THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

## ${ }^{\text {SCIENTHE }}$ <br> Scientific American,

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advance, aud the remainder in six months. advance, aud the remainder in six month Agents employed.

Professor Ropers on English Coal This distinguished American savant, who has just accepted a chair in the University of Glasgow, Scotland, in writing of the physical power which England derives from the trans furmation of the latent power of coal into active force, states the following interesting facts:-
"Each acre of a coal soam, four feet in thickness, and yielding one yard net of pure fuel, is equivalent to about 5,000 tuns; and possesses, therefore, a reserve of mechanical strength in its fuel equal to the life-labor of more than 1,600 men. Each square mile of one such single coal bed contains $8,000,000$ tuns of fuel ; equivalent to $1,000,000$ of men laboring through twenty years of their ripe strength. Assuming, for calculation, that $10,000,000$ tuns out of the present annual products of the British coal mines, (namels, $65,000,000$, ) are applied to the production of mechanical power, then England annually summons to her aid an army of $3,300,000$ fresh men pledged to exert theirfullest strength through twenty years. Her actual annua expenditure of power then is represented by $66,000,000$ of able-bodied laborers. The latent strength resident in the whole coal product of the kingdom may, by the same process, be calculated at more than $400,000,000$ of strong men, or more than double the number of the adult males now upon the globe.'

> Letters with Diagrame.

We of ten receive letters containing sketches of machines, respecting which, information is asked by our correspondents; many of thesein fact the most of them-are written with the description on the first page and the diagram inside. It is difficult to read and understand such letters, because a leaf has to be turned over to find every letter of reference. Correspondents will save us much trouble, and enable us to understand their sketches better and more rapidly, if they will write the description on one inside page, and make the diagrams on the opposite one, or on a separate sheet. Such letters have but to be opened out and placed before us, to enable us to read the descriptions and examine the sketches with facility and without confuston.

## New Decolorizing Agent.

M. Mene, a French chemist, has just dis covered that hydrate of alumina, prepared by decomposing alum with carbonate of soda, is a perfect substitute for animal charcoal in the decolorizing of liquids. He has tried it on sugars, sirups and molasses, and it has given every satisfaction; and after having been ustd once, it can be washed and re-prcpared. It has also the great advantage of cleanli ness; and it is more pleasant to our fancy to know that our sugar has been clarified with alumina, than with burnt blood, and similar animal products.

## DARBY \& YOUNG'S PLANING MACHINE.



This improvement in planing machines has especial reference to the shape of the bed and bed rollers, and its construction will be understood by reference to the engravings and the following description :-
Fig. 1 is a perspective view of the whole, and Figs. 2, 3 and 4 will be hereafter described. In Fig, 1, A is the frame ; B is the planer, and $C$ the driving wheel of the feed

motion; D D are the feed and delivering rollers, ; $E$ is the bed, and $F$ the roller to render the passage of the stuff easy from the bed. The bed is supported in two movable pieces, G, one on each side, which can be raised or lowered to accommodate the thickness of the stuff by the screws, H H H H, and chains, I. J J J J are slats having their outer ends attached to springs, so that they keep a pressure on the feed rollers. Planing machines are generally open to the objection that they will only smooth the kind of work for which they are specially constructed, and are not capable of being altered to various applica-
tions; in fact, they are not like the majority of machines now manufactured-perfect specimens of multum-in-parvos-capable of doing a great number of things with the one piece of mechanism. Now, the great advantage of this machine is, that it can be made to plane either flat pieces of wood or beveled, as will be seen by reference to Fig. 2, which is it vertical section of the bed plate, E ; the flat or horizontal top, $e$, can be removed by loosening the screws, $a a$, when the beveled part, $\boldsymbol{b}$, will form the bed, thus placing the stuff at an angle with the planer, B , and will allow two beveled slats to be planed at once. Fig. 3 is a section of the bed roller, F, which consists of an outer case, $f$, that can be slid off, leaving a corresponding shaped roller, $c$, to the bed plate. Fig. 4 shows these two separate.
It was patented July 28, 1857, and further particulars may be obtained from the inventors and patentees, Geo. Darby, of Richmond, Va., or J. E. Young, of Augusta, Me.

## How Wine is Made in California.

We have on previous occasions expatiated on the capabilities of the Golden State as a wine-producing country, and we now transcribe from the Los Angelos Star a description of the method of manufacturing this beverage in that city from native grapes :-
The first operation in the process of wine making, after the grapes arrive at the mill, is to shell them off the stems; six men are employed in this operation. The grapes, as they come from the vineyard, are thrown upon coarse wire sieves, which are firmly set at an angle of about forty degrees, above and around the mill. Wooden forks are used to shell the grapes, which, as they are detached and moved about on the sieves, fall through into a hopper, which conveys them to the mill. The stems remain upon the sieves, and are removed by hand.
The mill is formed by two horizontal wooden cylinders, about three feet long, and ten inches or a foot in diameter. These are kept in motion by means of a crank, which is easily turned by one man. The mashed grapes fall from the cylinders into a large shallow
tank, from which the juice rapidly flows off, and passing through a couple of sieves, to separate any skins or seeds which flow along with it, is raised by a pump and conducted to the fermenting tubs. These vessels hold from eight to fifteen hundred gallons each. The juice in this state, fermented without the skins or pulp, produces white wine. The skins and pulp, together with the seeds, are removed to other tubs, where, during the process of fermentation, coloring matter is extracted, forming red wine.
To give a high color to the wine, the pomace, as it rises to the surface during fermentation, is frequently broken up and stirred into the wine. This is only practiced when the juice, pulp, and skins are fermented together in the same vessel.
Six men are kept constantly employed in shelling the grapes from the stems, and such is the ease and rapidity with which they are ground, that the mill is kept waiting nearly one-half of the time. After the mash is sufficiently fermented, which occupies from ten to eighteen days, the wine is drawn off into pipes, and the pomace is then taken to the press, where it is subjected to the pressure produced by a $\mathfrak{i} v e$-inch screw. Surrounding and attached to this screw is a drum of about ten feet in diameter; a rope is wound upon this drum, and one end carried to a capstan, when the power of two or more men is applied to long bars, which produce a leverage of no insignificant amount. Five men are employed in this branch of the operation.
The daily product of wine is two thousand gallons, and the estimated product of the present vintage is eighty thousand gallons.
Notwithstanding the pressure which has been applied to force the bruised grape to yield its spirit, yet so endurable are the exhilirating qualities of this fruit that the pomace still contains enough to tempt the cupidity of man ; so the pomace is sold to distillers, at the rate fhoms from whace for thousand gallons of winehave been made. The
pomace is mixed with water, and then subjected to distillation, and the result is a good distillation of pure grape brandy.

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Issued from the United States Patent Offc for tae weis endina deoember $1,1857$. [Reported offically for the Scientific American.]

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ranged as described in the patent onemith but only
when constructed and arranged at hereatter claiment
 the fabric knit, when the etitches are formed, construct-
ed and operatins as dencilibed.
I claim a vibrati ng traversing yarn carricr, operated
 describibed. ${ }^{\text {I double-edged } \text { latch opencr, in in combination }}$
with a vibrating yarn. carricr, operated so as to change
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of the needdes byond the fabric and under the latch
opener, as describsa. PLows-Joserh Banks, of Dadeville, Ala. : I claim
the arran ement of the double bran cleed colter, I. so
 combination with the verticicl and forward, and rear
adjustmentsof the colter in the beam, in the maner
and for the purpo se peccified. Seren Instcator-James M, Benciert, of Philadicl-
phia Pa. I distinctly disciam the erployment of
weighted
 But I Traim the arrangement of the double-threadc
cam, $F$, segmente, F , and swivel arm, $G$, as and for the
purposes bet forth.
[ 1 description of this will be found on pase 107]

 the mander and forthe purposes described.
second I claine same in
manner of oporating the spidemer threoconstruction, and by one screw


 N. Y. I Io not con ine myself to thic
tions of the severalingredients specitich
But I claim the inflammable composit But I claim the inflammable composition formed by
the union of karigm, rosin and pavdust, in suitable
proportions, to give it the haracter specififed. [For description of this invention, refer to anothe:
page.]

 verse said marker, gegeod it to the machine whilst
turning around, and drop ju into its working pooition
without leaving his sat on the machine, as eet forth,
and forthe purposes explaincd.
 load, for rakzs thus arranged have been previousl
used
But I claim operating or raising the rake through
the medium of the lever, I, provided with the the medium of the lever, I, provided with the pin, i,
the wheul, ${ }^{1}$, and the curved bar, $j$, arrauged substan-
tially as described.
[This invention consists in a novel arrangement of the rake head, by which it may be elevated at proper
intervals to discharge its load. It is operated by one of the wheels of the machine.]
SEwivg Macinge-Joel Chase, of New York City : I
claim the combinetion of the lever, G. when hung on
an axis in the rocksatit. with the lever. I, when the an axis in the rocks shatt. with the lever. Whe when the the
motion thereof is imited the sons in the mane set
forth, for the purpose of imparting the feed anotion to
the needle. Extengion Tables-Charles B. Clark, of Mount
Pleatant, Iowa. In do not claim, broaddy, the employ-
ment or use of fold ing rails appited to extension tables, ment or use of foldag riats applid to extension tables,
inrespective of the arrangement shown
Necther do I claim the employment or use of fixed Necther do 1 claim the employment or use of fixed
side piecos, irrespective of the peculiar arrangementas
shown and described, tor said parts have been previous-
 pleces, $A A^{\prime}$, as shown in the druwings, for the purpose
set forth.
['The object of this invention is to oblin a strong and Che object of this invention is to oblan a strong and
firm extension table when in an extended or closed
state, and one that may be closed or opened with fa-
cility.]
 fly wheel to the machinery, upon which it is intended to
concentrate its force by the medium of a friction brake,
as and for the purpose set fortli. SEREING Maciunes-Jacob Geiss and Jacob Brosius,
of Belleville, illi. FWe are aware that perforated sidides,
moving rectilinearly in opposite directions have been




 [This seed planter will not choke in its distributing
device, nor will the seed drop through when the device, nor will the seed da
chine is not in operation.]






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to the thimes.


Currive




 shown. attached to the plates, j , by bolts' m, and capa
ble of being adjusted and reversed, all as specified. [This cultivator providos one which is extremely
durable, easily kept in remutir, and one that may be adapted to all purposes or modes of culture practice



 [Thisis san impr
very good castor. $]$






 the purposes et forth.
umn.]
 tious of an elongated trunk or box for cleaning cotton
and other firous substunce with wove wire, havin
the scores formed by the weft, crossing the warp of sain
the the scores formed by the weat, crossing the warp or sal
wirie ecreocn flled with metal or cenent, the whlole com
bine in the manner and for the purposes set forth. Duspisg Cur-George WV. Hart, of Aurora, Ind. II
claim in combination with the recl, J, the slatted foid-
ing floor, 12346 , supported and operated in the man-
ner set forth.
 expressly disclaim the formation of finger bars of a sin
ge sheet on metal, rounded in tront, and with the frin
gers passing through holes in the said rounded portion

 ing construated and uranged in relation to each othe
tor joint operation in the manner shown and describe
ior the purpozes set forth.

 BEE Hrves-Henry M. McCleclian, of York, Pa. :
claim the combination of the sections, AB , conneted
as shown with the rotating doors, D ,
 feeding cups, G, the said parts being constructed and ar
rangedin relation to each other in the manner and for
the purioses described.
 entlless foeding band or platform, moving on palieys on
find
friction friction roll ers, as required, the band not being veared
to the rol ers in anyww, and beiug free to take its mo-
tion from the dough. EGG BEATER - Harvey Miller, of Cincinnati, Ohio:
do not claim the ratchet bar or revolving shaft and
beaters. Bears. claim the frame, A B, having a ratchet bar, g.
and revolving beatrer, od in compination $\begin{aligned} & \text { comith } \\ & \text { or can, as described, for the purposes set forth. }\end{aligned}$ the jal Liftiva Jacks-David L. Miller, of Madison, N. J.
I do not claim to be the inventor of the individual or
separate parts of the described screw jack. But I claim the adjusta ble crlinder, B, shoe, $\mathbf{C}$, inner
clinder or adiustable tandard, $D$, mas combination with

 ranged as to be capable of revolving aboit a common
center at difterent velocitics for the purpose of opening I claim arranging the cams so ns to leave open spaces
betweon them substantially a d described, in combina
bion with the dic box and dies as described, to facilita the changing of the dies.
the also olaim the mod ening the tap-holder to
the revolving die-box, substantially as described. PLows-W. Wi. Skinner, of Davenport, Iowa: I do
not claim the roling cutter the ese of the front wheels







 cor












 [The object of this invention is to make вausages di-
rect from the meat at one operation. The machine is a combination of a cutting and stuffing device, both












 for the purposese sef forth.








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 abovest forth.




















 CA deacription of tuis invention will be found on an-
other prage.











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column.]


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 This peal asae es portabie, and can be applied to any
pos. .3







 Reinatiole conidide efd diver or tappet, L .
 [In another part of our paper a description of this will
be found.] oud.
Lime Kins-Jacob Newkirk, of Factoryville, N. Y. Y:
I claim instead of taking the unper fre flles directy
trom the fire chamber into the interior of the kiin, the
 make a better distribution of the neare, mand fire chamber, as set forth.

 But ve are not a ware that spiral fanches placed in
reverse positins on drun;s or erlinders, , as as ot cive
 becn uscd.
We do not claim, therefore , broadly, and irrespective
of that arrangement shown, the employment or tux of
spiral fianches or pins placed in spiral rows on drums or
 verse positions on the rotating cylinders, $\mathrm{D} D$, within
the hopper, A , subetantially as and for tie purywse set
torth.

## arranged.]



 box and escritoir.
[For a descriptio


 tributing surface, C. by means of the rod, F. or any
equivalont connection that will pife the required mo.
tion to one end of aid plates, while another portionis
stationary upon the board or plane, in the manneland tationary upon the board or
for the purposes described.
 abovedescribed. $\begin{aligned} & \text { But } \\ & \text { But a } \\ & \text { banding, olasubstantially as bew mande described. }\end{aligned}$

 rims together, by drawing the plates, B B, apart in the
center, and holin. them by tre rint, as
and substantially for purposes specicict.















## Coorrsig STove-Elias Young (assignor to Chamber- lain $d$ Co.), of Cincinnati, $O$.

Descriptive Index to Chemical Patents. An Index to the chemical patents issued by the United States Patent Office during the year 1852. Prepared for the Scientific American by Dr. D. Breed, solicitor of patents, Washington, D. C. Continued from the Scifntific American of November 21, 1857 Archil-Prepared by treating lichen roccellus with volatile alkali, urine and lime water, in certain proportions: Leon Garosson, June
15, 1852 . $15,1852$.
Acid-Sulphuric; concentrating of, in leaden vessels to $66^{\circ}$ Baume, at a temperature below the boiling point: Carl Hinrichs, September 7.

Baryta and Strontia-Production of sulphur and sulphuric acid from sulphuretted hydrogen evolved in process of manufacturing car bonates: Charles Lennig, March 16.

Beer-Concentrated material for ; gum, starch, sugar, $\& c_{\text {s }}$ from evaporated infusion of grain: Franz G. Rietsch, February 3. Beer-Use of corn boiled to a jelly, into which malt or rye is then mashed: Frederick Seits, January 20.
Butter-Preserved by use of iodide of potash: Louis De Corn, August 3.
Cement-Hydrate of lime and pulverized resin mixed with cold water: B. S. Welsh May 18.

Enamel-For brick and iron; mixture of glass, lime, (hydrate or sulphate,) salt, oxyd of iron and water: Dunn and Howcs, September 7 .

Gutta Percha-Heating to $285^{\circ}$ to $430^{\circ}$ Fah., then vulcanizing by a hyposulphite alone, or with metallic sulphurets, whiting or magnesia: John Rider, June 1
Gas-Refrigerated by air. Apparatus: Robert Foulis, October 12.
Gas-Feeding into heated retort, charged with tituminous coal, either oil, coal tar, resin, asphaltum, or other bituminous or carbonaceous matter, in a fluid state, separately or mixed: Henry W. Adams, August 10.
Gus-Use of mixture of wood and fat for
generating: Danre, Nichols and Lopez, December 8. France, September 27, 1851.
India Rubber-Juice or milk of tree treated with common salt, to preserve: F. Bronner, Septcmber 7.

Iron and Steel—Use of calcined borax and carbonate of ammonia in welding; certain proportions: Boyd C. Leavitt, July 27.
Ivory-Placed at certain angle to bleach in sunlight: Ulysses Pratt, January 6. Antedated'July 6, 1851.
Oil-Obtaining paraffine and paraffine oil from bituminous coal: James Young, March 23. England, October 7, 1850.

Oil-Mixture of camphene, benzole, carbonate of potash and glycerine with whale oil : William H. Mason, May 25.

Paints-Treatment of magnesian minerals with mineral acids, for preparing pigments: Heman S. Lucas, November 23.

Paint-Watery solution of sulphate mixed with oil paints: Washington F. Davis, August 17.
Powder-For blasting; chlorate of potash and prussiate of potash: Edward Callow, February 17. England, August 6, 1850.
Soap-Use of ammonia (or carbonate ammonia) with kaolin, or other aluminous earth ; composition of: William McCord, July 27.
Soda-Chromate ; from ore heated with salt, chloride of potash, or hydrate of lime; jet of steam to expel iron as sesque-chloride; jet of steam to expel iron as sesque-chloride;
then treat with muriatic acid: John Swindells, December 21. England, November 14, 1850.

Soda-Carbonate; sulphate, heated with carbonaceous-materials, and treated with water, carbonic acid, evaporation, \&c. : Henry Pemberton, October 19
Sugar-Use of aluminate of lime with phosphate of alumina, or of lime and phosphoric acid, for clarifying: Oxland and Oxland, July 6. England, May 15, 1851.
Zinc-Metallic; impalpable powder prepared by cooling agency of steam: Henry W. Adams, July 28.

## To Avoid Sneezing.

Messrs. Editors : You will agree with me that it is not a superstitious notion that sneezing may be an indication of having caught a cold. The wise take it as a premonition to avoid encroaching upon a constitution at present sound ; they shut every door, close every window, and even stop every crack through which the air may ooze. Sneezing is the effect of a convulsion of the diaphragm, or muscle separating the chest from the abdomen. The sudden check of the uniform condition of the respirating apparatus brings on sneezing. Therefore, by stopping or changing the cause, the effect is prevented. The air which is in haled when a fit of sneezing is coming on, i suddenly breathed out, will effectually arrest the sneeze. There are times when sneezing is out of place among persons of good breed-ing-times when it ought not to break deep silence, as at prayers.
J. H. H.

## The Purple of Cassins.

This is a color generally used in the glazing of earthenware, glass, porcelain, and enamels. It is one of the most ancient as well as the most beautiful of colors and has rather a scarlet tinge. Chemically it is composed of oxyds of tin, oxyd of gold, and water ; and according to slightvariations in the amount of either meta various shades of color can be obtained. Various methods have been proposed for its preparation, the best process for obtaining.it in a pure state being to take 310 grains of fine gold dissolved in 1550 grains of aqua regia, consisting of one part of commercial nitric, and four parts of commercial hydrochloric acid; the solution is evaporated to dryness in a water bath, the residue dissolved in water filtered and diluted with 20 or 30 ounces of water and placed in contact with granulated tin, the purple precipitate being the desired compound. When freshly precipitated it dissolves in ammonia, but by expo are to the light the solution gradually decomposes, becoming gradually blue and then colorless, but when fused with a glaze on porcelain it is a most durable color. The richness of its tints is evidently due to the presence of the gold, which, causing it to be very expensive, has often been endeavored to be replaced by another metal; and often in experimenting, much richer hues have been observed during certain stages in the oxydation of copper, these however are only evanescent, the color quickly changing to the dead black of cupreous oxyd. We believe that some French chemists are now engaged in searching after a good scarlet or purple for porcelain, from copper, and we hope that they may be successful, as it will greatly aid the progress of the art of decora ting the works of the potter's wheel.

## Bole Armenia.

This is an earthy mineral found in nearly very part of the world, and has the affix
country. It is very friable and varies in color from yellow and brown to red and black, and has a greasy feel. When placed in water it readily absorbs it and, emitting bubbles of air, falls to pieces. Formerly it was much used es a medicine but it has now fallen into disrepute, because the only tonic that there could be in it is due to the presence of oxyd of iron, which is now administered in its pure state. It is also used in Germany as a pigment, and also as a tooth powder.

## Suced Indicator and Governor.

J. M. Benckert, of Philadelphia, has patented a machine for the above purposes. It consists in having a series of arms pivoted to a revolving plate, with weights at their outer ends, and their inner ends being connected with gearing. The arms are connected to a gearing cam, which is rotated reciprocally, as the arms, by centrifugal force and springs, are made to recede or approach each other; the cam, as it thus rotates, giving the proper motion to an index, to designate the speed of the machine to which it is attached, and also actuating the throttle valve of a steam engine, or the gate of a water-wheel.

## Fire $\bar{z}$ indling Composition.

By taking regulated proportions of kauri gum, rosin and alcohol, and allowing them to remain open to the ordinary atmosphere temperature, or to a gentle heat, the gum and rosin will be dissolved and amalgamated. Then add wood or sawdust in such quantity that it will stir up into a sufficiently consistent mass to be molded into cakes, and when dry it will form a very good fire-kindling material. It is the invention of Elizabeth Bellinger, of Mohawk, N. Y., and was patented to her this week

Steel Plow.
By this invention the mold-board and lay always retain their form while on the frame or foundation; and in case the lay becomes sprung while being sharpened, it will be caused to take its original shape when applied to the frame or foundation. Thus all inconvenience from the lay and mold-board in steel plows being sprung and banging in the soil, is avoided. A perfectly smooth and regular steel surface is presented to the soil. This plow is well adapted for western lands. It is the invention of John Lane, of Lockport, IIl.

## Bail for Millstones.

Joseph M. Glover, of Skegg's Creek, Ky., has patented an improvement in the above, which consists in having a box placed at the bow or bend of the bail, and a block secured in it; the block resting on the point of the spindle, and rendered capable of being adjusted by means of set screws, so that the stone may be balanced with great facility; also, when the hole in the block becomes worn, the block may be readily removed and a new one fixed in its place.

## Rocli Drill.

An improvement in the method of mounting drills so that they may readily be adjusted to the direction that it is desired the hole may be bored in the rock, has been patented by Joseph E. Nesen, of New York. There is lso an arrangèment contrived for griping the drill, at the proper time, and again loosening it, so that it may strike the rock with some amount of force.

## Printing Press.

This invention is an improvement on hand presses, and is designed to facilitate the operation of printing by hand, so that the work may be performed in a much more expeditious manner than at present, and equally as perfect, with much less labor. It is patented by J. Henry, of Vevay, Indiana.

## Workbox and Escritoir.

Charles C. Schmitt, of New York, has patented a most ingenious work box for containing articles of value, such as jewelry, \&c., The secret drawers are most cleverly arranged, and workmanship.

