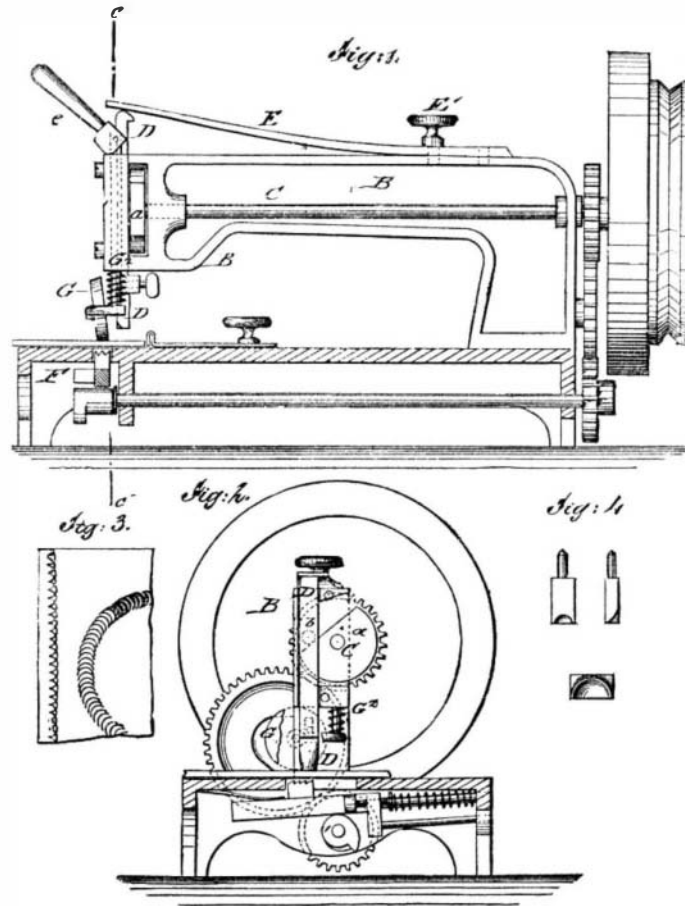


IMPROVED MACHINE FOR STAMPING LEATHER GOODS.

In the accompanying engraving is illustrated a novel machine for stamping ornamental designs on the leather work of horse saddles and of carriages. It may also be used for producing the embossed leather employed for furniture covering, bookbinding, etc. The upper revolving shaft, C, in the side elevation, Fig. 1, works the stamp rod, D, which moves in a guide in the arm, B, and is acted upon by a band spring, E. Said spring may be adjusted by the clamp screw, E'. The shaft, C, raises the stamp rod by means of a cam, a, which engages with a friction roller, b, on the rod, as shown in Fig. 2; on being released from the cam, the rod is brought down forcibly by the spring. Fig. 4 shows the various shaped stamping bits, which are clamped into the lower portion of the stamp rod, D. The leather is fed by a vibrating feed mechanism, F, and retained by a presser wheel, G, which is attached to an arm on a presser rod, G', which is pushed down by a coiled spring, and raised or lowered by the lever, e. Fig. 3 represents a piece of leather, as marked by the machine, the uniformity of the impressions being secured by the regular movement of the feeding device. The mechanism is operated by the belt wheel and gearing on the right in the usual manner.

Patented through the Scientific American Patent Agency, April 3, 1877, by Mr. Lewis H. Urner, Nevada, Mo.



URNER'S LEATHER-STAMPING MACHINE.

A Good Portable Printing Press.

A small portable printing press is a convenient and useful article in almost any business house. It will serve to print letter heads, envelope advertisements, cards, and small circulars, notices, etc., and thus will save printers' bills. It is a capital present for boys, as it induces them to acquire the rudiments of an important trade, which in after life may be turned to practical account. An excellent little machine of this description is known as the Excelsior Press, and is made by Messrs. W. A. Kelsey & Co., of Meriden, Conn. The advertisement of this firm will be found in our advertising columns.

Composition for Covering Boilers and Steam Piping.

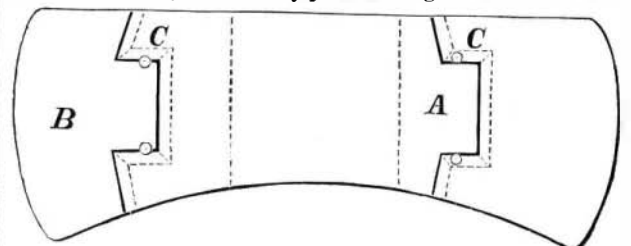
The process has been employed for some time with great success for preventing the loss of heat from steam pipes, domes of generators, cylinders of steam engines, etc. It consists in covering the same with a mixture of sawdust (no matter from what wood) and ordinary flour paste in a very liquid state. The sawdust being added to make a thick paste, and applied according to the following directions, will form a compact mass, the adherence of which is very great when applied on clean surfaces of wrought or cast iron; but on copper pipes it is more difficult to apply the first coat: in which case it is necessary to wash the copper pipe to be covered with a clay wash made with potter's clay until it forms a thin coating, after which the sawdust and paste will adhere firmly. It is very simple to apply; any ordinary mason with a small trowel is all that is necessary. Lay on five successive coats one fifth of an inch thick, each layer making, when finished, one inch thick. Let the pipes or other objects to be covered be kept warm by the aid of a little steam, and let one coat be perfectly dry before applying a second. Should the pipes be outside, exposed to the open air, give them three or four coats of coal tar to make them waterproof, but if inside a building it is not necessary. It is well to pass the sawdust through a riddle, to cleanse it from the coarse fragments of wood which are always to be found among sawdust. There is no contraction in drying the composition, therefore no leakage. Steam pipes so covered, the correspondent believes, lose less heat than when covered by any other patented process sold for that purpose. It is much less

expensive, and much more efficient. The sawdust is to be found in most factories, scarcely of any value. With 1 cwt. of flour (about \$3.75 worth), he says he can cover as much surface as formerly with \$200 worth of the composition he was then using, which cost him at the rate of 75 cents or \$1 per cwt. Its lightness renders it still more valuable for such purposes. There is very little expansion or contraction in the pipes, being well protected; therefore no leaky joints.—*Textile Manufacturer.*

A NEW AXE.

Mr. John O. Rollins, of Truckee, Cal., has patented through the Scientific American Patent Agency an improved axe, having detachable bits that may be readily interchanged and securely attached, so as to admit the use of one axe with thick or thin bits, for different purposes, and the replacing of dull bits by sharp ones.

The body, A, may be made of cast iron if desired, which admits of cheaper manufacture. The ends of the body are provided with tapering grooves, or with beveled edges, to which the corresponding beveled bits are fitted, both methods being shown in the illustration. The middle part of the axe body is centrally recessed back of or extended beyond the slightly inclined side parts, the bits being in the same manner made with a central extension or recess, so as to be connected to the axe, and thereby protected against lateral dis-



placement. When the bits are placed in position, they are locked against displacement in the longitudinal direction of the axe by rivets, C, of soft metal, that are driven in tightly to retain the bits securely on the axe. The rivets may be easily removed by a steel punch for the purpose of replacing dull or broken bits, or inserting bits of different size for different work, as required.

Spurious Flowers of Sulphur.

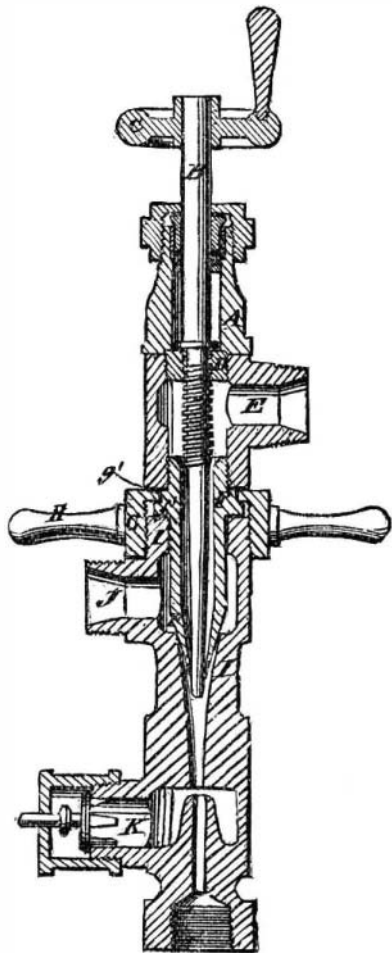
Mr. Hanks recently exhibited to the San Francisco Microscopical Society specimens of the spurious and the genuine flowers of sulphur for comparison. The real article is obtained by subliming sulphur; and except that there is with it usually a little sulphurous acid, the product is almost chemically pure. But a great deal of what is sold as the sublimate now turns out, under the microscope, to be merely crude brimstone, ground to a powder. Instead of "flowers" it should be called flour of sulphur. The spurious article contains many impurities.

Sleep.

Sleep, Dr. W. A. Hammond says, may be defined as general repose. Almost all the organs rest during sleep. The heart, popularly supposed to be in perpetual motion, is at rest 6 hours out of the 24, the respiratory organs 8, and the other organs more or less. The brain alone is constantly employed during wakefulness, and for it sleep was formed and made needful to its preservation. It is true that sleep does not give the brain a total recess from labor; imagination and memory are often vividly active during sleep, and unconscious cerebration likewise takes place, but enough rest is obtained for the renovation of the brain, and that which has been torn down during wakefulness is to a certain extent rebuilt. Sleep is a most wonderful power—often stronger than the will, as in the case of the sleeping soldier—and more mighty than pain, as when sick persons and tortured prisoners sleep in the midst of their suffering. No torture, it is said, has been found equal to the prevention of sleep. The amount of sleep needed differs according to the constitution and habits. Big brains and persons who perform much brain labor need a large amount of sleep. Children need more sleep than grown people because construction is more active than decay in their brains.

A NEW INJECTOR FOR STEAM BOILERS.

We illustrate herewith an improved water injector for steam boilers, which is claimed to be so constructed as not to



require any internal packing, as to prevent locking or bursting and side leakage, and as to work equally well at any pressure of steam. It may be detached, examined, and again attached in a few minutes without interfering with the working of the boiler.

A is the outer part of the injector, through a stuffing box in the outer end of which passes the spindle, B. The spin-

face of the ring or wheel, G. The wheel, G, is provided with handles, H, for convenience in turning it, and has a screw thread formed upon the inner surface of its inner part, to receive the screw thread formed upon the outer end of the part, I, with which, near its outer end, is connected the water inlet, J. With the part, I, near its inner end, is connected the overflow, K. With this construction, by turning the ring or hand wheel, G, the water supply can be regulated according as the steam pressure in the boiler may require. This device was patented through the Scientific American Patent Agency, March 20, 1877, by Mr. James Westley, of Manchester, England.

Soiree of the Louisville Microscopical Society.

A large audience assembled in the Hall of the Louisville Library to attend the annual soiree of the Louisville Microscopical Society. Arranged on tables were nineteen instruments representing the most famous makers of this country and Europe, from a small old fashioned Bascule to a large and magnificent Ross. The objects selected for exhibition were selected from the various departments of Nature.

Professor Brach, with a Zentmayer "Grand American," with the paraboloid, exhibited a series of beautiful picked diatoms. On a second instrument he showed the effect of polarized light on crystals and various animal and vegetable tissues. Mr. W. R. Belknap exhibited fine specimens of gorgonia and spicules of sponge. Dr. Clapp showed various animal parasites, *trichina spiralis*, tape worms, etc. Dr. Holland showed the various ferments in different stages of development. Dr. Jenkins, with the micro-spectroscope, showed the spectra of blood and various colored liquids. Dr. Keohler exhibited a number of handsome slides of fossil woods. Mr. A. L. McDonald, with a beautiful binocular, gave both eyes a chance to see crystals of arsenious acid cinnabar, and *polycystina*. Dr. J. B. Marvin had under an instrument a frog so arranged as to show the circulation of the blood. He also showed beautifully injected specimens of animal livers, kidneys, tongues, etc. Professor C. Leo Mees showed, with a magnificent Ross instrument, Moeller's phototype plate, *Deutzia gracilis*, etc. Mr. I. Pettus exhibited the lower forms of vegetable life, diatoms and *protococcus*, also *rotifer vulgaris*, who seemed especially voracious on this occasion, and vinegar eels. Professor Lawrence Smith illustrated the formation and growth of crystals under polarized light. He also showed a series of micro-photographs, under his peculiar inverted microscope. Dr. Sloan, with a handsome Grunow instrument, showed blood of various animals, magnified 2,000 diameters. Mr. Pack Thomas exhibited tracheal vessels of silkworms, tongue of fly, eye of beetle, etc. Mr. David Lane, with the oxyhydrogen microscope, projected a number of objects on a screen, the circulation of blood in a frog's foot, many common insects, and plants, *drosera rotundifolia*, etc., were shown.

The exhibition was a decided success, and the society will give another soiree in the first week in June.