The Great Chaudiere Dam on the Ottawa.
The Ottawa Times gives an account of the great Chaudiere dam on the Uttawa river, which was forma!ly opened Oct. 16th. It states that it has been ascertained that for years past the water in the Ottawa during the autumn months has been gradually decreasing in volume, and nuver before has it been so low as this season. The cause will doubtless remain a mystery until the end of time. In fact so low had the water mystery until the end of time. In fact so low had the water
fallen, that for a time apprehensions were entertained that fallen, that for a time apprehensions were entertained thet
the great mills and factories at this place would be compelled the great mills and factories at this place would be compelled
to shut down in consequence. This would bave been almest a calamity, had the necessity for it arisen, as many thousands derive their livelihood from their constant operation. However, human ingenuity came to the rescue, and provided a certain and lasting remedy.
An arrangement had been effected sometime since between the mill-owners here and the Government, that the former might construct a dam in the bed of the river, just above the Chaudiere Falls, for the purpose of raisingthe water in the rear, with a view to augmenting the supply in the ponds and "flooms" connected with the mills. Then arose the difficulty about drowning the adjacent country on both sides. This was provided against by the removal of an island, in the immediate vicinity of the dam, to low water level, so as to adrit of its escape when high. This part of the work has been so managed, that the obstruction caused by the dam in low water will be fqualed by its facility for escaping during high water-there b+ing an exact quantity of high water struction removed to equal that put in to affect the low
It was no ordinary undertaking to control the impetuous waters of the great Otta wa, and subject their powers to the manipulation of man-to obey his will, and to be obedient to
his wishes and desires; but with all old Otta wa's greatness it his wishes and desires; but with all old Ottawa's g reatness it
has been brought down to usefulness, and comvelled to exercise a certain amount of ind ustry betore taking its departure for its final home in the bosom of the Atlantic.
'The entire length of the dam is nearly 400 feet, built of framed beams strongly bolted, and securely fastened to the solid rock in the bed of the river. Its width at the base is 74 fret and 62 feet at the top, with a secure bed of stone pre sented to the current. The island which was removed was about two acres in extent, and stood about 5 feet 6 inches
above the water level. This furnished $9,0.0$ yards of stone ahove the water level. This furnished

## The New Metals.

The Boston Journal of Chemistry says:-We presume but comparatively few of our readers have bad opportunities of examining the new metals brought to light by spectrum an alysis. The two mont remarkable, casium and rubidium, are strikingly like the metal potassium ; and so greedy are they for osygen, it is necessary to keep them constantly immersed in pure naphtha. The expense of eliminating these rare and sparsely disseminated metals is so great, their cost is marvel ously high. A specimen ot rubidium in our possession cost us at the rate of more than seven thousand dollars a pound, or one dollar the grain. These two new alkaline metals were discovered by Bunsen, a few years ago, while experimenting upon some mineral waters with the spectroscope. By no other method of analysis could they bave been diecovered. In examining the waters, he observed some bright lines he had not sern in any other alka'ies which he had investigated. He felt certain that these lines indicated a new metal or metals, just as Arams and Leverrier, from the perturbations of the planet Uranus, were convinced of the existence of Nep tune. The amount present in the substance examined could not exceed the one thousandth part of a grain; hence, the quantity held in the water was infinitesimal. To obtain a manageable quantity, Bunsen evaporated forty tuns of the Durkheim Spring water, and from this vast amount obtained of cæsium only 105 grains of the chloride, and of rubidium 135 grains! How few know anything of the magnitude of the labors of chemists engaged in research. Since the dis covery of the new metals, in the spring water of Durkheim. they have been found in many other springs, in mica, and other old plutonic silicates; also, in the ashes of beetroot, tobacco, coffee, and grapes. The mineral lepidolite contains considerable rubidium, and most of the specimens in the hands of chemists were obtained from that mineral. We can hands of chemists were obtained from that mineral. We can-
not predict for the new alkaline metals any very great pracnot predict for the
tical use in the arts.
tical use in the arts.
The other new and interesting metals which we find in our collection are lithium, thallium, and indium. The first of these is of white color, and fuses at $180^{\circ}$. It is the lightest metal known, being almost as light as cork. B-fore spectrum analysis was discovered, it was supposed the lithium salts were very rare ; but the wonderful spectroscope reveals their presence in almost all waters, in milk, tohacco,and even in human blood. A very strange plant is the tobacco plant. How singular, that atoms of the rarest and most remarkable of all the metals-cæsium, rubidium, and lithium-should be found in this pungent weed! When volatile lithium compounds :are heated in flame, they impart to it a most magnificent crimson tinge; nothing in ordinary pyrotechny can compare with it. If one six-thousandth part of a grain of lithium be present in a body, the spectroscope shows $i^{\text {t, }}$ when it is vola tilized, or burned.

## Sumac.

Considerable inquiry having been recently made for information upon the suriject $0^{+}$sumac, the commerce in which seems to be growing in this country, the following frow the New York Mercantile Journal will be of interest:
"The sumacs belong to the Rhus genus of the order of Ancardiacee of plants. Gray, the botanist, makes six varieties of sumac found in America from Virginia northward ; namely,
the Staghorn sumac, Smooth sumac, Dwarf sumac, Poison sumac, Poison ivy, and the Fragrant sumac. The sumacs have a resinous, milky, acrid sap, and several varieties are poismous. Several kinds, among which are the most common varieties in this country, namely, the Staghorn and Smooth sumac, contain tannin and yellow coloring matter, and are considerably used for tanning light colored leathers and in dyeing. It is also used in calico printing for producing yellow, grey, or black or brownish yellow, according to the mordant used in the operation. A number of varieties grow in different parts of Europe, which are used for the purposes above spesified. The cultivation of this tree for its marketable products has largely increased in some parts of the United States during the past four or five years The parts of the tree which are gathered are the leaves, the peduncles, young branches, and panicles, of which considerable quantities are exported."
The Richmond Enquiror says: "Large quantities are gathered in the counties of Eastern Virginia, and sent to Richmond, Alexandria and Fredericksburg for sale. It is dried and packed in bags, and sells readily for from $\$ 1.75$ to $\$ 2$ per 100 pounds. It grows spontaneously, and the crop of nextyear is improved by breaking off the growth of the present year."
The mordants used in dyeing with thissubstance are either tin, acetate of iron, or sulphate of zinc. The first gives yel low, the second grey or black, according to strength, and the third brownish yellow.

## A Challenge from a Lady

 New York, Oct. 20, 1868.
## Messrs. Wheeler \& Wilson, No. 625 Braadway:

Gentlemen:-Referring to the challenge of Mr. Pratt, whose Wheeler \& Wilson Sewing Machine has been in use ten years without repairing, I beg to state that I have used my Wheeler \& Wilson Sewing Machine, in family sewing, fourteen years, without even the most triffling repairs, and it is now in so good condition that I would not exchange it for your latest number (now upward of 350,000 ). One needle served me more than a year for fine sewing.
Can any one beat this?
Yours truly, Mrs. Anne Warner. Any one who can give a better report than this will be en titled to one of our new tucking gages.

Wheeler \& Wilson Manufaturing Co.
Cimlian Agricultural Exposition.-With reference to the Agricultural Exp sition to be opened at Santiago, in Chili, South America, on the 1st of April next-the particulare of which a opeared in our issue of the 22d July-we have to state that the Chilian Minister expresses the hope that manu'acturers througbout the country are preparing the contributions they intend to exhibit. We learn that liberal and extensive preparations are being made by that Govern. ment for the accommodation of all.

OFFICIAL REPORT OF
Patekts and Clains
Ussued by the United States Patent Office. FOR tHE WEEK ENDING october 27, 1868. Reported offctally ror the Sclentifc American.
Patents are grante




In addition to which there are some small revenue-stamp taxes............. 8 . 38
(IF Pamphletscontaining the Patent Laws and full particulars of the mod
as applyingfor Letters Patent, spec.fy.ng s,ze or modelrequired, and much other nformation use ful to Inventors, may be had gratis by addr
$M$ ONN \& CO.. Publishers or the Sc.entifc American. Neo York.

83,355.-Harvester Rake -Philip Ammerman, Cynthiana,
 83,35: - SUGAR PAN DERRICK. -Joseph D. Ayers, East




 loo the pigment made from the sulpharets of zinc and lead, as a new
of manotacture,
A UTOMATIC Car Coupling.-Wilson Bragg, Con I claim the, combination of the chain, E, slifing block, C , and coapling pin,
F, cubstantialy aiand for the purpores. 83,359.-Hot Air Register.-Thomas W. Brown, Reading,










 3,364-SEEDNG MACH,NE.-N. A. Clopton, and John S.


俍
 $83,367 .-$ FROTT JAR-EA ward M. Davis (assignor to Henry




 83. 569 -Combined Hinge and Fastener -Leonard Felker


 83,371.-SCREW TAP.-Walter K. Foster, Cambridgeport Mass.
Lelaime arrangement of the main and lateral oiling passages, b b. and
the roove, d, in one on the ranges, of screw cutters, he whole being sub.


 massels, au set fortn
3d, The process herein spectifod of producing iodine from mussels.
83,373.-SPKING BED Botrom.-Thomas J. Gaffney and 83,373.-SPkING BED Botrom.-Thomas J. Gaffiney and
Charles H. Du. ks, Detroit, wich.
we.laim the lealler strips, H, in combination with the
 88, 374.- V ULCANIZED INDIA-RObBER Beltivg, -Dennis C.
 "ther rulcauzab le materi,1, substan 1ally as herein set for th.

 8.375 . -Spinning Machine.-John Goulding, Worcester,



 8etforth. $83,87 \mathrm{~h}$.-Bolt-heading Machine.-Robert Gracey, Pitts-

 regulating the tarow of bolt-heading dies, substantially as and tor the pur-
porses bereinefore set forth
83,377.-DIE FOR BoLT-mAKING MACHINEs.-Robert Gracey

 pansage of warer arourcond described, as to form an en losed space for the portion of the dies whentver the head-
ng tool fs withdrawn. ng tool is withdrawn.
83,378.- INDEX. Henry H . Hall, Boston, Mass.
I claim the witbin-described index or rabular zuide to $i, d$ I claim the witbin-described indeex or rabular zuide to i, , dexes, consisting,
ot che combnation of letters and figares, substantialiy as and for the pur-8os,379.- I I RONING TABLE.-L. Harrington, Saugatuck, Mich.
 purpose set forth.
$8 i, 380$. CHnch-valve for Steamand other Enginery. -

 des,ribed and Buck LA.-Henry Herbert, Jersey City, N. J. Iclum the self-fastening buckle, conisting of a frame and two sloted 83, 332 .- Hot BLAST APPARATVS FOR PUDDLING AND OTHER
 83, purpose sidecifed.

 83,385.-Elevator.-Amos B. Hunt. Matteson, Mich



 83.387.-Shocloer Brace and Suspender. - Ebenezer


83,388.-Bee Hive Proctector.-Alfred S. Johnson (as


 88, 390 .-KNITTING MACHINE. - Daniel Kidder, Franklin, N.H.
 secured to me stock, D, substantialy a and tor the narpose descrioed,
(assignor to himgell and Joh Myers, Jr.), Leaven worth, Kansas. A Ate



 83,393.-PINTLE or But Hinge.-Lorenz Maschauer and
 $83,394 .-$ Brick Kilv.-John McDonald, New York city.


8 parpose degcribed.






 8 spring bar.c' and ecentric. D, as and for the purposedescribed. Ind.
 83,400 .- HoLDBACK. - Rutus Moody Monmouth, Me.
 83,401- ELBOW JOINT FOR STOVE PIPES.-H. B. Morrison

 scribed. Machine For Preparing Husks For Mattresses.-


 1y as seseribed. 93,904 - Convertible Plow and Cultivator.-Johnson



















 mond and Angusis Miller, lieveland, onio,



 80




 prrises set forth.

83.415-HoT-Atr Furnace.-Eli Slater, and Anson H. Platt,




 83,417.-Fubifying Illuminating Gas.-Peter Spence,New-








 83,421- - BLIDD. .LLAT OPERATOR.-L. W. Swafford, E. Butler,
 ess.42e. - Car Brake.-Benjamin Tatham and Joseph Steger


 80,4eb.-MANUFACTURE of Vinegar.-H. A. Tilden, New


 g8, 425 -




88, , 2a7.-Rotary Steam Engine. - James D. Whelpley


















 83,432.-W ARDRoBE BEDSTEAD.--Albert A. Young (assignor

 hally in the maniner and tor the purpose set forth. TANING Leather
83,333 .- PRockss AND Composition For TANI





 ${ }_{83.435 .-W}$ Whering Machine.-Anson T. Adams, Indianapo-




 tiga more
described.
80
83,437.-Vine Cutter and Garden Cultivator Combined
 83,438-Grings. Pain Cleaner.-John E. Anderson, Boiling

 83,439- SASE FASTENER.-Daniel Armstrong, Chicago, IIl.









 w Grinding Maching.-John G. Baker (assigno
 the saw, as and for the propose herein set torth.


 stealaim 83,446.-SPLTCE FOR RALLROAD RAILS.-Sidney A. Beers.




 and operating substantialy as deseribed. 8 .


 88, 1449.-TEA Ketitie Boiler.-Alfred Berney, Jersey City, I N.J. J a eom bined tea ketlle boiler, pitcher, and measure, made or taper-


 I B. Bonner, New Tork sity de process of soldering galvanized iron, substantially as herein de scri,452. - Ho Rsse Rake.-S. C. Brinser, Middletown, Pa
 nothe manner described.







 ed and combined substantialy as herein described. Crancis L. Cagwin, I Joliat, IIt, The spades, a, when operating in the manner and by the
derices described, so as to enter the ground on the cycloid line, as set










 83, P55., DoUBLE OVEN CookING STove.-Edward Card,

 I N. Y. Antedated October 17. 1868. of the path hasket upo the inner









83,463.- Hammer.-T. S. Coffin, Harrington, Me.

porphese specitied. Coupling.-F. Coffrin, Claremont, N. H
 tial as and to operate for the purposes spectifed and set forth.
 83,466.- Stive Pave Machine.-William S. Colwell, Allegheny









 contidnug the least number or teeth in a set, as so cescribed


 88,471 .- PRINTING PREss.- PRoyal Cumming, Newport, Vt.





 $83,473 .-W_{\text {ashing }}$ Machine.-John Dare, Liberty, Ind.









 83a,


 80e,478.- Combined Corn Planter and Cultivator. -
 Kx, as herein set forth for the purpose specifled. 8 . Mary's, Ill.





 and bent do wraard at its 10wer end, tor the reception of the plowsate,
 eitevated, substantialy as set torh



 88,4 gent- Rotart Steam Engine.-G. W. Goodwyn, Peters-


 88,486.-CaMPAIGN BADGE.-H. C. Griggs, Waterbury, Conn.





83,488.-Coupling for Ratiroad-train Heaters.-J. R.


83,489. - Spring-bed Botton. --Charles Hacker, Euphe



 for the purpose set forth. $-G R$ INL. - W. N. Hamilton, Odessa, Del.










 stantialy as and ar the purposes herein set fortu. - John M. Hassam,



 cie or manuracture, substanualy as and for the purpose set forth , N. Y.



 all as deserived, for the purpose specifed.
83, 977 .-TRUCK AND WAGON REACH.-Philip Hicks, Chicago








 83.500.- Hasp Locs,-M. G. Imbach, Hartford Conn.



 as hereinuefore explained, the wnole being to operate as set forth.
88,502 .-DYEING TEXTILE FABRICS WITH ANILINE CoLors.



 83,504.-FruIT Box.-T. B. Jones, Radnor, Ohio.



 or more fues having Independent dampers, suostantially as set tortb.
83,506 .-SMOEE-STACK FOR LOCOMOTIVES.-J. A. W.












 83509.-Colvivator--J. H. B. Keller, Chambersburg, Pa








 y, and screw. , substantialy in the manier and ior the purposes set torth.
88,513 - MACHINE FOR CUTTING PAPER.-Hervey Law






 As and for tile purpose set forth Bmin Leckrone, Somerset, Ohio.






 88,515.-GAGE FOR STONE WARE.-A. W. Loomis, Atwater



 Iarms, LL, substaniailt as sere sin sef forthi Lynam, Jeffersonville, Ind.
 subtanially ys and for the purpose set Horth' Masowan, Boston, Mass.

 83,519.- CuTTIVAToR.- James Mallon, Lockport, Ill.


 taly, as set frorth , SERER-L. J. McCormick, W. R. Baker, and






 the rohar, provided with wooden bosing.
88,521 .-ScHoou DESK.- Joln Mealey, Fairville, New Bruns

 33,522.-Machine For Forming the hook or Eye on Pot
 arranged, and operating as herein described, and for the pappose ee forth TIN


 $83,555 .-$ BowT C CTTER





 sucribe teed water hearing chamber, combined with a short flue boiles sec
tion or sed
 83,528.-STEAM GENERATOR.-T. H. Muller, New York city



 Sol

83,531 .-Paper File.- Baruh Ney, and Henry Hofheimer
 $33,532 .-$ BeE Hive--A Anner Niebel, Tiffin, Ohio
















 8it 538.







 83 451.-Chatr Seat.-Cornelius Platt, New Haven, Conn.
 83.542-FTRNaCE FOR TRE MANOFACTURE OF IRON AND


83,543. - Feed Water Heater. Louis B. Powelson, Pitts-
 83.544.-Bhd Lounge - James D. Pratt, Cleveland. Ohio.
 83,545.-Photographic Room. - George K. Proctor, Sa-





 83,547.-Road Grader.—James M. Ragsdale, McCoy's Sta

 83,548---Photographic Printing Frames.-Byron Reed

 83,549-- ST1 AAM PrMP.--A. J. Reynolds, Chicaro. Ill.




 83,500.--Gate - John F. Rogers, South Bend, Ird.

 83,551--FORNACE FOR THE MANUFACTURE OF IRON AND
 88,552. - Wathr-heating Apparatus. - John C. Ryan
 80 fiss.-Hot-water Heater.-George H. Sellers, Phoenix


83.554. - Screw Cutting Lathe.-H. F. Shaw, West Rox-

 83,555-FASTRNING Hor Carriage Curtains. - Ephraim
 83 556.- Railway Cattle Gdahd.-D. B. Shirk, Brunner


83,557-LOMM.-A. W. Silvis (assignor to himself and S. B.



83558 - Jack for Ttirning Siafting.-Alfred sims,Brook

83. 5 Lowell, Mass .
 83.560--Tool For Torning and Planiva.-J. P. Smith,


88,5c1,-HAY Rack, - Wilson Smith, Tod Township. Ohio.

 $83,662=$ HAT How










 83,5m6- Wasir Boller.-Jerome B. Sweetland, Pontiac










 83,569-Cultivator. -P. R Totten Adams, Ill

 83,5:0. - Hasp For TroNe Locks.-Leonhardt Uiting (as

 83,571. - Fodder Coter. - Elias F. Varner, Harveys



 88,572. - Door Hinge.--Anton W. Walter, Canton, Ohio.



 83,574- - Grist Mill. - Bennett Whitney, New Bruns-


 83.575 -Preparation of Roofing Fabrics.-Jay J. Wig I



 83.576. - Roo "NGG Comp sirito for Houses, Boats, Barvs,
 83 577.-Combling Tuols -Juhn D. Wilkinson and E. O
 83,578-Harva.ster - Miletus J. Wine, Long Glade. Va.



83,579 - Water Wheel-A. N. Wolf, Sheridan, and Joel
 83.580 -Registerina Scale.-David Wolf. Easton, Kansas

 83. 581. Stop for Umbrella Runner.-Juesph Wright,
 3,582-EXTRACTING GoLD AND SILTER FHOM THEIR ORES


## REISSUES.

34,150.- Water Wherl.-Dated Jan. 14, 1862; reissue 1,791,


 34, 150 - WATER WHEEL-D Dated January 14, 1862; reissue













 2,323-LIFTING Apparatus For Gran Drills -Dated



 66904 - Combinfd Plantrr, Harrow, and Cultivator-








 4,368.- Method of Botrling Fluids ondea Gaseovs








18,752.-Coffet Pot.-George R Ch ttenden, Chicago. Ill.

 scribed.

## Inventions Patented in Encland by Americans

Compled from tie" Journal of the Commissioners of Patenta."] PROVISIONAL PROTECTION FOR GIX MONTHE. 2,745.-Martractoring Gas.-Jas. Stratton, Philadelph La, Pa. Sept.5, 1868.
 2,797.-Mode of Constroding Beams and Girdrrs.-O. Coffeen Evans,
,ited Siaces. Seot. 11. 1868. 2315-Maditinery por Mandyaturing Brdshes.-Joseph Sheldon, New
Hiven, Coan. sepd. 12,1868 .
 ${ }_{2}^{2839}$ 2.-Toy.-Wm. W. Rose, New York city. Sedt. 15. 1868.
2839-Machine for Holling and CLęaining Grain.-Jas. F. B. Marshall

 $2,859-\mathrm{Mancpacture}$ of Hzads for DoLls -Geo. H. Hawkins, New York cily
Sept. 1 - 1 , 1868 . ${ }^{2.865}{ }^{2}-$ Expl. $17,1868$. . ${ }^{2}$.



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## Sault's Patent

F RICTIONLESS Licomotive Valves, essi-






$1413^{*}$
STEAM HAMMERS TURN-TABLES
FOR LIGGT GRAY IRON CASTINGS

Getty's Pat. Pipe Cutter





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$W^{\text {inchester }}$

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firing two shots a second, as a repeater, and
TWENTY SHOTS A MINUTE AS A SINGLE BKEECH-LOADER.



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 $1313^{*}$ (here ottiers fail. Adrese T. HORNER, Buffalo, N.Y.
THTCHINSON \& LAURENCE,
PAGE'S GREAT WATER FLAME

${ }^{6} \mathrm{~B}^{\text {E V EDICT'S Timetables of all Rairozd and this Month }}$

[MPORTANT.-MOST VALUABLE MA





VERY IMPORTANT.





 MAUFACTURERS-




## Machine-made Watches

 TREMONT WATH COMPANY,
Holiday Journal, New
 ${ }^{18 \text { 2eow Pabisuers, } 28 \text { Bromeld } 8 \text { th, Bostan, , Mass. }}$ Southwark Foundery, No. 430 Washington Avenue, Philadelphia VARIABLE Wiliam Wright's Patent sTEAM ENGINE,
 FALVELEES STEAM BAMMER.
 Sugar-Draminy Maccine. HyDRO AND ANRCTOR
${ }_{\substack{\text { For fotton } \\ 10 \\ \text { eownt }}}$ and Woolen M - ruraceturers.


M AcHINERY-S.C. HILLS. No. 12 Platt
Bridesburg Manf'g Co.


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two prize medals awarded
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STEAM AND WATER GAGES, STEAM I6 Misity










 Lisaa Foole. Comaniss.one of Patents.
Jame









 J $\quad$ AE American Bed Maker-Sells Kapidly.
 Etrane Lathes The Thomas Patent,




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T ing national CORN HCSEER hav


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