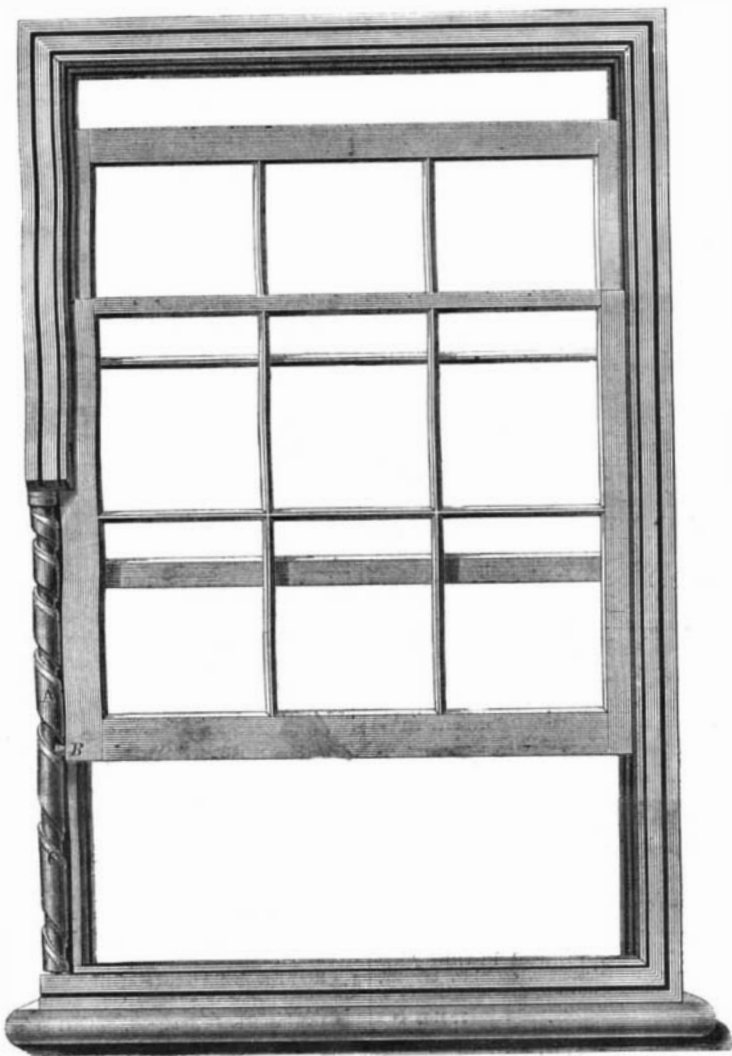


Improved Window Sash Stop.

This engraving represents a very ingenious device for sustaining window sashes at any desired point. It is simple and novel in its arrangement, and will, if properly made, work well. In the engraving one side of the window jamb is broken away showing a spiral-grooved cylinder, A, and a small roller, B. These are the principal parts of the invention. The roller runs loosely on an arm let into the sash, and travels on a metallic track or guide, C. The cylinder has a bearing in metallic plates on each end, and at the bottom there is a spring fastened to the bearing in such a manner that the revolutions of the cylinder wind it up; these are too small to be shown clear-

**DAVIS'S WINDOW SASH STOP.**

y. There is also a vertical slot between the two frames of the window in which a roller attached to the sash works; so that the lateral impulse, which is given to the sash by the spiral groove in moving the sash up and down, will not tend to make it work hard or draw out of place. The operation of this device is very easily seen: when the sash is down, the spring is wound up, and the act of raising it causes the cylinder to revolve and aid the upward movement. It will be seen that the spiral on the cylinder is not of the same pitch throughout its length, but that near the top it becomes quicker; this is to compensate for the relaxed power of the spring as it becomes weaker the pitch is slower, and the cylinder revolves with more ease. When the sash is checked at any point it remains there supported by the cylinder and cannot possibly get away. There is nothing visible outwardly, the appearance of the frame being uninjured by fixtures of any kind. The invention was patented through the Scientific American Patent Agency on Oct. 6th, 1863, by John Davis, of Council Hill Station Ill.; further information can be had by addressing him at that place.

GREAT IMPROVEMENT IN ENGRAVING.

In the process of engraving metallic plates by etching with acids there has been one obstacle to perfect work which we have regarded as insurmountable. As heretofore practiced, this process consisted in covering the plate with a thin coating of wax, then

scratching, through the wax, lines of the proper form to produce the desired picture, and pouring nitric acid over the plate. Wherever the plate was covered by the wax it would be protected from the action of the acid; but in the lines where the wax was scratched away, the acid would dissolve the plate, forming channels similar to those made by the burin of the engraver and with a great saving of time and labor. The principal difficulty with this process has been, that as the acid dissolved its way downward into the plate it would also work sideways under the wax, thus widening the channels as well as deepening them. It has seemed that this must necessarily always be the action of acid in etching, and that the

to be removed as many times as there were variations of shade in the engraving. But by M. Vial's process the copper is deposited first in the finest lines, while the action of the acid continues longest in those which are widest. Thus the depth of the engraving is proportioned exactly to the breadth and thickness of the ink-mark, and this by a single immersion of the plate in the bath. The process occupies but five minutes. The copper is removed by ammonia before the plate is used for printing.

Old engravings may be reproduced by this process by transferring the picture to the steel plate, or the design may be first drawn upon paper and then transferred.

TO PREVENT FOOT-ROT IN SHEEP.—The *North British Agriculturist* says that, thirty years ago, Professor Dick showed that, in the great majority of cases, this disease results from the hoofs not being properly and regularly worn down. On hard, gravelly pastures the foot-rot seldom occurs. On soft and rich pastures the disease may be prevented by paring the feet of the whole flock every six or eight weeks.

THE

Scientific American,**FOR 1864!**

VOLUME X.—NEW SERIES.

The publishers of the SCIENTIFIC AMERICAN respectfully give notice that the Tenth Volume (New Series) commenced on the first of January. This journal was established in 1845, and is undoubtedly the most widely circulated and influential publication of the kind in the world. In commencing the new volume the publishers desire to call special attention to its claims as

A JOURNAL OF POPULAR SCIENCE.

In this respect it stands unrivaled. It not only finds its way to a most every workshop in the country, as the earnest friend of the mechanic and artizan, but it is found in the counting-room of the manufacturer and the merchant; also in the library and the household. The publishers feel warranted in saying that no other journal now published contains an equal amount of useful information; while it is their aim to present all subjects in the most popular and attractive manner.

The SCIENTIFIC AMERICAN is published once a week, in convenient form for binding, and each number contains sixteen pages of useful reading matter, illustrated with

NUMEROUS SPLENDID ENGRAVINGS

of all the latest and best inventions of the day. This feature of the journal is worthy of special note. Every number contains from five to ten original engravings of mechanical inventions relating to every department of the arts. These engravings are executed by artists specially employed on the paper, and are universally acknowledged to be superior to anything of the kind produced in this country.

The publishers of the SCIENTIFIC AMERICAN promise to present, as during preceding years, all the latest improvements in Steam Engineering, War Vessels, Ordnance—military and naval—Fire-arms, Mechanics' Tools, Manufacturing Machinery, Farm Implements, Wood-working Machinery, Water-wheels, Pumps and other Hydraulic Apparatus, Household Utensils, Electric, Chemical and Mathematical Instruments, Flying Machines and other Curious Inventions—besides all the varied articles designed to lighten the labor of mankind, not only in the shop and warehouse, but in every place where the industries of life are pursued.

From its commencement the SCIENTIFIC AMERICAN has been the earnest advocate of the rights of American Inventors and the

REPERTORY OF AMERICAN PATENTS.

In this important department, so vitally connected with all the great interests of the country, no other journal can lay any claim whatever, as in its columns there is published a weekly Official List of the "Claims" of all patents granted at the U. S. Patent Office.

THE PRACTICAL RECIPES

alone are oft-times worth more to the subscriber than the amount of a whole year's subscription.

TERMS OF SUBSCRIPTION.

Two volumes of the SCIENTIFIC AMERICAN are published each year, at \$1 50 each, or \$3 per annum, with correspondingly low terms to Clubs; \$1 will pay for four months' subscription. The numbers for one year, when bound in a volume, constitute a work of 832 pages of useful information, which every one ought to possess. A new volume will commence on the first of January, 1863.

Club Rates.

Five Copies, for Six Months.....	\$6
Ten Copies, for Six Months.....	12
Ten Copies, for Twelve Months.....	25
Fifteen Copies, for Twelve Months.....	34
Twenty Copies, for Twelve Months.....	40

For all clubs of Twenty and over, the yearly subscription is only \$2 00. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

Canadian subscribers will please to remit 25 cents extra on each year's subscription to pre-pay postage.

Munn & Co., Publishers.

37 Park Row, New York.

FROM THE STEAM PRESS OF JOHN A. GRAY & GREEN.