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THE GROOSOKAT, OR PORTABLE TRAVELLING ENGINE.

(See page 232.)

Among the novel and useful things exhibited by Ruisia, in Machinery Hall, was the "Groosokat," or portable travelling crane, illustrated herewith. This is certainly a very useful invention, and in many respects a novelty. It is designed to torm a convenient and cheap means of transhipment of goods and material to the second se materials in places where the distance is too short for a railroad track, and too great for unloading by means of cranes or similar mechanism, and where goods are usually transported by hand labor, or with horses. The principal localities for the successful use of this invention are wharves, quays, railroad stations, depots, warehouses, manufactories, earthworks, etc., and all places where coal, bricks, sands, wood, grain, cotton, etc., are required to be moved through a comparatively short horizontal distance. It has been in use at Cronstadt by the Artillery Department of the Government since 1872, as well as in many other places in Russia. As a fixed mechanism for the handling of weighty articles, such as is required for large machine establishments, foundries, etc., the overhead travelling crane has to a great ex-tent superseded all former apparatus; and so universal has its use become, that it is found in many places where a very large original outlay has been made for a comparatively temporary purpose-such, for instance, as in the erection of the public buildings in Philadelphia, where one has been crected surround-ing the entire square inclosing the buildings—and such is the facility this provide the second state of the second secon facility afforded the handling of materials in this way, that the first cost of such temporary structures is found to be economically invested. When the apparatus under consideration is understood to extend to this principle the very desirable property of Portability, its value will be apparent. It is essentially a portable overhead travelling crane, supported at intervals upon tripods, or in some cases two-legged supports, as shown in the figures.

Fig. 1 shows the apparatus as used in unloading a vessel, conreying the merchandise to a distance, and depositing it upon a rail railway truck. Fig. 2 is a side view of the transway beam, with the suspension eyes and truck. Fig. 3 is a short section in two view. views of the same, showing the construction of truck and beam. Fig. 4 shows a cheaper form of beam and truck, with the former made of wood, as well as the wheels of the latter. Fig. 5 shows the splice for joining two or more lengths of beam.

As shown, the beam is built of plate and angle iron, riveted, and consists of two separate stringers, held together at proper internal. intervals by appropriate cross-webs. At intervals, governed by the strength of the beam and the intended maximum load, are placed pieces in form of a staple of plate-iron, riveted to the inside of the stringers, and to the crown of which the suspension eyes are secured. As shown in the middle cut, Fig. 3, the beam is encompassed by a yoke, the crown of which passes below it, and on the inside of the upper ends of which the wheels of the truck are pivoted, the suspension rods passing between the wheels. In this way there is free passage from end to end for the truck, and the whole may be supported at as many points as may be found necessary.

On the left, Fig. 2, is shown a stationary staple for securing the ends downward, when used with but one support, as seen in the background, Fig. 1. The beams are made in sections of about 28 feet long, as many of which may be jointed together as is necessary for the distance to be travelled, the splice being made here a state of the splice being made by placing the piece (Fig. 5) inside the beam with four squarebodied bolts passing through, as shown at A, Fig. 2.

This apparatus is designed to convey loads up to about 18 cwt. In existing machinery for the hoisting and transporting of materials - aside from the permanent overhead travelling crane - the brizontal distance through which the load may be moved is quite limited, confining this species of machinery to heavy loads, if profitably done; and with such the apparatus in question does not compete for public favor, except where such is used for com-paratively light loads. The ordinary swinging crane is vastly more expensive, and very much less efficacious, where loads of a ton expensive, and very much less efficacious, where loads of a ton or less are to be moved; while this portable crane is far superior in the distance through which leads may be conveyed, is cheaper, and above all quite portable. For the discharge of goods of uniform shape, such as bags, casks, cases, and bales, or of such of such material as coal, sand, stone, etc., which readily conform to and a store and a st to some uniform kind of receptacle, it is very well adapted, as the chair as shown on the right (Fig. 1), the chime hooks as seen in at in the centre, or any convenient form of support for the particular load, may be attached to the truck yoke. The tripods are generally about 20 feet high, but can, of course,

be made to suit the particular work for, or locality in which it is to be used. The beam is suspended from these by means of a block and falls, in order to adjust the beam to the inclination neccessary to convey the load from end to end, which in this machine is done by the action of gravitation. This feature in it will limit its length, as, if constructed for too great distance, the required elevation of the goods at the higher end will be an in-The work of horizontal transport in this convenient amount. case is of course done in the hoisting of the load to the high end of the beam ; but it is doubtless economically performed in that way, as generally the same manual labor which is required to raise the load to the required height suffices to guide it to the lower end, or place of deposit, returning the empty truck and sling by the same means.

This instrument is advantageously used for distances up to 100 feet. For the suspension of the beams from the tripods, the Weston differential block is preferably used, as it gives a convenient means of adjusting the heights, and of securing it when adjusted. A very convenient way of using it for unloading vessels is, to connect the support for the load to the truck yoke with a self-checking block and fall, or a differential block of the single sheave kind, and use the same fall for a guy to regulate the descent, and for lowering away at the discharging end of the crane. In this way light loads may be transhipped very rapidly. -Polytechnic Review.

THE ANDREWS SAW GUMMER AND SHARPENER. (See page 240.)

It has been constructed with a view to combine all tools for putting and keeping saws in the best working condition. The emery wheel, when properly used, is the cheapest and quickest thing to keep saw teeth in the right shape for cutting. Objections have been raised against its use, because the points of the teeth are sometimes injured by using a stationary wheel or badly constructed machine. In this machine the workman has perfect control over the wheel; can present it to the saw with the slightest touch or hardest pressure

Fig. 1 illustrates the machine, with saw in position for either gumming, sharpening or jointing.

The saw is readily adjusted to grind the teeth with a bevel or straight face, or any rake or hook, and every tooth just alike. After dressing a saw with the emery wheel, it is placed in an upright position by simply raising up on one edge, one end of the saw support being hinged for that purpose. It is then in position to be swaged or secured in the adjustable vise to receive a file dressing. Every sawyer knows the importance of having circular saws perfectly round. While a saw may be jointed nearly round by the emery wheel, it cannot be done as accu-rately as it can with a file held permanently in position, and the saw revolved against it.

Fig. 2 shows a new arrangement for rounding with a file.

There is is also an arrangement to use a burr gummer by holding it in the vise, and not securing it to the saw, as usual ; with this a saw may be more easily and accurately burred than it can be done in the old way.

This machine is a complete saw dresser. When a saw is once put on the machine, it need not be removed until it is perfectly fitted for use, as the machine is not only an emery wheel gummer and sharpener, but is also a file bench, a swager, and jointer. Another very serious defect in emery wheel machines is re-

moved by the use of removable collars with gum or flexible faces to secure the wheel. A great many accidents have happened owing to the breakage of emery wheels, because the mandrel collars are too small for the size of the wheel used.

Emery wheel mandrels are made with one fixed collar and one loose ; these are made small in order to allow a wheel to be worn down to a small size. The arrangement in connection with these collars is to make a number of thin collars of different sizes for each mandrel, securing a wheel when it is the largest bet-ween the largest removable collars, and changing the collars from time to time, so that there will be a sufficiency of the wheel outside of the collar to do its work. The nearer the periphery of the wheel to the collar which secures it, the stronger it will be, and can be run at a higher speed without the danger of breaking. This protection against such accidents is of great value to all users of emery wheels.'

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