

the felt washer is freely used. Two or three novelties in ball bearings which are meritorious are mentioned elsewhere in this issue.

The good old method of attaching the crank to the crank-shaft by means of a plain key is conspicuous by its absence. It has been thrown aside, not because it was unmechanical, but because it was so difficult to remove, especially by unskilled hands. The most common device is some modification of the jointed crank-shaft, in which the crank is formed in one piece with the shaft, the latter being spliced in the center by some form of interlocking device. In some cases the crank-shaft and one crank are formed in one piece, and a very few machines have the two cranks and the shaft in one continuous forging. Almost all of these devices allow the crank shaft to be removed without disturbing the bearings.

Despite the many promises regarding the chainless bicycle made early in the year by prominent manufacturers, there is nothing to show that it is likely to replace the chain and sprocket machine. One leading maker exhibits a bevel gear wheel which is about the same weight as the standard machine and has the compact appearance and the dust proof qualities which are the chief recommendation of this type of wheel. There are a few other chainless wheels of various patterns and excellence; but it is evident that we shall have to wait at least another year before there will be many of them seen upon the road. The large sprockets which have been in favor in England are making their appearance in this country, and as the mechanical grounds on which they have been introduced are sound and practical, they have probably come to stay. The large sprockets reduce the tension in the chain and lessen the strain upon the bearings and the frame. There is noticeable a tendency to raise the gear of this year's wheel, the change being compensated by lengthening the cranks from six and a half to seven inches. By this combination it is possible to reduce the rapidity of the pedal action and yet maintain the same tractive effort in the wheel. In general it may be said that the gear of the roadster has been raised from the 68 and 72 of last year to from 72 to 76 for 1897. There are several two-speed devices shown, most of which operate on the rear wheel. For the weaker riders who wish to ride the hills in a cross country run, the two-gear bicycle is an excellent device, and it is safe to say that it has come to stay. Before leaving the question of driving gear, it should be mentioned that several devices of considerable merit are shown which seek to overcome the sliding friction between the chain and the teeth of the sprockets. In some cases the rollers are on the chain, in others on the sprocket. Closely allied to these devices are the gear cases which are shown in two or three designs at this year's exhibition. Except on the ground of appearance and weight, the gear case has everything to recommend it, and it is quite possible that it will grow in favor as its merits are appreciated. To take such elaborate care to protect the other wearing parts of a machine and yet allow the most important parts of the driving mechanism to grind themselves to pieces in a sticky mixture of oil and mud is, to say the least, a strange inconsistency. At the same time the gear case widens the tread, adds to the weight and destroys the symmetry of the machine—and this is sufficient to kill its chances of adoption, at least for the present.

The wooden rim reigns supreme, and one well known firm, which last year made a specialty of aluminum rims, is offering wood rims as an optional alternative on its high grade wheels. Great ingenuity is shown in devices for preventing the warping and splitting of the rim—a defect which now seems to be fairly overcome.

There is no advance so marked as that shown in the production of a comfortable saddle. From the days of the primitive "bone shaker" the saddle has been the most faulty element in the make-up of a bicycle; but to-day the problem has been solved by designing the seat on so-called hygienic principles, and it is not the fault of the market if the 1897 rider does not sit his machine in comfort.

The single tube pneumatic tire is apparently destined to become the predominant type, though the well known double tube variety is still used by several of the leading makers.

In the matter of general attachments there is shown an infinite variety of bells, brakes, lamps and cyclometers of handsome design, and all the etcetera that go to make up the equipment of the 1897 wheelman.

THE LATE RICHARD POPE.

The death of Richard Pope, Esq., Deputy Commissioner of Patents of the Dominion of Canada, took place on February 2. Mr. Pope was in the seventieth year of his age. He was born in Toronto and was admitted to the bar of Lower Canada in 1855. He devoted great attention to the mineral and other resources of Canada, publishing important books and reports upon the subject. In 1872 Mr. Pope was transferred to the Federal Department of Public Works. For nearly a quarter of a century he has been a resident of the federal capital of Canada. He was private secretary to Sir Hector L. Langevin in 1873, was clerk of the

Crown in Chancery, and in 1888 he became Deputy Commissioner of Patents.

The administration of the various public offices which he enjoyed shows an honest, active, painstaking public officer. In private life he was hospitable and considerate. A large circle of friends will warmly sympathize with Mrs. Pope and family in this hour of sad bereavement.

A NEW BUSINESS—PATENT SHARKS.

Recently a new business has grown up. Patent lawyers are advertising extensively that they will give hints to inventors, and not only secure patents for them, but place their devices on the market. There are about a dozen such firms in this city, and all are doing a rushing business. Presently some of them will be in the penitentiary. They are not all dealing on the square.

An acquaintance of mine in the West asked me by letter to investigate a certain firm for him. It had secured a patent on his invention, and was trying to sell it, as he thought, without letting him in for his rights. I visited the gentlemen, and, introducing myself as a merchant, asked if they had such and such inventions, at last mentioning that of the Westerner. Yes, they had his patent, but it was not possible just then to get at the papers. They could assure me, however, that everything was all right, and they wanted to sell. What would they take? I asked. They could not possibly say without first consulting with the inventor and patentee; they would write at once and communicate with me. I left my address.

A week later I received from the inventor a copy of a letter written to him by this firm of patent lawyers. It concerned my visit. Here is an extract:

"Naturally your device was the first shown, and he appeared to be interested, but stated that he only wished to consider inventions in that line so far as foreign countries, more particularly European, were concerned, and we informed him that, although patents had not been granted in those countries, yet arrangements had been made for their protection. He desired us to state a price on England, France and Germany, and, without being informed upon that subject, we placed at random \$5,000 on these countries, and he quickly stated that those figures were out of his range. . . . We trust you will discover the importance of foreign patents, as those countries are in better financial condition than ours at the present writing."

There is a lie in nearly every word of that letter. I am strongly tempted to mention the name of the firm. It might save some fool of an inventor not only his money, but his patent. Here is an effort to belittle the value of the Westerner's invention in his eyes, and at the same time a bid for additional fees for taking out foreign patents. Let inventors take warning.—N. Y. Press, February 10, 1897.

A GOLD MEDAL FOR NANSEN.

The Royal Geographical Society held a reception February 8 in Albert Hall, London, in honor of Dr. Fridtjof Nansen, the distinguished Arctic explorer. Sir Clements Markham, the president of the society, presided, with the Prince of Wales sitting at his right hand and the Duke of York at his left.

Dr. Nansen delivered a lecture describing the voyage of the Fram and telling of his adventures in the far north. He said that the object of his expedition was not to discover the North Pole, but to explore the unknown region in its neighborhood. Upon the conclusion of the lecture, the Prince of Wales presented to Dr. Nansen a special gold medal voted to him by the Geographical Society. The recipient, in a few well chosen words, expressed his thanks for the honor accorded him.

The audience was a most exclusive one. Despite the enormous capacity of the building, the members of the press were ill provided with facilities for reporting the lecture.

STRENGTH OF WELDS.

Some experiments made at the engineering laboratory of the University of Michigan to determine the strength of welded joints are especially interesting, says the Digest of Physical Tests. Of a number of the specimens tested not one broke in the weld; as some of these were slightly larger at the weld, a new set of specimens was prepared and a cut taken from each in the lathe to reduce the piece to a uniform diameter throughout its length between the jaws of the testing machine. Common round iron was used. Three bars were taken at random; 1¼ inches, 1 inch, and ¾ inch in diameter. From each bar four specimens were prepared, one solid, one lap welded, one butt welded, and one split welded. The results show that only two specimens, both lap welded, broke at or near the weld; the fracture in one case was slightly crystalline and in the other fibrous. The strength in no case departed widely from the strength of the solid parts. It would seem from these tests that with skillfully made welds we may expect to realize nearly the full strength of the original bar.

ARCHÆOLOGICAL NEWS.

Lord Leighton's house in London is to become a museum.

Orange's Roman Theater has been completely restored and is now the finest ancient theater in Europe. Next summer performances of the Antigone and Erinnyes will be given and President Faure will be present.

The Italian government has recognized the impracticability of raising from the bottom of the Lake Nemi the two huge ships which Tiberius used as floating palaces. The government is now considering a scheme recommended by engineering experts for the draining of the lake in question, in which its waters shall have to be lowered sufficiently to bring these ships to the surface. It is estimated that the cost of the operation will not exceed \$50,000.

Mr. Charles Edwin Wilbour died in Paris in December, 1896. For many years Mr. Wilbour was in the habit of passing his winters on his own boat upon the Nile, and he made many discoveries of importance, though, owing to his extreme modesty, he was prone to give the results of his investigations to other students. He was regarded by prominent explorers as one of the greatest Egyptologists. He possessed a fine library of works on ancient Egypt.

The Norwegian traveler, Sven Hedin, has contributed to a German journal, Globus, an interesting account of his journeyings in Central Asia in the district north of the Kwenlung Mountains. Ruins of large towns were discovered which had been buried by successive sandstorms spreading over a thousand years, hence very modern from a Petrie point of view. Separate houses were uncovered of very fragile construction, consisting of wooden pillars, while the walls were put together of plaited reeds covered with mud. The latter were rendered at once impervious and suitable for decoration by being coated with white plaster. Drawings were discovered on these walls, and well executed, of human figures, horses, dogs and flowers, and judging by the copies which have been brought back, of no small artistic merit. Small figures of Buddha were also dug up, as well as various fruit trees which told a tale of the bygone days when this arid surface was once made fertile by the waters of the River Kerija.

Once more there is a rumor that Signor Gianturco, the Italian Minister of Education and the Arts, has been able to negotiate with Prince Paul Borghese for the acquisition of the pictures in the Palazzo Borghese by the Italian government, says the Architect and Contract Reporter. The Borghese family, it is said, were induced to expend enormous sums in building speculations which were not profitable, and it is necessary to find an equivalent for them. Some of the famous pictures had to be sold and others were destined to follow them out of Italy when the law against the exportation of such property was enforced. In Rome there is no collection that is comparable with the contents of the eleven galleries of the Borghese Palace, and the wealthiest connoisseurs of Europe and America would be glad to compete for pictures, one of which would be enough to gain position for its owner. To possess Titian's "Amor sacro et Amor profano," or Raphael's "Deposition," Correggio's "Danae," or Domenichino's "Nymphs," would be almost equal to gaining a knighthood, while Rome itself would be poorer if they were dispersed.

Dissatisfaction has arisen among the six hundred American members of the Egypt Exploration Fund over the recent reorganization of the American branch by the English officers, who have abolished the office of honorary secretary, held by the Rev. William C. Winslow, of 525 Beacon Street, Boston, and substituted for it an executive committee consisting of Prof. John C. Gray, Charles L. Hutchinson, Gardiner M. Lane, Charles G. Loring, Charles Dudley Warner, Sarah W. Whitman and the Rev. Mr. Winslow. The American members think that Mr. Winslow should be kept at the head of the American branch, in view of his earnest work for the Fund in years past and his general fitness for the place of leader, says the New York Sun. Then, too, they object to the manner in which the reorganization was effected, inasmuch as the action of the English members was taken without consulting the American interests as to the advisability of an executive committee to rule in place of Mr. Winslow.

The Egypt Exploration Fund was founded in 1883. It has for its purpose the promotion of historical investigation in Egypt by means of systematically conducted explorations. Particular attention is given to places where the explorations may be expected to throw light upon obscure questions of history. Much attention is given to details, and all objects discovered are carefully preserved for examination and study. Explorers are sent out in all seasons of the year to make excavations in different parts of Egypt, and so far they have obtained a great deal of valuable historical data.

The local honorary secretaries in New York are Clarence M. Hyde, of 206 Madison Avenue, Albert A. Aub, of 43 East Eighty-third Street, Mrs. E. A. Hoffman, Chelsea Square, Charles W. Sloane, 60 Park Avenue, and Mrs. Howard Crosby.