



PASSENGER ELEVATOR ENGINE.

Another important feature of the machine is the steam brake, which acts in connection with the reversing valve simultaneously with the starting and stopping of the engine. The automatic stop motion acts directly on the steam or throttle valve, closing the same at the upper and lower landings. The slack-cable stop acts instantly, stopping the engine in the event of the car meeting any obstruction in its descent. The governor is very sensitive, so that the consumption of steam is always controlled by the load carried; and when the car is not in motion the engine is also at rest, consequently is not consuming steam. The winding drums are connected to the main shaft of the engine by heavy cut-screw gearing, fitted with a patent ball-bearing thrust collar, which reduces the friction to a minimum.

Special attention is directed to the simple and compact form of construction of the engine, there being no strap joints, stuffing-boxes, eccentric rods, belts or binders used, and to the fact that it is fitted with graphite bushings throughout, which require no oil, except that which is used through the cylinders. It is worthy of notice that builders of double-cylinder engines for elevator work are obliged to double the capacity required to lift the load, for the reason that one of the cranks is as liable to stop on the dead centre as at any other point, and, in this event, one cylinder is left to start the entire load. The elimination, in this engine, of the "dead points," not only gives to it the capacity of doing practically double work, but also to make a large saving in the amount of steam used.

The manufacturers exercise the utmost care in the quality of materials and work entering into their engine, to the end that it may be a safe and efficient

elevator machine. As the amount of floor space required is frequently quite an item, especially in a building already constructed, it is in its favor that this engine only requires a space 6 feet square.

#### WEATHER INDICATIONS FOR OBSERVERS.

Says a weather observer: "When you wish to know what the weather is going to be, go out and select the smallest cloud you see. Keep your eye on it, and if it decreases and disappears it shows a state of the air that is sure to be followed by fine weather; but if it increases, take your overcoat with you if you are going away from home, for falling weather is not far off." The reason is this: When the air is becoming charged with electricity you will see every cloud attracting all lesser ones towards it until it gathers into a shower, and, on the contrary, when the fluid is passing off, or diffusing itself, then a large cloud will be seen breaking into pieces and dissolving.

#### A MACHINE FOR CUTTING PIPE AND PIPE JOINTS.

The accompanying illustrations relate to a very useful machine devised by F. F. Fenney, an English inventor, for cutting cast-iron gas and water pipe in repairing, making joints, etc., which does expeditiously and satisfactorily what has hitherto required the tedious and expensive method of chipping round and breaking off by hand.