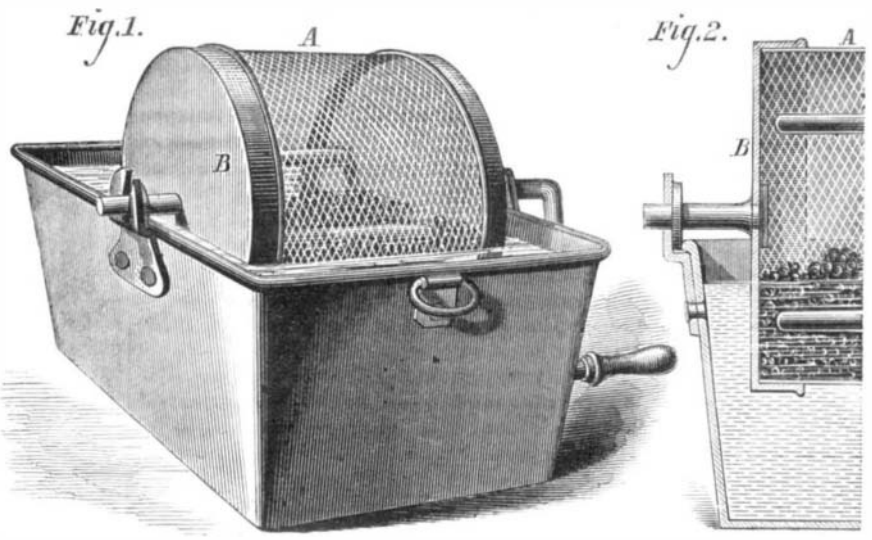
OAKLEY'S CURRANT WASHER.

Dried currants, as purchased from grocers, are frequently not over clean, so that it is usually necessary to wash them before preparing them with articles of food. In order to provide a simple and efficient means to enable the housekeeper to perform this operation, the device represented in perspective and section in the annexed engravings has recently been invented.

The principal vessel is an ordinary bake pan of any desired size, in proportion to the desired capacity of the machine. To its edges are affixed suitable bearings for projections from the central portions of the ends of a cylinder, A, the sides of which are formed of perforated sheet metal. The latter is rigidly secured in the end which carries the crank, but the solid portion of the other extremity forms a cap, B, as shown in the section Fig. 2, which is readily removable to give access to the interior of the cylinder. Two rods are secured to the inner side of the crank end and extend into the cylinder, in order to secure the agitation of its contents.

The large lumps of currants which have caked together being first broken up, the receptacle is filled and the cap, B, tightly fitted in place. The projections are then dropped in the bearings and the trough filled with water to within about half an inch of its upper edge. If the cylinder is then rotated slowly by means of the crank, the inventor states, within two minutes the currants will be entirely freed from grit and a large proportion of the stalks. If they be very dirty, the water may be advantageously changed, and the process repeated. The fruit thus prepared can be dried or used as required, without the usual rubbing in a cloth.

Patented January 13, 1874. For the purchase of rights or of the entire patent, apply to F. Oakley, 96 Bond Street, Toronto, Canada.



OAKLEY'S CURRANT WASHER.

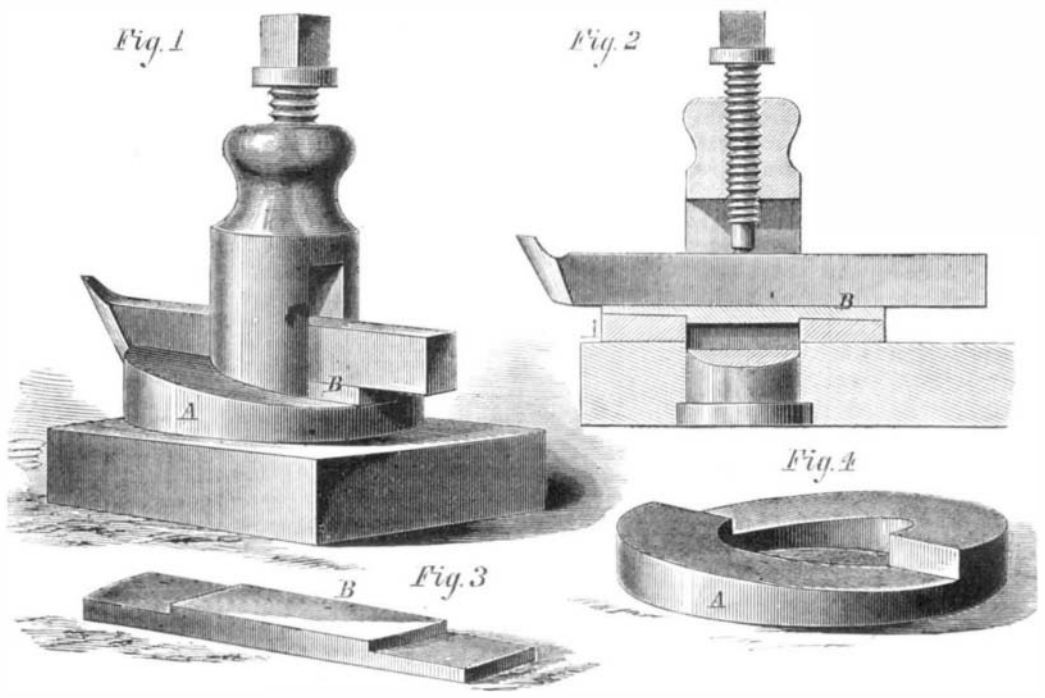
A NEW TOOL HOLDER.

All machinists are aware of the trouble in getting a lathe tool so held in the tool post that it can be quickly and conveniently elevated or depressed as the work may require, and still be held perfectly solid upon the rest. Many devices to effect this result have been suggested; but in those in which cheapness is the principal recommendation, the difficulty appears to arise from a want of solidity under the tool. Mr. Lewis Reder has patented, through the Scientific American Patent Agency, a simple and effective tool holder that seems to meet this want.

From the annexed engravings it will be clear to any mechanic that one incline of the washer, A, Fig. 4, is higher than the other, the pitch being just the same; and, second, that the shoe is thicker (see Fig. 3. and B in Figs. 1 and 2) at one end than the other, both extremities of it being beveled to suit the inclines of the washer. This simple little article, with momentary changes, produces four positions for the lathe tool, holding it perfectly firm in each, namely: First, by placing the thin end of the shoe and high part of the washer together, the tool is held in a level position; second, by turning the washer so that the thick end of the shoe and high part of the washer are together, the point of the tool is thrown below the level; third, by now turning the tool post and washer half round, the point of the tool is thrown above the level; and, fourth, by turning the washer around the tool post, the tool is adjusted to any hight under any of the three conditions named above.

The advantages claimed for this simple improvement are its comprehensiveness, solidity, durability, and extreme cheapness.

Mr. Reder has arranged for its introduction to the trade of the United States with E. and A. Betts, machinists' tool builders, of Wilmington, Del., who have prepared themselves with suitable apparatus to manufacture the invention of cast steel, at low prices,



REDER'S IMPROVED TOOL HOLDER.

Use of Steel for Boilers.

Mr. R. L. Haswell, of Vienna, spoke recently on this subject before the Society of Austrian Engineers. He remarked that the accidents which had occurred on railways using locomotive boilers of steel has thus far been only ascribed to the material; yet this was due, on the one hand, to the preparatory working of the plates, and on the other to the small thickness, as well as to the insufficient mode of assorting them before they were used. The State Railway thus far had used about 50,000 cwt. steel plates, among which only 200 cwt. were thrown aside during the manufacture of the boilers.

Mr. Haswell only knows of five instances where the boilers got cracks, four of which occurred in the fire box plate and one in the cylindrical part. Mr. Haswell ascribes their faulty condition to the fact that they were rolled when too warm. This shows that, even by purchasing steel plates from most renowned establishments, and of the best quality, one cannot depend on their superiority for the purpose in question without assorting them with the utmost care, because it can readily occur that in heating the plates one or more get spoiled. Hence, in the establishment of the State Railway, all plates are subjected to tests for their tensile strength before they are used. That these tests are perfectly reliable is shown by the fact that, of 350 boilers consisting of steel plate, only a single one was found torn thus far, and this in the cylindrical part. The box plates not having been tested, it is readily explained that four boilers were injured in those parts. But, although these plates had undoubtedly been impaired in their strength by overheating, they would probably not have been torn if the construction of the machines, namely the boiler supports, did not involve an immense strength.

In order to obtain steel boilers answering all requirements, only correspondingly thick plates and plates of the best material, without any addition (for otherwise the steel is not homogeneous), ought to be used; they ought to be scrupulously assorted according to the texture and tensile strength. After boring or punching they should be carefully annealed; the riveting must be formed with pedantic care, and the bending done with wooden hammers. That steel plates manufactured in Austria are of excellent quality is proven by the manner in which boilers are there constructed; the box front plate, dome cover, and the sides of the tubes are only furnished with an edge or border, while in England they are compelled to use angle iron for these connections.

Steel plates are preferable to iron plates, owing to the fact that they possess the same degree of elasticity in all directions —from 12 to 15 per cent: in iron plates it is in the direction of the fibers, and, according to Mr. Kirkaldy, about 15 per cent, but in a cross direction only 5 per cent. If one proceeds in the manner indicated, says Mr. Haswell, steel plates may be used with perfect safety. The boiler manufacturer has the advantage that he finds fewer plates to throw aside, and the railways, on the other hand, will have more carefully constructed, stronger, and, in the end, cheaper boilers.—*Industrie Zeitung.*

THE Dudley Mining Institute, England, offer a prize of $100 for the best model of a hand coal-cutting machine submitted to the Council next June. Mr. T. Parton recently stated that the ordinary loss of coal is 40 per cent, owing to the imperfect methods of working it. Where the best arrangements are in force, the loss does not exceed 10 per cent.

A Railroad Signal Office---An Hour in the Grand Central Depot at New York.

A correspondent of the Troy *Times* gives the following account of the mode of dispatching and receiving trains at the Grand Central Depot in this city:

The signal office is a little room at the northern entrance of the depot, about thirty feet above the pavement. It is reached by a narrow passage way from the west side, and when you get into it you see a sight which made Jones go into an unmistakable surprise. Looking down the depot there was a space of more than 600 feet length by 200 feet breadth, covered with an iron roof and lighted from the top. Trains of cars were coming and going incessantly, but no confusion was perceptible, and everything, as my friend said, "went on like clock work." There are two operators in service here, relieving each other during a tour of duty, which extends from 5 A. M. to 11 at night, their motions being regulated by a large and costly clock. The gentleman in charge received us very politely; but before we had hardly thanked him, we heard the sharp and rapid ring of a bell overhead. It was marked "Ninety-sixth to Seventy-fifth street." "You see," said the operator, "there is a train coming in, and it wants to know if we are ready for it." "But how does it ring that bell?" said Jones. "By electricity," was the reply. "This is Hall's patent, which works like a charm." In a few minutes another bell rang. It was marked "Sixty-first to Fifty-sixth street." "The train now reports itself again," said the operator, "and this renews notice either to prepare for it or to signal it to stop." He touched a telegraphic machine, and then said, "this throws up the signal to come in," and, sure enough, in a few minutes the train arrived. One hundred and forty trains arrive and depart in a day, including the Central and Hudson, the Harlem, and the New Haven Roads, and hence the signal service is one of incessant activity. The operator then informed us that each road has four starting bells of different keys, all of which were rung by him by means of electricity. Three started passenger trains, and one ordered out the cars as soon as emptied. "You see," said he, "this train which has just come in. The passengers are gone, and I want to know if the baggage is taken out." He touched a stop and rang a bell (as he said) 600 feet distant. In a moment a bell overhead struck twice. "Baggage is out," he said, "otherwise he would have struck once, and I would have waited. I must order the train out. Do you see that locomotive just ahead? Well, now, see it move." He touched a stop and I saw the letter Z displayed at a window in a side building. "He hears a bell ring, also," said the operator. The engine backed down and hitched to the empty train and the Z disappeared. "I shall now send him out," said the operator, as he touched another stop, and the empty train at once moved forward and left the station. The letters X Y Z (I may add parenthetically) designate the locomotives of the Harlem, Hudson River, and New Haven Roads, and are the signals to back down and connect with trains.

"I am now about to send out a passenger train," continued the operator; "a half hour ago I struck twice to open the doors and let the passengers pass from the sitting room to the cars. Now I shall soon close that very door, but first I must stop checking baggage." A small knob was touched by his finger. "Now," said he, "the next trunk that comes must wait for another train. There (another touch with the finger), the baggage car is hauled out and switched on the right track. Five minutes more and she is off. Here goes the 'close the door bell' at a touch; no one passes in after this. Now I say 'all aboard,'" a touch, and we hear the distant voice of the conductor echoing through the vaulted roof. "Now it moves," another touch, and the rumbling movement was immediately perceptible, and in a few moments the train left the station. As the cars go up the road, they signal their progress by ringing bells in the same office until they have got through the city streets, and thus give assurance of a clear track for all that may follow. The station will contain twelve trains of thirteen cars each; and by means of this wonderful system, they are all managed with dispatch and safety.

FROG CULTURE.—Seth Green, the great fish culturist and State Commissioner for stocking streams, now proposes frog culture for food. He says: "We have many stagnant pools about the country, that are useless in their present state; and believing that there is nothing made in vain, I do not know of any other use for them than to make them into frog ponds. I also believe it would make the man wealthy who could raise a million frogs and get them to market."

ONE hundred cubic inches of air weigh thirty-one grains