# 5 <br> rientific Ameritan. 

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

Scientific American,
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mainder in six months. $\underset{\substack{\text { ®mploged. } \\ \text { Se Pr }}}{\text { em }}$

Geological Discoveries.
At a meeting of the London Geological Society, held in the 7th of last month, Prof. 0 wen, the eminent Zoologist, read a paper on the remains of a new species of mammal obt ined from the Eocene tertiaries of the Isle of Wight.'
The Professor founded his description of the animal chiefly on the jaw and teeth, which presested characters intermedate between those of the hog and the sheep. The Profissor remarked on the immense void which existed between the pachydermata of Cuvier, and the ruminantia of the same author. Amongst animals of nearly the same size, the pig may bs taken as a type of the pachydermata, thick skinned animals, and the sheep of the ruminantia, or ruminant quadrupeds. Although both these orders are hoofed, yet there are many striking distinctions between them, and judging only from the living creation, nature seems to have jumped at once from the sheep with its four stomachs, and harmless grasseating teeth, to the pig with its omnicarnivorous habits and truly canine teeth. Many fossil forms which have been brought to light by Cuvier and others, from tertiary formations have supplied links which are wanting between chese two classes of animals.
Professor 0 wen described this intermediate form under the name of Dochodon arspidatus. Several jaws of this quadruped bad been found, one jaw being in the collection purchased from the Marchioness of Hastings, for the British Museum, and another having recently been discovered by Dr. Wright, of Cheltenham. The earlier specimens had caused the animal to be classed with the hog tribe, but the immature jaw discovered by Dr. Wright completed our knowledge of the dentition, and showed the animal to be intermediate between the pig and the sheep.
Hitherto no traces of a ruminant animal had been discovered in older strata than the Miocene, and Cuvier, in the Paris Basin, had brought to light no ruminant of a date so old as the Eocene or lower tertiary. Hence the interest of the present discovery, which affords ground for believing that animals closely allied to the ruminants were in existence in the lower tertiary period.

Steel from Oxyd of Iron.
At a recent meeting of the Cleveland, ( 0 .) Academy of Natural Sciences, Colonel Whit tlesy presented specimens of steel manufactured directly from pure iron oxyd, at the Sharon Iron Works, Mercer county, Penn.This steel presunted a finer fracture than that of blister steel. Col. W. stated that this article could be made at an equally low pric with common wrought-iron, or nearly $\varepsilon 0$.

## Culifalion of Chicory.

Great quantities of chicory root, ground and prepared for use, are now imported from Europe. All the Germans in our cities use in their coffee, and, it is said, to improve its flavor, while it is, at least, as healtby, and is much cheaper. It can be cultivated in al most every State, and no doubt would be a proftable crop.

## MANUFACTURING AND MARKING HOOPS.



In the accompanying illustration, figure 1 is a small upright roller, placed in rear of the nally inward, so as to cut the rear end of the is a perspective view of a machine for manu- saw, C. Close to this is placed a larger roller bolt in taper form. As the cut strip passes facturing sawed hoops from bolts of wood ; or cylinder, $U$, having in its surface a recess, the saw, $C$, it enters between the roller, $T$. and and figure 2 is a section of part of the ma- wherein are placed the dies or types of the chine, representing the shipper arm, L , and a part of the carriage.
The hoops made in this machine are forme with a chamfer at each end. All kinds of hoops-broad, narrow, short, and long-can also be made by it, and tieey can be formed with characters, names, brands, and numbers printed on one side.
The machine consists of the following parts, indicated by letters of reference. A A is the carriage frame, which may be made of iron or wood. B B is the bolt carriage, and $a a$ are ways on which the carriage $B$ is placed, and moves freely back and forth. C is a circalar saw on an arbor $D$, which runs in bearings on the saw frame, E E. F is a sliding frame on the saw frame, E ; it slides back and forth thereon, and is kept in its place by brackets or studs, H H. G is an upright rotary planer in frame $F$. I is a lever placed under the carriage, $B$, and pivoted near its center on the cross-piece J. K is an arm attached at one end to the lever, I , and passing through the frame, $A$, and is made fast to sliding frame F. On each end of the lever, $I$, a beveled or oblique projection is placed, seen at $a^{\prime} b$. L (Ggure 2) is an arm attached to the inner side of carriage B. M is a cross-piece or beadblock of wood, made fast to and across the carriage. N is a bar of wood placed on and lengthwise of the carriage, to which two transverse racks are attached at one side. 0 is a shaft, on which two pinions, $e e$, are keyed, and which gear into these racks. $P$ is a lever or a hand wheel on the end of shaft $0 . Q$ is a rest placed in front and parallel with carriage $B$. This rest is hinged at the bottom to admit of its being turned down out of the way, to facilitate the placing of the bolt on the carriage. $\mathrm{R}, h, g, i$, and $f$, are pulleys, and gear wheels, with belts, for feeding up and running back the carriage, B. $j$ is a rod on the side of frame A , with a handle, $j^{\prime}$, by which a driving belt, under the machine, is hifted, to give a forward or reverse motion to pulley R , to feed or run back the carriage, B . $S$ is a small upright arbor between the planer, G, and saw, C. On this arbor several small saws are placed, about three inches in diam. eter, and adjusted at any distance apart that may be desired. This arbor is supported in brackets, $l$, which are bolted to frame E. T
characters desired. In rear of the cylinder, U , are placed three small rollers, for inking the dies or types, in the cylinder. On the top of these rollers is a small crank, $t$, to enable the operator occasionally to revolve the same and spread the ink; or a motion for this purpose may be given to them by a small band. V is a small upright rod, passing down through frame, E, to the upper end of which a socket, holding a pencil, is made fast. $W$ is a small lever, placed snugly against the inside of frame A, and pivoted at or near its center. One end of this lever is bent at right angles, and passes through a slot in the frame $A$ at $m$. On this end, so projecting, the pencil-rod V , rests. X is an inclined plane, on lever W and $X^{\prime}$ is a similar one on the under side of the carriage B. Y is a catch pivoted to frame, A, and pressed up by a spiral spring, $m . \quad z$ and $z^{\prime}$ indicate a small lever and rod attached to catch, Y. On the rod, $z^{\prime}$, is a dog, $n$, adjusted by a set screw.
The operation is as follows:-The bolt from which the hoops are to be cut, is got out the proper thickness, and placed on the carriage B -its rear end against the head-block, M , and in front of and against the bar, $N$. The rest Q, being now turned upright, the operator moves the hand wheel, P , and by the action of the pinions, $e e$, on the racks, the bolt is moved snugly against rest Q. Feed motion being now given to the carriage, the bolt is moved towards planer $G$, and as the carriage is thus moved, the planer consequently makes a deep cut at its commencement ; the arm, $L$ then immediately strikes against the projec tion, $a^{\prime}$, and moves the lever, I , and-througb the arm, $K$-the sliding frame, $F$, and the planer, $G$, are gradually thrown back a certain distance. This movement of the planer causes the inner end of the bolt to be cut of a taper form. The saw, C, now enters th bolt, and cuts a strip the necessary thicknes therefrom; the planer, $G$, has now no lateral movement, but it rotates and planes the side or face of the bolt, which is, of course, the outer side of the strip when sawed off from the bolt. As the rear end of the bolt approaches the planer (and at the proper time) a pendant, on the front end piece of carriag B , strikes the projection, $b$, on the other end
of the lever, I , and the planer is moved grad
the saw, C, it enters betwoen the roller, T. and
the type cylinder, U. This cylinder, by the the type cylinder, U. This cylinder, by the
forward movement of the carriage, and at the proper time, is cansed to turn, hringing the dies agaithst the face of the hoop, and thus impressing thereon the characters desired. When the hoop has advanced the proper distance, the arm, $L$, according to the point at which it is set (fig. 2,) strikes the dog, $n$, on the rod, $z^{\prime}$, and throws back the catcl, Y, when the end of lever $W$, with the pencil-rod, $\nabla$, drops, whereby the pencil mark (which is requisite in bending the hoop to the size desired.) is made with the u(most exactness. The saw, C, finishes its cut, the hoop is removed, and the carriage, with the bolt, returns to its former position. As the carriage runs back, the type cylinder, $U$, is turned to its first position, bringing the dies against the inking ollers. At the same time the pencil-rod is raised by the action of the carriage on the incline, on lever $W$, and held up by catch $Y$. When narrow hoops are wanted, such as barrel hoops, \&c., the arbor, $S$, is used, and as the bolt passes the planer, $G$, these saws cut a trifle into the side or face of the bolt, and when the saw, C , completes its cut, as many hoops as the width of the bolt will llow, are finished at once. When wide hoops or cheese boxes, bushel and other measures, sugar boxes, \&c., are wanted, the arbor, , with its slitting saws, is racooved. A scale of the different sizes of hoops made is placed on the carriage, as a guide in adjusting the arm, L ; and thas the tapering and marking is insured at the proper time to form a hoop of the size corresponding with the number on the scale at which the arm is set. The saw, C , is driven by the belt, $\mathrm{A}^{\prime}, \varepsilon \mathrm{n}$ d the planer, G by a belt applied at the bottom or top, as may be most convenient. The little arbor, S , may be driven from the planer, $G$, as shown.
The machine is s:mple, and not liable to et out of order, and does its work in the most accurate and expeditious manner, and will work timber tha: cannot be uscd hy the ordinary method. As these hoops are of qual thickness throughout, they are coase sequently of an uniform strengtb.
A patent was issued for this machine to $C$. H. Brown, of Forest Port, N. Y., on the $10: \mathrm{h}$ of December last, from whom more information may be obtained by addressing him by letter.

[Reported officially for the Scientific American] LISTOFPATENTCLAIMS FOR THE WEEK ENDING FEBRDARY $3,1857$.






 ins. do I claim the principle of self:separation when



 [Wo filies are emppored in in thins machine, one for
sharpening the under, and the other -which is inclined
that -the upper sides of the :aw teeth. The saw is sharpen.

- by merely operatine the bed to which the files are attached. Guides are employed to direct each file to







 eonining the laterer tothe tiormer, the grovved horn be
ing or purpose as specitied.










 Ingenious meansare embraced in the patent for fiting
and securing the slats in the frame for connecting the slats and rods, for locking them when closed, and secur
sor
and Sns them in an open po. ition, also for putting them in and
taking them out with facility for repa ing This usefun nnention applied to houses, whin has he tiem, hecause
tagesas the common blinds, isuperior to these iron blind sare fre-proof, and have slats that cai be easily repaired finjured





 as set forth.





§cinntific Ammricant.















 IS and unclamping hames on horse collars. A spris. rranged is to offect the object tatated.]


 nin jozter an side pask





 Din this machine the spoke to bo tenoned is held in 2 obe, which affords a solid bed, wherety the spoke
eld firm to the action of the revolving cutter, no matter h $\omega$ w small its diameter or how hard may be the timber.
A proper dish shape is given to the shoulder of the tenon y the adjustable end-piece. The improvement is an


 Cor the purpoje subst anially as set forth.
Curriva Tevons on BuID SLATs-Seth C. Ellis. of
Cbang,N, Y: I claim the arrangement of therotating


 ic on w, acting together and in combination with the Tinting Buckers in Raising WATER PRom Wells
Daniel P. Farnham,of Miton, WWis. Ido not claim

 the inging rod, 1 art, be
purpose set forth.
[By thisarrangement of buckets on endless chains, in
combination with the devices mentioned, the buckets re tilted so as to discharge their water in a superior manner to the Persian wheel, common chain
ther hydraulic engines of the same class.]
Hydrant-Wm Fields and Solomon Gerhard, of Wil.
ington, Del.
 Ne aiso claim the plunger valve. V, when arranged in
elatition to the bent plpe. Pand constructed in the man.


 Forming Felt HAt BATs-Washington G. Hagaman
of Philadelphia, Pa. in ido not claim the removal or the
hat trom the surface on which it is formed before har.

 Gas Generating Apparatus-James Bansor, of the
Pandworth Road England. Patented in England,
March



 Shingle Machine-W $m$. Huey, of Columbia, Pa.
claim the partic ular method of adjusting the $\mathbf{l}$ ni within a cyindric alor cther.shaped case that then thay
bemade torise and fall according to the thickness of the
hingle or board. And secondird. I claim attaching the sawing and plan
ing achine in sucha juxtaposition an
natically os on described. in manner and for the auto. maticically
set forch.


 Boxis for Pis.
 parts of the Lox.
uther projections.
[Pise work con
[Pise work consists of walls formed of stiff clay or a concrete composition, sammed down between parallel
sided boxes of wood. The toxes hitherto used for this purpose have been rude affairs, and not calculated for neat work, or facility in executing it. This improvement in such boxes enalles the wcrk to ke performed more ex-
peditiously, and of a superior characier, with a composition of lime and sand, for Luildings of a surerior class.] Hording and Dispensina Syrups for Soda Foun-
tains-James R. Nichols, of Haverhill, Mass.: 1 Iclaim the descriLed arrangement of a series of cans with their
pipes and cocks, wherely they
may te simulaneously

 the sed cy inder, $D$, in the manner and for the purposes
set forch.



Or the purpose set to
[By a peculiar self.
(By a peculiar sel:-adjust.ng arrangement of the frame
that feeds the file blank, the latter is presented to the grindstone accurately, according as the diameter cf the
tone is reduced, and thus file blanks are always groun procer furm in this machine. This is a valuable and portant improvement ]
Cultivaron-Norman wW. Pomeroy, of Meriden
Conn. Iclaim the manod of worting the valve, ec, by
 SEwing Machines-Samuel F. Pratt, of Roxbury, bar, K , in verical and hurizuntal directions.
but in laiin he combination with the arm, I , of the

 mauner as spectified.
 LIFE Preservers-Warren A. Simonds, of Boston,
Mass. rate and indop, e, deindectional chambers or ar vessel
covered and surrounded upon all sides by exierior se tioual tlaats filled with cork or or other soolid buovenant ma
terial, arranged in the manner substantially as set torth.
 may Le substiiuted.
edge aim phating tho pommel or head, back of the front and in a diagonal position substantially ass described, wherely 1 am enanled to depresss it to it ive
ease of position to the rider without interiering with th
 I alio claim connectiing the near or short horn with the
tree by accre wo the end titted to a series or holes. so
that its posiion relatively to the seat and pommel may be





 oi the valve seat, as it will be perceived that foreign oo
heaiy substanees will flow over the valve seat. and soon
till ihe ebb water way and then

 or heavy substances that How over the seat to be instantly
ored out connequently he valve at all times has iree
play and cannot tecome choked.
 Cortor $A$, S ,



 [Whitney's cotton gin is not employed for ginning Sea
Island cotton ; but the old fashioned roller gin which con sists of two small wcoden roller, placed in contact above
one another, and revolved with equal velocity. The cotto fed in letween them and drawn as it were from the seed has to be fed in very small quantities, and very evenly. oo prevent an accumulation of seed near the bite of the pacity of the roller gin; by providing a vibrating feed plate, and a lateral reciprocating comb, the seed is no
only prevented from accumulating near the bite of th rollers, but is fed in more uniformly, ginned more rapidy, and in a superior manner.]
 he bearing boxes of the knife wheel, or to the equiva
lents thereif forthe purpose described.


 of vessels by hand pressure, when the spinning tool is
both carried and pressed up aginint the melat by the
work man, as this isthe pold pan long know before any
mechanism forcarry ing the tool was invented.
 Buet the combination of a hand lever for effecting the
spinning by hand pressure with a slide rest which i moved by mechanisx is to the best of my knowledge an
telied a ryew combination, possessing great and impurian

 $r$ and 10
 sine, H , which carries the sad bed. is adjusted, ther b by
enabing he ajjustment of the bed to be effected withou
affecting the driving [By the old method of spinning kettles f.omdisks of was rigidly connected with the slide rest, and could no accommodate itself to inequalities in the hardness of the
metal, or the least untruth in setting the forms. The re sults of this arrangement were, the frequent tearing the sheets of metal, and the production of kettles thinner ment removes such defects, by giving to the operatin to I, an elastic action on the slide rest, whereby the winh a su
hus form es ofa superior character.



Blass Furxace-Henry Weissenborn, of New York
City: I claim the methanical arangement of leeder , BS,
 he ieder, Be, without lrom escaping from cove throat of

 Bricy Machrines-Wm. Wood, of Hartford, Conn.
claim constructing the front of the ress box, c , with th liam constructing the front of the rress box, c , with the
ront of the grate, L., attached thereto, to that by heans
o slides
 Washing Machines-Amos Jacons, deceased, late of Thaca, N. Y: I claim the combination or an oblique
beacter or daher with a tubernstructed sul stantialy a3
described in shech a manner that he the troke of the dasher or beater causes the tub or res,ell to revolve for the pur.
poses of washing, cleaning, stamping and rinsing clothes.


 herice resintancei, removed from the front of the pro
ectile while passing along the bore, as .et forth.

 The method of setting the plane irons of ccmmon planes rate. In this improved plane, the planingironis accu simply turning a screw. It can, therefore be adjusted with the utmost exactness and with facility. By the em ron, it (the iron) is kept up from the work while being
drawn back, and its cutting edge thu ${ }^{\text {prevented from }}$



 Improved Bridge-Thomas W. H. Mosely, of Coving
on, Ky I I clime, frirt the compound arch construcled
ubstantiall as as set forth.


 power of the engine to the s: gate rif frame with ou
being permanently connected thelewith. so that uhe pis n shail be in a great measure relieved from any lateral
otion which the ate may have which caves it thit
orcut in the cylindere substanialiy as described.
 or the self adjustable slides which accomplish the same
result, as are before described.


A large steam frigate exploded recently in he harbor of Naples. The vessel went down almost immediately. Very few such explosions have occurred in naval history. This explosion was similar to that of the old fri-
gate Fulton, which exploded at the Brooklyn Navy Yard in 1823, when all on board perished.

Burr stone has recently been discovered Sir William Logan, the geologist, in Ot . tawa District, Canada, which is said to be equal to the French. Very doubtful if the quality will compare.

