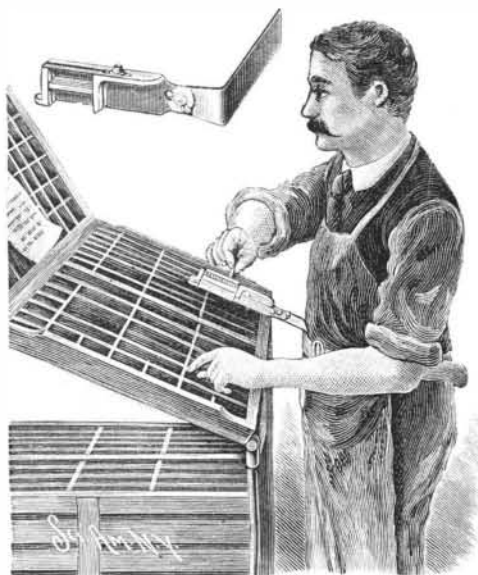


AN IMPROVED PRINTER'S COMPOSING STICK.

The illustration shows a compositor's stick designed to be conveniently supported from the body, instead of being held in one hand, so that both hands may be utilized in setting up the type, the stick being also provided with a yielding mounted plate to hold the type in place while the line is being formed. The improvement has been patented by Mr. Arthur A. Hill, of No. 327 West Twenty-third Street,



HILL'S PRINTER'S COMPOSING STICK.

New York City. The bottom plate of the stick, where it is usually held in the hand, is connected by a set screw with the outer end of a bent rod, whose inner vertical portion is held in a socket formed in a belt strapped around the body of the compositor, the arm being adjustably held at the desired height by a set screw. In the L-shaped adjustable piece, by means of which the length of the line is regulated, and also in the end piece at the outer end of the line, are grooves about half-type high, extending in the direction of the length of the column. In these grooves slide lugs on the ends of a yielding mounted plate, fitting the measure to which the stick is set, as would a compositor's rule, but the plate is straight only on its lower portion, its upper part being bent or rolled outward to form a mouth-like opening for conveniently inserting the type between the plate and an ordinary printer's rule. In case of leaded matter, the spacing lead will answer the purpose of the printer's rule. This enables the compositor to place the type in position without following the motion of the hand with the eye. The ends of a spring band, extending over a part of the back of the stick, engage the lugs on the ends of the sliding plate, and hold it yielding against the type as the line is being formed, so that it is not necessary to hold each piece in place by the thumb until the next one is inserted, and both hands may be used to pick up the type from the case and place them in position in the stick.

THE DESROZIERS CONTINUOUS CURRENT DYNAMO.

We present an illustration of a type of dynamo which possesses some features of marked originality, and which, *Engineering* says, has been making rapid strides in the estimation of electrical engineers and the public on the Continent.

The inventor of this machine is M. Edouard Desroziers, ingénieur des mines et expert près le conseil de la Préfecture de la Seine, well known in connection with electric lighting and traction enterprise in France, where the dynamo we illustrate has for some years past been superseding other types in the leading central stations in that country.

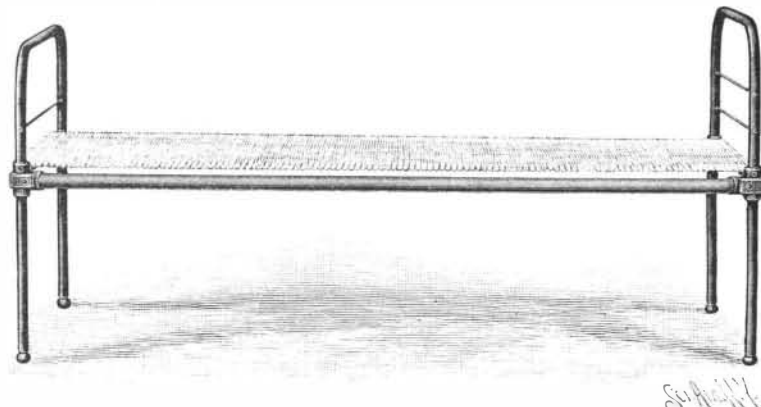
A short description will suffice to indicate the striking features of this dynamo machine. Our illustration is of a 100 kilowatt machine, which, it will be seen, has the general appearance of a multipolar dynamo. The special feature is to be found in the armature, which is built up without an iron core, and which, owing to its large diameter, is well adapted to direct

driving, now becoming more and more recognized as a desideratum for central station and electric traction purposes among leading electrical engineers in this country. In Fig. 2 the method of winding is shown. The core is composed of a round disk of papier mache, which is divided into a number of segments, 32 in this instance. Starting from a point, R, the armature conductor is curved along the circumference until it reaches a segment at C, where it is passed through the perforated papier mache disk, and carried radially down the other side to the hub, where, at d, it is again threaded through the disk. It is then carried along the hub until a segment at h is reached, when it is brought radially up to the circumference again, and so on until the whole armature is wound. The threading of the wire through the perforated and recessed disk holds the conductor rigidly in place, thus disposing of a fruitful source of trouble in dynamo machines as ordinarily constructed. The papier mache is cut away, as in Fig. 3, finally, thus resulting in thorough ventilation for the whole structure, and so enabling a higher current density than usual to be employed. Stability is given to the whole by "spiders" of German silver, keyed on to the shaft, and preventing the displacement of the disk and its conductors. More than forty-five of these machines have been supplied to the French navy, and as many more are in course of construction, while the Messageries Maritimes and other steamship lines have adopted them largely. But it is for the purpose of central station and electric traction that these dynamos have made their special mark. Four dynamos, with an output of 640 horse power, have been installed at the central station in the Rue de Bondy, Paris, and the same number of equal power at the central station of the Nord. Fourteen dynamos aggregating 2,200 horse power have been supplied to the Compagnie Parisienne de l'Air Comprimé for the Popp central stations in the same way. Among many private installations those of Baron Alphonse Rothschild and Baron Gustav Rothschild, at the Chateau de Ferrieres and the Chateau de la Versine, may be enumerated. Many others have been supplied to the governments and private firms in

Russia and Austria. In all, dynamos aggregating about 12,000 horse power have been manufactured by the Maison Breguet, who are the makers of the dynamo in France, and it will thus be seen that these machines are adapted for all purposes for which continuous current dynamos may be required.

A STRONG AND CHEAP BEDSTEAD.

An iron bedstead especially adapted for use in prisons, insane asylums, etc., is shown in the picture, and has been patented by Mr. John J. Dugan, of Salem, Oregon. As will be seen, it is made of but few



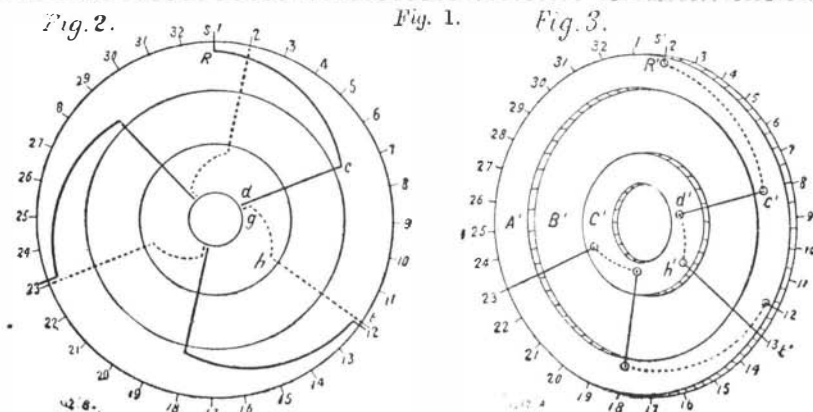
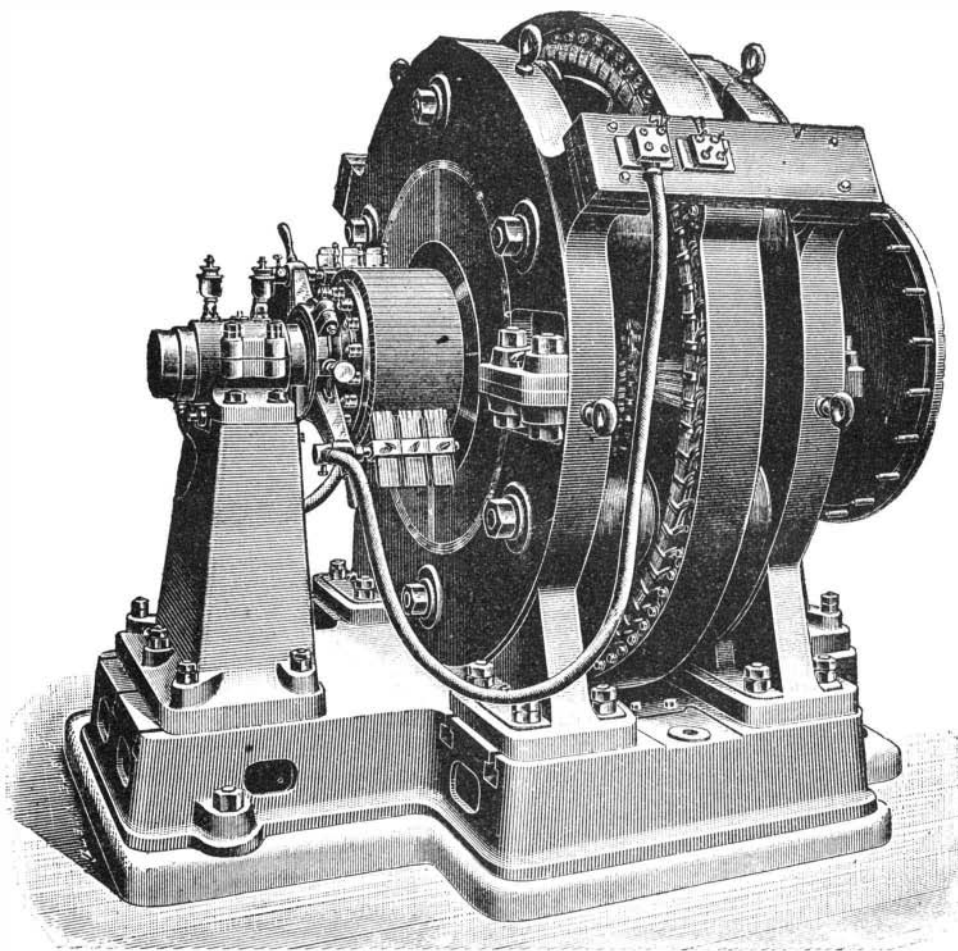
DUGAN'S INDESTRUCTIBLE BEDSTEAD.

parts, strongly put together, and there are no legs or other pieces which can be wrenched from the bed and used as weapons. The head and foot pieces each consist of a single length of bent iron pipe, the opposite posts thus formed being connected by cross braces which are simply iron rods extending through the posts. On each post is an ordinary T-coupling, held in place by a bolt, the couplings supporting the side bars, which are simply pipes screwed into the nipples of the couplings and fastened by bolts. At the head and foot are transverse angle irons, having perforations to which the mattress may be fastened, each iron being recessed at the ends to fit against the couplings, and having end straps bent around and fastened to the nipples by bolts, whereby all the parts are firmly bound together. The woven wire mattress is stretched from one end angle iron to the other, and its ends are doubled under straps or bars fastened to the tops of the irons by bolts, thus firmly clamping the mattress in place.

Language in Determining Human Races.

French anthropologists agree that a few anatomical characters are not enough to determine a type of race, and that it is necessary to investigate all or as many as possible of such characters. Anthropology does not interfere with ethnology, because each has its distinctive field of inquiry. Anthropology does not say that physical characters are superior or inferior to linguistic characters; it says that the two sciences are of a different order and for a different purpose. The first relates to the physical element constituting peoples; the second to the classification of these peoples. Language grows, loses, borrows, changes, transforms, and all this independent of anthropological characters such as beliefs, customs, industries. Physical characters are hereditary and inherent in the blood, but linguistic characters are not. If a Red Indian is born among strangers and without the society of his parents or race, he will speak not his own language but that of those who rear him; but he will retain all of the physical characters of his race, notwithstanding. Different and opposing races may speak the same language, and on the other hand the same race may speak different languages.

If not absolutely the oldest, the Stora Kopparberget in Sweden is the oldest copper mine of which we have any official figures. It has been worked continuously for nearly 800 years, and a table is given which shows the production for each year since 1633. This is probably the only mine in the world for which figures of production for 200 years can be shown.



THE DESROZIERS DYNAMO.