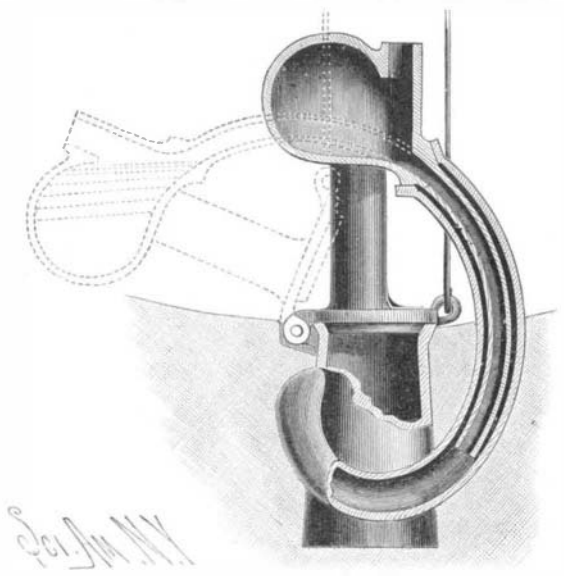
DISCHARGE PIPE FOR VAULTS.

Flush with the bottom of the vault is a discharge pipe, which flares toward its lower end, so that whatever enters its mouth will pass readily through. The mouth is provided with a hinged cap, serving as a valve, which is opened by means of a rod attached to a perforated lug opposite the hinge and extended so as to be easily operated from a place above the vault. Opening into the discharge pipe is a curved pipe that forms a U-shaped trap extending through the bottom of the vault and to any desired height above. The end of the curved pipe is flared to form a seat for the conical collar placed upon a similarly curved pipe slipping



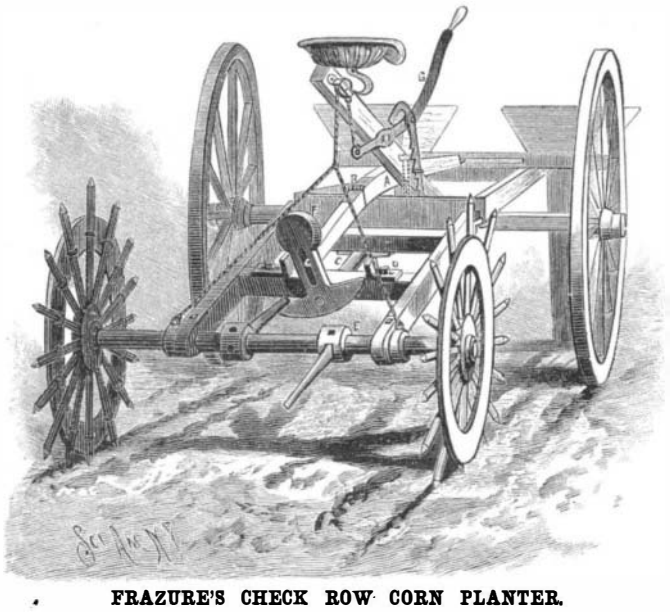
BEARD'S DISCHARGE PIPE FOR VAULTS.

within it. Upon the upper end of the inner pipe is a chamber or receiver, upon the upper part of which is a pipe of such length as the depth of the vault may require, so that it will serve as an overflow, the liquid passing through the curved discharge and drain pipes into the sewer. The chamber is attached to a standard formed upon the cap. When the vault is to be emptied, the cap is turned back, when the chamber occupies the p sition shown by the dotted lines, and becomes filled with liquid. After the vault has been emptied, the cap is turned back, thereby causing the liquid to fill the trap and prevent the escape of sewer gas from the discharge pipe into the vault, in case the liquid in the trap has been drawn out by the overflow of the contents of the vault through the discharge pipe.

This invention has been patented by Mr. Joseph Beard, of 26 Swan Street, South Boston, Mass.

CHECK ROW CORN PLANTER.

The check row corn planter herewith illustrated is the invention of Mr. James Frazure, of Kearney, Neb. Upon each end of the shaft, E, is fixed a check row wheel, preferably having sixteen radial fingers. The shaft is mounted in bearings at the rear end of a supporting frame, and carries the arms, E, which, as the



FRAZURE'S CHECK ROW CORN PLANTER.

shaft revolves, strike fingers formed upon a lever, F, carried by the shaft, C, thereby oscillating the lever and imparting motion to the lever, A, which controls the slides within the hoppers. The movement of the slide is thus controlled directly by the distance traveled, so that there will be an absolute uniformity in the spaces between the points at which the corn is dropped. The check row attachment is connected to the corn planter by means of clevises. When desirable, the attachment can be elevated from its position upon the ground by a lever, G, one end of which is connected by ropes with the axle, E, the other end being held by a toothed catch arm. When the check row attachment is not wanted, it can be removed from the planter. The throw of the lever, F, and thereby the control of the amount of feed delivered from the hoppers, is limited by the adjustable stops, D. When it is desired to plant in drills, two or more additional fingers are mounted on the shaft, E, to impart a more rapid motion to the slides. The lever, A, is formed of two sections hinged at B.

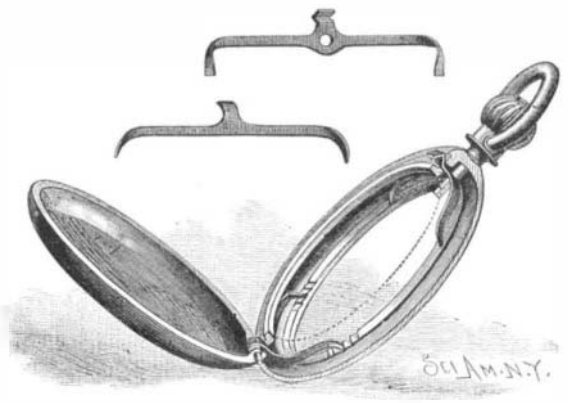
Exports of Wheat.

In the five months ending with May last the exports from San Francisco and Portland, Ore., compare as follows with those from all Atlantic ports: Pacific ports, 13,291,687; Atlantic ports, 13,916,770; total, 27,208,457; per cent from Pacific, 48·8. The Pacific coast, however, exports but little flour, comparatively, while the Atlantic ports exported the equivalent of 12,214,426 bushels in flour this, and 18,627,970 last year.

WATCHCASE SPRING.

These springs are used for throwing and locking the hinged cap of a watchcase. The form of the springs is clearly shown in the upper views, while their position in the case is shown in the lower cut. The lug of one spring is shaped to form a notch, for the purpose of engaging and holding the hinged cap; the lug of the other spring rests against the cap, directly above the spring, so that when the cap is released the spring can throw it. The ends of the springs engage with ratchets formed on the inner side of the ring of the case.

This spring—the invention of Mr. Robert L. Stufft, of Scottdale, Pa.—can be very easily and rapidly secured in the case, as it requires no screws or other fastening device, and as the lug can be filed off at the bevel to fit cases of different thicknesses. This makes it possible to fit almost any case with a catch spring, if only one spring is in stock, thereby relieving the repairer of



STUFFT'S WATCHCASE SPRING.

the necessity of always having springs of different sizes on hand in order to be able to fit all kinds of cases.

A Gravity Spring Balance.

Sir William Thomson has just brought under the notice of the Royal Society of Edinburgh a new form of spring balance, which he has devised for measuring terrestrial gravity.

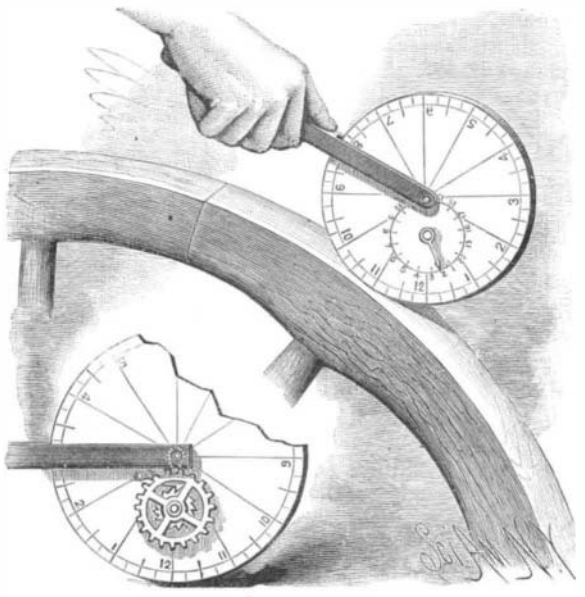
The instrument has as its main feature a thin flat plate of springy German silver, which is 75 centimeters in length by 2 centimeters in breadth. To one end of the spring there is secured a brass weight of 2 grammes; and as that end of the spring is 2 per cent heavier than the other, it keeps the spring straight when the other end is horizontally fixed. This fixed end is securely fastened in the lower end of a brass tube of about 8 centimeters in diameter, inclined at a slope of about 1 inch in 5 inches, with the weighted end thus above the level of the fixed end. By this arrangement, the spring is brought into a condition of very nearly unstable equilibrium. The upper end of the tube is covered with glass, and through this the spring is viewed.

By means of a micrometer screw, the weight which is attached to the free end of the spring can be adjusted, and the observation consists in marking the number of turns of the micrometer screw which may be required to bring the weight from the balanced position to the level position. According to Sir William Thomson, such an apparatus as he has constructed is sensible to a forty-thousandth of the force of gravity. It is affected, however, by differences of temperature to the extent of one-twentieth of a degree Centigrade. The only difficulty to be got over, in the opinion of the inventor, is a tendency of the metal to "creep."

To make mockingbird food, take of hempseed 3 parts, toasted wheat bread 2 parts, maw seed 1 part, ox heart 1 part. Boil the ox heart well in water, cut it small, and place it in a pan in an oven, where it must be allowed to become perfectly dry and crisp. All the ingredients must then be thoroughly mixed and ground in a mill to coarse powder.

MEASURING WHEEL.

The wheel has a graduated periphery, and is mounted loosely upon a shaft carried by a forked handle. Formed upon the shaft is a lug, which engages at each revolution with a toothed wheel whose shaft carries a pointer, revolving upon a dial. The backward movement of the toothed wheel is prevented by a pawl and ratchet. The main wheel is, preferably, 12 inches in circumference, and is divided into twelve equal parts, subdivisions indicating the fractional parts of an inch. To measure any distance, the wheel is placed so that the division marked 12 will be upon the starting point, and is then moved forward. When the distance to be



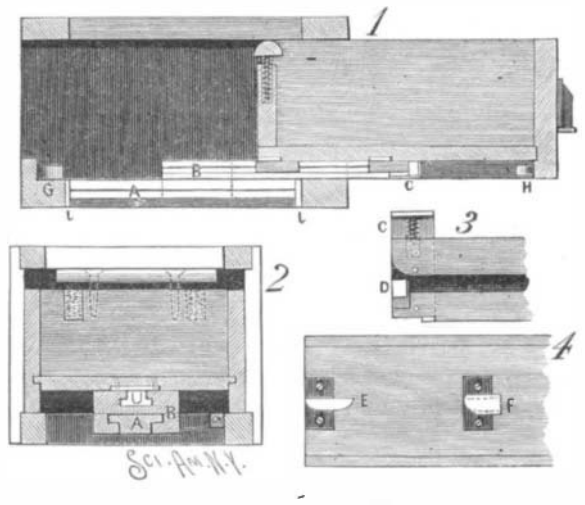
McCALEB'S MEASURING WEEEL.

measured is less than one foot, it may be read by noting the division of the wheel opposite the stopping point. When used for measuring lengths of pipe, the wheel is provided with guiding plates secured to each of its faces and projecting out beyond the periphery.

This invention has been patented by Mr. John L. McCaleb, of Benton, Texas.

DRAWER CHECK AND SUPPORT.

Secured between the front and rear lower cross bars of the frame is a T-shaped strip, A, upon which moves a slide, B, having an inverted T-shaped groove formed on its upper side, as shown in the longitudinal vertical section Fig. 1, and the cross section, Fig. 2. Upon the bottom of the drawer, just back of the center, is secured a T-shaped lug, F, by means of screws passing through slots in the top plate of the lug. At the rear end of the drawer bottom is a lug, F, Fig. 4, similarly secured. The rear ends of both lugs are rounded off. The lugs are inserted in the groove in the slide, B, so that the drawer may be shoved back within its case. The drawer is prevented from being drawn out too far by a sliding plate, C, Fig. 3, fixed to the under side of the forward end of the slide, B. This plate carries a stop, D, which is normally held in front of the groove by a spring. Springs are provided for lessening the shock and noise incident to opening and closing the drawer. Above the rear end of the drawer is a strip, pressed against the



FRASER'S DRAWER CHECK AND SUPPORT.

under side of the upper cross bar of the frame when the drawer is drawn out. As the drawer is pulled forward the lug, F, strikes the stops, D; the continued movement of the drawer causes the slide, B, to be drawn forward until one of the blocks by which it is held to the strip, A, strikes a spring on the forward part of the case. To remove the drawer from the case the plate, C, is pressed to carry the lug, D, from the front of the groove, thereby clearing the passage for the lugs, F. The advantages of constructing a drawer as described, the saving of material and labor, and the easy operation attained, are apparent.

This invention has been patented by Mr. S. J. Fraser, of 69 Worthen St., Lowell, Mass.