

DEAD-STROKE POWER HAMMER.

There is no question but that the employment of power hammers would be far more universal at the present time if some simple and efficient machine existed for the purpose. The ancient trip hammer is not by any means uncommon in the best workshops, and where steam is available, we find many hammers worked directly by it. Atmospheric machines are also in use, but each and all of these have peculiar difficulties inherent in them which cannot be surmounted. The trip hammer, as is well known, entails constant supervision and



SHAW'S DEAD-STROKE POWER HAMMER.

outlay to keep in order, for the entire weight or force of the blow, uncompensated by any arrangement whatever, comes upon the handle of the hammer, and through it is transmitted to the center on which it vibrates, to the bed plates, and even to the line of shafting which drives it. As a consequence the handle has to be renewed very often, and the saddle piece, as well as other parts, are constantly broken by the shocks they undergo. Steam hammers also require great oversight, for having many parts, valves, pistons, levers, etc., inspection is requisite to keep the tool in good order. Pneumatic or atmospheric hammers, that depend upon the compression of air for their motive power, are open to similar objections, for air is a much more subtle fluid than steam. Space is also a consideration in many cases, and the trip hammer is particularly objectionable on this account.

The hammer here illustrated is an entire novelty in its line, as well as in mechanical effect for the power expended. The proprietors and manufacturers are large workers of steel in the form of car springs, and finding the common difficulties with trip hammers, were led to investigate with a view to improvement—the result is the hammer illustrated.

It is well known to mechanics, especially steel workers, that forging thin plates of it is the hardest duty a hammer can do. The heat is soon lost, and much of the work is unavoidably done at a black heat. Trip hammers running on this work soon jar themselves to pieces, as do all others, unless care is taken. Owing to the peculiar construction of this hammer, however, the very causes which destroy others are taken advantage of here to give greater efficiency—the recoil is stored up and made to operate to some purpose.

The parts are few and simple; an upright frame, A, is fitted with a transverse shaft at the top, on which is a crank wheel, C; to this crank is attached a connecting rod, D. This rod is attached to a spring, E, and works the hammer in the guide brace, F. These are the principal points. When the hammer is given a reciprocating movement by the parts alluded to, it strikes with a force proportioned to its velocity. When the revolutions are increased rapidly, the efficiency of the machine is very great—a hundred-pound hammer being capable of drawing a four-inch bar down to any desired thickness at one heat; it strikes with irresistible force, and is equal in round numbers to a blow of 20,000 lbs. weight. While this efficiency is obtained, the arrangement is such that the working parts above receive no injury, for the hammer head is attached to a peculiar connection, G, which is made of leather belting, so that it is held suspended, and free from communicating any shock or jar to the shaft and bearing.

The dies are also well arranged for convenience. By reference to the engraving it will be seen that a wedge, H, is employed as usual, but instead of battering at it with a sledge for some minutes in order to loosen it, a bolt is screwed into the frame so that by one turn of it the dies can be removed in a moment. This feature is of great importance.

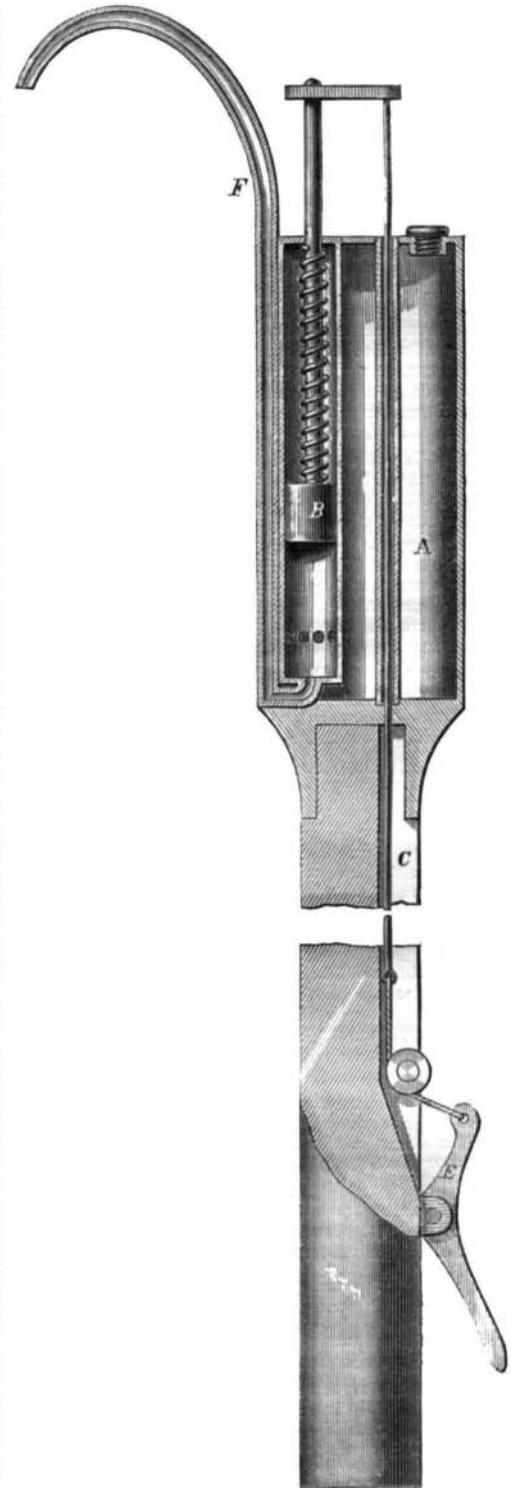
We are not able to give, in a short article like this, a just idea of the utility of the hammer. It is capable of being applied to a great variety of uses and is so simple that it can be worked by one man. The belt tightener which operates the hammer can be worked by the foot of the smith, and when he has a heat ready he can work it off without the necessity of calling his helper. It can be run fast or slow, strike light or heavy, will forge thin steel, and may even be run on the dies with impunity. It is confidently recommended as a useful and economical tool. The manufacturer has had one in use forging plates for car springs for a long time and no repairs of any amount have been needed.

This power hammer was invented by Thomas Shaw, and is manufactured by Philip S. Justice, No. 42 Cliffstreet, New York, and No. 14 North 5th street, Philadelphia, to whom all orders should be addressed. Patented Feb. 27, 1866.

COAL oil is a better substance for preserving potassium and sodium than naphtha. In coal oil, sodium keeps its luster for months, while in the purest naphtha it is dimmed in a few days.

KING'S OILER.

Any one who has seen a laborer oiling shafting in a factory must have often trembled for his safety. Many lines of shafting are so full of pulleys that it is scarcely possible to get a ladder near the bearing to be oiled, and the man often reaches his arm in among rough-edged pulleys and couplings, with projecting bolt heads, at the risk of having it torn from his body. The common way of pouring oil from a can is also wasteful, for much more is applied than is necessary.



This oiler is claimed to be an improvement on the old plan, for it is not necessary to use a ladder at all, and the quantity of oil discharged at once can be seen. The details consist of a vessel, A, filled with a cylinder in which a plunger, B, works. This vessel, A, is filled with oil which finds its way to the small cylinder through holes in the bottom of the same. The plunger is operated by a wire, C, which runs down to the bottom of the shaft, D, on which the oiler is fixed. This shaft may be made of any desired length. By pressing on the lever, E, the plunger will be drawn down and oil forced up through the pipe, F, on to the bearing over which it is held. It is claimed that this is a desirable instrument for the purpose.

It was patented through the Scientific American Patent Agency by John King, of Ansonia, Conn., on July 10, 1866, who wishes to dispose of county or State rights.