COMBINED ANVIL, PUNCH, AND SHEARS.

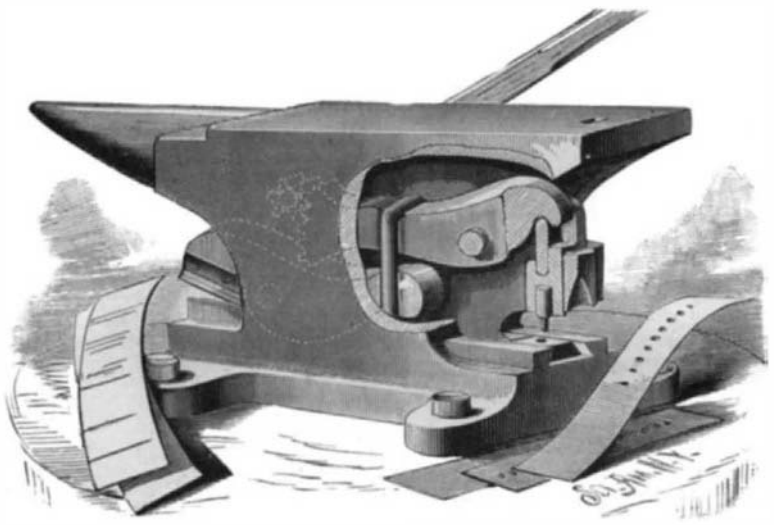
The engraving represents a novel combination of anvil, punch, and shears, recently patented by Mr H. A. Schnelkloth, of New York city. The anvil is of the usual size and shape, the shank and base portions being hollowed out to receive the shear lever which projects from one end of the anvil, and the punch lever which projects from the opposite end.

The fixed blade of the shears, as well as the female portion of the punching device, is arranged upon strong transverse base portions of the anvil, both being set into dovetailed recesses of the base. The base below the opening of the female die is provided with a hole of gradually increasing width, through which the punchings are readily dropped.

The movable blade of the shears is attached to the front end of a fulcrumed lever, the rear end of which is connected by a strong link to a fulcrumed lever which carries the male die of the punching device. The shear lever is connected by a pivot link with a vertically guided block, in which is formed the socket for the punch, this block being guided by beveled cheeks of the side walls of the anvil, and by an angular front plate.

The link serves to raise the block, while a solid piece, interposed between the block and the end of the lever, serves to press the block down so as to force down the punch. The inner end of the punch lever is provided with a toothed segment which meshes with a pinion keyed to a transverse shaft, and provided with a lever by which either the punch or shears are operated according as the lever is thrown into one direction or the other. This shaft is journaled in bearings of the side walls of the anvil, and carries at its outer end a socket frame into which the handle is inserted and clamped when it is desired to operate either implement.

In this manner a handy and compact combination tool for metal workers, which serves as an anvil, punch, or shears, is obtained, which does not take up more space than a common anvil, and dispenses with separate punching and shearing implements.



COMBINED ANVIL PUNCH AND SHEARS.

The Area of Louisiana.

The United States Land Office makes the area of Louisiana to be 41,346 square miles. Prof. Hilgard, in a census report lately published, puts the figures at 45,430 square miles. The difference is one of 2,607,300 acres. It is more than the combined area of Rhode Island and Delaware. An examination of the State by parishes shows a considerable excess in land over that reported by the Land Office. There are 1,242 complete townships in the State, amounting to 44,712 square miles, besides fractions of others, showing an excess of 3,500 square miles on the lowest calculation. Prof. Hilgard, of the Census Bureau, writes to the New Orleans *Democrat* that he has gone over the figures carefully with the geographer of the bureau, Mr. Gannert, and both are convinced that the Land Office report is wrong. They imagine that the first United States survey found 44,346 square miles; that the second "4" was transcribed as a "1," and that the error has been carried down from year to year, and from book to book, until the erroneous figures have found their way into all the standard authorities.

IMPROVED KALEIDOSCOPE.

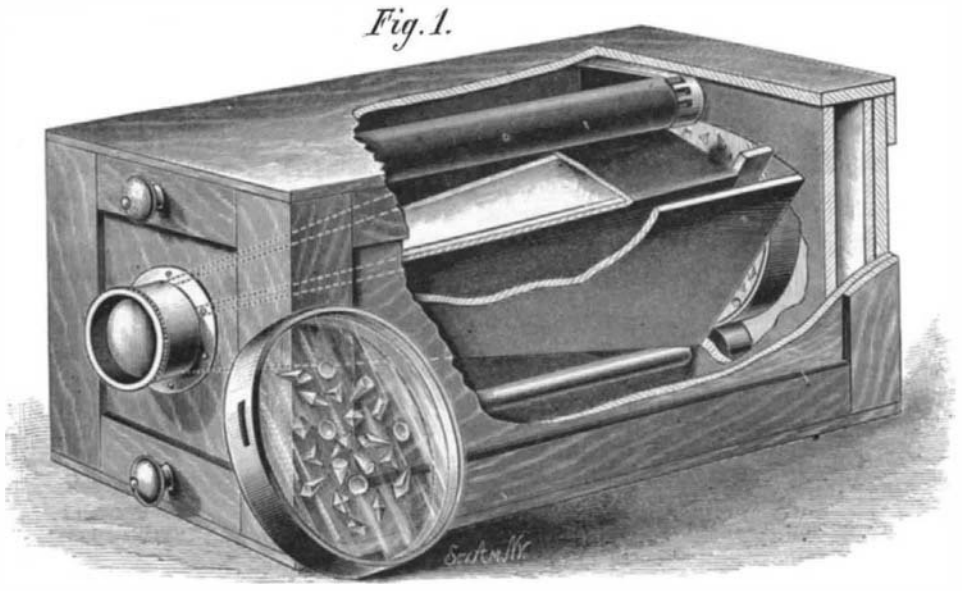
The engraving shows a kaleidoscope in which the angles of the reflectors and of the figures produced may be varied at will and held fixed in any desired position without turning the instrument, and to design and arrange the bits of glass or other material whose change in position gives rise to the figures of the kaleidoscope, so that when viewed through the kaleidoscope tube they shall present varying tints, shades, and compounds of color and a greatly increased number and variety of figures. The case of the kaleidoscope may be of any desired shape or size.

The ground glass is set vertically in grooves in one end of the case against the inner face of the end plate, which is provided with a triangular opening. A little in rear of the end plate is a parallel vertical partition provided with a corresponding triangular opening, forming the pocket for the reception of the object wheels. The object wheel is made of two or more circular plates of glass held apart and parallel with each other by a hoop so as to form one or more chambers for containing bits of glass or other material for producing the figures of the kaleidoscope. When in place in the case the object wheel rests on the friction disk or wheel secured on an end of a rod which is extended longitudinally through the case along the bottom, and has a knob on its outer end for convenience in turning. By rotating this rod the object wheel is made to revolve.

The tapering reflectors in which the images are formed are centered by a wooden oase, and are drawn together more or less by a roller in the upper part of the case, upon which are wound pieces of cloth attached to the edges of the glass. The cloth and roller not only answer the purpose of varying the angle of the reflectors, but they form the third side of the reflecting tube, excluding light and dust.

Fig. 1 is a perspective view. Fig. 2 is a transverse section. This novel device was lately patented by Mr. V. M. Farr, of Oskaloosa, Ia.

Fig. 1.

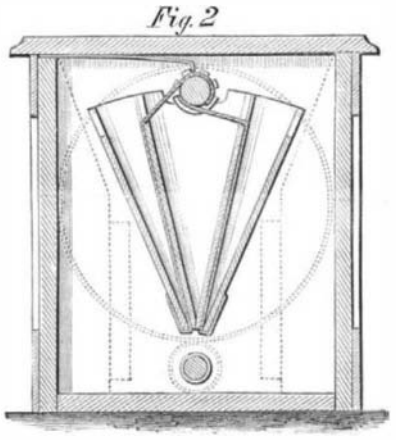


FARR'S KALEIDOSCOPE.

MECHANICAL INVENTIONS.

Mr. John H. Gwinner, of Hughesville, Pa., has patented a shoe-blacking apparatus consisting of a box provided with compartments for slippers, blacking brushes, shoe-dressing bottles, etc., the compartments being provided with swinging lids, to one of which a reversible foot rest, that can be adjusted for right or left handed persons, is attached. The lid of the box has a blacking-box holding frame pivoted to its under side, in which frame the blacking box is held by suitable thumb screws, and the lid is also provided with a rubber bulb containing water, which is conducted by a suitable tube to a nozzle projecting from the underside of the lid, so that when the bulb is compressed a small quantity of water will be squirted upon the blacking box or on the brush.

Fig. 2



TRANSVERSE SECTION OF KALEIDOSCOPE.

Mr. Cyrus E. Grandy, of South Barton, Vt., has patented an improved machine for splitting wood for fuel and other purposes. The machine is driven by power, and is provided with a knife having concave sides which splits the wood completely at every stroke.

Mr. Arthur W. Bush, of Boulder, Col., has patented an improved watchmaker's tool. It has always been a tedious and difficult matter to set a ruby pin or pin jewel properly. The object of this invention is to provide a simple and convenient tool for overcoming this difficulty, whereby the pin may be held in an upright position with the flat side in front.

An improved lock and latch, patented by Mr. Francis Keil, of New York city, is of the class known as "front-door locks," in which the locking bolt, latch, and night latch mechanism are combined in a single case.

Mr. William T. Shaver, of Eldora, Ia., has patented an improved wagon gear especially applicable to spring wagons, the object being to provide a device whereby the usual strain upon the side springs, reach, and head block is avoided and the wagon gear is rendered more elastic.

Mr. James Nuttall, of Heap Bridge, near Bury, County of Lancaster, England, has patented an improvement in machinery for cutting pattern cards for looms. This machine, although simple, cannot be described without engravings.

An improvement in steam engines has been patented by Mr. James H. Suits, of Butler, Ill. The invention consists in the addition of a vacuum chamber to the steam cylinder, with which the cylinder communicates by means of ports corresponding with the cylinder steam ports, the vacuum chamber being supplied with a suitable valve, and being exhausted of residual air and steam by an air pump, so that the steam and air behind the piston at the end of each stroke may escape into the vacuum chamber, and thence be removed by the air pump.

The plug of an ordinary four-way cock is so constructed as to allow supply of liquid through two pipes and escape of liquid through two other pipes simultaneously, but is not adapted to cut off the flow in either direction and simultaneously allow it in the other. Mr. Jackson Sheppard, of Memphis, Tenn., has patented a four-way cock whose plug is so constructed and combined with a shell having four openings or passages that it will allow passage of liquid in either of two directions through the shell, but not in both simultaneously, and may be adjusted to cut off the flow in both directions when desired.

An improved mechanism for converting motion has been patented by Mr. William Hanna, of Gilroy, Cal. This improved mechanism is intended for use as a substitute for cranks in converting rectilinear reciprocating to continuous rotary motion, the special object being to increase the extent of rotary motion from a given length of stroke, while at the same time avoiding dead-centers.

An improvement in machines or frames for twisting fibrous materials has been patented by Mr. William Murray, of Selkirk, County of Selkirk, Scotland. The object is to give double or more twist than is usual by the ordinary machines or frames driven at the same speed and taking but little more power.

Mr. John D. Smith, of Fayetteville, N. C., has patented an improved attachment to a cotton gin, designed to prevent accidents which so often occur from the contact of the hands and arms of the operator with the saws. In reaching under the arms to brush the moats off the moat board the draught is liable to draw the sleeve up to the saws and involve the laceration or cutting off of the man's arm, and in raising the breast of the gin to clean its ribs while the saws are running the same danger is incurred. To obviate these dangers this inventor provides a guard hung beneath the saws and connected to the breast, so that when the breast is raised the guard is thrown between the saws and the operator and shields him from danger.

An improved vehicle gear has been patented by Messrs. Adam S. F. McBride and Henry D. Haisten, of Cuthbert, Ga. The object of this invention is to provide a gearing adapted to all carriages and of superior elasticity, strength, and durability.

Mr. Henry M. Loud, of Oscoda, Mich., has patented a combined matching and gluing machine, by which the matching and gluing may be performed in a single operation, and the labor and expense of constructing boxes and other articles, where tight joints are required, may be greatly diminished.

Mr. Zadok T. Blackwell, of Carrington, Mo., has patented a new pulley wheel for rope transmission, which is so constructed that the rope cannot slip. A series of pairs of clutches are pivoted to the ends of strips on the sides of a wheel, or the lower ends of these clutches may be pivoted in short notches or recesses in the edge of the wheel. The inner or adjoining edges of these clutches are curved from the base upward and outward, and are provided with shoulders or offsets which overlap each other. The driving rope passes around the wheel and rests in between the clutches and on the shoulders or directly above them. If the rope presses on the shoulders the two jaws are forced together and the rope is jammed in between the edges of the clutches and held.