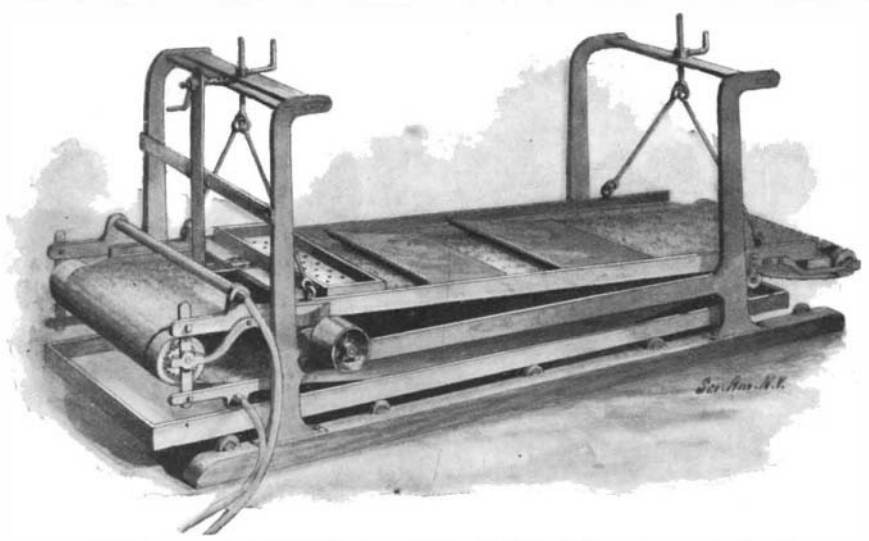
AN IMPROVED CONCENTRATOR.

We present herewith a view made from a photograph of a practical working concentrator, to facilitate the separation of the valuable particles of the precious metals from the lighter materials and gangue. The improvement was recently patented by William M. Moore, of Empire, Col., and was described in the SCIENTIFIC AMERICAN of September 11, but with the table suspended by four links, two at each end, instead of by a bail and a single link at each end. The latter construction, as shown in the accompanying illustration, has the advantage of enabling the operator not only to more easily adjust the table to the desired inclination, but obviates the difficulty, heretofore a considerable one, of the tilting of the table, whereby one corner would be lower than another, thus causing an uneven flow over the table. It will be understood that regulated intermittent impulses are given to the table, as a belt travels over it in the direction of its higher end, this belt consisting of carpet having a heavy pile, and its lower run passing through and depositing the concentrates in a wash box below, there being also on top of the belt aprons made of carpeting to prevent the material from getting under the belt. The material to be treated is fed through a trough with perforated bottom at the upper end of the table, where a perforated pipe discharges a spray which washes the lighter materials down the belt, to be dumped over on the ground. The wash box is constantly supplied with fresh water to insure a proper cleaning of the belt, and is readily removable as desired, as the concentrates accumulate.

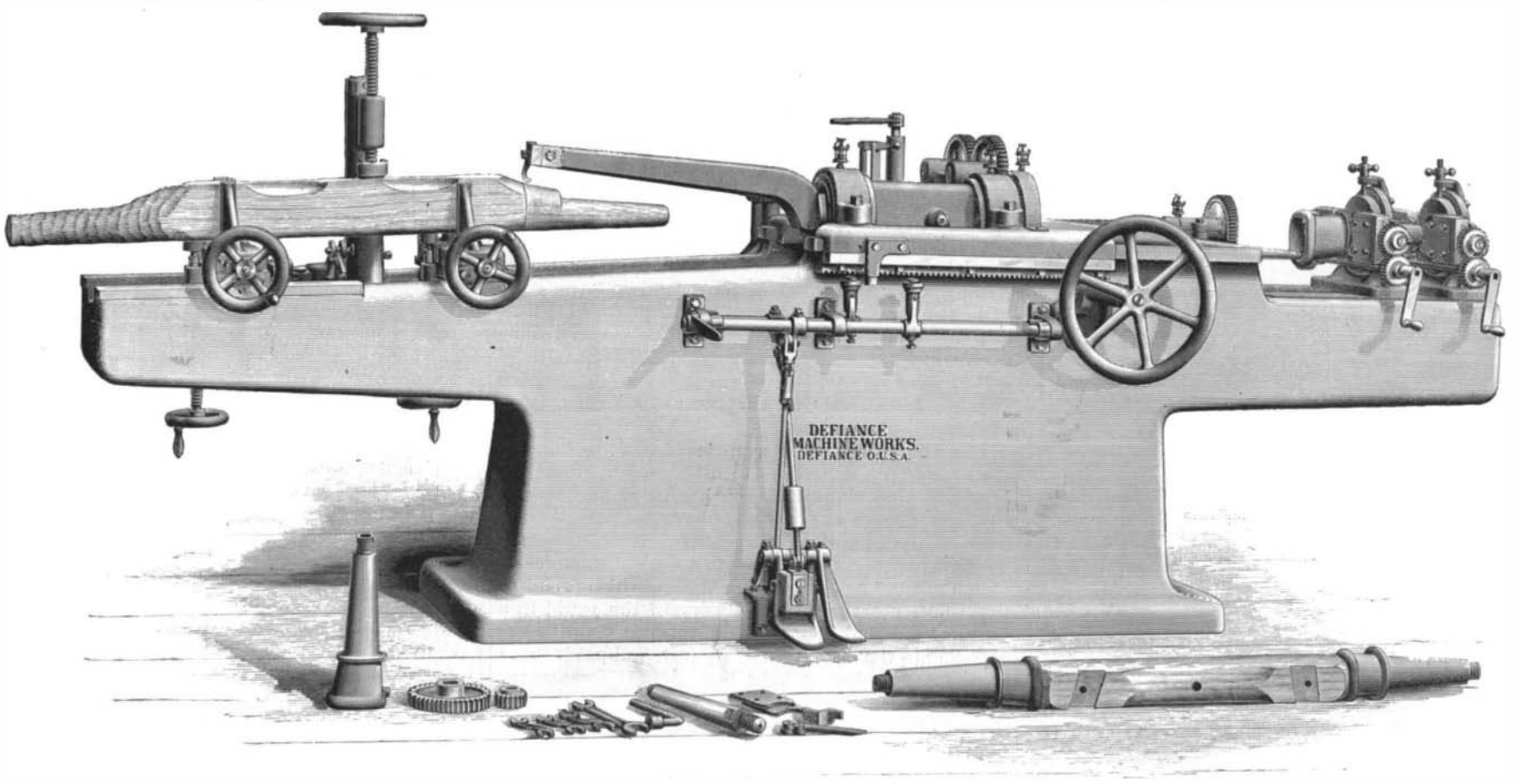


MOORE'S CONCENTRATOR FOR PLACER MINING OR STAMP MILLS.

A MACHINE TO TURN THE ENDS OF WAGON AXLES.

The accompanying illustration represents a highly efficient machine, designed for the use of wagon and truck builders, to turn the ends of wooden axles to the proper size and shape to fit the interior of either large or small cast iron or steel skeins. To do this work by hand has heretofore required the services of skilled workmen, exercising especial care, in order to obtain accurate fitting and insure proper dish and gather, while, with this machine, unskilled labor may be employed and the work done at the rate of 200 axles in ten hours. The machine is manufactured by the Defiance Machine Works, of Defiance, Ohio and has a large and heavy frame or bed, to do away with all tendency to twist or spring and insure exact movement of the working parts. The cutter bar, of heavy forged steel, has at its rear end a friction roller which traverses the interior of the skein to be fitted, as shown at the right in the illustration, the opposite end of the bar being provided with an adjustable cutter. The cutter bar oscillates upon a heavy steel spindle turning through its center, and which connects it with a circular sleeve which revolves in large bearings mounted on a sliding carriage, the latter being fitted to the frame in heavy ways provided with gibs, and having a horizontal adjustment by hand wheel. The cutter bar is rotated by cut gearing and a double friction clutch, so arranged that a high speed is obtained when cutting the round portion of the axle, the speed being automatically reduced when the cut reaches the oblong form near the mouth of the skein. When the end of the cut is reached the machine stops automatically, and by the opening of a split nut on the screw feed is self-released for the return of the carriage for the next cut. The axle to be operated upon is held in the machine by self-centering jaws set by right and left hand screws, and a swinging screw clamp which can be moved out of the way when putting in or taking out the axle, a novel device being used for securing the proper amount of gather without the use of a rule or any guesswork on the part of the operator. The skein at the other end of the machine is self-centered by adjustable jaws operated by cut gear and right and left hand screws, arranged to hold accurately skeins of any kind or size.

When the skein and axle are placed in the machine, as shown in the engraving, the carriage carrying the cutter bar is moved backward, the friction roller attached to the rear end of the bar moving rearward in the skein. By pressure on the pedal the friction clutch is then engaged, when the cutter bar revolves and feeds into the cut, the friction roller following the inside shape of the skein, which governs the path of the cutter and turns the end of the axle to an exact duplicate of any skein placed in the machine. The change of speed of the cutter in passing from the round to the oblong portion of the cut, the stopping of the machine and the opening of the feed nut, are all automatic, requiring no attention on the part of the operator. The net weight of this machine is 6,000 pounds.



AN AUTOMATIC WAGON AXLE SKEIN SETTING AND FITTING MACHINE.

Prices Paid to Modern Authors.

Rudyard Kipling commands the highest price of any living author, according to the Pall Mall Gazette, which says that it paid $750 for each of his "Barrack Room Ballads," and that "The Seven Seas" brought him $11,000. He has received 50 cents a word for a 10,000 word story. Anthony Hope charges $450 for a magazine story, reserving the copyright. Mr. Gladstone's price for a review is $1,000. Conan Doyle received $35,000 for "Rodney Stone," Mrs. Humphry Ward $40,000 for "Robert Elsmere," $80,000 each for "David Grieve" and "Marcella," $75,000 for "Sir George Tressady," and $15,000 for "Bessie Costrell." Ian Maclaren has made $35,000 out of "The Bonnie Briar Bush" and "Auld Lang Syne." Rider Haggard still asks from $75 to $100 a column of 1,500 words and will not write for less than $10,000.

The highest price ever paid for a novel is $200,000, which, the Pall Mall Gazette says, was handed over to Alphonse Daudet for his "Sapho." Zola's first fourteen books netted him $220,000, and in twenty years he has made at least $375,000. Ruskin's sixty-four books bring him in $20,000 a year. Swinburne, who writes very little, makes $5,000 a year by his poems. Browning, in his later years, drew $10,000 a year from the sale of his works, and Tennyson is said to have received $60,000 a year from the Macmillans during the last years of his life. Mr. Moody is believed to have beaten all others, as more than $1,250,000 has been paid in royalties for his hymns.

Arsenical Wall Paper.

The fact that pigments containing arsenic are dangerous to the health is too widely known to require special mention. It has been especially found that arsenical wall paper, hung in damp rooms, has frequently caused chronic cases of poisoning in the occupants. There are two contrasting opinions as to the way this arsenic poisoning comes about. Some think that the dust which becomes separated from the paper through wiping or concussion, as well as expansion and contraction, caused by changes in the temperature, is scattered about and enters the lungs of the occupants, thus giving rise to poisoning. According to the views of others, the health of the occupants of rooms provided with such arsenical wall paper is injured by arseniureted hydrogen gas, assuming that this is formed through the influence upon the arsenical substance of the paper of organisms which appear when the organic binding agents, such as paste, etc., used for attaching the paper, become mouldy.

To solve this question extensive researches have been made for the first time by Emmerling in the laboratory of the Berlin University, the results of which seem to confirm the correctness of the first-mentioned opinion. It was shown that cultures of various bacteriæ, as well as several mould fungi, were not able to develop any trace of arseniureted hydrogen from arsenical substrates. Nor did this gas form when paper with paste and Schweinfurth's green, which is known to be highly arsenical, was exposed to moisture and became covered with an abundance of large mould fungi. It may be assumed, therefore, that the first-mentioned opinion, which assigns the cause of the appearance of cases of chronic poisoning to the pulverization of the coating of the wall paper, is the correct one, unless still other conditions enter in the matter, which may have a bearing on the question.