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Improvement in Tweer Irons for Forges.

A hot blast with a cool tweer face are points so apparently irreconcilable, that at first it would seem impossible to combine them except by means of a complicated device. But it has been accomplished in the device shown in the accompanying engraving, the simplicity of which is equaled only by its efficiency and durability, it having for two years been in successful use both in this country and England.

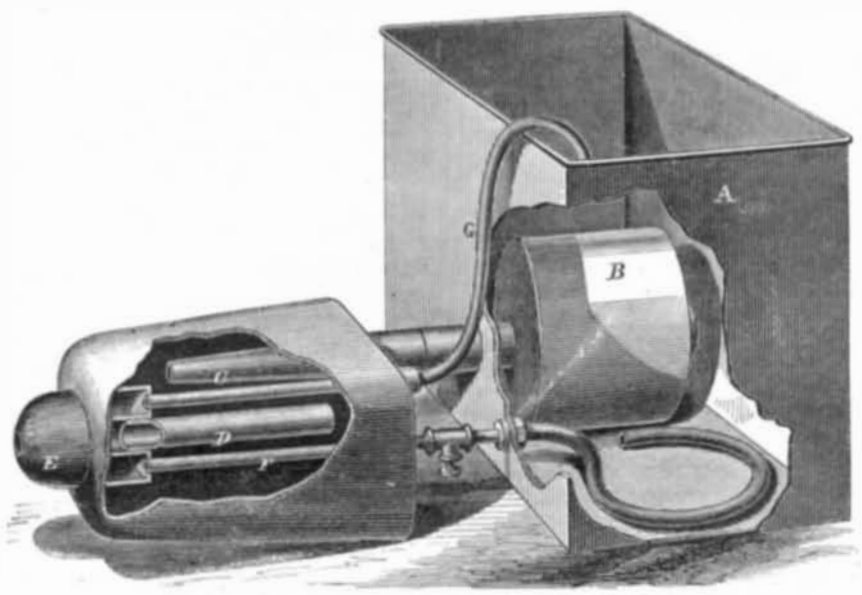
We gave an illustrated description of a tweer on a similar plan, in No. 26, Vol. XV, of the SCIENTIFIC AMERICAN, but since that publication it has been greatly improved by the inventor. The advantages of a hot blast in the working of iron and steel are too well known to be questioned or described; we will therefore confine ourself to a description of the implement itself.

A is a tank, either of plate iron, zinc, or of wood, of any convenient form (a barrel will do), placed back of the forge, or in any convenient situation, so the level of the water it contains is above the tweer. The length of pipes connecting with the tweer is not material. The blast enters the drum, B, and passes through the pipe, C, impinging on the face of the tweer and reaching the fire through the pipe, D, and nozzle, E. This nozzle is a hollow casting, as seen, and is filled with water from the tank by means of the pipe, F. The steam that is generated in the nozzle is conveyed back to the tank by the pipe, G, and condensed. When the forge is to be left unlighted, as on nights, and Sundays, or holidays, and freezing is apprehended, the water may be drawn from the nozzle by means of the cock on the pipe, F, between the tweer and tank. In this case the flexible extension of the pipe, F, seen coiled on the floor of the tank, is raised and its end allowed to hang over the edge of the tank, so that no more water can pass from the tank to the tweer. A jointed pipe of iron may be used instead of the flexible pipe, if desired.

It will be seen that the water entering the tweer nozzle is kept in a constant state of circulation by means of the steam created by the heat, and the face of the tweer nozzle is kept cool while a hot blast is passing through it. The tweer box is about fourteen inches long, ten wide, and eight deep, giving an ample chamber for the heating of the air before it reaches the fire.

The London *Ironmonger*, of Sept. 30, 1868, speaks in very high terms of the actual working of the device. It has also received the unsolicited commendations of a large number of practical smiths in this country and England. All concur in the statement that the iron can be heated in one third the time usually required, with a corresponding saving of fuel, and that the heat is softer and more "suant," not burning the surface before the interior is reached.

Patents for the United States were obtained through the Scientific American Patent Agency, Aug. 7, 1866, Sept. 17, and reissued Dec. 17, 1867. Letters patent for Great Britain, France, and Belgium, have also been obtained by John Bayliss, who may be addressed at the corner of Lexington avenue and Fifty-fourth street, New York city, where the tweer may be seen in constant operation. Orders may be also addressed to Hollis, Kirkup & Co., No. 24 Dey street, New York city.



BAYLISS' PATENT IMPROVED TWEER.

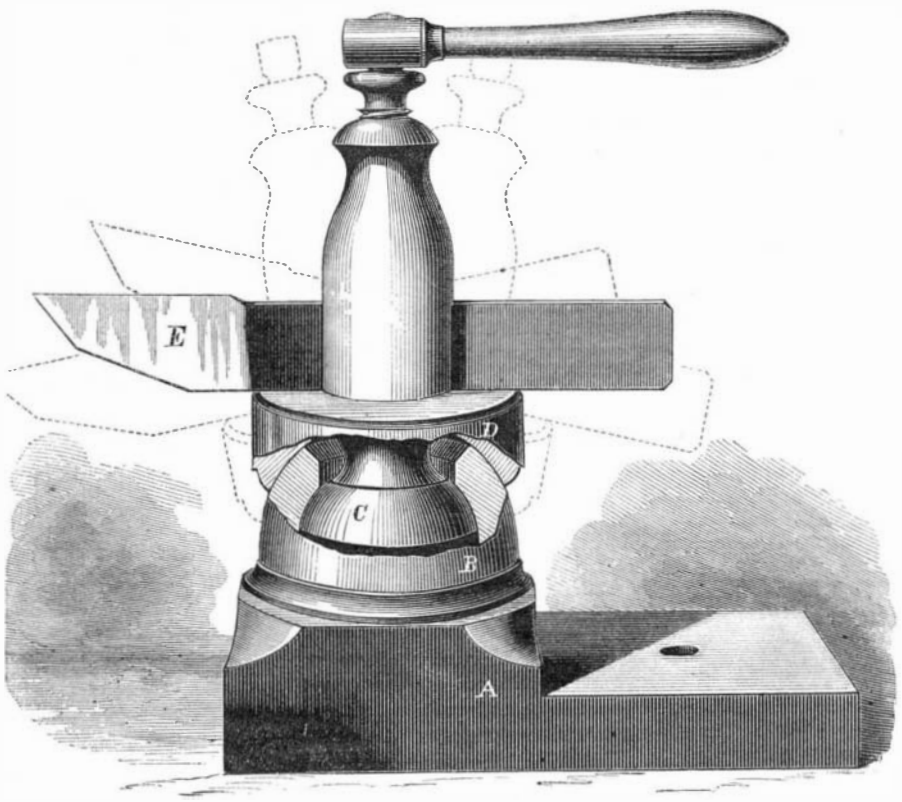
Adjustable Lathe Tool Post.

No machinist can deny the advantage of such a tool post to his lathe or planer as will allow the cutting tool to be presented to the work at any desired angle, without the necessity of "blocking up," or a resort to similar make-shifts. Such a one is certainly presented in the accompanying engraving. We have been much gratified in an examination of the model; it seems to meet every requirement, except the positions of hight and forward and back movement, and even these it partly compensates for.

The tool stock, A, is bolted to the carriage in the usual way, and is moved forward and back, and raised and lowered in the ordinary manner. The rise, B, of the stock is bored from the under side, leaving a semicircular seat, as seen, for the reception of the bottom, C, of the tool post, turned to fit the seat. This arrangement constitutes a ball-and-socket joint. The washer, or flange, D, plain on its upper surface as that on any common tool post, is hollowed on its under side to fit the semicircular apex of the rise of the tool stock, making another ball and socket joint. The set screw serves, as usual, to hold the tool in any position; and the dotted lines show various positions of the post, C, and tool, E. No machinist can fail to see the great advantage this adjustable tool post has over those ordinarily used, either for the lathe or the planer. There can be no doubt about the holding of the cutter in any position, as the frictional surfaces present a very large area, and if they had a bearing only of simply a circular line, we think no resistance the tool at its point would meet would be sufficient to overcome it. It can be applied to any lathe or planer now in use, and we are so favorably impressed with this device, that if we were in our old business, we should not hesitate to give it a fair trial.

By a careful examination of the device every progressive machinist will see that it is one of the simplest as well as one of the most useful of contrivances yet presented to his attention.

Patented May 12, 1868, by Wm. H. Leach, assignor to himself and Bradford Stetson. Orders should be addressed to the agents of the patentees, Horace McMurtrie & Co., 80 Milk st., Boston, Mass.



LEACH'S PATENT TOOL POST.

PRODUCTION OF BEAUTY IN ART.

Mr. Richard Westmacott, R.A., in a recent lecture upon the above subject, said that the production of beauty in art depends much upon truth of proportion, and truth of proportion is governed by certain fixed laws, which, within certain limits, cannot be violated. For instance, there are certain proportions between parts of the bones in all human beings, which are, practically speaking, always the same, though masked more or less, sometimes, by the fleshy covering. He would illustrate this by first drawing a circle and bisecting it by a line. Then he would divide this line inside the circle into three equal parts, denoted by the ends of lines 2, 3, and 4. In drawing a well-proportioned face, 3 would be the line of the eyes, 2 of the parting of the hair, and 4 of the end of the nose. By this rule the eyes always come at the center of the egg-shaped outline, between 1 and 5. This canon law of art holds good in the best of Grecian faces, and when it is departed from a little here and there, the faces will lose much of their ideal beauty, and look more like portraiture. The lecturer stated certain other rules as to the proportions of other parts of the human frame. He said that while in Rome, he and others devoted much attention to this subject of proportions, and talked it over at numerous meetings. Although every artist ought to know these rules, they should not follow them blindly, as it is impossible to produce fine works of art by mathematical laws alone. The sculpture of Egypt and Assyria was not fine art, for those who executed the work were bound down by such conventional rules that no improvement was possible. The early Greeks, who, so far as he could ascertain, did not in any way get their first lessons in art from Assyria or Egypt, did not recognize portraiture as a branch of sculpture. Their statues were all devoted to high religious and national purposes. Alexander the Great was the first to apply it to portraiture, and he did so out of personal vanity, in his desire to equal Jupiter Ammon. Until his time none but the features of the gods had been stamped upon the coinage, and he seemed afraid to interfere with the custom at once, for, the first time he altered the heads upon the coins, he stamped upon them a kind of confusion between his own head and that of Jupiter Ammon. From that time art steadily declined. The early Greeks first began art study 600 or 700 B.C., and in a little more than 150 years, made enormous progress, for, at about 450 B.C., in the time of Phidias, Grecian art was perfection. Some of the works of this period are now in the British Museum, and he wished that, at stated hours, a lecturer or other competent teacher were present there to point out the beauties of these works of antiquity. It is one thing for the public to possess art treasures, and another thing to be able to appreciate them. The grand and noble school of Phidias, which was "perfection," was succeeded by that of Praxiteles, whose figures were life itself, but who gave art a sensuous direction. He first introduced the partly draped female figure, but, under considerable fear that the priests or the government would interfere. But they did not, and soon the drapery disappeared altogether, though works of fine art were still used only for the adornment of temples and other high purposes.

Lastly, Alexander the Great, out of personal vanity, introduced portraiture, and from that time art declined, and has not altogether recovered since. Roman art was very poor, though, in all directions, Rome is and was rich in the finest art specimens, nearly all being the work of the Greeks. So little did the Romans understand the beauty of these works, that one of their emperors threatened, that if his subjects broke any of them in the carriage they should be compelled to make others like them. Had they attempted such a feat, the result would have been of a very distressing character.

The lecturer said that, although native Roman art was always at a low ebb, it would not be fair to omit the statement, that several individuals in that nation gave encouragement to art. Among these were Cæsar and Hadrian, the latter of whom tried to introduce Egyptian religion and sculpture into Italy. When, after the time of Alexander, art began to decline in Greece, the sculptors migrated into other parts of Europe. In the year 323 Constantine carried the seat of his empire, and a taste for art along with it, to Constantinople, and ornamented that city in a manner almost beyond conception. But Alaric, and other invaders, overthrew the empire, and destroyed most of the beauties of Constantinople. After the time of Alexander, the