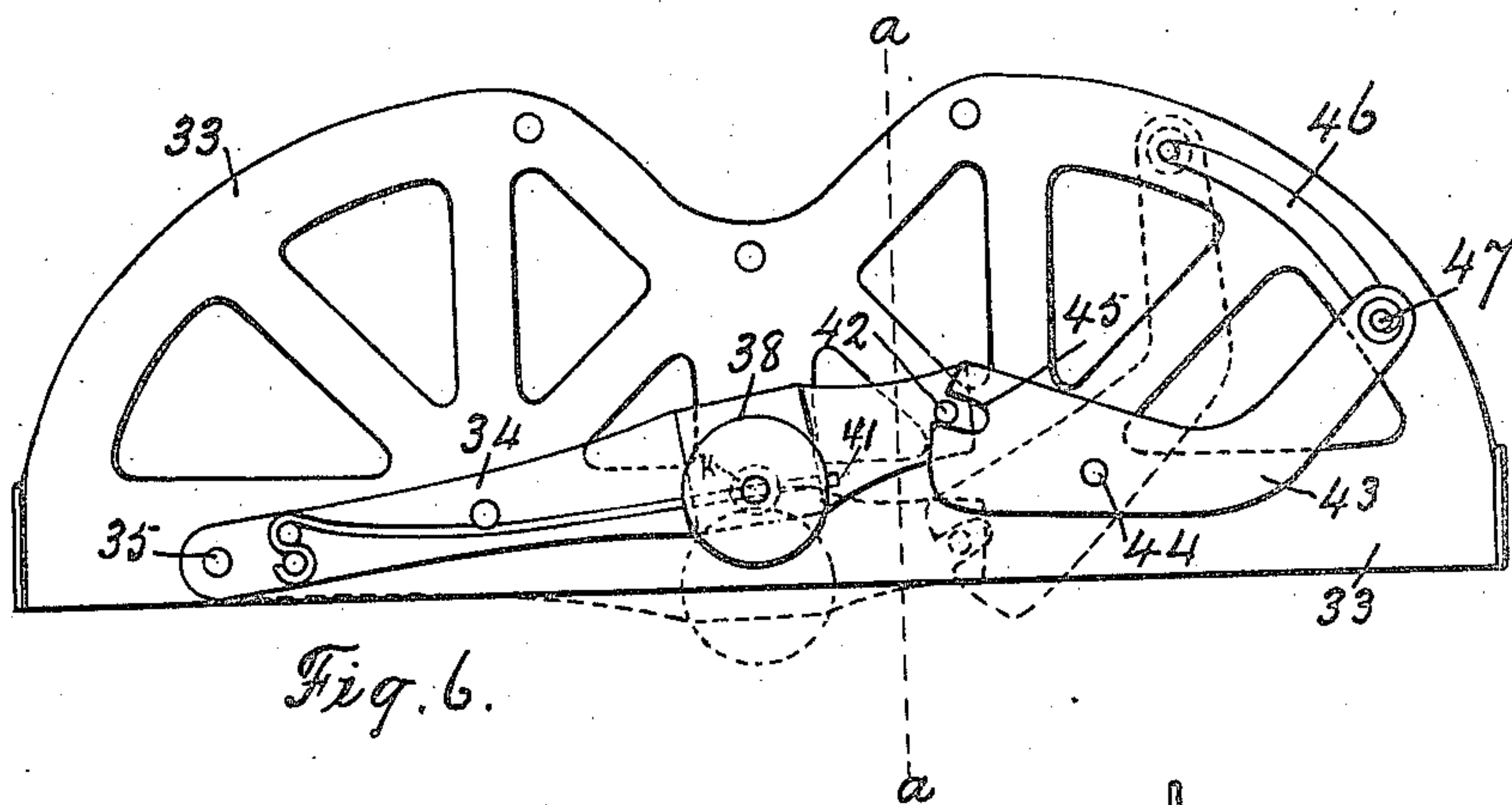
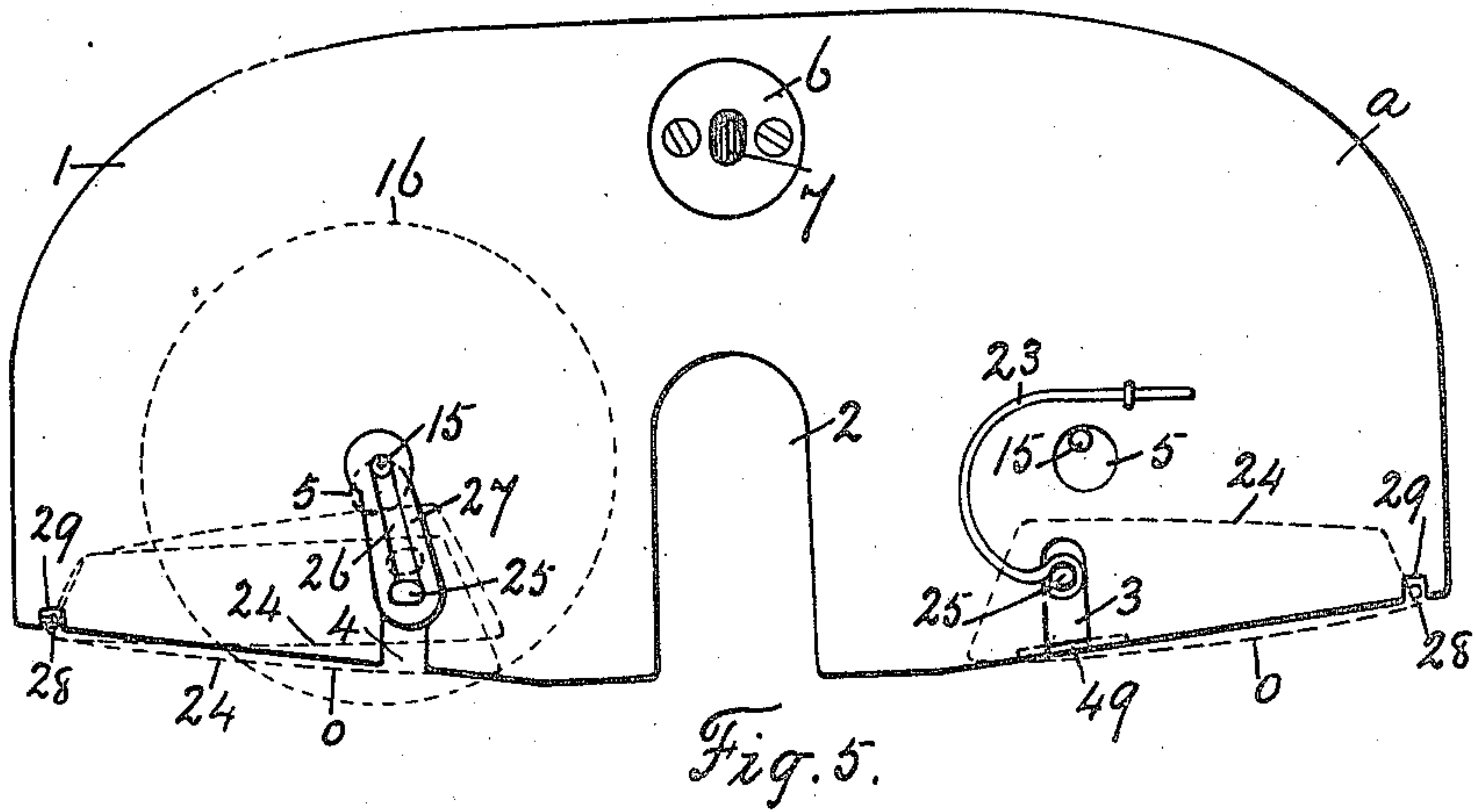
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UNITED STATES PATENT OFFICE.

GEORGE B. DEACON, OF LONDON, ONTARIO, CANADA.

CARPET-SWEEPER.

933,893.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed May 20, 1907. Serial No. 374,783.

To all whom it may concern:

Be it known that I, GEORGE B. DEACON, a subject of the King of Great Britain, and a resident of the city of London, in the county of Middlesex, in the Province of Ontario, Canada, have invented a new and useful Carpet-Sweeper, of which the following is a specification.

This invention relates to a mechanically operated brush or broom for sweeping carpets or floors and collecting the dust and dirt in dust pans.

The object of this invention is to provide a carpet sweeper, in which the brush may be readily, easily, instantly or gradually lowered as it becomes worn; and one in which the brush will be so supported that the latter will automatically adjust itself to all uneven or rough places on the carpet or floor, at the same time that it is governed to a certain limited extent by the pressure on the sweeper, and a further object is to support the dust pans, so that they will always be close to but clear of the carpet, and so supported that no matter how heavy the pressure may be on the body of the sweeper, the dust pans will always maintain the same relative distance from the carpet. It will be, therefore, impossible for the pans to drag, rub on or wear the carpet, and the pans not dragging or rubbing on the carpet or touching it in any way, the sweeper will be light running and operate freely and easily on all grades or classes of carpet.

A further object is to provide a carpet sweeper the pans of which while they will lie close to but clear from the carpet, will automatically adjust themselves while the sweeper is in motion to pass over and take up a piece of coal or other similar large or hard substance on the carpet without interfering with the dust or dirt in the dust pans, which has been previously gathered.

The invention consists of the improved construction and novel combination of parts as will be hereinafter first fully set forth and described and then pointed out in the claims.

Reference is had to the accompanying drawings forming a part of this application, wherein:

Figure 1 is a side view of a carpet sweeper embodying my invention. Fig. 2 is an end elevation of the sweeper with the supplemental end and its attachments removed. Fig. 3 is a cross sectional view of the sweeper

on the line *y, y*, of Fig. 4. Fig. 4 is a plan view of the device from beneath. Fig. 5 is a detail cross sectional view of the body of the sweeper on the line, *z, z*, of Fig. 4, with the brush spindle not shown. Fig. 6 is a detail view of one of the supplemental end plates and attachments supported thereon. Fig. 7 is a detail perspective view of one of the pivotal arms which carries the bearing on which the brush spindle is supported. Fig. 8 is a cross sectional view on the line *a, a*, of Fig. 6, with the parts adjusted as shown by dotted lines in said Fig. 6. Fig. 9 is a detail side view of the lower portion of one of the resilient ends of the bail, with the contiguous portion of the contacting spring in section. Fig. 10 is a detail central longitudinal sectional view of the brush spindle bearing, and of the adjacent portion of the brush spindle.

In the accompanying drawings:—the numeral 1 designates the case or body of the carpet sweeper which may be formed of any suitable size or shape, and of wood pulp or other material.

2 designates brush spindle openings 3 and 4 pan trunnion openings, and 5 wheel shaft openings formed in each end *a* of the case or body 1.

6 designates a plate in which a slightly elongated socket or recess 7 is formed, and one of said plates is secured to the upper central portion of each end, *a*, of the case or body 1, as shown in Fig. 5.

8 designates a handle bail having a socket 9 in which a handle 10 is secured; and 11 designates cylindrical bosses, one of which is fixed on the inner side of each of the resilient angular end portions, *b*, of the bail 8.

12 designates pivot pins, see Fig. 9, one of which is fixed on the inner side of each of said cylindrical bosses, 11, which pivot pins 12 are fitted to and adapted to be inserted in the sockets or recesses 7 in the plates 6, at the opposite ends of the case or body 1; to pivotally connect said handle 10 with said body 1.

13 designates springs one of which is employed at each end of the machine, and 14 represents screws secured in each end, *a*, of the body 1, on opposite sides of the angular end, *b*, of the bail 8, and said springs 13 extend over and by their own resilience bear on the cylindrical boss 11, and are held in place by their ends partly encircling parts of the shanks of the screws 14 which project be-

yond the ends, *a*, of said body 1, and said spring is shown bearing on the upper side of the cylindrical boss 11, but it may be arranged to bear on any other side of said cylindrical boss 11, if preferred.

The purpose of the pins 12 engaging with the sockets or recesses 7 in the plates 6 is to pivotally connect the bail 8 and handle 10 to the case or body 1, and the resilience of the ends, *b*, of said bail is to permit the bail and handle to be readily connected to or disconnected from said case or body 1, and the object of the springs 13 is to practically hold the handle at any angle to which it may be adjusted when using the sweeper, or to hold the handle in a vertical position when the sweeper is not in use, and the forming of the sockets or recesses 7 in the plates 6, slightly elongated, is to permit the pivot pins 12 to move and work freely therein.

15 designates wheel shafts which extend lengthwise of the machine, and the ends of said shafts extend through the shaft openings 5 in the ends, *a*, and mounted to revolve freely on each end of said shafts 15, just beyond said ends, *a*, of the body 1 are the traveling or carrying wheels 16; provided with rubber tires 16'. Slight cuts are made in the opposite sides of the shafts 15 near each of the ends thereof, thus forming a flattened portion *c* adjacent each shaft end.

18 designates thin flat disks which are about twice the diameter of the wheel shaft openings 5, and two of said disks 18 are mounted centrally on each of the wheel shafts 15 in the case or body 1, and said disks 18 are arranged on said shafts 15 opposite each of the wheel shaft openings 5 in the ends *a*; and 19 are wire springs one end of each of which is secured to the inner face of the ends, *a*, and their other free ends are adapted to engage with and hold said disks 18, against the inner faces of the ends, *a*, to prevent the escape of dust or dirt through said wheel shaft openings 5.

20 designates a flat spring, mounted at each end of the body 1, on part of the projecting portions of the shanks of the screws 14 and 21, secured in the ends, *a*, of the body 1, and connected to each end of each of said flat springs 20, is a coupling link 22, and in and near the lower end of each of the latter is formed round openings, *d*; and extending from the round openings in opposite directions are elongated openings, *e*, narrower than the round opening *d*. One of each of said couplings 22 is engaged with one of the ends of each of the wheel shafts 15, and when engaging said coupling links 22 with said wheel shafts 15, the springs 20, are compressed slightly toward said wheel shafts 15, until the ends of said shafts come opposite to and are projected into said round openings, *d*, in said couplings 22, and when the portions *e*, of said shafts which are narrower

than the main portion, are adjusted in line with the narrower openings, *e*, of the couplings 22, the springs 20 are released, when the couplings will rise and the portions of the couplings 22 at the sides of the narrow openings *e*, will clasp the shaft 15 at the narrow portions, *e*, which will prevent the couplings 22 from becoming accidentally disengaged from the ends of said wheel shafts 15, will hold them in place and prevent them from rotating.

23 designates a yielding support in the form of a spring wire, one end of which is secured to the outside of the end, *a*, of the body 1, and 24 designates a dust pan provided at each end, and near its inner edge with a trunnion 25, which trunnions extend through openings 3 and 4 in the ends, *a*, of the body 1, and one of said trunnions at one end extends through the opening 3 and is supported by said yielding support 23, and the trunnion at the other end of said dust pan extends through the opening 4, and is supported by a link 27, the trunnion being preferably flattened to enter the elongated slot 26 in the link 27, so that when trunnion 25 is inserted in the elongated slot 26 of the link 27, it will be securely held in said link from accidental disengagement. And said link 27 is suspended from the adjacent wheel shaft 15 by the latter being projected through the elongated slot 26, in said link 27. There are two of the dust pans 24 both supported and constructed in the manner just described except that the yielding support 23 and link 27 are reversed, that is where the link 27 supports the trunnion 25 at one end of the dust pan, the trunnion on the end of the opposite pan at the same end of the case or body is supported by the yielding support 23.

28 designates a rod secured in the outer edge of each of the dust pans 24, and the outer edge of each of said dust pans 24 rests in a groove, *f*, in the inner lower edge of the side of the body 1. One end of said rod 28 extends through an opening 29 in one of the ends, *a*, of said body 1.

30 designates levers pivoted on pivot pins 31 secured to the ends, *a*, and 32 designates a connecting wire one end of which is secured to the lever 30 midway between its ends and the other end of said wire is connected to the end of said rod 28 which projects beyond the end, *a*.

33 designates supplemental ends, spaced apart from the ends, *a*, of the case or body 1 and supported by angular extensions, *g*, secured to said body.

34 designates arms which are pivoted at one end by pivot pins 35 secured to the sides of the supplemental ends 33, adjacent to the ends of the body 1; and *h*, designates a raised portion of each of said pivotal arms 34 which is struck up to form the shoulders

i, in which elongated slots or openings 36 are formed, and in these raised portions, *h*, the elongated slots or openings 37 are formed.

38 designates cylindrical bearings for a brush spindle 39, and in the ends of said brush spindle 39 are sockets 40, for releasing said bearings 38.

k designates shanks with which the bearings 38 are provided, and said shanks, *k*, project through the elongated slots or openings 37 in the raised portions, *h*, of the pivotal arms 34.

41 designates springs each secured at one end to said pivotal arms 34, and the other ends of said springs extend through the elongated slots 36 in the shoulders, *i*, and over the shanks, *k*, of the brush spindle bearings 38, to hold them in engagement with said arms 34. 42 designates pins fixed on and near the ends of said pivotal arms 34.

43 designates levers pivoted on pivot pins 44 secured in the supplemental ends 33. 45 designates slots formed in the ends of said levers 43 adjacent to the ends of the pivotal arms carrying the pins 42.

46 designates elongated radial slots formed in the supplemental ends 33. 47 designates set screws which extend through said radial slots 46 and are screwed into screw threaded sockets in the upper or outer ends of the levers 43; and, *m*, designates the lower curved edge of said lever 43.

48 designates journals rigidly secured in each end of the brush spindle 39, which journals 48 extend a short distance beyond the ends of said brush spindle 39 and into the sockets, *n*, provided in the cylindrical bearings 38 thereby holding the ends of said brush spindle 39 and bearings 38 in line when in operation.

49 designates bridge wires which extend across and close the lower outlets of the openings, 3, in the ends, *a*, to prevent the trunnions 25 of the pans 24, which are supported by the spring supports 23, from falling out of the openings 3, when dumping said dust pans 24. The dust pans 24 are thrown to the position indicated by the dotted lines in Fig. 3, to dump the sweepings by moving the levers 30 outwardly, and closed again by throwing the levers into the position shown in full lines in Fig. 2.

When not in operation or when no pressure is applied to the sweeper, the body 1, wheels 16 and dust pans 24 are in the position shown in Fig. 2, but when pressure is applied to the sweeper the body 1 lowers more or less, according to the pressure applied to it, to the position shown in Fig. 5. And the wheels 16 resting on the carpet, and the inner edges of the dust pans 24 being supported at one end from the shafts 15, by the links 27, as hereinbefore described, it will be impossible for the dust pans to be further lowered, consequently the inner

edges of the dust pans 24 are just above but clear from the carpet, and in the best possible position to catch and hold the dust and dirt swept up by the brush, *r*, on the spindle 39. When the greatest pressure is on the body 1, the latter is not lowered so that the ends, *a*, at the upper end of the slots 3 and 4, abut against said trunnions 25, and there is left a clearance to permit the trunnions 25 to rise independently in the openings 3 and 4.

The outer edge of the dust pan 24, is at a higher elevation from the carpet than the inner edge and the inner edge of said dust pans under all normal conditions will always be close to yet clear of the carpet, no matter how heavy the pressure may be on the body 1 of the sweeper, at the same time said pans 24 are so supported that they will automatically and instantly adjust themselves while the sweeper is in motion to pass over and take up a piece of coal or other similar large or hard substance on the carpet, without spilling or in any way interfering with the dust or dirt which has been previously gathered in the dust pans.

The brush spindle 39 is supported and revolves freely on the cylindrical bearings 38 at both ends of the machine, and the parts 39 and 38 are held in alinement by the axle 48 as hereinbefore described. The bearings 38 are provided with shanks *k* which extend through the vertically elongated slots 37 in the pivotal arms 34, one of which is pivoted on the supplemental ends 33 at both ends of the machine, and a spring 41 mounted on each of said pivotal arms 34 extends through the shank *k* of each of said bearings 38. These springs 41 hold said shanks, *k*, in the lower ends of the vertically elongated slots 37, so that said bearings 38 together with the brush spindle 39 may be adjusted with said pivotal arms 34, at the same time the vertically elongated slots 37 together with the springs 41 permit an independent vertical movement of said bearings 38 and brush spindle 39.

The levers 43 one of which is pivoted on each of the supplemental ends 33, and each of which is provided with a slot 45, engages with the pins 42 on the pivotal arms 34, so that by loosening the set screws 47 and adjusting them in the radial slots 46 in the supplemental ends 33, said pivotal arms 34 as well as the brush spindle 39 may be regulated to bear more or less on the carpet, or to be gradually lowered as the brush, *r*, wears, and when properly adjusted it is rigidly held in this position by tightening the set screws 47.

When pressure is applied to the sweeper, the effect is to lower said body 1 and more or less, according to the pressure applied, and as the body 1 is lowered the springs 20 are also lowered which action through the couplings 22 presses said wheels inward on

the enlarged portions, *t*, of the brush spindle 39, and the greater the pressure on the sweeper, the greater will be the pressure of the wheels 16 on the enlarged portions, *t*, of said brush spindle 39, consequently the better will be the contact therebetween and the more positive the rotation of said spindle 39. The wheel shafts 15 being prevented from rotating by the flat portions, *c*, thereof engaging with the couplings, 22, as described, all possibility of thread, fine fuzz, or other similar material winding around said shafts 15, and interfering with the operation of the machine, is avoided and completely prevented. The journal 48 being entirely covered, and the bearing 38 being located in the socket in the end of said brush spindle as shown in Fig. 10, and held stationary as described, any possibility of any ravelings or threads winding around said journals 48 or bearings 38 is avoided and completely prevented.

I have found by experiment that the construction herein shown and described gives the best results, at the same time, while I prefer said construction I do not wish to limit myself to the details thereof, as it may be modified within the scope of the appended claims, without departing from the spirit of my invention.

Having thus described my invention, I claim;—

1. In a sweeper, a casing, a cylindrical brush mounted for rotation in said casing, shafts spaced apart in said casing at opposite sides of said brush, inter-engaging friction wheels carried by the brush shaft and said spaced shafts, levers swinging at one end from said casing and movably engaging said brush shaft, arms pivoted intermediate their ends to said casing and movably coupled at one end to the other ends of said levers, and means for adjusting the other ends of said arms.

2. In a sweeper, a casing, a brush spindle mounted for rotation in said casing, shafts spaced apart in said casing on opposite sides of said brush, interengaging friction wheels carried by the spindle and said spaced shafts, each end of each shaft being flattened, coupling members provided with slots adjacent their ends and connected at one end to said spaced shafts at said flattened portion and springs connected centrally to said casing and at their ends to said coupling members.

3. A sweeper case or body, a lever pivoted thereon, and a connecting wire one end of which is pivotally secured to and midway between the ends of said lever, in combination with a dust pan, a rod secured to the outer edge of said dust pan to which the other end of said connecting wire is pivotally secured, said wire adapted to pass the lever pivot point at each operation thereof; trunnions secured to the ends of said dust

pan near its inner edge and extending through openings in the ends of said sweeper case or body, and means for pivotally supporting said trunnions.

4. A sweeper case or body, a lever pivoted thereon, and a connecting wire one end of which is pivotally secured to and midway between the ends of said lever, in combination with a dust pan a rod secured to the outer edge of said dust pan, to which the other end of the connecting wire is pivotally secured, trunnions secured to the ends of said dust pan near its inner edge, which extend through openings in the ends of said sweeper case or body, a link and spring in which said trunnions are supported, and means for supporting said link and spring.

5. In a carpet sweeper, a sweeper case or body provided with traction wheels, a dust pan movably supported at its outer edge, trunnions secured to the ends of and near the inner edge of said dust pan and extending through openings in said ends of said case or body, a link and spring in which said trunnions are supported, and means for supporting said link and spring.

6. A carpet sweeper comprising a casing, a dust pan and means for movably supporting the outer edge thereof, trunnions carried by the ends of said pan near the inner edge thereof, said trunnions mounted in elongated links and yielding supports carried by opposite ends of said casing.

7. In a carpet sweeper, a sweeper case or body, a pivotal arm at each end of said case or body, a pin secured to each of said pivotal arms near their free ends, a cylindrical bearing supported in each of said pivotal arms, a lever provided with an elongated slot adapted to engage with said pin in said pivotal arm, in combination with a brush spindle mounted to rotate freely on said cylindrical bearing, means for supporting said pivotal arm and lever and for holding the latter at the position to which it is adjusted, and means to rotate said brush.

8. In a carpet sweeper, a sweeper case, a supplemental end spaced apart from and secured to each end of said sweeper case, an arm pivoted on each of said supplemental ends, a pin secured to and near the free end of each of said pivotal arms, a lever pivoted on each of said supplemental ends and provided with an elongated slot which is adapted to engage with said pins on the adjacent ends of said pivotal arms, means for holding said lever at the position to which it is adjusted, in combination with cylindrical bearings, one of which is supported in each of said pivotal arms, a brush spindle supported by and revolving freely on said cylindrical bearing and means to rotate said brush.

9. The combination with a sweeper case provided with traction wheels and having an arm at each end thereof, of shoulders formed

on each of said arms, elongated slots formed in each of said shoulders and in each of said arms between said shoulders, a cylindrical bearing provided with a shank which is inserted in said vertical elongated slot between said shoulders, a spring secured to each of said arms and having one end freely extending through said slots in said shoulders and through the shank of said cylindrical bear-

ing, and a brush spindle mounted in said bearings and adapted to engage with the traction wheels.

In testimony whereof, I have signed in the presence of the two undersigned witnesses.

GEORGE B. DEACON.

Witnesses:

P. J. EDMUNDS,

G. PETRIE.