H. L. YOUNG.

FLOOR SURFACING MACHINE.

APPLICATION FILED MAR. 16, 1910.

990,092.

Patented Apr. 18, 1911.

3 SHEETS—SHEET 1.

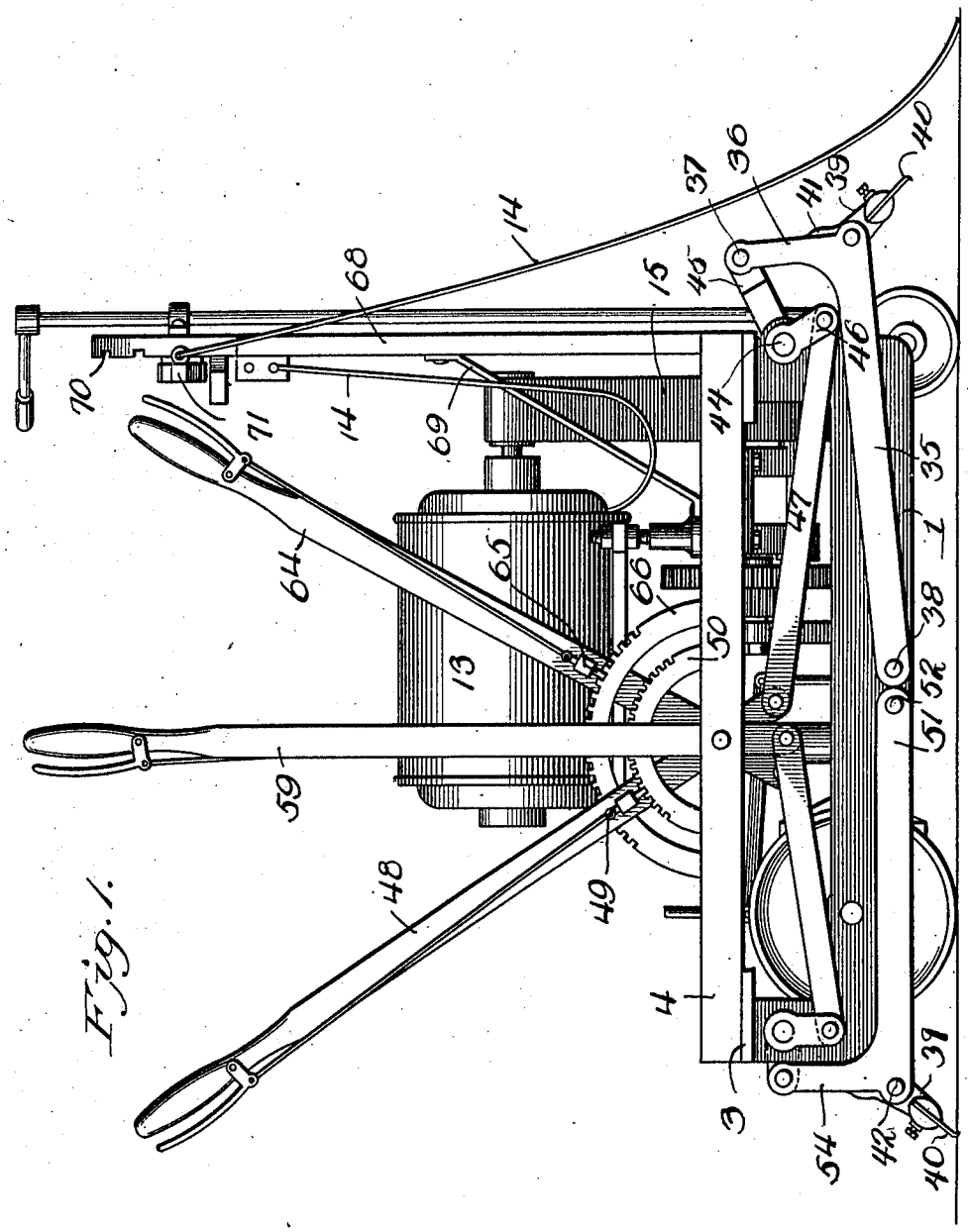


Fig. 1.

Witnesses

Edwin L. McKee

V. B. Hillyard.

Inventor

H. L. Young

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

H. L. YOUNG.

FLOOR SURFACING MACHINE.

APPLICATION FILED MAR. 16, 1910.

990,092.

Patented Apr. 18, 1911.

3 SHEETS—SHEET 2.

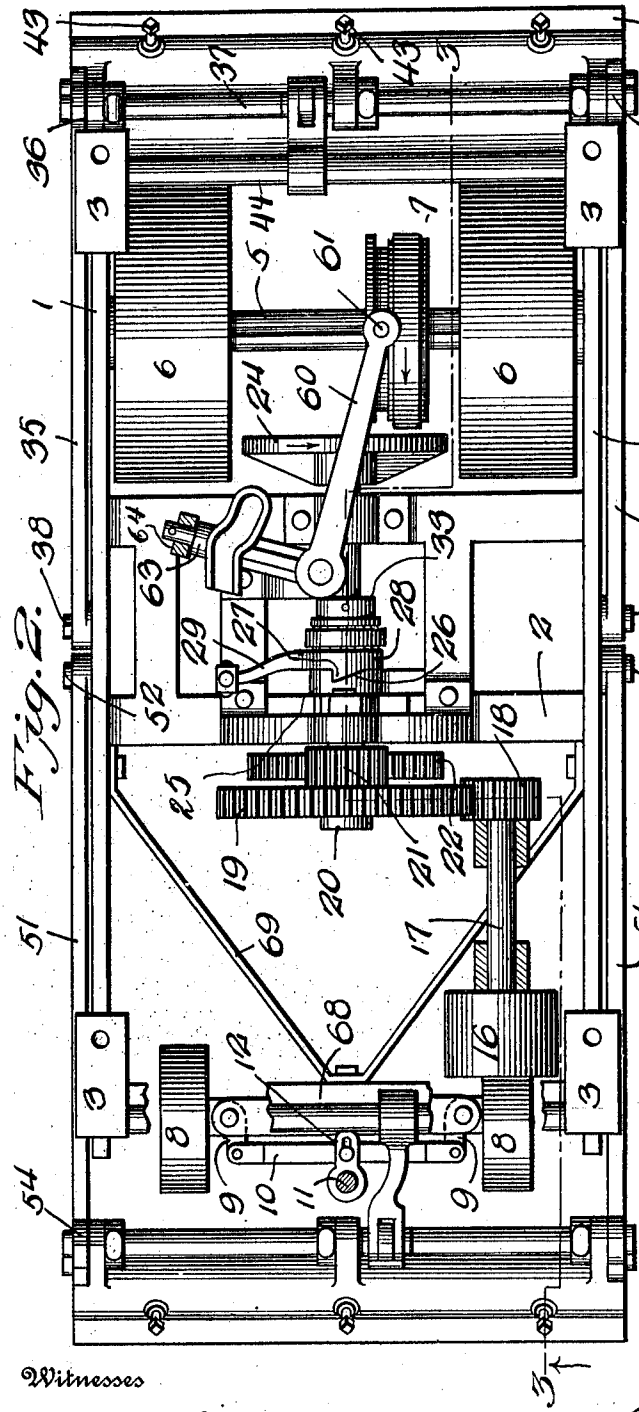


Fig. 2.

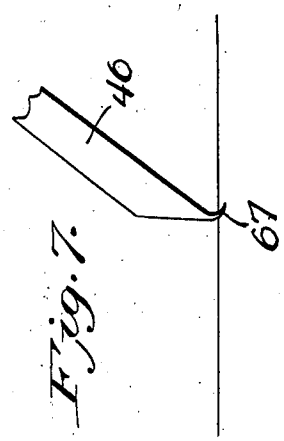


Fig. 7.

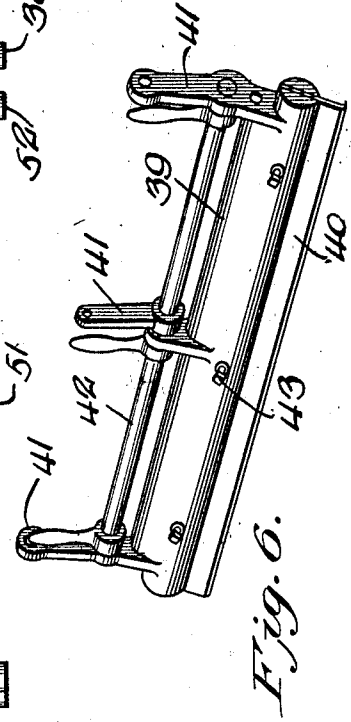


Fig. 6.

Witnesses

Edwin G. McKee

U. B. Hillyard.

Inventor

H. L. Young

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

H. L. YOUNG.

FLOOR SURFACING MACHINE.

APPLICATION FILED MAR. 16, 1910.

990,092.

Patented Apr. 18, 1911.

3 SHEETS—SHEET 3.

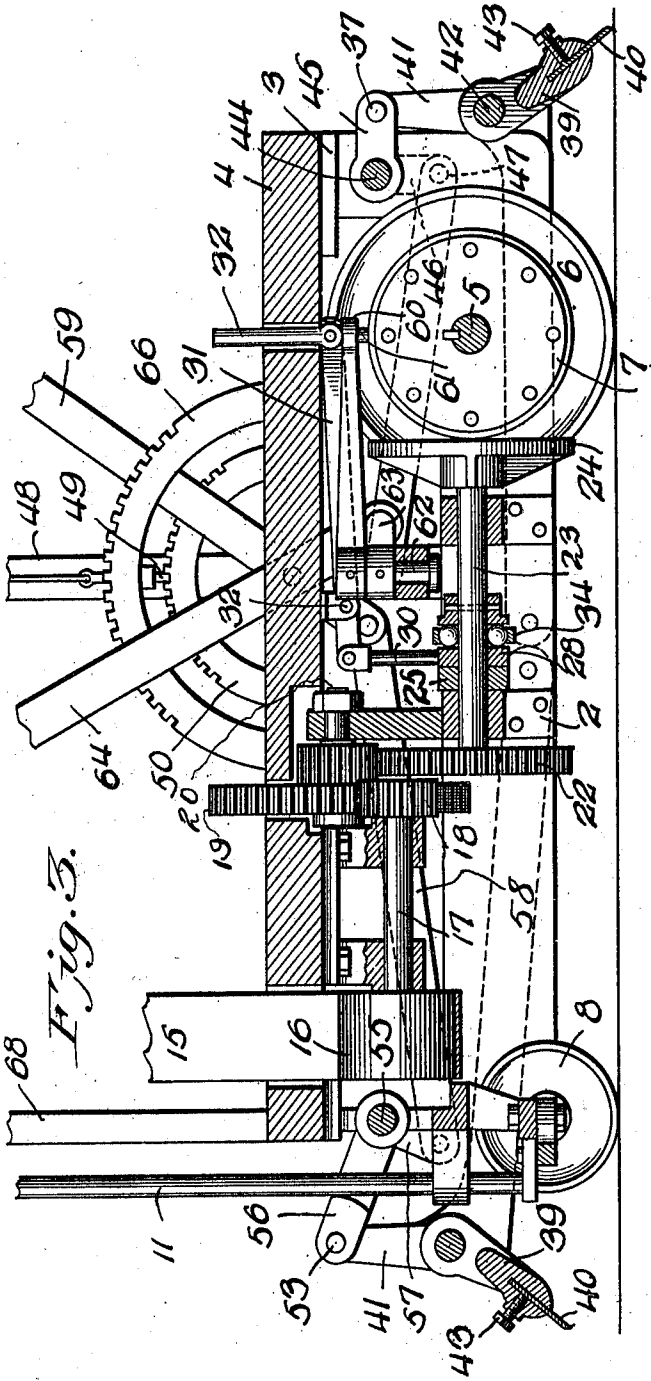


Fig. 3.

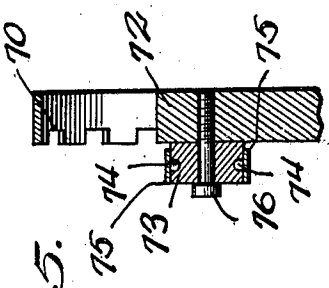


Fig. 5.

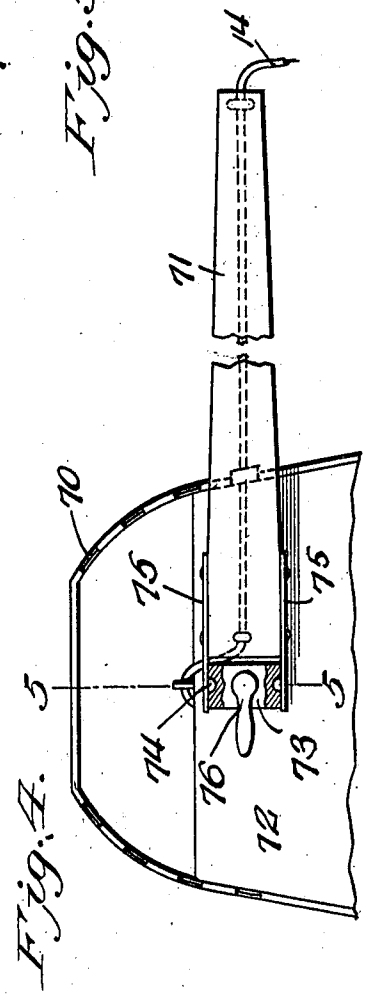


Fig. 4.

Witnesses

Edwin L. McKee

V. B. Hillyard.

Inventor

H. L. Young

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HARVEY LEE YOUNG, OF DAYTON, OHIO.

FLOOR-SURFACING MACHINE.

990,092. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed March 16, 1910. Serial No. 549,675.

To all whom it may concern:

Be it known that I, HARVEY L. YOUNG, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented new and useful Improvements in Floor-Surfacing Machines, of which the following is a specification.

The present invention provides a surfacing machine specially adapted for finishing floors and analogous surfaces so as to provide a smooth appearance and to remove projecting parts which would tend to obstruct a plain surface.

The invention contemplates a machine adapted to be propelled over the surface to be finished and provided with scrapers for removing projecting parts and leveling the surface, said scrapers being of a form best adapted to the nature of the surface to be leveled.

The machine in its organization embodies a framework mounted upon wheels, a motor mounted upon the framework, means for transmitting power from the motor to certain of the supporting wheels which likewise constitute drivers, said power transmitting means including a variable speed mechanism, so that the speed of travel of the machine may be regulated to the nature of the work, peculiar mountings for the scrapers, and means for throwing the scrapers into and out of action.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated in the accompanying drawings, and pointed out in the appended claims.

Referring to the drawings, forming a part of the application, Figure 1 is a side view of a surfacing machine embodying the invention. Fig. 2 is a top plan view thereof, the platform being omitted and parts shown in section. Fig. 3 is a vertical longitudinal section on the line 3—3 of Fig. 2. Fig. 4 is a detail view of the arm adjustably mounted upon the machine and supporting the cable or electric conductor by means of which current is conveyed to the electric motor. Fig. 5 is a sectional detail on the line 5—5 of Fig. 4. Fig. 6 is a detail perspective view of one of the scrapers. Fig. 7 is an end view of a scraper blade.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

The machine embodies a frame comprising longitudinal bars 1 and a connecting frame 2, the latter being centrally disposed. The longitudinal bars 1 have their end portions formed with vertical extensions which terminate in head pieces 3, to which a platform 4 is secured. An axle 5 is mounted in bearings provided near one end of the longitudinal bars 1 and has supporting wheels 6 secured thereto so as to rotate therewith. A friction wheel 7 is mounted upon the axle 5 to move thereon but is keyed thereto for rotation therewith. Power is transmitted to the axle 5 through the friction wheel 7, thereby causing the axle 5 and the drive wheel 6 to rotate, with the result that the machine is propelled over the surface to be leveled or finished. Steering wheels 8 are provided near the opposite end of the machine and have arms 9 which are connected by means of a bar 10, whereby both steering wheels are caused to move in unison. A steering shaft 11 is mounted in bearings provided upon the machine frame and has an arm 12 secured thereto near its lower end and which arm is connected with the bar 10 to impart movement thereto when the shaft 11 is turned to give proper direction to the machine.

It is proposed to mount a motor of any type or make upon the frame and to connect the same with the drive wheels so as to propel the machine over the surface when in operation. The motor 13 illustrated is of the electrical type and is supplied with an operating current by means of a cable or conductor 14, which derives the electric fluid from any suitable source in any well known manner. A drive belt 15 connects the drive shaft of the motor with a pulley 16 secured upon a power transmitting shaft 17, which is provided with a pinion 18, which meshes with a gear wheel 19 loose upon a stub shaft 20 and having a pinion 21 connected thereto, said pinion in turn meshing with a gear wheel 22 fastened to a shaft 23, which is provided with a friction wheel 24 adapted to engage frictionally with the friction wheel 7. The shafts 17 and 23 are longitudinally disposed and the shaft 23 is mounted to receive both a rotary and a limited longitudinal movement, the latter enabling the friction wheel 24 to be thrown into or out of contact with the friction wheel 7.

The shaft 23 is mounted in bearings provided upon members of the connecting frame 2. A bearing collar 25 is mounted upon the shaft 23 and is secured to the frame 2 so as to occupy a fixed position. A cam or inclined portion 26 is provided upon the bearing collar 25 and coöperates with a corresponding cam 27 forming part of a collar 28 loose upon the shaft 23 and having an arm 29, which is adapted to be moved so as to turn the collar 28 upon the shaft 23 and cause the cam 27 to ride upon the cam 26 and thereby effect separation of the collars 25 and 28 so as to move the shaft 23 longitudinally and bring the friction disk 24 into contact with the friction wheel 7. A rod 30 projects vertically from the outer end of the arm 29 and is pivotally connected to the short arm of a lever 31, which is pivoted at 32, the lever 31 having a treadle piece 32 pivotally connected to its opposite end to receive the pressure of the foot. Upon depressing the treadle piece 32 the outer end of the arm 29 is moved upward, thereby turning the collar 28 and causing the cam 27 carried thereby to ride upon the cam 26 of the part 25, thereby causing the shaft 23 to move longitudinally and bring the friction disk 24 into contact with the friction wheel 7, whereby movement is imparted to the drive wheels 6 so as to propel the machine over the surface by the tractive force between said surface and the drive wheels 6 in the well known manner. A collar 33 is pinned or otherwise secured to the shaft 23 and an antifriction thrust bearing 34 is mounted upon the shaft 23 and interposed between the collars 28 and 33 to effect longitudinal movement of the shaft 23 in the manner stated.

Each end of the machine is similarly equipped with a scraper, which is adjustable to be thrown into or out of operative position according to the direction of travel of the machine. A pair of arms 35 is provided at one end of the machine and the outer ends of the arms are upturned at 36 and are connected by means of a rod 37. The arms 35 are pivoted to the longitudinal bars 1 at 38 and extend horizontally and are provided at their outer ends with a scraper, the latter comprising a head 39, a blade 40, and arms 41, the latter being connected by means of a rod 42. The head 39 is slotted to receive the blade 40, which latter is held in place by means of machine screws 43 threaded into openings formed in the head 39. The rod 37 passes through the upturned ends 36 of the bars 35 and through the arms 41. A shaft 44 is mounted in the upwardly extending ends of the longitudinal bars 1 and is provided with arms 45 and 46. The arm 45 receives the rod 37, whereas the arm 46 is connected by means of a bar 47 with the lower end of an operating lever 48 provided with the usual latch bolt 49 to coöperate with a toothed segment 50 so as to hold the lever 48 in an adjusted position. When the lever 48 is thrown to the left from a vertical position, as indicated in Fig. 1, the scraper is elevated, but when the operating lever 48 is moved to a vertical position the scraper is thrown into operative position, as indicated at the right in Fig. 3.

The scraper at the opposite end of the machine comprises longitudinal bars 51, which are pivoted at their ends at 52 and are provided at their outer ends with a scraper substantially as hereinbefore described and comprising a head 39, a blade 40 secured thereto by means of machine screws 43, arms 41, rod 42, and a rod 53, the latter connecting the upper ends of the arms 41 and the upturned ends 54 of the longitudinal bars 51. A shaft 55 is mounted in the upturned ends of the longitudinal bars 1 and is provided with arms 56 and 57, the arm 56 receiving the rod 53 and the arm 57 being connected by means of a bar 58 with the lower end of an operating lever 59, which is provided with a latch bolt similar to the operating lever 48 to hold the lever 59 and parts connected therewith in the required adjusted position. To prevent interference of the operating levers 48 and 59 they are located upon opposite sides of the toothed segment 50 with which their latch bolts coöperate.

The friction wheel 7 is movable upon the axle 5 to reverse the direction of travel of the machine as also to control the speed. The shifting of the friction wheel may be effected in any manner, preferably by means of connections shown, which consist of an arm 60 having a pin 61 at one end to enter an annular groove formed in an extension at one side of the friction wheel 7, said arm 60 being secured to a stub shaft 62 mounted in a bearing provided upon the frame 2. A second arm 63, secured to the stub shaft 62 and projecting laterally therefrom, is connected at its outer end with an operating lever 64, which is provided with a latch bolt 65 to coöperate with a toothed segment 66, so as to hold the parts in required position. So long as pressure is applied to the treadle piece 32 the friction disk 24 is held in contact with the friction wheel 7 and the latter is driven when the motor is in operation. When pressure is removed from the treadle piece 32 the friction disk clears the friction wheel and the latter may be moved upon the axle 5 to the required position by operating the lever 64 either to reverse the direction of travel of the machine or to vary the speed at which the same travels. It is preferred to have the scraping blades operate by a dragging action, hence the rearmost scraping blade is lowered into operative position when the machine is in operation and the foremost scraping blade is ele-

vated so as to clear the surface. In order that the scraping blades may operate effectively their lower edges are inwardly deflected, as indicated at 67. It is noted furthermore that the scraping blades occupy the extreme positions at opposite ends of the machine, hence it is possible to finish the surface close to a wall, partition or other vertically extending part.

An upright frame 68 is located at one end of the machine and is strengthened by means of braces 69. The upright frame 68 is provided near its upper end with a bearing in which the upper portion of the steering shaft 11 is mounted. The upright frame 68 consists preferably of a bar folded upon itself and having its upper portion provided with a series of notches 70. An arm 71 is pivotally connected at its inner end to a cross piece 72 joining opposite members of the upright frame 68, said arm supporting the cable 14 and adapted to hold said cable in a position so as not to interfere with the free operation of the machine. The arm 71 may be swung from one side of the machine to the other and in either position is adapted to be adjusted and is secured in the adjusted position by having a portion enter any one of the notches 70. A block 73 is secured to the cross piece 72 of the upright frame and its ends are notched and are adapted to receive extensions 74 at the ends of spring straps 75 secured to opposite edges of the arm 71. This construction admits of the arms 71 being readily disconnected from an upright frame. The block 73 moves with the arm 71 when turning the latter into the various angular positions. A fastening 76 is adapted to secure the block 73 in the adjusted position.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention what is claimed as new, is:—

1. In a surfacing machine the combination of a framework, longitudinal bars pivotally connected at their inner ends to the framework, a scraper mounted upon the outer ends of said longitudinal bars, a shaft mounted upon the framework and having arms projected therefrom at substantially a right angle, connecting means between one of said arms and the outer ends of the longitudinal bars, an operating lever, and connecting means between said operating lever and the other of the arms of said shaft.

2. In a surfacing machine, the combination of a framework, arms embracing the framework and pivoted at their inner ends thereto and having upturned portions at their outer ends, a rod connecting the upturned ends of the arms, a shaft, arms extending from said shaft approximately at a right angle to each other, one of the arms having connection with the rod, an operating lever having connection with the other one of the arms, a rod connecting the outer ends of the pivoted arms, and a head provided with a blade and having arms mounted upon the rod connecting the outer ends of the said pivoted arms.

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

HARVEY LEE YOUNG.

Witnesses:
W. R. STRUNK,
G. E. DISSINGER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."