

W. S. HAVEN.
FLOOR DRESSING MACHINE.
APPLICATION FILED FEB. 21, 1908.

944,963.

Patented Dec. 28, 1909.

3 SHEETS—SHEET 1.

Fig. 1.

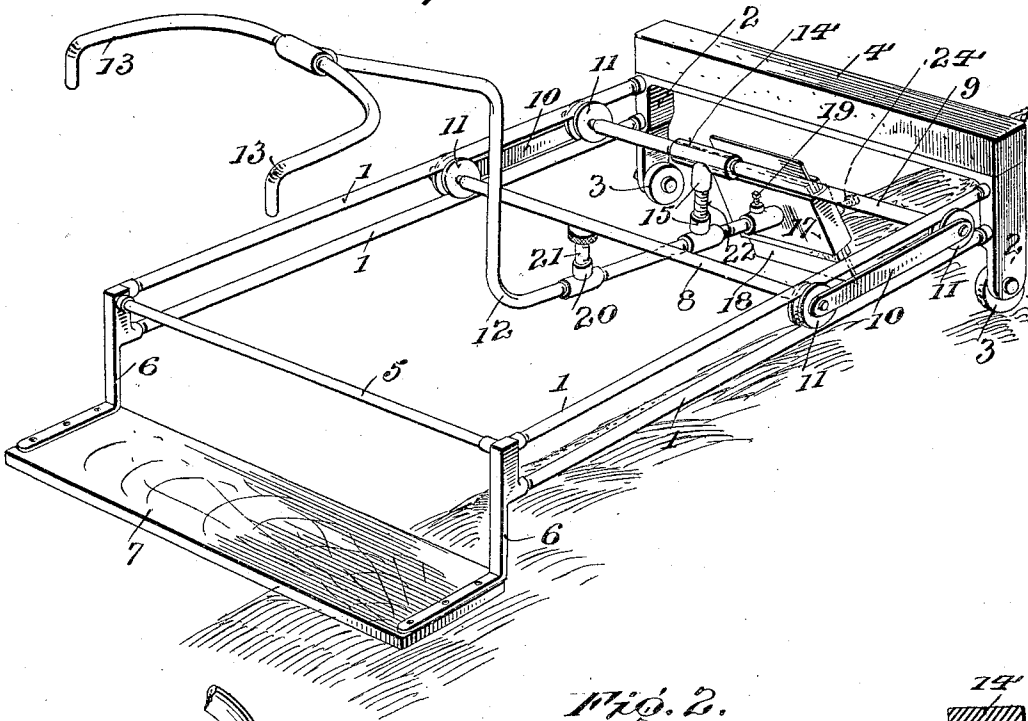
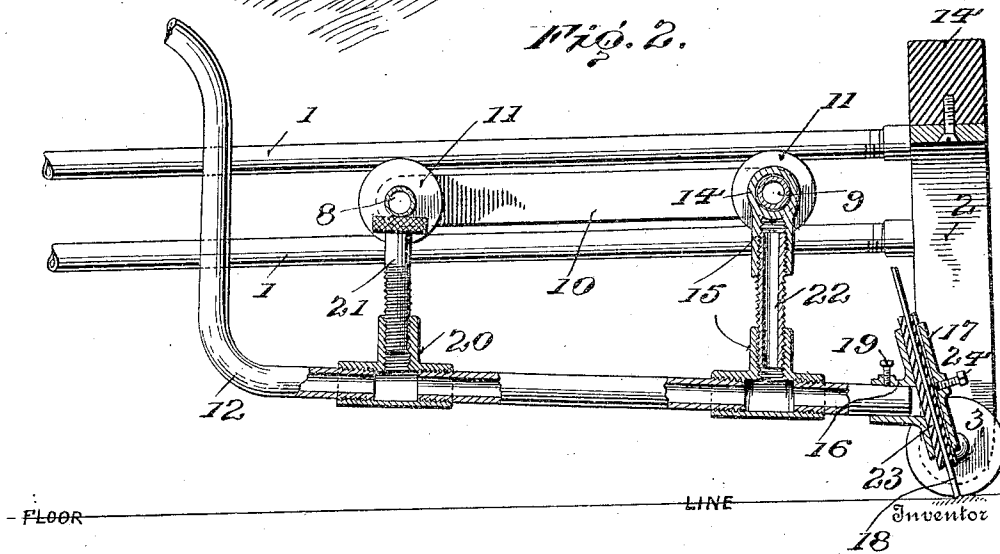


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

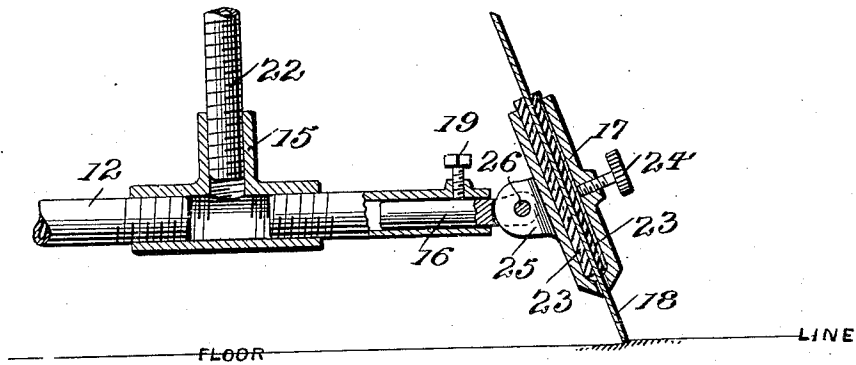
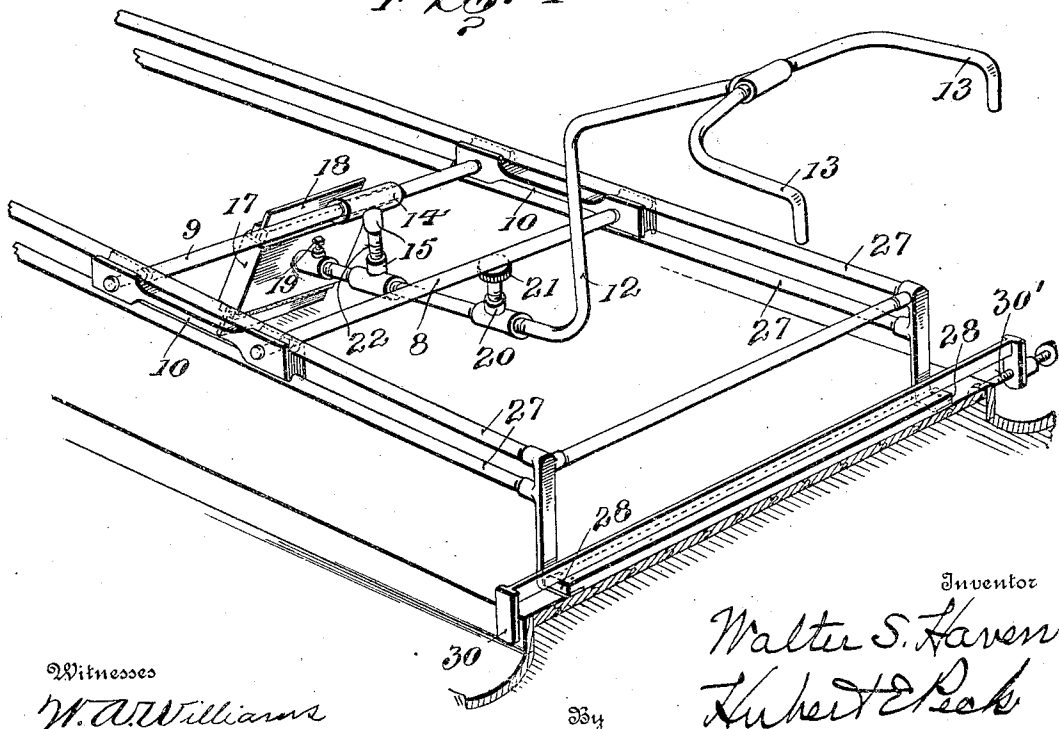


Fig. 4.



Witnesses

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3 SHEETS—SHEET 3.

Fig. 5.

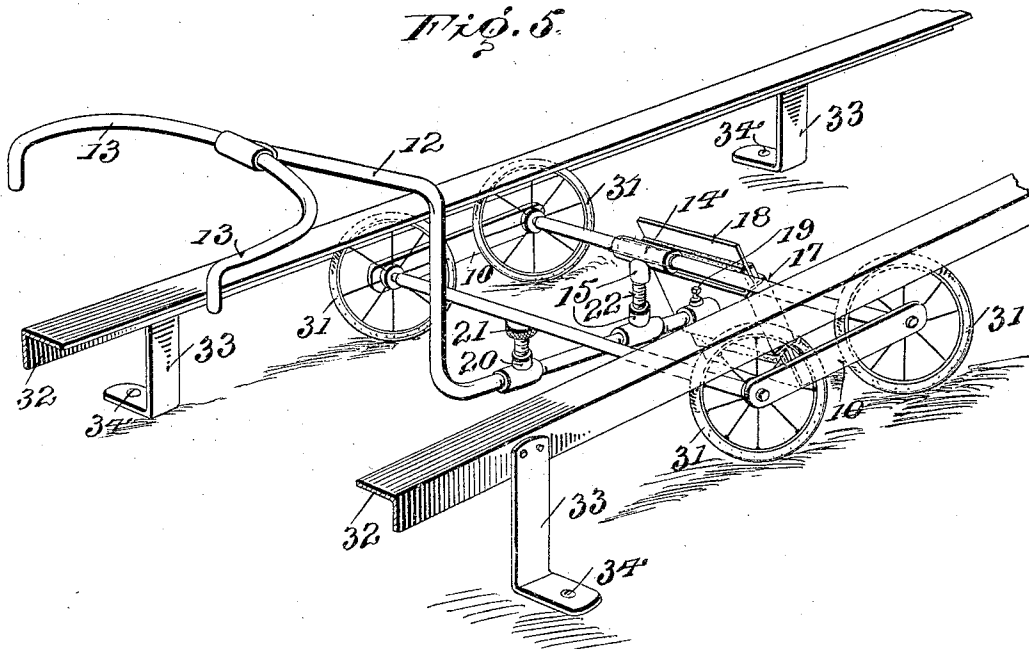
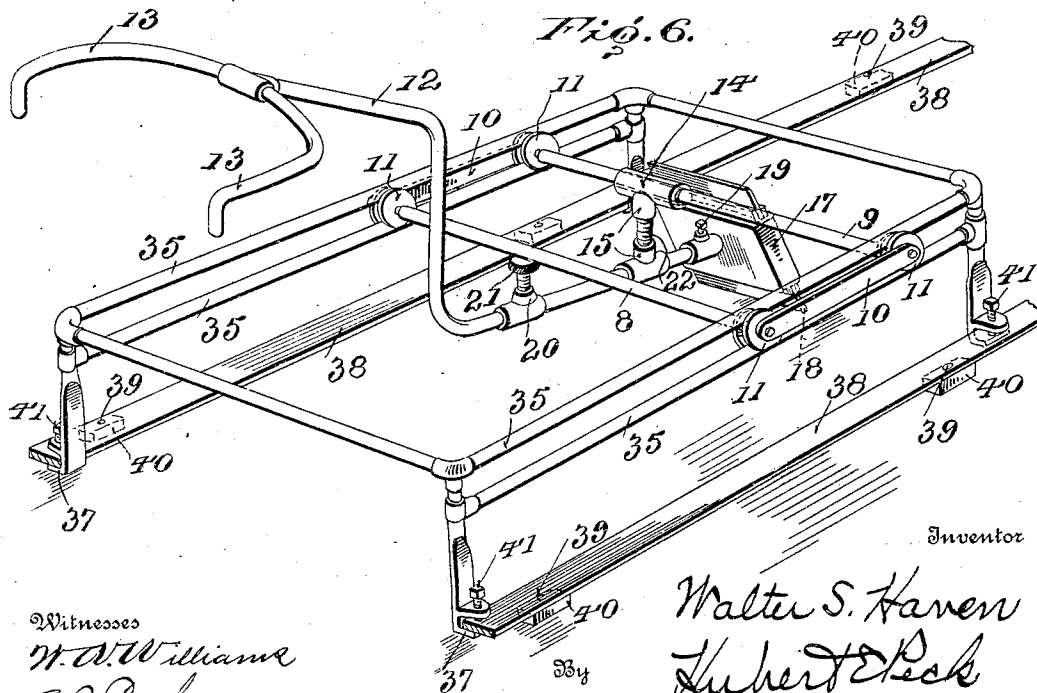


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

WALTER S. HAVEN, OF RACINE, WISCONSIN.

FLOOR-DRESSING MACHINE.

944,963.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER S. HAVEN, a citizen of the United States, residing at Racine, Racine county, Wisconsin, have invented certain new and useful Improvements in Floor-Dressing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to certain improvements in floor dressing machines, and the like; and the objects and nature of my invention will be readily understood by those skilled in the art in the light of the following explanation of the structures shown in the accompanying drawings illustrating embodiments of my invention for purposes of explanation from among other forms, constructions and arrangements within the spirit and scope of my invention.

An object of my invention is to provide certain improvements in details and construction of parts, and in combinations, whereby a highly efficient floor dressing machine will be produced.

My invention consists in certain novel features in construction and in combinations or arrangements of parts as more fully and particularly pointed out and set forth hereinafter.

Referring to the accompanying drawings:—Figure 1, is a perspective view illustrating a floor dressing machine constructed in accordance with my invention. Fig. 2, is a partial longitudinal view of the machine of Fig. 1. Fig. 3, is a section on an enlarged scale of the tool or blade holder of Figs. 1 and 2, showing the front end of the lever. Fig. 4, is a detail perspective showing a modified arrangement wherein a sliding carriage is employed and the tracks therefore are adjustably secured to a bowling alley floor. Fig. 5, is a perspective view showing the carriage reciprocating and traveling on the floor and moving along and held down by tracks secured to the floor. Fig. 6, is a perspective showing tracks for the carriage resting on the floor, and adjustable along and held down by strips or planks temporarily secured to the floor.

The various structures illustrated embody a reciprocating carriage carrying and con-

stituting the fulcrum for a vertically swingable hand or other lever carrying the floor dressing tool and also a stop to limit the oscillation of said lever and the working depth of the tool; tracks being usually provided to hold said carriage to reciprocation in a certain plane approximately parallel with the surface of the floor being dressed, said tracks being detachably or removably held in place.

In the machine shown by Fig. 1, I provide a frame resting on the floor and movable along the floor to present a fresh or undressed area thereof for the action of the dressing tool. This frame is formed to be held to the floor, during the action of the tool, by the weight thereof, supplemented, if need be, by the weight of the operator or by the pressure of his foot. This frame embodies two pairs of parallel elongated rigid tracks 1, arranged longitudinally of the frame, usually forming the opposite side bars thereof. These side bars or tracks are suitably and rigidly tied or fixed together at the frame ends by suitable cross connections or bars. For instance, at the front of the frame, I show the track bars 1, rigidly secured to front corner posts, legs or uprights 2; at their lower ends provided with and carrying rollers or wheels 3, resting on the floor and at their upper ends secured to and carrying a transverse heavy bar or weight 4, designed to weight the front end of the frame and hold the same down in proper position during the operation of the dressing tool.

At the rear end of the frame I show a rigid cross bar 5, between and fixed to the side bars, and depending corner legs 6, fixed thereto and secured to and carrying a horizontal transverse foot, running board or piece 7, extending transversely across and to the rear of the frame. This board 7, rests with its flat face on the floor, and the operator can stand thereon or place one foot thereon to hold the frame down on the floor during the operation of the tool, should not the weight of the frame and said board be sufficient to hold the frame stationary while the machine is at work. When the area of the floor accessible to the tool has been dressed, the frame can be easily moved to a different portion of the floor by lifting the rear end of the frame and moving the frame

with its weight thrown onto and supported by the rollers 3, which will readily roll along the floor.

The reciprocating carriage is confined to movement along the tracks 1, and can either slide along or can be provided with rollers traveling on said tracks. In the form shown in Fig. 1, the carriage consists of two transverse parallel separated or spaced rigid horizontal cross rods 8, 9, in length approximately equal to the width of the frame and at their ends rigidly connected by the side bars 10, and the carriage thus formed is provided with wheels or rollers 11, confined between the tracks 1, of each pair; if so desired, two rollers being arranged at each end of the carriage, to maintain the cross rods or shafts thereof one behind the other and to travel in the same plane. This carriage is free to reciprocate in a fixed plane, longitudinally of the frame and approximately throughout the length of the track way.

The carriage is reciprocated through the medium of rearwardly extending lever 12, provided with a suitable handle device 13, at its usually elevated rear free end, said handle device being accessible to the operator at the rear of the machine with one or both feet on the foot board 7. The lever extends forwardly about horizontally beneath the cross rods 8, 9, of the carriage and usually projects in advance of the front rod 9.

The lever is hung from the fulcrum rod 9, to oscillate vertically, through the medium of a sleeve 14, mounted and free to turn on said rod and rigid with a vertical depending hanger 15, at its lower end rigidly secured or fixed to the front portion of the lever to uphold the same. This sleeve 14, is not only free to oscillate on the fulcrum rod or shaft but is free to laterally reciprocate or slide throughout the length thereof between the trackways to carry the tool lever 12, to operation in any desired floor area between said track ways. The front end of said tool lever is shown projecting forwardly from the lower end of said supporting hanger, and can be formed with a longitudinal socket opening through its front end to longitudinally and removably receive the shank 16, of the tool holder, clamp, or chuck generally indicated by the reference letter 17, by which the downwardly extending, usually inclined, cutting or scraping blade 18, or other tool, is secured and held.

In the specific example illustrated, the tool holder is capable of adjustment longitudinally of the actuating tool lever, and is fixed to the lever and held in the desired adjustment by suitable means, such as clamping or set screw 19. It will hence be observed that the tool is arranged in advance of the fulcrum of the lever, and that as the operator draws the carriage back and forth by the lever, he can by raising the handle or

rear end of the lever, depress the tool and apply the desired pressure thereto, which he does on the operative stroke, while by depressing the handle end of the lever on the return stroke he raises the tool from the floor.

For the purpose of steadying, stiffening or bracing the lever on its operative stroke and also to limit the working depth of the tool, the stop rod 8, is employed to cooperate with an intermediate portion of the lever between the fulcrum and handle end. In the specific example illustrated, I show the lever passing under said stop rod so that its vertical movement is limited thereby but I do not wish to so limit my invention. If so desired, adjustable means can be employed to vary the horizontal plane in which said stop rod limits the upward swing of the lever. For instance, I show an enlargement or lug 20, rigid with the lever beneath the stop rod 8, and having a vertical, internally threaded, socket receiving an upwardly projecting vertically adjustable screw 21, forming the engagement contact or stop to abut against the stop rod. By adjusting this screw vertically the limit of downward movement of the front end of the lever and the working depth of the tool can be varied. By this arrangement the working depth of the tool can be very accurately controlled to uniformly remove the floor surface to the desired depth, and further—more gouging of the floor is prevented and also the blade is held to work in a fixed horizontal plane and against dropping into hollows, depressions or cracks in the floor surface. During the operative strokes of the carriage, the tool is held firmly in its plane of movement and the actuating tool lever is firmly held and braced against undue vibration and “chattering” by its bearing against the stop rod 8, in connection with its support from the fulcrum rod or shaft 9. I also, preferably, provide means whereby the actuating tool lever can be oscillated laterally in a horizontal plane to horizontally shift the blade in its horizontal working plane. The blade normally works with the lower transverse cutting or scraping edge arranged directly across or at right angles to its path of movement. It is often desirable to arrange the blade with its cutting edge at an angle or inclination to the path of forward movement of the blade. The grain or nature of some portions of the flooring is often such that the best dressing results can be attained where the tool works over the same at an angle to make a draw cut. To attain this result, I can form the hanger 15, in two sections arranged end to end and united by a vertical pivot 22, to form a swivel connection between the lever 12, and fulcrum sleeve 14. This swivel is so formed that the lever is free to oscillate, rock or rotate thereon in

a horizontal plane to vary the angle of the blade in a horizontal plane, but so that there is no substantial vertical movement or play at the swivel joint. The actuating tool lever is held against substantial vertical movement so far as the swivel is concerned, as substantial vertical play of the lever is permitted only by the fulcrum sleeve turning on the fulcrum shaft or rod 9.

The blade 18 is preferably removably secured in the holder 17, to permit ready removal and interchange of blades. Any suitable clamp or chuck can be employed for this purpose. For instance, I show set or clamping screw 24, for securing the blade in the holder and between the cushioning pads 23. Also to reduce vibration and "chattering" to the minimum, I usually clamp or secure the blade in the holder against a body of cushioning material or between two layers or bodies 23, of cushioning material, such as rubber or the like, to absorb or take up the vibration of the blade and prevent transmission thereof to the holder and actuating tool lever.

Although I do not wish to so limit all features of my invention, yet I can adjustably connect the blade holder to its shank 16, so that the angle of forward and downward inclination of the blade can be varied. For instance, in Fig. 3, I show the holder provided with a rigid rearwardly extending ear 25, lapping the front end of the shank 16, and coupled thereto by a transverse clamping bolt 26, on which the holder can be rocked vertically when the bolt is loosened. When the holder has been adjusted to the desired angle, the bolt is tightened to rigidly clamp the holder to the shank and in the desired adjustment.

Various means, or other than a weight-held, shiftable frame, can be employed to hold the carriage to reciprocation in a certain plane over the floor surface. For instance, I show different arrangements for this purpose, from among many others, in Figs. 4, 5, and 6, wherein I show practically the same structure of reciprocating carriage and actuating tool lever as in Fig. 1, except that the tool holder adjustment 25, 26 is not shown, for to a certain extent the result thereof can be attained through the medium of screw 21, and by adjusting the blade to project a greater or less distance below the holder.

In Fig. 4, I show the reciprocating carriage and its actuating tool lever traveling along and confined to a frame particularly adapted for bowling alleys, and comprising parallel tracks 27, having end legs with lateral end feet 28 by which the frame can be detachably held down to and parallel with a bowling alley floor with tracks the desired distance above the floor. I show the frame held in place by a clamp arranged trans-

versely of the floor and resting down on feet 28, and having end jaws 30, 30', engaging the side edges of the floor and detachably locking the clamp in place. The operation of this bowling alley floor dresser will be readily understood by those skilled in the art.

In Fig. 5, I show the reciprocating carriage provided with and carried by enlarged wheels 31, usually having wood rims or fitted with rubber tires. These wheels are adapted to travel and roll on the surface of the floor, while the carriage is held to movement in a certain plane parallel with the floor by elevated parallel tracks 32, provided with upright brackets or feet 33, resting on and temporarily secured to the floor by screws 34, or other suitable means.

In Fig. 6, I show a frame having the elevated opposite parallel slide or track ways 35, for the reciprocating carriage. This frame is held down to the floor by parallel strips or bars 38, temporarily secured along the floor by screws 39 or other means passed down through said bars and through blocks 40, by which the bars are held up from the floor a sufficient distance to permit the feet 37 of the frame legs to project under the bars so that the feet will be held down to and yet can slide along the floor beneath the bars when the frame is being shifted. The feet can be provided with vertically movable set screws 41, extending therethrough to engage the bars 38, and lift the feet into locking engagement with the bars 38, should it be necessary to clamp or lock the frame in position.

Various means can be provided for so mounting or carrying the carriage-actuating and tool-controlling lever on or from its elongated fulcrum bar or support 9, as to permit horizontal rocking or oscillation of said lever independently of said fulcrum support 9 and of the carriage. In the specific example illustrated, the swivel joint or connection in the hanger 15, comprises the vertical pivot connection 22, between the sections 15, of the hanger which sections are rigid with the fulcrum sleeve 14, and with the lever 12, respectively, and I show said pivot 22, consisting of a straight externally threaded rod or pipe section screwing longitudinally into the hanger sections 15, which are shown in the form of T-pipe joints or unions, although I do not wish to so limit my invention as various forms of swivel or pivot connections can be employed.

The slight horizontal oscillation or rocking of the lever necessary to change the working angle of the blade, is permitted by the screw threaded connection between section 22, and one or both sections 15, of the hanger, without substantial or objectionable vertical variation in the position of the lever.

The arrangement is generally such that

the return or inoperative stroke of the floor dressing tool, is the forward stroke when the truck and the tool are moving in a direction away from the operator, while during
 5 the operative stroke the truck and the tool are being drawn backward or toward the operator.

In order to enable the operator to make a full operative stroke of maximum length
 10 without being required to step back from the frame and from the foot board 7, I form the rear end of the lever 12, with branching, divided or separated rearwardly extending handles 13, one for each hand,
 15 and so spaced apart as to receive the body of the operator between them. By this arrangement the operator can move the lever and the truck forward to the limit of the forward or return stroke and can then draw
 20 the parts back on the operative stroke and can finish said stroke with his hands moving back on opposite sides of the body to a position in rear of the body, with said separated handle ends extending rearwardly on
 25 opposite sides of the body and beyond the same. This is a feature of material advantage in devices of this character.

I do not wish to limit all features of my invention to the use of the carriage in connection with tracks for in some instances
 30 the weight of the carriage might be sufficient to hold the same down to work on the floor, although as at present advised I consider the tracks an important feature, but do not
 35 wish to limit all features of my invention to a tool carrying lever operated manually or by hand.

It is evident that various changes and modifications might be resorted to, elements
 40 might be added and others omitted, without departing from the spirit and scope of my invention and hence I do not wish to limit myself to the structures as shown.

What I claim is:—

45 1. In combination, tracks adapted to be maintained in fixed approximate parallelism with a floor, a movable carriage adapted to reciprocate longitudinally of said tracks, a vertically swingable tool actuating lever
 50 carried by and fulcrumed to said carriage, a tool head connected with said lever, and a stop mechanism for said lever for limiting the working movement of the tool toward the floor surface.

55 2. In combination, a movable carriage adapted to reciprocate over a floor and in a fixed plane parallel therewith, means determining the plane of reciprocation of said carriage, said carriage comprising a fulcrum
 60 shaft or rod and a stop rod spaced therefrom, and a vertically swingable lever having means to carry and control a floor dressing tool, said lever being fulcrumed to said fulcrum rod to swing vertically therefrom
 65 as a center, said stop rod limiting the ver-

tical swing of said lever in a direction to limit the working movement of the tool toward the floor surface.

3. A movable carriage adapted to reciprocate over a floor and in a plane parallel
 70 with the surface thereof, and means determining the plane of reciprocation of said carriage in combination with a vertically swingable lever for actuating said carriage, a floor dressing tool carried and controlled
 75 by said lever, said lever fulcrumed to and carried by said carriage to swing vertically independently thereof to move said tool to and from the floor surface, and means for limiting the vertical swing of the lever. 80

4. In combination, a track way adapted to be temporarily fixed above and parallel with a floor surface, a movable carriage adapted to reciprocate longitudinally of said track
 85 way, a lever fulcrumed to said carriage to reciprocate the same and to swing vertically independently thereof, the front end of said lever provided with means for receiving a floor dressing tool, and adjustable stop
 90 means whereby the limit of vertical swing of said lever in one direction can be varied, said stop means being spaced a distance from the fulcrum point of the lever.

5. In combination, a movable carriage, a trackway adapted to maintain said car-
 95 riage down to reciprocation in a fixed horizontal plane, a vertically swingable lever fulcrumed between its ends to the forward portion of said carriage and at its lower free
 100 front end having means to receive, carry and raise and lower a floor dressing tool, a portion of the rear part of said carriage arranged to engage the portion of the lever in rear of said fulcrum and thereby limit the
 105 upward swing thereof.

6. In combination, a movable carriage, a vertically swingable carriage actuating and tool controlling lever extending forwardly beneath said carriage and provided with an upright support hung loosely on said car-
 110 riage to form the fulcrum of said lever, the forward free end of said lever provided with means to receive a floor dressing tool, the swing of said lever in a direction to force the tool into working engagement with the
 115 floor being limited by engagement with a portion of the carriage.

7. In combination, a movable carriage, a vertically swingable carriage reciprocating lever at its free front end adapted to receive
 120 and carry a floor dressing tool, means whereby said lever is fulcrumed to said carriage to swing vertically, and means whereby said lever can oscillate horizontally to vary the horizontal position of the working edge of
 125 the blade with respect to the floor.

8. A floor dressing machine comprising a reciprocatory carriage, and a tool-controlling lever fulcrumed thereto to swing verti-
 130 cally and at its free end adapted to receive

a floor dressing blade carrier, and means whereby said lever can be oscillated horizontally independently of the carriage to vary the horizontal angle of the blade.

9. A floor dressing machine comprising a reciprocatory carriage, a hanger carried thereby and loosely coupled thereto to swing vertically and comprising a swivel connection to permit oscillation on a vertical axis only, and a tool controlling lever carried by said hanger and provided with a floor dressing tool.

10. A floor dressing machine comprising a reciprocatory carriage, means determining the plane of reciprocation thereof a carriage-reciprocating and tool-carrying lever fulcrumed to the carriage, a tool holder carried by said lever and adapted to receive and secure a floor dressing tool, and adjustable means whereby the swing of the lever and working movement of the tool holder toward the floor surface can be varied.

11. A floor dressing machine comprising a movable carriage, means determining the plane of movement of said carriage over the floor, an actuating hand lever fulcrumed thereto and carried thereby, a tool holder carried by said lever, a tool blade secured therein, and elastic cushioning material in said holder to back or pad said blade.

12. A floor dressing machine comprising a frame adapted to rest on the floor and comprising a track way, said frame having a weight at one end and a foot piece at the opposite end, a reciprocating carriage movable along said track way, and an actuating and tool carrying hand lever, fulcrumed to and carried by said carriage.

13. A floor dressing machine comprising a movable carriage having an elongated fulcrum support arranged transversely of the carriage, a carriage propelling vertically rockable lever provided with a tool and having a fulcrum mounted on said support to rock vertically and move longitudinally thereof to shift the position of the tool laterally over the floor without disturbing the lateral position of the carriage, and a stop carried by said carriage for limiting the operative vertical swing of said lever.

14. A floor dressing machine comprising a movable carriage adapted to reciprocate over the floor surface to be dressed, a carriage propelling lever fulcrumed thereto, to rock vertically and provided with a floor dressing tool, means whereby said lever can shift laterally with respect to and independently of the carriage, and means whereby said lever can oscillate horizontally independently of said carriage.

15. A floor dressing machine comprising a movable carriage, a vertically rockable carriage propelling lever carried thereby and adapted to receive and carry a floor dressing tool, and a fulcrum for said lever

carried by and movable laterally in and independently of said carriage and provided with a supporting hanger coupled to said lever and comprising a swivel connection permitting oscillation of the lever on a vertical axis.

16. A floor dressing machine comprising a movable carriage, means determining the plane of movement thereof and a carriage propelling lever at one end provided with a head for receiving a floor dressing tool, said lever extending forward beneath said carriage and coupled to a forward portion thereof, a rear portion of the carriage forming a stop for an intermediate portion of said lever.

17. A floor dressing machine comprising a frame weighted at one end and adapted at the other end to receive the foot of the operator, a reciprocating carriage carried by said frame and confined to reciprocation in a predetermined plane, a tool head carried by said carriage, and means for reciprocating the carriage.

18. A floor dressing machine comprising a reciprocatory carriage, a track-way adapted to maintain said carriage down to reciprocation in a fixed plane along the floor, means for temporarily fixing said track-way above and parallel with a floor surface, a tool head movable with said carriage, head controlling track-way means oscillatory in a vertical plane and also oscillatory laterally to shift the position of the head horizontally to vary the angle thereof with respect to the direction of reciprocation of said carriage, and a stop for limiting the movement of said head toward the floor surface.

19. A floor dressing machine comprising a reciprocatory carriage, means adapted to be temporarily fixed over a surface to be dressed to maintain said carriage down to reciprocation in a fixed plane parallel with said surface, a vertically swingable hanger carried by said carriage and oscillatory on a substantially vertical axis, a tool head connected with said hanger, and controlling means.

20. A floor dressing machine comprising a frame adapted to be shifted over the floor surface to be dressed and provided with a depressed foot board, a carriage carried by and adapted to reciprocate along said frame, a lever carried by said carriage, and a tool head controlled by said lever.

21. A floor dressing machine comprising a movable carriage having a lever whereby the same can be reciprocated over the surface to be dressed provided with a tool holder swingable from a vertical axis to vary the working angle or position of the tool with respect to the line of reciprocation of said carriage.

22. A floor dressing machine comprising a movable carriage, a horizontally oscill-

latory lever carried by said carriage and provided with a tool holder, and means whereby said lever can oscillate vertically to move said holder toward and from the floor, substantially as described.

23. A floor dressing machine comprising a movable carriage, a lever movable vertically on a horizontal axis and movable horizontally on a vertical axis and carried by said carriage and provided with a tool holder, and controlling mechanism.

24. A floor dressing machine comprising a carriage adapted to reciprocate over the surface to be dressed and provided with a vertically and horizontally rockable lever having a tool holder, said lever being bodily shiftable transversely of said carriage.

25. A floor dressing machine comprising a carriage adapted to reciprocate over the surface to be dressed and a lever movable transversely of said carriage and swingable horizontally and provided with and controlling a floor dressing tool.

26. A floor dressing machine comprising in combination, a carriage adapted to reciprocate over the surface to be dressed, and a carriage-propelling vertically-rockable hand lever swingable horizontally on a substantially vertical axis and at its front end provided with and controlling a floor dressing tool.

27. A floor dressing machine comprising in combination, a carriage adapted to reciprocate above the surface to be dressed, and a carriage-propelling-lever swingable on a substantially vertical axis and provided with and controlling a tool holder.

28. A floor dressing machine comprising in combination, a carriage adapted to reciprocate over the surface to be dressed, a tool holder reciprocating therewith and movable horizontally independently thereof on a substantially vertical axis, and a carriage propelling handle controlling said tool holder, and whereby the same is moved horizontally on said axis.

29. In a floor dressing machine, in combination, a tool holder horizontally movable on a substantially vertical axis, a tool-holder-reciprocating and controlling handle, a frame having a track-way and adapted to be shifted over the floor, and movable carrying-means upheld thereby, whereby the tool holder can be shifted laterally within the frame and whereby the same can be reciprocated longitudinally to perform its working strokes.

30. A frame having a track-way, in combination with a support movable along said track-way, a member movable longitudinally of said support, a controlling and actuating handle, a floor-dressing tool-holder connected with and controlled and reciprocated by said handle, and a handle-carrying hanger from said member to said handle.

31. In a floor dressing machine, in combination, a frame having opposite parallel track-ways, an axle extending between said track-ways and having means confined thereto and movable longitudinally thereof, a slide arranged on and movable longitudinally of said axle, a tool-holder-reciprocating and controlling-lever carried by said slide and in pivotal adjustable connection therewith to swing on a substantially vertical axis, and a tool holder connected with and controlled by said lever.

32. In a floor dressing machine, in combination, a frame adapted to rest on the floor, a support carried thereby and movable therein independently of the frame, a slide movable longitudinally of said support, a tool holder horizontally movable on a substantially vertical axis, and a tool-holder-reciprocating and controlling-handle carried by said slide.

33. In a floor dressing machine, in combination, a carriage, a carriage-reciprocating and tool-holder-controlling lever extending under said carriage, a tool holder connected therewith, and a swivel hanger between said lever and said carriage.

34. A floor dressing machine comprising in combination, a weighted frame provided with a foot board extending beyond one end of the frame, a reciprocatory tool-holder shiftable horizontally on a vertical axis, movable means carried by said frame and connected with said tool holder, and tool holder reciprocating and controlling means.

35. A floor dressing machine comprising in combination, a frame having one end weighted and the opposite end provided with a floor engaging foot piece, whereby the frame is held to the floor, the weighted end of the frame provided with rolling supports, a reciprocatory tool holder, movable means whereby the tool holder can be shifted transversely of the frame and can be reciprocated longitudinally thereof, and tool holder actuating and controlling means.

36. A floor dressing machine comprising in combination, a weighted frame provided at one end with a depressed floor-engaging foot board, a floor dressing tool holder mounted within the frame, movable means whereby said tool holder is adjustable laterally and reciprocatory longitudinally of the frame, and tool holder actuating and controlling means.

37. A floor dressing machine comprising a frame having a track-way and weighted at one end and provided with a floor engaging foot piece at the other end, a support carried by the frame and movable along the track-way, and a handle provided with a tool holder and carried by said support.

38. A floor dressing machine comprising a frame provided with a depressed floor-engaging foot-piece to receive the foot of the

operator, a reciprocatory handle provided with and controlling a tool holder, and movable means carried by said frame and with which said handle is connected and by which it is carried.

39. A floor dressing machine comprising in combination, a carriage, a hanger depending therefrom, a carriage-actuating handle extending under and hung from said carriage in pivotal connection by said hanger, a tool holder controlled by said handle and a weighted frame adapted to be shifted along the floor to be dressed and maintaining said carriage to movement above said floor in a plane substantially parallel therewith.

40. A floor dressing machine comprising in combination, a carriage, a frame adapted to hold the carriage to reciprocation in a certain plane over the floor surface, a carriage-propelling lever provided with a floor dressing tool holder, said lever fulcrumed

to said carriage to swing vertically, and a stop device between said lever and said carrier operative during the working stroke and arranged a distance from said fulcrum.

41. A floor dressing machine comprising a carriage, a floor dressing tool, a reciprocating truck actuating and tool controlling lever provided with rearwardly projecting separated handle sections adapted to receive between them the body of the operator during the completion of a maximum operative stroke toward the operator, and a track way for said carriage to hold the same to reciprocation in a certain plane over the floor surface, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses.

WALTER S. HAVEN.

Witnesses:

B. R. JONES,

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