

#### THE DAVIS SHAFT COUPLING.

A coupling that will hold the abutting ends of two lines of shafting securely together in a straight line, without the use of keys or similar devices, is one of the latest mechanical appliances of the W. P. Davis Machine Company, Rochester, N. Y. The coupling is what is termed a "compression" coupling, or, in other words, one that exerts its force inwardly toward the shaft, instead of outwardly from the shaft.

The essential feature of the Davis coupling is to be found in an outer shell in the form of a belt-pulley, to which shell a hub is secured by arms tangentially disposed to the circumference of the hub. A glance at the accompanying illustration will show that this hub, so far from being of the ordinary construction, is split into three longitudinal segments, each of which is fastened to the outer shell by one of the arms mentioned. Within the hub, the ends of the shaft to be coupled are received. In order to lock the hub-segments and shaft ends rigidly together, clamps comprising each a sleeve and an integrally-formed flange are slipped over the tapered hub. As our illustration shows, the flanges of opposing clamps are drawn toward each other and locked together by bolts. It is evident that the tighter the nuts on the bolts are screwed up, the higher the clamp-sleeve will be seated on the tapered hub, the more closely will the hub-segments be contracted, and the more powerfully will the shaft ends be gripped. Mechanically considered, this coupling seems to be constructed on principles, the correctness of which can hardly be doubted. The fact that no keys are required, and that the few bolts employed are so completely housed that they cannot in any way catch the clothing of an attendant, are also points of interest and value. By the employment of reducing couplings it is possible to unite shafts of different diameters.

It will readily be seen that the coupling can be quickly placed on the shafting, and when drawn together it brings the shaft into perfect alignment.

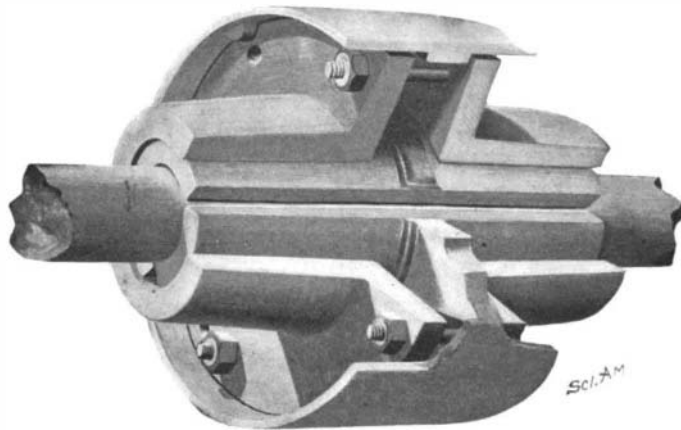
To remove the coupling from the shaft the bolts are first taken out. Each bolt is then screwed into a tapped hole in the flange, and as the bolts are turned in, the point of each bolt comes in contact with the arm of the coupling. In this way the flanges are forced from the coupling.

#### THE HANSON-LEE TYPEWRITER.

It is now generally known that the first practical and successful typewriting machine of the "basket-pattern" was invented in Milwaukee, Wis., and that this machine, which was chiefly the invention of the late C. Latham Sholes, was taken to Iilon, N. Y., and put upon the market as the original "Remington," but it is not as well known that the latest achievement in this art, herein illustrated, is also a Milwaukee product. The Hanson-Lee machine, as it is called, is a distinct and radical departure from all its predecessors in the art of mechanical writing, its distinguishing characteristics being a vertically arranged horizontal revolving platen, in connection with a horizontally disposed key-board. By reason of this device this machine is peculiarly adapted for commercial work, involving long columns of figures, while at the same time it is equally as serviceable for correspondence, and the making of copies, as are the machines in ordinary use, employing horizontally arranged platens.

As shown in the accompanying illustration the Hanson-Lee machine is provided with a pair of vertical guide-posts, grooved for the reception of a vertically movable platen-supporting slide, the said platen being automatically revolved by the depression of the type-levers, and of a proper diameter to permit the sheet of paper to be wrapped around it, and held by a series of open annular spring bands. Besides the usual type-key, shift, and spacer-bar levers, there is a line key with connecting mechanism, so that the platen can be elevated the space of either a single or double line, as desired; and a margin-regulating mechanism and key, so that, at the end of a line (or sooner if desired) by touching this last-named key, the platen will whirl around and stop at the predetermined distance from the left edge of the sheet, for the beginning of the

next line, the adjustment of the margin to any width desired being quickly made, and as quickly changed. The ribbon feeds automatically and is vertically disposed across the front of the platen, and as it is very narrow, only the line being typewritten is concealed thereby, all the preceding lines being always distinctly visible. The platen-supporting slide is movably supported on a central vertical shaft, and at any time can be depressed by hand thereon, if it is desirable to lower it, but the entire action of the machine is automatic, and by depressing an arm, and thereby forcing the platen-supporting slide from engagement with the dogs which ordinarily raise the platen, tooth



THE DAVIS COMPRESSION COUPLING.

by tooth, for each line, the slide carrying the platen will be instantly raised its full height, so as to be in position to remove the sheet of paper therefrom, or place a fresh sheet thereon, after which the platen can be quickly depressed to its initial position.

The actuating mechanism for vertically moving or horizontally revolving the platen comprises inde-

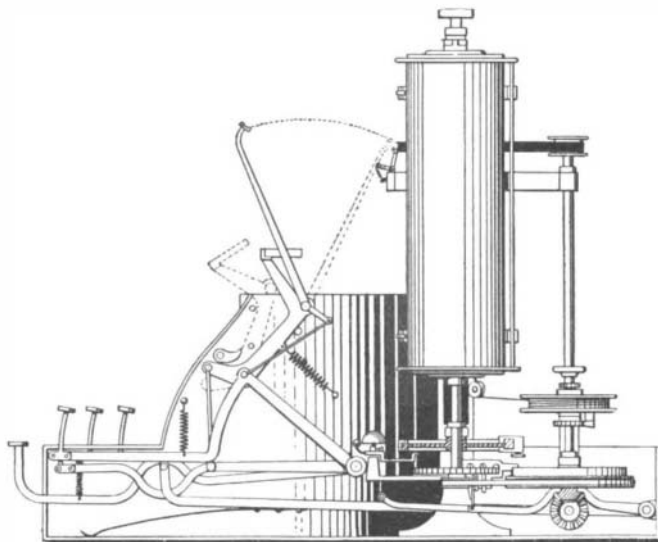
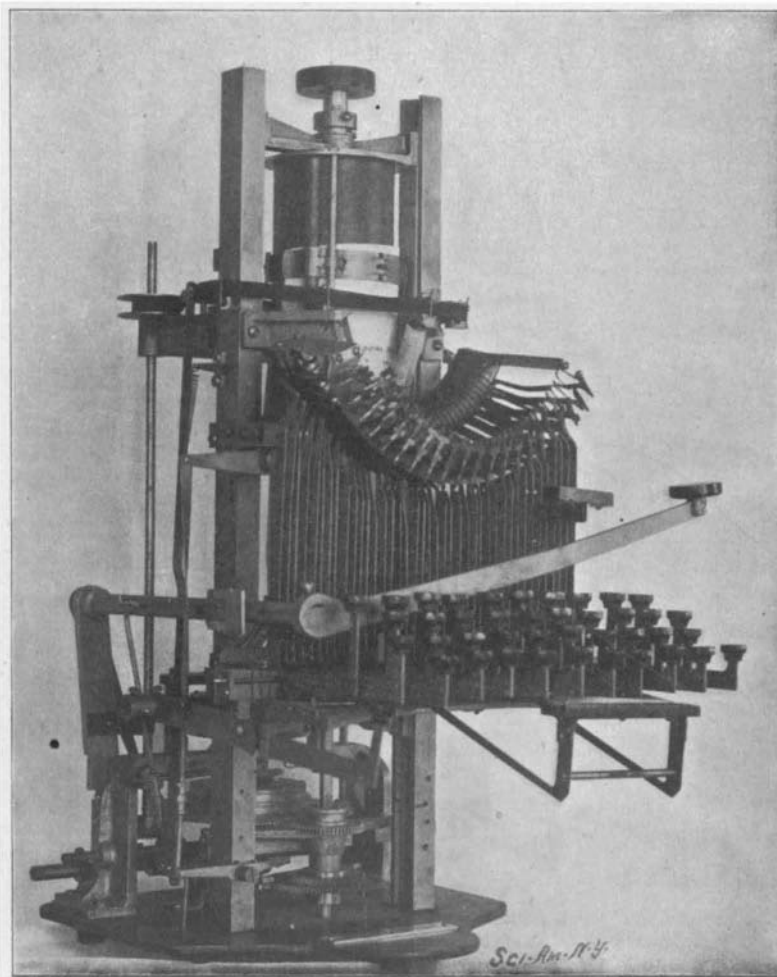


DIAGRAM SHOWING THE ACTION OF THE TYPEWRITER.



THE HANSON-LEE TYPEWRITER.

pendent spring mechanism and suitable connections, there being two drums, with volute springs therein adapted to revolve said drums in opposite directions, the described line-key being connected with one of said drums for automatically raising the platen, without rotating the same, and the margin-regulating key being connected to the other drum for automatically revolving the platen, without varying its elevation, by the mere act of depression of one or the other of the said keys. Further, each time the last-named key is depressed to revolve the platen the spring within the drum connected thereto is thereby automatically wound up, so that there is no "running down" of the spring from constant use, and no winding by hand necessary.

The characters are arranged, as is usual in shift machines, in pairs at the ends of the type-bars, which latter are supported in radially-disposed grooves in an arc-shaped guide, pivotally secured to the uprights of the machine, said type-bars being linked to the type-key levers, and when the shift-key is struck, the said guide, with the rear ends of the levers connected thereto, is thereby carried to the left, and changed in position so that the "upper case" characters will properly strike the common point of impact without any lateral change of position of the platen, the release of the shift-key causing the said guide to return to its normal position, this being accomplished without any frictional resistance or interference.

The original machine was invented by the late Walter H. Hanson, of Milwaukee, and patented some three years ago, since which time it has been greatly improved and simplified and is protected by a series of patents in the United States, Canada and the principal European countries. The present owner of the patents is one of the patentees, Rev. O. H. Lee, No. 462 Fourth Avenue, Milwaukee, Wis.

#### Inventions Awaiting the Touch of Genius.

For every ingenious young American, rich prizes are waiting, not only for great discoveries, but also for little things, simple improvements on the things we have. Whatever occupation he may choose, he will find that that calling is in need of men who can think of something new and better. For the men who have thought of new things, however simple, there have been in recent years in America, rich material rewards. Such a man was Hayward Augustus Harvey, who recently died a millionaire. His father was the village blacksmith in Jamestown, New York, early in the last century. Harvey saw how slow was the work of forging small things on an anvil, and sought to do it by labor-saving machinery. He became the pioneer in screw machinery and automatic pin machinery. He revolutionized screw-making. The gimlet-pointed screw was his. His last important discovery was the armor-making process which bears his name. He took out seventy-nine patents—not very many for a life of seventy years, but he did not rush to the Patent Office with every half-conceived idea. No fortune was ever more honestly earned or justly deserved than his. Like many other inventors, he showed his fellow-men how to live simply.

Concentrate your mind on the subject of needed inventions for five minutes, and you can think of a dozen things, any one of which would make its inventor rich beyond the dreams of avarice. To give a list of all the inventions that are needed in this year, 1902, would be beyond any man's power.—Franklin J. Forbes, in success.

#### A Heat-Detecting Machinery-Paint.

Machinery suffers, perhaps, as much from overheating as it does from general wear. In order to indicate when the moving parts have become excessively heated, a German inventor has devised a paint composed of an amalgam of the iodides of mercury and copper—a composition which, he claims, will turn color when heated bearings to which it is applied are red in color under normal conditions. But when a temperature of 140 deg. Fahr. is reached, the paint turns black.

Aluminium saw handles are being introduced which are said to be both lighter and stronger than those of wood. There are several shapes, but they are all made of thin sheet metal worked into the desired form and supplied with perforations for the purpose of enabling workmen to get a secure hold of the tool. One of the designs offered is adjustable so that the right hand side of the handle is flush with the saw, permitting the operator to work close to the floor or in other inconvenient places.

## Brief Notes Concerning Patents.

A café is drawing trade in Chicago by advertising that every table is equipped with a telephone. This latest innovation is called a "snap jack." The telephones are movable, so that a diner may order one with his meals. Connection is made simply by dropping a dime in a slot in a box underneath the apparatus. A man may, therefore, eat, and talk with anyone miles away.

John J. Hoffman, formerly employed as foreman of the box department of the Duryea Starch Company, has brought suit against Walter E. Duryea for \$50,000 damages. It is claimed that Hoffman designed a box which prevented the leakage of the starch dust therefrom, and he claims that Duryea induced him to assign the patent to him on the promise that he would form a company for its manufacture and sale, and this, it is alleged, he neglected to do.

The new lace machine invented by Herr August Matitsch, of Vienna, it is stated, will influence the lace manufacturing industry. The machine makes genuine lace of such a quality as to be absolutely indistinguishable from hand-made lace. The apparatus is based on the principle of the English twist lace machine, but is provided with a mechanism which makes it possible to move each carriage and each needle independently. The machine is a complete substitute for the pillow and other appliances for hand lace making.

The presentation to Congress of a memorial praying that the government bestow some recognition on Theodore R. Timby brings to light another inventor of the monitor turret. The memorial states that away back in 1841 Mr. Timby conceived the idea of a circular iron structure, rotatable on a vertical axis, which structure would contain guns that could be directed to any desired point on the horizon. At the request of John C. Calhoun, Mr. Timby is said to have made a model of his invention. In September, 1862, Mr. Timby took out patents on his revolving turret, and in the same year, through the influence of wealthy friends, he succeeded in building the "Monitor." It is claimed that John Ericsson worked out Mr. Timby's patented invention.

For transporting rails a truck has been designed which is somewhat similar to that ordinarily used by hook and ladder companies. It differs in the fact that it is collapsible, the connection between the two sets of wheels being made by a 6-inch pipe, in which slides a 4½-inch pipe. Thus the vehicle can be shortened to accommodate itself to the length of the rail, yet the pipes are held to the desired length by metal pins, placed at convenient points. Cranes attached to the forward and rear ends of the truck are connected with block and tackle, by which two men can readily raise and lower the heaviest rail carried. The steering apparatus consists of a wheel similar to those on a fire truck. In carrying short lengths of rail, a two-wheeled truck is supplied which is moved by hand power. This vehicle can be loaded on board the repair car, and will do the work of four to six men in lifting.

A new range finder has been invented by a London engineer which consists of two separate parts, a portable base and binocular field glass. The base is a tube, and has at each end of it a pair of reflecting surfaces placed at an angle of 45 deg. The binocular, which is of the prism type, has in its focal planes scales, indices, lines or wires, supplied with the necessary means of adjustment by which the angle between rays of light coming from a distant object and entering the two telescopes can be measured. An important part of the invention consists in constructing the binocular so as to vary the distance between the eyepieces without greatly varying that between the object glasses and without impairing the accuracy of measurement of the angle between rays. This effect is accomplished by mounting the two telescopes on a hinged joint, the hinges being in one plane, with the centers of the two object glasses for the mean distance between the eyes of observers.

Two eminent French scientists, M. Desgrez, a professor at the Faculty of Medicine, and M. Balthazard, a house surgeon in a hospital, have invented a new apparatus for purifying vitiated air, which will be of inestimable benefit in crowded offices, and other places where it is difficult to provide adequate ventilation. The appliance has been successfully tried before the Prefect of Police and the chief physicians of the Faculty of Medicine. The process is an application of the properties possessed by the compound sodium bi-oxide, which was discovered by an English chemist, Mr. Vernon Harcourt, in 1862, but has hitherto not been utilized. This compound, when brought into contact with water, decomposes immediately, one part of the oxygen being thrown off and oxide of sodium remaining. If therefore sodium bi-oxide be placed in water in an atmosphere which is being breathed, the supply of oxygen in the air will be constantly renewed, and at the same time the carbonic-acid gas present will, constantly and immediately on its production, be absorbed by the sodium mon-oxide, forming with it bi-carbonate of soda.

## Legal Notes.

CONSTRUCTION OF PATENTS.—The custom of the Federal Courts in construing patent claims as broadly as possible was again followed in the case of the Severy Process Company vs. Harper & Brothers (113 Fed. Rep. 581), which came up in the Circuit Court for the Southern District of New York. The patent, which it was alleged had been infringed, was for an improvement in platens for printing presses, and was granted to Melvin L. Severy, November 12, 1895. The subject of the invention was a bed or surface for the platen composed of a number of fixed, independently-yielding bristles or wires, by means of which a uniform impression was effected without the previous preparation of the platen, the impression cylinder, or type. The defendants' device is described in and protected by five Letters Patent, granted to Arthur S. Allen, all dated October 25, 1898. In the Allen patents the bed or blanket consists of fine wire coils interlocked and held in place between two sheets of rubber, which are not independently yielding.

Considered from a practical and commercial point of view, the court found that two points were incontestably established by the evidence: First, that the complainants' blanket was a "lamentable failure;" second, that the defendants' blanket was a "pre-eminent success." It was, therefore, held that when the question of infringement depends upon the construction of claims, the court, in the endeavor to ascertain what the inventor has given to the world, is justified in considering the invention as measured by the success achieved; and where the alleged infringer has taken the last step and has obtained the first commercially successful solution of the problem, care should be taken to protect him to the extent of his actual invention. Furthermore, the court held that the claims of a patent should not be so construed as to include devices which, though accomplishing the same function, do so by new combinations, operating upon principles so different as to entitle their originator to be considered as an independent inventor. There are many instances in the reported decisions of our Federal Courts where a monopoly has been sustained in favor of the last of a series of inventors, all of whom were groping to obtain a certain result, which only the last one of the number seemed able to secure. The case under question seems to be one of these.

A similar question came up in the case of Henry Huber Company vs. J. L. Mott Iron Works (113 Fed. Rep. 599). In that case the court held that a construction of the claims of a patent is not permissible which holds as an infringement a device which omits one of the elements of a combination, even if the remaining members accomplish a somewhat similar result. The Letters Patent in issue were those granted to Thomas C. Beaumont on February 18, 1894, for an improvement in hot-water bath fixtures. It was held that this patent was not entitled to a broad construction of its claims, or to a wide range of equivalents in view of the prior art, and could not be so construed as to include every device having such an arrangement of valves that steam cannot be turned on without also turning on a stream of water to be heated.

TRANSFERABILITY OF A TRADE-MARK.—So far as the transferability of a trade-mark is concerned, the Circuit Court of Appeals held, in the Severy case (*supra*) that a trade-mark is not of itself property that can be transferred, and the right to use it cannot be assigned except as incidental to the transfer of the business or property in connection with which it has been used. A transfer of the right to use it in connection with a different article or one of a different manufacture would result in deceiving the public as to the article or its origin, which it is the sole legitimate purpose of a trade-mark to prevent, and a transfer will not be protected for such use by a court of equity.

BRITISH VS. AMERICAN PATENT PRACTICE.—A paper was recently read before the Royal United Service Institution by Benjamin H. Thwaite, in which British and American patent practice are contrasted.

In the preamble to his dissertation Mr. Thwaite pointed out that during the first half of the nineteenth century, and indeed up to the seventies, British engineering reigned supreme, that the railway, gas, and sewerage systems—the productions of British inventors of the early part of the Victorian era—were almost exclusively designed and constructed by British engineers and with British machinery. It was not until the close of the last century that English engineering suffered by American competition. Mr. Thwaite showed that the progress of Americans could be traced directly to the encouragement given to inventors by the United States government from the very inception of the Republic. How different was British policy, the author clearly pointed out. Whereas a Britisher might ob-

tain a British patent, it was merely a registry of the date and the printed disclosure of the invention, and for which, during a term of fourteen years, he had to pay no less than £99 (\$495); an American inventor was given, for the sum of \$15, the benefit of an unprejudiced examination and investigation by patent examiners, each of whom may be considered a technical expert. Mr. Thwaite then dwelt upon the subsequent fees to be paid if the application finally passed the ordeal of this examination. The chances of an American patent's passing safely through a law contest are 74 to 100, according to Mr. Thwaite; but the chances of a British patent being found valid are only 58 to 100.

In order to demonstrate the deadly effect of the yearly taxation of the British patent system, Mr. Thwaite stated that of the 138,517 British patents applied for during the past five years, about 104,000 became void in the fifth or sixth year from the date of application, and the British government would have drawn in fees from those abandoned patents amounting to nearly £750,000.

WHEN SUBSTITUTION OF MATERIAL IS NOT INVENTION AND WHEN IT IS.—In the Circuit Court for the Southern District of New York, Judge Coxe decided in the case of the Union Hardware Company vs. Selchow (112 Fed. Rep. 1006) that the substitution of one material for another in an existing structure, the effect of which is to render it lighter, cheaper and stronger, but which does not change its mode of operation, or increase its utility, does not rise to the plane of invention. The decision which was handed down repudiates the validity of the Hoerle patent 508,617, for an improvement in trucks for roller skates, which consists in making the truck frame from a single blank of sheet metal, instead of from cast-steel, as previously done.

In the same court it was held in the case of George Frost Company vs. Cohn (112 Fed. Rep. 1009) that the use of one material instead of another in the construction of a known article or machine amounts to invention, if the substitution accomplishes a new and useful result, an increase of efficiency and a saving in operation, and renders the article for the first time successful and satisfactory in operation. The subject matter which gave rise to the litigation was the Gorton patent 552,470, for a hose-supporter, the essential feature of which is the substitution, in the construction of the clasp, of a button made of rubber for the metal button previously used.

TRADE MARK BLOWN IN GLASS.—Where distillers and selectors of gin have for many years put up and exported their gin in dark glass bottles of a distinctive size and shape, having their firm name, address, and their registered monogram trade mark blown in the glass, one who refills such bottles with an inferior quality of gin, which he sells without notice that such gin is not genuine, infringes on their rights, and should be restrained, though the refilled bottles are sold at a less price than the genuine, and do not have such distillers' monogram paper label and stamp on the cork.—Van Hoboken et al. vs. Mohns & Kaltenbach, 112 Fed. Rep. (U. S.) 528.

AMERICAN ANILINE PATENT SUSTAINED.—The United States Circuit Court of Appeals on February 5 handed down an opinion in the matter of Maurer vs. Dickerson and the Farbenfabriken, of Elberfeld, completely sustaining the validity of the American aniline patent. The patent in question has been attacked time and again. The foremost patent lawyers of the country have taken a part either side. Three times has the patent been before the Circuit Court of Appeals, and three times the Court declared it valid. The last decision will probably end a long legal battle in favor of the Farbenfabriken.

WHAT CONSTITUTES INFRINGEMENT OF COPYRIGHT.—An historical, biographical, and geographical dictionary, comprising a choice of articles treating in an original manner of subjects taken from books on which the copyright has expired, together with its nomenclature, may, when properly registered, be the subject of a copyright. It is of no importance that a work infringing a prior copyrighted work is an improvement on the former work and contains additional information, for such improvements do not remove the offense.—Beauchemin vs. Cadieux, Rep. Jud. Que. 10 B. R. (Can.) 106.

FINE FOR COUNTERFEITING OLD TAPESTRIES.—The Paris Court of Appeals has given its decision in the case of tapestry dealers who had falsified their wares so as to resemble antiquities. Charlaunes, of Paris, and Sauvageot, of Troyes, had sold these "doctored" abusons to Mme. Lemaitre, of Epernay, and for this offense the Seine tribunal condemned them some days ago to six months' imprisonment, \$200 fine and \$1,400 damages. On appeal, the sentence has been confirmed, and the damages increased to \$2,600.