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Modified Floor Cleaning Machine

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***Abstract*: This paper deals with the Comparison Floor cleaning Machine. The aim of this paper work is to develop and modernized process for cleaning the floor with wet and dry. It is very useful for cleaning the floors. It can be used wet and dry hence it is widely used in houses, hospitals, auditorium, shops, computer centers, etc. In modern days interior decorations are becoming an important role in our life. Cleaning of floor is a very important one for our health and reduces the man power requirement. Most of machines are easily operated and available at market is very useful in our day to day life.**

***Keywords*: Autonomous roaming, manual control, power status indications, power controls, power efficient.**

1. Introduction

Floor cleaner is very much useful in cleaning floors in hospitals, houses, auditorium, shops, computer centers etc.; it is very simple in construction and easy to operate. Anybody can operate this machine easily. It consist of moisture cotton brush, the brush cleans the floor and dried with aid of small blower. Hence it is very useful in hospitals, houses, etc. The time taken for cleaning is very less and the cost is also very less. Maintenance cost is less. Much type of machines is widely used for this purpose. But they are working under different principles and the cost is also very high. Good well-maintained entrance matting can dramatically reduce the need for cleaning. For public and office buildings about 80 to 90% of the dirt is tracked in from outside. Installing a total of 15 feet of matting consisting of both indoor and outdoor sections will remove about 80% of this. Thus about two-thirds of the dirt can be removed at the entrance.

A. Reasons for cleaning floors

The principal reasons for floor cleaning are:
To prevent injuries due to tripping or slipping. Injuries due to slips and trips on level floors are a major cause of accidental injury or death. Bad practice in floor cleaning is itself a major cause of accidents.

- To beautify the floor.
- To remove stains, dirt, litter and obstructions.
- To remove grit and sand which scratch and wear down the surface.
- To remove allergens, in particular dust.
- To prevent wear to the surface (e.g. by using a floor wax or protective sealant).
- To make the environment sanitary (e.g. in kitchens).
- To maintain an optimum traction (e.g. for dance floors).

B. Methods of floor cleaning

The treatment needed for different types of floors is very different. For safety it is most important to ensure the floor is not left even slightly wet after cleaning or mopping up. Sawdust is used on some floors to absorb any liquids that fall rather than trying to prevent them being spilt. The sawdust is swept up and replaced each day. This was common in the past in pubs and is still used in some butchers and fishmongers. It used to be common to use tea. Leaves to collect dirt from carpets and. remove odours. Nowadays it is silly quite common to use in diatomaceous earth, or in fact any cat litter type material, to remove infestations from floors. There are also a wide variety of floor cleaning machines available today such as floor buffers, automatic floor scrubbers and sweepers, and carpet extractors that can deep clean almost any type of hard floor or carpeted flooring surface in much less time than it would take using a traditional cleaning method.

C. Wood flooring

Wood flooring should be treated completely differently depending on whether it waxed or oiled, or whether it has a polyurethane coating. It is important to determine the type of finish of a wood floor and always treat it the appropriate way, for instance it is difficult to clear wood floor wax from a polyurethane floor. Simple cleaning instructions:

- Clear the floor of any fur nature that's easy to move.
- Sweep or vacuum all loose dirt and debris.
- Mop the floor, going along with the grain. If your floors are polyurethane, dampen a mop with water and a few drops of dishwashing liquid. Be sure to ring out the mop thoroughly before using it on the floor. Run the mop back and forth, going with the grain of the wood in smooth strokes. If your floors are lacquered or shellacked, don't use water, which can stain the wood and cause buckling.
- Buff the floor with a soft cloth to remove any soapy residue. Cloth diapers work well for buffing, because they're very soft and absorbent.

D. Tile and stone floors

Nowadays many modern kitchens, stairs, and bathrooms have tile flooring that can be cleaned in three simple steps:

- Dirt or dust should first be removed with a vacuum cleaner or a broom.
- Have a floor cleaning solution or spray bottle for the appropriate floor. If you are cleaning stone floors (marble, granite, travertine, etc.), make sure the cleaning agent states that it is for stones. An acidic tile cleaning solution can be used on ceramic and porcelain floors.
- After spraying the tile or stone floors in a small area, use a mop to clean and scrub floors.

2. Overview of floor cleaning machine

A. Existing floor cleaning machine

In existing system relates to floor cleaner which sweeps particle of dust from floor into dust collecting chamber by the rotation of rotary cleaning body, and particularly to a cleaner which can clean the area and collect the garbage into garbage collecting tank. For wet wiping a water tank with flow controlling wall. There has been proposed a floor cleaner which comprises a roller scrubbing brush the outer circumference of which is provided with the plurality of either bristles and which sweeps particle of dust from floor. There is provision to brush to rotate manually. Garbage collection is done due to vehicle forward motion and collected into tank by means of lever.

Fig. 1. Overview of existing floor cleaning machine

B. Floor cleaning machine - types and uses

There are many various types of cleaning machines or equipment on the market today for both commercial and residential use. This is a brief overview of the type, power sources and uses for floor cleaning equipment. For effective cleaning results of any floor or surface, there are four basic and simple principles to follow.

- Time
- Agitation
- Chemical
- Temperature

Using these four simple principles will allow anyone to end up with good cleaning results. Relative to this topic floor cleaning machines, we will be discussing the second principle agitation. Most floor cleaning machines and equipment are designed to provide the agitation needed to perform the cleaning procedure. Prior to machines, agitation was accomplished with elbow grease. However, manual agitation is burdensome to the person cleaning and increases labor. The introduction of cleaning machines made the janitor‘s life easier and increased cleaning efficiency while dramatically reducing the labor of the task. The following is an overview of the primary pieces of floor cleaning machines and does not cover each one. But the ones discussed in this article will cover over 90% of all floors cleaning equipment designed to clean hard floors. When we state the cleaning of hard floors; we mean daily or normal cleaning. Although, some of the floor cleaning machines outlined in this article can also provide periodic or paper type cleaning functions as well. We will be covering machines to clean carpeting and specialty cleaning machines in future articles.

3. Working principle

A. Factors to consider while choosing the best floor cleaning machines

Here are some factors that you need to consider while choosing the best vacuum for tile floors.

- *Cleaning Surface Requirements:* Determining the cleaning surface requirements also involves identifying the size of the space to be cleaned, whether it is an entire house, a small apartment, or a mid-sized condominium? Are there stairs to be cleaned? What type of surface floor do you have? Are there some delicate items or drapes which also need vacuuming? All of these, and some more, merits your consideration when considering vacuum cleaners.
- *Filter Device:* Aside from looking at the overall suction of your vacuum, the choice on the type of filter should also be considered. Filters are typically categorized as conventional as well as HEPA (High Efficiency Particulate Air) filters. These filters are designed in screening out smaller sized particles which may irritate the skin and lungs. There are also other high quality conventional models which can filter out most types of particles.
- *Noise:* One thing often overlooked when choosing vacuum cleaners is the noise. There are vacuum models which are very quiet when operating, in contrast to some louder machines which may disturb somebody working or sleeping. Take note of the features that are listed on the website or the box. However, keep in mind that they may not feature the actual decibel rating. If you cannot find such information, it may be best to test the vacuum before paying or read reviews from actual users who have already tried using it at home and pay attention to this factor in the review.

- *Storage:* Storage is a very important factor that needs to be given consideration when selecting the best vacuum for tile floors. Most of the time, you can find central vacuums that are best in this area since they are relatively easy to store due to their detachable design. However, they usually come with big attachments and hoses that can make it difficult for you especially if you have limited space at home. Uprights, sticks and canisters may also be bulky, though their cleaning capability is great.
- *Attachments:* When selecting a vacuum cleaner, be reminded that various designs and models typically work well on various surface forms. Most of the units that offer brushes and power heads may not be very efficient in cleaning tiles because they are not designed for flat surfaces. For this reason, it is advisable to search for a model that comes with attachments that are suitable for flat surfaces. As a general rule, you can consider getting one with brushes that can be turned off easily when not needed.

B. Comparison of top five floor cleaner machine

Table 1
Comparison Chart of top five floor

Model	Tank	Cord	Weight
Bissell 1940	null	23 ft	8.3 p
Hoover FH40160PC	48 oz	20 ft	13.8 lbs
Bissell 1132A	12.8 oz	25 ft	10.1 p
Oreck ORB550MC	null	50 ft	24 p
Hoover FH40010B	32 oz.	27 ft	21.5 lbs

4. Conclusion

This paper presented the implementation of modified floor cleaning machine.

References

[1] Andrew Ziegler, Christopher John Morse, Duane L. Gilbert, Jr., Andrew Jones, “Autonomous surface cleaning robot for dry cleaning,” U.S. Patent 8782848 B2, July 22, 2014.
[2] Andrew Ziegler, Duane Gilbert, Christopher John Morse, Scott Pratt, Paul Sandin, Nancy Dussault, Andrew Jones, “Autonomous surface cleaning robot for wet and dry cleaning,” U.S. Patent 7389156 B2, June 17, 2008.
[3] Ashraf A. Kassim, B.V.K. VijayaKumar, "Path planners based on the wave expansion neural network", Robotics and Autonomous Systems(1999) 26 1–22
[4] Ayoub Bahmanikashkoolia , Majid Zareb, Bahman Safarpourc, Mostafa Safarpourd" Application of Particle Swarm Optimization Algorithm for Computing Critical Depth of Horseshoe Cross Section Tunnel "APCBEE Procedia, (2014)9 207–211.
[5] Harvey Koselka, Bret A. Wallach, David Gollaher, “Autonomous floor mopping apparatus,” U.S. Patent 6741054 B2, May 25, 2004.
[6] Joseph L. Jones, Newton E. Mack, David M. Nugent, Paul E. Sandin, “Autonomous floor-cleaning robot,” U.S. Patent 6883201 B2, April 6, 2005.
[7] M.R.B. Bahara, A.R. Ghiasib, H.B. Bahara, "Grid roadmap based ANN corridor search for collision free, path planning ", ScientiaIranica (2012) 19, pp. 1850-1855.
[8] Michael Dooley, James Philip Case, and Nikolai Romanov,“System and method for autonomous mopping of a floor surface,” U.S. Patent 8 892 251 B1, November 18, 2014.
[9] Shih-Che HUNG, Yao-Shih Leng, “Cleaning robot and control method thereof,” U.S. Patent 20130231819 A1, September 5, 2013.
[10] Spyros G. Tzafestas"11 – Mobile Robot Path, Motion, and Task Planning", Introduction to Mobile Robot Control (2014), 429–478.
[11] Spyros G. Tzafestas" – Mobile Robot Control V: Vision-Based Methods", Introduction to Mobile Robot Control (2014) 319–384
[12] T. Palleja, M. Tresanchez, M. Teixido, J. Palacin" Modeling floor-cleaning coverage performances of some domestic mobile robots in a reduced scenario", Robotics and Autonomous Systems (2010), 58, pp. 37-45.