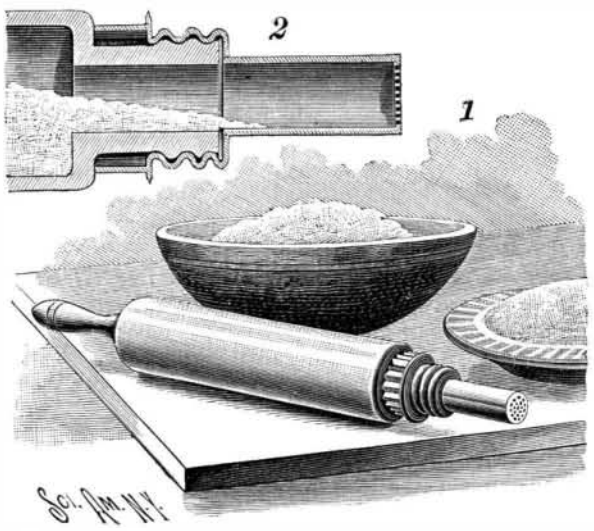
A ROLLING PIN, ETC., FOR BAKERS' USE.

A rolling pin with which is separably combined a cake cutter, pie crimper and edge dresser, and a dredge box or sifter for flour, forms the subject of a patent which has been issued to Mrs. Jane L. Landrith, of Marshfield, Oregon. The device is shown in perspective in Fig. 1 and in longitudinal section in Fig. 2. One end of the rolling pin has a handle formed integral with the body in the usual style, and the main portion is hollow, forming a capacious flour receptacle. The opposite end has a reduced screw-threaded hollow extension, designed to receive and removably retain a threaded handle piece, preferably of tin, having an outer perforated cap plate, through which flour may be sifted from the central chamber. A radial thin flange is formed at the inner edge of the threaded portion of the handle piece, to which is affixed a fluted



MRS. LANDRITH'S ROLLING PIN, ETC., FOR BAKERS.

short band or ring. The cylindrical portion and one handle of the utensil are preferably made of glass, as a cool and non-absorbent material which does not retain the dough, to trim the excess of which from the edge of a pie plate the handle piece is removed and its thin flange used to cut off the surplus, the fluted ring at the same time impressing or crimping the edge of the pie. This fluted ring is also adapted to cut cake dough that has been rolled to the proper thickness, forming a serrated edge.

A SIMPLE AND COMPACT TYPE WRITER.

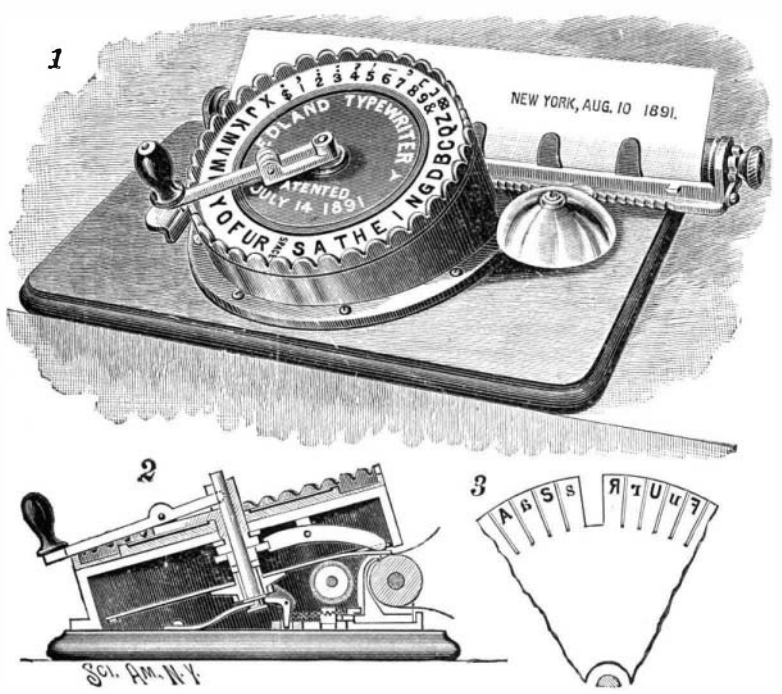
The machine shown in the illustration can be readily operated by one not familiar with type writing, and is specially adapted for the individual or private use of those not employing professional type writers. It can be made at a low cost and is very compact, its base being only about five by nine inches in size, and the dial plate about four inches in diameter. Fig. 1 is a view of the machine in perspective and Fig. 2 is a central vertical cross section. The paper carriage at the back has a flat lower portion which moves in keepers on the base, and has a rack on its inner side which is engaged and moved by a spring pawl, the notches on the rack each corresponding to a letter space.

In the carriage is mounted a rubber roll which serves as a feed roll and a printing platen, the roll having a thumb piece at one end by which it is revolved, and a ratchet preventing backward movement, while the front upper portion of the roll is loosely clasped by flat springs secured to the carriage, to hold the paper in position and allow it to be fed forward.

Fixed centrally on the base to overlap the paper carriage and roll is an inclined drum, surmounting which is a dial with a notched flange bearing the various characters to be printed, the notched flange serving as a guide to the printing lever, and causing it to descend accurately for each character. Within the drum near the top is a three-armed spider, and below is a central cross arm, both centrally perforated to receive a vertically movable shaft. A central vertical tube has a slot near the top, beneath which extends an arm having lugs at its end, between which is pivoted the printing lever, the inner end of which is connected with a vertical shaft extending downward through the tube. Fixed to the lower end of the tube, and necessarily revolving with it, is a wide flanged hub, carrying an annular plate, the outer portion of which is slit radially to form flexible type fingers, carrying type or characters on their under sides near their outer ends, the upper and lower case type of each letter being produced on alternate fingers, a portion of this plate being shown in Fig. 3.

A sleeve moves vertically on the tube and is held to the shaft by a pin, moving vertically with the latter and revolving with the shaft and tube. Pivoted between lugs on the under side of the spider, as shown in Fig. 2, is a curved lever, whose inner end is slotted to clasp a flange on the sleeve, while its outer end extends to the outer ends of the flexible type fingers, so that when the sleeve is raised by the depression of the printing lever the outer end of the curved lever is depressed, causing a character to be printed upon the paper by the flexible type finger immediately beneath. The central shaft and the printing lever are returned to normal position by a spring, one end of which is fixed to the base, while its opposite end engages flanges on the bottom of the shaft. An elbow lever pivoted on the base and a similar lever pivoted on the cross arm of the drum are so arranged, in connection with a spring, that each depression of the printing lever causes the paper carriage to move the distance of one notch, or the space of a letter. When the printing lever is held down the carriage may be freely moved backward to position for commencing a new line. Although the dial shown in the illustration bears only upper case type, it is to be remembered that there are alternate upper and lower case type fingers, the latter being those normally employed, but on depressing a thumb piece shown at the left in the picture, upper case characters will be printed. Ink rollers are pivoted on the inner sides of the drum, in the path of the type on the fingers. This machine has comparatively few pieces, so that it will not readily get out of order, and for its operation it is only necessary to place the paper in position, bring the printing lever above the characters to be printed, and press down on the lever.

This type writer has been patented by Mr. Joe L. Edland, of No. 73 Fourth Avenue, Brooklyn, N. Y.



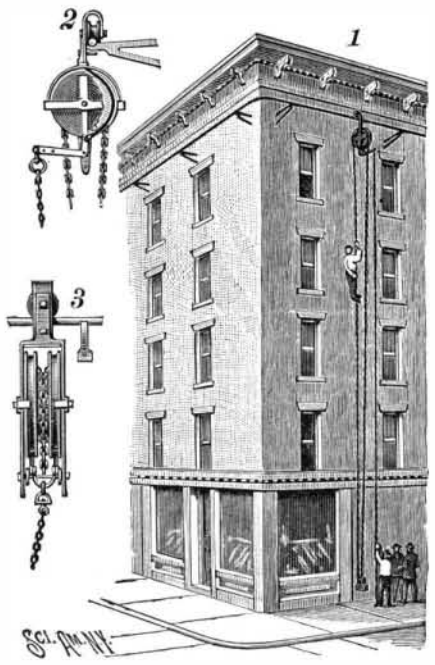
EDLAND'S TYPE WRITING MACHINE.

Silkified Cotton.

The invention of C. Brodbeck, Paris, consists in applying a solution of fibroine of silk to fabrics, threads, or fibers which have been scoured, lixiviated, and bleached, and the tissues calendered by friction and beetled. They are then hydrated and physically modified by passing them through a solution of caustic potash or soda of 1·35—1·40 sp. gr., or of sulphuric acid of 1·53—1·56 sp. gr. In both cases a low temperature of 4°—8° C. is required. If animal fibers are present, no caustic alkalies can be used. Cellulose is by this treatment freed from most of the impurities which it contains when imperfectly bleached, which renders the fixing of the silk easier and more perfect. After careful washing and drying the fabrics or fibers are treated with concentrated solutions of silk, the fibroine being dissolved either in hydrochloric, phosphoric, or sulphuric acid, or in pure cuprammonium, etc. If the solution of silk is effected in more or less hydrated sulphuric acid, the temperature must be about 0° C., to avoid decomposition. Silk in any form may be dissolved; hence scraps, cocoon silk, waste silk, and other material which was hitherto practically useless may thus be utilized. Previous to silkifying cellulose fabrics they should be subjected to the action of a metallic or tannic mordant, the selection of which depends on the color which the fabric is to receive. This is of advantage in combining the silk more intimately with the cellulose. The impregnation with the silk solution is effected by passing the material through a tightly closed impregnating apparatus with only two openings, one for the inlet and the other for the outlet of the material. It then passes through a hot air drying apparatus, and subsequently through a second vessel containing liquids with which the solvents employed combine, the silk being thereby precipitated upon and fixed in the pores of the fibers. The material is then washed and dried. Should it be desired to increase the amount of silk, the silkifying process may be repeated as often as desirable. Materials rendered silky in this way may be bleached by the same means as those employed for real silk. All fabrics which have been treated by this process must be subjected to a mechanical finishing, beetling, calendering, rubbing, brushing, polishing, and pressing according to the purpose for which they are destined, in order to impart to them a glossy appearance and silky feel.

AN IMPROVED FIRE ESCAPE.

A device, capable of being expeditiously manipulated, to lower persons in safety from the upper floors of high buildings to the ground, is shown in the accompanying



VIEREGG'S FIRE ESCAPE.

illustration, and has been patented by Mr. Henry Vieregg, of Grand Island, Neb. A public test was recently made of this device on a high building at Grand Island, with results so entirely satisfactory that its merits were made the subject of a special testimonial, which was signed by the mayor and chief officials, engineers and members of the fire department, and many prominent citizens.

The body of the device consists of a drum mounted to turn in a frame, an upwardly extending member of which has a hook or loop extension carrying a grooved pulley, as shown in Fig. 2, the pulley being adapted to travel on a track held in brackets beneath the cornice of the building, and being prevented from leaving the track by a pin projecting horizontally beneath the track from the upper member of the frame. A guide frame is horizontally secured to the frame, the lower ends of the sides of which are united by a bar, and the drum is journaled at the intersection of the guide frame with the side pieces of the main frame. The drum has marginal flanges and two spaced central flanges, forming a central annular channel of reduced diameter, in which is passed an endless chain, as shown in Fig. 3, cleats or studs projecting into this channel from the side flanges to engage some of the links of the chain and prevent its slipping upon the drum. The chain is designed to reach nearly to the ground, where it passes around a pulley journaled in a heavy block, having a handle, whereby parties on the ground may draw the chain outward to facilitate the safe descent of parties from a building, such descent being made by simply gripping the chain, or any approved form of harness may be employed to be hooked to the chain links. To control the descent, strap brakes are employed, engaging the larger sections of the drum between the marginal flanges at each side, the lower ends of the straps being connected with the inner ends of levers pivoted on the lower cross bar of the frame, the outer ends of the levers being connected by an adjustable bail with a ring and swivel, from which a brake chain depends. By this means the brakes may be applied by the party descending, or by one upon the ground below, to regulate as desired the speed of descent.

THE enormous mass of extra dead weight due to the carrying of the boiler, fuel and water in the old locomotive will be entirely unnecessary in the railways of the future, which will be propelled electrically. Unquestionably the future electro-locomotion will show a motor on every axle, or, at any rate, upon two axles of each car, and every car running as a unit, in which case they can run coupled together in a train or not, as may be convenient.—*Philadelphia Press.*

Pure Phosphoric Acid.

A known quantity of pure calcium phosphate is gradually added to a slight excess of pure dilute hydrofluoric acid, contained in a leaden or platinum vessel, the mixture being well stirred after each addition. According to the *Compt. Rend.*, an energetic action takes place and considerable heat is evolved. When all the calcium phosphate has been added, the high temperature of the mixture must be maintained for some time in order to complete the reaction. After the removal by filtration of the calcium fluoride which is formed, the solution of phosphoric acid is evaporated. At the point when the solution commences to become viscid, the excess of hydrofluoric acid used is volatilized. The evaporation is continued until a thick sirup, containing 60 to 70 per cent of phosphoric anhydride, is obtained. Meta and pyrophosphoric acids may be prepared by further continuing the evaporation and heating.

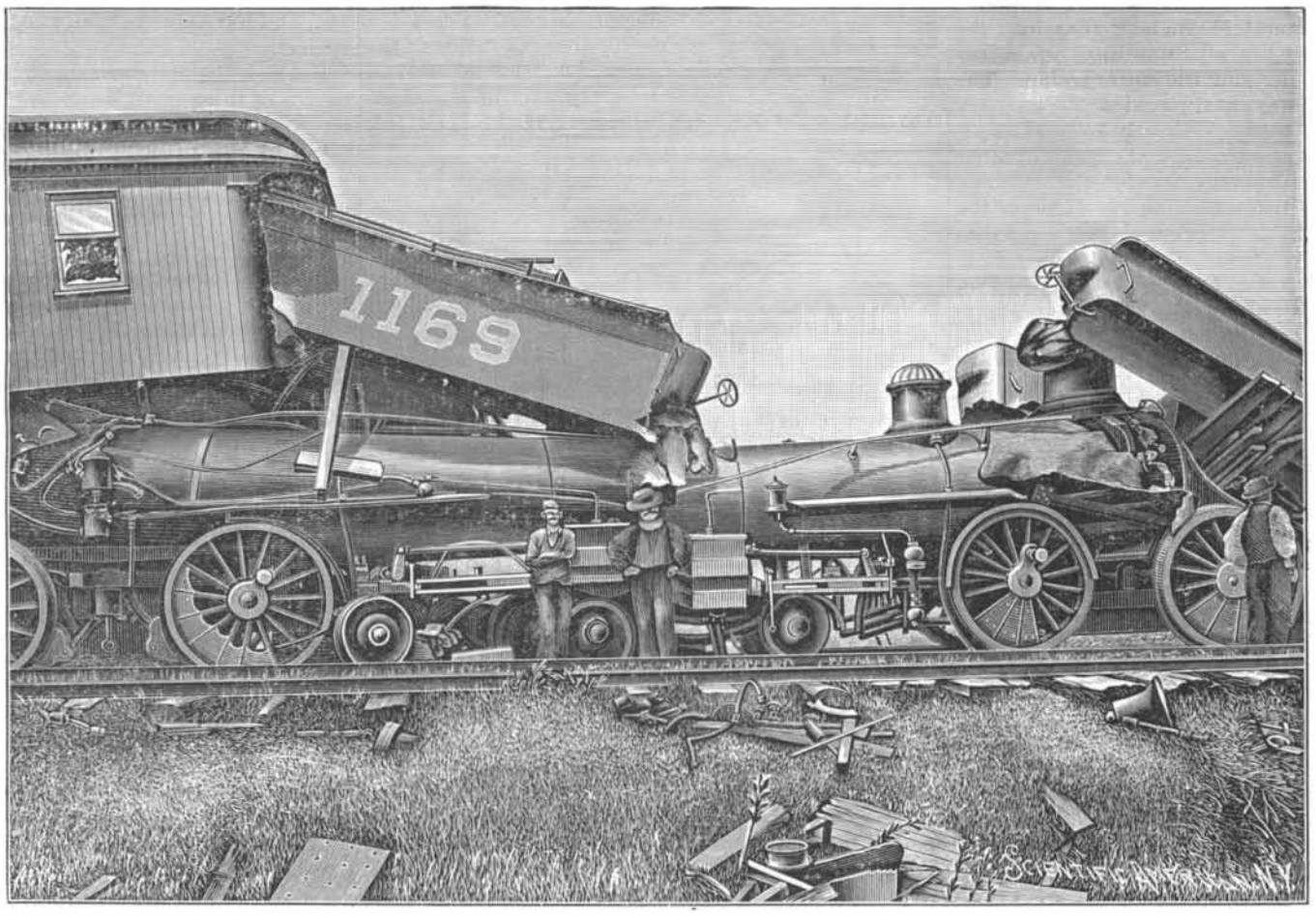
The various calcium salts of phosphoric acid described by Erlenmeyer may be readily prepared by adding hydrofluoric acid to a large excess of calcium phosphate, and after mixing well, dissolving out with warm water the acid salts produced. Impure phosphates, such as bone ash, may be used for the preparation of phosphoric acid, provided that the resultant acid, after being evaporated to carbonize the organic matters present, is diluted with water, filtered and again evaporated.

RAILWAY COLLISION, ILLINOIS CENTRAL RAILWAY.

Our engraving is from a photograph of a pair of locomotives on the Illinois Central Railway as they appeared after a collision. Four persons were killed and six injured. The New Orleans *Picayune* says: "At 9:45 on the night of June 19, 1891, the north bound mixed freight train on the Illinois Central Railway sidetracked at Savage station, about five miles from the city, in order to give the south bound cannon ball passenger train a clear track. By some unaccountable means the switch was left open and the passenger train, going at full speed, dashed into the freight train, derailing all of the cars except the sleepers.

"The cars telescoped, the mail car being thrown on top of the two engines, which were total wrecks. Engineer Mitchell, of the passenger train, was fatally injured, and both firemen, Munn and Lawson, one white and one colored, were instantly killed, being jammed between two boilers."

The two locomotives came together with such force that they appeared to be welded together.



RAILWAY COLLISION, ILLINOIS CENTRAL RAILWAY.

Rapid Marine Engine Fitting.

A smart feat of engineering has been performed at the Central Marine Engine Works, West Hartlepool, England, in the rapidity with which the screw steamer Silvia has been fitted with her machinery. The vessel was launched about 4:30 P. M., on Tuesday, June 23, from Messrs. Irvine's shipyard, and proceeded under the sheerlegs at the Central Engine Works. The engines, which are of 500 indicated horse power, together with the large boiler and funnel and all the connections and fittings, were fitted on board in twenty-four hours; the making-up lengths of steam pipe, the ladders, gratings, and platforms were fitted and steam got up in the boilers, and the engines satisfactorily steamed in presence of the surveyors at 10 A. M. on Friday, June 26, the vessel steaming back to her berth in two and one-half days from the time she left the stocks. This is an illustration of the advantages of modern machinery and organization in facilitating the output of marine machinery, and it is believed that so large a set of machinery has never previously been put on board in this short space of time.

A New Refrigerant.

Chloride of methyl is useful as a local refrigerator, but requires an expensive apparatus to utilize it. Dr. Redard, of Geneva, has therefore substituted chloride of ethyl in producing local anæsthesia by refrigeration. It is a colorless liquid of an agreeable odor, and is contained in a sealed tube of glass. When the point of the tube is broken off with pincers, the liquid is allowed to escape in a jet directed on the part to be cooled. The jet can be readily stopped by the finger or a little wax. Each tube holds ten grammes of the ethyl, a quantity sufficient for most operations. Dr. Redard has found it useful in cases of sciatica, neuralgia, and toothache. The new refrigerant is likely to be serviceable in the laboratory. If the jet be directed on a tube containing water, the latter will freeze.

Immigration During Seventy Years.

The immigration into the United States from 1820 to 1890 is the subject of a special report which has been prepared by Major Brock, the chief of the Bureau of Statistics of the Treasury Department. No official record was made of the influx of foreign population to this country before 1820, but the immigration from the close of the revolutionary war to that time is estimated at 225,000. The arrivals of immigrants from 1821 to 1890 were 15,641,688. The arrivals from 1821 to 1830 were 143,439; from 1831 to 1840, 599,125; from 1841 to 1850, 1,713,250; from 1851 to 1860, 2,598,214; from 1861 to 1870, 2,466,752; from 1871 to 1880, 2,944,295; and from 1881 to 1890, 5,176,212.

The following figures give the arrivals of each nationality during the entire period from 1820 to 1890: Germany, 4,551,719; Ireland, 3,501,683; England, 6,460,054; British North American possessions, 1,029,083; Norway and Sweden, 943,330; Austria-Hungary, 464,435; Italy, 414,513; France, 370,162; Russia and Poland, 356,353; Scotland, 329,192; China, 292,578; Switzerland, 176,333; Denmark, 146,237; all other countries, 606,006.

The only leading countries from which arrivals have fallen off in the last ten years are France and China, the total immigration from France from 1871 to 1880 having been 73,301, and from 1881 to 1890, 51,440. The immigration from China amounted to 122,436 from 1871 to 1880, and 51,469 during the years 1881 and 1882, after which the Chinese exclusion bill went into effect.

The year of the largest immigration yet reported was that which ended on June 30, 1882, when the arrivals were 788,992. The immigration from Italy to the United States was 15,401 for the fiscal year 1881, and steadily increased until 1890, when it was 52,003, and the present year, ending June 30, 1891, when the total for ten months has reached 51,153, as against 34,310 for the corresponding months of 1890. The immigration from Hungary amounted in 1881 to 6,826, and in 1890 to 22,062. The figures for ten months of the present year are 22,496. The immigration from Russia and Poland also shows a rapid increase, from 10,655 in 1881 to 46,671 in 1890, and 53,350 for ten months of the present year.

The classification of immigrants during the past decade as to occupation shows that only 26,257 males were of the professional classes, 514,552 were skilled laborers, 1,833,325 were of miscellaneous occupations, 73,327 made no statement in regard to occupation, and 759,450 were without occupation.

The American Society of Microscopists.

This society will hold its thirteenth annual meeting in Washington, D. C., August 10, and will continue in session for five days. Its roll of active members comprises about three hundred and fifty names, including the majority of microscopists in the United States. Every person interested in microscopy should belong to this society, whether able to attend its annual meetings or not, as the reports are well worth the small sum paid for annual dues. The qualifications for membership are simply that the applicant must be respectable socially and interested in the use of the microscope.

We have no doubt a rich treat is in store for microscopists who can attend the Washington meeting.

The present officers of the society are as follows:

Frank L. James, editor St. Louis *Medical and Surgical Journal*, President.

W. H. Seaman, No. 1424 Eleventh Street, Washington, D. C., Secretary.

C. C. Mellor, No. 77 Fifth Avenue, Pittsburg, Pa., Treasurer.

The Cable Speed of Electricity.

The experiments now in progress at McGill College, Montreal, under the auspices of the British and Canadian governments, to ascertain the longitude of Montreal by direct observations from Greenwich, have led to the accomplishment of a remarkable telegraphic feat. The English papers report it thus: "The first thing to determine was the length of time it took a telegraphic signal to cross the Atlantic. An automatic contrivance, whereby the land line could work into the cable, was provided, and a duplex circuit was arranged, so that the signal sent from Montreal would go over the land lines to Canso (Nova Scotia), thence over the cable to Waterville, Ireland, and return to Montreal again. Attached to the sending and receiving apparatus was a chronograph, which measured the time. Out of two hundred signals sent, it was found that the average time taken to cross the Atlantic and back again—a distance of 8,000 miles—occupied a trifle over one second, the exact time being one second and five-hundredths. Professor McLeod is carrying on the experiments with Mr. Hosmer, the manager of the Canadian Pacific telegraphs.

A Young Woman Obtains an Engineer's License in Chicago.

Chicago is a great city, enterprising to an astonishing degree, and in more than one respect is unlike any other city on this continent. She gained the world fair site over all her competitors, and she now has a woman engineer, who has successfully passed the ordeal of a rigid examination.

A contemporary says she was not let off easily either because she was a woman; in fact, the writer says her examination was, if anything, a little more severe than usual.

The young woman walked into the Board of Examiners' room in the City Hall, presented her application in a manly way, deposited the official fee (two dollars), and then made her way into the line of the applicants to await her turn.

Among other questions she was asked was as to the size of the blow-off required for a seven horse power engine, and what she would do if the valve stuck fast. When the examination was finished, the examiners wrote at the end of her paper "accepted," and Miss De Barr is now a full-fledged licensed steam engineer.

THE cost of a palace sleeping car is $15,000; or if "vestibuled," $17,000.