A Forty Thousand Dollar Horse.

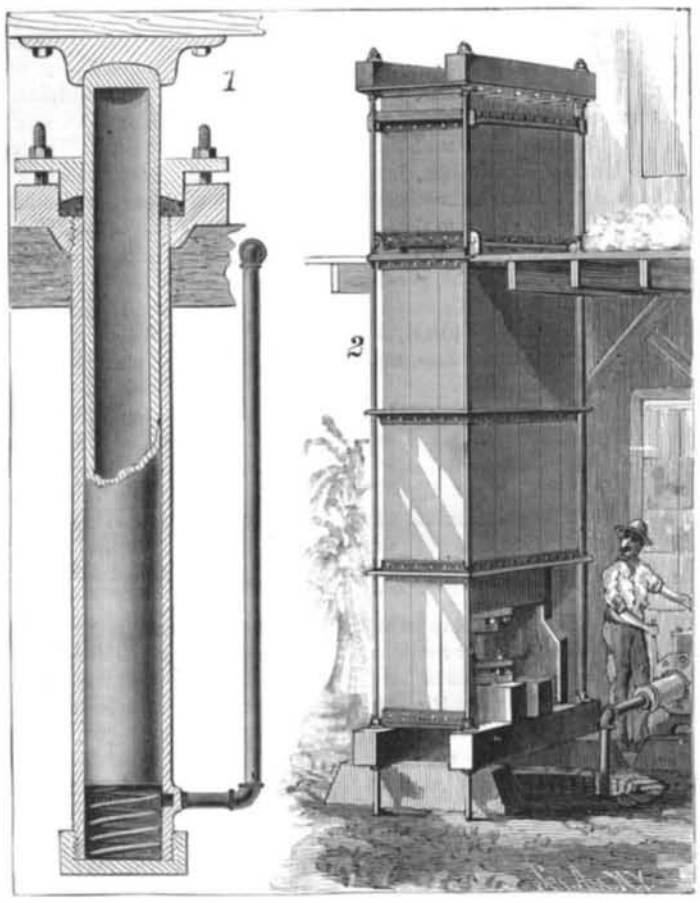
Mr. Wm. H. Vanderbilt has lately sold the famous trotting horse Maud S. to Mr. Robert Bonner, editor of the N. Y. *Ledger*, for the sum of forty thousand dollars. An offer of one hundred thousand dollars from professional turfmen was previously refused by Mr. Vanderbilt, as he preferred to have the animal go into the hands of a private individual.

Maud S. is believed to be the fastest trotter in the world. Her best mile record is 2 min. 9¾ sec. At 4 years of age she trotted a mile in 2:17½, and Mr. Vanderbilt then bought her for $21,000. She is a beautiful chestnut colored mare, long neck, satin skin, brown eyes.

COTTON BALING PRESS.

In the annexed engraving Fig. 1 is a sectional elevation of the hydraulic apparatus, and Fig. 2 is a perspective view of a cotton baling press recently patented by Mr. C. Baumgarten, of Schulenburg, Texas. The manner of constructing the press proper is clearly shown in the cut. In the hydraulic portion of the press is a tube of suitable size and length, which is hermetically closed at its lower end by a cap, screwed on, and upon whose upper end is screwed a strong collar having an annular recess in the upper side around the hole, into which the upper end of the tube screws. This collar is formed with holes to receive stud bolts by which the gland is held down on a ring of elastic packing.

In this tube is fitted a second tube, for a piston, which is



BAUMGARTEN'S COTTON BALING PRESS.

closed at the ends by plugs welded in, and on the head is seated a metal cup having a socket to connect with the piston by simply resting on it, and the follower is attached to the cap by bolts. To check the piston and prevent damage in case it should accidentally fall too rapidly, and to prevent the piston falling below and closing the water pipe, there is a strong coiled spring arranged beneath it. At the lower end of the outer tube is connected a pipe through which water is forced in to raise the piston. This pipe is provided with a conveniently located check valve, and is connected with a pump for forcing in the liquid. The cylinder may be placed in a pit with the collar at the surface of the ground, so that the follower and case may be arranged low down on the ground floor when it is desirable to do so.

The Railways of the United States.

The introduction to the 17th annual number of Poor's Manual, just published, comprises the following interesting and valuable review for 1883:

The accompanying statements show a mileage at the close of the calendar year 1883 of 121,592 miles, 6,753 having been constructed within the year. The total length of completed road at the close of the companies' fiscal years was 120,552 miles. The average mileage operated during the year was 110,414. The amount of share capital issued by the several companies up to the close of their respective fiscal years was $3,708,060,583, an increase from the previous year of $207,024,759. The funded debts of the several companies amounted to $3,455,040,383, an increase from the previous year of $219,497,060. Their floating or unfunded debts amounted to $332,370,345, an increase of $61,199,383 from the previous year. The total increase of share capital and of funded and floating debts from the previous year equaled $477,721,202. The total amount of all liabilities at the close of 1883 was $7,495,471,311. The total per mile for completed mileage was $62,176. The total of stock and liabilities for 1882 was $7,016,750,109; per mile, $61,303. The total for 1881 was $6,278,565,052; the amount per mile, $60,645. The total for 1880 was $5,402,038,257; per mile, $58,624. The total for 1879 was $4,872,017,517; per mile, $57,730.

It is to be observed that although, since 1879, the actual cost of construction per mile has steadily diminished, very few expensive lines having been built, and during the last half of that period the cost of all construction material being unusually low, the apparent cost as represented by share capital and debt has steadily increased. The increase of cost in the four years since 1879, as represented by share capital and debt, equals $4,446 per mile, and for the whole number of miles, 120,552, constructed a total of $535,974,192.

The gross earnings of all the roads for their several fiscal years of 1883 were $823,772,924, an increase from the previous year of $53,563,025.

Of the gross receipts $215,287,824 were received from passengers, $549,756,695 from freight, and $58,728 405 from miscellaneous sources. The net earnings for the year were $336,911,884, an increase of $21,461,082 from the previous year. The amount of interest paid was $173,139,064, an increase of $18,843,684 from the previous year. The amount of dividends paid was $102,052,548, an increase of $21,114 from the previous year. The percentage in 1883 of gross earnings to investment was 10·99 per cent; in 1882, 11·74; in 1881, 11 18; in 1880, 11·36; in 1879, 10·80. The percentage of net earnings to investment in 1883 was 4·49 per cent; in 1882, 4·81; in 1881, 4·56; 1880, 5·04; and in 1879, 4·40 per cent. The earnings per mile of all the railroads operated for 1883 were, gross, $7,461; net, $3,051; in 1882, gross, $7,377; net, $3,005; in 1881, gross, $7,548; net, $3,078; in 1880, gross, $7,475; net, $3,318; in 1879, gross, $6,652; net, $2,761.

Grand Canon of the Colorado.

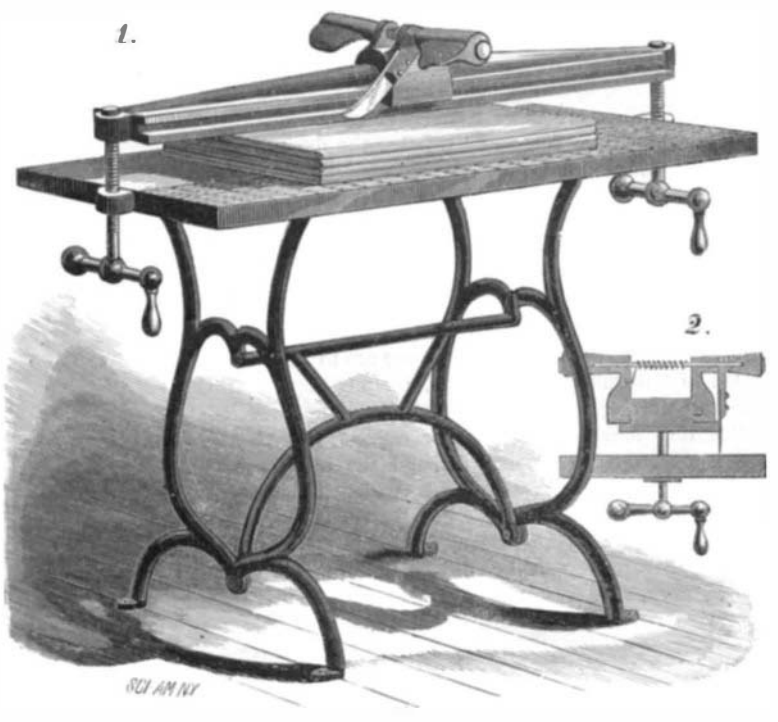
At the last meeting of the Academy of Sciences, San Francisco, Prof. Davidson spoke of his recent visit to the Grand Canon of the Colorado at a point 160 miles east of the Needles, on the Atlantic and Pacific Railroad, which required only 21½ hours' time, and an expense of $10 for horses and guide and 75 cents a meal. He saw vertical walls 2,700 feet high, 6,200 feet above sea level, where the Colorado River was 190 feet deep, and cannot imagine anything grander than the effect of sunset shining on these walls, only 10° from vertical, composed of different colored rocks, red sandstone, and the black overhanging rocks. The temperature was 136° Fahrenheit.

PAPER AND CARD CUTTER.

The top plate on which the paper is placed is supported at the ends by two-leg, braced frames. Held longitudinally above the plate is a clamping bar that is held in position by screws which pass through fixed nuts on the ends of the top plate, and which are provided at their lower ends with crank handles. Formed in each side edge of the bar is a groove, in which slide tongues formed on a cutter head resting on the upper surface of the bar. Mounted in upwardly projecting lugs on the cutter head is a shaft on each end of which is a handle. Projecting downward from the shaft is an arm carrying a cutter blade, the inner edge of which rests against the side edge of a projection on the clamping bar. As soon as the handles are released, the cutter is swung upward by a spiral spring mounted upon the shaft between the lugs, as clearly shown in the sectional view, Fig. 2. Part of the top of the table is divided into small squares by which to gauge the paper to be cut.

The material to be cut is held firmly by the clamp bar, which is pressed on the paper by the screws. The operator seizes the handles of the shaft, and turns them so as to bring the blade down when the cutter is pushed from him; the blade, sliding along the guide edge, cuts off that part of the paper projecting beyond the edge.

This invention has been patented by Mr. J. E. Tylee, and additional particulars may be obtained from Messrs. Tylee & Clarke, of Ashland, Neb.



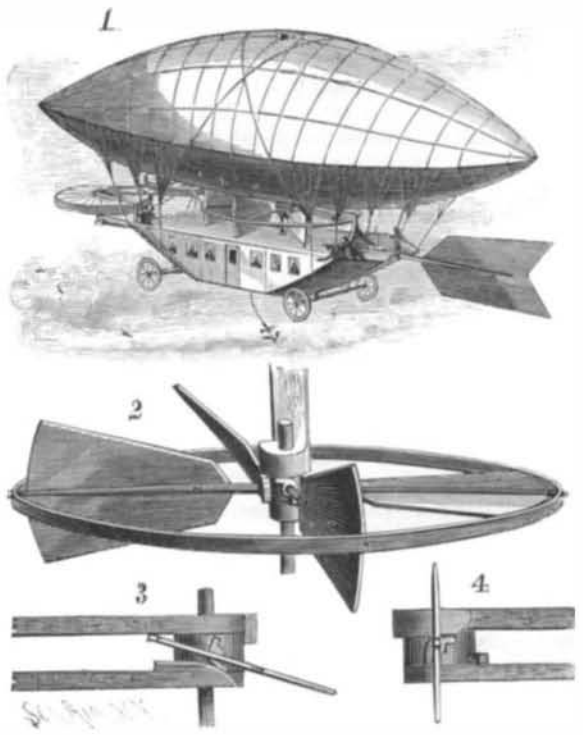
TYLEE'S PAPER AND CARD CUTTER.

American and English Colonies in Russia.

It is not generally known that there is an American town in the realms of the Czar, yet such is a fact, it being near Moreton Bay, Kamtschatka. The colony has been formed, gradually, by immigrants attracted by the establishment of important lumbering operations, including saw mills, by an American company, and the town itself, according to the *Zacht*, has so far been practically ignored. It is not down upon any known map, does not appear in the cadastral register, nor on any tax list. The consequence is that the inhabitants thereof pay no kind of tax, and, until recently at least, have remained independent of local authorities. Another colony, of English origin, of later establishment, but analogous origin, exists near Archangel, on the White Sea, where are important saw mills managed by capitalists of North Britain.

AN AERIAL PROPELLER.

The accompanying engraving represents an aerial propeller recently patented by Mr. M. H. Depue, of Homer, Ill. The propeller, Fig. 2, has a rim and hub in which are journaled radial blades; each journal of each blade being provided with two transverse arms in the same plane. The main



DEPUE'S AERIAL PROPELLER.

rudder for guiding and controlling the machine is shown in the right side of the perspective view. Upon each side, at the other end of the balloon, is a rimular rudder used to raise and lower the machine when balanced in the air, thereby avoiding the necessity of throwing out ballast or letting out gas. The under part of the balloon, next to the car, is made straight, thereby giving the propeller more power, and the car a better shape for the other attachments. When the car descends, it alights upon small wheels, which prevent scraping and sliding on the ground. Figs. 3 and 4 show the hub of the wheel and the frame and a single paddle or blade in different positions.

Real Disinfectants.

Professor De Chaumont, in a lecture at the Health Exhibition on cholera and its prevention, exposed the untrustworthiness of many so-called disinfectants. The belief in a few of these disinfectants has come to be almost a superstition, and it has been too much played upon by some sanitary authorities, and even medical officers of health, who in times of smallpox have covered all available hoardings in the parish with posters vaunting the epidemic virtues of disinfectants. Professor De Chaumont said: "In regard to disinfectants, there is but one true disinfectant, viz., fire. The majority of so-called disinfectants are simply deodorants. The idea that tobacco smoke or the odor of camphor is destructive of contagion is still extensively held, though it is simply absurd. A true disinfectant is a substance that will kill the germ or living particle in which the contagious principle resides, or through which it is conveyed."