

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOLUME IX.]

NEW-YORK MAY 6, 1854.

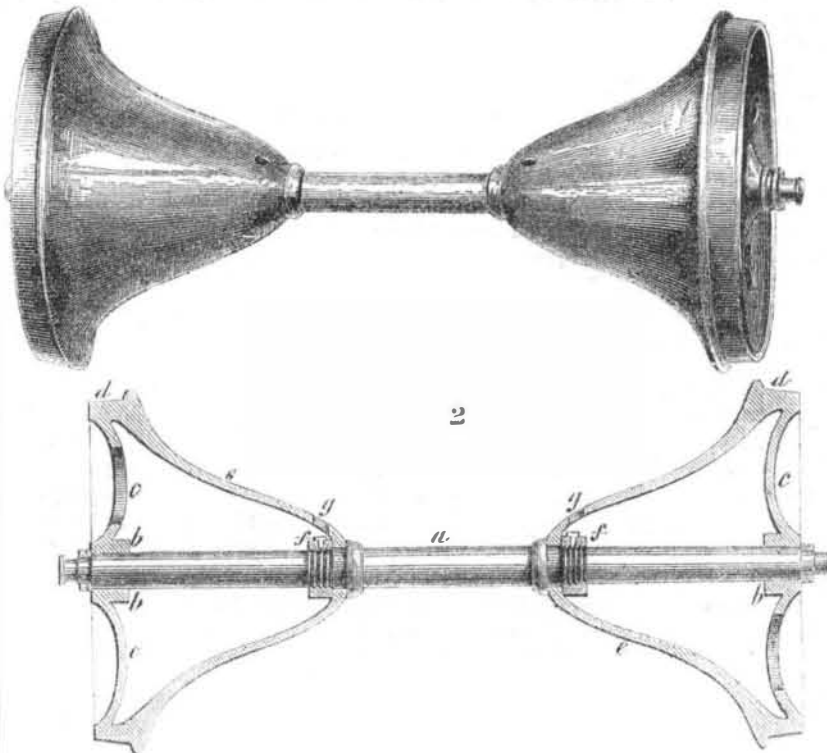
[NUMBER 34.

SCIENTIFIC AMERICAN,
PUBLISHED WEEKLY.
At 128 Fulton street, N. Y. (Sun Buildings.)

BY MUNN & CO.

Agents.
Federhen & Co., Boston. Dexter & Bro., New York
Stokes & Bro., Philadelphia B. Dawson, Montreal, O.E
Cook, Kinney & Co., San M. Boulemet, Mobile, Ala
Francisco. E. W. Wiley, New Orleans
Le Count & Strong, San Fran. E. G. Fuller, Halifax, N.S
Avery Bellford & Co., London M. M. Gardissal & Co. Paris
S. G. Courtenay, Charleston, S.W. Pease, Cincinnati, O
Responsible Agents may also be found in all the principal cities and towns in the United States.
TERMS—\$2 a-year:—\$1 in advance and the remainder in six months.

RAILROAD WHEELS.—Figure 1.



Mott's Railroad Wheels.
The accompanying figures are views of an improvement on Railroad Wheels, for which a patent was granted to Jordan L. Mott, of this city, on the 21st of last March (1854). Figure 1 is a perspective view, and figure 2 is a section of two wheels on their axle, taken in the plane of their axis.

The nature of the invention consists in making railroad wheels with the outer face of any suitable form, and with the central hub fitted to the axle, in combination with the making of the inner plate of a conical or nearly conical form, and with the extremity thereof fitted to the axle towards the middle of its length. The outer plate gives the required vertical support whilst the inner conical plate braces it against all lateral thrusts, thus presenting greater strength with a given weight of metal than by any other mode of construction heretofore practiced. The rim of the wheel, having its support on the axle toward the middle of its length, by the bracing action of the inner conical plate, will be better stayed to resist lateral thrusts, and this point of support being removed to a greater distance from the plane of the flange, will reduce, if not entirely avoid the breaking or bending of the axle, while at the same time one or both of the wheels can be fitted to the axle so as to turn independently to run on curves, the two points of support on each wheel on the axle being so far apart as effectually to resist the lateral thrusts.

a represents the solid axles with two wheels thereon. Each wheel is composed of a hub, *b*, fitted to the axle near the outer journal, and either fixed or free to turn thereon; a plate, *c*, or spokes, or other equivalents thereof, and connecting the hub with the rim, *d*, and an inner plate, *e*, of a conical or nearly conical form, extends from the inner or flange side of the wheel to the shaft to which it is fitted, either to be secured or to turn thereon. If desired, and to facilitate the casting of such wheels, the outer plate is made slightly curved from the hub to the rim, as also the inner or conical plate. The inside is cast on a core of the required form, supported in the usual or any suitable manner, and, if desired, the securing nut, *f*, previously made of wrought iron and tapped, is inserted in the sand core, by which it is protected from the molten iron in the process of casting, so that after casting it can be liberated from the sand. Or, instead of this, the nut can be introduced through holes in the outer plate.

The axle may be made of greater diameter between the two wheels, or with collars, leaving two shoulders for the inner ends of the cones of the two wheels to rest against, and at the required distance from the shoulders the axle is tapped to receive the nuts. When the axle is inserted in the wheel the nuts are slipped thereon and then screwed up against the inner face of what may be termed the hub of the conical plate. Or instead of the securing nut, a washer can be substituted and secured to the axle by a key or screw inserted through the hole, *g*, in the conical plate.

In this way both wheels can be secured on the axle so as not to turn thereon, or one may

be so secured and the other held in its place on the axle, and be left free to turn on the axle, so that in turning curves one wheel may act independently of the other, or both may be secured on the axles so as to revolve thereon.

As cast-iron railroad car wheels have heretofore been made and mounted on their axles, the semi-diameter of the hub is much greater than the length of it, so that when the flange strikes against the rail in the lateral thrusts of

railroad trains, the tendency of the force to break or bend the wheels and axles, is much increased by reason of the leverage of the greater diameter of the wheels over the length of the hubs. This new method of constructing railroad wheels is designed to remove this evil.

More information may be obtained by letter (or otherwise) addressed to Mr. Mott, at Mott Haven, N. Y., or to No. 264 Water street, this city.

ADJUSTABLE CHURN AND BUTTER WORKER.

Figure 1.

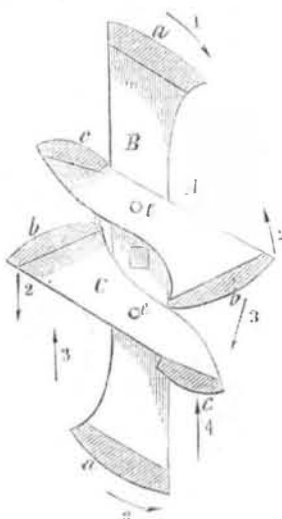
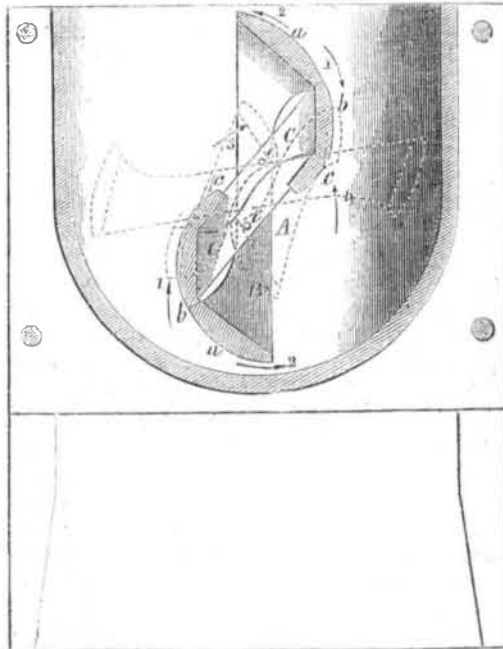


Figure 2.



The annexed engravings represent the improved Churn and Butter Worker, of Robert W. & D. Davis, of Rodgersville, N. Y., for which a patent was granted on the 28th of last February (1854.)

Figure 1 is a vertical transverse section of the dasher adjusted for agitating the milk or cream, and figure 2 is a vertical transverse section of the churn, showing the dasher in the dotted lines for working the milk or cream to produce butter, and in black lines as adjusted for working the butter after it has been obtained. The same letters refer to like parts.

Messrs. Davis are the inventors of the "self-

adjusting churn" patented April 2nd, 1850, an exact copy of which received one of the highest prizes at the World's Fair in London, also various prizes at our own Agricultural Fairs. This adjustable churn and butter worker is entirely different from the "adjustable churn," in its construction and operation.

The nature of this invention consists in so constructing the dasher that it may be adjusted by the resistance of the cream in revolving through it, so as to present six centripetal cutting or agitating blades to the cream, and then after the butter is produced, to be adjusted so as to present but two centrifugal gathering

blades, which gather the butter, work it into rolls, and expel the buttermilk therefrom in the most perfect manner.

A represents the dasher, it is composed of six blades or agitators, those lettered *a a*, being secured fast on the main end pieces, *B*, which support the other parts of the dash. These blades revolve with the end pieces, *B B*, which are hung on the short journals, or axes, *d d*. The other blades, lettered *b b* and *c c*, are secured fast on the divided end pieces, *C C*, in the manner shown in the engraving, said pieces being placed diagonally to the pieces, *B B*, and each of their sections re hung loosely on pins, *e e*, which are set eccentric to the axis of the dasher. The blades, *b c*, are so hung and bear such relation to each other, as shown plainly in the engraving, that one operates upon the other or upon the end pieces upon which it is hung, when the dasher is turned in the direction of the arrow, 2, and the cream strikes it as indicated by the arrow, 3, which end pieces, as they are operated upon, cause each blade to separate from the other, or all of them to change their position at one time, and occupy the position shown in dotted lines in figure 2. When the blades occupy this position they serve effectually for agitating and throwing the cream towards the center of the churn, until it is converted into butter. By dividing the end pieces, *C C*, diagonally in the line of a *cima reversa*, the edges of the blades are always brought in contact with them, and cause them to open or to close together. The blades all close at once when the dasher is turned in the direction of the arrow, 1, and the butter strikes them as indicated by the arrow, 4. When they are thus closed they serve effectually for gathering the butter, working it into rolls, and expelling the buttermilk therefrom. The blades are set at different angles, consequently they all strike the cream at different points as they revolve, and agitate it more thoroughly. The blades, *c c*, have a greater curvature given them in line of a scroll, than those *b b*; this increased curvature commences from the termination of the curve of the blades, *b b*, and prevents the dasher throwing the butter towards the center of the churn while gathering and working it, which cannot be effected so perfectly in other churns, there being no chance for the edges of the blades, *c c*, to take hold of the butter, and carry it round, while gathering and working it into a roll.

All communications addressed to R. W. Davis, Dundee, Yates Co., N. Y., or to David Davis, Rodgersville, Steuben Co., N. Y., will receive prompt attention.

Writing on the Wrappers of Newspapers.

It is decided by the proper officers of the Post Office Department, that letter postage is legally chargeable on packages having writing, other than the simple address, on the outside. If payment is refused, the party sending it can not be prosecuted for a fraud on the department, as an attempt to conceal the writing is necessary to constitute a fraud, as in the case of writing words or signs inside of a package of printed matter, which is a fraud under the law.

Bridge over the St. Lawrence.

Preparations are now making to erect a bridge over the St. Lawrence, at Montreal.—It is to be two miles in length, resting on twenty-three piers and two abutments, giving twenty-four arches, each of 240 feet span. Advantage was taken of the solid ice to bore holes in the rocks in a line with the centers of the piers, into which huge chains will be anchored with buoys attached, so as to facilitate the construction of the coffer dams in which the masonry of the piers is to be built.