may be found on every library shelf) may yet read the quotation correctly, and that those who are at all influenced by these orthodox tirades against Darwin may recognize one of the customary weapons used by this class, namely, misrepresentation? The following is the quotation from Professor T H. Huxley's work, entitled "Evidence as to Man's Place in Nature," page 181, lines 2, 3, and 4:

"It is, in fact, a fair average human skull, which might have belonged to a philosopher, or might have contained the thoughtless brains of a savage." * * *

A Leech Barometer.

To the Editor of the Scientific American :

The following is a simple way of making a "leech barometer." Take an eight ounce phial, and put in it three gills of water and a healthy leech, changing the water in summer once a week, and in winter one a fortnight. If the weather is to be fine, the leech lies motionless at the bottom of the glass, and coiled together in a spiral form; if rain may be expected, it will creep up to the top of its lodgings, and remain there till the weather is settled; if we are to have wind, it will move through its habitation with amazing swiftness, and seldom goes to rest till a high wind begins; if a remarkable storm of thunder and rain is to succeed, the leech will remain for some days before almost continually out of water, and show great uneasiness in violent throes and convulsive-like motions. In frost, as in clear, summer-like weather, the leech lies constantly at the bottom; and in snow, as in rainy weather, it moves to the very mouth of the phial. The top should be covered over with a piece of muslin.

EDWIN S. CLOUTMAN.

South Boston, Mass.

The Status of Patent Medicines.

In a recent decision by the Assistant Commissioner of Patents the question of the patentability of medical compounds is discussed at considerable length, in reply to a doubt expressed by the primary examiner as to the patentability of this class of inventions. The Assistant Commissioner takes the following grounds: The old leading English cases of Boulton *vs.* Ball, 2 H. B. L., 482, and Rex *vs.* Wheeler, 2 B. A. L. D., 349, expressly mention medicines as being comprehended under the term "manufactures," and as proper subjects of patents. Our patent system having been derived from England, if it had been the intention of Congress to have excepted medical compounds from the list of inventions to be patented, such intention should have been expressed. This was not the case; but, on the contrary, the law ever since 1793 has expressly provided for the grant of patents for "any new and useful composition of matter," in distinction from and in addition to an art, machine, or manufacture.

The discovery of a principle in medicine or medicines, or the effects produced by a medical or mechanical agent, is not patentable; but when a certain composition of specified ingredients is found by reference to the state of the art to be new and useful, the law is perfectly clear in providing that a patent may be granted for it, and it will not do to refuse it upon the ground of policy or distaste.

The case of the Morton patent, in the 8th vol. of the Attorney General's opinions, is often cited against granting patents for medical compounds; but the cases are not parallel, as the patentees in that case attempted to uphold a patent for the discovery of an effect. "The effect discovered was produced by old means upon old subjects." No claim for a medical compound was therein made, involved, or discussed.

The objections to the granting of patents on medical compounds must be the same as those in alleged inventions in other classes, such as want of novelty, utility, etc. Mere professional skill in combining, in the form of prescriptions, ingredients well known to the *materia medica* may not evince invention any more than an arrangement of mechanical elements due to ordinary mechanical skill. Originality may be lacking in both cases. There are petty nostrums and quacks in mechanics as well as in medicine, and there are deserving inventors in both cases, all of whom should be treated with the consideration their cases merit, under the same law and rules of practice.

The decision from which the above is condensed would seem to settle, so far as the practice of the office is concerned, the question of the patentability of medical compounds—a question which has been argued by many able examiners and attorneys both *pro* and *con.*, but without, so far as we are aware, ever having received such an authoritative answer as is given by Mr. Doolittle's decision.

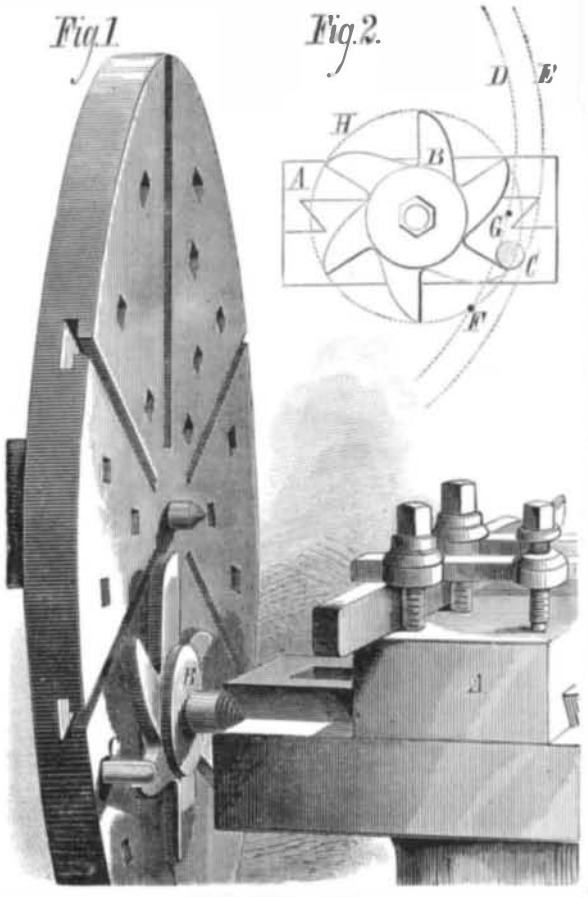
Fall of a Mountain Promontory.

Nearly every resident of Montana has either seen or heard of the famous Bear Tooth Mountain, the most prominent landmark in Northern Montana. It is visible from different points at distances ranging from 40 to 60 miles, and is in full view from Helena and the surrounding country. The mountain is distant 30 miles from Helena, and stands like a grim and mighty sentinel at the end of the cañon known as the Gate of the Mountains, through which flows the Missouri River. The Bear Tooth was fully described as a wonderful landmark of the early explorers Lewis and Clarke. In all photographs of the northern country the two tusks, rising black and grim hundreds of feet above the mountain, are the prominent objects. The main tusk remains, looking lonely and isolated in its grandeur. Recently a party of hunters who were chasing game, several miles north of the Bear Tooth, observed a rumbling sound and a quaking of the earth, and supposing it was an earthquake, and not noticing a repetition of it, they soon forgot the occurrence and continued their chase until they reached the Bear Tooth. Here they were astonished by the disappearance of the eastern tusk. This was a perpendicular mass of rock and earth, fully five hundred feet high, three hundred feet in circumference at its base, and about one hundred and fifty feet at the top. This immense mass had become dislodged, and coming down with the speed of an avalanche, had swept through a forest of large timber for a quarter of a mile, entirely leveling it. The country around is now covered with a great mass of broken trees and tons upon tons of rocks, many of them as large as an ordinary house.—*Montana Independent.*

THE STAR FEED.

A correspondent asks: "How can I feed a tool automatically on a lathe which has a slide rest, but has no feed motion? What is a star feed?"

A star feed is a device for improvising a feed motion to a slide rest which has no self-acting feed motion, or to a mechanical tool-holding device which cannot be actuated by the self-acting feed motion attached to the lathe or machine; as, for example, a boring bar. It is constructed as follows: Upon the outer end of the feed screw of the boring bar or slide rest, as the case may be, is fastened a piece of iron plate, which, from having the form in which stars are usually represented, is called the star. If the feed is for a slide rest a pin is fastened to the lathe face plate or other revolving part, in such a position that during the portion of the revolution in which it passes the star it will strike one



THE STAR FEED.

of the star wings, and move it around sufficiently to bring the next wing into position to be struck by the pin during its succeeding revolution. When the feed is applied to a revolving boring bar the construction is the same, but in this case the pin is stationary and the star revolves with the feed screw of the bar.

In Figs. 1 and 2 is shown a star feed applied to a slide rest. A is the slide rest, upon the end of the feed screw of which the star, B, is fitted. C is a pin attached to the face plate of the lathe, which, as it revolves, strikes one of the star wings, causing it to partly rotate, and thus move the feed screw. The amount of rotation of the feed screw will depend upon the size of the star and how far the circle described by the pin, C, intersects the circle described by the extreme points of the star wings. Thus the circles denoted by D E show the path of the pin, C; the circle, F H, the path of the star points, and the distance from F to G the amount which one intersects the other. It follows that at each revolution of C an arm or wing of the star will be carried from the point G to point F, which, in this case, is a sixth of a revolution. If more feed is required, we may move the pin, C, so that it may describe a smaller circle than D E, and cause it to intersect F H to a greater extent, in which case it will move the star through a greater portion of its revolution, striking every other wing and doubling the amount of feed.

It will be observed that the points F and G are both below the horizontal level of the slide rest feed screw, and therefore that the sliding motion of the pin, C, upon the face of the star wings will be from the center towards the points. This is better, because the motion is easier and involves less friction than would be the case if the pin contact first approached and then receded from the center, a remark which applies equally to all forms of gearing, for a star feed is only a form of gearing in which the star represents a tooth wheel, and the pin a tooth in a wheel or a rack according to whether its line of motion is a circle or a straight line.

It is obvious that in designing a star feed, the pitch of the feed screw is of primary importance. Suppose, for example, that the pitch of a slide rest feed screw is 4 to an inch, and we require to feed the tool an inch to every 24 lathe revolutions; then the star must have 6 wings, because each revolution of the screw will move the rest $\frac{1}{4}$ inch, while each revolution of the pin, C, will move the star $\frac{1}{6}$ of a revolution, and $4 \times 6 = 24$. To obtain a very coarse feed the star attachment would require to have two multiplying cogs placed between it and the feed screw, the smaller of the cogs being placed upon the feed screw.

Oiling Wheat.

The perverse ingenuity of mankind is, unfortunately, nearly quite as prominent a phenomenon in human history as that higher kind of ingenuity which, like mercy, blesseth both its possessor and its object. Corn and oil are admirable commodities, and in some parts of the world the latter enters quite as largely into human dietetics as the former. In our own country, however, except in combination with salad, and only then in a very modified degree, a strong prejudice exists, as a rule, with respect to oleaginous food, and an item of news which reaches us through the highly respectable channel of Messrs. Lange & Co., of Altona, is calculated to produce a somewhat disagreeable sensation in the average stomach. It is stated by those gentlemen, in the columns of a Hamburg paper, that for some time past a practice of manipulating wheat with oil has been adopted in that part of the world, for the double purpose of improving its appearance and increasing its specific gravity, upon which the sale value of the article in a great measure depends. Wheat, which in its natural condition would weigh 123 Dutch pounds, or about 75 kilos. per hectoliter, gains by the process of oiling about 6 Dutch pounds, or nearly 3 kilos. per hectoliter, and is thus made to appear from 10 to 12 per cent more than it really is. The money gain to the dishonest seller is 20s. to 25s. per ton, with an outlay for rape oil of about fourpence. The apparent increase in the specific gravity is caused by the smoothness imparted to the wheat by the oil, which makes a considerable number of "corns" go to the same bulk. The evil results, in addition to the direct money loss inflicted on the buyer, are, that thorough milling is impossible, and that the flour produced from the oiled wheat will never bake properly. The abominable practice is not confined to wheat alone, but has become common with almost all foreign seeds which are sold by specific gravity value, but in no other instance are the consequent evils so serious as that of wheat. Two tests are given, by which, it is said, this novel form of seed adulteration may be readily detected by the miller. One is to put the suspected wheat in a perfectly clean vessel, and shake through it a small quantity of turmeric powder. If the wheat is oiled the powder will adhere to the grains, especially about the beard and crease, while on unoiled wheat, even if it be damp, not a speck of the powder will be visible. The second method is to fill a clean glass with clean water, and then shake a little crystallized camphor dust on the surface of the water. The small particles of camphor will gradually melt, and while doing so a continuous lively rotary motion is caused. Now throw a few corns of the suspected grain in the water. If it has been oiled the rotary motion of the camphor will at once cease, and the latter will float motionless on the surface of the water. If the grain is unoiled the rotary motion of the camphor will continue as before.—*The Miller.*

Warning to American Workmen.

The United States Consul at Buenos Ayres, in a recent report, states: "I have been in receipt of frequent letters since I have been here, asking in regard to the conditions and prospects of labor in this country. I would not advise anybody to come here with a view to bettering his condition. They cannot expect to find employment of any kind. Every variety of manual and mechanical labor is suffering with the general depression of business, and establishments requiring skilled labor are reducing rather than increasing the number of their employés. If persons will come here in search of work, they should bring sufficient money with them to pay their return expenses. Every few days the consulate is visited by distressed Americans, who, having been induced to come out here, have been sadly disappointed upon their arrival to find no opportunity to earn a livelihood; thus, finding themselves without means either to live here or return home, they become objects of charity."

It would appear from the tenor of this, as well as from other similar communications from our consuls in different parts of the world, that our country is not the only one suffering from hard times, and that it is very little use for an American workingman to leave his country in the hopes of bettering his condition.

Rectification of Benzine.

In the examination of the products obtained in rectification of the benzine of gas manufactories, M. Vincent has found quite a number of interesting substances. Sulphide of carbon is very abundant. Ordinary alcohol is present also in notable quantity, and M. Vincent characterizes it by the preparation of sulphovinate of baryta, iodide of ethyl, and bromide of ethyl. Lastly, there is a considerable quantity of cyanides of methyl, the extraction of which, he thinks, might be made industrially profitable.