

FINISHING LOCOMOTIVE WHEELS.

It has of late years become the custom—and a very good one too—to bestow much greater care upon the finish of locomotive engine wheels than was formerly the case, and, as a result, several special machine tools have been introduced for the purpose of trimming off wheels, which in Europe are universally of wrought iron, and thus saving hand labor.

We illustrate a machine for this purpose by Mr. F. W. Webb, locomotive engineer to the London and Northwestern Railway Company. It is a curvilinear slotting machine, and the tool is mounted in a holder provided at one end of a vibrating lever, the other end of this lever being slotted, and being fitted with a sliding block, into which the pin of a disk crank enters. As the crank disk revolves with its upper edge approaching the fulcrum of the lever, the effect of the arrangement is to give the tool holder a slow downward and a quick return stroke. The point of the tool, of course, describes an arc of a circle struck from the center of the vibration of the lever, thereby producing a convex form on the inside of the tyre, and so giving additional strength to the rim. The wheel bed plate is revolved by suitable automatic mechanism, as shown, somewhat similar to the devices ordinarily employed in planing machines. Provision is made for wheels of any diameter, by means of the crank and screw shown on the right of our engraving.

WOOL WASHING MACHINERY.

In scouring wool, the operator has to insure that a con-

stant supply of the washing fluid be continuously and intimately brought into contact with the material, and that a plentiful supply of rinsing water be at hand. To this end, the washing machines are constructed with several cylinders, that the wool may be repeatedly washed and rinsed. This system is known to the trade as "the leviathan," and the apparatus has been frequently improved in form and effi-

toms, and are connected with each other by the tube, H, through which the washing fluid can pass from one reservoir to the other; this movement is effected in a peculiar manner, a steam injector being fixed in the tube, H, the steam jet of which, when acting, forces the fluid, through H, into the first reservoir, from whence it can pass back again into R as soon as it has reached the height of the commu-

nicating pipe. The wool is put in motion in the reservoirs by means of swing rakes, which are moved in the manner shown in our engraving.

The transferring arrangement for the wool is as follows: The rod, *u*, is jointed to one end of the link, *T*, while the other end of this link works on an adjustable center carried by a slotted bracket, *b*. The lower end of the rod carries rakes, *A*, which pierce through the wool, while a bush connected with the crank, *r*, the axis of which is put in rotation by wheel gear, can slide along the rod, *u*, whence the rotation of *r* produces an elliptical motion of the points of the rakes, *A*; the larger axis

WEBB'S WHEEL FINISHING MACHINE.

ciency till last year, when Messrs. J. & W. McNaught, of Rochdale, England, exhibited at Vienna the machine of which we publish an engraving.

Fig. 1 represents the machine, used as a single self-acting wool washing apparatus for smaller quantities of wool, while Fig. 2 shows the transferring apparatus provided for carrying the wool from one washing reservoir to another in a series of machines. The arrangement of the working parts of this apparatus will be easily understood from the engravings. The washing reservoirs are provided with double bot-

tom of this ellipse is in the direction of the motion of the wool, and the points of the rakes are through one half the curve in connection with the wool, and travel forwards, while they rise above the wool and travel backwards through the second half of the curve. The rakes which carry the wool forward through the troughs are similarly arranged; and at the point of contact of each of the curves described by the four systems of rakes, as shown in Fig. 1, fixed rakes are provided, through which the wool is pressed on one side and caught on the other side by the descending rakes of the next system,

Fig. 1.

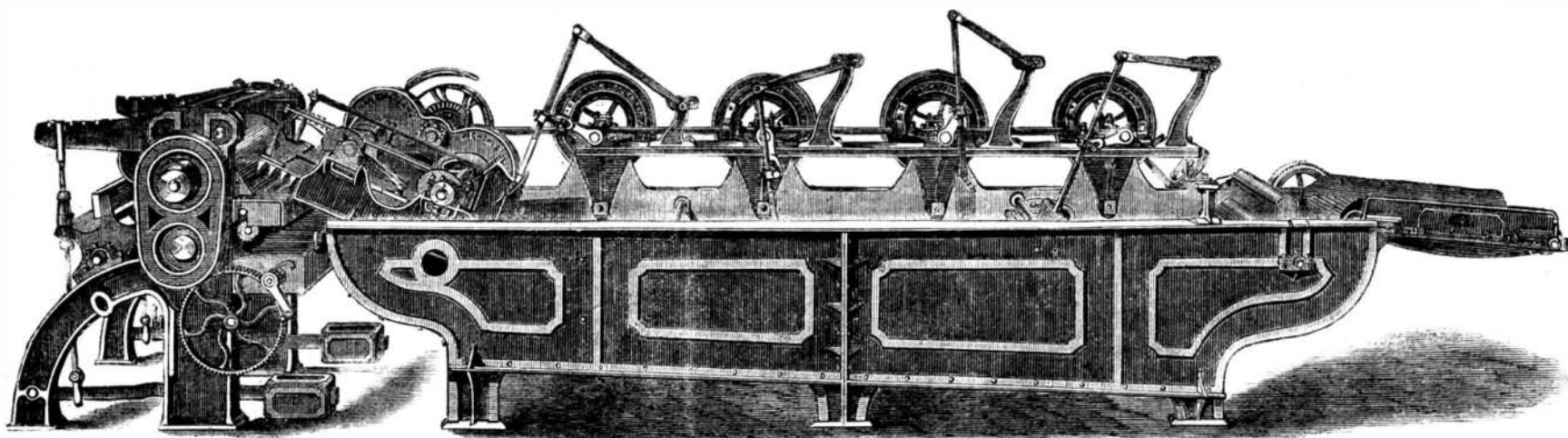
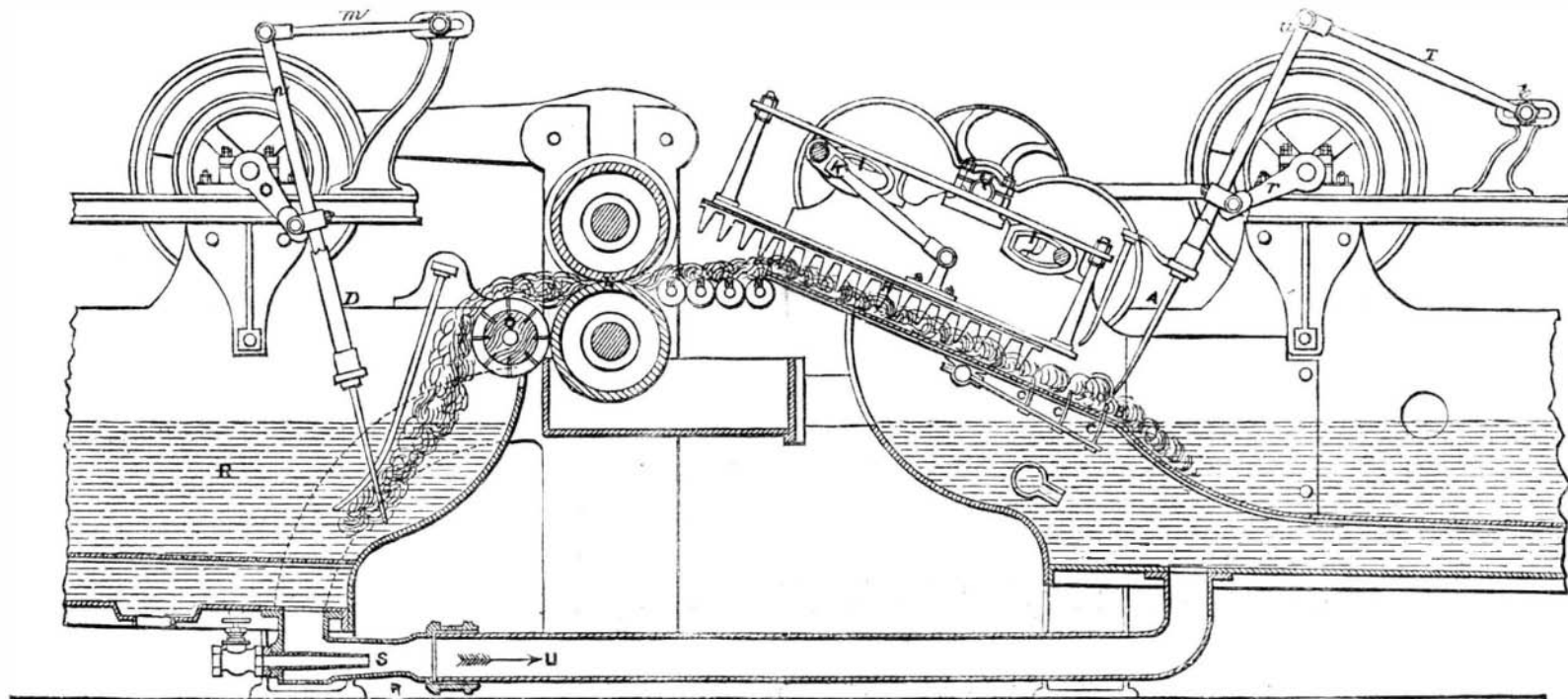


Fig. 2.

**McNAUGHT'S LEVIATHAN WOOL WASHING MACHINE.**

a continuous travel of the wool being thus effected. Returning to the arrangement for transferring the wool from one trough to the next, it will be seen from the sectional view of the transferring apparatus that the last system of rakes carries the wool on to an inclined plane, through which the small rakes, C, C, C, project; these latter hold the wool on the inclined plane, B, when the points of the rakes, A, have to travel backwards. From B, the wool is taken off and carried forwards by a separate apparatus, H, to which a curvilinear motion is also given by the cranks, I, and the rod, K. The rollers, M, M, M, M, carry the material between the squeezers, F, from which it passes either over another roller, as shown, into the following reservoir, where it is at once caught by the rakes, D, worked by the crank, O, and the rods, n and m, or over a second squeezer or pressing roller to the drying machine, as shown in Fig. 1.

This apparatus for getting the wool from one reservoir into the other, or from the last reservoir through the squeezers to the drying machine, is well designed, and fulfils its purpose perfectly, while the mode of forcing the washing fluid from one reservoir into the other by a jet of steam is very simple, and also gives most satisfactory results.

The inventors provide the self-acting machines (says *Engineering*, from whose pages we extract the engraving) with a feeding cloth and a brass revolving immerser. The squeezers have wrought iron shafts $4\frac{1}{2}$ inches in diameter, and are covered with hemp or wool, and the fixed rakes are adjustable.

NEW SWIMMING BATH IN LONDON.

The public baths and washhouses are a feature in the life of English cities that is worth attention. In many of them a bath, with clean towels, etc., can be obtained for two cents; and hot water, use of tubs, and all necessities for washing linen can be had for two cents an hour. One of the largest of these establishments belongs to the parish of St. Marylebone, and is situated in Seymour Place. It possesses accommodation for some hundreds of bathers and washers, and is very largely patronized.

An important addition has recently been made to this establishment in the form of a large and handsome swimming bath, of which we present an engraving, extracted from the *London Builder*.

The length of the bath room is 85 feet, and the width 41 feet, the height being 28 feet from the platform round the bath to the apex of the roof. The dressing boxes, averaging 4 feet 3 inches long and 3 feet 6 inches wide, are contained along the sides of the room in recessed arched openings. All the fittings of these boxes are of ebony, and the metalwork is electro-plated. The arcading is continued along the end walls, but the recesses here are filled in with ornamental tile work. The piers of the arches have each three panels, filled in with blue hand-painted tiles, with variously designed representations of birds, fishes, and water fowl. The roof is supported by cast iron semi elliptic ribs, ornamented with gilded scroll work panels.

The size of the bath itself is 26 feet by 73 feet, and the depth of water 4 feet 6 inches, shelving down to 6 feet. The spring diving board is 4 feet above the water, but there is another diving board 5 feet higher than this one.

The bottom and sides of the bath are covered with glazed tiling, in variously designed patterns; and the hand-painted tile border above the water line, 21 inches wide, represents the appearance of an aquarium, with fishes and rockwork.

The whole of the interior of the building is decorated with Pompeian ornament. Mr. Raymond Smith is executing the marble fountain, which will be placed at the east end of the bath. The architect is Mr. H. Saxon Snell, and the cost of the building was \$21,250.

The American Centennial Great Exhibition.

The Financial Agent of the Centennial Board, Ex-Governor Biglow, of Pennsylvania, recently made a speech at Norwich, Conn., upon the prospects of the Centennial, from which we take the following interesting particulars:

The Board accepted the refusal of Congress to grant money as an intimation that they must rely upon private capital or State aid to carry forward the project, and on this basis they have zealously devoted themselves to the work of raising funds, with much success. But they will make one more attempt in Congress to get money from the public treasury in the shape of payments for premiums, police guard, etc.

"I am confident that you must feel especial interest in the present status of this great enterprise, and I shall give it to you in as few words as practicable. The buildings are an art gallery, covering $2\frac{1}{2}$ acres, a main exhibition building, covering 20 acres, a conservatory of $2\frac{1}{2}$ acres, a machinery hall of 12 acres, and the agricultural department of 5 acres, making a total of 42 acres, which, with the space occupied by the zoological garden and the cattle pens and grounds for the agricultural tests, will make a vast show. Some months since, the art building and the main exhibition building were contracted for, and the inner walls of the art building are up to the square, and the granite will be all put up during the coming winter; and its completion in time is fully assured. The foundation of the twenty-acre building is nearly completed, and the glass and iron are being prepared with satisfactory expedition, and its completion within the time prescribed may be confidently relied on. The conservatory and the machinery hall will be contracted for within a few days; the agricultural department, which can be completed within a few months, will be commenced in the spring. I say, further, there is nothing in the financial condition of the Board of Finance to interfere with the progress of these buildings. The State of Pennsylvania and the city of Philadelphia have provided for the art gallery; the city for the machinery hall and the conservatory; and the subscriptions to the stock, already secured, amount to about \$2,000,000, which sum, with what we expect to get from Connecticut and the other States, will be applied to the main exhibition building and the agricultural department. So you see that the great problem of the

buildings is solved. The next inquiry that naturally arises is: Will there be anything to put into these great buildings? I answer, unhesitatingly, an abundance. The space already applied for decides that question affirmatively, and eighteen months still remain before the opening. I know that the Director General, A. T. Goshorn, is already impressed with the great difficulty of restraining the exhibition, that is, to restrain it in quantity so as to elevate it in kind. I have myself, within a brief period, visited all the great cities of the country, and witnessed the exhibitions at Cincinnati, Chicago, Indianapolis, St. Louis, Louisville, Philadelphia, and New York, and have gathered some knowledge of the public feeling; and I feel that I am warranted in saying that in the department of machinery and of the useful arts generally, and in that of manufactures and natural productions, the display will overshadow all its predecessors. The prospect of attendance and display from foreign countries is brighter by far than the Commission had anticipated. The following countries have formally and favorably accepted the invitation of the President to be represented and take part in the coming international exhibition, to wit: Germany, France, the Netherlands, Belgium, Sweden, Norway, Spain, Canada, Liberia, the Sandwich Islands, Japan, Honduras, Ecuador, Hayti, Argentine Confederation, Chili, Mexico, Brazil, Guatemala, Peru, Venezuela, Salvador, Colombia. While Great Britain, Austria, New Zealand, and the Australian islands have adopted no official steps as to ministers, commissions, or appropriations of money, the Director General is in possession of trustworthy information showing that each one of the governments of these countries intends that its subjects shall take part in the exhibition. In ten of the countries named, commissioners have been appointed to care for the articles to be exhibited, and in seven or eight it is known that handsome appropriations have been made to defray the necessary expenses.

I wish I had the precise utterances of Baron Schwarz-Senborn, delivered at Philadelphia a few days since, as to the value of the late Exposition in Austria. He said that manufacturing had received a strong impulse, and that new and special branches had sprung up in and about Vienna; that looked at from this standpoint, the exhibition had been a most judicious investment. I cannot doubt that the Exhibition of 1876 will prove so to our country, for while we may have lessons to impart, there are many more we should accept."

PROFESSOR WATSON, at present one of the members of the transit of Venus expedition for this country, has found a new asteroid. This makes his seventeenth discovery of the same kind.

THE Brooklyn tower of the East river bridge was completed on the 16th of December. Its total height is 268 feet. It is very imposing in appearance; we hope it will not prove a tower of folly.



ST MARYLEBONE SWIMMING BATH, LONDON, ENGLAND.