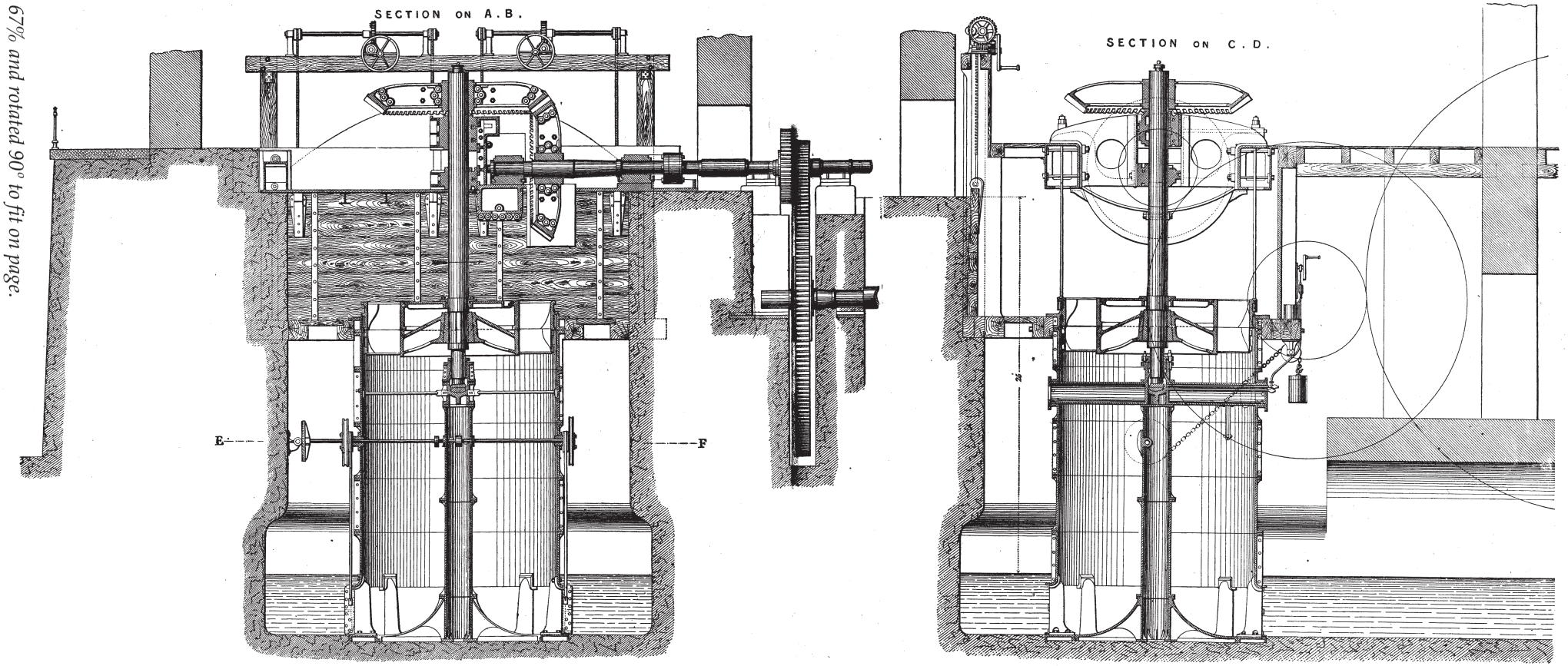
Double-page spread reduced to 67% and rotated 90° to fit on page.

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

CONSTRUCTED BY THE MASCHINENFABRIK AUGSBURG, BAVARIA, AND REPRESENTED BY A MODEL AT THE VIENNA EXHIBITION.



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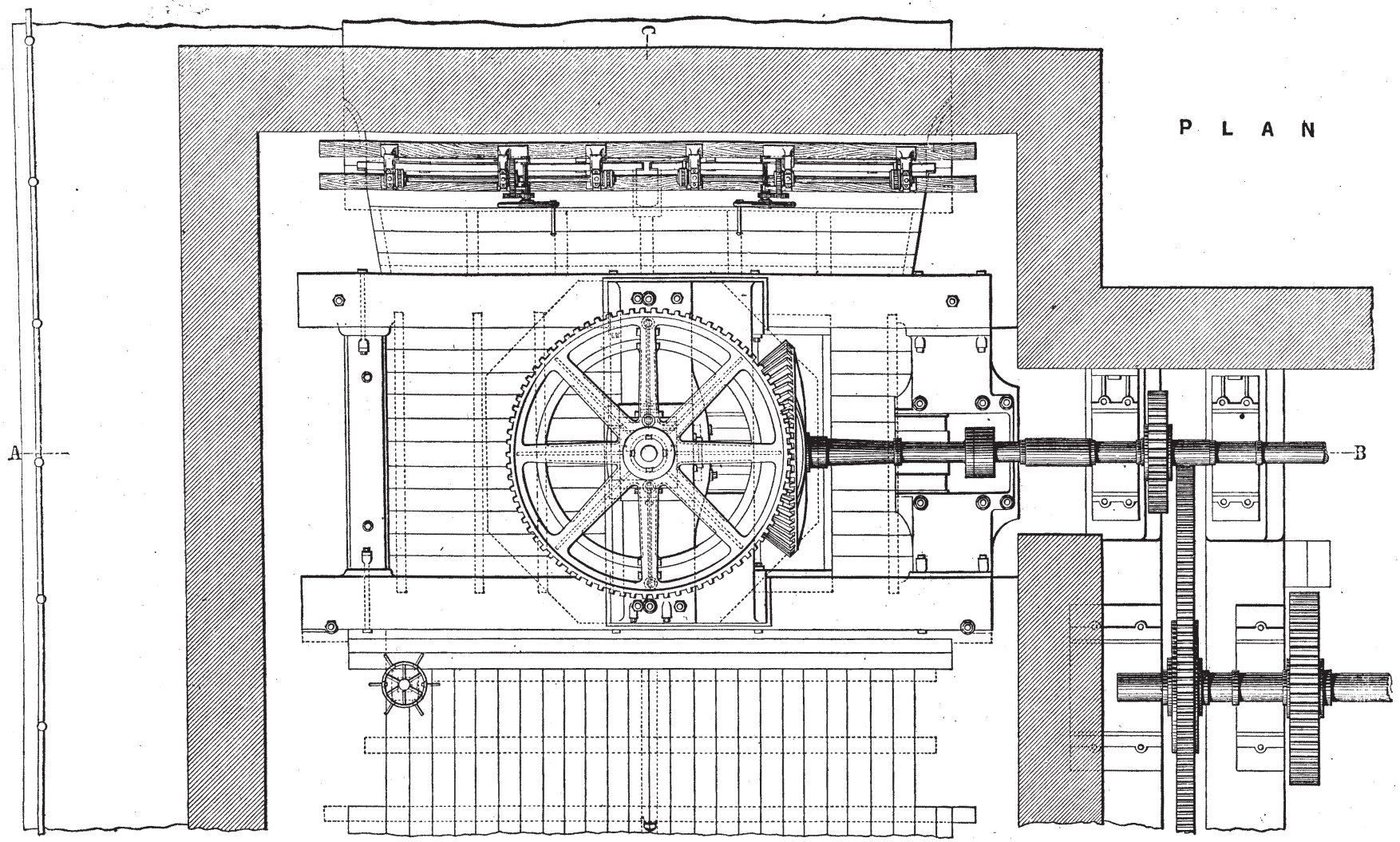

THE Maschinenfabrik Augsburg, of Augsburg, Bavaria—a firm founded in 1840, and at present employing about 700 hands—exhibit at Vienna a well-executed model of a large tubine, constructed by them in 1867 for the Kränholm-Manufactur-Narva, near St. Petersburg, a good idea of the actual size of the motor 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 239,692 spindles, and weaving sheds containing 1647 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 Augsburg. 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-Jonval 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 sluice. This sluice is counterbalanced, and can be raised by suitable hand gear, as shown in our engraving, while a main sluice 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 38 ft. and the shaft is of wrought iron, and 1 ft. 3¾ in. in diameter. The bevel wheels, by which the motion is taken off, are 12 ft. in diameter, and each is made in two parts bolted together, as shown. The total weight of the turbine is 14 tons.

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

CONSTRUCTED BY THE MASCHINENFABRIK, AUGSBURG, BAVARIA, AND REPRESENTED BY A MODEL AT THE VIENNA EXHIBITION.

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