

NEARLY THREE-QUARTERS OF A CENTURY AGO

When a few men began manufacturing Pianos in this country, each exerted every effort to produce a better Piano than his competitor. Each man was a Piano maker and a musician, each man with his heart in his work determined to give his Piano an **INDIVIDUALITY**, a **SOUL** so to speak. How well the Great House of **CHAS. M. STIEFF** succeeded is shown in his Artistic Piano from its first conception to the present day. From the beginning he sold the majority of his Pianos direct to the home and when the commercial piano came into the piano business and each dealer crying to the old makers for lower prices in order to increase his (the dealer's) profit, Mr. Steiff refused to lower the standard of his Pianos, as others did who expected their name to overcome the deficiency, opened his own warerooms and decided to sell his entire product direct.

This alone is the reason you can buy the **GREAT ARTISTIC STIEFF** and **SHAW PIANO** at the price you would be asked for medium or more likely cheap grades elsewhere.

CHAS. M. STIEFF, Manufacturer of the Artistic Steiff and Shaw Pianos.

C. H. WILMOTH, Manager.

Charlotte, N. C.

Southern Warerooms, Burwell & Dunn Building, 5 West Trade St., Storage 20 West Fifth St.

HOW 'PHONES ARE MADE

THE COSTLY MATERIAL NEEDED

Materials Gathered From the Four Quarters of the Globe—Where the Instrument Installed To-Day—Actually Was Three Years Ago—The Sources of the Vulcanite, Carbon, Aluminum and Brass—The Present Enormous Output an Index of National Prosperity.

Correspondence of The Observer.
New York, Sept. 25.—"There is an epitome of our present prosperity in the cross section of every telephone receiver or transmitter that goes out from this town," said a telephone engineer the other day. "It isn't wonderful that all sorts of factories all over the country are working over-

at the bottom of the bogs in Sweden; in hot, miasmatic swamps of South America and Central Africa; in beds of beaunite of northeast Georgia; in the spruce forests of the great Northwest. The diverse elements usually come together in the New York and Chicago factories of the Western Electric Company, the manufacturing auxiliary of the Bell companies of the United States.

In the New York establishment alone, after all the parts have been assembled, 88 people give their entire time to putting together the finished pieces of the transmitters, 84 people to the pieces of the receivers, while 86 skilled artisans dismantle instruments that need repair, often through the insertion of some minute part which has worn out before the rest of the apparatus. In the total work-

history of the hard, dark substance covering the delicate apparatus of a given receiver would be difficult to trace. Such is the sub-division of production in modern industry that the telephone manufacturer has no direct concern with the processes of manufacture of vulcanite or the sources of the supply of crude rubber, whether it comes from the Congo State, where the negro rubber gatherer, working among long cable-like vines, smears his body with sap, which, drying on, is pulled off at the tax collection station in thin sheets; or whether it arrives here from the desolate swamps of the Amazon, hunted by the silent Guarani, or from the ague-breeding woodland of Central America. All that is required of the vulcanite, which is purchased from the largest producer of the material in the United States, is that it shall conform to certain exacting standards which engineering necessity has imposed.

The same truth applies to the other elements of the receiver—as to the permanent magnet made of a special grade of magnet steel, rolled in Pennsylvania mills and bought for the New York factories in 50-ton lots with surprising frequency. In each receiver the pole pieces at the end of the permanent magnet represent a fine quality of what is known in the trade as Norway iron—though it is actually for the most part produced in Sweden.

The paper insulation of the spools demands the finest kind of bond made in the Berkshire Hills, in the home town of the junior Senator from Massachusetts.

Many a telephone subscriber has wondered what is in the center of the receiver. If he looked inside he would find there a plummet, weighing about one-third of a pound—a small weight in the single instrument, but one that must reach a total of in the neighborhood of 1,000,000 pounds tied up in the receivers of the Bell system. Nearly all this is American lead mined in Illinois, Missouri and other States.

Then there is the ferro-type diaphragm which conveys vibration to the air. It is simply a very thin sheet of Japanese iron. In each of the bi-polar coils are found 220 feet of magnet wire insulated with silk. About 175 miles of this tiny thread is sent out daily, or more than enough in the receivers of one year's production to stretch twice around the globe. This wire is insulated with the best silk obtainable in the market. The little brass screws used in the receiver do credit to the clever workmanship of the factories of a Connecticut corporation.

A similar tale is to be told of the contents of the transmitter, with differences, for these two instruments, which are made for use of the companies of the Bell system, have, of course, different characteristics according to their employment. The mouthpieces, for example, of the transmitter are no longer of vulcanite, as they were some years ago. They are fashioned from a composition of the same general characteristics and appearance, but superior in certain respects for the purposes of the instrument. Then, too, there is a diaphragm made of sheet aluminum, a metal the existence of which was predicted by that strange Swiss genius Paracelsus, the last of the alchemists, who uttered a striking prophecy when he declared that the well-known mineral alum had a metallic base. Three hundred years later it was duly discovered. In the old days its cost-

would have made it prohibitive for the purpose of the telephone manufacturer, for in 1856 a pound of it cost \$300. To-day it is down to a point where it is less than twice as expensive as copper, and where the markets of the telephone are able to get the benefit of its lightness and its extreme ductility and malleability. It comes from Pittsburgh.

In the button of the transmitter are carbon electrodes, and one also finds particles of a very fine quality of granular carbon which the Western Electric Company manufactures for its own uses. This is one of the absolutely essential components.

For the rest, there are in the transmitter little rubber cushions and blocks and rubber bands as well as special springs which hold the diaphragm in place. In the whole "head,"

world, and made possible the clean, slightly surface of the desk telephone of to-day.

Northerners in the South.

The Southern Field.
The writer was in the office of a school board in a Virginia town not long ago and found the president and secretary signing the pay warrants of the teachers. The two men had opposed each other in the war, the one having served in a Connecticut regiment and the other under Lee. Both are now the warmest of friends, sensible men that they are, and both are busy with projects to make their community more prosperous. And another man in the same town, some years from New Hampshire, was run-

FIGHTING BOB HAD THE FACTS.

A Hitherto Untold Story Shows That He Speaks by the Book.

Harper's Weekly.
The naval review at Oyster Bay, because it was commanded by Admiral Robley D. Evans, perhaps recalls an incident of the Spanish war which has not before been written about. It may be that its recital at this time will help to show how accurate a man in this office, who has suffered somewhat from a false conception of his character.

Admiral Sampson had determined to begin the war by the bombardment of Havana, and on April 4, 1898, Evans, then captain, wrote a letter to the then editor of Harper's Weekly, containing this paragraph:

"I shall have the honor of leading in the Iowa, and when we open, at about 800 yards, with Indiana close astern, if those poor chaps from the Maine don't giggle in their coffins it will be a wonder."

This was the pregnant part of the letter. Sampson was forbidden from Washington to attack Havana, "much to his disappointment and wrath." To one sitting at a distance, not knowing Evans, and knowing of the proposed bombardment only as a rumor, the letter might have seemed a bit of bluster.

But after a few months chance put the log book of the New York, the flagship, in the way of the recipient of the letter, and there he read Sampson's order for the bombardment of Havana, giving the order of the ships and designating the distance at which the firing should begin, precisely as Evans had stated them in the letter.

But why go in to within 800 yards of the new forts, which were much more heavily armed than the ships of Sampson's fleet? Months after reading the log book the recipient of the letter attended a dinner given in honor of Admiral Sampson.

The Admiral made there one of the few speeches of his life, and in it he told the reason—a reason characteristic of his keen judgment and of his boldness—for selecting 800 yards. He had found out that a short time before the Spaniards had momentarily awakened from their usual torpor and had practiced from the new works, firing at floating targets. They had floated these targets past their guns 2,000 yards.

Sampson at once concluded that if he supposed that he would attack at that distance and quickly determined to go in at 800 yards, for, he explained, the Spaniards had once fixed their sights for a target 2,000 yards away would not be able to change them, but would fire over his ships until he had dismounted their heavy pieces with his rapid fire guns. So to obtain was completed, for he had the facts and the reason for them.

CLERKS' HOURS IN GERMANY.

Effort to Do Away With Long Midday Rest.

Berlin Cor. London Standard.
A discussion is going on in commercial circles in Germany regarding the respective merits of the English and German systems of arranging the hours of work in banks, company offices and big business houses.

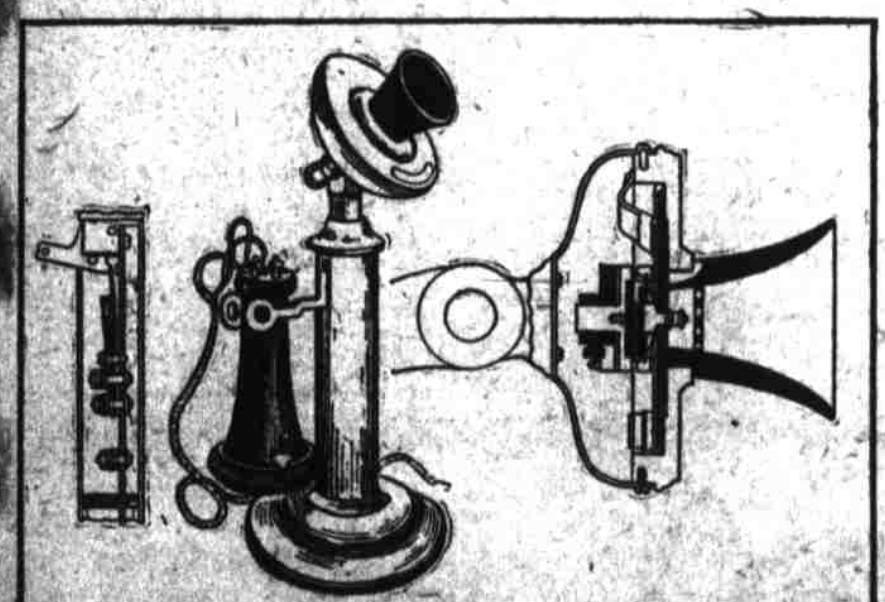
It has always been customary in Germany for clerks and accountants, and all workers of this class to begin work considerably earlier than in the case in England, and to terminate work in the evening much later than is usual in London. Work begins in German offices, as a rule, at 8 o'clock in the morning and is frequently not concluded before 3 o'clock in the evening. Partial compensation for the early beginning and late termination is obtained by taking a two-hour pause at midday, but even with this break the total hours worked in German offices considerably exceed those in English offices, especially as a half holiday on Saturday is still an exceptional arrangement in Germany.

An agitation is now going on for the abolition of the long midday interval and of the introduction of the hours of work usual in English offices. Many German business men, however, resist the innovation and persist in maintaining the old-fashioned system.

Many German stock brokers, company directors, directors of banks and captains of industry adopt a curious arrangement by which they dine at 2 o'clock in the afternoon and afterward return to their offices from 6 till 8 in the evening.

Those Germans who have had practical experience of office work in England are unanimous in declaring that English clerks do just as much in six or seven hours as German clerks in nine or ten hours, and advance this as a strong argument in favor of the general adoption of the English hours of work in offices.

A few of the big banks in Berlin have already got as far as a working day of eight hours, from 8 in the morning till 6 in the afternoon, with two hours less on Saturday, when they close at 2 o'clock.



time in the effort to keep up with their orders, for the current demand for telephonic apparatus is, I suppose, a fair criterion.

The engineer went on to call attention to recent figures of the output of instruments, showing that in the first six months of 1916 the gross output of Bell telephones was nearly 1,200,000 and the net output, with the number of returned instruments deducted, more than 800,000. As telephone transmitters and receivers are accounted separate instruments, the statement means that in the first half of 1916 about 400,000 telephones, as the word is ordinarily understood, were added to the Bell system—a much greater number than was ever added in the corresponding period of any other year. The output, furthermore, even during the warm months when industrial strenuousness everywhere lets up a little, has kept right on, so that long before the current year closes there must be in operation considerably more than 2,000,000 stations of the vast interconnected organization which was first to occupy the telephone field.

And a little imagination, based on this fact, reveals a remarkable story of the reworking of four quarters of the globe in order that every American may talk with every other, however distant. The separate parts of the telephone that go to the subscriber to-day were two or three years ago to be found in widely scattered localities—under the earth in Montana, Michigan and Pennsylvania;

of preparing these and other portions of the familiar telephone system, more than 20,000 people in the United States alone are employed, constituting the greatest single electrical company in the world—one having at present on its payroll, including the establishments in foreign countries, about 25,550 persons.

Look for a moment at the materials of the receiver as it hangs on its hook. The most apparent part of it consists of three rubber moulded parts made from vulcanite, a material which recalls the story of the endeavors of Charles Goodyear to discover a process of hardening the raw rubber which he had been using for covering overshoes. Goodyear had learned that sulphur powder could be used as a drying agent, and by accident one day, some sulphur-dried rubber falling from his hands upon a red-hot stove hardened there instead of melting as he would have expected. Fortwith the inventor had the long sought-for clue, and speedily patented the process of vulcanizing, without which the telephone industry might have been seriously hampered these many years.

Into the making of about 4,000 of these receivers a day, which are forwarded to Bell subscribers in every nook and cranny of the United States, a goodly quantity of vulcanite goes—as one might learn by weighing the material in the receiver, and multiplying it by say, 3,000,000, the approximate number of telephone stations in the system. The previous

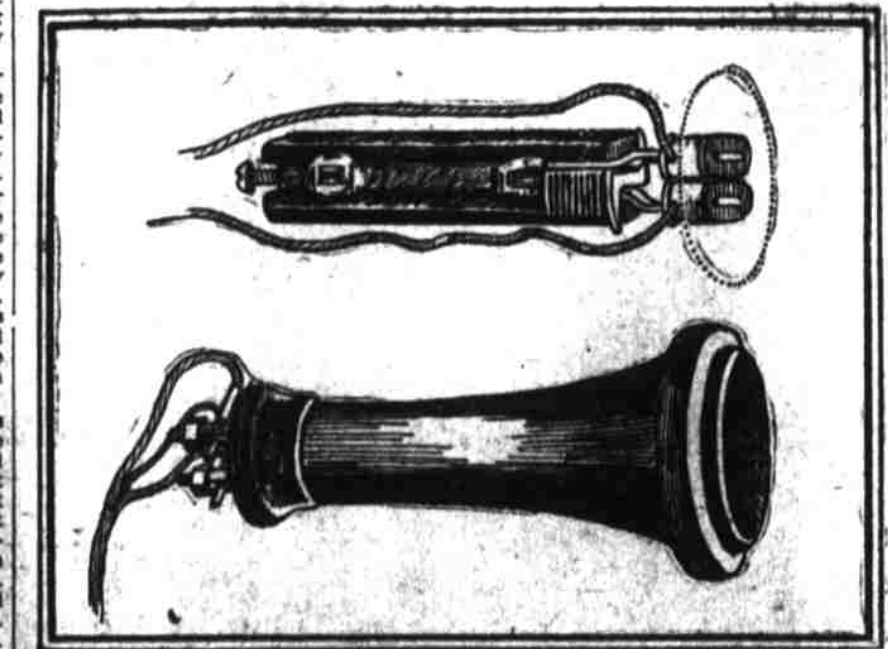
same truth applies to the other elements of the receiver—as to the permanent magnet made of a special grade of magnet steel, rolled in Pennsylvania mills and bought for the New York factories in 50-ton lots with surprising frequency. In each receiver the pole pieces at the end of the permanent magnet represent a fine quality of what is known in the trade as Norway iron—though it is actually for the most part produced in Sweden.

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as the engineers term it, one finds actually about one and three-eighths pounds of brass. Multiply that weight by 4,500, the number of transmitters turned out in a day, and that again by the number of working days in the year, and you will get a formidable total, one that helps to explain why every copper mine in the United States is being worked to its utmost capacity, and why the brass manufacturers of the Nutmeg State are pressing into service all the skilled laborers they can secure.

The outside stand of the transmitter, which is not counted in the instrument output, is, at the same time, an important part, involving the use of great quantities of the metals which, though not called precious, are nevertheless coming to be regarded by the electrical industries as belonging nearly in the semi-precious class. The very obvious nickel plating recalls the story of the honesty of a New York chemist who made this metal cheaper than it formerly was by pointing out immense deposits of it in Canada. A copper mine near Sudbury, Ontario, had for years been sending its ore to New York to be smelted. One day the account returned from New York signed by a new head of the assaying department credited a shipment of ore with several pounds of a substance then scarce, nickel. The owners of the copper mine had never suspected its existence before. Investigation revealed the richest nickel mine in the

ing a mill which turned out a commodity marketed in Boston, and thousands of dollars had come back as a result and became a part of the wealth of the community.

The Northern man goes South to find churches, schools, benevolent and social organizations, and a home life of the highest type. He finds, too, a land favored above any other part of the United States in resources of soil, mine and forest. Nowhere else is there a finer water supply. Nowhere else on the continent of North America can a living be made from fewer acres, and a better living, when the mere fact of physical comfort is considered.

Practical Politics.

New York Sun.
Knicker—Has Spellbinder a good doctory?
Docker—Better still; he delivers the goods.

THE ORIGINAL.

Foley & Co., Chicago, originated Honey and Tar as a throat and lung remedy, and on account of the great merit and popularity of Foley's Honey and Tar many imitations are offered for the genuine. These worthless imitations have similar sounding names. Beware of them. The genuine Foley's Honey and Tar is in a yellow package. Ask for it and refuse any substitute. It is the best remedy for coughs and colds. R. H. Jordan & Co.

MEN FIFTY SIXTY IN DANGER.

More than half of mankind over sixty years of age suffer from kidney and bladder disorders, usually enlargement of prostate gland. This is both painful and dangerous, and Foley's Kidney Cure should be taken at the first sign of danger, as it corrects irregularities and has cured many old men of this disease. Mr. Rodney Burnett, Rock Port, Mo., writes: "I suffered with enlarged prostate gland and kidney trouble for years and after taking two bottles of Foley's Kidney Cure I feel better than I have for twenty years, although I am now 61 years old." R. H. Jordan & Co.

OCTOBER.

I am not old. Oh, no, I stand just where Time's river widens in a broad expanse. And near the ocean of the year. I bear upon my breast full fruitage of the past. Far up between the slowly purpling hills The trees gave tribute, and the brook of June Bore on the offering. Back in the woods Where stence dwelt, save for the night of birds. On fall of ripening oats, I reign serene. Crowned with the sparrow's splendor, and with arms. Full of fall promises. After the night's Gleam white, while near the crowding burns that hold Reward of honest toil, God's blessing rests Upon my fruitful blossom. October is my name. I am the month most glad of all the year. The month that bids The past unto the future by the spell Of beauty and of hope. I come with words Of harvest joy, and call for grateful hearts. And precious seeds and seeds new sown. Who sows the year with plenty and with peace!