

this case, and to be advised if the office is awaiting any action on the part of the applicant. It is desired that no rights should be lost by inaction."

"August 19, 1886, the examiner, as follows:

"In response to applicant's letter of the 13th inst. he is hereby advised that the delay in this case is a matter over which he has no control, except it be, perhaps, in the matter of urging an early interference. The interference will be declared as soon as the other applicants are in condition, if it be decided that they are entitled to the same. The office is awaiting no action on the part of the applicant, and the delay is through no fault of his."

After these quotations, counsel observe as follows:

"These perfunctory exchanges of compliments between the solicitor and the examiner occupied the entire time from June 9, 1882, to March 16, 1888, five years nine months and seven days. In all that time not a demand for action, not a hint even of dissatisfaction, appears in the record. We have quoted it all. Of course, this appearance of willing acquiescence is not conclusive. The examiner's letters indicate an obstacle in the way; some pending interference or interferences, always coming, yet never arriving. But the supreme submission of the company to such extraordinary delay, for such a cause, is the first item of the proof. If it had been possessed of a real purpose to have its patent as soon as possible, if it had been losing millions per annum for want of it, as the people are losing millions because of it, would it not have found

the solicitor, in March, 1881, to the Commissioner, in which he urged the modification of Rule No. 94 in respect to interferences, and this in order to hasten the issue of the patent. In this letter, besides pointing out how the rule as it then existed would tend to delay, he adds these statements:

"So far as my client is concerned, I have to submit that it is of the utmost importance that the interference be declared forthwith.

"The indefinite suspension of the interference would only create harassing and oppressive claims after the public had become possessed of the invention without hindrance or objection on the part of the inventor, and it is but just to say that neither of the interfering applicants could with any degree of propriety claim to be the inventor and expect that such notice on his part would be treated by the public with any degree of respect. Patents issued as the result of long pending interferences are always looked upon as odious monopolies, because of the manner in which they are enforced at the time when the public were already possessed of the invention.

"An early decision upon the question submitted is earnestly requested."

It may be added that the modification was made in October, 1881.

In respect to this letter, and especially the second paragraph, quoted above, counsel for the government say:

"In the argument below, counsel appeared to think that once was enough, and that they stood as a perpetual exhortation to duty to the examiner and all his

"They were urgent and persistent beyond toleration. Hardly a day passed without somebody representing the interests of the Bell Telephone Company coming to our room and urging the allowance of the Berliner case or the declaration of interferences. I myself was waylaid in the halls of the Patent Office, and on more than one occasion did I sneak into the room to avoid being bored by Mr. Charlie Hedrick, the assistant of Mr. Pollock. Mr. Pollock himself, also, although less frequently, came to the room, and later on, notably toward the end of 1884, and in the spring and summer of 1885, Mr. W. W. Swan was a frequent visitor in the electrical division."

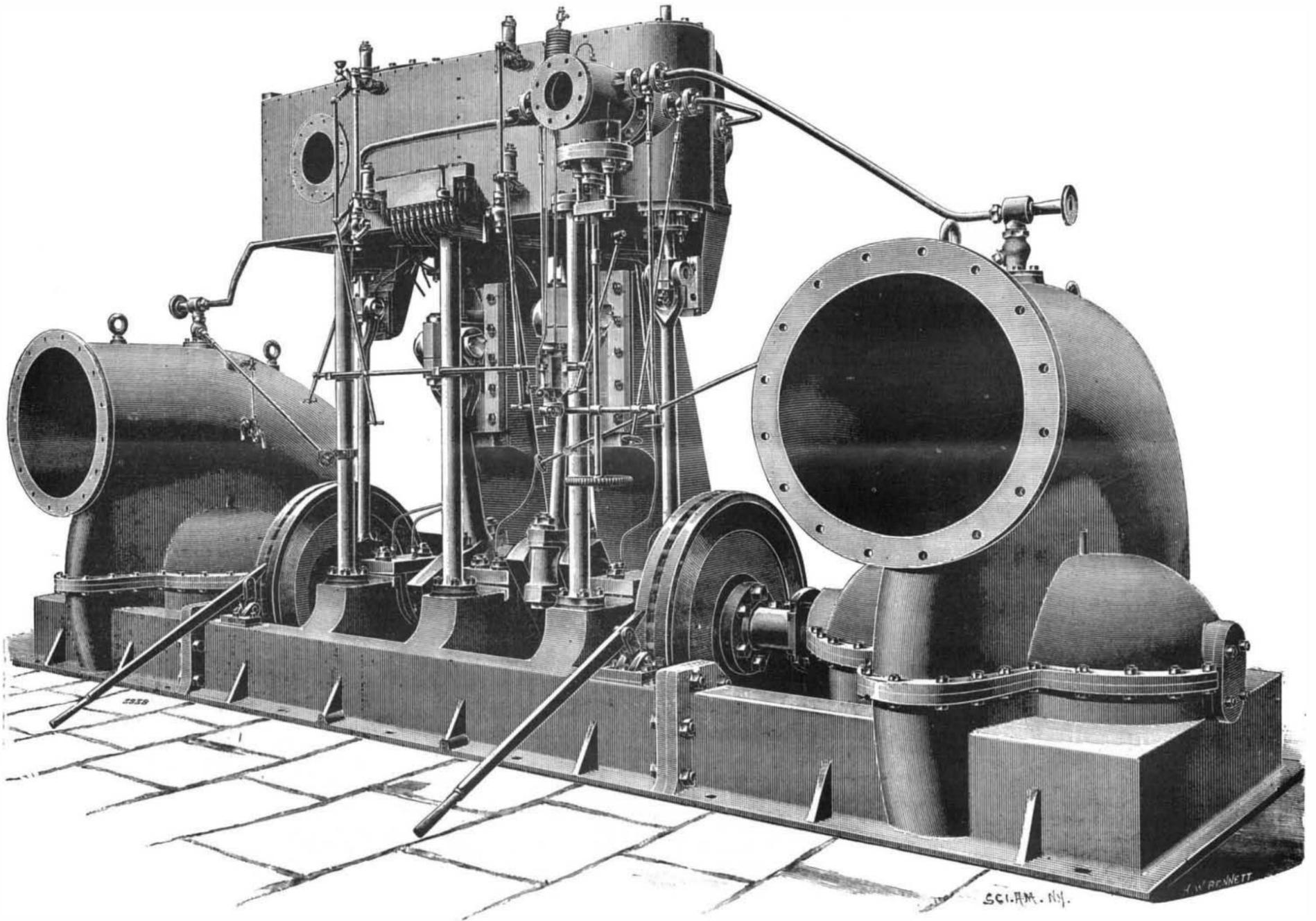
And Examiner Kintner (who was in office from May, 1883, to April, 1887), in reply to a question as to what Mr. Swan, one of the representatives of the telephone company, did in respect to the application, said:

"I had a great many interviews with him in the matter of both the Edison and the Berliner applications under consideration, and he was very persistent in urging the passage of both applications to patent; in fact, to such an extent that his persistency annoyed me not a little."

(To be continued.)

#### CENTRIFUGAL PUMPS FOR THE UNION DRY DOCKS, NEWPORT.

OWING to the increasing activity of the British ship-building industry, a great impetus has arisen round



CENTRIFUGAL PUMPING ENGINES FOR THE UNION DRY DOCK, NEWPORT.

some way to force this invisible foe into the field, or at least leave on the record some trace of its mighty effort to burst the bands of official routine which prevented it from finding and fighting him?"

This presents the burden of the case on the part of the government. It amounts to only this: The defendant company was not active, but passive. If millions were to be added to its profit by active effort, it would have been importunate and have secured this patent long before it did. As millions came to it by reason of its being passive, it ought to suffer for its omission to be importunate. It must keep coming before the commissioner, like the widow before the unjust judge in the parable, until it compels the declaration, "though I fear not God nor regard man, yet, because this widow troubleth me, I will avenge her, lest by her continual coming she weary me." But is this the rule to measure the conduct of those who apply for official action? What is the amount of the importunity which will afford protection to the grant finally obtained? How frequent must the demand be? It is easy to say that the applications of this defendant, coming only at the interval of months and years, were, taken with the replies of the Patent Office, mere "perfunctory exchanges of compliments," but this does not change the fact that action was asked and repeatedly asked; that no request was made for delay, no intimation that it was desired or would be acceptable.

In this connection may well be noticed the letter of

successors as though they had been nailed on his office door. But they were not even in the file of the Berliner case. Examiner Freeman, whose report was indorsed on the letter, went out of office in 1883. If any one ever saw it after that until it was exhumed for the purpose of this case, the fact does not appear in the record."

But is the applicant to be condemned because, having once made an urgent request for action and pointed out reasons therefor, it was not continually repeating that request, because it did not see that such request was placed on the files of this particular application, or, as intimated in the words of counsel, nailed on the doors of the Patent Office?

It is, of course, easy to say that these applications, these suggestions and requests meant nothing; that they were a mere blind; but something more than assertion of counsel is necessary to destroy their significance, or to establish collusion between the applicant and the officials of the department. But the case does not stand upon the fact that the formal communications from the solicitor in charge of this application were few in number. While in every one, in which the matter was referred to, there was a request for action, it also appears from the testimony of Messrs. Freeman, Lyons and Kintner, who were the examiners in charge during the major portion of the time in dispute, that the representatives of the Bell Company were urgent in pushing the Berliner application. For instance, Examiner Lyons testified:

the coast in the construction of new docks. The importance of dry dock accommodation for the speedy execution of repairs, etc., cannot be overestimated, and the increase in the number of these docks in the neighborhood of Newport and Cardiff illustrates the immense expansion in this class of business. There are already a number in Newport, but the Union Dry Dock Company, Limited, has decided to build yet another on a very large scale. The pumping plant for this important dock has been designed and constructed by Messrs. W. H. Allen, Son & Company, of Bedford. As will be seen, instead of each pump being driven by its own engine, as is usual in dry dock pumping plants, in this case both pumps are driven by one compound engine of 550 indicated horse power, having cylinders 21 inches and 35 inches in diameter, and a stroke of 20 inches. The whole of the working parts are of Siemens-Martin steel, having a tensile strength between 34 and 36 tons, with an elongation of 27 per cent. in 2 inches. The crankshaft has a diameter of 7 inches, and is forged out of the solid ingot. The bearings are of bronze, lined with white metal. The pump shaft is of steel, incased with gun metal. In designing the engine great care has been taken to secure economy in the use of steam and to obtain easy running. The engine is arranged so that it can be worked as a simple engine, each half driving either pump. Special attention has been given to the lubricating arrangement, the whole supply being from one central reservoir;

while the handles for working all the various valves, drains, etc., have been brought to the center and are under easy control of the engineer in charge. The centrifugal pumps are of the well-known "Conqueror" type, each having discharge branches 36 inches in diameter. Each pump is capable of discharging 25,000 gallons of water per minute, working upon a varying lift of 30 feet at a speed of 160 revolutions per minute.—London Engineering.

**ASPIRATORS AND SEPARATORS FOR THE DISPOSAL OF SHAVINGS.**

ONE of the essential conditions for the proper operation of a shop in which woodworking machine tools

We now propose to describe one of the apparatus employed and its mode of operation.

The first systems of suction apparatus employed were designed with a view to the removal of shavings and the transfer thereof to a store house; but such apparatus had one somewhat grave defect, namely, that the fine dust carried along by the current of air escaped in great part through the apertures in the storage place, covered the neighboring buildings, filled the gutters and consequently annoyed the neighborhood. In order to remedy this in a certain measure, one was led to increase the capacity of the store house to an unnecessary degree, and to establish two deposit chambers communicating through an aperture covered with wire gauze or hair cloth that arrested the greater part of

aspirator, are carried by a conduit to the separator installed in the deposit chamber. Here the air, holding the shavings and sawdust in suspension, ascends a spiral that gives it a rapid rotary motion. All the solid particles separate and fall to the lower part, while the air rises in the chimney.

Fig. 2 represents the complete installation of a shop with an aspirator and separator for the removal and deposit elsewhere of the sawdust produced. The suction is produced under each machine with the aid of funnels. If it is desired to dispense with the use of the latter, apertures may be made in the floor, and into these the shavings may be swept from time to time. When not in use, the apertures may be closed with covers.—La Revue Technique.

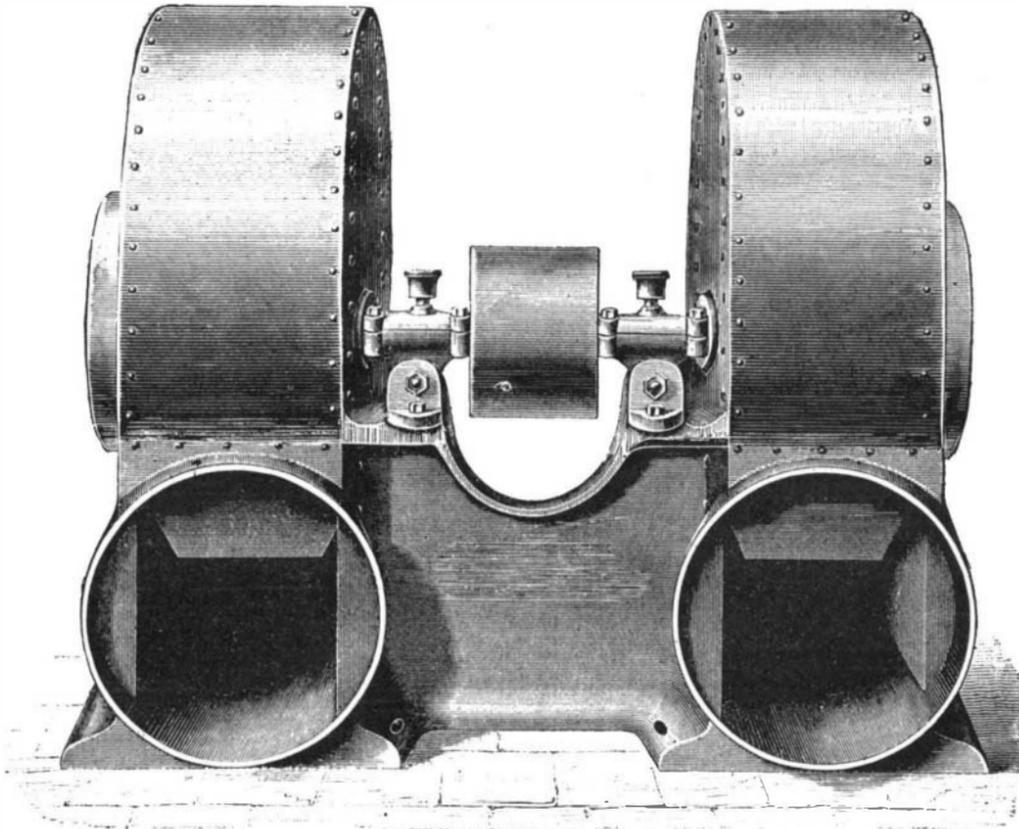


FIG. 1.—DOUBLE ASPIRATOR WITH STEEL PLATE SHELL.

are employed is that the fine dust in suspension in the atmosphere and the shavings and sawdust produced by the machines shall be removed as completely and cheaply as possible. In fact, on the one hand the dust, by entering the respiratory organs, becomes a source of considerable annoyance to, and often the cause of serious affections in, the workmen who run such machines, and on the other, the removal of the shavings and the carriage thereof to a building that is often distant is attended with expense, while the accumulation of them around the machines, where they become saturated with oil, greatly increases the risk of fire.

So, in recent years, the idea has occurred to produce a direct suction of the shavings and sawdust, in measure as they are produced, by means of powerful pneumatic apparatus that draw them into receptacles completely isolated from the main building, and which they reach in a dry and cool state, thus reducing the danger resulting from their being placed in piles.

the fine dust. But the gauze became easily choked up, and it was necessary to clean it very often by giving it a shaking. The result was a strong counter pressure upon the aspirator and an increase in the expenditure of motive power.

Mr. Kirchner has devised an arrangement that operates more perfectly and is less cumbersome. It consists in causing the shavings and sawdust to pass into a separator analogous to those that are used in flour mills, and in which the finest dust is condensed and falls to the lower part, while the air, completely freed therefrom, escapes externally through a chimney.

The aspirator may be simple or double, and with a cast iron or steel plate shell. In Fig. 1 we give a view of a double aspirator with a steel plate shell.

The aspirator is placed either in the basement or in the ceiling of the shop, and is connected with the machines by pipes and funnels.

The shavings, having passed through the fans of the

**COLLOID RELIEFS.**

MAKING AND DIRECT PRINTING FROM COLLOID SURFACES.

By THOMAS BOLAS, F.C.S., F.I.C.

To such of the present day workers as do not look beyond the day with its various balances of oversight and observation, this title will perhaps suggest that fish glue or enamel process in which the resist is often left upon the etched metal block so as to form the intermediate printing face; but in this instance the colloid facing of the etched block is more of the nature of an incident than an essential. I rather wish to say a few words as to those printing methods in which the colloid relief is the essential element of the printing surface, as in the case of Husnik's leimtype, or the stannotype of Woodbury, although in the latter case the colloid relief is covered or faced with tinfoil; which tinfoil is merely a protection against the chemical stress of printing, much in the same way as the steel facing of an intaglio plate is a protection against the mechanical stress of printing.

In Husnik's leimtype and in Woodbury's stannotype the printing surface is what is generally known as a carbon or autotype print; but a print with an extra high relief, to obtain which necessitates the use of a tissue prepared with not only an unusually thick layer of gelatine, but this gelatine must only be very slightly pigmented, or in some cases not pigmented at all.

The leimtype block, or gelatinotype, as it was known in 1837, when an example was issued with the Year Book of Photography for 1838, consisted of the stripped film of a thick carbon print; a grained negative having been used in making the print, and the film being mounted type high on a rigid block.

No detailed instructions for either leimtype or stannotype have yet been published, but I have before me a printed pamphlet, without date, which Mr. Woodbury issued as instructions for his later stannotype process—that in which the relief itself was printed from—a pamphlet which Mr. Woodbury himself gave me, I think, in 1835. This pamphlet and some other particulars which I have in hand, partly received from Mr. Woodbury and partly the result of my own experience, enable me to give such directions for making washed out reliefs as should enable any attentive student to get over all difficulties connected with the making of deep reliefs by the washed out gelatine process, and adapting these reliefs to the production of direct printing blocks, or, indeed, using them as a basis for electrotypic moulding. I propose to say nothing about such matters as the production of any necessary grain, nor do I intend to occupy space in mentioning whether a negative or positive, reversed or direct, is to be used in any particular case, as these matters are obvious enough to anyone who thinks.

The gelatine tissue, which is virtually a carbon tissue with a thick but slightly pigmented film, is prepared as follows: A sheet of stout plate glass is slightly waxed by being warmed and rubbed over with genuine beeswax, the excess being polished off with a piece of flannel. A piece of close textured and rather thick paper, about half an inch shorter each way than the

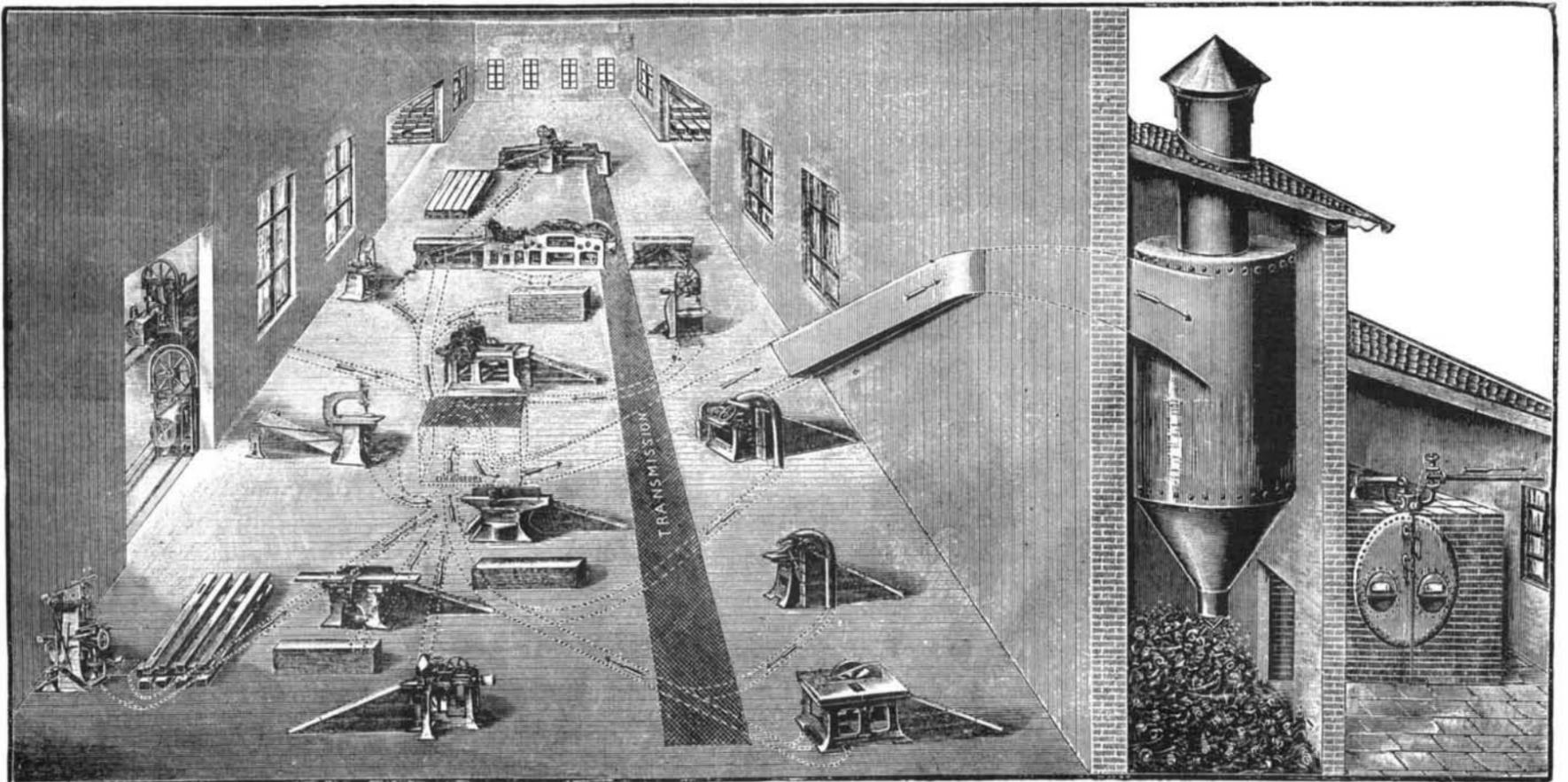


FIG. 2.—VIEW OF A WOODWORKING SHOP PROVIDED WITH AN ASPIRATOR AND SEPARATOR.