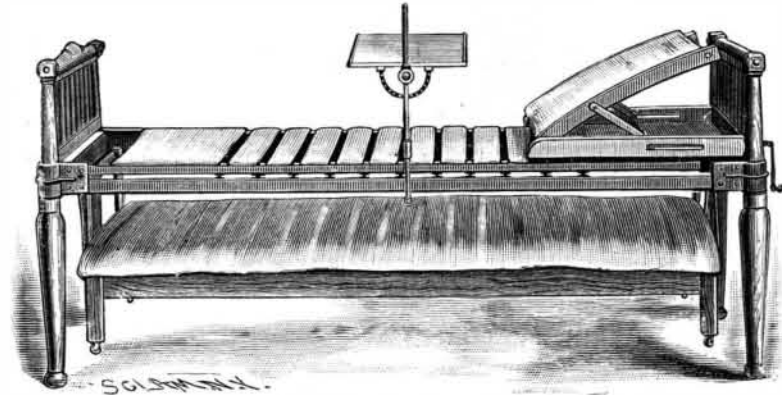


**THE CROSBY INVALID BED.**

In the care of the sick and injured there is nothing so much dreaded, both by nurses and doctors, as moving the patient when change of bedding or clothing is necessary.

The invalid bed which we illustrate in this connection was invented a number of years ago by Dr. Josiah Crosby, of Hanover, N. H., and is manufactured by the Invalid Furniture Co., of Nashua, N. H., which under the efficient management of G. W. Whittemore, who has remodeled the bed, retaining little more than the principle of Dr. Crosby's invention. As will be seen by the accompanying illustration, the mattress lies on a trundle bed, which is attached to the frame of the bed



THE CROSBY INVALID BED.

by lifting bands, which, by turning a crank at the head of the bed, enables the mattress to take the full weight of the patient, allowing the cross bands to lie loosely upon the mattress, so that the patient can have the entire elasticity of the bed.

The cross bands are adjusted by the pins through the loops in them so as to give equal pressure to all parts of the body when the mattress is lowered; and when it becomes necessary to take out one or more of the bands, or to take them up to ease the patient, it should be done while the mattress is up and the weight of the patient rests on the mattress.

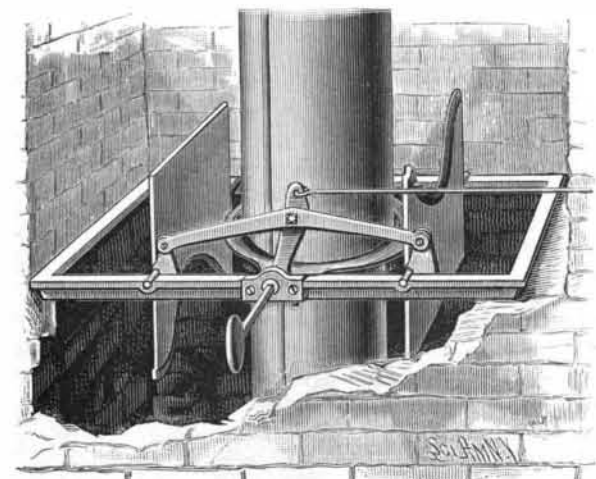
The adjustable head rest is also an important feature, as it enables the nurse to raise the patient to any position up to sitting posture without touching the patient, and the little table shown attached to the upright rod at the side of the bed can be adjusted to any height or angle desired, and form at will a small table or book rest.

One person is able to change the bedding without exertion or assistance. The trundle bed is smaller in every way than the frame of the bed, which permits it to be moved out under head, foot, or either side of the bed.

These beds are largely used, and the fact that among all the varieties offered this one was selected by President Garfield's physicians shows in what estimation it is held by the leading members of the medical profession.

**AN IMPROVED HOT AIR REGISTER.**

A device designed to be placed in the chimney, just above the fireplace heater, whereby the heat from the stove may be readily thrown out altogether into the room, or be partially conducted into an adjoining room or into chambers above, is illustrated herewith, and has been patented by Mr. William F. Rossman, of Hudson, N. Y. An open frame, of shape best designed for the flue, is placed above the heater, the frame having



ROSSMAN'S HOT AIR REGISTER.

a central integral ring, and valves being journaled in its upper face designed to completely close the opening between the sides of the frame and the ring. Integral with one side edge of each valve are lugs, to which an upwardly curved bar is pivotally attached, this curved bar being pivoted in a slot centrally of a rocking bar, the lower end of the rocking bar being made cylindrical, and having a square aperture, in which is a key for opening or closing the valves. In an aperture at the top of the rocking bar is a rod extending a convenient

distance, affording facility for operating the valves without approaching the heater. The upper section of pipe is supported by a collar held in connection with the under side of the ring, so that the heater may be detached and replaced without disturbing the length of pipe passing up the flue, and the damper may be made either round or square, the construction affording a close and tight register, while providing a passage for the smoke pipe without interfering with the free operation of the valves.

**Soap Bubbles.**

At a recent meeting of the Physical Society, London, Mr. C. V. Boys described and performed some experiments on soap bubbles, and by their aid demonstrated in a remarkable manner the phenomena of surface tension, diffusion, and the magnetic properties of gases. By blowing one bubble inside another he showed that there is no electrical force inside a closed conductor. A peculiar property of soap bubbles is their refusal to come into contact when knocked against each other. They may receive violent shocks and still remain separate. If, however, an electrical body be brought in the vicinity, they immediately coalesce. So sensitive are they to electrical attraction, that a potential difference due to one Leclanche cell between the two bubbles

causes them to unite. They may thus serve as a very delicate electroscope. Many other beautiful and extremely interesting experiments on liquid films of different shapes were performed in a masterly manner.

**AN IMPROVED CLOTH CUTTER.**

A simple and effective device for cutting cloth, in which the knife will always be in convenient position



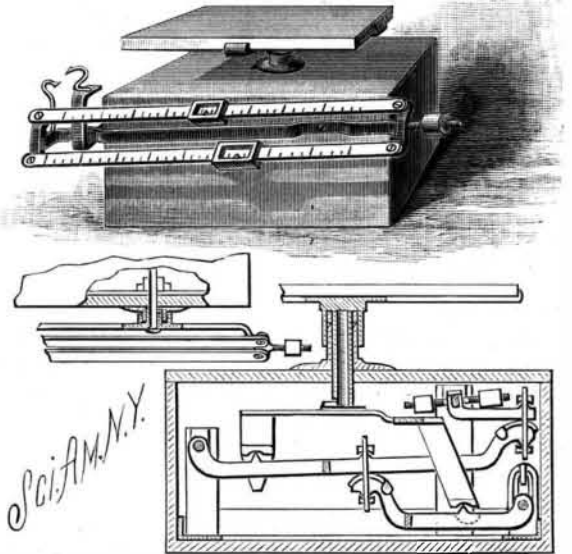
RIES' CLOTH CUTTER.

for use, is illustrated herewith, and has been patented by Mr. George A. Ries, of Poplar Bluff, Mo. It consists of an arrow, slotted casing adapted to be secured to a counter or table, and having at one end a circular receptacle for holding a wheel or roller having a retracting spring, a cord being wound upon the wheel and secured to the ring of a knife holder extending diagonally through the slot. The knife holder has rubber rollers above and beneath the slot, and is formed with a ring at its outer end for the insertion of a finger. The piece of cloth to be cut being placed over the casing and held in position by pins projecting therefrom, the knife is drawn straight and square across, the rubber roller of the knife holder on the top of the slot pressing down the cloth firmly as it is cut, and both rollers serving as friction rollers, facilitating the quick and easy movement of the knife, as it is drawn forward by the operator or backward by the retracting spring.

**AN IMPROVED COUNTER SCALE.**

A scale which is provided with a secure housing of the levers, while allowing the free vertical movement of the scale plate, rendering it impossible for dust or moisture to enter the case in which the levers are disposed, has been patented by Mr. John B. Butenschon, of No. 72 Sheridan Street, Portland, Oregon, and is illustrated herewith. The scale frame, at one end, within the case, has vertical standards which support the cross shaft of a main lever formed with cross arms rigidly connected to the shaft, while at the other end of the frame are vertical standards from which is supported a shaft with rigidly secured secondary lever extending outward beneath the main lever, and provided with a knife edge bearing. In connection with these levers, and at equal distances from the cross shafts at either end of the frame, are formed knife edges upon which is placed a four-armed spider provided with an upwardly extending vertical standard which projects

beyond the cover of the case. A sleeve surrounds the standard and extends downward from the plate frame, a second sleeve connected to the case cover extending upward about this sleeve, while a third sleeve extends downward from the plate frame about the second sleeve, perfectly protecting the mechanism of the scale. The main beam and the light weight beam are rigidly

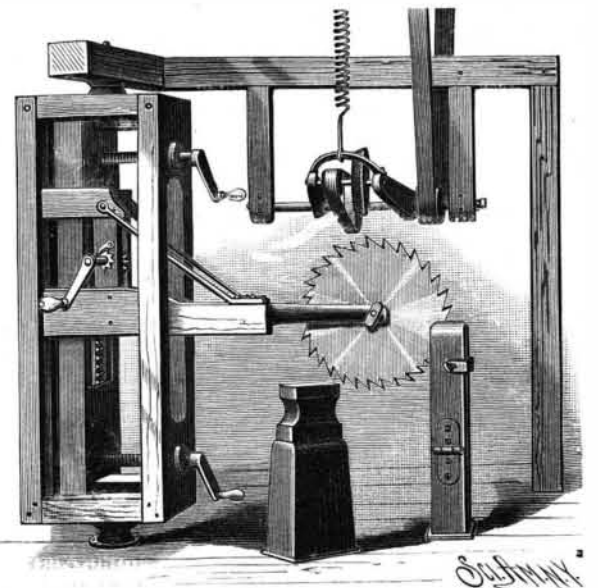


BUTENSCHON'S COUNTER SCALE.

connected to a third beam that is rigidly connected to a cross bar, formed with knife edges, the cross bar passing out of the case through a flanged opening and annular groove, to prevent the entrance of moisture and dust, and on its inner portion being connected through links and knife edges with the main and secondary levers of the mechanism. The beam carries a pointer in connection with an indicator, and a counterbalance weight for general adjustment of the scale, the original adjustment being obtained by weights within the casing.

**AN IMPROVED CIRCULAR SAW HOLDER.**

A device for holding circular saws firmly in position while hammering, gumming, swaging, and filing them is illustrated herewith, and has been patented by Mr. John Slater, of Parthenia, Pa. A frame is mounted to turn on spindles, the top one of which may have its bearing in the cross beam of a ceiling or other suitable stay, and within the top and bottom of the frame are guideways on which a post is mounted to slide longitudinally, the post being moved by crank handles near the top and bottom operating screw rods which have their bearings in the frame. On the post is a rack into which meshes a gear wheel mounted on a vertically sliding frame, with crank arm, ratchet wheel and pawl, to adjust the frame in any desired position; and mounted on this vertically sliding frame is a shaft turning in suitable bearings, with a projecting end in the form of a fork carrying an arbor in which is held the circular saw to be operated on. Upon a shaft above the saw, operated by a belt receiving power from any source, is secured a swinging frame carrying a grinding wheel for sharpening the saw teeth, and operated by the shaft, the swinging frame being held in its uppermost position by a rope connected with a



SLATER'S CIRCULAR SAW HOLDER.

spring. An anvil is placed near, for hammering the saw when necessary, and in front is a vise with a fixed jaw on which is hinged a swinging jaw, enabling the saw to be clamped between them for swaging or filing purposes, the two jaws being held in closed position by a U-shaped clip. With this construction the saw can be quickly placed in position to be operated on by the grinding wheel, or clamped in the vise for filing or swaging, or placed with either of its faces on the anvil to be operated on with a hammer or other tool.