TURBINE (1200 HP.) FOR A COTTON MILL NEAR ST. PETERSBURG.

CONSTRUCTED BY THE MASCHINENFAHRK AUGSBURG, BAVARIA. AND REPRESENTED BY A MODEL AT THE VIENNA EXHIBITION.
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Two Maschinenfabrik Augsburg, of Augsburg, Bavaria—
a firm founded in 1840, and at present employing about
700 hands—exhibit at Vienna a well-executed model of a
large turbine, constructed by them in 1867 for the Kristholm-
Manufactur-Narva, near St. Petersburg, a good idea of the
actual size of the motor being given by the exhibition also of
a full-sized model of one of the main bevel wheels and first
motion shaft with the coupling forged on. The works which
this turbine assists in driving comprise a cotton mill, with
236,692 spindles, and weaving sheds containing 1847 looms;
and until 1867 the power for driving them was supplied by
our water wheels of 500 horse power, and two turbines of
450 horse power each, built by the Maschinenfabrik Augs-
burg. In 1867, however, one of a pair of water wheels,
placed side by side, broke down, and as a substitute for these
two wheels the 1200 horse power turbine was constructed.
The turbine above mentioned—of which we this week
publish a two-page illustration, together with other views
on the present and opposite pages—is on the Henschel-
Jovial system, and works with a height of fall of 7.62
metres, or 25 ft., while the quantity of water used is 16.14
cubic metres, or 570 cubic feet per second. The speed is
50 revolutions per minute, and the efficiency of the turbine
is stated to be 7 per cent., the effective work done being
nearly 1200 horse power. The wheel is 12 ft. 1½ in. in
diameter, and the brackets are made of wrought-iron plate,
cast into the wheel and surrounded by a wrought-iron ring.
The brackets of the guide wheel are also of wrought iron,
but the encircling ring is of cast iron.
The casing of the turbine is 3.94 metres (=12 ft. 11 in.)
in diameter, and consists of five rings, each made in two
parts, the second ring carrying the bearing for the axis of
the turbine, whilst the lower ring is supported by eight
brackets surrounded by an annular slieve. This slieve is
counterbalanced, and can be raised by suitable hand gear,
as shown in our engraving, while a main slide valve is also
provided for entirely shutting off the water if required.
The two horizontal tubes placed through the casing of the
turbine act as supports for the footstep bearing of the
turbine shaft, and allow of the lubrication of this bearing
by an oil tube, arranged as shown. They are also of such
size that access to the bearing may be had through them.
The height from the bottom ring to the top of the turbine
shaft is 88 ft. and the shaft is of wrought iron, and 1 ft. 2½ in.
in diameter. The bevel wheels, by which the motion is
taken off, are 12.5 ft. in diameter, and each is made in two
parts bolted together, as shown. The total weight of the
turbine is 14 tons.
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