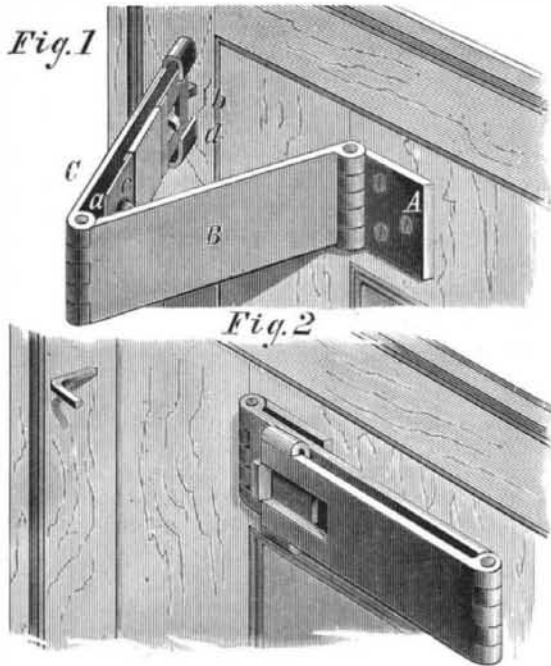


SIMPLE BURGLAR ALARM.

The engravings show a novel alarm recently patented by Mr. Thomas Powell, of Philadelphia, Pa. The inventor has aimed to avoid all objectionable features in these simple and effective little devices, both in regard to appearance and convenience in handling and using. They will meet a long existing want. Only a second of time is required to put them in or out of condition for use. They are applicable to either doors or windows.



POWELL'S WATCHMAN OR BURGLAR ALARM.

Figure 1 is a perspective view of part of a door and door jamb with the alarm set ready for use. Fig. 2 shows the alarm folded against the door so as to be inoperative. Fig. 3 shows the application of the device to a window.

The alarm consists of three plates, A, B, C, the plate, A, being secured to the door; the plate, B, is hinged to the plate, A; and the plate, C, is hinged to the plate, B. The detonating device, which gives the alarm, consists of two strips, *a*, *b*, of stout paper or cardboard, one overlapping the other, the overlapping portions being bound together by a band so that one strip can be pulled away from the other, creating friction, which causes the explosion of fulminate interposed between the overlapping portions.

The ends of the detonating device thus formed are perforated; one end being held by a stud projecting from the inner surface of plate, C; the other end adjusts itself, when set for use, upon hook, *d*, projecting from the door jamb. When the door is opened the fulminate is exploded, plate, B, being held in position, as shown in Fig. 1, by a lug projecting from its inner side.

In applying the alarm to windows the metallic portions of the device are modified to adapt them to the sliding motion of the window, as shown in Fig. 3. Here the plate, A, is hinged to the side of the plate, C, and a pin, *e*, driven into the casing, is used instead of the hook, *d*.

When the window is raised the hinged plates are carried upward with it, and the detonating device is separated, exploding the fulminate. The same result follows the lowering of the upper sash.

Further information will be furnished by Messrs. Thomas Powell & Co., 521 Cherry street, Philadelphia, Pa.

THE "NEW PATTERN" BLAKE CRUSHER.

The annexed engraving is a sectional view of one of the improved "new pattern" crushers manufactured by Messrs. E. S. Blake & Co., No. 1 Sixth Street, Pittsburg, Pa. It will be noticed that the machine is much more compact than its predecessors, and some of the parts appear to be, and really are, much lighter than in the old machines. This important difference is due to the substitution of wrought iron for cast iron. The most noticeable change is in the pitman, which is now made mainly of wrought iron, reducing it to about one-fifth the weight of the cast iron pitman. This improvement, besides thus lessening the weight of one of the moving parts of the machine, insures it against expensive breaks. Wrought iron has also been substituted for cast iron to a large extent in the frame or bed of the crusher, thus greatly reducing the weight, difficulty of handling, and cost of transportation. Another important improvement has been made in the toggles, so that they work without friction or wear and without the application of lubricants.

In almost all work requiring the use of a crusher, a degree of uniformity in the product in respect to fineness and coarseness is desirable; and it is desirable also that the uniformity shall be maintained without frequent manipulation of any part of the machine. Under the old construction and

arrangement, so rapid is the wear of the toggle ends and their bearings, that a frequent drawing up of the "wedge," or the insertion of longer toggles, is necessary in order to maintain in any good degree a uniform distance between the jaws and consequent uniformity of product. But with the improvement to which we have referred, there being no wear of toggles or their bearings, there can be no change in the distance between the jaws except that which results from the wear of the jaw plates; this being extremely slow (in most cases requiring weeks, and in some cases six to twelve months to become appreciable), the variation of distance between the jaws in the improved machine must be correspondingly slow, in many cases amounting to almost nothing.

It will be understood, however, that when a change is desired in the fineness and coarseness of the product, it can be effected by substituting in the usual way longer or shorter toggles, a full set of which of different lengths is supplied with each machine.

In the 15x9 "new pattern" crusher, the pitman (single casting) weighs nearly 1,000 lb. This immense mass of iron has, of course, to be actually lifted at every revolution of the flywheels. The proper number of revolutions for this machine are officially given as 250. It is easy to see that in the old construction a large amount of power must be consumed in throwing this nearly a half ton of iron upward and around at the rate of 250 times a minute. In the improved machine the wrought iron pitman weighs less than 200 lb.

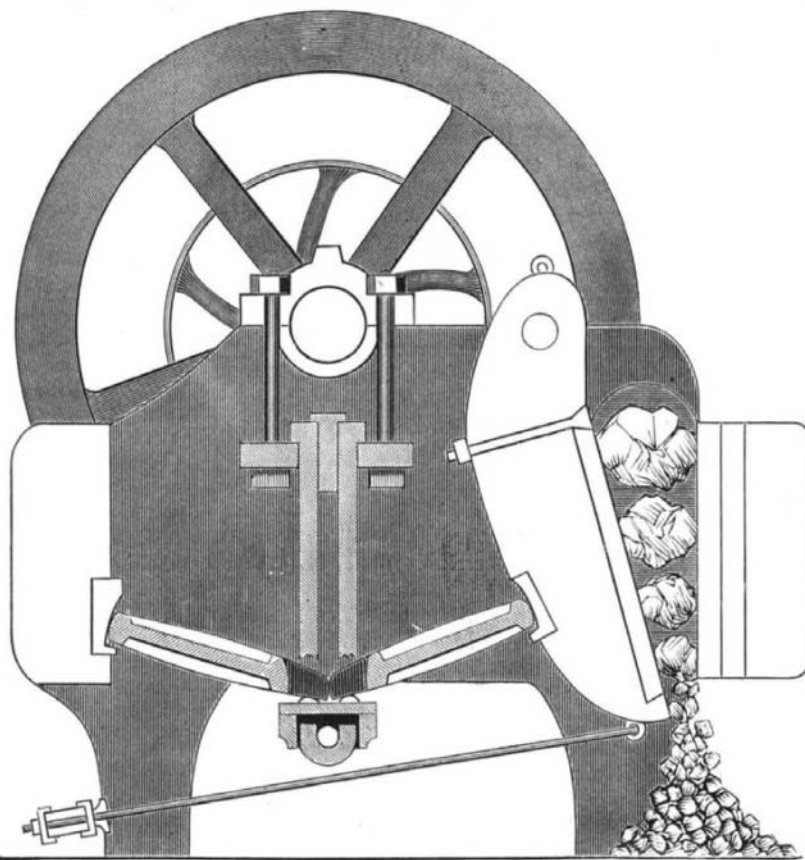
The difficulty of providing an inexpensive "break-down place" in the old "new pattern" Blake Crusher has always been strongly felt as a serious one. And when that style of machine was first offered to the public, the apprehension of expensive parts of the machine (namely, the frame, jaws, and shaft) being fractured by undue, accidental strains led to the addition of an amount of material to these parts which would doubtless have been regarded as quite unnecessary except for the reason referred to, the design of the addition being to throw the liability to fracture on the toggles, as the least expensive of the parts. It will be seen from the engraving that the large bolts which connect the cap or upper box of the eccentric with the parts below, furnish a most desirable, and the best possible protection against injuries to expensive parts of the improved machine. The bolts are made of sufficient strength for all ordinary and legitimate work, but relatively weaker than the other parts; and in the event of any abnormal strain endangering the parts, the weaker of the two bolts will give way, and thus no damage be experienced beyond breaking a single straight bolt, duplicates of which are furnished with each machine.

Another improvement consists in the use of friction rollers under the journals of the main shaft, a device which very largely reduces the amount of power required to drive the machine.

The manufacturers anticipate that some of the smaller crushers can be conveniently driven by horse power.

Patents for several of the improvements are pending, while on others patents have been already allowed.

The new machines have been examined and their con-



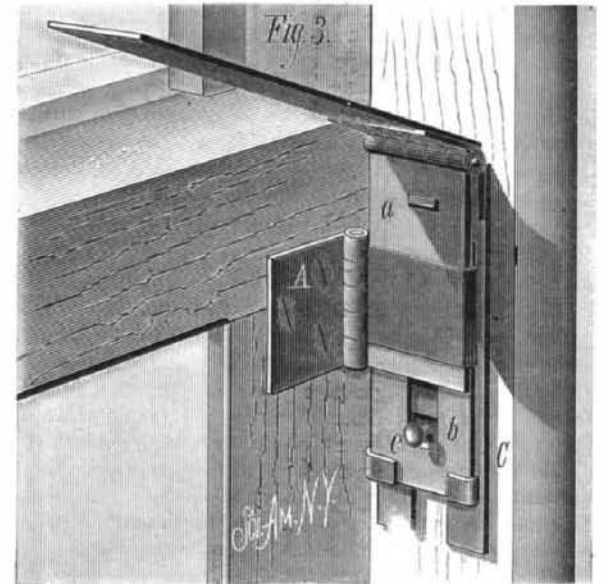
THE IMPROVED "NEW PATTERN" BLAKE CRUSHER.

struction approved by experienced mechanical engineers, and, as might be supposed, are finding a ready sale.

It is a point of no small importance in a crushing machine that the material to be crushed should, in feeding, not require to be elevated. It will be seen that in this respect the Lion and Eagle Crusher, as the manufacturers call it, has the same advantage as the old styles of the Blake machine.

MECHANICAL INVENTIONS.

Mr. Nikolaus Kaiser, of Grellingen, Switzerland, has patented an improved mode of drying paper and pasteboard in continuous strips, and in the apparatus employed for that purpose. Heretofore the paper coming from the pressing machine, or other machines, was led over heated metal cylinders, which had the disadvantage that the paper became more or less brittle, thus rendering impossible the use of mechanically ground unboiled wood fiber without other admixture, and also that the cost of plant and working was considerably increased by the necessary employment and work-



SIMPLE BURGLAR ALARM.

ing of the expensive metal cylinders required for the purpose. This invention is designed to obviate these defects.

Mr. Frank H. Lauten, of New York city, has patented improvements in feeding paper and other material to printing presses and folding machines, the blanks to the forming and shaping machine for making paper boxes and bags, ruling machines, and for other similar machines wherein the paper or other material requires to be fed in single sheets continuously and in harmony with the operative mechanism of the machine. The improvements also comprehend devices for adjusting the paper on the apron.

An improved machine for cutting the corners of books, cards, and paper has been patented by Mr. Wm. T. Pringle, of New York city. It is of very simple construction and well calculated for the work it is intended to perform.

Mr. Henry L. Russell, of Bloomington, Ill., has invented an indicator lock especially designed for fire alarm boxes, railroad switches, etc., where it may sometimes be desirable to know who unlocked it last, that must be opened with numbered keys, and will register the number of the key that last unlocked it.

Messrs. Richard H. Briggs and James H. Dougherty, of Whistler, Ala., have patented improved mechanism for making ladder irons and hand-holds for freight cars. The machine consists of an ingenious combination of devices which cannot be clearly described without engravings.

An improved cider press, patented by Mr. Gottlieb Ziegler, of Paris, Ohio, will press the juice from any quantity of pomace that may be required without changing the parts of the press. It is also adapted to work more rapidly than the presses now in use.

An improved gate hinge is patented by Mr. James E. Davis, of Palmyra, Ohio. This hinge is designed for the class of gates that are opened by running them back and then swinging them around. It consists in a gate hinge formed of a screw hinged to a pintle provided with a small pulley and placed within a large ring pulley.

Mr. Garritt M. Van Riper, of Bodie, Cal., has patented an improved band sawing machine for cross cutting. The invention consists in a band saw working on pulleys that are fitted movably on vertical shafts, whereby the saw can be moved downward to cut from a log two blocks at once.

An improved paper pulp screen, patented by Mr. Benjamin F. Warren, of Cumberland Mills, Maine, is designed to pulsate the pulp in a simple and effective manner, and it may be adjusted to vary the pulsations as required.

An improved turbine water wheel has been patented by Mr. William B. Farrar, of Greensborough, N. C. This invention has for its object to provide an improved turbine water wheel which shall be simple and inexpensive in construction, but strong, durable, and capable of running at comparatively high

speed with moderate pressure or comparatively low head of water.

Messrs. David H. and Jerome H. Payne, of Troy, N. Y., have patented an improved pulley for suspending clothes line.

The line with clothes hanging upon it can be easily pulled around without injury to the clothes.