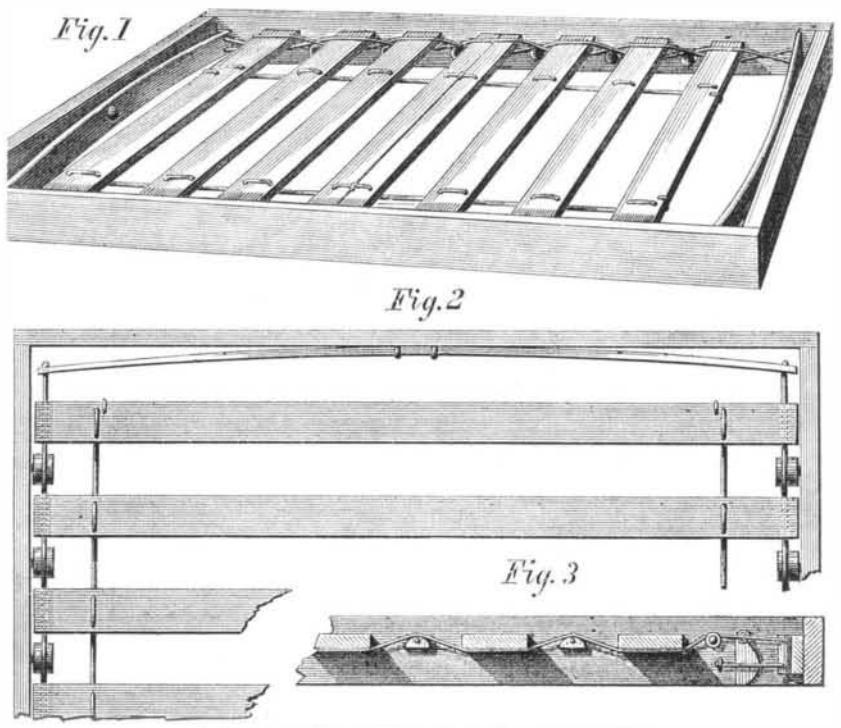
Adjustable Spring Bed Bottom.

The principal object of this invention is to make the slat bottoms, of the common slat bedstead, elastic, so that it may be used in place of the cumbrous spring bed bottom frame now in use, with the additional advantage that it may be made hard or soft at pleasure, to suit the season. It is claimed that it can be put up or taken down as quick, and will occupy as little space, as any other bedstead bottom, and that it can be made of cheap materials.

The engraving represents two styles of bedstead. Fig. 1 is a view of a bed bottom employing the double or endless bearing cord used for crosswise slats. Figs. 2 and 3 are detail views of a bed bottom having a single bearing cord used for the lengthwise slats. Two spring bars with grooved ends (one may be used), made fast at their centers to opposite sides of the bedstead, on the rails, communicate their motions by means of the bearing cord or cords passing over pins or rollers between the ends of the slats on the inside of rails, the bar acting like an archer's bow. In the double or endless cord for the crosswise arrangement, both cords rest in two grooves or pins, but divide and pass on each side of the slats and around the end of the spring bars, in such a way that the end strain bears up alternate slats. The adjacent slats, then resting on different cords, do not interfere with each other's vibration. The cord never touches the upper surface of the slats, for the weight of the mattrass depresses the slats between the pins, and keeps them in the centers of the spaces. The web of slats need not be fast in any way to the bedstead, as represented, but can be lifted off and rolled up. With lengthwise slats, the single cords will answer, for the reason that the weight of the occupant comes on but few slats. The cord is not attached to the spring bar, but passes around the end, and is brought back a few inches and made fast to a screw in the bed rail. As the bearing cord always slips on the end of the spring bars, the motion is multiplied, so that a little spring in the spring bars gives great elasticity to the slats, and the bars and slats can be made of the cheapest material, pine, spruce, or fir answering perfectly for this purpose.



ADJUSTABLE SPRING BED BOTTOM.

There is a groove on the under side of the slats, which are held in position by two small stay cords passing through two converging holes in such a way that, although loose in the holes, there will be no slipping if the cord is made taut, as it should be. At each corner of the bedstead there is, on the rail, an oblong button, nearly in front of the end of the spring bar, and by turning this up against the end of the bar, the bearing cord is made taut, thus rendering the bed hard for hot weather.

When no spring bars are used, the double bearing cord is passed around rollers placed on screws in the bed posts. This makes a very cheap spring bed. The reciprocating motions of the slats allow them to adjust themselves to the varying shapes of occupants of the bed. The slats can also be used, divided, the halves being held apart by a piece of cord to make them more elastic.

This invention is covered by two patents, dated August 15, 1871, and Feb. 27, 1872, taken out through the Scientific American Patent Agency. The patentee, being a disabled soldier and not able to attend to active business, would like to correspond with parties for the sale of rights, at moderate prices. For further information address Geo. Brownlee, Princeton, Ind.

THE BALTIMORE BOILER INSPECTION LAW.

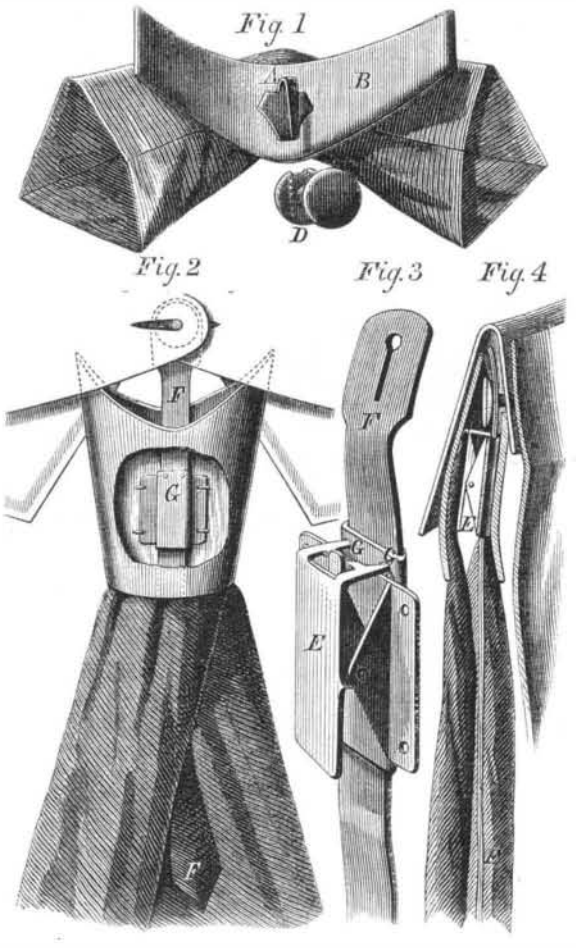
At the last session of the Maryland Legislature, a bill was passed authorizing the appointment, by the governor, of two inspectors of boilers for the city of Baltimore. It names, as the qualifications of these inspectors, that they shall be well skilled in the construction and use of steam engines and boilers, and fixes their salary at fifteen hundred dollars per annum. With this munificent provision for their support they are to be content, and not to engage in the manufacture of steam boilers, engines or machinery applicable thereto, and are not to receive any money, gift, gratuity or consideration from any person or persons. With the kind of inspectors and inspection likely to be obtained from any ability such salaries will secure, the Baltimoreans might, in our opinion, about as well be without any. The other features of the bill are not objectionable.

Blood Crystals.

An interesting volume has just been published by M. W. Preyer, on blood crystals. Though blood crystals were first observed by Hünefeld, the merit of discovering them is due to Reichert, who first recognized their nature. The fact of the crystallization of a complex organic substance like blood was first received with some amount of incredulity, but the corroborative testimony of many microscopists soon cleared away all doubt, and a variety of methods were suggested by which the crystals could be obtained. The best plan for obtaining them is thus given by M. Preyer: The blood is received into a cup, allowed to coagulate, and placed in a cool room for twenty-four hours. The serum is then poured off, and a gentle current of cold distilled water passed over the finely divided clot placed upon a filter, until the filtrate gives scarcely any precipitate with bichloride of mercury. A current of warm water (30°—40° Cent.) is now poured on the clot, and the filtrate received in a large cylinder standing in ice. Of this a small quantity is taken, and alcohol added, drop by drop, till a precipitate falls from which an estimate may be made of the quantity required to be added to the whole without producing a precipitate. The mixture, still placed in ice, after the lapse of a few hours, furnishes a rich crop of crystals. The forms of the crystals obtained from the blood of different animals do not vary to any great extent, and are all reducible to the rhombic and hexagonal systems. The vast majority are rhombic prisms, more or less resembling that of man. The squirrel, however, with several of the rodentia, as the mouse and rat. and the hamster, are hexagonal. The hæmoglobin of several corpuscles is required to form a single crystal. All blood crystals are double refracting. The animals whose blood has been hitherto examined and found to crystallize are—man, monkey, bat, hedgehog, mole, cat, lion, puma, fox, dog, guinea pig, squirrel, mouse, rat, rabbit, hamster, marmot, ox, sheep, horse, pig, owl, raven, crow, lark, sparrow, pigeon, goose, lizard, tortoise, serpent, frog, dobule, carp, barbel, bream, rudd, perch, herring, flounder, pike, garpike, earthworm, and nephelis. The spectrum of blood-coloring matter when oxidized, with its two absorption *striæ* between D and E of Fraunhofer's lines or in the yellow part of the ordinary spectrum, and the single band of deoxidized hæmoglobin, are now well known. Preyer states he has not been able to obtain a spectrum from a single blood corpuscle, but that the characteristic bands are visible where certainly only a very few are present.

FASTENINGS FOR NECK TIES, SCARFS, ETC.

Much annoyance is often experienced through the inefficiency and unsatisfactory character of the fastening used for attaching these to the button or stud of the neck band. If at first they answer the purpose, they soon get out of order so as to need constant adjustment, which soils the ties and, in addition to the inconvenience caused by it, renders these articles much less serviceable than they would be with a more positive and reliable fastening which it is the object of the present invention to provide.



A, Fig. 1, is a fastening for all that class of neck wear known as bows, ties, etc., and consists of the sheet metal hook, A, securely fixed to the shield, B, by clinching. To provide a suitable hold for the hook, and at the same time prevent the metal from soiling the linen, a stud, Fig. 2, is provided, having a slot or dovetailed slit passing through or across the head, at right angles to the shank, as shown at D The hook, fitting the slot neatly, forms a durable, cheap, and easily adjusted fastening. E, Fig. 3, is a fastening for all that class of neck wear that furnishes a hiding place for the clasp, and tape, as shown in Fig. 4. The clasp, E, Fig. 3, is firmly fixed inside the shell of the scarf. The tape, F, Figs. 2 and 3, with button hole in one end, passes through the clasp, E, Fig. 3, in such manner that when the spring, concealed within said clasp, is allowed to assert its force, the sharp points, G, penetrate the tape and hold it fast. By pressing open the clasp, as shown in Fig. 3, the scarf may be passed freely up and down the tape, and stopped and retained at any desired point thereon. In use the tape is pulled out)Fig. 4) and fixed to the shirt collar button. Then, by pressing open the clasp with one hand and grasping the lower end of the tape with the other, the scarf is passed to its place; the clasp being then released, the spring forces the points into the tape and holds it fast. In use this arrangement has been found to answer the purpose admirably. Patented December 13, 1870.

For further information address the patentee, Wm. A. Wicks, 129 Jefferson street, Baltimore, Md.

Dyeing Leather.

Picric acid gives a good yellow without any mordant; it must be used in very dilute solution, and not warmer than 70° Fah. so as not to penetrate the leather. Anilin blue modifies this color to a fine green. In dyeing the leather, the temperature of 85° Fah. must never be exceeded.

Anilin green is well adapted to dyeing leather, and its application is quite simple. Whether used in paste or as powder, we must make a concentrated aqueous solution.

The leather is brushed over with a solution of sulphate of ammonia, mixed with water, the dye solution applied at 95° Fah., and it must be endeavored, by rapid manipulation, to prevent the dye from penetrating through the leather. By the addition of picric acid, the blueish shade of this dye stuff is modified to leaf green, and it becomes faster; but the picric acid must not be added to the color solution; it must be applied to the leather before or after the dyeing with anilin green.—*F. Springmuhl.*

MEASURING THE VELOCITY OF ROTATION.

Professor A. E. Dolbear suggests, in the *American Journal of Science*, a simple and effective method of determining the velocity of rotation of wheels and shafts. Upon the face or upon the periphery of the rotating object, he fastens smoked paper, and this he touches with a point of rubber which is attaehed to one branch of a vibrating tuning fork, having a known rate of vibration. The fork is to be so held that the direction of its vibrations will be at right angles to the line of motion of the shaft. By counting the number of undulations made on a given extent of the smoked paper the speed of rotation is at once indicated. Thus if the fork makes 100 vibrations in a second and one vibration is recorded on the smoked paper in a space covering one half the circumference of the wheel or shaft, or two vibrations within the entire circumference, it is evident that the rate of rotation is 50 revolutions per second. By this simple and easy method, the velocity of rotation of gyroscope disks and of all kinds of shafts and wheels may be readily ascertained.

CHIMNEY MOVING.—The Cabot Company, of Brunswick, Maine, in order to enlarge their cotton mill, moved their large smoke stack chimney—78 feet high, 7 feet 9 inches square at base, and 5 feet square at top—containing more than 40,000 bricks and weighing more than 100 tuns—twenty feet, without rollers or balls, or guys or braces to steady it—one of the greatest feats ever performed in the State. It was planned and carried out by Superintendent Benjamin Greenes, not one of those engaged having ever witnessed the moving of such a body. It was accomplished by building such ways as are used in launching ships, surfaces planed, and greased, chimney wedged up, and moved by two jack screws in four and a half hours. The flues were disconnected from the boiler at 1 o'clock P. M., and at 9½ o'clock the same evening the flues were again connected, fires going, and steam up.

BEES are exceedingly susceptible of atmospheric changes; even the passage of a heavy cloud over the sun will drive them home; and if an easterly wind prevails, however fine the weather may otherwise be, they have a sort of rheumatic abhorrence of its influence and abide at home.

OUR next eclipse of the sun will take place soon after sunrise on Wednesday, Sept. 29th, 1875. Visible north of North Carolina and east of the Mississippi.

AT Denver, Colorado, on the 29th of July, 1878, at 3½ P. M. there will be a total eclipse of the sun lasting nearly three minutes.