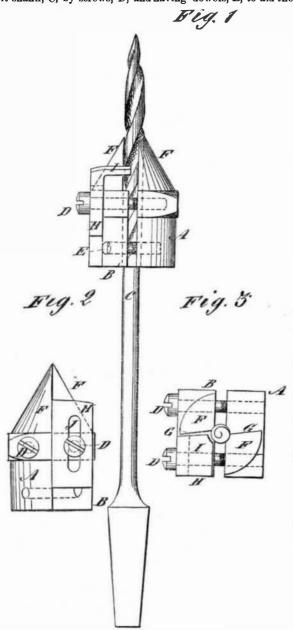
IMPROVED COUNTERSINK FOR BORING TOOLS.

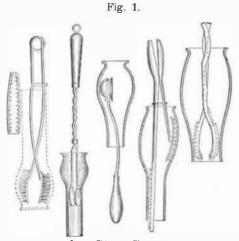
Mr. Richard J. Welles, of Kenosha, Wis., has recently patented an improvement in countersinks to boring tools, which is illustrated in our engravings. Fig. 1 is a side elevation of a boring bit with the countersink attachment. Fig. 2 is a side elevation of the attachment without the bit; and Fig. 3 is an end elevation. A and B represent the two pieces forming the countersink, said pieces being clamped on the bit shank, C, by screws, D, and having dowels, E, to aid the



screws in keeping them in position. F represents the cutting points or bits of the countersink. They are in form about a quarter section of a cone, and arranged with their cutting edges, G, parallel to the clamping screws, D, so that they work alike, whether clamped to a large or small shank, C; and ample clearance is provided between the heel of one and the cutting edge of the other. H is the gage or stop for regulating the depth of the countersink. It is a small bar. with a foot, I, at the lower end, clamped to one of the pieces of the countersink by one of the clamp screws by which the two pieces are clamped to the bit, the screw passing through a slot, J, in the bar, to allow the latter to be shifted up and down, according to the required depth of the countersink. The pieces, A and B, are rounded at the upper end, to render the attachment capable of turning on the surface of the stuff without catching and binding on any irregularities

HOUSEHOLD, DEVICES, GATES, AND HINGES.

Continuing our extracts from Knight's "Mechanical Dic tionary,"* we select, this week, a number of interesting illustrations of devices pertaining to the dwelling, and also a



series of engravings showing a variety of forms of gates and hinges.

In Fig. 1 are represented several kinds of

LAMP CHIMNEY CLEANERS. Beginning on the left, the first is simply a pair of brushes

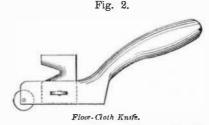
*Published in numbers by Messrs. Hurd & Houghton, New York city.

brushes out against the interior of the chimney. The second device is essentially the same, a handle being added and pads substituted for brushes. The third is a single pad without springs. The fourth has brushes of different shapes adapted to the straight and curved portions of the chimney. The brushes in this case are pressed outward against the chimney by bringing the handles of the implement together. In the fifth device, curved pads replace the brushes, and there is a modification in the shape of the handles.

In order to facilitate the somewhat difficult operation of cutting oil cloth, a

FLOOR CLOTH KNIFE,

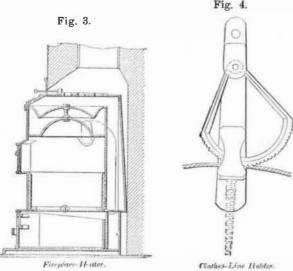
represented in Fig. 2, has been devised. In this the blade is



notched and secured vertically in the lower portion of the handle; the latter is held above the floor by a caster. The edge of the cloth being placed in the notch, and its adjacent portion held, the knife, when pushed forward, makes a neat division, much more easily and accurately than it is possible to perform the same by hand, knife, or shears. The

FIREPLACE HEATER

shown in Fig. 3, is set within the fireplace, and serves to warm the room, the pipes discharging into the chimney. The



kind here especially represented is known as the Latrobe, and is base-burning. The pipe passes up the brick flue to heat the air which circulates between pipe and flue to the rooms above, into which it escapes through suitable registers.

Fig. 4 is a simple form of CLOTHES LINE HOLDER,

designed to secure the line without necessitating the tying of the latter about its supports. It consists of a hook cast upon the main plate, and in a lug of the latter a serrated swingsng segment is pivoted. The line is jammed between the ierrated portion of the segment and the hook. The

GATES,

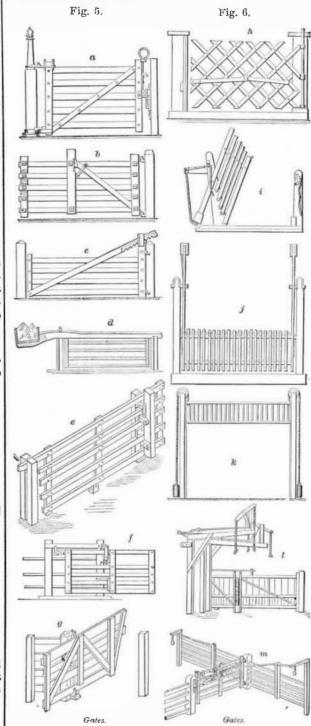
shown in Figs. 5 and 6, are as follows: a is a gate with adjustable hinges operating on rings on the post, the fastening consisting of a movable latch and staple. b shows a mode of setting up the gate, when the outer end sags, by means of the diagonal strut. c is another form of setting up the outer end, by means of a tie slat. d is a gate, whose top bar is pivoted on the post, the whole device being counterweighted by a box of stone on the extended bar. e slides longitudinally, its slats traversing on rollers. f is also a sliding gate which has rollers to keep it level, whether open or shut. gis a gate which slides half its length and then rotates on a bar at its mid-length. h is a gate of pivoted bars, on the prin ciple of the lazy tongs. i is a gate having a set of pivoted slats which assume a vertical position when the counterweighted top slat is allowed to oscillate. j is a suspended gate which swings upward, broadside, in a vertical plane. kis a gate suspended from pulleys and counterweighted. l and m are gates operated by equestrians or persons in vehicles by means of ropes.

The ancient Egyptian

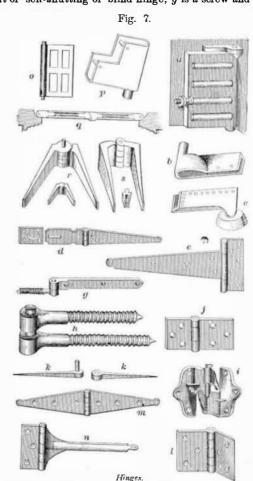
HINGES.

which are probably the oldest devices of the kind now known, were crude affairs, and were very similar in construction to those made in our early Western log cabins. A pin projecting from the upper edge of the door was socketed in a vertical hole made in a bracket attached to the wall, and a similar pin on the lower edge of the door was stepped into a socket in the floor or threshold. The illustration, a Fig. 7, is from a model house, found in Egypt by Mr. Salt, and now in the British Museum. The doors of Egypt were either single or double, and were secured by bars and bolts, as seen in the figure. The hinge pieces were usually made of bronze. b and c show the upper and lower door pins and the sockets, in which the edge of the door is received and in upper piece was to keep the door from striking against the e, a T hinge; j, a table hinge; m, a strap hinge; and n, wall. o shows the general form of a door in remains of cross garnet hinge.

attached to the end of bent wire springs, which hold the stone, marble, wood, and bronze. p is a bronze hinge in the Egyptian collection of the British Museum. q is the plan of the threshold of an ancient temple with the arrangement of the folding doors. r and s are four Roman hinges of bronze now in the British Museum.



The other hinges shown in Fig. 7 are designated according to the purposes to which they are applied, or with reference to some structural peculiarity of shape. Thus i is a loose joint or self-shutting or blind hinge; g is a screw and strap



or gate hinge; h is a screw hook and eye or gate hinge; k is which it is secured by bronze pins. The projection on the simply a hook and eye; l is a butt hinge; d, a hasp hinge;

Abstract from the Congressional Annual Report of the Hon. R. H. Buell, Commissioner of Patents, for the Year Ending December 31, 1875.

Money received by the Patent Office during the year 1875 Expenditures during the year	\$743,453.36 721,657.91
Balance to credit of Patent Fund, December 31, 1875	21,795.65
Amount standing to credit of Patent Fund in the } Treasury of the United States, January 1, 1875. Total balance to credit of Patent Fund, December 31, 1875	\$865,113.97
Total balance to credit of Patent Fund, December 31, 1875	886,909.62

Statement of the business of the office for the year 1875.	
Number of applications for patents during the year 1875	21,638
Number of patents issued, including reissues and designs	14.837
Number of applications for extension of patents	' 2
Number of patents extended	
Number of caveats filed during the year	3.094
Number of patents expired during the year	1,323
Number of patents allowed, but not issued for want of final fee	3,518
Number of applications for registering of trade marks	1.055
Number of trade marks registered	1,138
Number of trade marks registered	566
Number of labels registered	313
Of the patents granted there were to—	
Citizens of the United States	14.274
CIVIZCAD OI VIIC C BIVCU SUNVCDI	12,012

122 Comparative statement of the business of the Office from 1837 to 1875,

Year,	Applica-	Cavests filed.	Patents Issued.	Cash received.	Cash expended.	l
1837			435 523	ASS, 859, UN	\$33,506,98	l
183 9	735	228	425 473	12 123 54 37,260 00 38,056 51	37,432,10 34,543.51 39,020.67	l
1841 1842	847	312 391	495 517	40,4\3.01 36,505.68	52.666.87 31,241 48	l
1843 1844	819 1,045	315 380	531 502	35,315.81 42,509.26	30,776.96 36,244.73	l
1845 1846	1,246 1,272	452 448	502 619	51,076.14 50,264.16	39,395.65 46,158.71	ŀ
1847 1848 1849	1,531 1,628 1,955	553 6 0 7 595	572 660 1,070	63,111.19 67,576.69 80,752.98	41,878.35 58,905.84 77,716.44	
185 0 1851	2,193 2,259	602 760	995 869	86,927.05 95,738.61	80,100.95 86,916.93	
1852 1853	2.639 2,673	996' 9 01	1,020 958	112,656.34 121,527.45	95,916.91 132,869.83	' (
1854	4,435	868 9 0 6	1,9 0 2 2,024	163,789.84 216,459.35	167,146.32 179,540.33	
1856 1857 1958	4,960 4,771 5,364	1,024 1,01 0 934;	2,502 2,910 3,710	192,588.02 196,132.01 203,716.16	199,931.02 211,582.09 193,193.74	
1859 186 0	6.245 7.653	1,097 1,084	4,538 4,819	245,942.15 256,352.59	210,278.41 252,820.80	
1862	4,643 5, 0 38	700 824	3,340 3,521	137,354.44 215,754.99	21,491.91 182,810.39	ĺ
1863 1864 1865	6,014 6,932 1 0, 664	787 1,063 1,937	4,170 5,020 6,616	195,593.29 240,919.98 348,7 9 1.84	189,414.14 229,868.00 274,199.34	ĺ
1866 1867	15,269 21,276	2,723 3,597	9,450 13,015	495,665.38 646,581.92	361,724.28 639,263.32	
1368	20,420 19,271	3,705 3,624	13,378 13,986	681,565.86 693,145.81	628,679.77 486,430.78	
1870 1871	19,171 19,472	3,273 3,366 3, 0 90	13,321 13,033 13,590	669,456.76 678,716.46	557,149.19 560,595.08	
1872 1873 1874	18,246 20.414 21,602	3,248 3,181	12,864 13,599	699,726 39 703,191.77 738,278.17	665,591.36 691,178.98 679,288.41	
1875		3,091	16,288	743,453.36	721,657.71	ŀ

THE CENTENNIAL

The Patent Office is to be represented at the Centennial celebration, and a space of 10,000 square feet has been assigned for the exhibition of models of American inventions, illustrating the more important and useful industries. Models to the number of about 5,000 are being selected for this purpose, being about three per cent of the aggregate number in the possession of the Patent Office. These, while illustrating in part the progress of our country m "mechanical and manufacturing industries," and the development of American genius and skill, represent in one way only the results attained. Another mode of presentation of the facts and figures in the case is obtainable from the census report of 1870, and the general subject-matter index of patents granted since the year 1790.

MANUFACTURES OF AGRICULTURAL IMPLEMENTS. In referring to the census, under the head of "manufactories in operation in 1870, exclusively for agricultural implements," it is

10124 1-40 1-0	
Number of establishments in operation was	2,076
Number of steam engines at work	676
Horse power	15.873
Number of steam engines at work. Horse power Number of water wheels at work	426
Horse power	10.209
Number of hands employed	25,249
Capital invested	\$34,834,600
Wages paid	\$12.151.504
Material use 1, value	\$21,473,925

The census shows an increase of \$34,578,825 in the value of agri cultural implements manufactured over the amount reported in 1860, and of \$45,224,174 over the amount reported in 1850, while the total value for the year 1870 of the "mechanical and manufactur

ing industries" aggregates the sum of \$4,232,335,442.

The following are the products of agricultural implements of the manufactories first above referred to, being the articles manufactured and number made:

Cane mills		80,919
Clover hullers	5,206 Lawn mowers	2,536
Corn planters	21,709 Mowers	39,486
Corn shellers	12,914 Piows	864,947
Cotton planters	2,000 Reapers	60,388
Cultivators	88.740 Reapers and mowers	59,645
Fanning mills	19,772 Rollers and scrapers	4,803
Fanning millsGrain cradles	103,646 Seed sowers	6,900
Grain drills	32,033 Scythes	881,244
Handrakes	207,310 Scythe snaths	17,680
Harrows	9,150 Separators	1,131
Harvesters	3,566 Shovels	25,756
Hav and straw cutters	30,879 Sickles	300
	1,298,260 Stump pullers	124
Hoes	135,139 Threshers	22,934
Horae persona	4 E41 Other products	E 200 700

PATENTS FOR AGRICULTURAL IMPLEMENTS.

For the articles above enumerated, there have been granted between the years 1790 and 1873, inclusive—that is to say, since the organization of this Office (1790)—the following patents:

Burnished of this office (1) co/	the rone wing putting.	- 1
Canemills	66 Horse rakes 37	
Clover hulters	100 Lawn mowers 3	8 I
Corn planters	647 Mowers 17	3
Corn shelters	378 Plows 2,45	i l
Cotton planters	173 Reapers 6	9 L
Cultivators 1	1.617 Reapers and mowers 6	1
Fanning mills	127 Rollers and scrapers 14	iΙ
Grain cradles	18 Seedsowers 57	9 I
Grain drills	186 Scythes 5	
Hand rakes	9 Scythe snaths 2	6 l
Harrows		
	2,244 Shovels 5	8
Hay forks	382 Sickles 1	šΙ
Poes	201 Stump pullers	iΙ
House nomen		āТ

MISCELLANEOUS AMERICAN PATENTS.

These indicate the scope and versatility of the inventive genius of our country, and all enter more or less into the "mechanical and manufacturing industries" that have been referred to. They are as follows:

Churns, etc Clothes dryers and wringers Curtain fixtures. Fire aims. Gas and gas apparatus	144 Paper, manufacture of 268 817 Pavements. 40 808 Photography 34 425 Plaining machines. 38 750 Propellers, et c. 57 388 Printing presses, etc. 75 165 Railway apparatus. 1,55 733 Bofs and rooding. 50 485 Ratary engines. 1,7 861 Saw mills and machines. 1,28 1,495 Steam engines and apparatus. 1,013 1,391 Stoves. 2,40 984 Straw cutters and machines. 40 364 Sugar mills and machinery. 34 363 Sugar mills and machinery. 34 1,203 Telegraphand instruments 56 1,389 Toys. 36	
	1,359 Toys	9

Total number of patents issued since 1836	171.640
Total number of reissues	6,830
Total number of designs. Total number of trade marks total number of labe's.	8,883
Total number of trade marks	3,287
Total number of labels	464

In presenting this annual report, the Commissioner makes several suggestions and recommendations for the improvement of business facilities at the Patent Office.

- 1. To the corps of one hundred examiners now employed, he asks for an addition of twelve more examiners. He also asks for the restoration of the grade of Third Assistant Examiners; and suggests that the duties of Principal Examiners ought to be defined by law.
- 2. He suggests that all decisions of the courts shall be published in the Official Gazette, such publication to have the same force and effect as if published by authority of the
- 3. The publication of the back patents—those granted be tween 1836 and 1871—is urgently called for, as a matter of the highest importance.
- 4. The improvement of the Patent Office library, by an annual appropriation of \$5,000, is suggested.
- 5. The necessity of enlarging the Patent Office is conclu sively shown. From five to twelve persons are now compelled to occupy rooms averaging each not more than twenty feet square, this space being also reduced by the cases for letters, papers, etc.; while models have to be tucked away in the attic.

The Commissioner's Report is one of the most straightforward, practical documents ever issued from the Patent Office; and we hope that Congress will adopt the excellent suggestions it contains.

DECISIONS OF THE COURTS.

Supreme Court of the United States.

THE GREEN CORN PATENTS.—RUFUS K. SEWELL, ADMINISTRATOR OF HENRY CLARK, DECRASED, APPELLANT, vs. JOHN WINSLOW JONES & al.—APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT.

CLARK, DECRASED, APPELLANT, vs. JOHN WINSLOW JONES et al.—APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF MAINE.—OCTOBER, 1875.

To entitle a plaintiff to recover for the violation of a patent, he must be the original inventor, not only in relation to the United States, but to other parts of the world. Even if the plaintiff die not know that the discovery had been made before, still he cannot recover if it has been in use or described in public prints, and if he be not, in truth, the original inventor. To constitute an infringement, the thing used by the defendant must be such as to substantially embody the patentee's mode of operation, and thereby to obtain the same kind of result as was reached by his invention. It is not necessary that the defendant should employ the plaintiff's invention to as good auvantage as he employed it, or that the result should be the same in degree, but it must be the same in kind.

Toin fringe a patent, it is not necessary that the thing patented should be adopted in every particular. If the patent is adopted substantially by the defendants, they are guilty of infringement.

In an action for intringement, the first question is whether the machine use oby the defendant is substantially in its priociple and mode of operation like the plaintiff's. If so, it is an infringement of it.

If he has taken the same plan and applied it to the same purpose, notwith standing he may have varied the process of the application, his manufacture will be substantially identical with that of the patentee.

'The question of infringement depends upon whether he plan which the defendant has employed is in substance the same as the plaintiff's, and whether all the differences which have been introduced are not differences in circumstances not material, and whether it is not in substance and effect a colorable evasion of the plaintiff's patent.

When a party has invented some mode of carrying into effect a law of naturalscience, or a rule of practice, it is the application. He is en

ent mode, be to better of worse, below the principle.

When the inventor says: "I recommend the following method," he does not thereby constitute such method a portion of his patent.

Appert's process, embodied in the Durand patent of 1810, contains everything of value that is contained in Winslow's patent, through whom the appelless claim.

Mr. Justice Howr delivered the opinion of the court:

Appert's process, embodied in the Durand patent of 1810, contains everything of value that is contained in Winslow's patent, through whom the appellees claim.

Mr. Justice Hunr delivered the opinion of the court:

Jones, as assignee of four several patents for a new and useful improvement in preserving Indian corn, brought his action against Clark, the original defendant, alteging infringements of the same. These patents were issued to Isaac Winslow, and were as follows, namely: No. 34,928, dated April 8, 1862, for "a new and useful improvement in preserving Indian corn;" No. 35,244, dated May 13, 1862, "for a new and useful improvement in preserving green corn;" No. 35,346, dated May 20, 1862; and No. 36,326, dated August 26, 1862.

The two patents last above mentioned were declared and adjudged by the court below to be void, and from this judgment no appeal has been taken. They are no longer elements in the case before us, and are dismissed from further consideration.

The patent first mentioned is for an article of manufacture—a result. The second one is for a process by which a result is obtained. The first is the more tull, and embraces all that is contained in the second.

The first objection made to the parents is the want of novelty. It is contended that they were anticipated by the Appert process embodied in the Durand patent of 1810; also by the patent of Gunther, of 1841, and by that of Wertheimer, of 1842. It is an elementary proposition in patent law that, to entitle a plaintiff to recover for the violation of a patent, he must be the original inventor, not only in relation to the United States, but to other parts of tite world. Even if the plaintiff did not know that the discovery had been made before, still he cannot recover if it has been in use or described in public prints, and if he be not in truth the original inventor. (Dawson vs. Follen, 2 Washn, C. C., 311, Bedford vs. Hunt, 1 Mason, 382)

Durand's patent is described in his specification, enrolled in the English food, vegetable food, and

The specification then declares that the inventor did avail himself of the application of heat by placing the vessel in an oven, stove, steam bath, or other fit situation for gradually and uniformly raising the temperature and suffering it to cool again, and that as the choice of the consumer, or nature of the said food or other articles, may render preferable, leave the aperture of the vessel, or a small nortion thereof open unit the said of the vessel, or a small nortion thereof open unit the said of the vessel, or a small nortion thereof open unit the said of the vessel, or a small nortion thereof open unit the said of the vessel, or a small nortion thereof open unit the said of the vessel, or a small nortion thereof open unit the said of the vessel, or a small nortion thereof open unit the said of the vessel of t of the vessel, or a small portion thereof, open until the effect of the heat shall have taken place, at which period the same is to be closed. The points following are embraced in this patent:

1. It is for the purpose of preserving for a long time animal or vegetable

shall have taken place, at which period the same is to be closed.

The points following are embraced in this patent:

1. It is for the purpose of preserving for a long time animal or vegetable food.

2. The articlesthus to be preserved are to be placed in tin or other vessels, so arranged as to exclude communication with the external air.

3. An aperture may be left in the vessel, at the choice of the operator, until the effect of the heat shall have taken place, when it is to be closed.

4. The vessels, thus prepared, are placea in a boiler filled with cold water, which is heated to a boiling point, which boiling shall be continued for such time as shall be required by the substances contained in the vessels.

5. Although a water bath is preferred, the inventor declares he avails himself of heat through an oven, stove, steam bath, or any other situation fit for gradually raising the temperature and suffering it to cool again.

6. Vegetables are to be put into the vessels in a raw or crude state; animal substances raw or partly cooked.

7. The invention is general in its terms, embracing all vegetables and all animal substances capable of being thus dealt with.

Winslow's patent of April 8, 1862, No. 34,928, is declared to be for an improvement in preserving indican corn in the green state.

The letters patent declare that the first success of the inventor was obtained by the following process:

"The kernels being removed from the cob were immediately packed in cans hermetically sealed, so as to prevent the escape of the natural aroms of the corn or the evaporation of the milk or other juices of the same. It then submitted the sealed cans and their contents to boiling or steam heat for about four hours.

* * By this method of cooking green corn in the vapor of its juices the ends of the cans are bulged out. Strong cans are required, and dealers are likely to be prejudiced against corn thus put up. I recommend the following method. Select a superior quality of green corn in the vapor of its juices the ends of th

Let us now state the points embraced in this the plaintiff's patent, and ompare them with the points heretofore stated as included in the Durand

patent.
1. Winslow's declared object is the preservation of Indian corn in the

Let us now state the Points embraced in this the pishing spaces, and compare them with the points herectofore stated as included in the Durand patent.

1. Winslow's declared object is the preservation of Indian corn in the green state.

2. Winslow recommends removing the kernels from the cob before the process of preservation is commenced, placing the kernels in cans, sealing the man dexposing them to heat.

2. Durand, not limiting himself to the article of corn, provides that the articles to be preserved shall be placed in cans, and subjected to heat in the same manner. He does not stipulate or recommend that the article shall be first removed from the cob, the vine, the twig, or whatever may be the natural support of the vegetable to be preserved, as the corn from the cob, the pea from its pod, the grape or tomato from its vine, the peach from its stem, the berry from its stalk. Neither does he recommend that it shall not be soremoved. His process embraces the article in whatever form they may be presented, and necessarily includes a case where they have been previously removed from their natural support. A prior removal from the stalk would be the natural, and, in many cases, a necessary proceeding.

3. Winslow directs that the kernels shall be subjected to the heat for a period of about one and a half hours before puncturing, and for about two and a half hours after the puncturing. The double use of the word' about "indicates that the time is not to be considered as precisely specified.

3. Winslow directs that the boling shall continue for such length of time as shall be required by the particular substances contained in the vessel. Corn, peas, tomatoes, peaches, berries, saparagus, may very likely require great affected the continue of the time.

4. Winslow says other mode may be adopted so long as hermetical sealing and the use of heat are so managed as to secure the aroma and fresh flavor and prevent putrefaction.

Durand decares that he intends to include in his patent heat through an oven, stove, stea

tion to as good advantage as he employed it, or that the result should be same in degree, but it must be the same in kind. (Winans vs. Denmend, 15 How., 330.)

To infringe a patent it is not necessary that the thing patented should be adopted in every particular. If the patent is adopted substantially by the defendants they are guilty of infrigement. (Root vs. Ball 4 McLean, 177; Alden vs. Deney, 18tory, C. C., 336.)

In an action for infringement the first question is whether the machine used by the defendant is substantially in its principle and mode of operation like the plaintif's. If so, it is an infringement to use it. (Howe vs. Abbott, 2 Story C. C.; 190, Parker vs. Haunth, 4 McLean, 376.)

If he has taken the same plan and applied it to the same purpose, notwith standing he may have varied the process of the application, his manufacture will be substantially identical with that of the patentee. (Curtis, § 312.)

The discovery in question has been of immense benefit to mankind. By means of food preserved in a compact and nutritious form, protected from its natural tende ney to decay, deserts are traversed, seas navigated, distant regions explored. It is less brilliant, but more useful han all the inventious for the destruction of the human race that have ever been known. It is to France that the honor of this discovery belongs, and to Appert, a French citizen. It does not belong to America or to Winslow. Appert's process presents all that we now know upon the subject. It contains absolutely everything of value that is contained in Winslow's patent.

Other grave questions are presented by the recordbefore us. We are satisfied, however, to place our decision upon the ground that the want of novelty in the patents of Winslow is fatal to the plaintiff's right of recovery. We do not alsous the other questions.

The decree of the court below must be reversed, and judgment ordered in favor of the defendant below.

NEW BOOKS AND PUBLICATIONS.

REPORT ON THE COMPRESSIVE STRENGTH, SPECIFIC GRAVITY, AND RATIO OF ABSORPTION OF THE BUILDING STONES IN THE UNITED STATES. By O. A. Gillmore, Lieutenant-Colonel of the Corps of Engineers, Author of "A Treatise on Limes, Cements, etc" New York city: D. Van Nostrand, 23 Murray and 27 Warren

This book contains Lieutenant-Colonel Gillmore's official report, to the Chief of Engineers of the United States Army, on a series of tests which were partly reported on to the end of July, 1874. The present volume carries the investigation one year f rther, and gives some very valuable and interesting facts and information, which, taking into consideration the rapid growth of the use of artificial stone, is of the highest practical im-

DIGEST OF OPINIONS OF THE JUDGE ADVOCATE GENERAL OF THE ARMY, containing a Selection of Official Opinions furnished between September, 1862, and July, 1868. Edited by Major W. Winthrop, Judge Advocate. Washington, D. C.: Government Printing Office.

The scope of this work is fully set forth in its title, and it will be found a useful reference book by the legal profession.

REPORT ON THE HYGIENE OF THE UNITED STATES ARMY, WITH Descriptions of Military Posts. Washington, D. C.: Government Printing Office.

A voluminous document, containing information down to the end of the year 1874.

JAMES W. TUFTS' CATALOGUE OF SODA WATER APPARATUS. Bos-

A handsome volume, superbly illustrated.

DYNAMOMETER EXPERIMENTS ON SPINNING FLAX. By E. Cornut, Chief Engineer of the Association of Steam Power Proprietors of Northern France. Lille, France: L. Danel.

An interesting little treatise, of great practical value.

Recent American and foreign Latents.

NEW MECHANICAL AND ENGINEERING INVENTIONS. IMPROVED STOPPING MECHANISM FOR SPINNING JACKS.

William W. Sinclair and Edward Galvin, Mottville, N. Y .- This nvention consists of automatic mechanism for throwing off the driving belt of a spinning jack in case the squaring band breaks or fails to act. The shifter lever has a strong spring attached to it for ased by the failure of the squaring said spring is held distended, ready for action, by the shifter lever itself, which is lodged in a notch in a frame piece, and is tripped by a sliding cam rod when the band fails, and throws the belt shifter.

IMPROVED WIND POWER.

Timothy C. Guthery, Freedom, Ind.—This invention relates to an improvement upon the wind wheel covered by patent No. 91,457, and consists in mounting the wheel upon a shaft having its bearings in a rotating bar, to whose upper end a vane is rigidly attached. The object is to render the device simpler and less expensive.

IMPROVED AUTOMATIC WASTE PIPE CLOSING ATTACHMENT

F. Philip Bourne, Brooklyn, N. Y.—The object of this invention is to furnish an improved attachment for waste pipes, so constructed as to prevent the escape of gases, odors, etc.; and it consists in the combination of a valve chamber or box, bottom plate, chambered top plate, pipes, pivoted valve, pivoted valve plate, and weight with each other, so arranged as, when the waste water is admitted into the pipe in sufficient quantity to overbalance the downward pressure of the weight, the valve will be lowered into an inclined position, allowing the wastewater to flow into the pipe. As soon as so much of the water has run out that the weight of that emaining will be overbalanced by the weight, the valve will close. The valve will always have a small quantity of water above it, and will thus effectually prevent the escape of any gas or odor from the waste pipe.