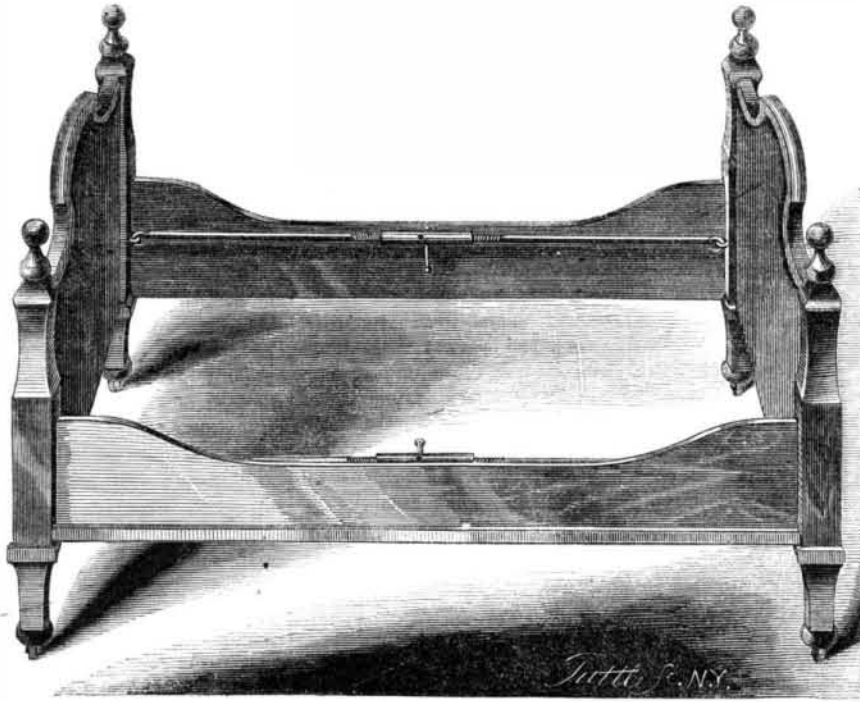


**Improved Bedstead Fastener.**

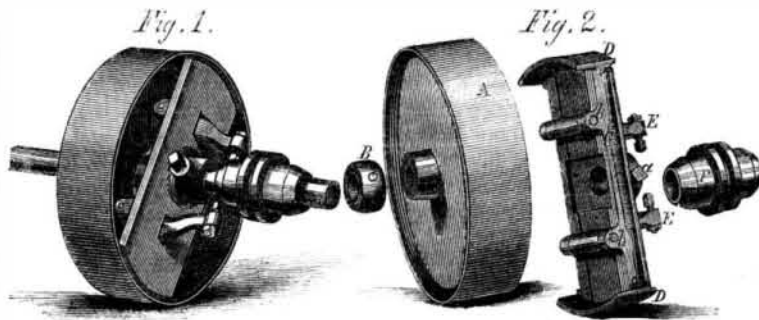
Bedsteads which are secured by means of screws offer great facilities for the hiding of the vermin which find their favorite retreats in the apertures thus left for their convenience. Various other methods of fastening have been devised, but where recesses are made in the posts or bars the bedbug is sure to ensconce himself, even if the crack through which he passes will scarcely admit a thin knife blade. The one shown in the engraving has all its parts exposed and does not require any mortising or boring of the wood. It is simply a double bar or rod on each side of the bedstead, inside the side pieces, the outer ends of which are formed into hooks which engage with staples in the posts, and the other ends of which are connected by a screw sheath. The end of one of these half bars is threaded with a right-hand screw and the other with a left-hand screw. The coupling has a lever, knobbed on each end, that passes through its center, by which the two rods are screwed up and the frame of the bedstead tightened. These rods also form a support for the ends of the slats, making a spring-bed bottom.

The device is so simple that no further explanation is necessary to convey a proper idea of its construction and operation. It was patented through the Scientific American Patent Agency, April 23, 1867. For further information address the patentee, George G. Cochran, 95 Powers street, Brooklyn, N. Y.

**COCHRAN'S IMPROVEMENT IN FASTENING BEDSTEADS.****Improved Friction Clutch Pulley.**

In almost every workshop much trouble and annoyance is occasioned by the derangement and noise of friction and clutch pulleys. While these difficulties may often be caused by defective workmanship, it is more frequently the case that the pulleys are of imperfect construction and therefore unfitted for long continued or constant use. A friction clutch pulley is shown in the engraving which it is believed will be found, both in principle and in execution, free from the almost universal objections existing in pulleys of this class.

Fig. 1 represents a complete friction clutch pulley in working position upon a shaft. Fig. 2 represents the parts of the same. A is a pulley, the inside surface of the rim of which is turned. This pulley revolves freely upon the shaft and is kept in position on one side by the collar, B, and on the other by the segment plate, C. The segment plate, C, is fastened to the shaft by the set screw, *a*. Attached to this plate and sliding in planed grooves are two segments, D D, which move in opposite directions at right angles to the shaft. The outer surfaces of these segments are turned to the same diameter as the inside of the rim of the pulley, A. The two levers, E E, are connected to the segment plate, C, by pins passing through them and the ears, *b b*, which act as fulcrums. These levers pass through and are fitted to the segments, D D, and also through the segment plate, C. In the outer ends of these levers are adjusting screws with set nuts. Fitted to and sliding upon the shaft is a thimble, F, the end of which is turned a conical shape. Upon the outside of this thimble is a groove into which a shipping fork is fitted. It will be readily seen that when the thimble is pressed forward toward the pulley the conical end comes in contact with the rounded heads of the adjusting screws by which the two levers, E E, are forced outward carrying the two segments, D D, which movement brings the faces of these segments into contact with the inside of the rim of the pulley, binding the surfaces together, and thus communicating the motion of the pulley to the shaft. This pulley is perfectly noiseless as well as simple and efficient, with no liability of locking or unlocking except at the will of the operator. Those interested can address the manufacturers, J. R. Brown & Sharpe, at Providence, R. I.

**BROWN & SHARPE'S FRICTION CLUTCH PULLEY.****MAINE AND HER PUBLIC WORKS.**

The remarkable vigor and unity displayed by the people of Maine in developing the great natural resources of their territory, point to a future of eminent—who knows but pre-eminence?—prosperity. We have occasion almost weekly to note fresh instances of manufacturing enterprise called into existence, and sometimes coming when called, all along the magnificent descents of her many streams, by the liberal votes of township after township. The state and township activity in railroads is equally noteworthy. All towns are allowed by law to take stock in railroads to the amount of five per cent of their valuation, beside special authorizations for larger subscriptions. This permits the whole property of the State to be taxed by town votes at least five per cent for the grand purposes of internal improvement. A very healthy and important characteristic of railroads built on this plan, is that

so far they become public property—belong to those who give them right of way and are to use and support them—and are in the natural way to become what roads of all kinds ought to be, free highways.

The same privilege is granted to towns in the adjoining State of New Hampshire, and will doubtless operate powerfully there also upon the progress and ultimate destiny of the system of roads passing through both states in common. In Maine, however, these as well as local lines find their concep-

tion, and inception, and main impetus, and receive liberal exemptions from taxation, and direct subsidies, at the hands of the State.

In 1860, says the *Railroad Journal*, the total length of railroad within the state was 472 miles, costing \$16,576,385. In 1866—less than two years later, leaving out the war—the miles were 509, beside the Portland and Montreal line from the state boundary to Island Pond, 71 miles, built entirely by Maine capital, and the total cost (correcting the *Journal's* misprints) was \$22,104,845. This resumption of progress is but a small instalment of a system of public works which challenge general interest by the courage and liberality they display. We mention the principal features.

The European and North American Railway, from Bangor to St. John, New Brunswick, is a line of 194 miles, 84 in New Brunswick and 110 in Maine. The Government of New

Brunswick gives \$10,000 per mile within its domain as the work proceeds. To the Maine line, the State proposes to contribute from the funds expected from the United States in payment of claims, and has also appropriated a valuable tract of public lands. The city of Bangor has voted to loan its credit, for \$1,000,000, beside \$500,000 to the Piscataquis branch reaching the slate quarries at Brownville. Work on the main line is in active progress, and a large proportion of the expensive work on the two terminal sections has been accomplished. Track laying was to be commenced about the first of this month, and 55 miles, or half the road in Maine, is to be opened within the present year.

Portland votes \$700,000 to the Portland and Ogdensburg, passing through New Hampshire to the Vermont system of roads and completing the line to Lake Ontario. St. Johnsbury, Vt., aids to the amount of \$200,000, and Messrs. Fairbanks subscribe \$150,000. The Maine Central Extension, from Danville Junction to Portland, is regarded as certain to be built within a few years at farthest.

The line from Bangor to Winterport is under survey.—That from Newport to Dexter is provided with capital and already leased to the Maine Central.—From Belfast to Newport the towns are authorized to subscribe 20 per cent of their valuation to the stock of the Belfast and Moosehead Lake Company, and a number of them have already voted their quotas.—The Somerset road, from Waterville to Solon, is to be built by the towns on its route, several of which have already filled their quotas.—The city of Bath subscribes \$123,000 to the stock of the Knox and Lincoln road, and lends \$100,000 on condition that the road shall terminate at Bath. In all, according to the railroad contemporary from which we have derived in substance most of the above facts, the length of new road in progress or contemplation amounts to 458

miles, and will nearly double the present system within the state.

**Menhaden Oil Manufacture.**

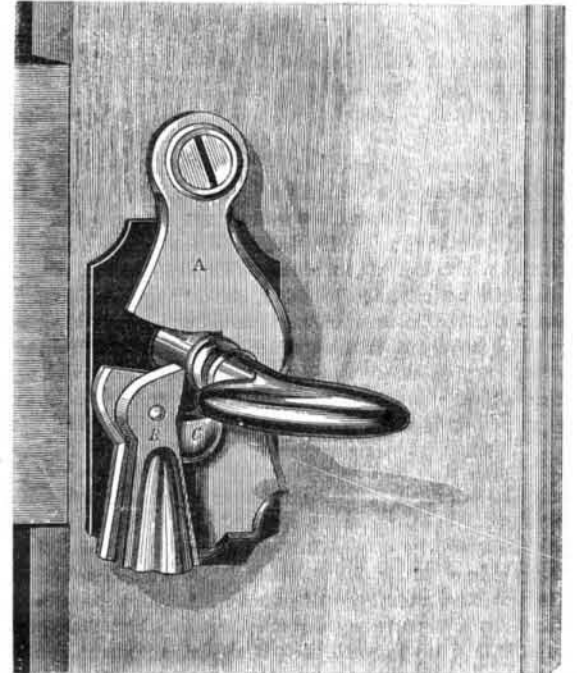
A correspondent in Braintree, Mass., who is well informed on this subject, gives us the following particulars. It will be seen that this branch of business is quite extensive and important: Menhaden oil is extensively manufactured at stations the whole length of the sea coast of New England, beginning at Connecticut and extending as far north as Frenchmans Bay, in Maine.

Beside those in Narragansett Bay there are works at Cape Cod and Cape Ann. In one district Waldoboro, in Maine there are ten establishments with an average capital of five thousand dollars, employing some one hundred men. On Penobscot Bay there are several extensive works owned by Boston capital. There are also some twenty vessels fitted out for the business from the state of Maine, having their furnaces and presses and doing all the work on shipboard.

There is scarcely a town on the sea coast below the mouth of the Kennebec, where menhaden oil in some measure is not manufactured. Near Bristol, R. I., are the extensive works of the Naragansett, Atlantic and Neptune company with a capital of \$40,000 and a number of others of lesser note."

**MAY'S PATENT KEY GUARD.**

A favorite operation of the burglar is facilitated by the carelessness of householders in leaving the key in the lock on the inside, when it may be readily turned by seizing the point with key nippers and turning it in the lock. Yet if the key is taken out there is no obstacle to the use of a skeleton. To overcome these objections and furnish a retreat from this dilemma is the object of the device under consideration. It was patented March 12 1867, through the Scientific American Patent Agency, by Franklin J. May assignor to himself, and J. G. Barnum. The key plate, A, may be pivoted either to the lock



or the door. It resembles an ordinary key plate, except that it has a slot cut from one side on a radius struck from the center of its pivot. To one side of the key-plate, beneath the slot, is pivoted a weighted pawl, B, the weight of which keeps it always in an upright position, except when swung to one side by the hand. When in position and the key is in the lock the upper point of the pawl comes against the shank of the key, which at the point where the key-plate slot engages with it, is flattened. It will be seen that as the slot is not wide enough to allow the cylindrical part of the key shank to turn, but fits only the flattened portion, so long as the key plate covers the hole the key cannot be turned. But by inserting a wire or other properly shaped implement from the outside the burglar might swing the key plate to one side. To prevent this is the office of the pawl, B. This, by means of a stop, C, can be swung only in one direction—the weighted bottom away from the key-plate—so that it securely prevents the movement of the plate while the key is in the lock.

It can be attached to locks of all sizes and shapes; it is made of various styles to suit all descriptions of lock, being japanned, bronzed, polished, or plated; the cost is trifling, and its durability equal to the life of the lock. The patent right is for sale. All communications should be addressed to May and Barnum, 74 Bleeker street, New York City.

**Hints.**

Mr. Rowland Hill, of Richmond, Va., gives this handy rule for ascertaining the area of a circle, when the diameter and circumference both are known and the decimals not remembered: "Multiply the circumference by the diameter and divide the product by 4. The quotient will be the area." We have tested this rule and find it correct. It is worth remembering.

He says again: "When the hinges of a door are not in a vertical line the door exhibits a perversity in remaining either closed or open, which to a good housewife is vexatious. I have often wondered that this obedience to the law of gravitation was not made use of by some of the inventors of self opening carriage gates."

We think it has been applied to this object, but cannot at present refer to the particular case. Common gates and doors which open either way are hung on hinges not in a vertical line.