



MR. GEORGE HUTCHINSON.

..The Hutchinson..

Non-Suction

Milking Machine.

earlier in each stroke, and with greater force into the bargain, than the main pouches do; and thus the neck of the teat is squeezed. This action is the essential point that the invention attains. It is "full-hand" human milking exactly copied. Hand milking has been proved a success over a period of centuries. This is the first machine that has succeeded in copying hand milking.

The softness of its touch is the secret of its success. Put your finger into one of the "hands" so that the hand may squeeze, and you will understand that a cow takes readily to her new milker.

But the inventor's battle was only half over when he had succeeded in getting his "hands" to extract the milk: for, while the cups of a suction

machine hang to the udder by means of the suck that they exert, the "hands" of this machine have to be supported. This he accomplishes as follows.—

A pad shaped to fit the cow's belly just in front of the udder is held upward against her with a slight pressure by a clever spring arrangement from over the cow's back, and is free to move with the cow.

Four jointed arms, having their origin under the pad above mentioned, each hold one of the four hands. By means of the joints in these arms the hands are capable of being placed in all conceivable positions to suit all possible shapes of udders.

The effectiveness of the machine is finally completed by the device for catching the milk, as it issues from the teats in its four jets pointing in all directions. This is a tin tray, gauze-covered, capable of being set to any position by means of a fifth jointed arm similar to the four arms described above, and delivering its milk through a ball-jointed delivery tube to the bucket, which stands well aside from the cow.

It is claimed for the invention that whereas milkers on dairy farms average from six to seven cows only per hour, a man with machines will do about 15. Mr. Savill, above mentioned, writes that he sees 18 cows per man per hour easily attainable with practice. What this means to the labour problem will be readily appreciated.

The workmanship, which is superb throughout,

This is the machine that was originally named the Hydraulic Hand, but which now would be more correctly described as the Pneumatic Hand. It is the invention of Mr. George Hutchinson, late of Wellington College, Wellington, and adds one more to the many bold and important inventions that New Zealand has produced.

The Wellington company which has controlled the machine's development has followed the wise policy of waiting until the machine has clearly demonstrated that it is efficient and practicable before launching it. After two years spent in testing and improving, here it is. One large plant the first that has been supplied to any farmer, is now in regular work at Milbrook Farm, Styx, Christchurch, the property of Mr. Edward Savill, who is well known as one of the most energetic directors of the Central Dairy Company Christchurch and as an intensely practical farmer.

The Hutchinson machine takes the milk from a cow by squeezing her teats, just as a human hand squeezes them.

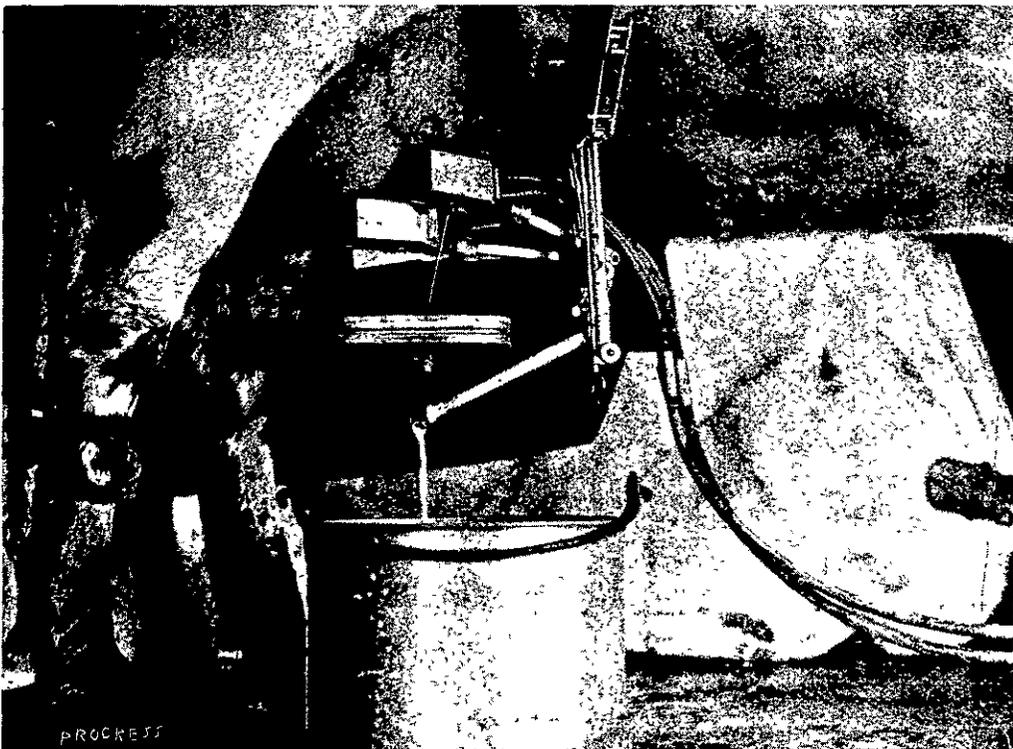
That is to say, the machine employs pressure to do its work, and is thus the very opposite of machines, that suck the milk out. Accordingly the vacuum (suction) pump has no place in the outfit. In its stead are air-compressing pumps.

These pumps, however, do not compress a supply of air into a reservoir tank, such air to be used from the tank and allowed to escape when used. Instead of this, each squeeze of the teats is the direct result of an in-stroke of the pumps, and the corresponding out-stroke of the pumps releases the pressure by drawing the same air back again, and allows the teats to refill with milk.

The artificial "hands" that do the squeezing are bags or pouches made of thin sheet rubber and cotton cloth incorporated together. The pouches that are visible contain invisible ones. The latter, when inflated, resemble the thumb and forefinger of a human hand. They inflate



MACHINES SWUNG ASIDE TO ALLOW COWS TO ENTER.



NEAR SIDE OF A COW SHOWING MILK JETS COMING FROM THE FOUR TEATS AND MILK RUNNING FROM TRAY INTO BUCKET.

finds its culmination in the jointed arms above referred to. The whole of these machines, even including the rubber work, is manufactured in New Zealand. Messrs. Buchanan, and Price and Sons, of Christchurch, are responsible for the iron and the aluminium castings respectively, and the work is really extra good. The rest is done in the company's works at Addington. For the beautiful fitting work displayed in the "arms" the inventor says all credit is due to Mr. C. Bristow of seed-sower fame, who is now the company's executing mechanic, and the foreman of their works.

One of our illustrations shows a series of five bails fitted up for milking with Hutchinson's machine. Each of the overhead arms, 1, is supported by a steel bow spring, 3, longitudinally above the body of the cow and upon its rear end is pivoted the body bow 2, which supports the teat presses, 4. The milk from the teat presses passes into a straining receiver, 5, which has a lateral tube, 6, conducting the milk to the can, 7. The teat presses are connected to the air pumps, 8 and 9, by the tubes, 10 and 11, respectively, the pulsation of the teat presses being produced by the air pumps which are actuated by an ingenious cam arrangement more clearly shown in another of our illustrations. The pumps are driven from an oil engine by a belt, 12, passing round a pulley, 13, on the pumping machine and round a pulley, 14, upon the counter shaft, 15, which is driven by the engine. The pumps and the teat presses are so constructed as to be removed from the other part of the apparatus and carried from bail to bail. These portable portions are shown in one of our illustrations being carried by an attendant. They are very easily detached from the stationary parts and can be replaced in a few seconds.