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(54) **MACHINE FOR LEVELLING CONCRETE**

VORRICHTUNG ZUM PLANIEREN VON BETON

MACHINE D'EGALISATION DE BETON

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(56) References cited:
EP-A- 0 261 093
BE-A- 895 199
BE-A- 1 002 820
DE-A- 2 138 923
US-A- 3 970 405
US-A- 4 392 574
US-A- 4 466 757
US-A- 4 789 266
US-A- 5 061 115

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Description

[0001] The present invention concerns a machine for levelling concrete, in other words a machine for smoothing concrete in order to form a floor, slab, path or such.

[0002] In particular, the invention concerns a moveable machine which can be universally used.

[0003] It is known that concrete paths can be made by means of moveable machines which are provided at the bottom with a number of tools whose aim it is to more or less level the concrete poured in front of the machine, to vibrate it and finally smoothen it, such that after the machine has passed, an entirely finished path is obtained, whereby one only has to wait afterwards for the concrete to harden and whereby possibly provided expansion joints must be stopped. The known devices are disadvantageous in that they must be replaced for each different path width. It is clear that this is very expensive.

[0004] It is also known that the working width of such machines can be altered by rebuilding these devices, i. e. by providing extension pieces, removing them respectively. It is clear that such machines are also expensive, since usually a large number of extension pieces of different lengths is required. Moreover, changing the working width is a time-consuming operation.

[0005] The latter possibility also has the disadvantage that the width can only be changed in steps without any fine adjustment.

[0006] More adequate systems are known from US-A-3.970.405, US-A-4.789.266 and EP-A-0.261.093. The machines disclosed in these documents can be automatically adjusted in the width.

[0007] The aim of the invention is to provide a machine of the abovesaid type which is still further improved and can be universally used.

[0008] To this aim the invention concerns a machine according to claim 1.

[0009] The telescopic guide preferably consists of a rail construction along which a carriage can be moved which carries the element to be moved. This construction is particularly useful when the machine is provided with a polishing part to be moved back and forth.

[0010] According to a first possibility of the invention, only one or several of the tools can be adjusted in the width, i.e. across the driving direction, in other words the device to spread the concrete and/or the device to vibrate the concrete and/or the device to smoothen the concrete and/or the poshing device. Preferably, all these tools can be adjusted in the width.

[0011] According to a second possibility, not only the tools can be adjusted in the width, but also the propelling means.

[0012] According to the most prefered embodiment, the adjusting means to adjust the width of one or several of the tools are connected to the propelling means, one and other such that by changing the width of the propelling means, the width of the tools concerned is automatically changed, in other words the working width or the width of the concrete path to be made.

[0013] According to a preferred embodiment, use is made of adjusting means which allow for a continuous adjustement, such that each path width can be realized between a certain minimum value and a certain maximum value.

[0014] In order to better explain the characteristics of the invention, the following preferred embodiment is given as an example only without being limitative in any way, with reference to the accompanying drawings, where :

figure 1 is a schematic top view of a machine according to the invention;
figure 2 shows a view according to arrow F2 in figure 1;
figure 3 is a schematic representation of a variant;
figure 4 shows a schematic view of a machine according to the invention, with a polishing part whose working width can be adjusted according to the invention;
figure 5 shows the part which is indicated in figure 4 with F5 to a larger scale and in greater detail; figure 6 is a view according to arrow F6 in figure 4;
figure 7 shows a section according to line VII-VII in figure 6;
figure 8 shows a side view of figure 5;
figure 9 shows a schematic view according to line IX-IX in figure 8.

[0015] As shown in figures 1 and 2, the invention concerns a machine 1 for levelling concrete 2.

[0016] The machine 1 hereby mainly consists of a frame 3, propelling means 4 and a number of tools fixed to the frame 3, such as a device 5 to spread the concrete 2, a device 6 to vibrate the concrete 2, a device 7 to smoothen the concrete 2 and a polishing device 8 to obtain a perfectly smooth surface.

[0017] Naturally, the frame 3 may have different shapes. As represented in figure 2, a superstructure 9 can be provided on the frame 3, such as a cabin or the like for the driver of the machine in which are also provided the control devices to control the machine. The frame 3 is supported by columns 10.

[0018] The above-mentioned propelling means 4 consist of roller means, preferably caterpillars 11, which are operated by means of drive means, for example hydraulic motors 12. It is clear that also other drive means can be used. The above-mentioned propelling means 4 are situated under the columns 10.

[0019] The above-mentioned device 5 to spread the concrete may consist of one or several distributing screws 13.

[0020] The above-mentioned device 6 for vibrating the concrete 2 consists of one or several vibrating shoes 14, which are driven for example by means of an oscillator which is not represented here.

[0021] The above-mentioned device 7 for smoothing

the concrete 2 consists of one or several spreaders 15.

[0022] The polishing device 8 mainly consists of a polishing plate 16 which can be moved over the concrete. Said polishing device 8 will be further described in detail by means of figures 4 to 9.

[0023] According to the invention, the machine 1 can be adjusted in the width, in other words it has means with which the width, by which is understood the span width of the propelling means 4 and/or the width of the tools 5-8, can be changed at the machine itself.

[0024] As shown in figures 1 and 2, both the tools, in other words the devices 5 to 8, and the propelling means 4 can be preferably adjusted in the width.

[0025] Moreover, as represented in the figures and as will be further described, the means for adjusting the width of the tools 5 to 8 are preferably connected to the propelling means 4, one and other such that by changing the width of the propelling means 4, the width of the tools 5 to 8 is automatically changed as well, in other words the working width or the width of the concrete path 17 to be made.

[0026] According to the preferred embodiment, use is made of adjusting means which allow for a continuous adjustment, such that each path width can be made between a certain minimum value and a certain maximum value.

[0027] In the embodiment represented in figures 1 and 2, use is made to this end of a frame 3 which can be extended in the width, consisting of two telescopic parts 18 and 19, and of tools 5 to 8 which can be extended in the width, with parts which can be extended and/or which can be partly moved alongside one another 20-21, 22-23, 24-25 and 26-27.

[0028] As mentioned in the introduction, one or several of the tools 5 to 8 can be connected to the frame 3, the propelling means 4.respectively, such that an adjustment of the span width B1 of the propelling means 4 automatically results in a change of the working width B2 of the tools concerned, or thus usually the width of the concrete path 17 or vice versa. To this end, the above-mentioned parts 20, 22, 24 and 26 can be connected to the part 18 and the parts 21, 23, 25 and 27 can be connected to the part 19.

[0029] Figure 3 shows a variant whereby the width adjustment is obtained as the frame 3 is supported at its angular points by means of horizontally revolvable arms 28-31 which are hinge-mounted to the frame 3 on the one hand and to the above-mentioned columns 10 on the other hand. The arms 28-31 hereby consist of constructions in the shape of a parallelogram, such that the caterpillars 10 or any other rolling means remain parallel in relation to one another when the machine 1 is adjusted.

[0030] The adjustment is preferably also continuous, for example by means of drive elements for the angular setting of the arms 28 to 31, such as pressure cylinders 32 to 35, which are preferably controlled hydraulically.

[0031] The invention also provides a possibility to adjust the working width of tools containing elements which make a back-and-forth movement in the width to the width of the concrete path 17 to be made. According to the invention, use is made to this end of a guide for such element, whose length can be adjusted. More in particular, use will be made of a telescopic guide, whereby the element to be moved along this guide is suspended to said guide by means of a slide which can carry out a continuous movement over the entire guide without the transition or transitions between the different telescopic guides being an obstacle.

[0032] This construction is especially designed to be used with a polishing device 8. An example thereof is described by means of figures 4 to 9.

[0033] Figure 4 is a schematic representation of a concrete levelling machine 1 which is provided at the back with a polishing device 8.

[0034] This polishing device 8 consists in the first place of a rail construction 36 which is attached to the columns 10 with which the machine 1 is supported at the back on the caterpillars 11.

[0035] The rail construction 36 mainly consists of two solid rail construction parts, the above-mentioned parts 26 and 27 respectively, which fit in one another in a telescopic manner and which can move together with the width adjustment of the machine 1.

[0036] The rail construction part 26 thereof is in this case fixed to the right column 10 as seen from the driving direction, whereas the rail construction part 27 is fixed on the left column 10.

[0037] Irrespective of the fact that these rail construction parts can slide in and out of one another, they are each provided with a rib at the top and at the bottom, 37-38 respectively as far as the rail construction part 26 is concerned, and 39-40 as far as the rail construction part 27 is concerned.

[0038] It is clear that the rail construction 36 is made such that any relative cross movement between the parts 26 and 27 is excluded.

[0039] Running wheels 41-42-43 and 44 respectively, which carry a carriage 45, work in conjunction with the ribs 37 to 40.

[0040] The running wheels 41 to 44 each have two circumferential grooves, 46 and 47 respectively, which can cooperate with pairs of ribs 37-39, 38-40 respectively, on the place where the rail construction parts 26 and 27 overlap, whereas these running wheels will only cooperate with the ribs 37 and 38 or 39 and 40 on the places where the rail construction parts 26 and 27 do not overlap.

[0041] Thus is obtained that the carriage 45 is efficiently guided along the rail construction 36 at any place whatsoever.

[0042] On the carriage 45 is fixed a motor 48, for example a hydraulic motor, which drives a chain wheel 49 cooperating with a chain 50 which is guided over chain wheels 51-52 and whereby this chain 50 is linked in a point 53 near the end of the rail construction part 27,

whereas towards its other end it runs over a chain wheel 54 which is fixed in a freely rotating manner near the end of the rail construction part 26 and is subsequently bent over a chain wheel 55 fixed on the rail construction part 26 to be finally attached in a point 56 to the rail construction part 27.

[0043] At the bottom of the carriage 45 is provided the actual polishing part 57 which mainly consists of a backward directed arm 58 which is freely hinge-mounted on the carriage 45 around a vertical pivot 59 and whereby between the carriage 45 and the arm 58 are provided two hydraulic pressure cylinders 60-61 which make it possible to adjust the arm 58 at a suitable angle, which can be useful in bends when the polishing part 57 could make contact with one of the caterpillars 11. It is clear that also other adjusting mean's can be used to set the polishing plate 16 at an angle.

[0044] The arm 58 is provided towards its free end with a downward directed part 62 which bears a disc 64 at the bottom driven by a motor 63 upon which is fixed a pin 65 upon which is provided the end of a lever 66 in a freely rotating manner. This lever 66 is connected in a freely rotating manner at its other end by means of a pivot 67 to a lever 68 which is in turn provided in an oscillating manner underneath the above-mentioned arm 58 by means of a horizontal pivot 69.

[0045] It is clear that the disc 64 and the pin 65 form an eccentric with which the lever 68 can be swung to and fro. It is also clear that also other drives can be used to this end.

[0046] The second end of the lever 68 is freely hinge-mounted by means of a horizontal pivot 70 to two arms, 71 and 72 respectively, which are each provided with a bush 73-74 at their free ends.

[0047] These bushes 73-74 are placed co-axially and they can slide freely over rods 75-76 placed in line and which are fixed to the polishing plate 16. As a result, the polishing plate 16 can slide freely. It is clear that the polishing plate can also be freely suspended with hinges in other ways according to the invention.

[0048] The arms 71 and 72 are placed at an obtuse angle in relation to one another.

[0049] The polishing plate 16 mainly consists of a relatively long smooth plate which is longer than 1 metre, for example of the order of magnitude of 2 metres, and which has a relatively small width, which is smaller than 0.8 metres, for example of the order of magnitude of 0.3 metres, whereby the entire circumference of this plate is provided with bent edges 77-78-79-80.

[0050] Finally, between the pivot 70 and the polishing plate 16 is provided a draw spring 81.

[0051] The working of the polishing plate 8 according to the invention is very simple and as follows.

[0052] During the width adjustment of the machine 1, the rail construction parts 26 and 27 will automatically slide over one another, whereby the chain 50, thanks to its position, is automatically kept taught.

[0053] When the concrete 2 has been poured and has been skimmed off at the required height, the polishing plate 16 will move back and forward over this concrete 2, whereby the plate is not only moved crosswise as a whole over the concrete 2, but whereby an additional back and forward movement is obtained in the length during said cross movement, as a result of which the concrete 2 is polished very evenly and smoothly.

[0054] Indeed, when the motor 48 is driven, the carriage 45 will be moved back and forth, and thus also the polishing plate 16 via the construction parts 58-68-71-72, along the rail construction 36.

[0055] As the disc 64 is driven by means of the motor 63, the lever 66 will carry out a swinging motion around the pivot 67 during said movement, one and other such that the polishing plate 16 is also moved back and forth over the concrete 2 in its longitudinal direction.

[0056] Thanks to the presence of the arms 71 and 72 which can undergo a relative shift in relation to the polishing plate 16, the polishing plate 16 is kept constantly pressed against the concrete 2.

[0057] Hereby, the spring 81 makes sure that the weight of the polishing plate 16 and the like is somewhat compensated for, such that the polishing plate 16 always remains on top of the concrete 2 but does not penetrate it.

[0058] It is clear that a device is obtained in this way which provides a nice, smoothly polished surface to the concrete.

Claims

1. Machine for levelling concrete, of the type whereby poured concrete (2) is spread over a predetermined width and whereby this concrete (2) is skimmed off at a certain height, said machine (1) being adjustable in width and contains an element which can make a to-and-fro-movement in the width by being moved over a guide (36), **characterized in that** the length of said guide (36) can be telescopically adjusted as a function of the required working width of the machine, whereby said element can make a continuous movement over the entire length of the guide (36) without the transition or transitions between the different telescopic guide parts (26,27) being an obstacle.

2. Machine according to claim 1, **characterized in that** it has one or several tools, including a device (5) to spread the concrete (2) and/or a device (6) to vibrate the concrete (2) and/or a device (7) to smoothen the concrete (2) and/or a polishing device (8), and **in that** at least the working width of one or several of these tools can be adjusted.

3. Machine according to claim 2, **characterized in that** it has one or more of said tools and **in that** all provided tools can be adjusted in the width.

4. Machine according to claim 2 or 3, **characterized in that** the propelling means (4) can be adjusted in the width.

5. Machine according to claim 4, **characterized in that** the means to adjust the working width of the tools concerned are connected to the propelling means (4), such that by changing the span width (B1) of the propelling means (4), the working width (B2) of the tools concerned is automatically changed.

6. Machine according to any of the preceding claims, **characterized in that** the width of the propelling means (4) and/or of the tools can be adjusted continuously.

7. Machine according to any of the preceding claims, **characterized in that** said guide consists of a rail construction (36) along which can be moved a carriage (45) carrying the element to be moved, and **in that** the rail construction (36) consists of two rail construction parts (26-27) which are respectively fixed to columns (10) under which are provided the propelling means (4) of the machine (1).

8. Machine according to claim 7, **characterized in that** the rail construction parts (26-27) are each provided with ribs (37-38-39-40) with which running wheels can cooperate which are provided to this end at the bottom and on top of the carriage (45), and **in that** the running wheels (41 to 44) each have two circumferential grooves (46-47) situated next to one another which can cooperate with the ribs (37-38) of the one rail construction part (26) and with the ribs (34-35) of the other rail construction part (27) respectively.

9. Machine according to claim 7 or 8, **characterized in that** the carriage (45) is equipped with a motor (48) which drives a chain wheel (49) running over a chain (50), whereby this chain (50) is attached, on the one hand and on the other hand, to the rail construction parts (26-27), such that the carriage (45) can be moved back and forth over the entire length of the rail construction (36) by means of the motor (48) and as a result of rolling the chain wheel (49).

10. Machine according to any of the preceding claims, **characterized in that** said element consists of a polishing part (57).

11. Machine according to claim 10, **characterized in that** the polishing part (57) and more in particular the polishing plate (16) can be set at an angle.

12. Machine according to claim 10 or 11, **characterized in that** the polishing part (57) is fixed to the carriage (45) by means of a lever (68) which hangs down and which is attached to the carriage (45) in an oscillating manner by means of a horizontal pivot (69) which normally extends crosswise on the driving direction, whereby this lever (68) is freely hinge-mounted at its free bottom end by means of a pivot (70) to downward directed arms (71-72) which form an obtuse angle in relation to one another and under which is mounted the polishing plate (16); and **in that** the polishing plate (57) is provided with a drive which swings said lever (68) back and forth around said pivot (69).

13. Machine according to any of claims 10 to 12, **characterized in that** the polishing part (57) is provided with a polishing plate (16) which swings back and forth, whereby this polishing plate (16) is suspended such that it can freely shift, preferably by means of co-axially placed bars (75-76) which are connected to the polishing plate (16) and which can slide freely in bushes (73-74).

14. Machine according to any of claims 10 to 13, **characterized in that** the polishing part (57) is provided with a polishing plate (16) whose weight is somewhat compensated for by means of a draw spring (81) mounted on top of it.

15. Machine according to any of claims 10 to 13, **characterized in that** the polishing part (57) contains a polishing plate (16) with a relatively large length, for example of the order of magnitude of 2 metres, in relation to a relatively small width, for example of the order of magnitude of 30 cm, and **in that** the longitudinal direction of the polishing plate (16) is parallel to the longitudinal direction of the machine (1).

Patentansprüche

1. Maschine zum Planieren von Beton, des Typs, wobei ausgeschütteter Beton (2) über eine vorherbestimmte Breite verteilt wird und wobei dieser Beton (2) in einer bestimmten Höhe abgestrichen wird, wobei besagte Maschine (1) in der Breite einstellbar ist und ein Element umfaßt, das eine Hin- und Herbewegung in der Breite ausführen kann, indem es über eine Führung (36) bewegt wird, **dadurch gekennzeichnet, daß** die Länge besagter Führung (36) in Abhängigkeit von der erforderlichen Arbeitsbreite der Maschine teleskopartig verstellt werden kann, wobei besagtes Element eine kontinuierliche Bewegung über die gesamte Länge der Führung (36) vollziehen kann, ohne daß der Übergang oder Übergänge zwischen den verschiedenen Teilen der teleskopartigen Führung (26,27) ein Hindernis darstellt.

2. Maschine gemäß Anspruch 1, **dadurch gekennzeichnet, daß** sie eines oder mehrere Werkzeuge aufweist, einschließlich einer Vorrichtung (5) zum Ausbreiten des Betons (2) und/oder einer Vorrichtung (6) zum Rütteln des Betons (2) und/oder einer Vorrichtung (7) zum Glattstreichen des Betons (2) und/oder einer Poliervorrichtung (8), und daß zumindest die Arbeitsbreite eines oder mehrerer dieser Werkzeuge einstellbar ist.

3. Maschine gemäß Anspruch 2, **dadurch gekennzeichnet, daß** sie eines oder mehr besagter Werkzeuge aufweist und daß alle vorhandenen Werkzeuge in der Breite einstellbar sind.

4. Maschine gemäß Anspruch 2 oder 3, **dadurch gekennzeichnet, daß** die Fortbewegungsmittel (4) in der Breite einstellbar sind.

5. Maschine gemäß Anspruch 4, **dadurch gekennzeichnet, daß** die Mittel zum Einstellen der Arbeitsbreite der betreffenden Werkzeuge mit den Fortbewegungsmitteln (4) gekoppelt sind, so daß durch das Verändern der Spannweite (B1) der Fortbewegungsmittel (4) automatisch die Arbeitsbreite (B2) der betreffenden Werkzeuge verändert wird.

6. Maschine gemäß einem der vorangehenden Ansprüche, **dadurch gekennzeichnet**, daB die Breite der Fortbewegungsmittel (4) und/oder der Werkzeuge stufenlos verstellbar ist.

7. Maschine gemäß einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** besagte Führung aus einer Schienenkonstruktion (36) besteht, entlang welcher ein Wagen (45), der das zu bewegende Element trägt, bewegt werden kann, und daß die Schienenkonstruktion (36) aus zwei Schienenkonstruktionsteilen (26-27) besteht, die jeweils an Säulen (10) befestigt sind, unter denen die Fortbewegungsmittel (4) der Maschine (1) angebracht sind.

8. Maschine gemäß Anspruch 7, **dadurch gekennzeichnet, daß** die Schienenkonstruktionsteile (26-27) jedes mit Rippen (37-38-39-40) versehen sind, womit Laufräder zusammenwirken können, die zu diesem Zweck an der Unterseite und der Oberseite des Wagens (45) angebracht sind, und daß die Laufräder (41 bis 44) jedes zwei nebeneinander angeordnete Umfangsnuten (46-47) aufweisen, die mit den Rippen (37-38) des einen Schienenkonstruktionsteils (26), beziehungsweise mit den Rippen (34-35) des anderen Schienenkonstruktionsteils (37) zusammenwirken können.

9. Maschine gemäß Anspruch 7 oder 8, **dadurch gekennzeichnet, daß** der Wagen (45) mit einem Motor (48) ausgestattet ist, der ein Kettenrad (49) antreibt, das über eine Kette (50) läuft, wobei diese Kette (50), einerseits und andererseits, an den Schienenkonstruktionsteilen (26-27) befestigt ist, so daB der Wagen (45), mittels des Motors (45) und durch das Verrollen des Kettenrads (49), über die gesamte Länge der Schienenkonstruktion (36) hin- und herbewegt werden kann.

10. Maschine gemäß einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** besagtes Element aus einem Polierteil (57) besteht.

11. Maschine gemäß Anspruch 10, **dadurch gekennzeichnet, daß** das Polierteil (57), und spezieller die Polierplatte (16), in einem Winkel eingestellt werden kann.

12. Maschine gemäß Anspruch 10 oder 11, **dadurch gekennzeichnet, daß** das Polierteil (57) mittels eines nach unten hängenden Hebels (68) am Wagen (45) befestigt ist, welcher Hebel mittels eines horiontalen Drehzapfens (69), der sich normalerweise quer zur Fahrrichtung erstreckt, schwenkbar am Wagen (45) angebracht ist, wobei dieser Hebel (68) an seinem freien unteren Ende frei scharnierbeweglich mittels eines Zapfens (70) mit nach unten gerichteten Armen (71-72) verbunden ist, die in Bezug zueinander einen stumpfen Winkel bilden und unter denen die Polierplatte (16) montiert ist; und daß die Polierplatte (57) mit einem Antrieb versehen ist, der besagten Hebel (68) um besagten Zapfen (69) hin und her schwenkt.

13. Maschine gemäß einem der Ansprüche 10 bis 12, **dadurch gekennzeichnet, daß** das Polierteil (57) mit einer Polierplatte (16) versehen ist, die hin und her schwenkt, wobei diese Polierplatte (16) so aufgehängt ist, daß sie frei verschiebbar ist, vorzugsweise mittels koaxial angebrachter Stangen (75-76), die mit der Polierplatte (16) verbunden sind und die frei verschiebbar sind in Buchsen (73-74).

14. Maschine gemäß einem der Ansprüche 10 bis 13, **dadurch gekennzeichnet, daß** das Polierteil (57) mit einer Polierplatte (16) versehen ist, deren Gewicht mittels einer darüber montierten Zugfeder (81) etwas kompensiert wird.

15. Maschine gemäß einem der Ansprüche 10 bis 13, **dadurch gekennzeichnet**, daB das Polierteil (57) eine Polierplatte (16) mit einer relativ großen Länge umfaßt, beispielsweise in einer Größenordnung von 2 Metern, im Verhältnis zu einer relativ geringen Breite, beispielsweise in einer GröBenordnung von 30 cm, und daß die Längsrichtung der Polierplatte (16) parallel zur Längsrichtung der Maschine (1) ist.

Revendications

1. Machine pour égaliser du béton, du type par laquelle du béton coulé (2) est étendu sur une largeur prédéterminée et par laquelle on écume ce béton (2) à une certaine hauteur, ladite machine (1) étant réglable en largeur et contenant un élément qui est à même d'effectuer un mouvement de va-et-vient en largeur en se déplaçant par-dessus un guide (36), **caractérisée en ce que** la longueur dudit guide (36) peut être réglée à distance en fonction de la largeur de travail de la machine requise, par laquelle ledit élément est à même d'effectuer un mouvement en continu sur toute la longueur du guide (36) sans que la ou les transitions entre les différentes parties (26, 27) du guide téléscopique ne constituent un obstacle.

2. Machine selon la revendication 1, **caractérisée en ce qu'**elle possède un ou plusieurs outils englobant un dispositif (5) pour étaler le béton (2) et/ou un dispositif (6) pour faire vibrer le béton (2) et/ou un dispositif (7) pour lisser le béton (2) et/ou un dispositif de polissage (8), et **en ce qu'**au moins la largeur de travail d'un ou de plusieurs de ces outils peut être réglée.

3. Machine selon la revendication 2, **caractérisée en ce qu'**elle possède un ou plusieurs desdits outils et **en ce que** tous les outils prévus peuvent être réglés en largeur.

4. Machine selon la revendication 2 ou 3, **caractérisée en ce que** le moyen de propulsion (4) peut être réglé en largeur.

5. Machine selon la revendication 4, **caractérisée en ce que** les moyens pour régler la largeur de travail des outils concernés sont reliés au moyen de propulsion (4) de telle sorte qu'en modifiant l'écartement en largeur (B1) du moyen de propulsion (4), on modifie automatiquement la largeur de travail (B2) des outils concernés.

6. Machine selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la largeur du moyen de propulsion (4) et/ou des outils peut être réglée en continu.

7. Machine selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ledit guide est constitué d'une structure à rails (36) le long desquels peut se déplacer un chariot (45) portant l'élément à déplacer, et **en ce que** la structure à rails (36) est constituée par deux éléments dé structure à rails (26, 27) qui sont respectivement fixés à des colonnes (10) sous lesquelles on prévoit le moyen de propulsion (4) de la machine (1).

8. Machine selon la revendication 7, **caractérisée en ce que** les éléments de structure à rails (26-27) sont chacun munis de nervures (37-38-39-40) avec lesquelles des roues de roulement peuvent coopérer, qui sont prévues à cet effet en bas et en haut du chariot (45), et **en ce que** les roues (41 à 44) possèdent chacune deux rainures circonférentielles (46-47) situées l'une à côté de l'autre, qui sont à même de coopérer avec les nervures (37-38) du premier élément de structure à rails (26) et avec les nervures (34-35) de l'autre élément de structure à rails (27), respectivement.

9. Machine selon la revendication 7 ou 8, **caractérisée en ce que** le chariot (45) est équipé d'un moteur (48) qui entraîne une roue à chaîne (49) roulant pardessus une chaîne (50), par laquelle cette chaîne (50) est fixée d'une part et d'autre part aux éléments de structure à rails (26-27) de telle sorte que le chariot (45) peut effectuer un mouvement en va-et-vient sur toute la longueur de la structure à rails (36) au moyen du moteur (48) et suite au roulement de la roue à chaîne (49).

10. Machine selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ledit élément est constitué d'un élément de polissage (57).

11. Machine selon la revendication 10, **caractérisée en ce que** l'élément de polissage (57) et, plus particulièrement, la plaque de polissage (16) dispose d'un réglage angulaire.

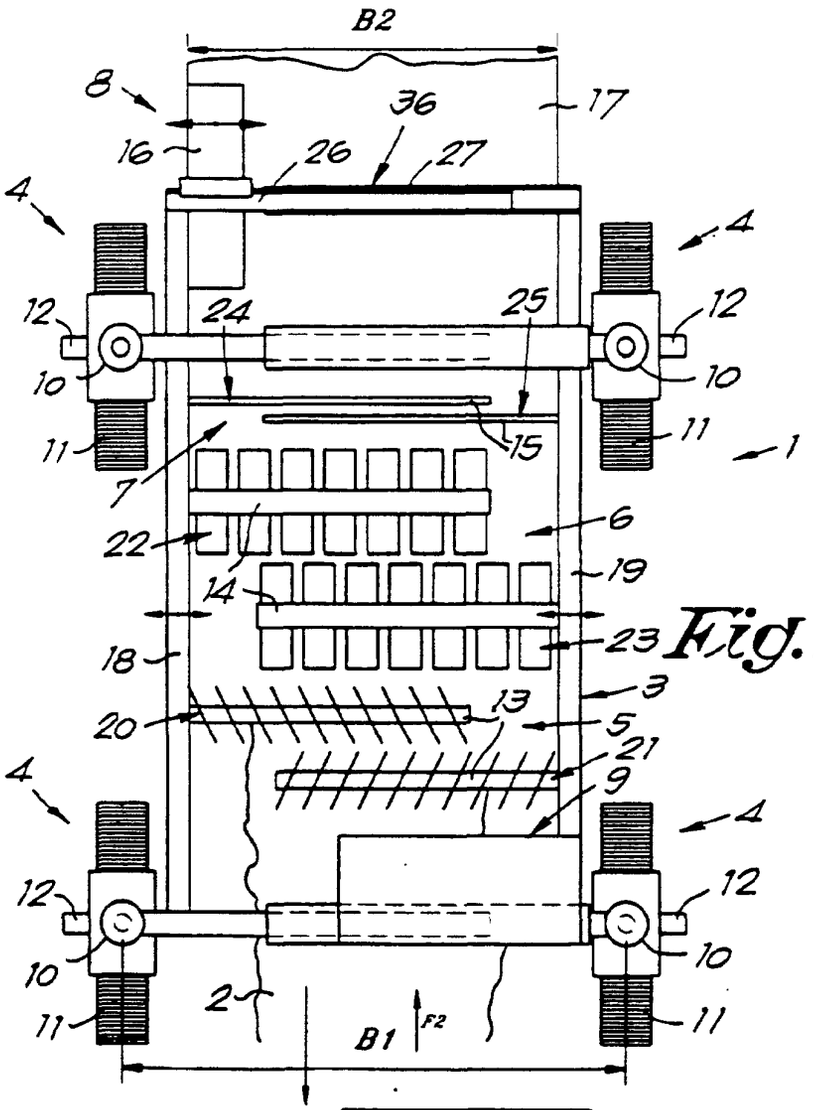
12. Machine selon la revendication 10 ou 11, **caractérisée en ce que** l'élément de polissage (57) est fixé au chariot (45) au moyen d'un levier (68) qui est suspendu et qui est fixé au chariot (45) d'une manière oscillante au moyen d'un pivot horizontal (69) qui s'étend normalement transversalement par rapport à la direction d'entraînement, par laquelle ce levier (68) est monté en articulation libre, à son extrémité inférieure libre, au moyen d'un pivot (70) à des bras (71-72) orientés vers le bas, qui forment un angle obtus l'un par rapport à l'autre et en dessous desquels est montée la plaque de polissage (16), et **en ce que** la plaque de polissage (57) est munie d'un entraînement qui fait osciller ledit levier (68) en va-et-vient autour dudit pivot (69).

13. Machine selon l'une quelconque des revendications 10 à 12, **caractérisée en ce que** l'élément de polissage (57) est muni d'une plaque de polissage (16) qui oscille en va-et-vient, par laquelle cette plaque de polissage (16) est suspendue de telle sorte qu'elle est à même de se déplacer librement de préférence au moyen de barres (75-76) montées en position coaxiale, qui sont reliées à la plaque de po-

lissage (16) et qui peuvent coulisser librement dans des douilles (73-74).

14. Machine selon l'une quelconque des revendications 10 à 13, **caractérisée en ce que** l'élément de polissage (57) est muni d'une plaque de polissage (16) dont le poids est quelque peu compensé au moyen d'un ressort de traction (81) monté en son sommet.

15. Machine selon l'une quelconque des revendications 10 à 13, **caractérisée en ce que** l'élément de polissage (57) contient une plaque de polissage (16) possédant une longueur relativement grande, par exemple de l'ordre de grandeur de 2 mètres, par rapport à une largeur relativement petite, par exemple de l'ordre de grandeur de 30 cm, et **en ce que** la direction longitudinale de la plaque de polissage (16) est parallèle à la direction longitudinale de la machine (1).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B1
F2

Fig. 1

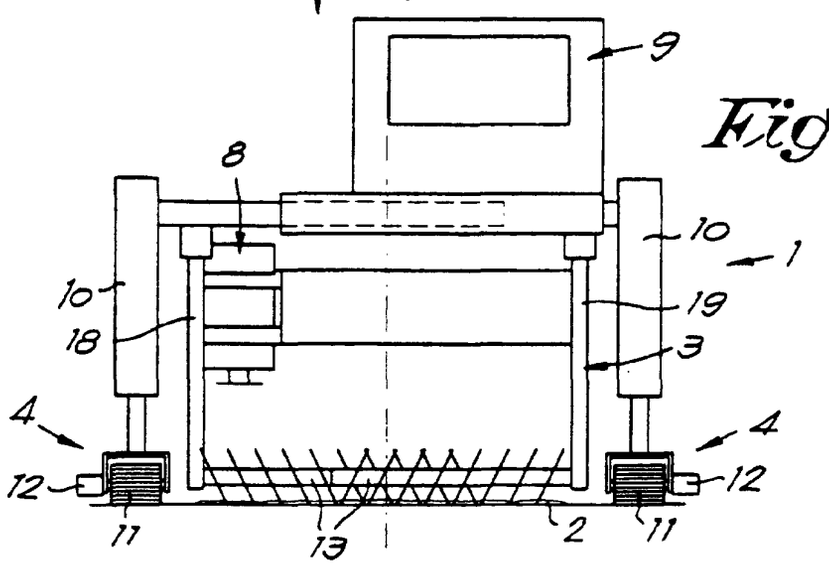
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Fig. 2

Fig.3

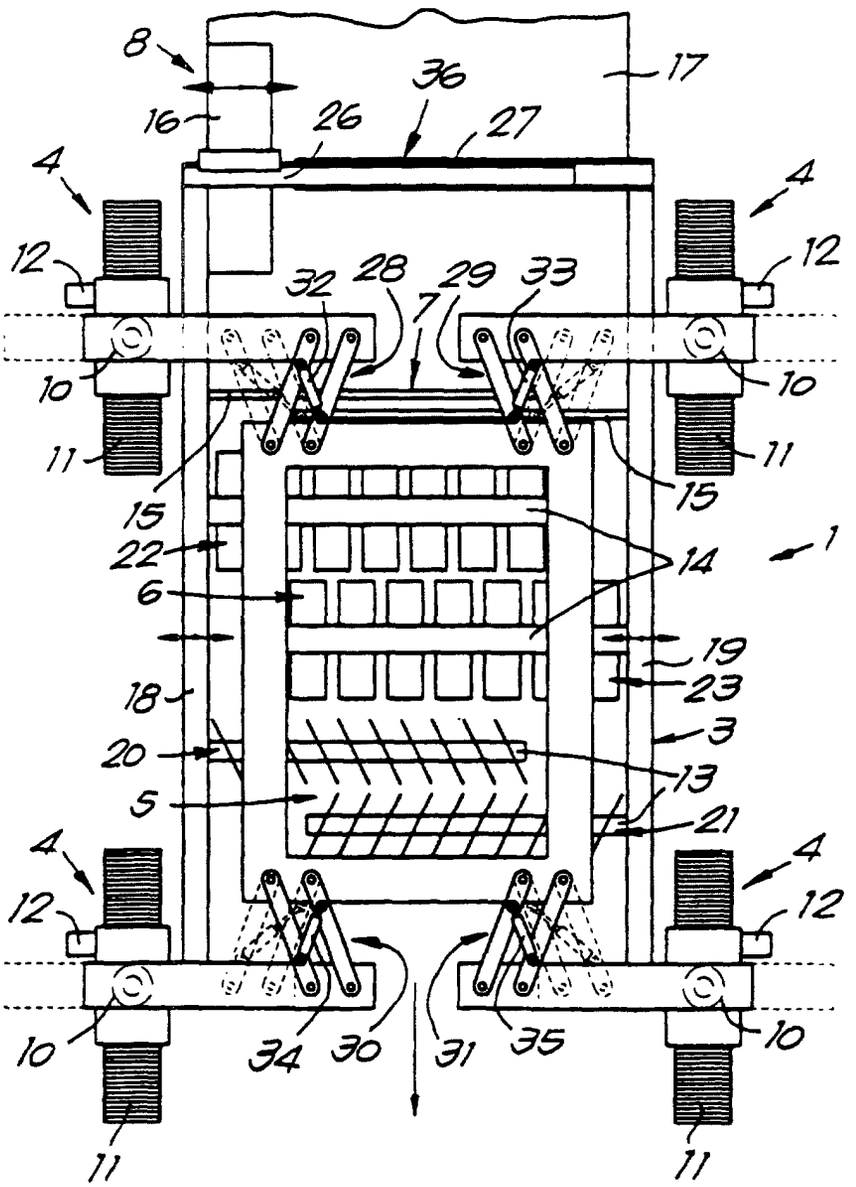
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Fig. 4

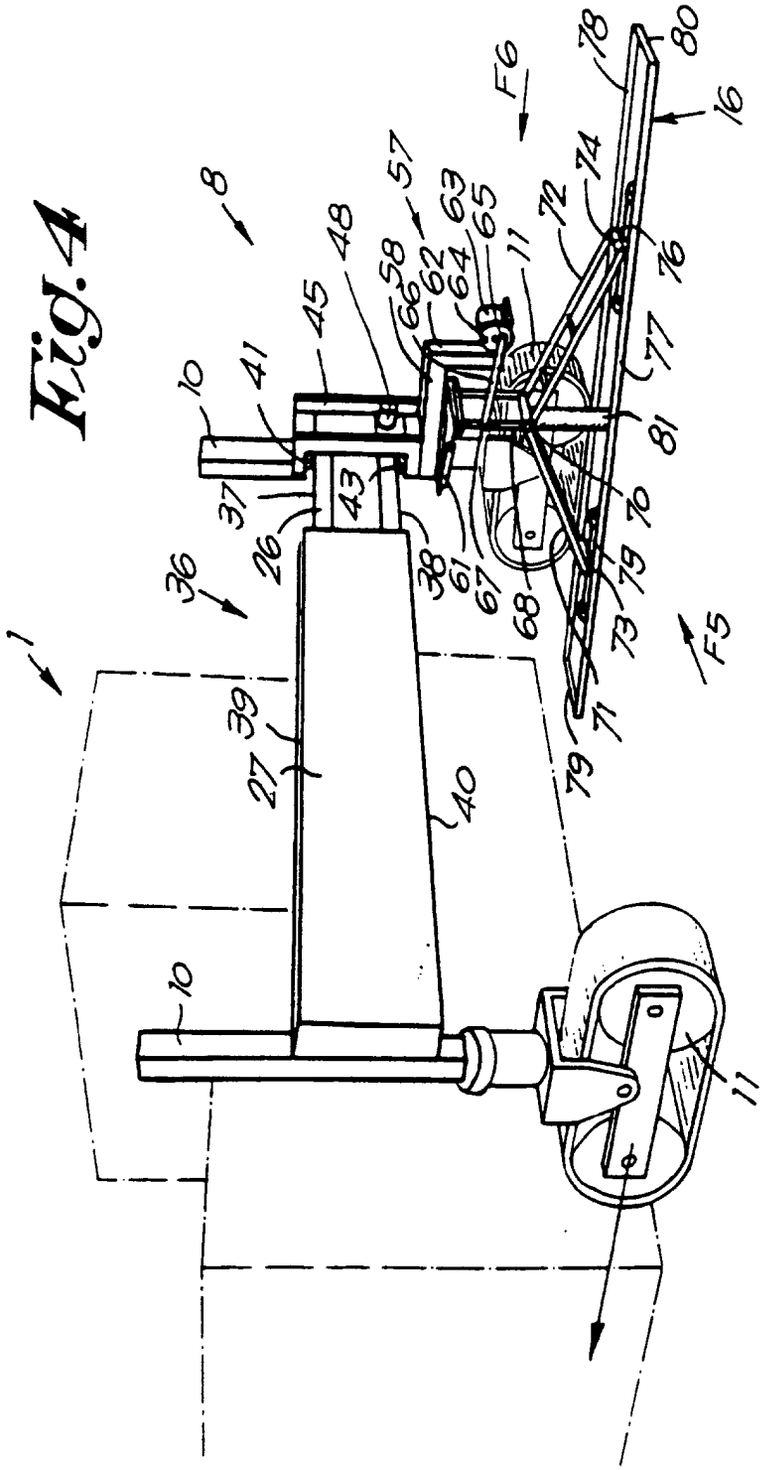
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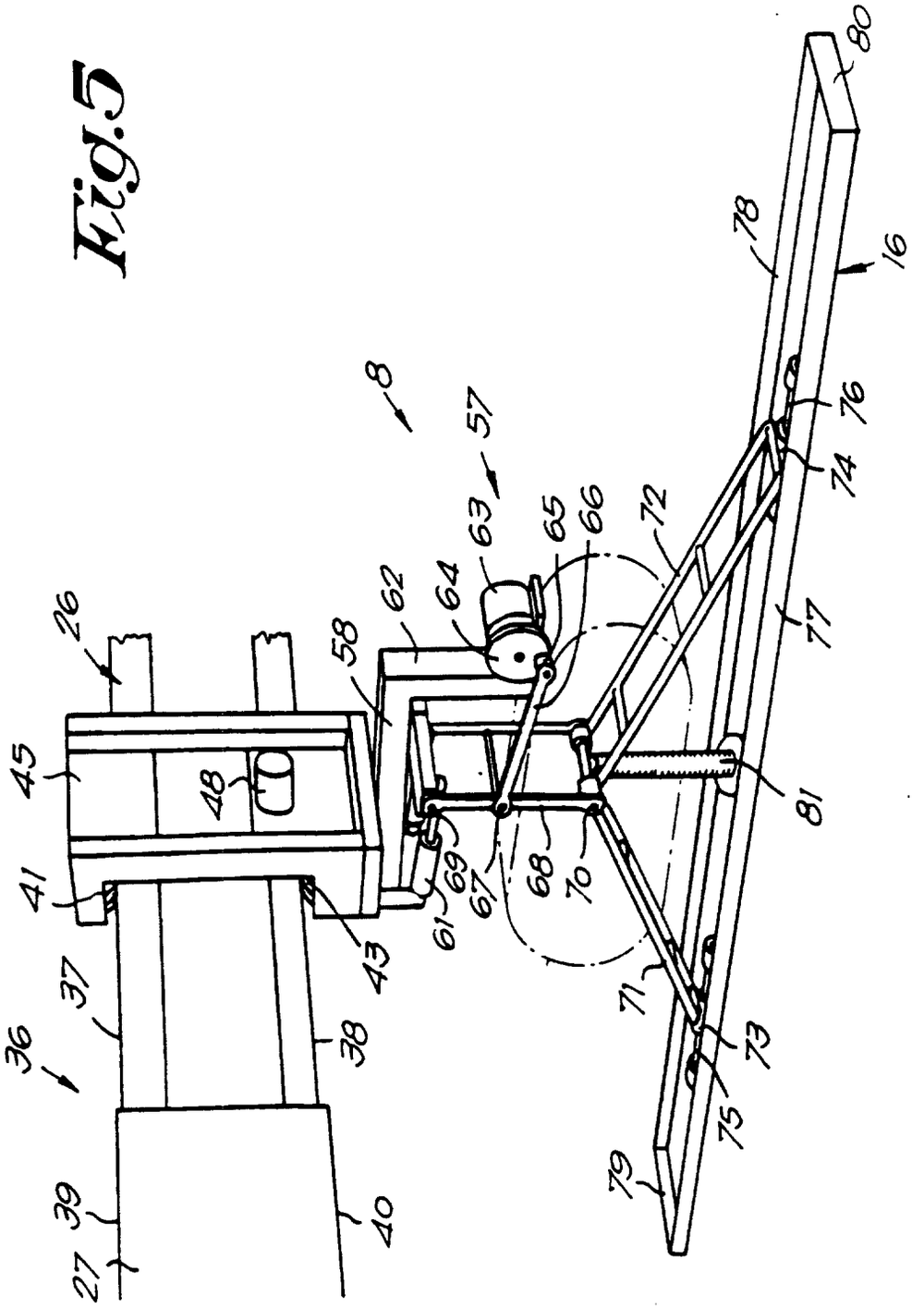
Fig.5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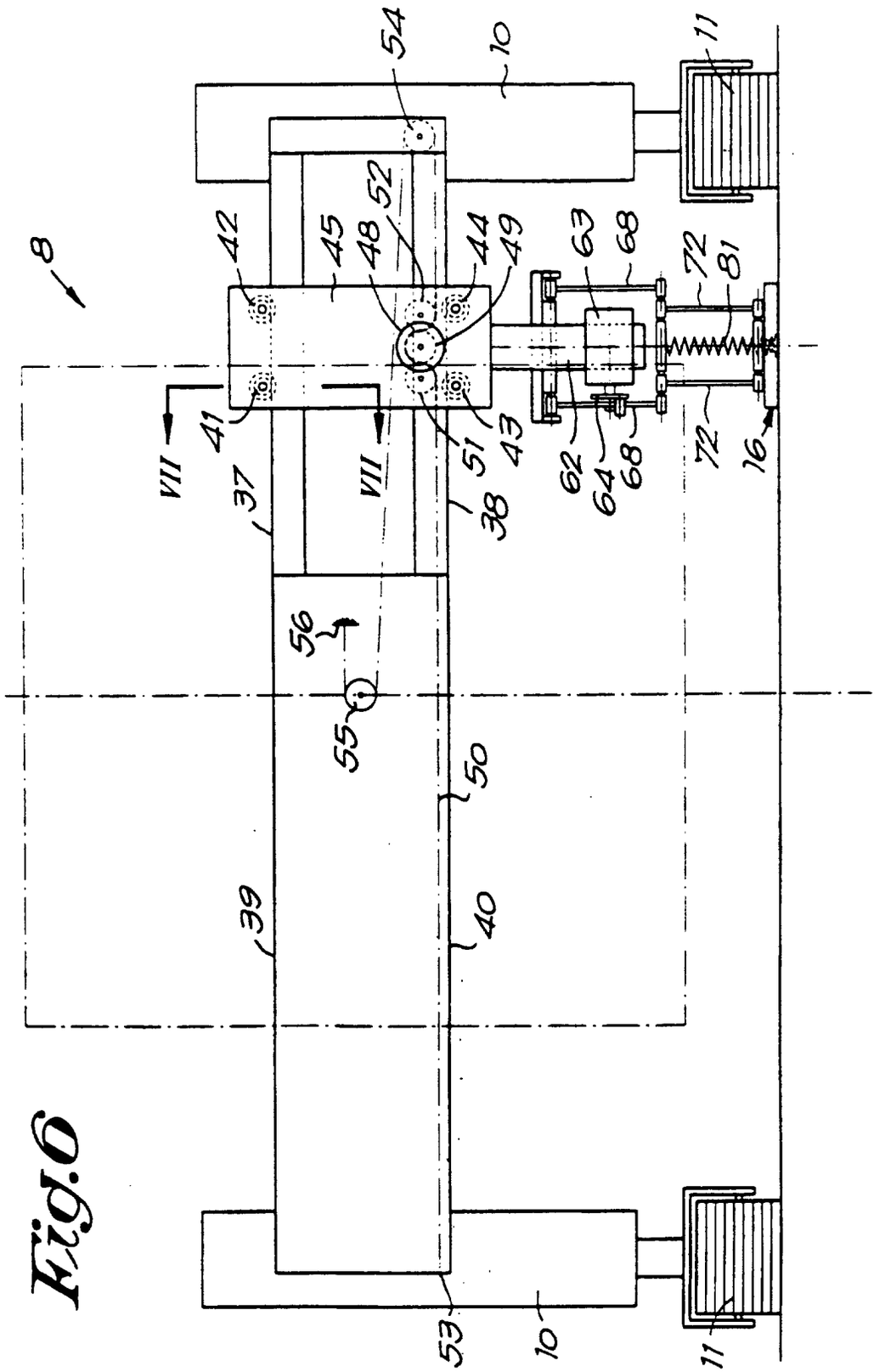
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Fig.6

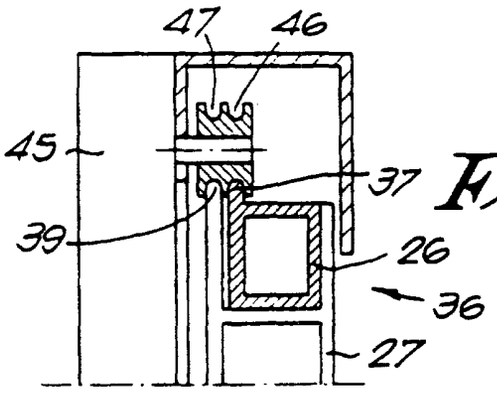

Fig.7

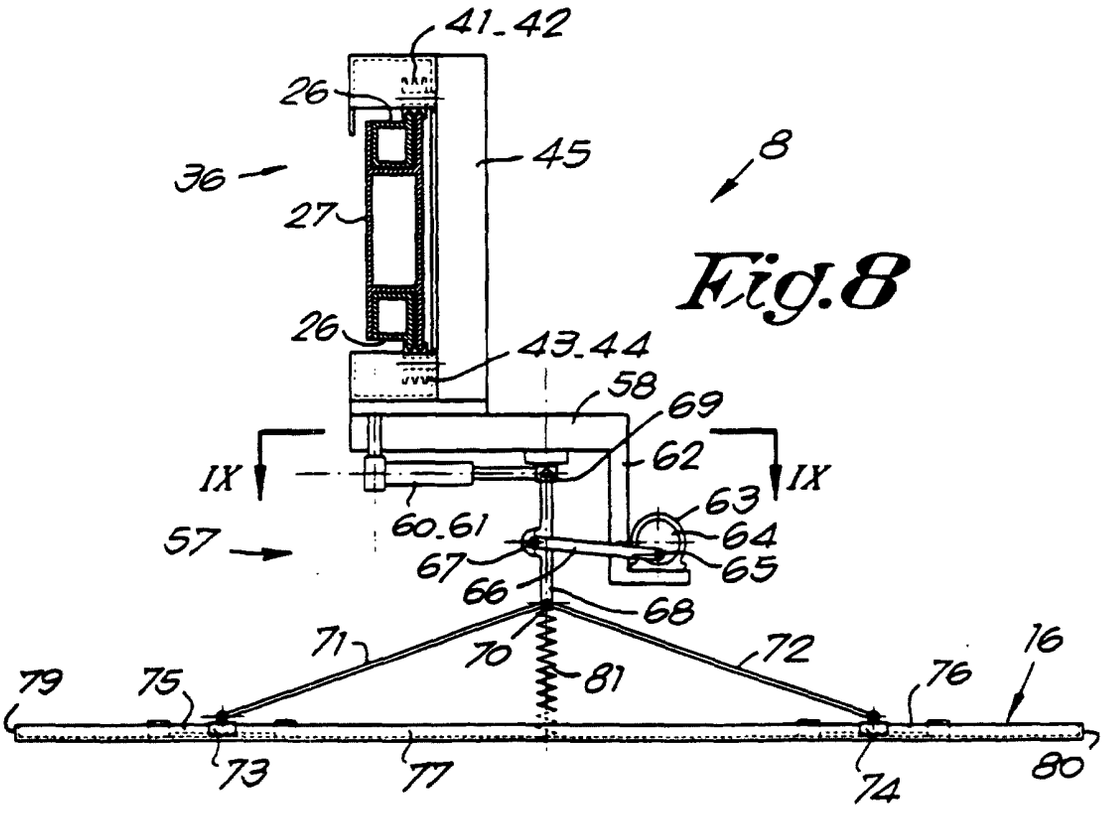

Fig.8

Fig.9