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DOUBLE ACTING STEAM HAMMER AT VIENNA.

We present, on this page, an engraving of a small double-acting hammer, exhibited at Vienna by the Chemnitz Werkzeugmaschinen Fabrik (formerly J. Zimmerman), Chemnitz. It is a very neat and handy little tool, and is arranged to be either hand-worked or self-acting, its maximum speed in the latter case being about 200 strokes a minute. The general shape of the hammer is clearly shown in the engraving; and we may remark that the casting is remarkably clean and good, which is by no means always the case in the tools of even the best German makers. The piston rod is of cast steel, the tup and piston being in one piece with it, and the lower cylinder cover and gland being on this account made in halves. The upper end of the piston rod is flattened to prevent it turning round. There are two valves only, an admission valve, *a*, and a distribution valve, *b*. The former is controlled by the lever, *c*, the rest of the gear being all in connexion with the distributing valve. When it is desired to make the hammer self-acting, the hand lever, *d*, is made fast by a screw in the position it at present occupies in the link, *e*. This link is merely a slotted lever free to vibrate a little when the lever, *d*, is moved, but not otherwise in connexion with the valve gear. The hand, *g*, is then turned until the sliding block in the end of the connecting rod, *f*, has been moved by the screw to the end of the link furthest away from the spindle, *k*. The slotted link in which the block works is on the same spindle, *k*, with the rod, *l*, and is compelled to vibrate along with the latter. The distribution valve is then worked automatically from the top by the lever, *l*, the distance, *k, f*, (in the new position of *f*), being the length of the lever which works the valve through the connecting rods, *f*, and *h*, and the lever

