

Suez Canal Figures.

The figures for the navigation of the Suez Canal show that out of 3,441 vessels which passed through it in 1900, as many as 3,139 are classed in the night passage, partly by the aid of electric light, or 91.2 per cent, and only 302 vessels, or 8.8 per cent, for the day passage. For the last eight years the comparative results of the day and night navigation are given in the following table, the second column representing the number of vessels which passed the canal partly by the aid of electric light, and the third column shows the number passing by day:

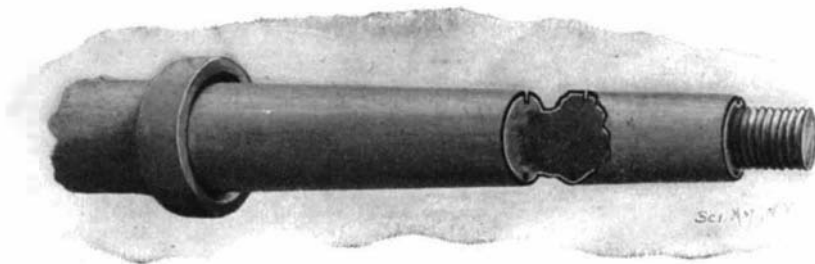
| Year. | Night Passage. Vessels. | Day Passage. Vessels. | Total. |
|-----------|-------------------------|-----------------------|--------|
| 1893..... | 3,082 | 259 | 3,341 |
| 1894..... | 3,180 | 172 | 3,352 |
| 1895..... | 3,266 | 168 | 3,434 |
| 1896..... | 3,211 | 198 | 3,409 |
| 1897..... | 2,837 | 149 | 2,986 |
| 1898..... | 3,294 | 209 | 3,503 |
| 1899..... | 3,273 | 334 | 3,607 |
| 1900..... | 3,139 | 302 | 3,441 |

A SKEIN FOR WAGON AXLES.

To provide a means for protecting axles from the enormous wear to which they are subjected, Mr. Fritz A. Schulz and Mr. Alfred J. Koetschau, of 212 Humboldt Street, Chicago, Ill., have patented the simple skein illustrated. At diametrically opposite sides of the journal longitudinal grooves are made, which are intended to serve as a means for locking the skein in position.

The skein itself consists merely of a sheet of metal having flanges at its side edges, which sheet is curled, so as to form a split tube. Thus bent, the skein is tempered so that it becomes essentially a spring. The spring tube thus formed is slipped over the journal in such a manner that the flanges previously mentioned will enter one of the longitudinal grooves of the journal. The wheel can now be placed in position; and the wear will be taken up entirely by the skein. The groove in which the flanges of the skein are received serves admirably as a grease-duct. Should the bottom of the skein become worn, as will very likely happen with continued use, the skein is taken off and turned half way around so that the flanges are locked in the other groove. The wear of the wheel will now be borne by the other side of the skein.

This simple device has been subjected to severe



A SKEIN FOR WAGON AXLES.

tests and has proved itself highly efficient. It has been found that axles which are to be provided with skeins need not be finished, but can be left rough. It has also been found that the skein can be very easily applied to old axles without making any changes in the hubs of the old wheels. If many of the devices at present on the market be used the bore of the hub must be enlarged in order to fit over the skein. The present invention obviates all such difficulties.

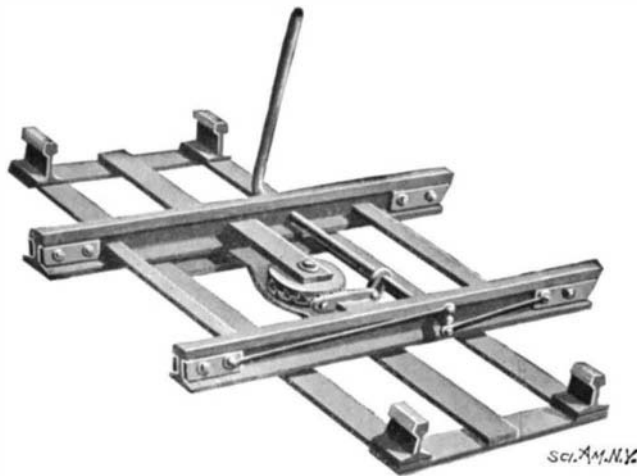
TURNTABLE FOR HAND-CARS.

The accompanying illustration pictures a novel turntable invented by Thomas Langley, of Corvallis, Oregon, which turntable is intended to shift a railway hand-car from the main track to a side track, or to a track leading into a shed.

Between the adjacent ends of the main track-rails, a base-frame is extended. On the base-frame a turnplate is mounted, having ratchet-teeth on its upper side. Engaging with the turnplate is an upper plate having ratchet-teeth on its under side. This upper plate is connected with one of the cross-bars which connect the turntable rails, as our illustration shows. A shaft mounted to turn in the turntable-rail is provided with an arm having connection with the turnplate, so that a rotation of the shaft will also rotate the turnplate. At the ends of the turntable-rails, fish-plates are mounted, so secured by bolts passing through slots in the rails that they have a limited sliding movement. Links extend from the bolts to crank-arms on the shaft previously mentioned, the arrangement being such that when the shaft is turned the fish-plates will be drawn inwardly along the turntable-rails. The shaft is operated by an arm.

When the turntable is in closed position its rails will be in alignment with the main track-rails, its fish-plates will extend across the gaps between the turntable and main track-rails, and the arm of the shaft will lie horizontally beside the adjacent turntable-rail. If it be desired to open the turntable for the purpose of shifting a hand-car to a siding, the

shaft-arm is swung up, thereby retracting the fish-plates so that the table is free to turn, and rotating the turn-plate so that its ratchet-shaped teeth, by sliding on the inclines of the teeth of the upper plate, will raise the upper plate and elevate the turntable. When the parts are in this position the turntable



THE LANGLEY TURNTABLE.

with the hand-car thereon can be easily moved to open parts.

Labor Conditions in Germany.

Under date of August 21, 1901, Consul-General Hughes, of Coburg, reports:

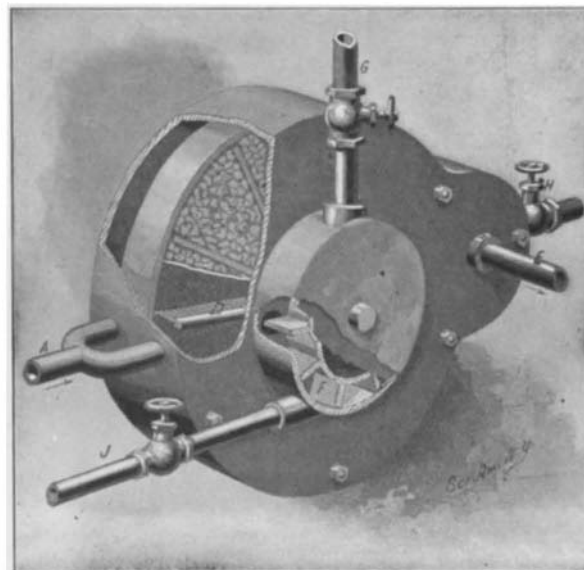
The Berlin semi-monthly periodical Der Arbeitsmarkt (The Labor Market) furnishes facts and figures which show that there is a continuous scarcity of work in Germany. From the mining district and from the centers of the iron-working and machine-making regions, short hours, dismissals of hands, and the cutting down of wages are reported. In the month of July, 1900, when the depression of business in general was felt for the first time on the labor market, the decrease of employed laborers amounted to only 3 per cent, while in July of this year their already much reduced number has decreased by a further 3 per cent. There is a marked increase in the number of men applying for work at the public labor offices.

In July, 1900, for every 100 open places 122.2 applicants were counted; this year their number has run up to 160.9. The labor offices report an increased rush for places, particularly by metal workers and those employed in the building trade (Bauarbeiter). The latter may hope for an improvement, at least in some places, at the beginning of the autumnal building season, but for the iron workers the outlook is gloomy, indeed.

A NOVEL FILTER.

A simple durable filter that can be readily cleaned without the necessity of removing any part forms the subject of a patent granted to William E. Corlett, of Jennings, Oklahoma Territory.

Within a cylindrical casing a filter, C, is mounted, which may be described as a drum, the heads of which are formed of tripoli rock or other filtering material. This drum is divided into a number of radial compartments, which are filled with rock. The water to be filtered is supplied by a pipe, A, to the outer cylindrical casing; percolates through the heads of the filtering drum, whereby the coarser impurities are removed; flows through the rock-filled radial compartments; and emerges from the discharge-pipe, E,



A NEW FILTER.

communicating with the drum, as a thoroughly purified stream.

The coarse impurities that cling to the drum-heads are removed by means of brushes, D, carried by a shaft passing loosely through the outer cylindrical casing and the drum. The shaft is driven by a water motor, F, which receives its water supply from a valved pipe, J, and which discharges the spent water through a pipe, H. When the water-motor is driven, the brushes, carried by the motor-shaft, are made to wipe off the material clinging to the drum-heads. The impurities thus brushed off drop to the bottom of the outer cylindrical casing, and can be drawn off by way of a valved discharge. It is therefore evident that the apparatus need not be taken apart to clean the filtering-drum.

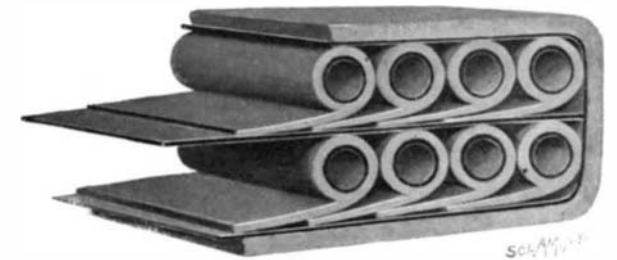
The inclosing shell of the motor communicates with the outer cylindrical casing of the filter by means of a valved opening, so that, by closing the discharge-pipe of the motor, the water ordinarily used for turning the shaft can flow into the outer cylindrical casing of the filter for purification and discharge through the pipe, E.

A FIREPROOF PIPE COVERING.

A non-heat conducting and fireproof covering to be used in buildings, steam-fitting and in every other connection in which it is desired to protect one part from heat or fire at another, is the subject of an invention recently patented by Maurice Sullivan, of Corona, N. Y.

The covering consists of a sheet of asbestos rolled to form a tube, but also to leave a tangentially projecting wing, as it were. Upon this projecting portion the tubular covering of another pipe is laid, and upon the projecting sections of this second pipe the tubular casing of a third pipe is laid, and so on. A number of sections can be laid together in the same plane to form a flat, board-like structure, which can be used for walls and other similar structures and buildings. The tubular sections are placed side by side in the manner described, and covered on both sides by a sheet of asbestos or other material. Any number of sections can be joined together to produce a covering of the proper size.

Our illustration shows two layers of pipes to which the covering has been applied. In this arrangement



A FIREPROOF COVERING FOR PIPES.

strips of paper are laid next to the tubes, and between the layers; and around the whole is placed a covering of asbestos. These parts are assembled or otherwise secured together to form a rigid and stiff structure.

The covering is also especially useful for columns, between pillars and the like, and also for ceilings, floors, and walls. It is hardly necessary to describe these various applications in detail, since they are more or less similar to the application already described and illustrated.

The Current Supplement.

The current SUPPLEMENT, No. 1345, contains a number of articles of great interest. "Use of Steel in Concrete Construction" is an elaborately illustrated article. "Vanishing Venice" is by Alfredo Melani. "Fatalities of Mountaineering" describes serious accidents which have occurred on the mountains of the world. "Methods of Curing Tobacco" is by Milton Whitney, Chief of the Division of Soils. "A Remnant of Buddha's Body" is by Perceval Landon. "The Cluchagne System of Military Rafts and Bridges" describes a new system of floats. "Marine and Estuarine Deposits" is an especially reported lecture by Prof. W. B. Scott. The inaugural address of Prof. A. W. Rücker, President of the British Association, is begun in this issue. "The Steam Coach in 1825" is by R. I. Clegg. "American Locomotives in England" is the sixth in the series.

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(Illustrated articles are marked with an asterisk.)

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