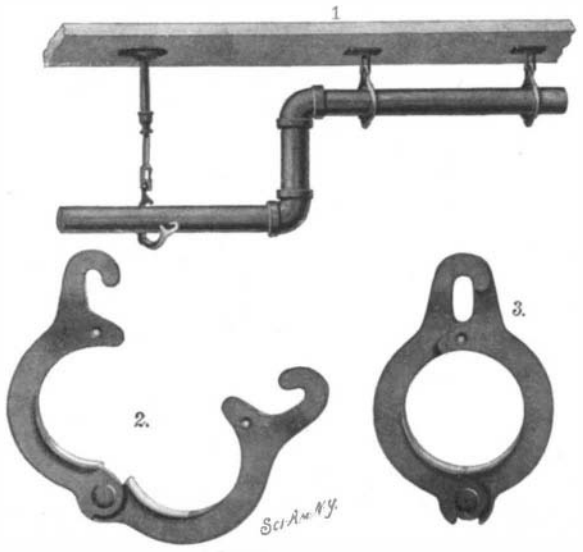
A SIMPLE PIPE-HANGER.

A most effective pipe-hanger is now being made by the American Twist Drill Company, of Laconia, N. H., the construction of which is noteworthy for the novel means employed to obtain greater strength.

The hanger is composed of two sections hinged together at one end. Each section is formed with a semicircular pipe-receiving portion with a projection constituting part of the semicircular portion, and with a hook-shaped end by which the device can be suspended. In operation, when the two hanger-sections are brought together, the semicircular portion will form a circular opening to embrace the pipe and



THE WORRALL PIPE-HANGER.

the hook-shaped ends will form an opening to receive the suspending means.

In order to prevent the separation of the hanger-sections the projections are provided with registering holes, which are adapted to receive a locking-pin. In order that the hanger-sections may brace each other and thus strengthen the device, they are oppositely bent, so that when brought together the hook-ends and projections will interlock. The locking-means employed will effectively prevent the accidental unfastening of the hanger-sections after having been applied to a pipe.

THE MULTIPHONE.

We publish herewith the latest development in talking machines, the multiphone, conceived and recently constructed by Mr. E. Berliner, the well known inventor of the loose contact transmitter, the gramophone, and other inventions. It is a gramophone in which a number of records, copies of one original, are played simultaneously.

Gramophone records are pressed from dies or matrices, like seals, under heat and pressure, and consequently all records of one catalogue number are exactly alike in every detail.

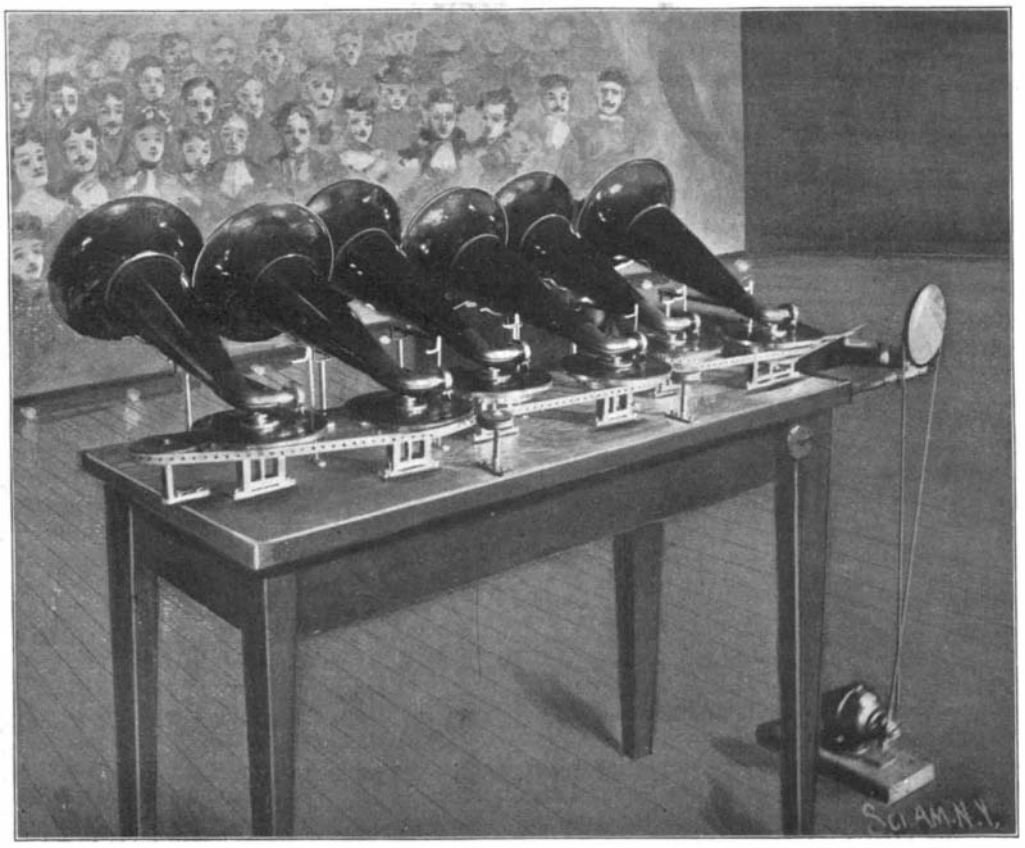
It has long been the aim of talking machine people to increase the loudness of their records without changing their quality, and, while others have worked in the line of special diaphragms, larger size of record waves, and enlarging by photography or leverage, Mr. Berliner has vastly increased the loudness of the talking machine by the simple device of rotating a number of records from one motor and playing them together. They sound like only one record, and with a loudness proportionate to their number.

The illustration shows a sextuplex multiphone consisting of six turntables run by one motor. Each has a sprocket wheel underneath, and a perforated leather belt rotates them with precision and without noise. Six records of the same catalogue number are placed on the turntables, so that the needles of the reproducing sound boxes all strike the records on the same peripheral line, which is most easily accomplished. The needle points are then slid from the edge into the first record line—an operation requiring no special skill.

After being placed in position, the switch is turned and the reproduction follows without a hitch.

It has long been known that the carrying power of the ordinary gramophone is most astonishing. It fills a hall the size of the Metropolitan Opera House, in New York, and on the water, on a quiet evening, it has been heard over two miles. Multiply these effects by six, and you have the performance of a sextuplex gramophone.

Any mechanic can also see that there is no difficulty in constructing a multiphone with sixteen or sixty records. The reproduction, particularly of talking records, is striking, and the possibility of producing a giant human voice is now within easy and safe reach. The experimental machine is at present in the hands of the Berliner Gramophone Company, of Philadelphia.



THE BERLINER MULTIPHONE.

New Composition for Matches.

Messrs. Sevene & Cohen, engineers of the French state manufactories, have recently succeeded in producing matches with a phosphoric combination that is less deleterious than the one that has hitherto been employed. The period of trial terminated some time ago, and for a few months past all of the manufactories of France have been using nothing but the new composition.

The substance recommended by Messrs. Sevene & Cohen is sesquisulphide of phosphorus, which has all the advantages of white phosphorus without the drawbacks of the latter. It is obtained through the combination of amorphous phosphorus and sulphur. It cannot be obtained in starting with white phosphorus, and so it can contain as impurities only red phosphorus and water. It melts at 142° and emits no vapors at ordinary temperatures; and neither odor nor smoke is observed in the works where the product is used. The toxicity of the substance is quite feeble. Messrs. Sevene & Cohen gave repeated doses of 3 centigrammes per day to guinea pigs without the latter appearing to suffer therefrom. This corresponds for an adult of medium size to 3·5 grammes, that is to say, to the weight of sesquisulphide contained in 6,000 matches.

In order to give the matches the necessary degree of inflammability, a certain proportion of chlorate of potash must always be added to the paste. The following is the composition of the paste at present employed and which permits of the manufacture of a new type of paraffined wooden matches that will ignite upon any surface whatever upon which they are struck:

	Parts.
Sesquisulphide of phosphorus	6
Chlorate of potash	24
Zinc white	6
Red ocher	6
Powdered glass	6
Glue	18
Water	34

The composition varies slightly according as the paste is designed for sulphur, paraffined, or wax matches. Not only is this product free from the inconveniences of white phosphorus, but the process of manufacture remains sensibly the same.

The Proposed Execution Prison.

Plans for the proposed State prison for executions for New York State have already been drawn. They provide for a stone fireproof building to be situated inside the walls of the Clinton prison, entirely separate and distinct from it, but near enough to obtain electric light and power from the plant of that prison. The structure will be divided into two sections, the administration department and the prison proper, which consists of cells and the electrocution chamber.

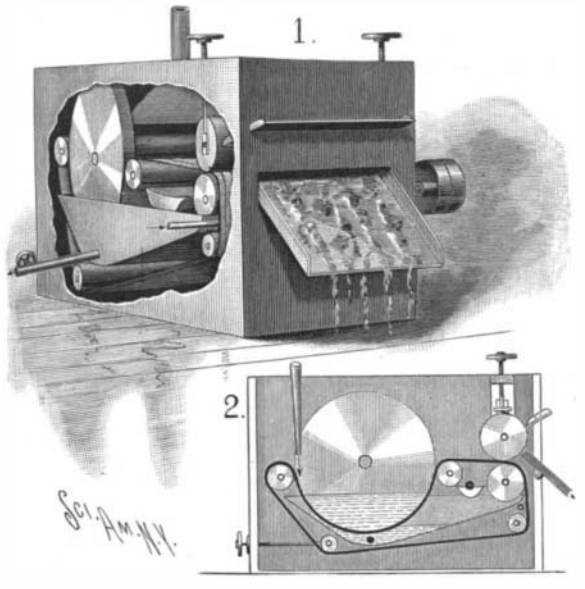
There is only one entrance to the building, which is through the office, from the rear door of which the guard is able to obtain a view of every cell in the prison. The cells will be located in the long structure one story high. They will be constructed of steel, with running water and all modern appliances. They will be twenty in number and will be situated in two rows in the cell department. They will have no windows, but will open on the central corridor. The corridor will also run around them. The cell department will be 92 feet long and 40 feet high, and the cells will be 8 feet square.

A MACHINE FOR FILTERING LIQUIDS.

In order to remove the foreign matter from dense liquids, such as oils, in a more rapid manner than has hitherto been possible, Mickael B. Koerper and Edgar C. Talley, of Waco, Tex., have devised a filtering machine in which an endless belt of filtering material is employed, coacting with a series of rollers.

Fig. 1 is a perspective view of the machine, parts being broken away to show the construction. Fig. 2 is a longitudinal vertical section through the machine.

The filtering machine is inclosed in a casing, in the sides of which the rollers are journaled. These rollers support the endless belt of filtering material. The belt is driven through a tank in the bottom of the casing by means of a driving-roller, above which there



A MACHINE FOR FILTERING LIQUIDS.

is adjustably mounted, as shown in Fig. 2, a discharge roller which receives the refuse matter. Partially submerged in the liquid contained within the tank are two large filtering disks, which are mounted on a shaft journaled in the casing, and which engage the belt.

The oil to be filtered is poured in a broad stream upon the belt between the disks by a spout having a flaring delivery end. By reinforcing the edges of the belt with a double thickness of material, a tight and liquid-proof connection is produced between the belt and the disks; for it is here that the greater portion of the filtering is accomplished. The oil, after having been cleansed, passes into the tank. The refuse matter is carried by the belt between the driving and discharge rollers, is compressed upon the discharge-roller, and is removed therefrom by a knife and discharged from the machine by means of a chute. The oil which has been filtered will be drawn from the tank by means of a pipe.

Since in the filtering of oils froth is produced, the inventors have mounted between the driving roller and one of the supporting rollers a small receiving trough. An outlet in the side of the casing permits the discharge of the froth collected by the trough. Beneath the driving roll a steam or air pipe has been introduced for the purpose of cleaning the filtering material when the oil is very heavy.

After the parts of the machine have been once adjusted, the inventors state that the filtering can proceed uninterruptedly.

THE officers and sailors of the "Yale" have received their share of the prize money accruing from the sale of the Spanish boat "Rita." After this vessel had been captured by the "Yale" it was purchased by the government for $125,000. The prize money to be divided amounted to $59,000. Captain Wise, of the "Yale," received $8,091; the smallest sum received by a seaman was $76.