No. 819,391. PATENTED MAY 1, 1906.

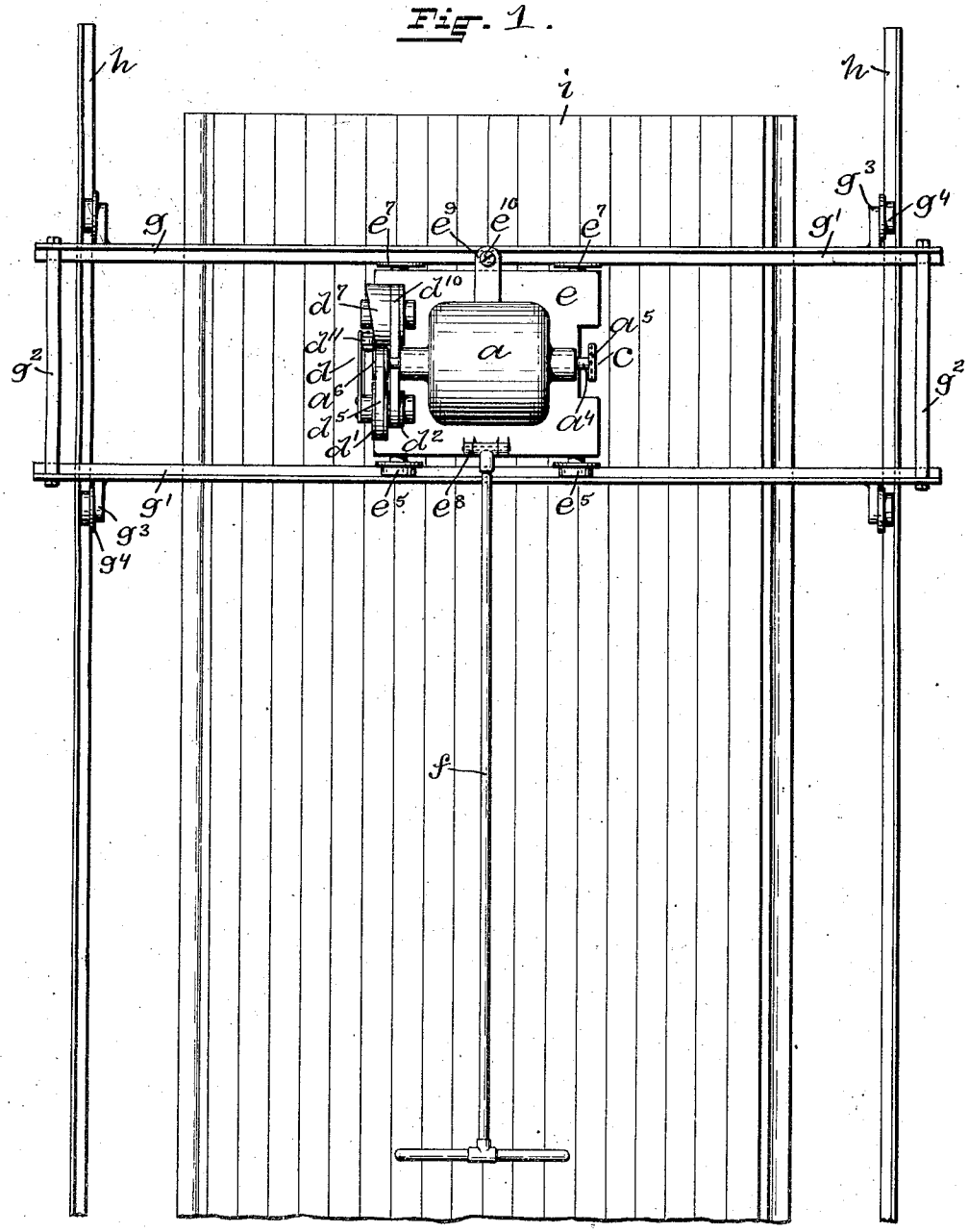
C. B. WATTLES.

FLOOR DRESSING MACHINE.

APPLICATION FILED SEPT. 11, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 2.

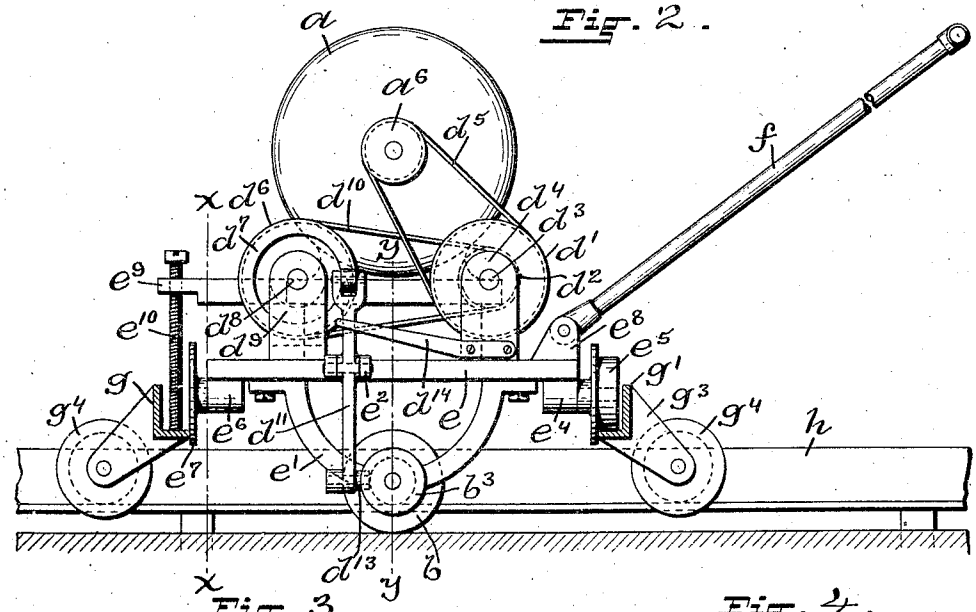


Fig. 3.

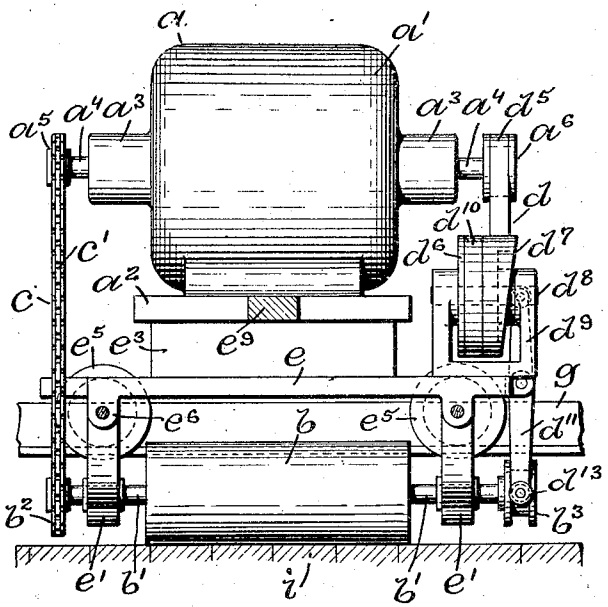
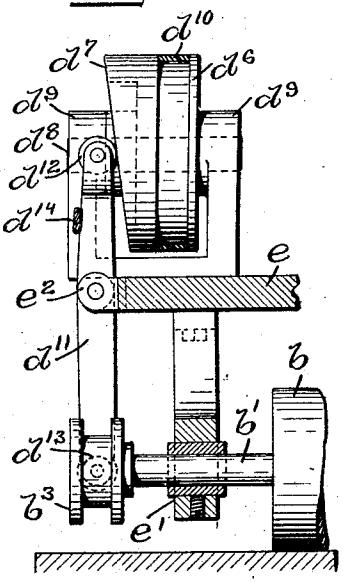


Fig. 4.



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UNITED STATES PATENT OFFICE.

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FLOOR-DRESSING MACHINE.

No. 819,391. Specification of Letters Patent. Patented May 1, 1906.

Application filed September 11, 1905. Serial No. 277 919.

To all whom it may concern:

Be it known that I, CYRA B. WATTLES, a citizen of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Floor-Dressing Machines, of which the following is a specification.

This invention has reference to an improvement in floor-dressing machines, and more particularly to an improvement in machines adapted to dress the raised floors of bowling-alleys.

The object of my invention is to improve the construction of a floor-dressing machine adapted to level, dress, finish, and polish the raised floors of bowling-alleys, whereby the dressing-roller is given simultaneously a rotary and a reciprocating motion on the raised surface of the bowling-alley.

My invention consists in the peculiar and novel construction of a floor-dressing machine adapted to level, dress, finish, and polish the raised floors of bowling-alleys, said machine having a motor, a dressing-roller covered with an abrasive or a polishing material, mechanism operatively connecting the motor with the dressing-roller to simultaneously revolve and reciprocate the dressing-roller, means for adjusting the dressing-roller vertically, and means for supporting and guiding the motor and dressing-roller lengthwise and crosswise of the raised surface of the bowling-alley, consisting of a carriage supporting the motor and dressing-roller adapted to run on ways in a frame extending across the alley, which in turn is adapted to run on rails extending lengthwise of the alley to give an absolutely level and true surface to the raised floor of the alley, with details of construction as will be more fully set forth hereinafter.

Figure 1 is a plan view of my improved floor-dressing machine shown in its operative position over the raised floor of a bowling-alley. Fig. 2 is an enlarged vertical view looking at the reciprocating-mechanism side of the machine and showing the ways for the carriage and the raised floor of the bowling-alley in section. Fig. 3 is an enlarged vertical sectional view taken on line X X of Fig. 2 through the carriage and raised floor of the alley and showing the mechanism for revolving and reciprocating the dressing-roller on the raised surface of the alley; and Fig. 4 is an enlarged detail sectional view taken on line Y Y of Fig. 2 through the dressing-roller-reciprocating mechanism.

In the drawings, *a* indicates an electric motor; *b*, the dressing-roller; *c*, the mechanism for revolving the dressing-roller; *d*, the mechanism for reciprocating the dressing-roller; *e*, the carriage supporting the motor, dressing-roller rotating and reciprocating mechanism; *f*, a T-shaped handle pivotally secured to the carriage; *g*, the transverse frame forming the guideways for the carriage; *h h*, the rails supporting the transverse frame of my improved floor-dressing machine for bowling-alleys; and *i*, the raised floor of a bowling-alley.

The electric motor *a* derives its power from a source of electric energy through a flexible cable (not shown) and has the usual casing a', constructed to form the base a^2, and the bearings a^3 a^3 for the armature-shaft a^4, which extends through the motor. A sprocket-wheel a^5 is secured to one end of the armature-shaft a^4 and a grooved pulley a^6, secured to the opposite end of the armature-shaft, as shown in Fig. 3.

The dressing-roller *b* is secured to the shaft b', which is rotatably and reciprocally supported in the bearings e' e', secured at each end to the dressing-roller *b* to the under side of the carriage *e*, sufficient space being allowed between the ends of the dressing-roller and the bearings to allow for the reciprocation of the dressing-roller. A sprocket-wheel b^2 is secured to one of end the shaft b' and a grooved collar b^3, secured to the opposite end of the shaft, as shown in Figs. 3 and 4.

The dressing-roller-revolving mechanism *c* consists of a sprocket-chain c', connecting the sprocket-wheel a^5 on the armature-shaft a^4 with the sprocket-wheel b^2 on the shaft b' of the dressing-roller *b*, as shown in Fig. 3.

The dressing-roller-reciprocating mechanism *d* consists of a large grooved pulley d' and a small grooved pulley d^2, secured to a counter-shaft d^3, rotatably supported in the bearings d^4 d^4, which are secured to the top of the carriage *e*, as shown in Fig. 2. A belt d^5 connects the pulley a^6 on the armature-shaft of the motor with the large pulley d'. A

grooved pulley d^6, having the cam-face d^7, is secured to the shaft d^8, rotatably supported in the bearings d^9 d^9, which are secured to the top of the carriage e in a position to bring the pulley d^6 opposite the pulley d^2. A belt d^{10} connects the pulley d^6 with the small pulley d^2 on the shaft d^3. A vertical lever d^{11}, having the roll d^{12} rotatably secured in its upper end and the roll d^{13} rotatably secured to its lower end, is pivotally secured near its center to the lugs e^2 e^2 on the carriage e in a position for the upper roll d^{12} to engage with the cam-face d^7 on the pulley d^6 and for the lower roll d^{13} to engage with the grooved collar b^3 on the dressing-roller shaft b', as shown in Fig. 4. A whip-spring d^{14} is rigidly secured at one end to the bearing d^4 in a position for the free end of the spring to engage with the upper end of the lever d^{11}, as shown in Fig. 2. The cam-face d^7 on the pulley d^6 operates to throw the upper end of the lever d^{11} outward against the tension of the whip-spring d^{14}, which returns the upper end of the lever to its original position. By this construction the dressing-roller b is reciprocated in one direction by the operation of the cam d^7 through the lever d^{11} and in the opposite direction by the tension of the spring d^{13} through the lever d^{11}.

The carriage e has the bearings e' e' for the dressing-roller shaft b', the lugs e^2 e^2 for the lever d^{11}, the raised central portion e^3, to which the base a^2 of the motor is secured, the bosses e^4 e^4, to which the flanged wheels e^5 e^5 are rotatably secured, the bosses e^6 e^6, to which the disks e^7 e^7 are rotatably secured, the lugs e^8 e^8, to which the lower end of the handle f is pivotally secured, and the outwardly-extending arm e^9, in the end of which is the vertical adjusting-screw e^{10}, as shown in Fig. 2.

The transverse frame g consists of the L-shaped cross-struts g' g', forming rigid ways for the carriage e and secured together at the ends a predetermined distance apart by the rods g^2 g^2. On the sides near the ends of the cross-struts g' g' are the outwardly-extending lugs g^3 g^3, to which the flanged wheels g^4 g^4 are rotatably secured.

The L-shaped rails h h are secured to the floor at each side of and parallel with the raised floor i of the bowling-alley and support the transverse frame g through the flanged wheels g^4 g^4 on the frame engaging with the rails. The carriage e is supported on the cross-struts g' g' of the transverse frame g by the flanged wheels g^4 g^4 engaging with the bottom and inner edge of one of the cross-struts g', the disks e^7 e^7 engaging with the inner edge of the opposite cross-strut g' and the lower end of the adjusting-screw e^{10} engaging with the bottom of the adjacent cross-strut, as shown in Fig. 2. By adjusting the set-screw e^{10}, the dressing-roller b is given a vertical adjustment to vary the pressure of the dressing-roller on the raised floor of the bowling-alley.

In the operation of my improved floor-dressing machine for bowling-alleys the first leveling or rough cut is usually made by a roller composed of a plurality of circular saws. Rollers covered with coarse, medium, and fine sandpaper are now used in succession for dressing and finishing and for polishing a roller covered with felt or cloth having a loop pile or nap may be used. The dressing-roller b is revolved at a high rate of speed on the surface of the raised floor i of the alley by the motor a through a sprocket-wheel a^5, the chain c', and the sprocket-wheel b^2 on the dressing-roller shaft b', and simultaneously the dressing-roller b is reciprocated through the pulley a^6, the belt d^5, the pulley d', the pulley d^2, the belt d^{10}, the pulley d^6, the cam d^7, the lever d^{11}, and the grooved collar b^3 on the dressing-roller shaft b'. The operator now moves the carriage e and the transverse frame g on the rails h h by the handle f lengthwise of the raised floor i of the alley. At each lengthwise movement of the carriage and frame the carriage e is moved in the frame g crosswise of the alley a distance approximately the length of the dressing-roller.

It is evident that any form of a motor may be used and that the construction of the machine may be varied so that the dressing-roller may be operated crosswise of the raised floor of the bowling-alley without materially affecting the spirit of my invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a floor-dressing machine, a carriage, means for supporting and guiding the carriage lengthwise and crosswise over the raised floor of a bowling-alley, a motor secured to the carriage, a dressing-roller rotatably and reciprocally secured to the carriage, mechanism operatively connecting the motor with the dressing-roller whereby the dressing-roller is given simultaneously a rotating and a reciprocating motion, and means for adjusting the dressing-roller vertically, as described.

2. In a floor-dressing machine, a carriage movably supported on a transverse frame which in turn is movably supported on rails running lengthwise and parallel with the raised floor of a bowling-alley, a motor secured to the top of the carriage, a dressing-roller rotatably and reciprocally held in bearings secured to the under side of the carriage, mechanism operatively connecting the motor with the dressing-roller whereby the dressing-roller is given simultaneously a rotating and a reciprocating motion, means for adjusting the dressing-roller vertically consisting of an adjusting-screw in the carriage adapted to bear on the transverse frame, and means for moving the carriage and the transverse frame lengthwise of the alley consisting of a handle pivotally secured to the carriage, as described.

3. A floor-dressing machine comprising

rails secured to a floor one on each side of and parallel with the raised floor of a bowling-alley, a transverse frame having rigid ways and wheels adapted to run on the rails, a carriage having wheels, disks and an adjusting-screw adapted to movably and adjustably support the carriage on the transverse frame, a motor secured to the top of the carriage, a dressing-roller secured to a shaft, means for rotatably and reciprocally securing the dressing-roller shaft to the under side of the carriage, means for operatively connecting the motor with the dressing-roller shaft to revolve the dressing-roller, and means for operatively connecting the motor with the dressing-roller shaft to simultaneously reciprocate the dressing-roller consisting of a grooved collar on the dressing-roller shaft, a pulley on the motor, pulleys on a counter-shaft supported in bearings on the carriage, a belt connecting the pulley on the motor with a pulley on the counter-shaft, a pulley having a cam-face supported in bearings on the carriage, a belt connecting the cam-face pulley with a pulley on the counter-shaft, a vertical lever pivotally secured near its center to the carriage in a position for the upper end of the lever to engage with the cam on the face of the cam-pulley and the lower end to engage with the grooved collar on the shaft of the dressing-roller, and a whip-spring rigidly secured at one end to the carriage in a position for the free end to engage with the upper end of the lever, whereby the dressing-roller is simultaneously revolved and is reciprocated in one direction by the cam-face pulley and in the opposite direction by the tension of the whip-spring, as described.

4. The combination with a floor-dressing machine, of a motor a having the casing a', the base a^2, the bearings a^3 a^3, the shaft a^4, the sprocket-wheel a^5 on one end of the shaft, the pulley a^6 on the opposite end of the shaft, a dressing-roller b secured to a shaft b', a sprocket-wheel b^2 secured to one end of the shaft b', a grooved collar b^3 secured to the opposite end of the shaft b', a sprocket-chain c' connecting the sprocket-wheel a^5 with the sprocket-wheel b^2, a carriage e, means for securing the motor-base a^2 to the top of the carriage e, means for rotatably and reciprocally securing the dressing-roller shaft b' to the under side of the carriage e, pulleys d' and d^2 supported in bearings on the carriage e, a belt d^4 connecting the pulley a^6 with the pulley d', a pulley d^6 having the cam-face d^7 supported in bearings on the carriage e, a belt d^{10} connecting the pulley d^6 with the pulley d^2, a lever d^{11} pivotally secured near its center to the carriage e in a position for the upper end of the lever to engage with the cam-face d^7 on the pulley d^6 and for its lower end to engage with the grooved collar b^3 on the dressing-roller shaft b', and a whip-spring d^{14} rigidly secured at one end in a position for the free end to engage with the upper end of the lever d^{11}, whereby the dressing-roller b is simultaneously revolved and reciprocated, as described.

5. In a floor-dressing machine, the combination of the following instrumentalities:—a motor a, a dressing-roller b, a dressing-roller-revolving mechanism c, a dressing-roller-reciprocating mechanism d, a carriage e, a handle f pivotally secured to the carriage, a transverse frame g adapted to movably support the carriage e, and rails h h secured to a floor and adapted to movably support the transverse frame g, whereby the dressing-roller b is simultaneously revolved and reciprocated and guided lengthwise and crosswise on the raised floor of a bowling-alley, as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CYRA B. WATTLES.

Witnesses:
ADA E. HAGERTY,
J. A. MILLER.