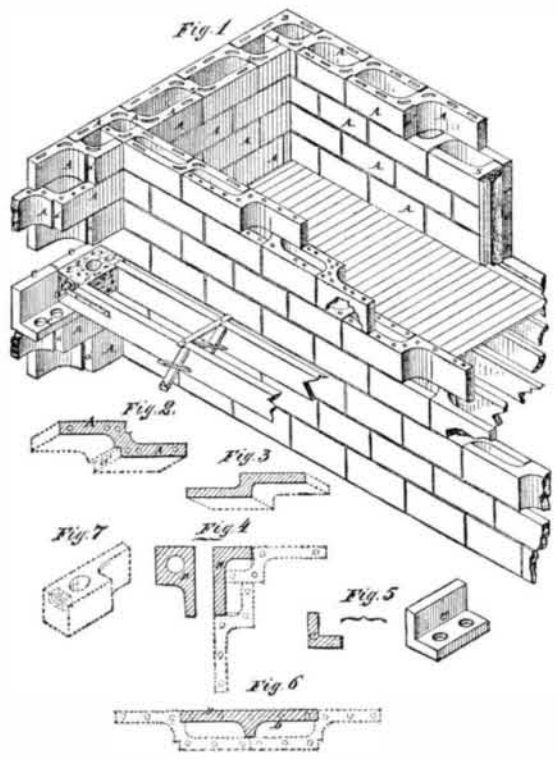
IMPROVED BUILDING BLOCKS.

Mr. Nicholas J. Clayton, of Galveston, Texas, has recently (August 15) patented a cellular building block, of which we give engravings herewith. Fig. 1 is a perspective view of a portion of a building in process of erection. Fig. 2 shows one of the main building blocks, and Fig. 3 one of the partition wall blocks. In Fig. 4 are seen two forms of angle blocks or quoins. Fig. 5 gives two views of the bearing blocks for the joists. Fig. 6 shows a flue block, and Fig. 7 a jamb block. The blocks may be made of artificial



stone, cement, or clay, baked afterwards; and they are so constructed as to tie the outer and inner parts of the hollow wall securely together, forming one wall with numerous cells or passages through it.

A are the building blocks for the main walls, which are made with offsets in their middle parts, binding the two walls together. The offsets of the blocks, A, have rabbets, *a'*, formed in them to form seats for the ends of the adjacent blocks. B B are corner blocks, which may be formed of two wings meeting each other at right angles, the shorter wing being of a length equal to the thickness of the wall; or the outer end of the block, B, may be made solid for a distance equal to the thickness of the wall, and with a hole through said solid part. C are right-angled blocks, the outer end of which is vertical, and forms a part of the outer walls. The inner wing of the blocks, C, is horizontal, and forms a support or rest for the ends of the joists. Through the horizontal parts of the blocks, C, between the places where the ends of the joists will rest, are formed holes to connect with the cavities above and below said blocks. The space above the horizontal wing of the block, C, and between the ends of the joists, may be filled with concrete or with blocks of the proper size, to support the blocks, A, placed above them. The blocks, D, are for forming chimney and ventilating flues; and they are made with a projection or flange upon the middle part of their inner sides of such a hight as to meet the inner ends of two adjacent blocks. In places where woodwork is to be attached to the wall, recesses are formed in the blocks to receive pieces of wood to which said woodwork may be nailed. In the upper and lower edges or sides of the blocks, A, are formed holes or recesses of any desired shape for the cement or mortar, with which said blocks are laid, to enter, and thus key or dowel the said blocks together.

He Wanted to Sell a Patent Machine.

Soon after dinner yesterday a pleasant-faced man, having something wrapped up in a paper under his arm, called at a Detroit hotel, and requested a few minutes' conversation with the landlord. When they were seated, the stranger began: "I am an old landlord myself. I kept hotel in St. Louis for twenty eight years."

"Yes," was the non-committal reply of the landlord.

"And of course I know all about the inconveniences of hotel keeping," responded the man. "There were bugs around the beds in my hotel, and there are bugs around the beds in any hotel, I suppose. Of course I used to lie to the guests, but the bugs were there, and I knew it."

"What do you mean?" demanded the landlord, growing red clear round to his neck.

"Just keep right still," replied the man, "for now I'm coming down to biz. This is the summer season, isn't it, and the only season when bugs bite? In the winter they are dormant, and unless there's a fire in the room they don't care to get in their work on the weary traveler. Well, the summer season is the season for the mosquito also. All hotels and houses have mosquitos, and nothing is thought of it. They seem to be a sort of necessity. Travelers will raise a howl over bugs, but they never grumble at anyone about mosquitos."

"Sir! do you think I keep a junk shop?" roared the landlord.

"No, sir; I don't. This is a regular hotel, and a very good one. As I was going to remark, I have invented and patented a machine, operated by a boy and a crank, which you and all other landlords want and will have. It isa machine to imitate the hum of the mosquitos. Its notes can be heard all over each floor, and with a good boy at the crank there can be no failure. The traveler, just dozing off to sleep, hears the hum. At the same time a bug works out from under cover. Then more hums and more bugs. Actually, sir, without any lying or exaggerating, men will strike and claw the air all night long to kill imaginary mosquitos, while the bugs go unmolested and grow fat. The hum is a perfect imitation, and has even deceived Yale College professors. Without it your guests will blow around about bugs. With it no traveler will mention bugs at all, but will rip and tear at the mosquitos."

"Do you mean to insult me?" shouted the landlord.

"No, sir."

"But you talk as if I had bugs in my house!"

"I tell you what I'll do, landlord. I'll examine five beds, and if I do not find bugs in at least three of them I'll give you a machine for nothing."

It would have been a nip and tuck fight if the great big porter hadn't jumped in and hit the stranger with an iron boot jack. The inventor still lived, however, and within an hour was seen bearing down for another hotel under full sail.—*Detroit Free Press.*

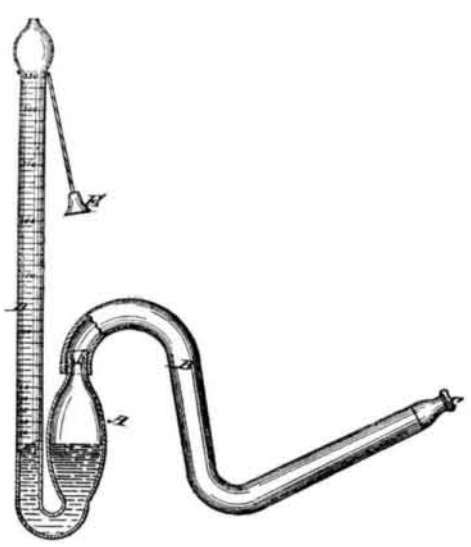
Knight's New Mechanical Dictionary.

Mr. Edward H. Knight, the author of the "New Mechanical Dictionary," now in process of publication by Messrs. Hurd & Houghton of the Riverside Press, Boston, informs us that the last sheets of the manuscript of his work have just been placed in the printer's hands. The fact is an event in the annals of literature in this country, as it marks the substantial completion of a great and elaborate undertaking, the labor on which has extended over a period of eight years. It is difficult to realize how colossal is the task involved in the preparation of a work of this description. Thousands of patents, American and foreign, have been digested, industrial processes of every nature have been examined, and the latest improvements therein noted. Engineering works, scientific discoveries, and tools of every craft have been studied; and finally all this immense collection, gathered from the whole field of applied science, has been subjected to careful revision and condensation, and, by means of ingeniously contrived systems of indexing, rendered invaluable for purposes of reference and research. Add to this the labors of artist and engraver, and there is little food for marvel that the work has cost $100,000; that it treats of 20,000 subjects; contains 7,200 engravings; and that its three volumes include 2,800 pages. It is more an encyclopædia than a dictionary; it is in fact a mechanical and scientific library, carried up to the latest dates.

The many extracts froms its pages which we have published will serve to give our readers an idea of its range of subjects. No single topic, however, has been wholly reproduced in these columns, as the engravings have been selected for their individual interest from the mass of the work, and afterwards grouped as seemed to us best befitting their character, without any reference to the author's classification. A just estimate of the comprehensive nature of the work, and its importance to inventors, engineers, and artisans of every class and in all libraries, can only be gained by careful examination of the volumes themselves. The work is published in parts, forty of which have appeared; and the remaining ones will shortly follow.

A POCKET LUNG TESTER.

Mr. William H. Burt, of Chicago, Ill., has patented through the Scientific American Patent Agency, August 8, 1876, a new spirometer, by which the breathing capacity of a person's lungs can readily be measured in cubic inches, by mercury, oil, glycerin, spirits, water, or any other liquid substance.



A is a glass bulb for containing the mercury or other liquid substance. B is the rubber tube, with a mouthpiece, C; and D is the scaled tube for measuring the hight of the column raised by the lungs. The rubber tube connects with a nozzle on the top of the bulb, and the glass tube connects with the bottom of the bulb by a return bend. The top of the vertical tube is open to the atmosphere, to prevent compressing the air above the liquid; and a little cap, E, may be used for closing it, to exclude dust, etc., and to prevent the liquid from running out by pneumatic pressure. This cap must be taken off when in use. It is only necessary to blow into the mouthpiece, when the hight of the mercury represents the lung pressure exerted.

A LIFE-PRESERVING CAP AND CAPE.

Messrs. E. J. McCarthy, of Red Hook, N. Y., and Gaston Wilbur, of Saugerties, N. Y., have recently invented a new sleeping cap, the object being to furnish a cap which may answer the threefold purpose of protecting the wearer from cold and storm, of an air pillow, to be used on the cars or in camp, and as a life preserver. The cap is made from rubber or other material which is impervious to water or air, and is provided with an external envelope, *a*, which is also made from waterproof material, and is united to the band of the cap by an airtight seam. A tube, *b*, having a suitable mouthpiece and valve, is attached to the cap, for inflating it while it is on the head. A cape, B, is attached to the cap, and is made from waterproof material, and is double at *c*, so that it may be inflated by blowing through the tube, *d*, which is provided with a mouthpiece and valve.

It will be seen that, when the cap and cape are not inflated, it forms an ordinary storm cap, and that when it is inflated the confined air in the space serves to protect the head from cold and to afford the necessary buoyancy for a life-preserver. This device was patented through the Scientific American Patent Agency, August 8, 1876.

An African International Exposition.

Expositions seem to be becoming epidemic. There is our own Centennial, named first because actually the largest yet held, but to be eclipsed, it is said, by the grand French sfiow of 1878. An exposition of marine and life-saving devices has lately been in Brussels, Belgium; another of general exhibits, of which we have heard little save the fact of its existence, has been held in Finland. There are rumors of a grand international display in Australia, soon to occur; and now last of all, South Africa announces that a World's Fair is to open in Capetown, Cape of Good Hope, on February 15. The director general of the African Exposition is already *en route* for Europe and this country: and before very long, our manufacturers will be informed that industries at the Cape are at the lowest ebb, that an exhibition of what other people in the world are doing is needed to wake up the colonists, and that probably any portions of our splendid exhibit in Philadelphia will be gladly made part of the African show. We advise exhibitors to keep all their decorations, show cases, special machines, and extra fine goods, prepared for the Centennial, in as good order as possible, and not to think of throwing the two first named articles aside when the Exposition is over, as there are plenty of opportunities to come, when all such will be found abundantly useful.

The Effects of Physical Culture.

An official inquiry into the results of gymnastic exercises has recently been instituted at a military gymnastic school in France. The results of the inquiry, which extended over six months, established: 1. That the muscular force is increased, on an average, 15 to 17 per cent, and occasionally from 25 to 30 per cent, while the force has, as we might expect, a tendency to become equal on both sides of the body. 2. That the capacity of the chest is increased by one sixth at the lowest. 3. That the weight of the individual is increased from 6 to 7 per cent, and occasionally from 10 to 15 per cent, while the bulk of the body is diminished, thus showing that profit is confined to the muscular system. The increase of muscular force was generally confined to the first three months of the course. During the last moiety a serious diminution usually occurred; and here the dynamometer gave positive indication of the necessity of moderating or suspending the exercises.

Dangers of the Sea.

The steamer Arbitrator left New Orleans, August 9 last, for Liverpool. On August 23, when about 100 miles east of Halifax, N. S., she struck a ledge of floating ice, and ran right upon it as far as the foremast. She then made water rapidly, and went down stern foremost, the ice holding her up forward. After being in the boats several hours, the crew were picked up by the brigantine Baltic, and landed at Dublin.