

[Bruksanvisningar] - 20

Centrator

*Vardagstryck Affärstryck 1800-tal
8:0*



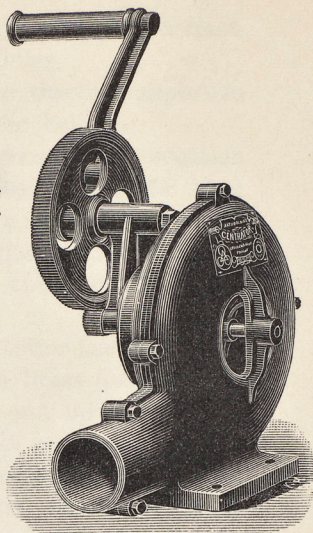
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of Sweden

THE "CENTRATOR"

Centrifugal Fans

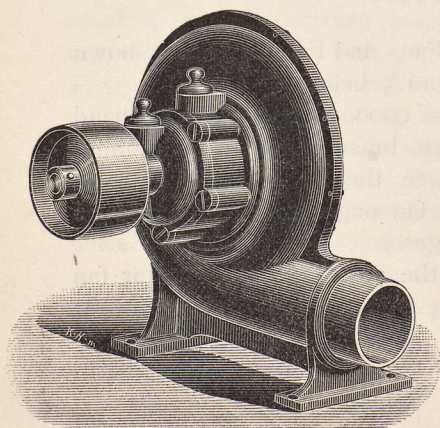
and

Exhausters



for

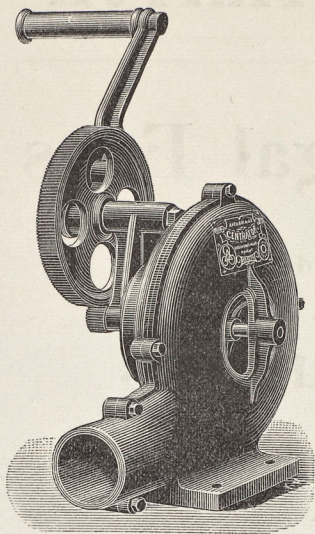
Hand and Machine Power.



THE CENTRATOR COMPANY,
LIMITED,
STOCKHOLM.



Fig 1.



N:o 0000.

Hand Fan.

The »Centrator» Centrifugal Fans and Exhausters.

The »Centrator» Centrifugal Fans and Exhausters are shown in fig. 1 above and fig. 2, 3, 4 and 5 below.

Fig. 1 shows a small Fan n:o 0000, to be driven by hand and specially suitable for smithies, brass foundries and similar workshops, where it is to replace the large and voluminous bellows, to which the Centrator fan ought to be preferred on account of the following advantages.

1) *Greater durability*, all the parts of the centrator fan being made of iron, steel or some other metal.



2) *Smaller space required*, the fan only occupying a fractional part of the place required for the bellows.

3) *Absolute guarantee against bursting* through explosion of coal gases, as frequently happens with the bellows.

4) *A continuous blast of various strength*, as occasion requires, so that, for instance in welding, by forcing the blast iron or steel can quickly be brought into a molten state, and, in case of soldering or of tempering articles of steel, a lower or more suitable temperature is brought about by a smaller amount of blast.

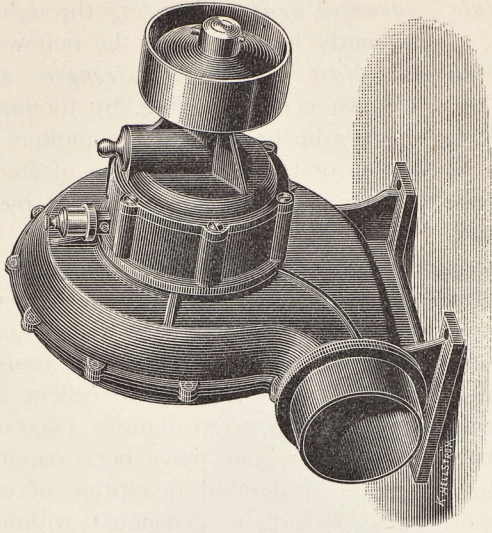
5) *Smaller erecting expenses*. The centrator fan is, besides, very suitable for foundries and especially in brass foundries for melting of metals, because this fan can be put up everywhere, even in the open air, independently of walls or roofs.

The centrator fan has shown itself excellent in practice, being capable of melting down in 20 minutes a certain quantity of metal, while otherwise 2 hours have been required for the same operation. Thus considerable quantities of coal can be saved which otherwise would be consumed without any use whatever.

Fig. 2 & 3 show the »Centrator» Fans n:o 000 and n:o 00 to be worked by power and suitable for respectively two or three forge fires. These fans are constructed so that they may also be used as exhausters for ventilating purposes, and have therefore an inlet pipe to the centre for connecting the exhausting pipe. The casing is made on the same system as first class American fans of the same size so as to ensure a silent motion and the smallest possible friction against the air. The shaft of the fanwheel which is made of tempered and ground steel is placed between elastic steel rings, or the so called *centrator gearing* which serves the following three purposes: firstly it is a rolling gear for the shaft of the fanwheel, secondly it drives this shaft round, and thirdly it gives the shaft such an elasticity that the fanwheel, by its great velocity, is able automatically to maintain its centre of gravity and thereby to prevent the vibrations arising from the non-balance of this wheel and causing a considerable waste of power.

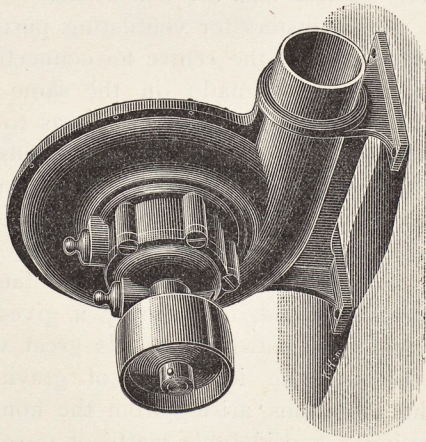
By means of this centrator gearing which multiplies the speed ten times it has been possible, without any intermediate

Fig. 3.



N:o 00.
Fan for 3 forge fires.

Fig. 2.



N:o 000.
Fan for 2 forge fires.

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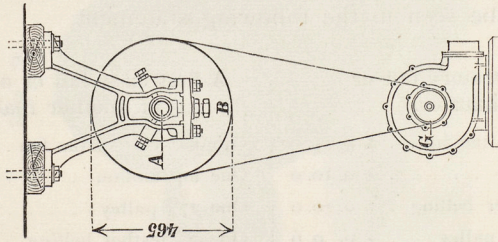
shaft, to attain the great speed required for the fanwheel (viz. 4 to 5000 revolutions a minute), and at the same time to save the loss of power caused by such an intermediate motion. Moreover, the centrator fan can, on that account, be erected in places where there is not the space required for an intermediate shaft, and which is often the case in many shops for the removal of emery dust &c. This is of special importance nowadays when higher hygienic claims of ventilation even in works and factories are advanced, and it cannot be more easily and cheaply accomplished than by the means of the centrator exhauster.

The diagrams 4 & 5 show, n:o 4 a »Centrator» machine fan oo with its top motion, and n:o 5 a first class fan of other make of the same size and capacity (i. e. suitable for three forge fires or blowing 360 cubic feet of air a minute) with the arrangements necessary for driving the same. The number of revolutions of the fanwheel is in both cases 4 100 per minute. Calculating the speed of the head shaft at 108 revolutions a minute you can drive the centrator fan direct from the top motion with *one* pulley of 465 mm. (18") diam. and $1\frac{3}{4}$ " belting, whereas you require for the other fan *firstly* one pulley of 700 mm. (27") diam., *secondly* another countershaft with two pulleys of respectively 150 mm. (6") and 535 mm. ($20\frac{1}{2}$ ") diameter, and *thirdly* an extra 2" belting running from the pulley on the head shaft to that on the countershaft.

These diagrams show the difference between the total expenses required for erecting both of the fans, and which, besides, can be seen in the following statement.

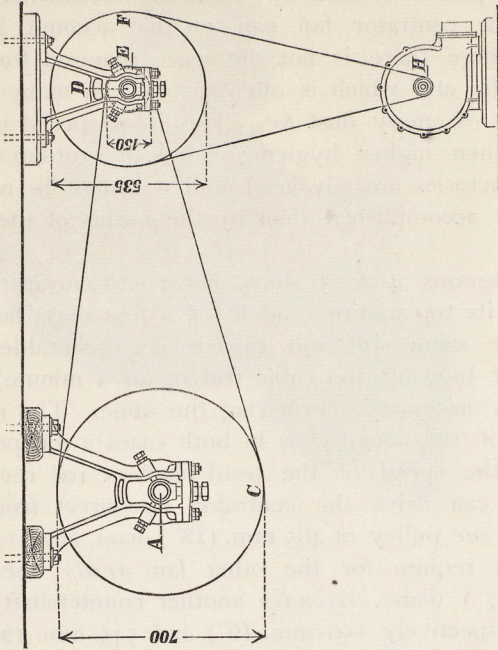
The »Centrator» fan or exhauster.	A first class fan or exhauster of another make.
Original cost of the fan . . . £ 4. 5. 0	Original cost of the fan . . . £ 3. 0. 0
One 18" pulley > 0. 10. 0	One top motion > 3. 0. 0
One $1\frac{3}{4}$ " leather belting . . > 0. 10. 0	One 27" pulley > 0. 18. 0
Erection of the pulley . . . > 0. 0. 6	One 2" leather belting . . . > 0. 10. 0
	One $1\frac{1}{2}$ " d:o > 0. 10. 0
	Erection of the top motion > 0. 10. 0
	D:o of one pulley . . . > 0. 0. 6
Total erecting expenses £ 5. 5. 6	Total erecting expenses £ 8. 8. 6

Fig. 4.



Erection of the
»Centratron» Fan or Exhauster.

Fig. 5.



Erection of another
Fan or Exhauster.

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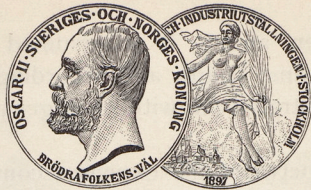
Number of the fan	Inches
0000	
0000	
00	

As will be seen above, it is assumed that all the three beltings are of the same length and accordingly cost the same, although the non-centrator fan with its larger pulleys will require longer beltings.

The difference between the expenses connected with erecting the two fans in this typical instance is so great, that by purchasing the »Centrator» fan, it is possible to save about two fifths of the total expenses.

If we further consider the power required for driving the top motion with its pulleys 500 revolutions a minute, and the great velocity of the same, on account of which the beltings will soon wear out, causing a great waste of power, and finally the great trouble and expense arising from the necessity of lubricating the quickgoing top motion, it is easily understood that a Centrator fan, even if it were twice as expensive as it actually is, would be economically more advantageous than any other. On account of the less amount of power required, and the smaller wear of the belts, and the smaller lubricating wanted, the centrator fan will save several pounds a year.

Number of the fan.	Total height in inches.	Outside diam. of the inlet pipe in inches.	Outside diam. of the outlet pipe in inches.	Diam. and width of the pulley in inches.	Number of revolutions of the pulley per minute.	Number of revolutions of the fan wheel per minute.	Number of forge fires.	Weight in pounds (lbs).	Cubic feet of air per minute.	P r i c e s.
0000	9	—	$2\frac{1}{2}$	Hand fan	50 revolutions with the handle	3,700	1	$16\frac{1}{2}$	—	£ 3. 4. 0
000	12	$3\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{3}{4} \times 2$	420	4,000	2	$25\frac{1}{3}$	360	» 3. 15. 0
00	14	$4\frac{3}{4}$	4	$4\frac{3}{4} \times 2$	410	4,100	3	44	540	» 4. 5. 0

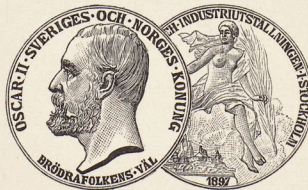


The Centrator Company, Limited,
STOCKHOLM

First Prize Gold Medal awarded at the General Exhibition
at Stockholm 1897

From the report of the jury:

For a most ingenious and practical gearing called
"Centrator".



Stockholm 1899. Kungl. Boktryckeriet.