folding-presses. But fast presses can be made either on the flat-plate plans of the older presses where only one side is printed at a time either from the type or stereotype plates, or on the double-cylinder plan by which both sides of the sheet are printed at once from a running roll of paper, cut, folded and counted far faster than the eye can follow the sheets. Only a little while ago the Hoe eight-cylinder press was regarded as a wonderful piece of mechanism. This it undoubtedly was, but it required eight men to feed it and two to attend it, besides the men to remove the sheets. Now the work is done more rapidly by a single pair of cylinders, automatically fed from the roll, with a corresponding saving of labor and the number of employees. The folding that used to be done by hand, and later by separate machines, or by machines specially attached to the press, is now done by the press itself.

Future improvements are not only possible, but probable, but the speed already reached is something which seems to meet every existing demand, and only new demands will produce new presses.

New presses will glue the regular sheets for cutting purposes, and at the same time fold in with them the third or supplement sheet, which used to be printed separately and earlier, and, of course, with danger of delaying the issue. Even the paper is wetted by machinery although most people may not know that the paper has always been wetted to make it take a clearer and easier impression, and that the papers all come damp from the press. By the use of machinery the paper can be evenly damped to exactly the condition desired, while hand-work in such a case could never be even, and always required a great amount of labor on cut sheets, while the dampening is now done by unrolling the four-and-a-half mile long sheet in front of the delicate sprinkling machine. The utmost care and work has been expended on the index wheels, on several models of which experiments have been made. Here extreme exactitude became necessary that a wheel six feet in diameter had to be cut down three-sixteenths of an inch in the 226 inches of its circumference, or in all, 1-1205 of its circumference, a neat job, which was not at first successfully carried out.

Special machinery is being devised in every direction in connection with the printing presses and newspaper publishing. This is notably true of cheap, high-class presses, as well as of the more costly. There is a new two-revolution press with four rollers, the patent stop-cylinder, and the improved four-roller single cylinder, running in price from $2,400 to $8,000. Then there is a lithographic press which does very handsome work, and no end of improved electrotyping and stereotyping methods. The electrotyping machine is, for the first time, so simplified and arranged that it can be used at any time and at anywhere and duplicated indefinitely for any purpose. Type, too, has improved in many ways and the costlier copper-faced type has almost entirely taken the place of ordinary type, for purposes where special speed or unusual clearness is wanted. When the type is used on bed-plate presses it will stand an immensely greater amount of pounding and last a correspondingly longer time than ordinary type-metal. The copper-facing, a sixth-forth or more of an inch in thickness only, has a very clear outline and gives a sharp outline to the letters in the styrotype form when it is completed. This is not always readily done and care is required.—*New York Express.*

Abolishing the Steam Engine.

While the spokesmen of "the age of steam" are ringing all the charges on the glories of Watt's invention the pioneers of science and invention are hard at work to displace it. Edison is now engaged in a search for a means of generating electricity directly from the consumption of coal. In conversation with a New York reporter he gives an interesting glimpse of what he is after and what he thinks are his chances of success. What he desires to accomplish is, to do away with the intermediary boilers, furnaces, steam-engines, and dynamos that are now used in the production of electricity, and to procure that powerful force directly from the burning of fuel as electricity is now gotten from the combustion of zinc in the battery. In consequence of the complicated methods by which the combustion of coal is now converted into electricity this agent costs ten times as much as it should. We now, as is well known, get from coal but one-fifth to one-tenth part of the power it contains. Edison reports that he has found no trouble in obtaining a slight current of electricity directly from the consumption of fuel, but he has struck an as yet insuperable barrier to his further progress. Before this barrier his experiments, like the similar success of Bablochkoff and some German investigators, remains mere labor to curiosities. He will give himself five years to unlock this secret of nature and will think himself lucky if he succeeds in that time.

The description Edison gives of the happy results that would flow from the realization of his dreams of cheap electricity justifies his enthusiastic declarations that the inventor who succeeds in getting at it will do the world the greatest material service yet rendered to man. The unscientific world, he says, has no conception of what such a discovery would mean. It would put an end to boilers and steam engines; it would make power about one tenth as costly as it is now; it would enable a steamship to cross the Atlantic at a nominal cost; it would revolutionize the industrial world. The electric moter is the ideal moter for all kinds of work. What we want is some means of producing the current cheaply. Now it costs ten times as much as it ought to. When we discover the short cut from the combustion of coal directly to electricity we can heat and light houses, do all the cooking, move all kinds of machinery, vehicles and boats - do all the world's work, in fact, for almost nothing compared to what it now costs us. There is a good time coming for somebody.

There is another possibility in this probality of cheap electricity which Edison does not refer to. Babbage, the great English mathematician and philosopher, predicted that if a power was ever discovered which could be distributed from a common centre to the homes and shops of the working classes it would completely revolutionize the tendency of steam to mass capital and labor in great factories and swarming hives of industries. "The deserted village" would live again. The efficiency of production gained by the consolidation of multitudenous home forges, home shuttles, home shoe benches of the old regime into the steam driven mills of to-day has been paid for at a ruinous social price. Happy villages have been swallowed up in the murky factor towns, and the division of labor has been carried so far that every laborer is but the fractional part of man. If cheap electricity will do all that Edison claims for it on the purely material side, and will, as Babbage prophesied, reduce the inflammatory evils of our congested industrial centres, its discoverer will certainly do the world the most important material service yet rendered unto man. —*Chicago Tribune.*

A Wooden Telephone.

A score of merchants, brokers, publishers and reporters stood in a circle around a wooden box fastened to the wall of the second story of 67 Greene street and listened to the performance of the box, which was a new acoustic telephone, operated without the aid of electricity. A large wooden disk, with a mouthpiece two and a half inches in diameter, was fastened to the front of the box, and across the mouthpiece was stretched a diagraphm of wooden basket-work. A non-insulated wire ran from a nickle-plate key on the exterior of the basket work across the street and four blocks up town to a companion talking box.

"Halloa, there, let me hear you sing," said a handsome man with a brown mustache, who stepped out of the group around the telephone. He said this in a whisper that was not audible to other gentlemen standing less than three feet away.

"All right," bawled a voice at the other end of the line. "I'll sing," and half a second later the notes of the "Sailor's Sweetheart" floated from the box so distinctly that it sounded as if sombody in the next room was singing. The notes of a mouth harmonicon and an ordinary metal whistle was transmitted with equal clearness; and when the orator blew his breath on the diaphragm the listener at the other end detected at once what he had done. He blew a horn that produced an echo like a fog alarm, called out fractions and stock figures clearly and closed the test with a swelling "Hurrah for Ben Butler."

"*The secret lies in the diaphragm,*" said Inventor A. A. Knudson. "It is made of an imported wood Four layers of it woven together are screwed to the mouthpiece disk, and then the telephone box is complete. The wire used to-day is made of phosphor bronze, but ordinary steel wire can be used. It requires no insulation, because no electricity is used. The diaphragm is so sensitive that it can reproduce the vocal vibrations distinctly even at a distance of two miles. Aspirates and sounds that it is impossible to transmit over any known telephone are easily produced by this diaphragm."—*New York Sun.*