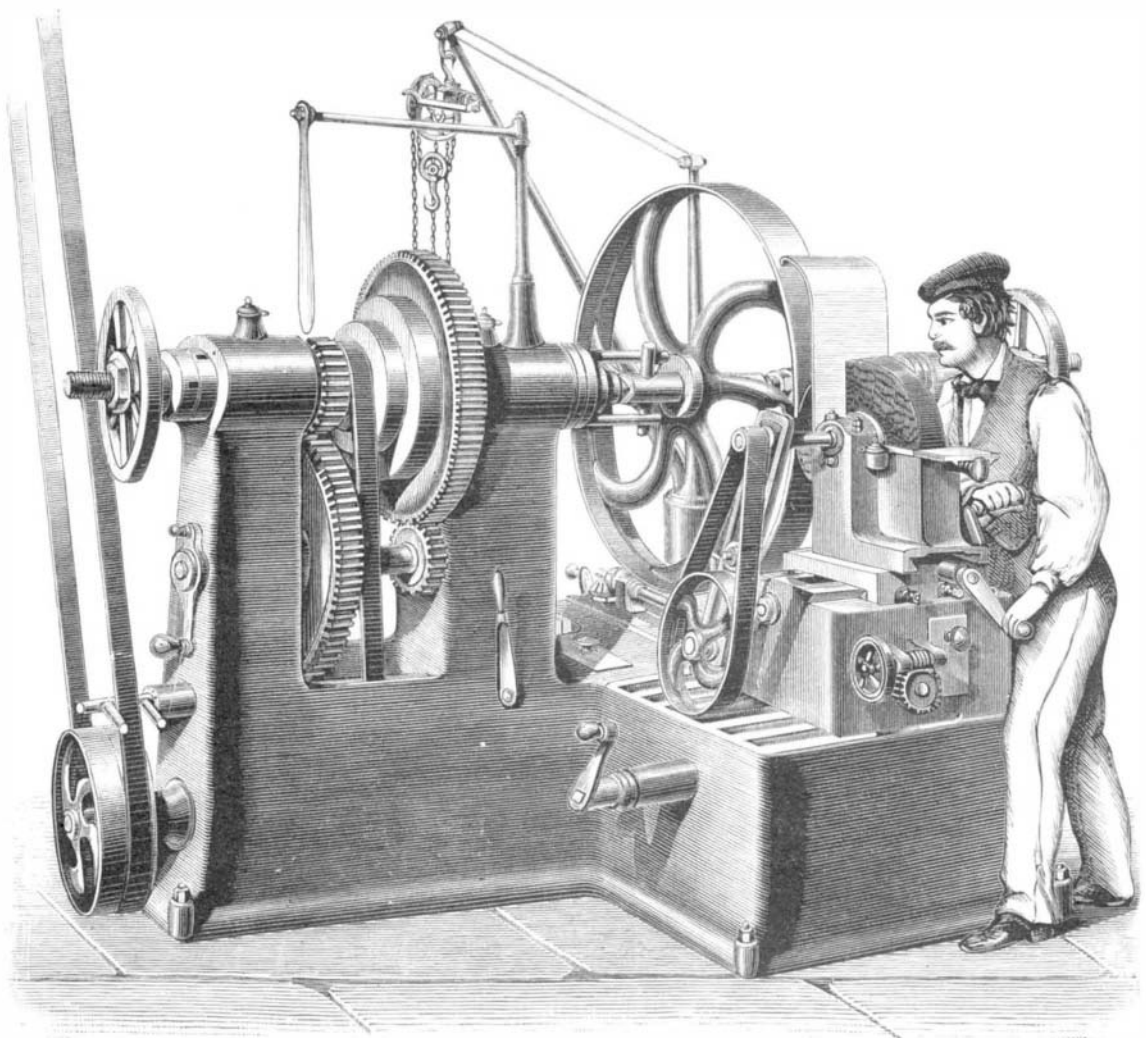
NEW PULLEY TURNING MACHINE.

M. Denis Poulot exhibits, in Machinery Hall of the French Exhibition, a new machine for turning pulleys by the use of emery wheels, the illustration of which presented herewith we take from *Revue Industrielle*. The grinder is mounted on the upper part of the carriage, and receives motion from two horizontal shafts, connected by a vertical shaft and conical gearing.

The vertical shaft placed on the axis of rotation of the carriage allows the grinding wheel to be turned radially so as to give to the periphery of the pulley the required curve. The grinder is 15·6 inches in diameter, 3·2 inches thick, and makes 1,500 revolutions per minute. The driving pulley of the machine makes 150 revolutions. The pulley to be turned is given a velocity which depends upon its diameter and the hardness of the metal. Means are provided for running it at six different speeds. The details of construction of the machine will be obvious from our engraving.



THE PARIS EXHIBITION.—NEW PULLEY TURNING MACHINE.

The Hayden Expedition.

In a letter to the Interior Department, dated August 3, Professor Hayden reports that up to that time the expedition had been eminently successful and had secured much valuable information. Important observations were made of the eclipse of the sun July 29. The first primary station for the season's survey had been made on the Wind River Peak, and at the time of writing the expedition had reached the northern end of the Wind River Range. The Grand Teton was to be attacked next, and after that the triangulation party, under Mr. Wilson, would go to Henry's Lake to make a primary station, while the photographic division, under Mr. Jackson, would proceed to the Yellowstone Park. No information had been received from the party north of the valley of the Green River, under Mr. Garnet, or from Mr. Clark's party in the Teton district. The Indians had not been troublesome.

SHEAF-BINDING APPARATUS.

Although the principal attention of inventors in this line has been turned to attachments to the reaper, several parties in England and America have addressed themselves to another mode of solving the problem.

It is claimed by some that grain is better saved by letting it lie awhile and cure in the swath, and this we know to be true in regard to oats, though it has never, within my knowledge, been customary with wheat. Under the oldest systems, where wheat has been put in sheaf, the binding follows closely the cutting, whether by sickle, cradle, or machine.

An independent binder has been promised from England, although it is not yet (July 1) in the Exhibition. The inventor places his work before the French public with the following remarks, which are, however, in the main, applicable to all binders:

"The price of manual labor has greatly increased in France, and this augmentation is much increased in times of pressing work which cannot be delayed, such as that of harvest. The necessary complement of the reaper is the binder. We think we offer a great service to agriculture when we present an independent mechanical binder which is practical."

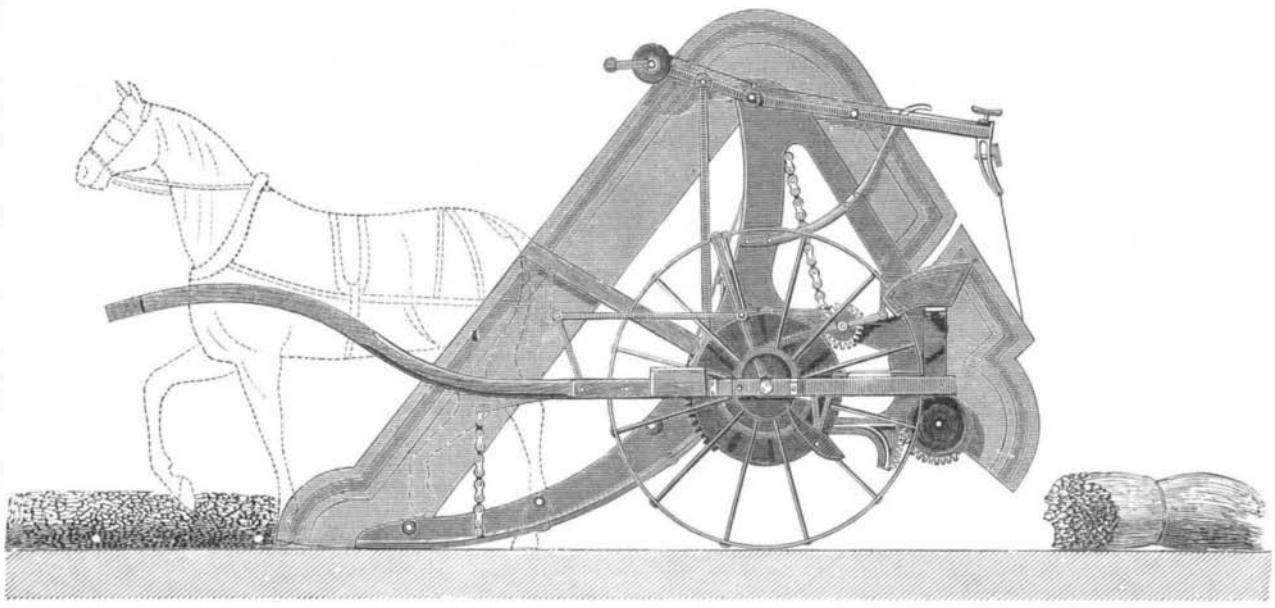
The machine is drawn by one horse alongside of the swath, the grain ascending a slightly inclined platform into the loop of the wire, when a swinging arm conducts the wire around it, brings the parts of the wire in contact, so that they may be twisted together, and the wire cut. The end is left in a pair of grippers, and the arm ascends, paying out wire enough for another sheaf, and assuming the position shown in the engraving.

The machine is intended by the inventor to follow the cradle or the reaping machine; to bind larger or smaller sheaves with a tightness superior to the ordinary handwork; to pick up the grain cleanly from the swath; to make the binds at such distances from the foot of the sheaf as may be suitable to the length of the straw

The machine is drawn by one horse, and driven by a man on a special seat. The apparatus is also adapted to the sheaves of straw received directly from the thrashing machine, and is claimed to be able to bind from 400 to 800 sheaves per hour, according to the nature of the crop.

Price of mechanical binder adapted to the harvest field, 800 francs. Binder for attachment to thrasher, 400 francs.

It does not look very promising, but may be suggestive to some of your readers. EDWARD H. KNIGHT.



LANDELLE'S MECHANICAL BINDER.

THE *Annales des Ponts-et-Chaussées* has published some statistics which show that a person had, in France, in the time of the old diligence, a chance of being killed in making 300,000 journeys, and of being hurt once in making 30,000. On the railways, from 1872 to 1875, the chances were reduced to one death in 45,000,000 of journeys, and one injury in 1,000,000. Thus a person continually traveling by rail at a speed of 31¼ miles an hour would have had, during the three periods above indicated, the following chances of being killed: from 1835 to 1855, once in 312 years; from 1855 to 1875, once in 1,014 years; and from 1872 to 1875, once in 7,450 years.

Benefits of Ill Health.

As long as the human machine works smoothly and without effort, it is all but unconscious of its own existence; but as soon as it begins to creak and groan under its task, it is apt to become overconscious of its work, and to spend its energy in mental introspection. Hence follow two results. In the first place, the invalid becomes more versed in the mechanism of mental processes than in their external consequences. He differs from healthy men in paying regard rather to the state of feeling produced by a sensation than to the outward expression of that state of feeling. In the second place, it follows from his enforced inactivity that the invalid's stock of inductions is chiefly founded on his subjective experiences, and not, as is the case with other men, on the observation of the acts of others. These two characteristics are almost essential factors in the growth of two excellent qualities in man—sympathy and humor—neither of which, it would seem, can exist in its most subtle form where the whole tone of mind is of an objective character. We are far from wishing to trace all sympathy and all humor to a pathological cause, but it appears to us that a condition of ill health often gives to these qualities a character which they would not otherwise possess.

Instances in favor of or in opposition to this view will occur to every one, but the lives of poets and humorists supply us perhaps with the best material for forming an opinion regarding it. What especially strikes us in connection with the poets is that those who have been men of vigorous health have written for the most part objective poems, while the invalids among them have given us verses whose chief distinctive feature is sensibility. The one class deal more with the actual, the other with the ideal. Compare, for instance, the veterans Chaucer and Goethe with the consumptives Shelley, Keats, and Schiller. We are much inclined to regard the well known "Resignation" of the last-named poet, beautiful as it is, as a purely pathological production. Again, in the case of the humorists, it is a somewhat suggestive fact that Sterne, Lamb, and Hood were all sufferers from congenital maladies. We confine ourselves to mentioning these few authors, because both their writings and the circumstances of their lives are familiar to all; but numerous instances may be found among less known men, all pointing to the same truth. It is, indeed, a popular generalization that poetry goes hand-in-hand with a feeble organization, and we have no doubt that if they had dared, people would have applied to the poets a definition very similar to that which they have given to the tailors. Further, it is not only among public men that a generalization as to the effects of ill-health has been popularly though unconsciously made. Even in private we often hear it remarked how much illness has improved a certain person. No one can have failed to observe how, in certain cases, prolonged ill health has changed a brusque and self-centered woman into a gentle and sympathizing one, and has grafted on a careless and overbearing man the virtues of kindliness and consideration for others. If this be so, disease cannot be the unmitigated misfortune that the healthy are apt to imagine it. If we consider the whole case, it must be confessed that even ill health has its advantages.—*Medical Examiner.*

TABLE cloths of white paper are reported as the latest housekeeping novelty. It is urged, as a great advantage, that when soiled they are well adapted for kindling fires.

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