

- F**OURIER'S law of vibrational forms, 240.
- G**ALVANTO music, 110.
GASSIOT'S researches in telephony, 55, 117.
 Galileo's observations, 226.
 Gay-Lussac's discoveries, 123.
 Gore's researches, 56.
 Gower's, F. A., experiments, 80.
 Gotton de Comma's observations, 122.
 Gray, Elisha, telephonic researches, 151, 171; electro-harmonic telephone, 167; early experiments in telephony, 185; bath-tub experiments, 187; violin experiment, 188; phenomena attending the transmission of vibratory currents, 171; discovery of the speaking telephone, 15; transmission of composite tones, 189; telephonic specifications filed in the United States Patent Office, February 14, 1876, 217.
 Graphical method of physicists, 245.
 Graham, Professor, theory of vibration of Trevelyan's bars, 115.
 Grove's experiment demonstrating the tendency of the particles of magnetic bodies to group themselves under the influence of magnetism in a longitudinal or axial direction, 128.
 Guillemin's researches in telephony, 55, 112, 123.
- H**ENRY, Professor Joseph, telephonic researches, 14.
 Helmholtz on the human voice, 48; analysis of the vowel sounds, 51, 63; of vocal sounds, 235; method of analyzing tones transmitted through a wire, 161.
 Humorous example of telephonic expectancy related by W. H. Preece, 82.
- I**NDUCTION currents, 87, 104.
 Influence of molecular actions upon magnetism, produced by dynamic electricity, 134.
 Induced currents, reactive effect of, 179.
 Invention of the speaking telephone, 201.
 Improvements by Channing, Blake, Peirce, Jones and Austin, 275.
- J**ANNIAR'S telephonic researches, 55.
 Joule's researches in telephony, 55; influence of magnetism over dimensions of bodies, 123.
 Jones, Edison S., invention of telephone handle, 276.
- K**NIGHT'S American dictionary, cuts from, 69, 296, 297.
 König's researches, 68; phonograph, 295; monometric flames, 299.
- L**A COUR'S telephone, 62.
 Laborde's telephonic researches, 55.
 Legat's telephonic investigations and publications, 55.
 Logograph invented by W. H. Barlow, F. R. S., 295.
 Logographic records, 297; with the human ear, 298.
- M**AGGI'S heat experiments, 133.
 Marianini's experiments, 135.
 Magnetic cores for telephones, 177.
 Magnetic speaking telephone, 221.
 Manometric capsule, 68.
 Maurey's experiments, 68.
 Matteucci's experiments, 55, 112.
 Marrian's researches, 55, 112, 117.
 Magneto-electric machine, 23.
 Membrane, elastic, 6.
 Morse telegraph contrasted with the telephone, 84.
 Molecular forces disturbed by magnetism, 111; action of magnetic bodies, 117, 121.
 Multiple telegraphy, 57.
 Mayer's, Professor A. M., magnified tracings on smoked glass of the talking phonograph record on the foil, 303; what the form of the trace depends upon, 304.
- N**ICOL'S tubular electro-magnet, 101.
- O**HM, or unit of resistance, 103.
 On the disturbance of molecular forces by magnetism, 111.
 On the convertibility of sound into electricity, 272.
- P**AGE, Dr. Charles G., researches in telephony, 110, 117, 252.
 Peirce, Professor John, experiments and inventions, 76, 274.
 Peculiarities of vibratory currents, 173; of compound vibrations, 247.
 Phelps's telephone, 21.
 Phonograph, the talking, 292; mounting of the, 301; what clearness of articulation depends upon, 303.
 Phonautograph, Barlow's, 295; König's, 295; Scott's, 295; experiments with, 68.
 Phonographic records, tracings from, 303; dramas; letters, 305.
 Pill box telephone, 90.
 Plate, inflexible, 27.
 Poggendorf's researches in telephony, 55.
 Providence experiments, etc., 76, 274.
 Preece, W. H., observations on the telephone, 82.
 Production of vocal sounds, 181.
 Properties of the pendulum, 237.
 Producing the record of sound, 294.
- Q**UADRUPLEX telegraphy, 309; bridge method, 313; differential method, 315; combined differential and bridge methods, 321; arrangement of apparatus for long circuits, 325; double acting relay, 329; single current transmitter, 336, 339; adjustment of the quadruplex, 341; combined quadruplex and duplex circuits, 345; arrangement for contraplex transmission, 347; combined duplex and contraplex systems, 349; combined duplex and contraplex systems, 349, 351; combination of quadruplex and duplex systems, 353; quadruplex repeater, 355, 357; improved relay, 353; directions for setting up the quadruplex, 356; the double current transmitter, 356; the compound polarized relay, 338; the single polarized relay, 340; adjustment of the apparatus for working, 341; combination of quad-