

NEW INVENTIONS.

In coating wire with tin or zinc the usual method for removing the surplus tin or zinc from the wire as the latter leaves the bath, is to draw said wire through a covering of sand, asbestos, or other non-combustible substance that is placed on the surface of the bath; but in this method tubes of scoræ are quickly formed by the passage of the wire through the sand or asbestos, so that the latter ceases to wipe off the surplus molten tin or zinc, or does so imperfectly, and when in operating upon a number of wires at a time the sand or other material about one wire becomes dirty or ineffective from scoræ or from the surplus metal that is wiped from said wire, all the wires have to be stopped to replace the dirty with clean sand. Messrs. John A. Crich, of Naugatuck, Conn., and Frederick Crich, of Pittsburg, Pa., have patented a device free from these objections, that will rarely require the changing of the sand or other wiping substance, and that is so arranged that the sand can be removed and replaced about one wire, when desired, without interfering with the other wires.

Mr. William B. Collier, of Ellicott City, Md., has patented an improved dredging machine, more particularly designed for dredging oysters or other shellfish. This invention consists in an inclined endless rake composed in part of an endless slatted apron provided with hooked tines and passing round upper and lower drums, the former of which has its bearings in the stern of a vessel and is rotated to drive the apron, while the lower drum rests upon the water bed and is hollow and water-tight to give buoyancy to the dredge. A stationary rake having spring teeth is arranged at the lower end of the frame of the endless apron to assist in raising the oysters on to the curved teeth of the endless rake, which delivers the oysters into the vessel free from mud or dirt.

An improvement in overalls has been patented by Mr. Bernhard Guttman, of Plainfield, N. J. The object of this invention is to facilitate converting ordinary open front overalls into apron overalls, which cover and protect the breast of the wearer. The invention consists in an apron provided with suspenders and adapted to be attached to the waistband of the overalls in such a manner that it will cover and protect the breast of the wearer, the suspenders holding the apron in this position.

NEW DEVICE FOR OPERATING THE TOOL RESTS OF LATHES.

The engraving represents a new form of reversible feed gearing for engine lathes, recently patented by Mr. George Moll, of Mascoutah, St. Clair county, Ill. The object of the invention is to provide a device by means of which the feed mechanism of a lathe may be readily reversed or stopped.

Fig. 1 is a perspective view of the end of a lathe with the improvement attached. Figs. 2 and 3 represent the gearing in different positions.

The body of the frame of the lathe, the tail block, and the traveling tool rest may be of any suitable construction. The main gear wheel is secured to the end of the feed screw in the usual way, and receives its motion from the lathe spindle through the wheel, C, and the intermediate wheels, A, B, D. These wheels are all simultaneously controlled by means of the link mechanism shown, the rocking lever, and the main hand lever. The link mechanism consists of the link which connects the wheels, C D, the link which connects the wheel, A B, with the upper end of the pivoted lever, E, the link which connects the wheel, D, with the driving wheel, C, the link which connects the wheel, D, with the lower end of the pivoted lever, E, and the link which connects the whole with the main hand lever.

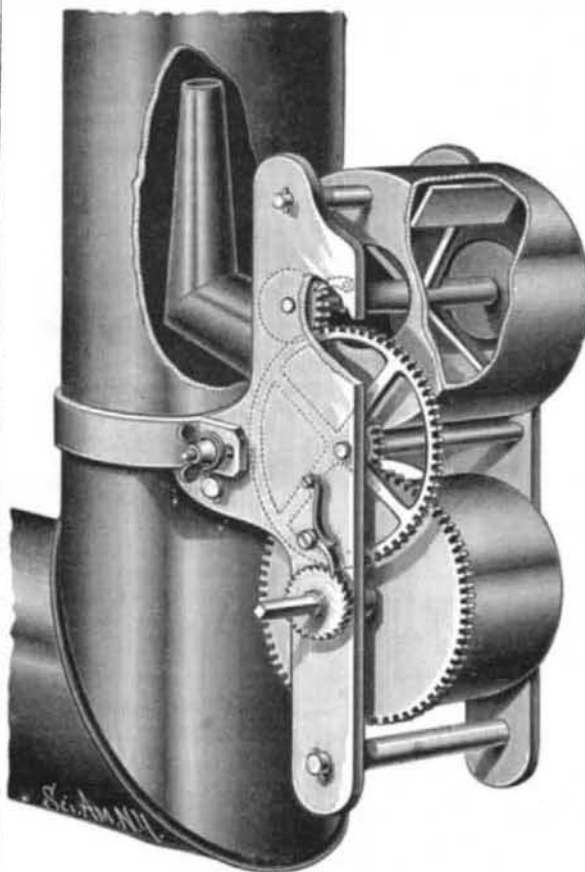
When the main hand lever is raised to its highest point the wheel, A, will be lifted out of contact with the wheel on the feed screw, and the wheel, D, will be brought into engagement with the main wheel, as shown in Fig. 3, and thus impart forward motion to the tool rest. When the lever is brought to its lowest point the wheel, D, will be carried out of contact with the main wheel, and the wheel, A, brought in contact with it, and thus impart a reverse movement to the tool rest. When the lever is brought to the intermediate point both wheels will be moved out of contact with the main wheel, as shown in Fig. 2, and the tool rest will remain still. The inventor informs us that this improvement is favorably received by machinists, and that it saves a great deal of time in mechanical operations requiring a reversal of the feed motion of a lathe.

New Voting Apparatus.

Mr. Anthony C. Beranek, P. O. Box 11, Englewood, N. J., has recently patented an improved apparatus for registering votes. The machinery of the apparatus is connected to the door of the apartment, and each opening sets the machinery so that a pressure on the knob or key will register one vote. The invention is ingenious and simple.

NEW DRAUGHT APPLIANCE FOR STOVES.

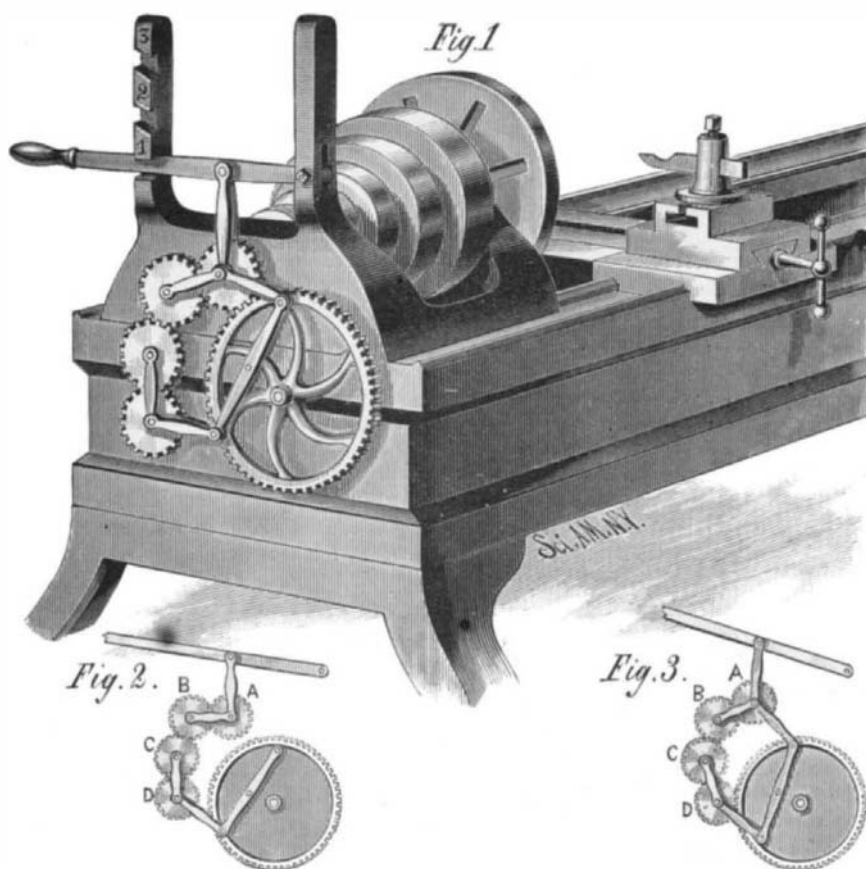
The annexed engraving represents a blower for creating a draught in stoves, chimneys, flues, ranges, furnaces, and engines, or anything or place where a blast draught is required. The machine winds up like a clock, and runs for any length of time, according to size of machine. It is easily attached to a stovepipe by a band surrounding the pipe. A hole can be made in a stovepipe and the blow pipe



BEAUMONT'S DRAUGHT APPARATUS FOR CHIMNEYS AND FLUES.

inserted so as to point upward, giving a powerful draught to the stovepipe or chimney and keeping them free from soot. By using this appliance any stove may be made to burn green and wet wood readily, creating a quick, hot fire with a much smaller quantity of fuel than a slow fire requires.

With this device any kind of coal and coke may be burnt. This apparatus is of special advantage when kindling a fire, and when it is desirable to produce a quick hot fire for any purpose. When the blast is no longer needed the machine



MOLL'S REVERSIBLE FEED GEAR FOR LATHES.

may be stopped by dropping a pawl or dog into the teeth of the pinion on the fan shaft.

For further information address Fred. Beaumont, Jr., patentee, southwest corner of North and State streets, Little Rock, Ark.

Dangers of the Electric Light.

It is reported that the disastrous fire at the Landenberger Mill, Philadelphia, on Wednesday night, had its origin, as the local journals express it, in the "unaccountable flickering and sparks from the electric lights used in the establishment." If these statements be correct, it becomes a matter of no inconsiderable importance to ascertain from the

scientists how far these eccentricities are likely to be permanent conditions of the use of these lights in other establishments. It is a serious business thus to have life and property at the mercy of their scintillations.—*Phila. Bulletin.*

There is more or less danger of the falling of sparks from all electric lights. Any imperfection in the carbon or irregularity in the driving engine will produce snapping and sparking. A simple safeguard is to place a glass cup around or under the carbon to catch the sparks.

Molecular Attraction.

BY F. D. BROWN, B.Sc.

The author points out that if we regard chemical affinity as neutralized by the union of two elements, we are then unable to account for the reactions taking place between molecules, and involving an interaction of the atoms composing different molecules. If, however, the act of combination be regarded as producing no change in the chemical forces, and it be supposed that the same attraction is exerted between any given pair of atoms without regard to the state of combination of one or both of the atoms, then a reasonable account can be given of chemical reactions, and the existence of molecular combinations does not appear very remarkable. Further, we are provided with a more or less effective explanation of the relative volatility of substances. Reasoning from this point of view, and considering the carbon compounds specially, the author concludes that intermolecular attraction should be greater in an acid than in a corresponding alcohol; greater in an alcohol of high molecular weight than in a homologue of which the molecule is less complex; greater in a primary alcohol than in the secondary or tertiary isomeric; and finally, greater in a chlorinated compound than in the corresponding substance containing hydrogen. If the volatility of a substance be a measure of the forces of attraction between the molecules, then it must be admitted that the boiling points of organic compounds show with some reason that the above expression represents the value of intermolecular attraction. From this point of view the study of the latent heat of many carbon compounds would materially aid us in the solution of the problem of chemical affinity.

Visions in the Clouds.

Displays of aurora borealis are evidently infrequent in Delaware, Maryland, and Virginia. The local papers of the latter part of September and the first week in October contain numerous references to marvelous visions in the clouds, and exhibit a mediæval condition of popular intelligence in the rural districts scarcely less marvelous. The Warrentown (Va.) *Solid South* says: "A number of reliable and responsible people, whose names we can give, about a week ago, saw an apparition in the heavens, about 10 o'clock P.M., of white robed figures, which were supposed by those who saw them to be angels. It is all the talk of the people in and around the villages of New Baltimore and Buckland." The Richmond *Dispatch*, of the 7th, prints a note from Mr. M. C. Grasty, of Fredericksburg, Va., dated 5th inst., in which he says: "Many persons in this community claim to have witnessed a most alarming sight in the heavens some nights since, just before daybreak. The heavens are said to have been lighted, and vast numbers of soldiers appeared, uniformed, armed, and drilling. Who else saw it, and what is the explanation? Could it have been a mirage?"

Similar observations were made further north. A Wilmington, Del., dispatch says: "The people in this vicinity are greatly excited over what they believe to be supernatural manifestations. A little girl, some three weeks ago, living in the village, saw after nightfall, before the moon was fairly up above the horizon, platoons of angels slowly marching and countermarching to and fro in the clouds, their white robes and helmets glistening in the light. At intervals the heavenly visitors would dance mournfully. Her father also saw the spectacle. Monday night, two weeks ago, William West, a farmer living near Georgetown, the county seat, saw bands of soldiers of great size, equipped in dazzling uniforms, their muskets shimmering in the pale, weird light that seemed to be everywhere, marching with military precision up and down, and presenting arms. The vision lasted long enough to be seen by a number of West's neighbors. Many people living near Laurel, many miles away, situated in the lower end of the Peninsula, saw

the same extraordinary phenomena. A few go as far as to say that they distinctly saw in the midst of the soldiers, and conspicuously by reason of his size and commanding presence, the hero President himself, with every feature distinctly and vividly portrayed. In Talbot county the illusion was seen by numbers."

MR. CHARLES VAN BENTHUYSEN, of Albany, who died in this city, October 19, is said to have been the first printer in this country to introduce steam power in printing. The engine with which this important experiment was made is still in the possession of the family.