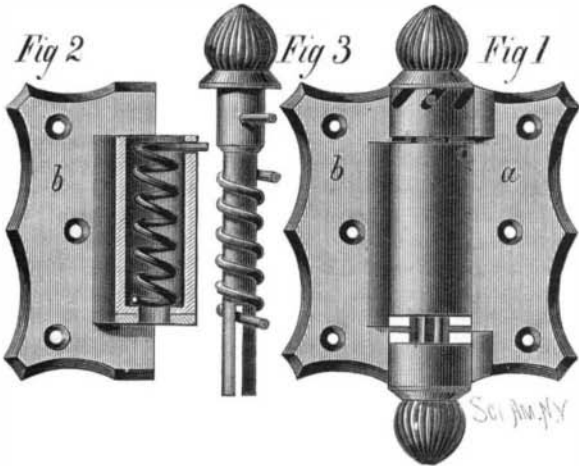


## IMPROVED SPRING HINGE.

The annexed engraving represents a new spring hinge lately patented by Mr. George M. Lane, of Asbury Park, N. J. It is adapted to blinds, shutters, screen doors, etc., and is so constructed that it may be easily and quickly adjusted to any required tension, and it admits of readily unhooking a shutter or door.

Fig. 1 shows the hinge complete; Fig. 2 is a section through the spring chamber; and Fig. 3 shows the hinge pintle. The leaf, *a*, is formed with an upper and lower knuckle, the upper knuckle having in its upper edge a series of ratchet teeth surrounding the central vertical hole through which the pintle passes. The lower knuckle is formed with a sliding surface and shoulders or stops on its upper



LANE'S SPRING HINGE.

edge and opposite each other, as shown in Fig. 1. The leaf, *b*, has a central chamber which fits between the two knuckles of the leaf, *a*, and has sufficient vertical play to permit the shoulders formed on its lower end to pass over the shoulder on the lower knuckle of the leaf, *a*, when the shutter is closed. The shoulders on the lower end of the spring chamber are arranged to correspond with those on the lower knuckle, and are locked together by the dropping of the shutter when the latter is opened. When locked in this way the shutter is held against any ordinary force of wind. The lower end of the pintle opening in the spring chamber has a shoulder on which the free end of the coil spring rests. This shoulder protects the lower end of the spring from injury and holds it in place when the shutter or door is lifted off the hinges. The pintle has a milled head by which it may be drawn out of the hinge, and on its shank near its upper end there is a pin that will engage the ratchet teeth when the head is pressed down. In the lower end of the pintle there is a longitudinal slot the inner end of which is within the spring chamber. The upper end of the coil spring is fastened to the spring chamber, and its lower end is left free and rests on the shoulder at the bottom of the chamber, as shown in Fig. 2, and is bent and received by the slot in the pintle. The pintle is retained in the hinge by its own gravity, and it may be raised or lowered or entirely removed at pleasure without affecting the position or fastenings of the coil spring.

Further information may be obtained by addressing E. L. Richards & Co., 733 Broadway, New York, or the inventor as above.

## NEW MECHANICAL MOVEMENT.

The engraving shows a new mechanical movement for changing a reciprocating motion into a continuous rotary motion, the device being capable of producing rotary motion at every point in the revolution of the crank.

Fig. 1 is a plan view, and Fig. 2 is a side elevation, partly in section, showing the relation of the various parts. The device is represented as connecting the crosshead and crank shaft of a reciprocating steam engine, but it is capable of application to any kind of machinery in which reciprocating is converted into rotary motion. The ways, *A*, support the crosshead, which is attached to the piston rod of the engine and reciprocated in the usual way. The crosshead carries a lever, *C*, having at its ends connecting rods connected with the cranks, *D E*, the latter being connected together by the tie rod, *F*, so that they stand at right angles to each other. Pawls, *G H*, jointed to opposite sides of the upper end of the lever, *C*, are fitted to engage notches in the ends of the auxiliary crosshead, *B*, and are arranged so that during the stroke one of them may be engaged by an arm attached to one of the ways, *A*, and the other will be engaged by an arm projecting from the other way.

With the device arranged in this way the engine will turn only in one direction, but by attaching a set of pawls, *G H*, to the lower end of the lever, *C*, the engine may be made to

turn in either direction, depending of course upon which set of pawls is allowed to operate.

The auxiliary crosshead is of such length relative to the length of the main crosshead that has an independent long stroke—that is, a longitudinal movement at the ends of the stroke which is independent of the movement of the main crosshead, and the ends of the auxiliary crosshead are provided with the grooves with which the notched ends of the pawls, *G H*, alternately engage while the crosshead is traveling the space of its independent movement. By this means the force during the independent movement of the auxiliary crosshead is transferred through the pawls, *G H*, to a point above the plane of reciprocation, and applied to the cranks of the shaft through the oscillating lever, *C*, and the connecting rods at a point above the line of dead-center. It will be understood that during this time the main crosshead remains at rest, and that the motion of the oscillating bar is only upon its pivot.

When the main crosshead and oscillating bar begin to move, the pawls, *G H*, are thrown out of engagement with the notches by coming in contact with the arms or projections, which are secured in proper position for that purpose upon the ways, *A*, as shown in the plan view.

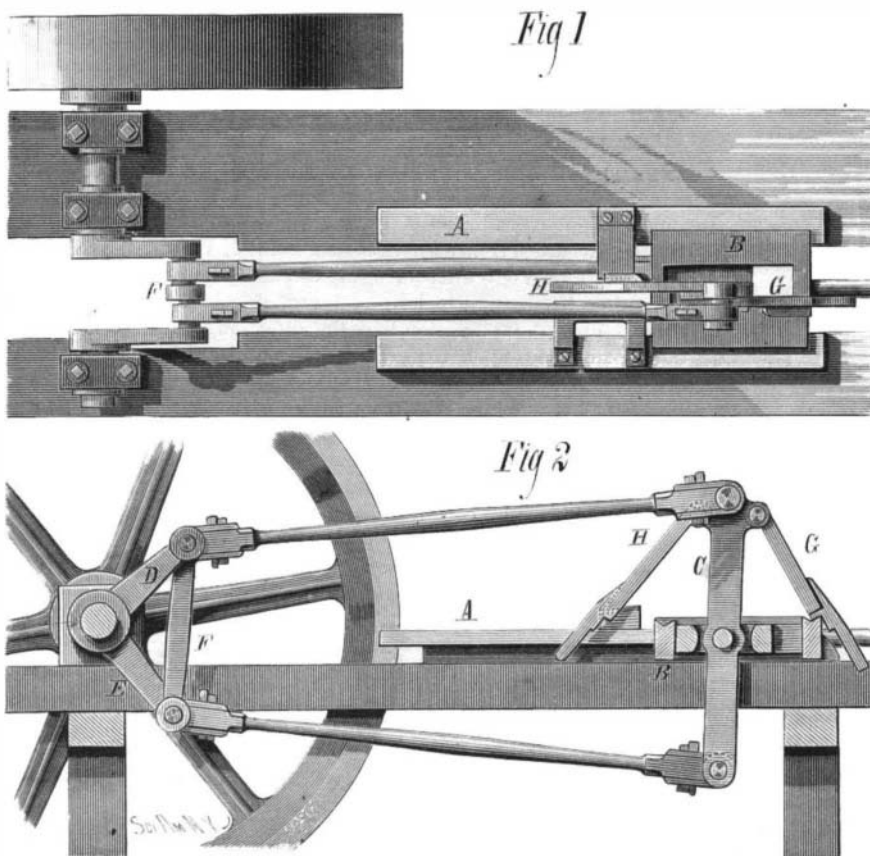
After sufficient motion has been obtained to carry past the dead-center, the auxiliary crosshead is brought to its short stroke by placing blocks between the crossheads or by the employment of a device actuated by a lever, which locks the two crossheads together, when they act as a single crosshead.

## Preservation of India-rubber Tubing under Water.

Mr. Marek relates his experience of having met with serious annual losses, in consequence of certain kinds of India-rubber tubing soon becoming brittle on exposure. After many experiments, he has adopted the plan of preserving them under water, which he renews from time to time. He found that even the thickest kind of tubing will thus remain soft and pliable without losing elasticity; nor has he found any other drawback by adopting this plan, except this, that they undergo a change in appearance. Red or brown tubing gradually fades, and becomes brownish or grayish-yellow; gray tubing becomes darker and browner externally. A section of tubing reveals the fact that about one-half of the thickness of the rubber, from the outside toward the middle, appears bleached and fatty; but the change is one which is rather of benefit for their practical use. The author adds that very thin rubber bands, with which other goods were tied, became so soft that they could be rubbed to small crumbs with the fingers.—*Dingler's Polyt. Jour.*, 239, 325.

## A Stray Balloon.

Mr. John W. Tobias, of the whaling brig *Rosa Baker*, which arrived at Boston on July 1, reports that on June 17, at noon, in latitude 27° 50', longitude 67° 30', he observed a large balloon in the westward. It was apparently about one mile in elevation and about five miles distant, and proceeding slowly in a northwesterly course. We set our colors,



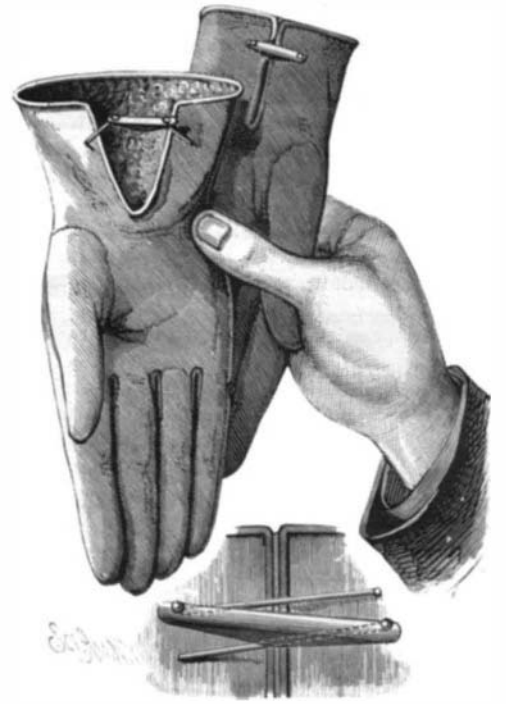
HARRIS' MECHANICAL MOVEMENT.

but could get no signal from it. The aerial traveler remained in sight until 3 P.M., when the weather became cloudy and it was hidden from our view. By the aid of our glasses we could distinctly see the car that was attached to it swaying to and fro as it moved along, but could not observe any occupants. The balloon seemed to be of a white or cream color, and of large size. It was proceeding in the direction of Cape Hatteras, the nearest point of the American coast, distant upward of 600 miles.

## NEW GLOVE FASTENER.

An improved glove fastener lately patented by Mr. Frederick Schramling, of Sabula, Iowa, is shown in the engraving.

The invention consists in a metal strip or plate with side lugs or flanges, connected with two wires attached to the opposite lapels of a glove or mitten, the other ends of the wire being bent and passed loosely through apertures in the ends of the strip, and are prevented from being drawn out of these apertures by knobs or buttons at the ends of these wires. The glove is closed by turning the flanged strip in



SCHRAMLING'S GLOVE FASTENER.

such a manner that the wires will be crossed longitudinally between the flanges or side lugs of this strip or plate.

Figure 1 shows one of the gloves with the fastener open, while the fastening of the other glove is closed. Figure 2 shows the fastener in detail.

When the fastener is opened it gives ample room for the insertion of the hand, and when it is closed it is self locked and holds the glove properly in place.

## MECHANICAL INVENTIONS.

Mr. Frank W. Kepner, of Houlton, Me., has patented an improved mill-feeding device, the object of which is to prevent choking of the mill feed. It is impossible to clearly describe this invention without engravings.

An improved wood-sawing machine has been patented by Mr. William H. Mellott, of Ray's Hill, Pa. The object of this invention is to facilitate the sawing of wood and promote convenience in operating sawing machines.

Mr. John H. Boren, of Haubstadt, Ind., has patented an improved water elevator which is so constructed that when the filled bucket is raised an empty bucket is lowered. The invention consists in a chute or gutter passing through the frame of the water elevator, and provided with a parallel rod a short distance above it, on each side, against which projections on the buckets catch, thereby tilting the buckets so that their contents will flow into the chute.

Much difficulty has been experienced in running millstones from backlash from the face of the stones getting out of relative position, and consequently irregular grinding. To overcome these difficulties Mr. Frederick Mayo, of Zanesville, Ohio, has patented a millstone driver having arms with adjustable springs, to compensate for backlash, to prevent irregularities in the running of the stone and insure the best results otherwise.

An improved table for wood-working machinery has been patented by Messrs. Michael Lally, of North Lawrence, Ohio, and John J. Kehoe, of New York city. The improvements relate to the tables of band, jig, and other saws, and the tables of other wood-working machinery upon which the material is required to be moved by hand. In this apparatus the work moves upon a series of balls adjustably supported and capable of turning freely in any direction.

An improved lathe attachment has been patented by Mr. Harry C. Barnes, of Vallejo, Cal. The object of the invention is to combine with a lathe an attachment by which teeth may be cut in gear wheels with accuracy and rapidity.

Mr. Robert Rutter, of Dillon, Montana Ter., has patented an improvement in the construction of the wagon brakes known as the "California" or "roller" brakes in such a manner that they can be reversed to bring the brake lever upon the right or left side of the wagon, according as the brake is to be "put on" by a man riding on the left-hand wheel horse or by a driver riding in the wagon.