

A CURIOUS CASE OF SKIN-SHEDDING.

A resident of Clark County, Missouri, Mr. S. O. Buskirk, has shed his skin annually since his birth, which occurred in 1850. He is well-built, robust and agile, and was never ill. He takes very little medicine for the annual attacks when his epidermis is shed. Physicians have tried to prevent this exfoliation, but they have been unsuccessful, and Mr. Buskirk, notwithstanding the fact that the operation is disagreeable and debilitating, has decided that he will not make any more attempts to prevent it by medical means. The operation requires several days, and for the last five years has begun exactly on June 27. Prior to that time it came either in July or August. About a month is consumed in discarding the old cuticle and the appearance of the new. During this time the finger and toe nails become loose and are discarded, new nails come in, and more time is required in growing the nails to maturity than is ordinarily needed. After the old skin has been shed he says that he feels like a boy of eighteen. The discarded cuticle looks like thin, white rubber gloves.

Our photographs show the remarkable peeling of the hands. The peeling begins at the root of the fingers and gradually spreads in all directions. The hardened skin begins to break away from the new skin which is forming underneath, and if it is tapped with a lead pencil it gives off a sharp sound like that caused by striking a piece of celluloid or stiff leather. By opening and closing the hands often the skin parts along the edge, and then by helping along the process with a penknife, the piece comes off whole. He has several interesting souvenirs in the form of patches of skin which he has shed from his hands and feet at various times, and in every instance they present perfect outlines of the members from which they come.

The thick, callous-like skin from the hands retains its lines, and this remarkable case tends to disprove the entire theory of palmistry, being evidence that the lines of the hands change with time and are not unalterably preserved, as has been supposed. A piece of the skin taken from his right hand when he was ten years old shows that the general conformation of the lines correspond with those of his hand to-day. Still, the new lines are longer now than then, making allowance for the growth of the member as a whole. Fully a third has been attached to the length of the famous "life" line. Evidently nature had decided to increase Mr. Buskirk's span of life. This is not altogether surprising, as his father is now one hundred and three and his grandfather died at the age of one hundred and ten years.

THE MARSH MOTOR CYCLE.

BY ALONZO R. MARSH.

The Marsh motor cycle, of which the accompanying photograph (Fig. 1) is a good illustration, weighs, when ready for the road, 60 pounds.

The motor, shown in the engravings Figs. 2 and 3, is of the four-cycle jacketless type, using gasoline as fuel. It weighs 20 pounds, is 14 inches high by 4 inches wide. The crank case is 7 inches in diameter. The cylinder is $1\frac{1}{8}$ inches in diameter and $2\frac{1}{4}$ -inch stroke. The outside or circumferential part of the crank case or base is an aluminium casting, carefully machined to receive the cylinder and the side disks. The latter are made of steel and contain the bearings. This base is fitted with a filler conveniently located on the front side above the center, through which the lubricating oil is admitted. It also has a drip in the bottom, through which this oil may be charged.

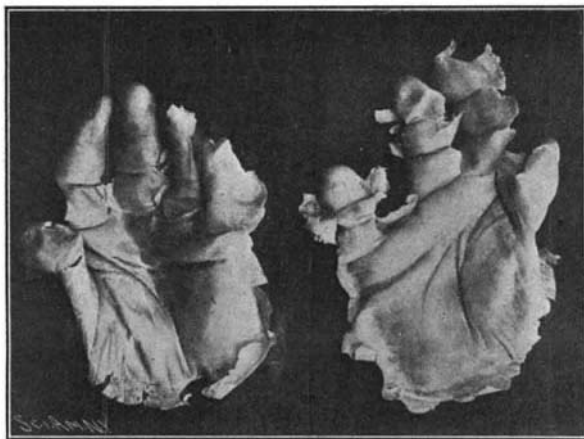
By looking at Fig. 2, which is a side view of the motor, it will be seen that the cylinder, which is made of cast-iron with the usual corrugations, is fastened to the base with six screws.

At the extreme left is the ignition plug, which screws into the combustion chamber. The fixture, which may be seen directly under the plug, is a lug by which the upper part of the motor is fastened to the seat post, and through which the exhaust passes on its way from the cylinder to the muffler. Directly on top of the combustion chamber may be seen the casing of the induction valve, which is nickel-plated, while directly under the combustion chamber may be seen the exhaust valve-stem and the spring which closes the same. The fixture on top of the cylinder is the compression relief-valve.

On the left-hand side of the motor are located the gear and cam for operating the exhaust-valve and also the ignition device. These are inclosed in an oil-tight case. On the left-hand side is the sprocket which drives the rear wheel. In Fig. 2 may be seen, on the left of the crank case, a flat projection. This corresponds to a lug on the seat post tube, and is tapped to receive four 4-inch screws, which is a part of the

fastening that holds the motor in place. The great feature of this motor is the construction of its bearings, which are so arranged that it has a large amount of bearing surface and still is less than 4 inches wide over all, which permits of its being placed between the cranks of any ordinary road wheel.

By examining the photograph marked 1, the posi-

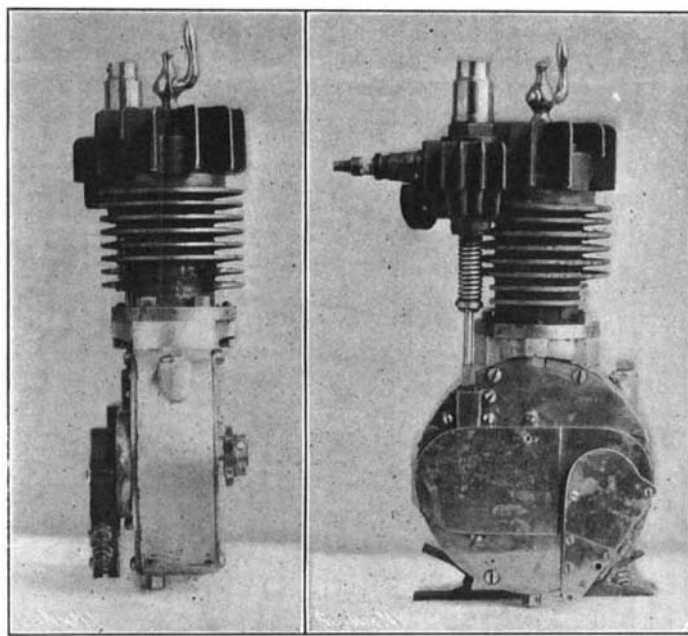


A CURIOUS CASE OF SKIN-SHEDDING.

tion of the motor is clearly seen, it being located in the angle of the frame in front of the seat post and just above the hanger sprocket. The motor resumes the same angle as the seat post tube, and is fastened to it at the back of the base and also at the back of the cylinder.

The pedal side of the rear hub is fitted with a coaster brake, the motor side being fitted with a 32-tooth sprocket, 1-inch pitch, and $\frac{3}{8}$ -inch wide. The sprocket on the motor has five teeth, which allow the same to revolve $6\frac{2}{3}$ times to one turn of the rear wheel. As the rear wheel is 28 inches in diameter, the motor runs a little over 2,300 revolutions per minute when the cycle is making 30 miles an hour.

The valves and ignition device of this motor are correctly proportioned and carefully made, and with the chain removed from the motor, it will reach a speed of 5,000 revolutions a minute without missing an explosion. The motor chain may be adjusted by moving the rear wheel back and forth in the jaws in which it hangs,



Figs. 2 and 3.—DETAILS OF ENGINE.

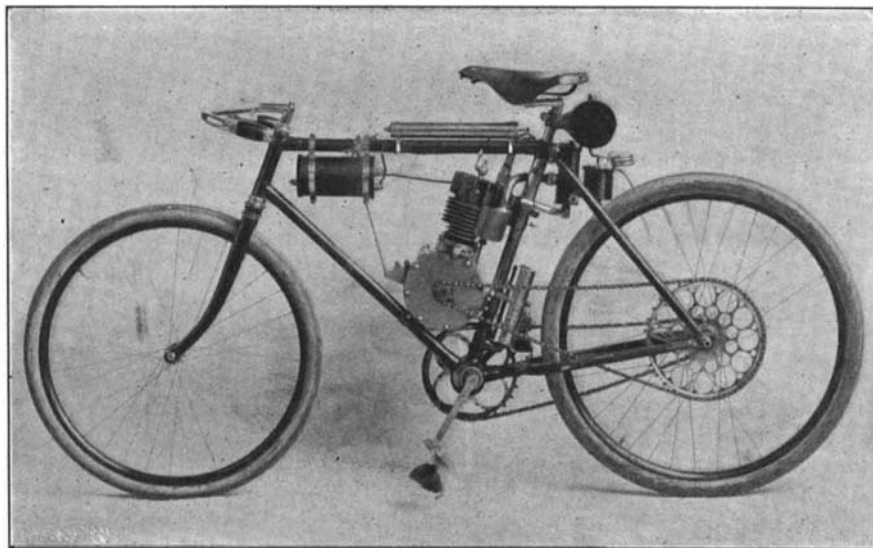


Fig. 1.—MOTOR BICYCLE.

while the pedal chain is adjusted by turning the eccentric around in the bottom bracket.

The cylindrical box to be seen in the forward part of the frame is the spark coil, while the tube on the top of the frame, just forward of the saddle, contains four

cells of dry battery, which are only $1\frac{1}{8}$ inches in diameter by $1\frac{1}{8}$ inches long, and weighs complete, case and all, $1\frac{1}{4}$ pounds. A coil and a set of these batteries will last nearly 500 miles, which is an item that deserves some notice, as it saves carrying the bulky batteries ordinarily used, which weigh from 12 to 15 pounds.

On the rear of the saddle post may be seen the fuel tank, which holds a quart—the amount of fuel that we have found necessary to run nearly 100 miles. The fixture to be seen on the right-hand side below the fuel tank is the carburetor, which is of the vaporizing type and is automatic in its operation. It can always be depended upon to give the right mixture of gas and air, and as much as the engine can use at all times. It is securely fastened to the seat mast by a suitable lug.

The fixture to be seen on the left-hand side of the cylinder is an air-scoop, which sends warm air to the carburetor. At the rear of the seat mast, between the base of the motor and the rear wheel, may be seen the muffler, which is made from brass tubing, 2 inches in diameter and 7 inches long, and is lined with asbestos, being perforated with a number of small holes on either side. The muffler is very efficient, muffling the exhaust so that it can scarcely be heard. It will be noticed that the makers have used the seat post tube to convey the exhaust from the cylinder to the muffler, the exhaust passing into the tube from the cylinder through the fitting by which the upper part of the motor is connected to the frame. This saves the use of a separate exhaust pipe, which would be in the way, and help to make the machine appear complicated.

On the top tube, just above the spark coil, are located the handles by which the machine is operated, two in number, one on either side. The handle on the right-hand side is connected to the ignition timing device, as may be seen by a steel rod which seems to leave the bottom of the spark coil in Fig. 1. By raising and lowering this handle the ignition may be varied to take place at any point from the beginning to $\frac{3}{4}$ stroke, and with the gas full on, this will vary the speed from the fastest clip down to 3 or 4 miles an hour. The handle on the left side operates a valve in the gas pipe between the carburetor and the motor, and with this the speed may be varied to either extreme, or the motor entirely shut off.

The grip on the right-hand side of the handle bar operates a switch, by which the motor can be instantly shut off, by simply turning $\frac{1}{8}$ of an inch.

To start the machine, first place the handles, gas and ignition in mid-position, then mount the same as the ordinary bicycle. Upon regaining the balance, turn the switch grip, the motor then takes hold, and feet may be allowed to come to rest at the position which best suits the rider. The speed may then be regulated by means of the gas and ignition-handle as best suits the operator.

This motor cycle is the result of considerable hard work, the experimenting covering a long period. First, the motor was hung over the front wheel and fastened to the fork sides, and was found to be very impracticable. The extra weight being placed so high, and as it had to be turned every time with the handle bar, it made the machine very hard to steer, especially going slow in a bad place, or among teams in a crowded street.

Next the motor was tried behind the rear wheel on a line with the hub, but it was found impossible to fasten it securely without adding almost as much tubing as was necessary in the main frame, which, besides the extra expense, makes the machine very ungainly in appearance. At this point

a machine was examined that had the motor placed in the space occupied by the crank hanger of ordinary cycles, and without pedals. This machine, when once started, and when running between 10 and 30 miles an hour, worked to perfection, its only drawback being to get it started, even on the level, as you had to make a run with it and then mount, and at the same time be starting the motor. If the motor missed either of the first two or three explosions it would stop, and the operation would have to be repeated sometimes six or eight times before the machine could be gotten under way, it being almost impossible to start up hill. After having had the aforementioned experience, and having studied the matter thoroughly, it was seen conclusively that the only way to place the motor from any practical point of view was in the angle of the frame just over the crank hanger, in which it would have a solid foundation comparatively low down and high under the rider. The trouble was then to make the motor narrow enough to go in this space without sacrificing its wearing surface. The designer finally succeeded in making a motor that, taking the initial pressure of the explosion