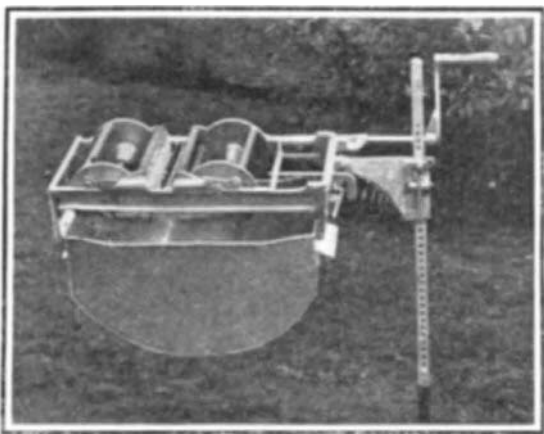


## NOVEL DOOR HINGE AND CHECK.

Picture in the accompanying engraving is a hinge of self-closing type, which is provided with a check that prevents shock of impact of the door on the jamb of the casing. The hinge is particularly adapted for service on large, heavy doors. It comprises two leaves, that at the left in the engraving being secured to the casement of the doorway. This leaf is formed with a cylindrical barrel, which is shown in section in Fig. 2. Secured in the barrel is a chamber for oil or the like, used in cushioning the swing of the door. Fitted into this chamber is a cup-shaped piston B. The piston is adapted to slide vertically within the chamber, but a pin therein engages a slot in the piston, preventing the latter from rotating. In the bottom of this piston is an arcuate port, normally closed by a flat gate valve C. The latter is mounted on a short shaft, which is free to revolve in said piston, and also has slight vertical movement therein, which is limited by a nut, as illustrated. A crosshead on this shaft is connected, by means of a lazy tongs construction, consisting of links D and E, to a yoke piece A, mounted in the upper part of the chamber. Depending from the links E is a pair of links F, which support a crosshead on the pintle rod of the hinge. This rod, which passes through the yoke A, has a pin-and-slot connection therewith, so that the two members rotate together, but the rod has independent vertical movement therein. The upper portion of the rod is formed with a broad thread, which engages a nut block secured to and extending above the oil chamber. Fitted over this nut block and the upper end of the oil chamber is a barrel, which is formed on the second leaf of the hinge, that is, the one secured to the door. This barrel engages the trunnions of a crosshead pivoted to the top of the pintle rod, as shown in Fig. 3. In operation, when the door is swung open to the position shown in Fig. 1, the pintle rod is rotated, due to its connection with the upper barrel of the hinge, and it is thereby fed upward in the nut, lifting the door bodily. But when the rod is lifted, the lazy tongs acts first to raise the valve off its seat, and then to draw the piston D upward, while the oil above the piston flows through the open port. At the same time the valve turns with the pintle rod to open position. When the door is closed, the valve is first seated and then the piston is pushed downward, while the valve gradually closes the port. The oil pouring up through this constantly narrowing port serves to cushion the swing of the door. The thread on the pintle rod is double, and of such a pitch that the weight of the door can be utilized in place of a spring to swing the door to closed position. A patent on this improved hinge has recently been secured by Mr. C. E. Treadwell, 1857 California Street, Denver, Col.

## AN IMPROVED MILKING MACHINE.

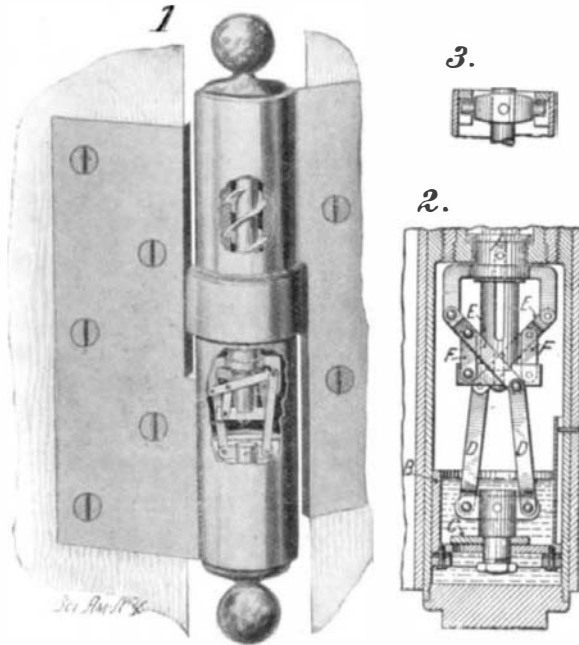
A milking machine has recently been invented which aims to reproduce accurately, by mechanical means, the action of the hands when milking. Not only does the machine facilitate the operation of milking, but it insures a clean supply of milk, as the hands need not touch the teats. The device is portable, being adjustably mounted upon a light standard, which can be moved to any desired spot. The accompanying engraving clearly illustrates the form of the machine. It comprises a receptacle or pail, above which is the mechanism for drawing the milk. The operation of this mechanism will be best understood by reference to the diagram. The teats are engaged by a series of rollers which press them against a pair of "compression plates." When adjusting the mechanism to a cow, the device is moved up until these plates bear against the udder at the center with the



A NEW MECHANICAL MILKER.

teats outside of them. There are two sets of rollers, one for each of the plates. The rollers of each set are journaled between a pair of disks keyed to a shaft. The shafts are connected by suitable gearing to a crank handle. By turning this handle the rollers are carried along in the direction of the arrows, flattening the teats against the plates, and producing a downward rolling pressure, which causes the milk to

flow into the pail. The rollers and plates are covered with rubber, and the plates are backed with safety springs, which prevent injury to the teats. The space between the rollers and the plates can be quickly adjusted for large or small teats. The machine contains no pipes, but all parts are accessible, and can be



NOVEL DOOR HINGE AND CHECK.

readily cleaned, so that there is no danger of tainting or contaminating the milk. The working parts are made of aluminium and, consequently, the machine is very light.

## Fastest Long-Distance Run on Record.

The discussion of the fast times made by automobiles in the recent race on Long Island has served to bring out in our contemporary, the Railway Age, an official statement which makes a valuable addition to the record of fast running on steam railroads. It will be remembered that the winner of the Vanderbilt cup contest covered 297.1 miles at an average speed of 61.43 miles an hour, and that the fastest round was made at an average speed of 67.6 miles an hour. The interest aroused by the discussion of these records has led the Assistant General Manager of the Lake Shore and Michigan Southern Railway to send to our contemporary a letter giving the details of a fast long-distance run which was made over the lines of that company June 13, 1905. The writer, Mr. D. C. Moon, states that at that time as Assistant General Superintendent he had charge of the arrangements for the run and rode on the train. No special arrangements in advance were made for this run, which was only determined upon the evening preceding the day on which it took place. The train consisted of a coach and two private cars. It left La Salle station, Chicago, at 6:50 in the morning, central time, arriving at Buffalo Exchange Street depot at 2:23 P. M., central time, having covered a total distance of 525 miles in 453 minutes. The total time to be deducted for stops (time during which the train was actually standing still) was 9 minutes, which was consumed in changing engines at Elkhart, Toledo, Cleveland, and Dunkirk. The through rate of speed, including the stops and slowdowns from terminal to terminal, was 69.53 miles an hour for 525 miles. Deducting the 9 minutes allowed for stops, the average rate of speed was 70.94 miles per hour. The fastest mile made on this run

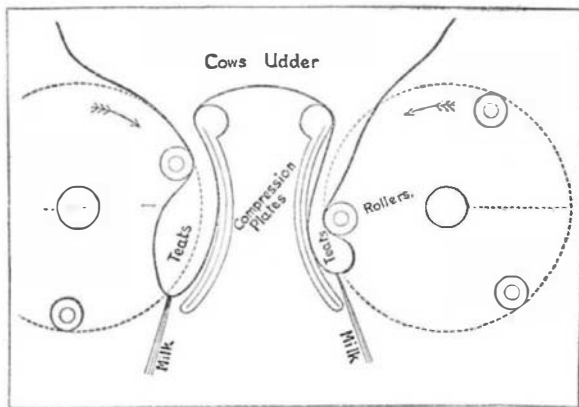


DIAGRAM SHOWING OPERATION OF THE MILKING MACHINE.

was 40 seconds, which was equivalent to a speed of 90 miles per hour.

The fastest speed made for that distance was recorded just ten years before, during the celebrated railroad racing from London to Aberdeen over routes of approximately equal length. Over the West Coast route 540 miles were covered in 8 hours 32 minutes, at an average speed of 63.24 miles an hour while run-

ning. Over the East Coast route 523 miles were covered at an average speed while running of 60.20 miles an hour. As a mere question of distance run at a certain speed irrespective of grades and curvature, the Lake Shore and Michigan Southern run is considerably the fastest on record. When we take into consideration the gradients and other track conditions, which were much more severe on the English roads, particularly among the hills of Scotland, the disparity between these two performances is greatly modified, the greater part of the Lake Shore run being made over a straight and level road laid across the prairies.

## Recently Observed Meteors.

The officers of the freight steamer "St. Andrew" report that on the afternoon of October 31, about sixty miles northeast of Cape Race, Newfoundland, they saw three meteorites plowing through the air from zenith to horizon. Despite the fact that it was broad daylight, the meteorites seem to have been most brilliant. The accounts which are given of the size of the meteorites vary so much that very little reliance can be placed upon them. The largest of the meteorites dropped into the water about a mile from the vessel, and is said to have caused the water to boil for a considerable area. The Hamburg-American liner "Brazilia" also observed a meteor northeast of Cape Race on the night of the same day. The "Brazilia's" meteor was visible for thirty seconds before it buried itself in the sea.

## A Big Paper-Making Machine.

There has just been completed by a firm of Edinburgh, Scotland, the largest paper-making machine ever constructed. Some idea of its dimensions may be afforded by the statement that a shed 185 feet long is not sufficient to house it. The striking feature of the machine is its great width. This is called for by the fact that the paper mill company in Sweden to whose order it has been built, intends to use it for the making of two sheets of newspaper, each 75 inches wide, or 150 inches of finished paper. To run a sheet of this width at the high speed of 500 feet per minute requires a machine with exceptional driving gear and rolls of extraordinary diameter and weight. The paper to be made is to have a better finish than is customary for newspaper use, and to that end an enormous stack of calendar rolls is provided. These rolls weigh about 70 tons, the bottom one alone weighing 14½ tons. The steam engine by which the machine is to be driven is capable of developing 200 horse-power. With all accessories the complete machine weighs 550 tons, and a special steamer has been chartered to carry it to Sweden. The price paid for the big machine by the Swedish company was \$72,997.

A party of tourists who found themselves quite a few miles from nowhere with a tube well beyond repair and nothing to take its place hit upon an expedient, which if not one deserving to be highly recommended to others who find themselves in a similar predicament, at least served its purpose of avoiding a badly rim-cut shoe as well as a bent rim. With a tube that was little more than scrap rubber and no spare at hand, it was either a question of driving on the rim or not at all. The road was rough and uneven, with more or less rock, so that even a few miles would mean the end of the rim. It was down in southern New Jersey, where sand and pine trees abound, and



THE MILKING MACHINE IN USE.

the shoe was carefully packed full of the former material all the way round and carefully replaced on the rim, so as to permit none of it to escape. As a substitute for compressed air it had the disadvantages of bulk, weight, and stiffness, but it served the end desired by preventing the shoe from flattening and rim-cutting and the rim itself from being ruined.—Motor World.