all the butter that may bein the milk, and separating the butter as fast as it is formed from themilk.

DENTAL INSTRUMENTS.—H. T. Fogg, San Paulo, Brazil.—Thepresent invention relates to a new and useful improvement in dental and surgical instruments, which are so constructed with adjustable handles that the dentist or surgeon may carry a number of instruments with him with one set of handles which shall be common to all, thus greatly reducing the weight of metal he would otherwise be obliged to carry.

BALING PRESS.—Dangerfield Dunn, Lewisport, Ky.—This invention relates to a new and improved baling press, of that class in which toggle levers are employed for operating the platen. The invention consists in a peculiar manner of applying the rope to the toggles by which the latter are operated, and in a novel manner of arranging the platen with the toggles, whereby a compact and powerful baling press is obtained, and one which will admit of being used as a beater press when required.

STEAM PRESSURE AND FIRE REGULATOR.—Abraham Kipp, Jr., Sing Sing, N. Y.—This invention relates to a new and improved apparatus or device for regulating the pressure of steam in boilers by automatically controlling the fires thereof; and it consists in a means connected with a damper, and communicating with the steam boiler, whereby an excess of steam pressure in the boiler is reduced by the action of the steam from the boiler upon the mechanism employed in such a manner as to partially close the damper and check the draft of the fire, and when the pressure is below the standard required, the mechanism made to open the damper and thereby increase the draft of the fire.

HANGING OR SECURING CIRCULAR SAWS TO THIER SHAFTS.—William McDonald, Calais, Me.—This invention relates to a new and improved mode of hanging or securing circular saws to their shafts, whereby several advantages are obtained over the present or old mode.

SOFA BEDSTEAD.—M. K. Maximilian, New York city.—This invention relates to a new and improved sofa bedstead, and has for its object simplicity of construction, economy in the manufacture, and a general neat appearance of the article.

CHURN.—John Faussauer, Wheeling, Iowa.—This invention relates to a new and improved churn of that class which are provided with vertical rotating dashers and it consists in a novel construction of the dash and means for operating the same.

BROADCAST SEEDING MACHINE.—Joseph Haas, El Paso Ill.—This invention relates to a new and improved machine for sewing seed broadcast, and it consists in a peculiar construction and arrangement of parts, whereby seed may be sown broadcast in a perfect manner.

REAPING AND MOWING MACHINE.—K. H C. Preston, Manlius, N. Y.—This invention relates to certain new and useful improvements in reaping and mowing machines, and consists, 1st, in a novel and improved arrangement of driving mechanism, whereby spur gearing of moderate dimensions may be used and arranged in a very compact way. The invention consists, 2d, in a wooden strip or connection interposed between the sickle and the crank, and which drives the same for the purpose of ensuring ease of motion, preventing wear and tear and derangement of the working parts connected therewith. The invention consists, 3d, in a novel and improved means for throwing the sickle driving mechanism in and out of gear. The invention consists, 4th, in an improved pivotfor the connecting rod, whereby strength and durability are obtained with ease of motion and diminution of friction. The invention consists, finally, in a novel and improved manner of attaching and adjusting the drattfall for the purpose of raising and lowering the points of the fingers or guards, as circumstances may require.

ANIMAL TRAP.—Alexander Campbell, Oxford, Ind.—This invention consists in a platform suspended centrally in respect of its length, or on a pit, but above the center vertically, so that it will return to its normal position by the action of gravitation, and provided with a latch projecting downward from the center of the platform to hold it in position until the animal, approaching the bait near the center of the platform, steps on a hinged plate connected with the latch, disengaging it, when the weight of the animal causes the end of the platform he is on to swing downward, delivering him into the pit.

TOOL FOR CUTTING OR SLITTING THIN BOARDS.—John Langham, Jr., Philadelphia, Pa.—This invention consists of a cutter or knife secured vertically to a hinged holder which is suspended on a sliding stock arranged in ways resting at each end upon suitable supports, which may be secured to a bench so as to maintain the said ways sufficiently above the bench to admit the board to be cut to be passed under the same in front of the cutter, which, being pushed forward by the operator will sever the board. A spring is connected to the stock of the cutter to retract it.

ASBERTOS FELT.—H. W. Johns, New York city.—This invention consists of sheeting composed of asbestos and various kinds of felted and pulped matter. It is designed for roofing and sheathing purposes and provides a cheap and indestructible article for the purpose.

DRAFT EQUALIZING DOUBLE TREE.—George A. Mosher, Champlain, N. Y.—The object of this invention is to enable two horses of unequal strength or energy to be worked together with the best results.

ADVERTISING BULLETIN FRAME.—Wm. P. Brown, Watertown, N. Y.—The object of this invention is to provide a convenient and inexpensive means of publishing a number of business advertisements in the same frame. It consists of a frame constructed with several devices for the convenient insertion or removal of a number of advertisements as the firm styles, nature of business and addresses, and the like, whereby the same can be inserted and displayed permanently in some public place, and so arranged that any one of the said advertisements can be readily removed or substituted by other or different advertisements.

DOOR LOCK.—S. A. Green, Lexington, Ind.—This invention consists in the mechanism of a lock for doors. The key hole in the lock case is dispensed with and the lock rendered difficult to open without the key.

SPOKE TENONING MACHINE.—Calhoun & Collins, West Lebanon, Pa.—This invention is for the purpose of cutting the tenons of wagon-wheel spokes and consists of a simple and effective combination of mechanism for the purpose.

LAMP CHIMNEY CLEANER.—N. A. Vurgason, Brooklyn, N. Y.—The object of this invention is to provide a simple and efficient implement for cleaning the chimneys of kerosene lamps.

VANTILATED HAT.—M. S. Watkins, Mansfield, Texas.—This invention relates to a new and improved method of forming hats whereby the same are better ventilated, and conform more perfectly to, and fit more comfortably on the head of the wearer.

AXE.—J. W. Hilton and R. W. Green, Bradford, Pa.—The object of this invention is to provide an axe with a separate and removable cutting edge whereby the latter may be readily removed when rendered unfit for further use from wear or other cause and a new cutting edge substituted therefor, thus saving the pole or main body of the axe.

BELTING, ETC.—Thomas Standring, Fort Richmond, N. Y.—This invention relates to a new and improved method of constructing belting, or traces, or other straps now made of leather only, or of any one material, whereby the strength of the same is greatly increased.

CONSTRUCTION OF SHEET-METAL CANS.—Conrad Selmel, Greenpoint, N.Y.—This invention relates to a new and useful improvement in the construction of sheet-metal cans, designed more especially for holding coal oil or petroleum for export or domestic use. The invention consists in a novel and improved way of constructing the seams of the can whereby great strength is obtained with economy of manufacture.

RAKING DEVICE FOR HARVESTERS.—K. H. C. Preston, Manlius, N. Y.—This invention relates to a new and improved raking device for harvesters, and it consists of a platform constructed in the form of the section of a hollow cone, and using in connection therewith a revolving rake and bearers, constructed, arranged, and operating in such relation with the platform, whereby the cut grain may be automatically raked from the platform by very simple and economical means.

DEVICE FOR DESULPHURIZING ORES.—R. Plummer, Brooklyn, N. Y.—This invention relates to a new and improved device for desulphurizing ores, and it consists in the employment or use of a revolving retort placed in a furnace and communicating with a flue, all being so arranged that the baser metals contained in gold ores may be oxidized and the gold set free so that the latter may be amalgamated and separated from the foreign substances of the ore.

CAST IRON PIERS.—William B. Porter, Plattsmouth, Nebraska.—This invention relates to a new and useful improvement in cast iron piers for bridges, etc., etc., and it consists in casting the same in tubular sections connected together by vertical screw rods strengthened by tubes, the piers being filled with concrete.

CLOTHES WASHING MACHINE.—Joseph Osterhout, Rock Island, Ill.—This invention relates to a new and improved clothes-washing machine of that class in which corrugated rollers are employed in connection with an endless band or apron. The object of this invention is to obtain a washing machine of the kind specified which will not injure or tear the clothes and which will at the same time operate in the most efficient manner.

SULKY PLOW.—A. R. Stanley and Henry W. Ensign, Shullsburgh Wis.—This invention relates to a new and improved plow of that class which are commonly termed "sulky plows." The invention consists in a new and improved means for regulating the depth of the penetration of the plow into the earth so that furrows of greater or less depth may be made if desired, and also in a novel manner of attaching the plow to the carriage and the arrangement of the same, whereby said plow may be liberated or thrown out of the ground, whenever necessary, by a very simple manipulation.

TOOL REVERSING CUTTING MACHINE.—S. D. Tripp, Lynn, Mass.—This invention relates to a new and improved machine for cutting out pure fabrics or stock, various articles which have curved sides, such, for instance, as the soles of boots and shoes, and it consists in having the stock to which the cutters are attached arranged in such a manner that in the operation of the machine, the cutters may be reversed so that reversed curves may be cut consecutively, and also the position of a cutter changed or reversed at each cut so as to admit of economy in stock, the heel of one sole being at side the or the front portion of the adjoining one.

WASHING MACHINE.—Ross and Adamson, Day's Store, Pa.—This invention relates to a new and improved method of constructing washing machines, whereby the clothing to be washed is more conveniently held upon the rubber and is more thoroughly and easily washed. It consists in a jointed clamp or holder attached to the end of an arm by staples so as to form an universal joint, said arm being so connected with a treadle as that the necessary pressure of the clothing upon the rubber in the tub is produced by the foot of the operator pressing upon the same, whereby the washing of clothes is effected without the necessity of the operator putting the hands in o the hot water or suds.

HAME FASTENER.—John Koch and Daniel Seachrist, Columbiaana, O.—This invention is for the purpose of connecting the lower ends of hames and for tightening the same, thus dispensing with the usual buckle and strap, or simple string or thong and supplying instead, a simple, effective, and easily operated device, by means of which harness hames may be drawn upon the collar with the requisite degree of tightness, and fastened securely thereon.

BORING TOOL.—James C. Millerd, River Point, R. I.—The object of this invention is to provide a simple and effective tool for boring out holes in castings and other iron work. It consists in general terms of a pair of steel cutters or boring plates held in a mortise or rectangular eye in the end of a metal shank and arranged at right angles to the axis of the shank, so that the said boring plates will pass in contact with each other when being set out or in by an adjusting screw.

GUNPOWDER.—G. A. Numeyer, Altenburg, Germany.—This invention relates to the improvement in the manufacture of powder for fire-arms and blasting purposes, producing an explosive powder more powerful than the ordinary powder now in use.

WAGON AXLE.—G. S. Garth, Mill Hall, Clinton, Pa.—This invention consists of two frictional bands one of which is formed with a dove-tailed annular slot, fitting upon a dove-tailed collar formed on the axle arm at the shoulder of the same. The bands are cast on the axle arm and a reof any suitable antifriction metal as brass composition or babbit metal.

ROTARY PUMPS.—John Poppe, Greenpoint, N. Y.—This invention has for its object to simplify the construction and improve the operation of the improved rotary pump, patented by the same inventor, December 5, 1867 and numbered 71,786.

HAND MILL.—Edwin Alsop, New York city.—This invention has for its object to furnish a simple, convenient and effective hand mill which shall be so constructed and arranged that it may be used for grinding coffee, spices, grain, seeds, dye stuffs, oil and water colors, etc., and which shall not be liable to break or get out of order.

HAND SPRING FRAMES.—J. W. Burkhart, Cameron, Mo.—This invention consists in an arrangement of the spindle upon a vibrating arm pivoted to the frame of the machine at one end, and borne upon the upper end of a vibrating lever whose lower end is also pivoted to the frame, and is arranged to be adjusted with reference to the spindle arm, so as to elevate or depress the spindle, and for the purpose of tightening the belt; and it also consists in providing a double grooved pulley on an adjustable support, over which the belt from the main driving wheel passes to the multiplying wheel in such a manner that the belt in crossing itself will not wear, and so that it may be adjusted toward or from the driving wheel, also for tightening the first belt.

NEW PUBLICATIONS.

ELEMENTS OF NATURAL PHILOSOPHY. A Book for Beginners, by W. J. Rolfe and J. A. Gillet. Boston: Woodworth, Ainsworth & Co.

The above is the title of a work which, so far as general style of publication and beautiful illustration are concerned, is adapted to the purpose for which it was written. It has, however, important defects. The subject of electricity is not touched upon, notwithstanding its great importance, while the subject of sound, of less practical utility, is extended to considerable length. We notice some errors in definition also; for instance, the common balance is described on page 5 as a bar turning upon a pivot in its center, etc. The accompanying engraving represents it in the same faulty manner. In the appendix the subjects of the origin, transmutation, and conservation of force are discussed, which if not intended for the same class of pupils as the rest of the work, would have been better omitted, or the space it occupies used to supply the deficiences of other parts of the work. If intended for beginners, we submit that it is not a subject fitted for them, even after they have acquired the limited knowledge of physical forces they are likely to obtain from a study of the former portions of the work. Other features of the book, especially its use of the French system of weights and measures, we can commend, and notwithstanding the criticisms we have felt it our duty to make, we think it is perhaps as nearly perfect as most books of a similar character.

AMERICAN WATCHMAKER AND JEWELER. By J. Parish Steele. New York: Jesse Haney & Co., 119 Nassau st. Price 25 cents.

This is a convenient pocket manual, one of a series which Mr. Haney is publishing under the title of "Trade Manuals. It contains many receipts, and directions for doing work, the value of which will be better estimated and appreciated by practical watch and clock makers than by us. We commend this little manual to our readers who are interested in the subject on which it treats.

THE WINE-MAKER'S MANUAL. By Charles Reemelin, author of the Vine-Dresser's Manual. Cincinnati: Robert Clarke & Co., No. 65 West Fourth street.

A small but complete and thoroughly practical work, containing full instructions for the manufacture of all domestic wines, whether from grapes or other fruits; also directions for the manufacture of cider, with full directions how to bottle and keep both wines and cider, how to manufacture imitation champagne, etc. Price $1.25. Some remarks on the manufacture of cider extracted from this work will be found in a future number.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters must, in all cases, sign their names. We have a right to know those who seek information from us; besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisemets at $1 00 a line, under the head of "Business and Personal."

☞ *All reference to back numbers should be by volume and page.*

W. L.—All persons who travel about to sell patent rights must obtain a Revenue License.

E. H. L., of N. Y.—When a telegraphic cable is broken earth currents are formed each way from the break. The resistance of the entire cable being known, the resistance of the two portions gives the data for calculating the position of the break. A more minute description than this, or an explanation of the methods for telegraphing in opposite directions over the same wire would necessitate the use of diagrams, and occupy much space.

T. V. J., of Mass.—The diamond cuts the glass. No electrical agency is concerned in it so far as has ever yet been shown. Many, have believed however that there is a molecular change produced in the glass under the action of the diamond which makes a fissure deeper than the cutting edge of the crystal penetrates. This however has never been proved.

S. M., of N. J.—According to Bourne, the superheating surface usually given in marine engines is too large. This accords with our own experience and observation.

A. J., of Del.—We believe the first iron vessel ever constructed was a boat of 32 tuns burthen, built by John Wilkinson of Broseley in Shropshire, England, to be used on the Severn River in 1787.

R. T., of Vt.—The so-called mosaic mixture is made of equal parts of tin, bismuth, and mercury. It is used for various ornamental purposes.

R. S., of Ill.—The hemp, (cannabis Indica) from which hasheesh is obtained, is supposed by many to be a variety of the common hemp, the properties of the plant being modified by growth in tropical climates.

A. R. B., of Mo.—The rails in steam railways have a convex upper surface to adapt them to the shape of the car wheels. The shape of the carwheels is such that in running around curves, the outer wheel runs on a larger circumference, and the inner one on a smaller circumference, thus preventing the wheels which are fixed to the axle from scraping. The wheels are fixed to the axle for convenience in oiling, and also that the oil may be retained over the bearing and thus prevent heating between stations. The latter could not well be done did the wheel turn on the axle. Thus you see your friend is at least partially right, in his statement that the shape of the rail is to be referred primarily to the necessity of keeping oil over the bearings.

Business and Personal.

The charge for insertion under this head is one dollar a line.