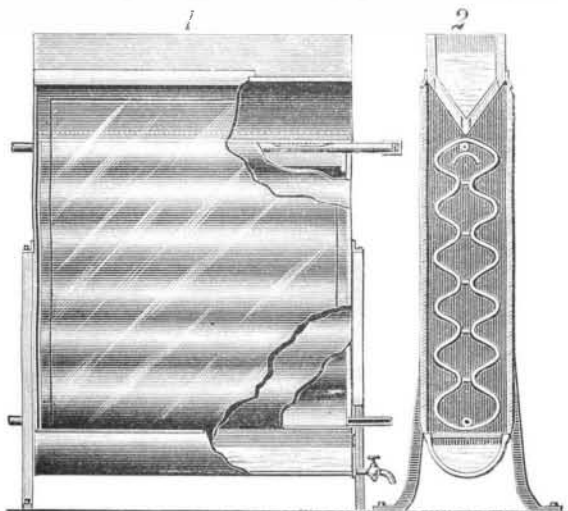


AN INEXPENSIVE AND EFFICIENT MILK COOLER.

According to this improvement, which has been patented by Mr. Frank J. Merz, of Fifth and Lane Streets, Seattle, Washington, the milk is cooled by being passed over the outer surfaces of corrugated metal plates, whose inner sides are kept cool by flowing water. Fig. 1 is a side view of the cooler, portions being broken away to show the interior, and Fig. 2 is a vertical cross section. End plates of the frame support a trough at the bottom and a hopper at the top, there being sockets in the upper side edges of the trough and in flanges of the frame to retain glass plates, which form the side walls of the cooler. Beneath the hopper an interior chamber is formed of corrugated plates of metal, attached at their ends to the end plates of the frame, and the top of this chamber is traversed by a water supply pipe having a series of openings in its top and side portions, over which is located a curved baffle plate or fender to direct the water issuing from the pipe against the side walls of the chamber. The water is thus made to flow along the inner side walls of the corrugated metal plates, passing off from the lower compartment through an outlet pipe. The milk to be

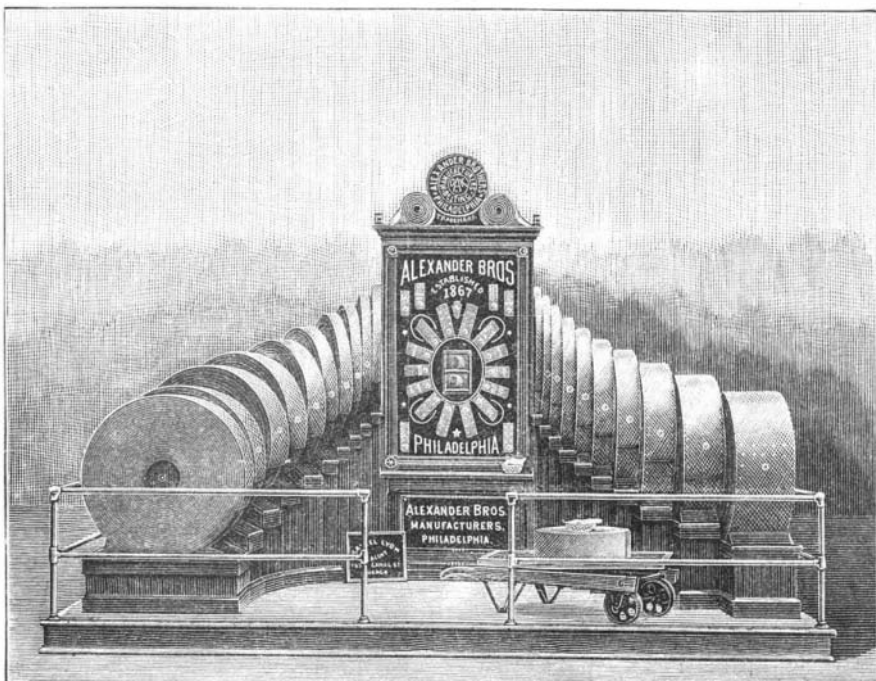


MERZ'S MILK COOLER.

cooled is placed in the hopper, at each side of the bottom of which is a series of holes, while within the hopper is a sieve or strainer entirely covering its bottom. The milk flows down the outer faces of the corrugated side walls of the interior chamber in the same manner that the water follows their inner surfaces, the milk being finally received in the trough at the bottom, where faucets are provided by which the cooled milk may be drawn off.

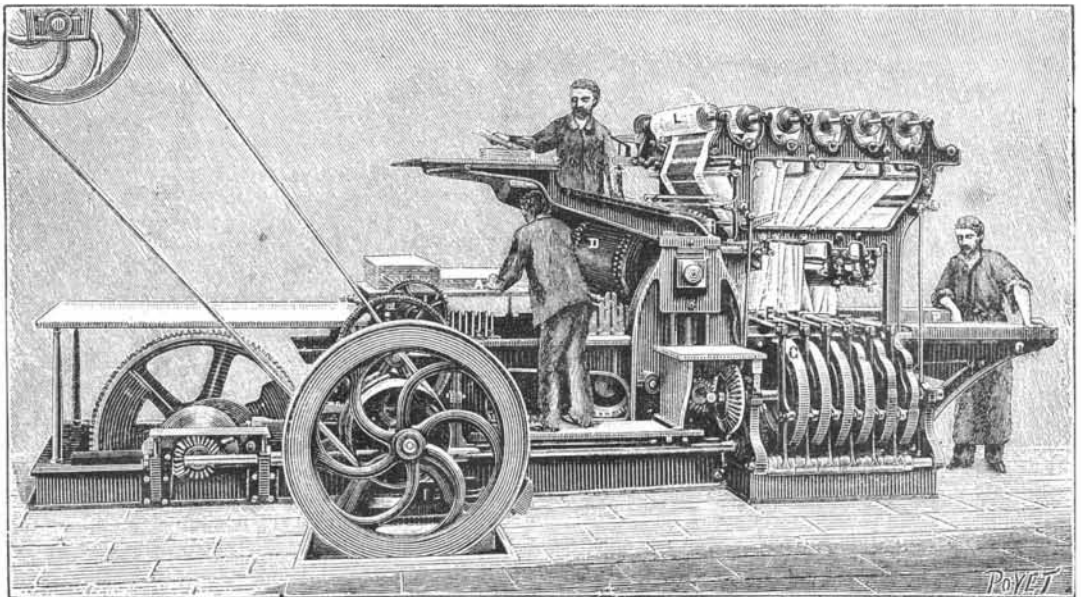
LEATHER BELTS AT THE FAIR.

One of the very attractive exhibits in Machinery Hall is Alexander Brothers' show of leather belting. It occupies a prominent space on the central aisle, and is in all respects worthy the position. Our illustration gives a good general idea of the arrangement of the twenty large rolls of belting; the display of sample joints, etc., but the beautiful finish of the goods, the fine cabinetwork, etc., of the exhibit must be seen to be fully appreciated. Transparencies illuminated by electric lamps show the great five-ply leather belt made by this firm for the McCullough Iron Company, and a 51 inch three-ply waterproof leather belt, weighing 2,814 lb., which is still in good condition, after a night and day run of four years, at M. & W. H. Nixon's Company's paper mill, Philadelphia, though during



THE WORLD'S COLUMBIAN EXPOSITION—ALEXANDER BROS' LEATHER BELTS.

that time the belt has been submerged over twenty-five times. A large quantity of belting is shown which for weight and quality, fine finish, and thorough workmanship commands the best trade of the country. It comprises single, double, light double, dynamo double, etc., with all the various kinds of laps and fastenings. This make of belting has a well established reputation for excellence. The factory is located at Nos. 410 and 412 North Third Street, Philadelphia. There is also shown a patent belt truck, the invention of Mr. Samuel Lyon, who is Alexander Brothers' agent, at No. 165 South Canal Street,



PRESS FOR PRINTING COPPER PLATE ENGRAVINGS.

Chicago. With this truck one man can handle the heaviest roll of any kind of belting, or coils of hose or rope, which can be reeled off or on at will. The exhibit is No. 3, group 69-26 J, 28.

AN INSIDE COVER FOR BARRELS.

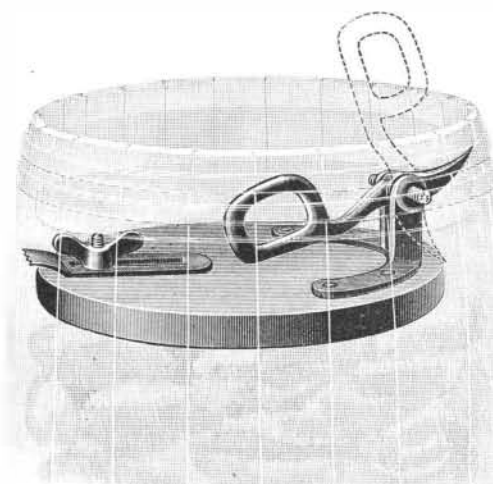
A cover for barrels, tierces, etc., to hold meat or other articles under a brine or pickle, is shown herewith, and has been patented by Messrs. John J. Friedrichs and Henry C. Fliege, of Calumet, Mich. Upon one side of the cover is a slotted claw-tail piece, the position of which is adjustable, so that it will extend more or less beyond the edge of the cover and be held in place by a thumb screw. Near the other edge of the cover is a standard supporting a pivoted lever having a curved and sharpened outer end and an inner handle end. The dotted lines represent this lever in raised position, as it appears when the cover is being placed in the barrel, the bringing down of the lever causing the claw of the tail piece and the pointed end of the lever to engage the inner surfaces of the barrel. The device is very simple and inexpensive and does away with the necessity of using stones or other sinkers, which may be carelessly brought into service, and where accidental displacement frequently results in the spoiling of the meat.

MECHANICAL PRESS FOR COPPER PLATE PRINTING.

The printing of copper plate engravings requires very particular care that up to the present has not permitted of intrusting the work to a machine, the hand of the workman alone being judged capable of giving the inking and the wiping of the plate the finish necessary for the obtaining of a good proof. As well known, what is called copper plate engraving is done upon plates of copper, either by means of aquafortis or the graver, and sometimes by these two means combined. It is the hollows in the plate that give the black lines, the parts not attacked being reserved for the lights. It is necessary, then, in order to obtain a good proof, to spread the ink very uniformly over the lines of the engraving, to carefully wipe the non-engraved parts and afterward to give a very strong pressure, in order that the paper may take up the ink in the hollows. It will be understood from this very brief description of the operation that this kind of printing can never be done with the text. It will be seen, besides, that if it is done by hand, it will take considerable time and the cost will be very high. That is why, in books, copper plate en-

gravings are always printed outside of the text, and this increases the price of the work.

To succeed in printing along with the text is not to be thought of, since the latter is produced by reliefs. Other processes, such as engraving upon wood, etc., permit of this kind of printing; but what has been long sought for in copper plate engraving is to have the complete work of the printer done by a machine, so as to reduce manual labor. Tentatives have doubtless been made in this direction for a long time. We may mention especially a machine constructed in 1853 by Robert Neale, an Englishman. Many others



FRIEDRICHS & FLIEGE'S INSIDE COVER FOR BARRELS.

the improvements to be introduced into it. They have now succeeded in deriving considerable advantage from it, and very recently we have been enabled to obtain an idea of the services that may be expected from these machines, for Messrs. Endes & Chassepot have in two days delivered the prints of a plate that by the ordinary process would have required nearly a month.

As in all mechanical presses, the machine consists of a table, upon which is fixed the type to be reproduced. This table has a to and fro motion, during which the type is inked in passing under rollers prepared for the purpose and then presents itself under a cylinder, which carries a sheet of paper, and bears strongly against it in order to give the impression. The new and interesting part that constitutes the copper plate press is found toward the right of our engraving. At the upper part are seen rollers, L, each carrying a wound-up band of cloth. The extremity of this band passes under a horizontal rod, F, and afterward winds up under another cylinder not visible in the figure. The rod, E, receives by means of disks, C, provided with cams, a rapid to and fro motion in various directions, so as to produce the effect of the hand wiping with a cloth. These rods, six in number, are provided with flannel tamkins, under which the cloth is constantly renewed, and constitute the rubbers designed to