

PORTABLE FLOUR MILL.

We illustrate on this page a portable mill, manufactured by Messrs. Clayton & Shuttleworth, of Lincoln, England. The framing is exceedingly strong and carefully designed. The mill may be regarded as an example of the best type of this class of machinery, and is far too simple to require description. We take our engraving from *Engineering*.

Electric Blowpipe.

At a recent meeting of the Academy of Sciences, M. Jamin submitted a new electric burner, which he also recommended to chemists and physicists as a blowpipe. Two carbons are supported vertically abreast, hinged below, and drawn together at the top by a spring. A current is sent up one, down the other, then round a rectangular circuit inclosing the two, and passing first round the first one by current attraction the carbons are drawn apart, and the arc appears at the top and descends gradually, consuming one or both carbons. When the action of the rectangle is sufficient, the arc driven beyond the points is like a gas flame, and M. Jamin receives it on a piece of lime, magnesium, or zirconium, getting intense light. It is also so hot as to fuse the lime. For the electric light this burner has considerable advantages, since it has no mechanism and requires no preliminary preparation beyond a support and the carbon points. The size of the flame is almost doubled and the light is augmented. The new foci are very powerful, and the quality of the light is far better, and the arrangement of the foci is more advantageous, the greatest quantity of light being directed downward, where it is wanted, instead of up into the air, where it is useless.

NEW THRASHING MACHINE.

We illustrate here a thrashing machine and straw elevator combined, made by Messrs. Nalder & Nalder, of Wantage, Eng. The prominent feature is the direct combination of the straw elevator with the machine, by which very important advantages are no doubt secured. The elevator will deliver the straw high enough for any ordinary

straw rick; at the same time this rick can be placed in any desired position, either in a straight line with or at any angle on either side of the machine. But going further than this, the side or angular movement, too, as well as the raising or lowering of the elevator, can, one or both, be performed without stopping the working of the machine

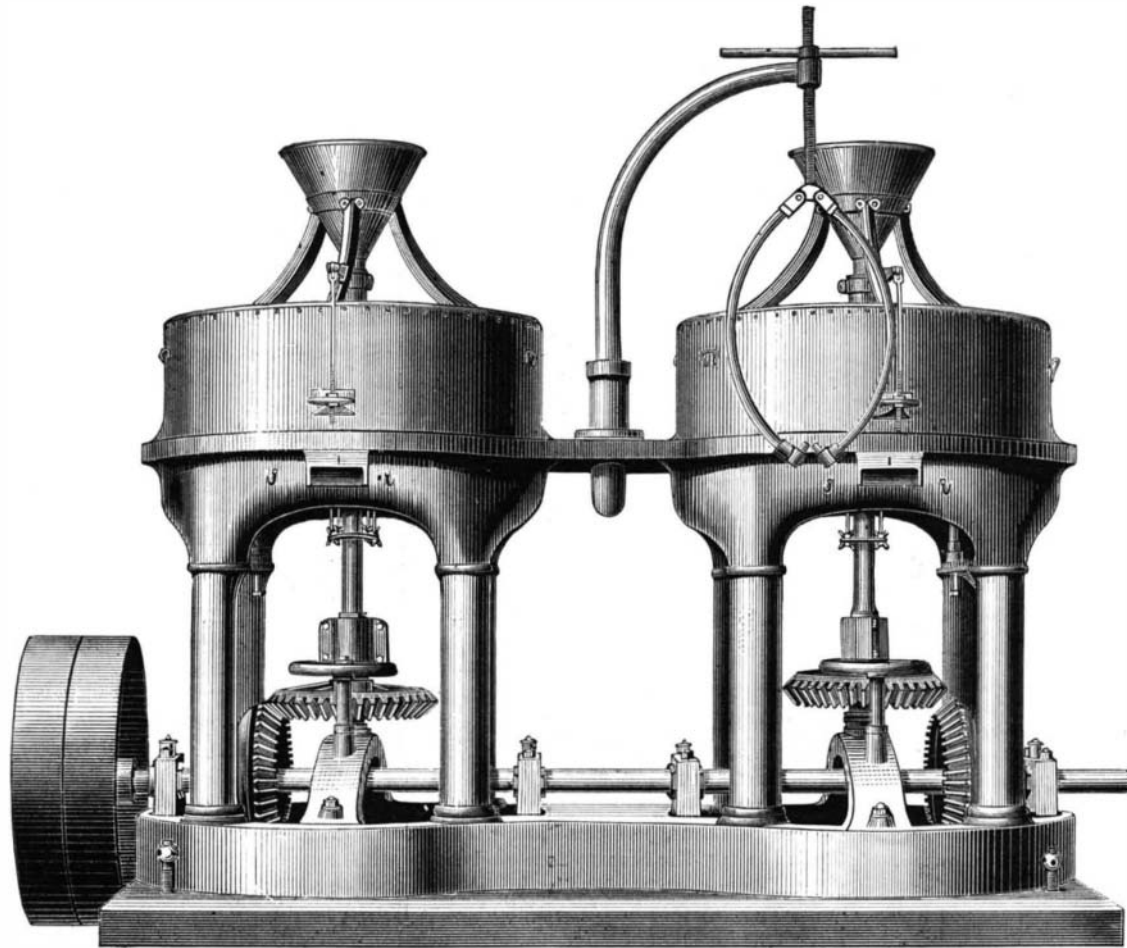
ground, and more particularly for angle delivery, and stoppages from the driving straps coming off, as they readily do when the pulleys are not carefully put in line, are all got rid of by the arrangement we illustrate. When set up for work, the elevator is part and parcel of the machine, and so no trouble from the above causes can arise, and the unpacking

and setting up of the elevator require little if any more time than the unfolding and raising of the ordinary separate elevator; a saving of time in getting ready for work may thus be fairly claimed for this machine.

In places where it is undesirable to use the elevator, the straw falls into the hopper and from there to the ground, this hopper always remaining in its place, so that although the owner has always the advantage of having the thrashing and elevating machine together ready for work, the latter need not be used if not required; it is simply not "set up." The weight of the elevator being about 8 cwt. only, one team of horses will draw the combined machine from place to place, whereas two teams are required when the machines are separate; and in the case of removal by a traction engine the men in charge have only one machine when traveling to look after—a great convenience in narrow roads and in turning sharp corners.

Our illustration represents the machine ready for work. It will be seen that the main frame of the machine is elongated at the upper and lower portion of the front or straw delivery end; on the lower part is fixed a turntable or

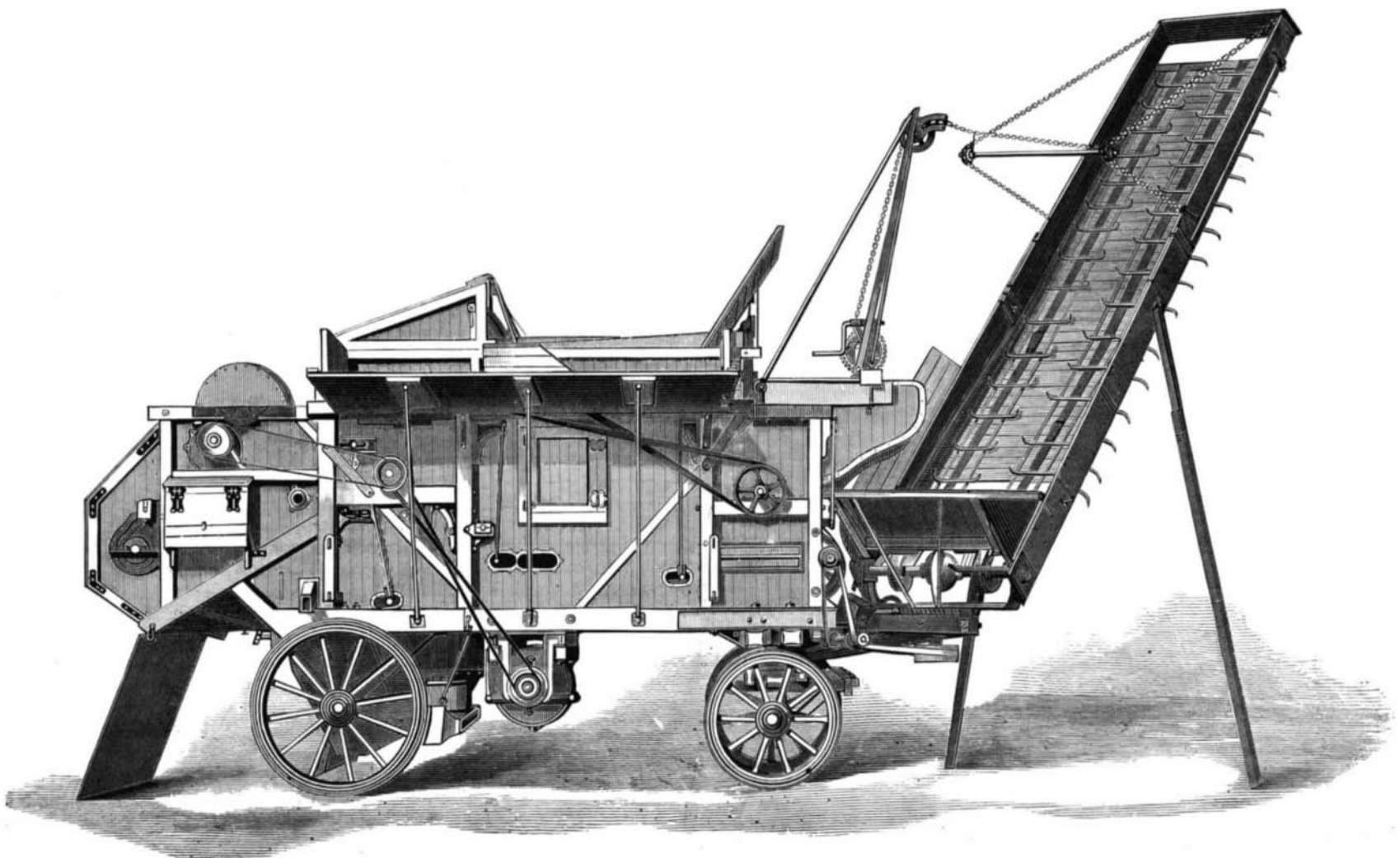
platform, to the upper portion of which is attached the hopper and trough of the elevator, and on the upper portion of the frame is fixed a crane or winch. Through the axis of the turntable is passed a vertical spindle, geared into another spindle, placed horizontally, and on this latter is fixed the two pulleys for driving the two rake belts for conveying the straw up the trough. These belts are of India-rubber, on each of which are fixed separate rakes, the usual heavy chains being dispensed with. Motion is given to the vertical spindle by a belt driven from any convenient pulley on the machine. This vertical spindle passes through the center of the turntable, the upper part of which is capable of



CLAYTON & SHUTTLEWORTH'S PORTABLE MILL.

Thus, the straw can be delivered from the elevator to any part of the rick that is required as the work progresses, and by this means is saved the labor of at least one man on the rick. Or a number of wagons placed in a line can all be loaded without any interruption to the work, or, if desirable, part of the straw can be built into a rick on one side, and the remainder on the other side of the machine, all without in any way checking the working of the apparatus. This is a decided advance on the ordinary separate elevator, and an improvement that will be appreciated.

The vexatious delay and time wasted in setting the ordinary separate elevator to the machine, especially on uneven



COMBINED THRASHING MACHINE AND STRAW ELEVATOR.