

Condoling by Electricity.

On the recent occasion of the death of Mr. C. L. Goodwin, superintendent of the Northern New York division of the Atlantic and Pacific Telegraph Company, the various operators of the division unit-

ed in a meeting of condolence in the following remarkable manner: All the stations included in that division were connected into one circuit, extending from New York to Albany, thence *via* Troy to Saratoga and return to Albany, westward to Syracuse, and *via* Oswego, Clyde, and Rochester to Buffalo and Niagara Falls, back from Buffalo *via* Auburn, Seneca Falls, etc., to Auburn again, being over twelve hundred miles of wire. Each person remained in his own office and all the instruments were so connected that the remarks made by one operator upon his instrument were sent through all the other instruments. Promptly at 2 P. M. (Buffalo time) New York called the meeting to order. Buffalo moved that Mr. Hauff, chief operator at New York, be made permanent chairman. The motion was seconded by Troy, and carried. The chairman then suggested that Mr. McCoy, manager of the Buffalo office, be nominated as secretary, which the meeting unanimously resolved in the affirmative. Various speeches were made and the resolutions were then read and adopted, and an adjournment then followed. The meeting was entirely harmonious throughout, and the state of the weather and condition of the wires peculiarly favorable to its success.

SELF-TIGHTENING DRILL CHUCK.

Our illustration represents an ingenious appliance which, it is claimed, is self tightening, and may be caused to hold any drill of a size within the compass of its jaws with complete firmness, and this with no further trouble to the operator than a clasp of the hand. That such an improvement is of value, both as applied to the drill as well as to the lathe chuck, will be evident to every mechanic even without the further corroboration of its merits found in the substantial victory which the manufacturers assure us was won by the device at the Vienna Exposition.

The material used in the construction is forged steel in every part, except the jaws, for which the best and most carefully tempered cast steel is substituted. The shell or case, A, Figs. 1 and 2, contains the working portions and, as will be noted from the sectional view, is provided with a shoulder within, flush with the face of the scroll, B. On this shoulder, and at a slight taper, is driven the plate, C. The latter is thus made to form a close joint and still may be easily removed, while it is afforded a support calculated to bear the strain (often caused by inexperienced persons driving it upon the arbor) from the screws, D, by which it is held in position. The plate is fitted in the usual manner with tongue and grooves, and is also provided with a center which serves to center and steady the back end of the drill, and thus insure the proper holding of the tool in its place.

In order to give greater strength, and also to guard against the entrance of any dirt through the slots into the working parts, the jaws, E, are made with projections, the upper parts of which, when the chuck is open, are flush with the outside of the shell. The inner sides of the jaws, as shown in Fig. 2, are provided with segments of screw threads which engage with the face of the scroll, B, Fig. 3. The latter is provided with a tapering hole which is held on the center of the lathe in the usual way, the shell plate and jaws revolving around it. Outside the shells grooves are placed to favor a firm grasp of the hand around the chuck, so that the device, when in use, is thus self-tightening, the strain of the tool while cutting serving to make it hold more securely.

The size represented in our engravings, No. 3, retains drills from $\frac{3}{8}$ down to 0; while the next form, No. 4, holds from $\frac{3}{8}$ down to $\frac{1}{8}$ inch. The jaws are made rounded at their outer ends so as not readily to catch hands or tools near them. An extra set of these appliances, of the form shown in Fig. 4—which make a lathe chuck of the apparatus,—are furnished when desired, and, as we are informed, may be substituted for those in use in the space of three minutes.

For further particulars address the manufacturers, the Hubbard and Curtiss Manufacturing Company, Middletown, Conn. The article itself may be found at the factory, at the above address, or at the warehouse, No. 82 Chambers street, New York city.

CALFSKIN TANNING IN EUROPE.

Mr. Jackson S. Schultz of this city, now in Europe, in a letter to the *Shoe and Leather Chronicle* gives the following interesting particulars of his visit to Mercier's great tannery:

The calfskin tanneries of Mr. Raichlen, at Geneva, and Mr. Mercier, of Lausanne, both situated on the Lake of Geneva, are among the largest, if not the very largest, in all of Switzerland; and with the exception of one, Mr. Mercier's

tannery is the largest calfskin tannery in Europe, or perhaps the world.

Mr. Mercier many years since found out—what has been the experience of all other tanners—that to excel in the trade, attention must be given to one single department, and for these years of his triumph and success he has devoted himself to the wax calfskin trade exclusively.

He does not depend at all upon his home market for a supply of skins, but lays all Southern and Eastern Europe under contribution.

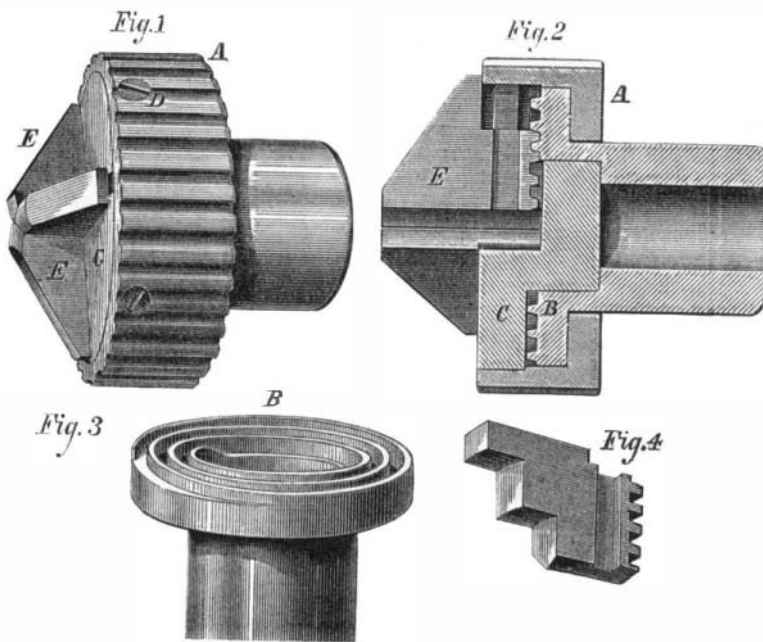
These skins are brought to him invariably "flint dry," not even drysalted. They come in compressed bales, and these are opened, assorted and piled away in a cool, dark loft or storehouse in large compact piles, to be withdrawn at the rate of about 500 per day, for his daily use.

These skins are so perfectly cured and so uniform in condition that it is seldom that one skin in a hundred breaks or indicates the fact that it has been dried. Even the grain does not show a crack, as is too apt to be the case with us, where skins are dried in the sun or otherwise exposed.

These skins are soaked in the usual manner and are softened in wheels precisely as our best tanners are now softening their light stock, with this difference: In the construction of the wheel, there are four compartments, instead of being, as with us, one open space. These compartments turn the skins more actively, and Mr. Mercier says the force is sufficient to do the work of either "softening" (breaking) or rinsing and otherwise cleansing the skins. It will be seen after a moment's reflection that a wheel divided into four compartments or segments must turn the contents four times as frequently as if left in the whole wheel.

The liming of the calf at this tannery presented no new features. They are fully limed, so that the hair comes freely. The skins are washed in the wheel after being unhaired, and worked with a stone worker to remove the remaining short hair. Great care is manifested throughout to keep the grain sound, and to work every part of the skin uniformly, so that no more lime will be left in one part of the surface than another; the tendency of an omission in this respect is to cause the grain to color unevenly and appear clouded when tanned.

The most remarkable fact to which I wish to call attention



THE VICTOR SELF-TIGHTENING DRILL CHUCK.

is this: Mr. Mercier declares it unnecessary to break the nerve—and he certainly devotes less labor to this end than any other manufacturer I have met. He does work all the flesh off with a worker, but when this is accomplished I did not see that an additional stroke of the knife was given to soften the pelt or break the nerve. Each man thus worked off the flesh from about one hundred and twenty skins per day; from the amount of work thus performed it can be estimated about how much labor was bestowed.

The next remarkable fact I wish to mention is that Mr. Mercier, in common with all other calfskin tanners in this section, entirely omits bating, as we practice it. They use no other bate than some liquor.

The acid which forms, known as "gallic acid," and which is abundantly found in all oak yards, is the only bate here employed. This acid liquor, it is well known, will kill the lime (neutralize it), and will, with a few days' handling, remove all appearance of lime from the pelt. When thus reduced and brought back to its normal condition, then Mr. Mercier treats his stock to the usual nourishing process. He begins this process by a solution of liquor made from spruce bark, which, as I had occasion to say before, is very

abundant and comparatively cheap all through this country. The strong acid from this bark has a wonderful tendency to plump. Mr. Mercier is disposed to attribute these remarkable plumping powers to the resin or sap in

this bark. But it is proper to say that this practice is a specialty in this tannery, and is seen nowhere else. When the skin is slightly raised and fairly colored, it is laid away in oak bark. This process of laying away is universal in this country. The skin is folded so that the grain of the neck and shoulders is folded on the grain of the butt, that is, doubled over. The bark only comes in contact with the flesh. In some tanneries, I notice, they vary this practice by putting two skins of about the same size together, grain to grain. This, I judge, with all respect for the experience and practice of Mr. Mercier, is an improvement upon his method.

The object of this practice is variously considered; some say it is to prevent the over tanning of the grain and to induce, as far as possible, the tanning from the flesh side. This object is desired to make the grain tough, so that it will hold the stitch when sewing the side linings. Others say it is to aid the color of the skin. My own judgment is that it may aid and help to produce both of these results, and therefore the practice is justified.

The bark is laid on the skins fully one to two inches thick, and all the interstices are filled with bark and stamped down solid. I should judge that not more than half the number of skins are laid in the vat that our practice would call for.

When the vat is filled with skins and bark thus put away, the vat is run up with water or weak sweet liquor, most frequently with water, although Mr. Mercier's practice is to run liquor from his leaches; but I judge that only spent bark was placed in these leaches, and consequently the liquor was little more than the washings of the bark.

These skins are allowed to remain for three months, and in Mr. Mercier's case two such layers, and in most other cases three such layers, occupying nine months, completes the tannage of the skins.

I need not say to any intelligent tanner that skins prepared in this careful way and tanned by this slow process must yield a very tough skin. The grain must be soft and yielding, requiring but little scouring, and I think beyond the working of these skins on the flesh over a beam and the softening in the wheel before scouring, the skin gets but little labor—hardly so much as is bestowed by our practice.

The stretch is left in the skin and not taken out in the effort to get out the old grain, as our system of strong liquors compels us to do.

The shaving, whitening, blacking, etc., is after our method and is in no sense an improvement. Of course where so many skins are tanned, and the selections and classifications begin with the raw material, there can be no difficulty in rendering the most severe classifications possible in putting up the skins for sale.

All that it is further necessary to say, in regard to the manufacture of Mr. Mercier, is that he devotes himself to the work of making as good leather as can be made, and he has succeeded. Whether he makes more or less profit, whether he makes as many pounds of leather from the skins taken in hand by him as an English tanner would, is quite another question, and one I fancy he does not care to consider. He sacrifices everything to toughness—to wearing qualities.

Mr. Mercier showed me some French coppice bark which cost him five cents per pound, or \$100 per tun, although his usual coppice bark cost him but \$40 per cord, or two cents per pound, and he considered the former profitable even at this high price.

He confirmed my opinion that the spruce bark contained little or no tannin, and although for the purposes indicated he did use a small quantity, at about the price of one cent per pound, he did not look upon it with much favor.

If this view is true, what kind of leather must that be which is made out of spruce bark exclusively? More than half of the bark used in sole leather tanning throughout Germany and Austria is this spruce.

M. B. writes to suggest the construction of a spherical metallic balloon, 70 feet in diameter. Such a sphere would lift 11,225 lbs.; and if made of metal weighing $\frac{1}{4}$ a lb. to the square foot, it would weigh 7,647 lbs., leaving 3,578 lbs. of lifting force available. The balloon could be raised and lowered in the air by an engine of half a horse power, and no gas need be lost or ballast thrown out.

ERRATUM.—In Professor Morton's article on "The Magic Lantern as a Means of Demonstration," on page 163, in place of 18, 14 and 16 inches as the radii, read $4\frac{1}{2}$, $3\frac{1}{2}$, and 4 inches. The Professor's attention was called to this oversight by the kindness of Mr. R. S. Bosworth, of Adams, N. Y.