and can stand better the ensuing cold. The morning hour is also better fitted for such winding, because dressing takes place at nearly the same hour, more so than going to bed at night.

Keys of soft metal should be shunned: also those which fit badly, because ruining the winding square, and leaving metallic dust in the movement. If the watch is laid either at an inclination, or flat, or suspended at night, it should always be done in the same manner—not differing every night. The rate difference between vertical and horizontal is often significant; by second rate watches sometimes two or three minutes in one night; if it is suspended from a nail, in such a manner that it will rock to and fro with the vibration, an accident which occurs often, and a watch provided with a heavy balance will gain, and, *vice versa*, one with a light one will lose. Of course this is in the nature of things. Similar observation have been made by clocks which were not firm within their case.

The temperature difference between the heat of the pocket and a wall nearly to the freezing point, is about 20° or 25° Celsius, and a watch should, therefore, never either be suspended or laid upon it; the sudden change of temperature may produce the sudden breaking of the spring also the oil thickness, especially if no longer pure, which as aforesaid, produces irregularities of rate; if the balance of the watch is not compensated, it must gain from the above-mentioned carelessness, and if it possesses constructive defects, it may stand still from the cold.†

It is necessary to clean the watch pocket frequently, to free it from all accumulating dust and fibres. Even by the cleanest pursuits, a sort of fiber dust will gather in the pocket, caused by the friction of the watch case, and this is very easily transported to the interior of the movement, and is much more pernicious than common dust, by wrapping around the little component parts, and retards—sometimes prevents their motion, similar to the cobweb with flies.

† The author leaves his watch always in the vest pocket, and hangs this on a peg, the watch is thereby prevented from rocking, and escapes other misfortunes, especially when traveling and lodging at strange hotels, where one is called late at times, and something is generally forgotten in the hurry; it is also possible that the watch, instead of being placed in the watch shoe, may be immersed in the holy water vessel, as happened a friend of ours in a Catholic country

No other article should be carried in the watch pocket, such as keys, coin, etc.; it is often done, yet highly detrimental and careless. Watch crystals may be broken, and the dials and hands be injured; if the case is not strong, parts of the train are liable to injury, but in the most favorable condition, the case itself may be injured. The watch should never be worn against the bony part of the body.

The dust cover should never be opened without necessity; dust and fiber is always located around the rim, also the air is continuously charged with dust particles. The canons of the key equally may introduce dust, tobacco and other impurities into the movement, and it should be cleaned frequently. But by even the greatest of care, it is impossible that the watch can go forever without occasional repairs, and it should be cleaned at least once every year. All manner of machinery requires an occasional supervision, and it should be performed at least once a year on a watch, the oil has dried up by this time and become mixed with particles of metallic dust, which act like emery. The author, during a long practice, has had occasion to manipulate costly watches, and several of them were almost ruined beyond repair by having run beyond the time. They generally belonged to people who were afraid to trust their timepieces to bad workmen, and rather risked the consequences. In such a case, it would be better to look the watch away.

We have endeavoured to give a few of the details of how a watch should be treated. Entire chapters could be written without exhausting the subject, but let the above suffice for the layman.—*Jewelers' Circular.*

HOW AGATES ARE CUT.

The variety of quartz known as Agate is a variegated chalcedony, with the color distributed in clouds, spots, or concentric layers. The variety called Moss Agate occurs in veins, while the banded agate is found in the form of geodes or balls, and occasionally there will be found in the side of these balls a sort of funnel through which was introduced the silicious matter forming the layers.

Judging from the number of these agates to be seen one might be led into the error of supposing that they could be found almost anywhere along our shores, and as the prices at which they are sold are very low, it is evident that the cutting and polishing must be done in some country where labor is cheaper than here. However, the explanation is given when we are told that they are German Agates, for although for a number of years comparatively few agates suitable for cutting have been found on German soil, yet we may safely say that, at the present time, nine-tenths of all the commercial agates now in South America, where, especially in Brazil, they occur in great numbers. They are shipped thence as ballast in vessels bound for Hamburg, and from this port and forwarded by rail to Oberstein, where they are sorted into lots, usually in the yard of some well-known inn, and sold at auction. When purchased, they are sent to the agate mills, where they are cut and polished on wheels turned by water power, though of late years steam has been introduced in a few mills.

Along the Idar River, between the towns of Idar and Oberstein, there were, in 1867, one hundred and fifty-three mills, working seven hundred and twenty-four stones. Each mill contains from three to five stones, set on a horizontal axle, one end running outside the workshop and communicating with the water-wheel. The mill-stones are usually red sandstone, about five feet in diameter, and rotate in a vertical plane, the broad edge of the wheel being kept moist by a stream of water trickling down upon it from above. The choice agates are usually cut into shape with steel wheels and diamond powder. The common ones, however, are not sawn, but roughly dressed with hammer and chisel, the workmen acquiring, by long experience, great dexterity in applying their blows so as to obtain the desired fracture.

The grinding is done on the broad edge of the wheel, which is furrowed with channels corresponding in shape with the form which it is desired to give the object in hand. The agate is usually attached to a small stick, and thus applied to the moving wheel.

Each stone accommodates two men, but these men, instead of sitting at the wheel, are stretched in an an almost horizontal position upon a wooden stool made to fit the body. The limbs are thus left free, the hands holding the agate to the wheel, while the feet are strongly pressed against blocks of wood fastened to the floor. After being ground, the agates are polished on cylinders of hard