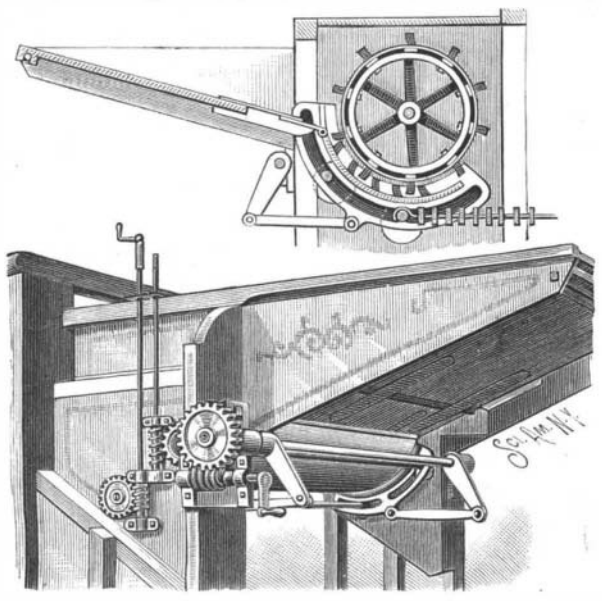
AN IMPROVED THRASHING MACHINE FEED.

The regulation of the draught in hand or self-feeding thrashing machines is readily effected by means of the improvement shown in the accompanying illustration, which provides for the convenient adjustment of the concave to or from thecylinder to suit any kind of grain, the concave and feed board being also so connected that the latter will be adjusted simultaneously with the former. The invention has been patented by Mr. David W. Broatch, of Pepin, Wis. The sides of the concave are formed of movable semi-



BROATCH'S THRASHING MACHINE ATTACHMENT.

circular bearings, each of which consists of a plate with a slide-way on its inner face in which are loosely held the ends of the body portion of the concave, the sides or bearings of the concave not being attached in any way to the sides of the machine. On the central portion of the under edge of each side or bearing is a lug, pivotally connected by links and crank arms with an adjusting shaft journaled in the forward lower portion of the casing, and having at its outer end a gear wheel meshing with a worm on a short shaft turned by a hand crank, whereby the concave may be carried upward or be lowered, moving concentrically with the cylinder and around it.

The feed board section, as shown in the sectional view, has hinged connection with the upper edge of the concave, and when the latter is carried to its upper position the feed board is very nearly horizontal, when the feed will be quite slow, but as the concave is lowered the feed board becomes correspondingly more inclined, providing for a substantially rapid feed. For the adjustment of the concave vertically, and to and from the feed end of the machine, two shafts, one forward of the other, are passed through segmental slots in the under sides of the concave bearings, each shaft having near each end an eccentric, whereby, on turning one of the shafts, the concave will be raised or moved forward, or lowered or withdrawn from the cylinder of the machine. The rotation of each shaft is effected by a worm on the lower end of a vertical rod, engaging a gear wheel on the outer end of the shaft, the rod being turned by a crank within easy reach of the operator. The attachment is readily adjustable to and may be applied to any thrashing machine.

NEW MULTIPOLAR GENERATOR.

There is no better evidence of real merit in a manufactured article than a demand for that article which in times of great financial depression like these compels the building of larger works and a general increase of manufacturing facilities. The Belknap Motor Co., of Portland, Maine, is one of the manufacturing concerns so situated, and notwithstanding the hard times, this company is building a large addition to its factory preparatory to going into the manufacture of large railway generators and motors.

We give an engraving of the recently perfected Belknap Multipolar Generator which that enterprising company has just put on the market. The frame of the machine is composed of several parts, making it convenient to handle. The total weight is quite uniformly divided between the several parts, as shown in the engraving, making a machine which may be conveniently set up in stations not provided with apparatus for handling very heavy weights. The bed is planed to fit iron slides,and is very rigidly constructed, so as to withstand the strain brought on it by the weight of the field magnet.

The magnet is formed of two iron castings, both together forming a complete circle, with four inwardly projecting cores to receive the field coils. The magnet is bored and fitted with a pole bushing surrounding the armature, which gives the greatest possible effective polar arc, and prevents the disagreeable humming sometimes observed with toothed armatures under heavy loads, and suppresses the tendency to spark by reason of stray lines of force.

The armature is of the toothed hollow drum type. By a system of end connections, crossing of the conductors at the leads of the armature is avoided, thus reducing the danger of short circuiting and burning out and permitting of conveniently getting at every wire.

The commutator is massive, and the well-known Belknap patent woven wire and graphite brushes are used. The bearings, which are very large, are self-lining and self-oiling. The two terminals are located at opposite sides of the machine, to avoid the danger of a short circuit.

The field cores are compound wound and the magnetic circuit of the machine is carefully designed with reference to the reluctance of cast iron, wrought iron and air, so as to get the very best attainable effect from the materials used.

The new graphite and woven wire brush above mentioned contains all the essential qualities of both copper and carbon, the graphite acting as a lubricant and the copper as a conductor. The brush being flexible, makes a good contact with the commutator. These brushes are largely used on dynamos of other types.

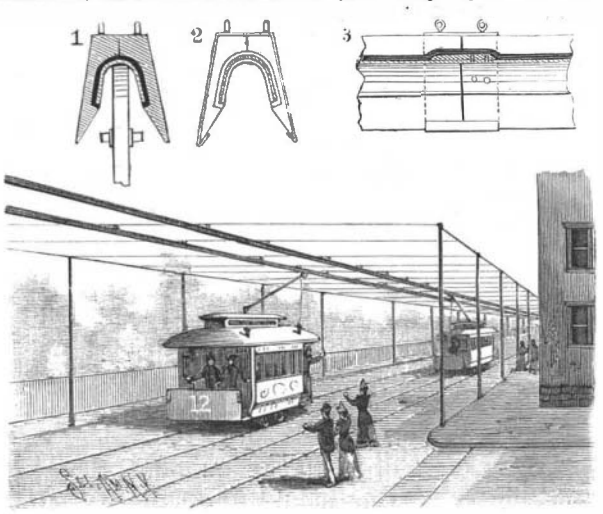
The Belknap Motor Co. has an office at 135 Liberty Street, New York City, one at Philadelphia and one at Boston.

Building and Loan Associations.

The Hon. Carroll D. Wright, whose continuance at thehead of the National Labor Bureau is matter for public congratulation, has made building and loan associations the subject of this year's report. These savings associations are now established in every State in the Union. Pennsylvania comes first, with over one thousand associations; Ohio second, with over seven hundred; and then in close succession follow Illinois, Indiana, New York and Missouri. Even in the South these co-operative organizations have gained more than a foothold in all the States, being relatively stronger there than in New England. This, of course, is not due to the greater strength of the co-operative spirit among the people, but to the fact that in New England the savings banks, which are essentially co-operative, supply the need which has occasioned the rapid spread of building and loan associations in other parts of the country. Of the six thousand associations in the country, less than five hundred are more than fifteen years old. Yet the assets now aggregate $450,000,000, and the commissioner estimates that probably four hundred thousand homes have been built with the aid of these associations. This is a triumph of co-operation comparable with what has been achieved by the famous societies of Great Britain.—*The Outlook.*

AN IMPROVED TROLLEY CONDUCTOR.

With the trolley conductor shown in the illustration, the trolley wheel may be easily and conveniently brought into contact with the conductor when the shifting of the trolley is necessary. The improvement has been patented by Mr. Robert Muir, of No. 13 Stewart Street, Brooklyn, N. Y. Figs. 1 and 2 represent sections transversely through the conductor, and Fig. 3 is a longitudinal section showing how the joints are made. The conductor is shaped substantially as an inverted trough, and is protected by a casing, preferably of wood, made in two sections, engaging one another at the top, and tied together where a joint is made by a shoe, as shown in Figs. 2 and 3. Between the conductor and its casing is a packing of insulating material, and the sections are joined by a plate cross-

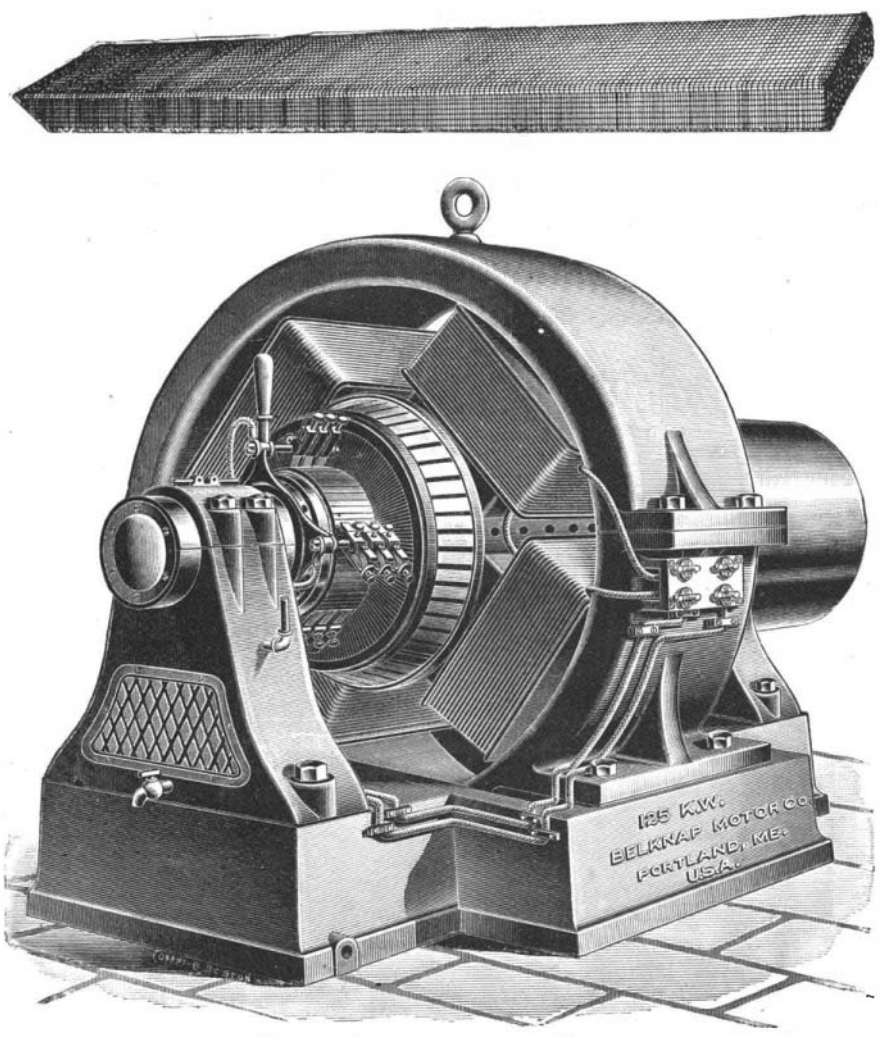


MUIR'S OVERHEAD TROLLEY CONDUCTOR.

ing the joints when the ends of the sections are brought nearly end to end. The conductor is supported by transverse wires from posts each side of the track, these wires passing through eyes in the top of the casing. The construction is designed to prevent the trolley wheel from jumping from or leaving the conductor, and facilitate its being replaced in contact therewith when it may have been purposely withdrawn.

Dulcin.

Dulcin, or sucrol, a new sweetening agent, which is said to be from 200 to 250 times as sweet as sugar, was first produced by J. Berlinerblau. Structurally it must be described as para-phenacetol carbamid. It is an aromatic uric acid derivative related to phenacetin. It is a white powder which melts at 173° C. to 174° C., and is soluble in about 800 parts of water at 15° C., fifty parts of boiling water, and twenty-five parts of a cold 90 per cent solution of alcohol. These particulars are taken from a contribution by Professor Kobert, of Dorpat, to the *Centralblatt fur Innere Medicin.** Particulars as to its physiological effects are also given. Dogs seem comparatively sensitive to dulcin, dying with such evidences of blood destruction as icterus, while rabbits appear to be quite impervious to its influence. Professor Kobert relates his own experience with the drug in the case of cats. These animals reveal no evidence of blood destruction, but seem to die with symptoms of cerebral paralysis; this is also the manner of death of frogs subjected to subcutaneous injections of dulcin. These are, of course, the extreme effects of poisonous doses. In the relatively small doses necessary for sweetening the food of diabetic patients and the obese, Professor Kobert considers the agent harmless, and mentions a case in which eight grammes were taken daily for three weeks with impunity. The *Lancet* says it is quite evident, however, from the physiological experiences related that some care is necessary in the use of this article.



THE BELKNAP MULTIPOLAR GENERATOR—WOVEN WIRE AND GRAPHITE BRUSH.

A Church-Going Robin.

A few Sundays ago, says the London *Standard*, the family of Mr. W. A. Wykeham Musgrave, entering their pew in Thayme Park Chapel, Oxfordshire, were surprised to see a partially built robin's nest on the book ledge against a prayer book and a hymn book. The family immediately decided to occupy another seat and to leave the little redbreast unmolested in its strange abode. On the following Sunday the nest was completed and contained five eggs, and on the succeeding Sunday the bird sat on the eggs during the whole of the service. It has now been found that the bird has hatched four young ones, and the mother flew in and out of the chapel during the service with food for her young.

*No. 16, 1894.