

## NEW INVENTIONS.

## Regulating the Speed of Steam Engines.

Luther R. Faught, of Macon, Georgia, has invented a very ingenious and original improvement for regulating the speed of steam engines, by cutting off the steam in the steam box when it exceeds the established velocity. The speed of the engine is regulated by the "cut-off," which consists of a plate of metal placed to fit and work on the back of the slide valve, which is furnished with certain openings through which the steam must pass into the cylinder while the cut-off plate is in a proper position. The form of this cut-off is not new, but the method of operating it is peculiar: the cut-off is caused to move with the slide valve by means of friction produced between them by suitable means, and by attaching the rod of the former to a pendulum axis or other device capable of offering resistance to its movement, which causes it, when the velocity increases to move a shorter distance than the slide valve and thus close the steam openings of the valve, and cut off the steam before the termination of the stroke of the piston. The steam passages of the slide valve are closed earlier or later, according to the velocity of the piston, by the action of this governor valve, to regulate the speed of the engine. The governor valve is therefore operated by resistance which increases as the undue velocity of the engine increases, to cut off the steam early when necessary. Measures have been taken to secure a patent.

## Improved Metallic Hub.

An improvement has been made in metallic hubs for wheels of vehicles, by J. B. Hayden, of Easton, N. Y. The improvement effectually prevents the spokes from working in the mortices of the hub, by any lateral movement—an important consideration. In the hub these spoke mortices are cast in two separate parts, forming two sections; and there is a thin ring plate secured in the hub between them. The lower ends or shoulders of the spokes have thin grooves (one in each) cut into them, into which the thin plate ring fits, and the tenons of the spokes pass into the mortices on each side of the plate, in such a manner as if one spoke fitted into two mortices in the hub, with a binding ring or key between them, rivetted to the spokes, thus effectually preventing them from working loose in the hub. Measures have been taken to secure a patent.

## Cast Iron Driving Wheels.

Henry A. Chase, of Boston, Mass., has invented an improvement in cast-iron driving wheels for locomotives, which consists in casting the "counterbalance" in a double-plated chilled wheel opposite the crank-pin in the inner face of the tread, between the two sides, but not touching them. It is cast on the tread, and stands up from it in the hollow part of the wheel, like a plate, but is not attached to the hub. The plates of the wheel, therefore, are made of equal thickness throughout, and consequently when cast they contract equally. The counterbalance, or solid plate, cast opposite the crank pin, inside of the wheel, is therefore free to contract without affecting the side plates after being cast. Measures have been taken to secure a patent.

## Improved Lime Kiln.

H. D. Mandeville, of Cedarburg, Wis., has taken measures to secure a patent for an improvement in lime kilns. The fire places and heating flues are arranged around the shaft of the kiln in such a manner that the fire doors are all brought to one side or front of the kiln, but the heat is distributed into the shaft all around by the flues which are so arranged that they can all be cleared through the fire doors. The fire places are constructed with spaces or chambers in the masonry above, whereby they are relieved of the weight of wall, and are more easily repaired when required.

## New Corn Crusher.

Thomas Durden, of Montgomery, Ala., has taken measures to secure a patent for a new corn crusher, which is exceedingly well adapted for cracking and crushing corn in the ear, also various other vegetables. The hopper

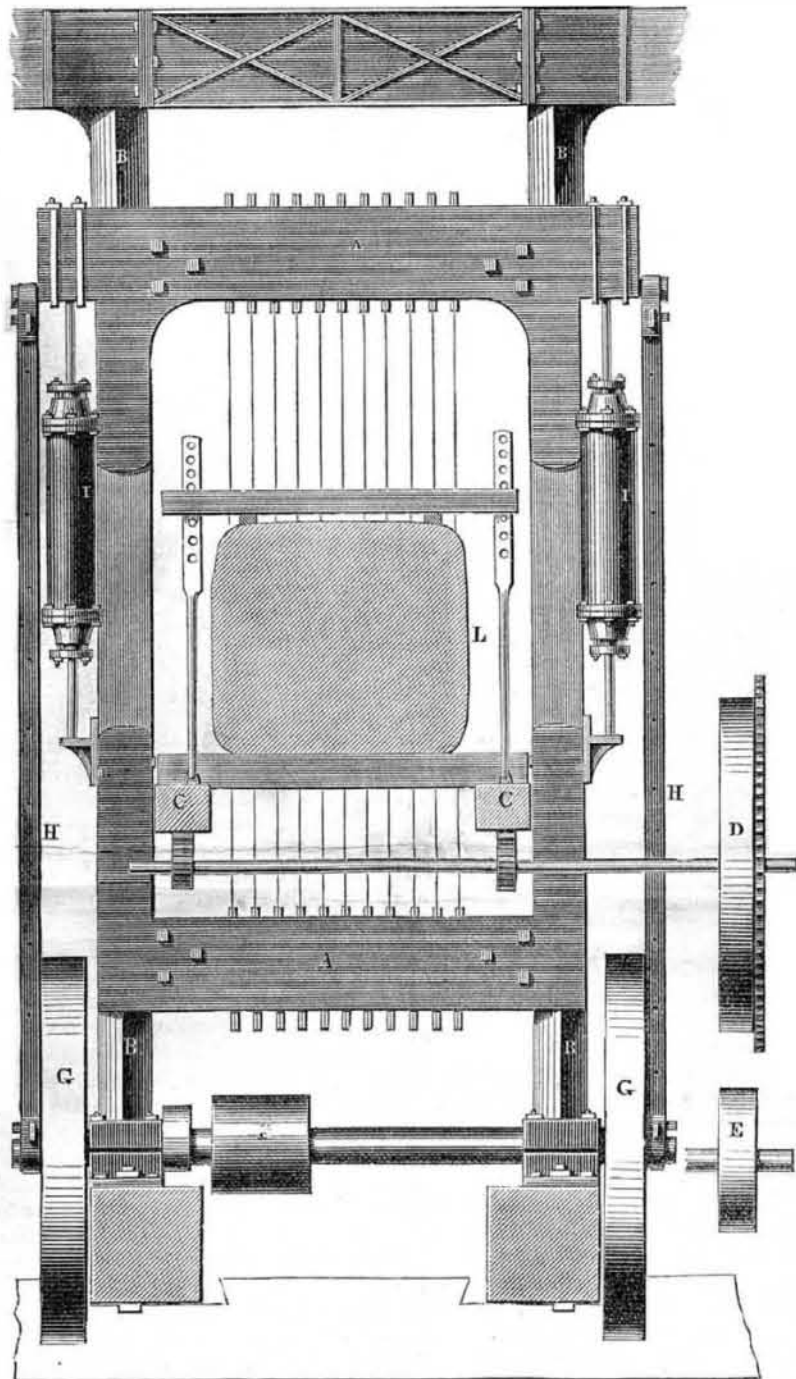
for the reception of the corn is peculiar; it receives the ears of corn by various small openings; they pass down and are first cut by a revolving S-shaped knife on a vertical spindle, and after that they pass down and are crushed between grooves and projections on the revolving spindle, and grooves and projections on the inner face of the machine. The grinding parts are of cast-iron, the inside of the case being a hollow cone, its bottom where it discharges being the apex, and the grinding spindle or muller acting with its outer on the

inner surface of the case. The apparatus is simple and good.

## Improved Heating and Steaming Apparatus.

Jesse Neal, of Hudson, Ohio, has invented an improvement in apparatus for heating and steaming purposes. It is intended, principally to be used in a dairy for the heating of milk to make cheese curd. Its adaptations are directed and intended principally for this purpose. Measures have been taken to secure a patent.

## BROWN'S IMPROVEMENT ON SAW MILLS.



The annexed engraving is a view of an improvement in saw mills, invented by Isaac Brown, of Baltimore, Md., for which a patent was granted on the 19th of last month. The improvement relates to gang saws.

The engraving represents a front view of the saw gate, with a log passing through the mill.

A A is the saw gate; B B are the fender posts; C is the carriage with a log, I, on it, which is being carried through the mill and sawed into planks by the gang of saws in the frame; D is a rag wheel and backing pulley, E being the pulley to back the carriage; G G are fly wheels with pins set eccentric, forming cranks; they are attached to the connecting rods, H H; I I are steam cylinders firmly secured to the fender posts in such a position that the centre of the piston rod is in line with the centre of the cross section of the saw cross head. The saw gate is made in the usual way, except the top cross girt, which is projected over the sides sufficient to let the piston rod press against it in its upward motion. The piston rod is secured to the cross girt by adjustable stirrups, and the connecting-rod pin projects over the cross girt, so as to allow the said rod, which is attached to the fly wheel, G, to work clear of the cylinder.—There is also a piston rod extending through

the bottom of each cylinder, which is attached to a bracket on the side of the saw frame, to press in the downward motion of the piston on the bracket, and give motion to the saw frame. Owing to this mode of connecting the piston rods with the saw frame, the vibrations of the latter are not communicated to the piston to make it wear out of line in the cylinder. The claim of the patent is for this mode of preventing the vibrations of the saw frame wearing the piston untrue and out of line. The shaft for the fly wheels is firmly secured at the bottom of the frame, and runs in suitable boxes. The fender posts are constructed in such a manner as to form guide slides for the saw frame. It is best to make the saw gate of wood and boiler iron combined, the iron being so cut as to project up and down upon each side piece, making a cross frame side to side, all rivetted securely together,—allowing an opening in the bottom and top girts to hang the saws in, and made of a strength according to the number of saws to be employed. Each cylinder has a stuffing box on each end, and the piston rod is guided so as to work truly through the cylinder.

The carriage, or feed rollers to forward, the timber to the saws for feed and back motion, may be applied with equal advantage accord-

ing to the kind of lumber to be sawed. For flooring boards, or white pine boards, using circular saws for edging, the feed rollers will be the most expeditious mode of manufacturing lumber. For ship plank, and bill timber, the carriage may be considered the best, either with constant feed or rag wheel. Six inch steam cylinders of twenty feet stroke will be sufficient to work a gang of fifteen saws for sawing ship planks. Eight inch cylinders of twenty-four inch stroke, will drive from 30 to 40 saws, cutting flooring inch boards edged by circular saws. The fly wheels are about 4 feet diameter, and weigh 1,000 lbs. each. Their faces are turned to receive a belt to work the shaft of edging saws. One steam cylinder of 6 inch bore, and two feet stroke will drive a saw hung on each side of it; a separate carriage being provided for each, two logs may be fed into the saws at the same time.

These mills are very portable, they can be put up in a short time, and Mr. Brown informs, us they can be furnished at half the cost of other mills, which will do the same amount of work. They require less hands to operate them, and with a steam boiler and the frame and appendages as represented in the above engraving, there is at once a handy and convenient steam saw mill. Orders for these mills are filled by Messrs. Stillman, Allen & Co., of the Novelty Works, this city, and more information may be obtained by letter addressed to Mr. Brown, No. 90 South Exeter street, Baltimore.

## The Ericsson not at the Crystal Palace.

About two weeks ago one of our city papers, stated that a beautiful Ericsson engine was to be on Exhibition, and spoke of it in the most flattering terms, as something which would astonish the public and more than prove all the high flown panegyrics paid to it previously by the same paper. On Thursday last week, the same paper published a communication stating that the application for space in the Crystal Palace for the said engine had been *withdrawn*. This is true, as we have learned by special inquiry at the office of the Crystal Palace Association. The Superintendent of Machinery, Joseph E. Holmes, Esq., a practical engineer, designed to test the power of the Hot Air Engine by a dynamometer, and to weigh the amount of coal to propel it. We could not learn what the reasons were which induced the builders of the Ericsson engine to withdraw the application,—we present the fact and can draw an inference—so can every person who reads this.

## Steamboat Inspectors.

Since the letter and remarks respecting Steamboat Inspectors were published in No. 47, Charles W. Copeland, the Chief Inspector of this district (not Robert L. Stevens,) presented us with the new act relating to steamboats, printed at Washington. Section 42 of it excepts ferry boats, tug boats, and towing boats, and all steamers under 150 tons burden—these do not come under the provisions of the act. The Inspectors he informs us have done all they possibly could to carry out the law promptly and efficiently, but have been much troubled because other government officers have not done their duty in furnishing them with proper instruments.—We have received a communication on this subject, which we will publish next week.

## For China.

Mr. Walker cannot proceed on his mission to China, because there is not a steam frigate in our navy—at home—fit to carry him.—He should take the overland journey. Where is Mr. Porter with his aeroplane? Here is a fine opportunity for him to do his country some service. Let him carry Mr. Walker in his balloon at once to the seat of the war among the Celestials, and bring back a cargo of the best see-oo-chop-shong, to pay all expenses.

## Another Steam Boiler Explosion.

On the morning of the 11th, the flue of the steam boiler at a foundry in West Troy, N. Y., collapsed and killed the engineer Henry, and his brother David Paul. A number of others were severely wounded. The engine was stopped when the accident took place. Over pressure was the cause of the accident.