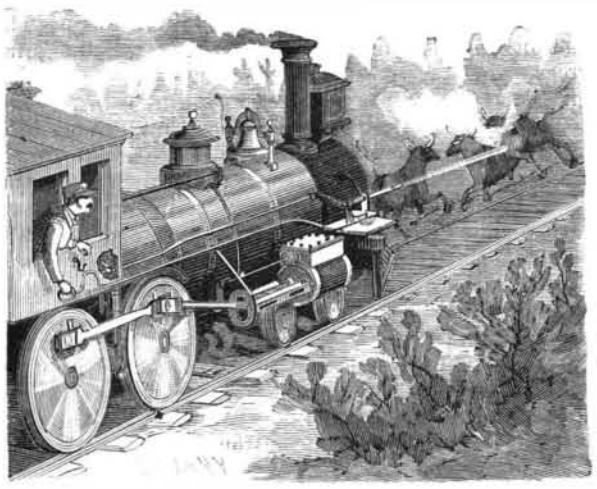
HOT WATER TO DRIVE CATTLE FROM TRACKS.

The accompanying illustration represents a device, under the control of the engineer on a locomotive, designed to drive cattle off the track by means of a jet of hot water or steam from the engine. It has been patented by Mr. William J. Burke, of Seattle, Washington. Near the front of the boiler, on one side, is a bracket carrying a post mounted to turn, in the upper end of which is journaled one end of a horizontal bar, the other end of the bar being supported by a semicircular disk resting with its periphery on the base of the bracket, to turn or roll on the latter. From the bar extends an arm in which is secured a nozzle pointing in front of the locomotive, the rear end of the nozzle being connected by a flexible tube with a pipe leading into the boiler within the locomotive cab, where there is a valve by which the engineer may cause hot water or steam to be thrown forward by the boiler pressure through the pipe and nozzle. The outer end of the bar supporting the nozzle is connected to a rod extending rearwardly to the cab, the rod being so curved as to be readily hooked on the outside of the cab, and having a handle, whereby the engineer can so turn the nozzle as to direct the stream of water or steam to any part of the track in front of the locomotive, while also slightly varying its vertical direction, as may be necessary in thus driving cattle from the track. The pipe and valves are so arranged that the water will flow out of them by gravity after use, thus preventing the freezing of water therein.



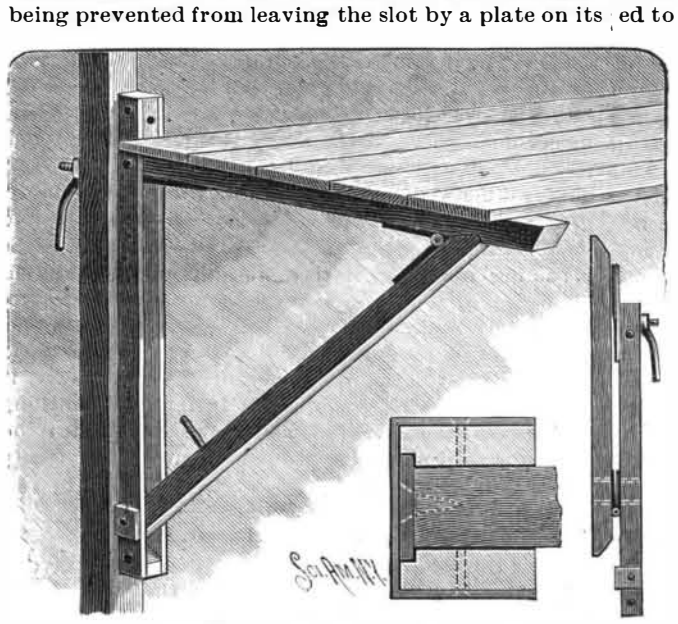
BURKE'S DEVICE TO DRIVE CATTLE FROM TRACKS.

AN IMPROVED FOLDING SCAFFOLD BRACKET.

A strong, light, and inexpensive scaffold bracket, for carpenters, painters, etc., and one which may be quickly applied to an upright or detached therefrom and folded compactly for convenience in carrying it, is shown in the accompanying illustration, and has been patented by Mr. Charles A. Stowell. The upright body bar of the bracket has a vertical opening or slot, the base wall of which is downwardly beveled, and at the base wall of the slot a bearing plate or strap is attached, the strap passing across the rear face, with its ends attached to the sides of the body, there being at the rear of the body and at each side of the slot a rabbet adapted to receive a plate to rest upon the bevel, whereby a slideway is produced, as shown in the sectional view.

The supporting beam of the bracket is pivoted at one end in the upright, and has on its under face, near the outer end, a recess, adapted to receive one end of the brace bar, which is attached to the supporting section by a hinge. The brace section is adapted to enter and slide in the slot or opening of the upright, when the bracket is folded up, as shown in one of the views, and its lower end is beveled to bear upon the inclined base wall of the slot in the upright, the brace being prevented from leaving the slot by a plate on its lower end resting in the rabbeted surface of the body. To the inner end of the supporting section is fastened a rearwardly projecting screw bolt, passing through an aperture in the body, and the bracket is held in position by a lock nut with a handle screwed upon the threaded end of the bolt. When the bracket is to be folded, the base plate of the brace is lifted, and the brace portion is swung through the slot in the body section, a threaded bolt near the lower end of the base, projecting from its inner side, being then made to pass through an aperture in the upper end of the upright, and the handle nut is screwed on this bolt, making a firm and substantial fastening for the bracket when closed, as shown in one of the views.

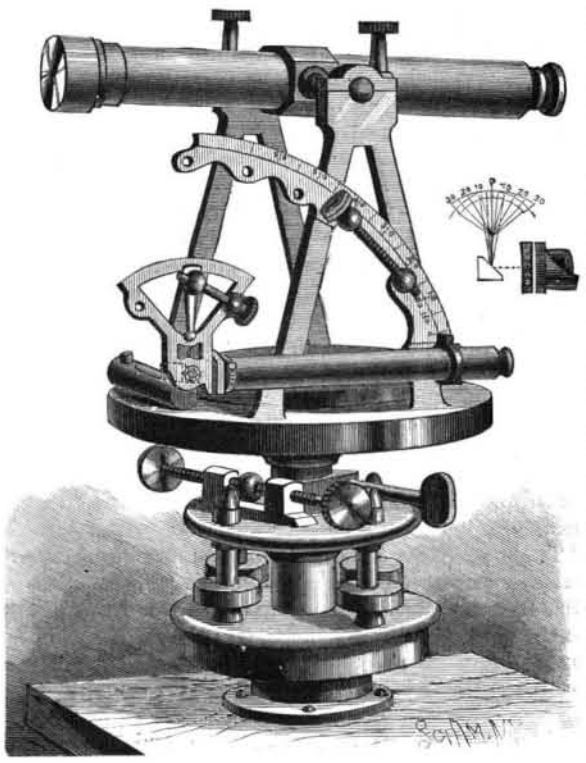
For further information relative to this invention address the Stowell Manufacturing Company, Putney, Vt.



STOWELL'S SCAFFOLD BRACKET.

A SOLAR ATTACHMENT FOR TRANSIT INSTRUMENTS.

The accompanying illustration represents an attachment for an engineer's transit, to furnish means to obtain the true meridian, solar time, and latitude and longitude of the locality, where observations are taken by the usual methods, from the data furnished by the instrument. It is a patented invention of Mr. Walter Scott, of Hot Springs, South Dakota. A latitude arc is secured on the vertical side of the inclined standards of a transit frame on their bed plate, with a vernier scale therefor adapted to move vertically, while a carriage for a solar attachment is pivoted to the side of a frame standard by one end, and a horizontal sight tube bearing an hour circle on one end, the sight tube being clamped to the carriage so as to be revolubly adjusted thereon. The small figure represents a rear elevation of the time-indicating device, a solar reflector and a diagram in elevation indicating the different angles of incidence and reflection produced by the concentrated rays of the sun when directed on the reflector through the lens of a vernier attachment to the declination arc. The sight tube has an eye lens at one end and a web cross at the other end, and a ray lens is set in an aperture in the vernier scale plate at its zero center, an inclined mirror-supporting block with mirror being pivoted below the vernier limb in the same vertical plane, the mirror being set at an angle of forty-five degrees. An upwardly projecting arm affixed to the mirror block loosely engages the depending limb of the vernier plate, and the sight tube is supported to receive a light beam from the mirror. When the parts are correctly adjusted, the degrees and minutes of the sun's declination may be read on the arc plate and vernier scale plate, from which data, with the time shown on the solar circle and its vernier, the true meridian may be calculated by the usual methods, as well as the longitude of the locality.



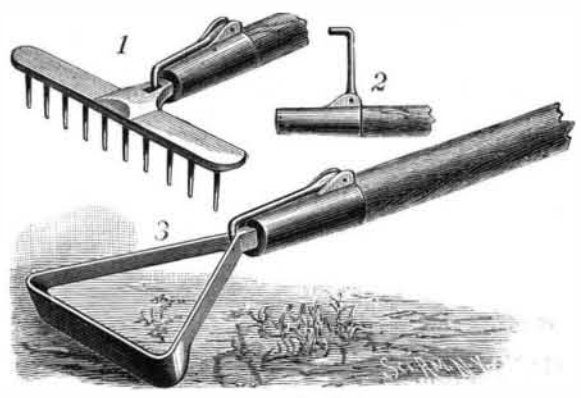
SCOTT'S SOLAR ATTACHMENT FOR TRANSIT INSTRUMENTS.

Sir George Airy.

Sir George Airy, the oldest of the English men of science, has just entered upon his ninetieth year. Sixty-five years ago he was elected to the Lucasian professorship at the University of Cambridge, having been Senior Wrangler two years before. The remuneration was *nil*, or consisted merely of a house, and this circumstance gave the late Mr. Todhunter an opportunity for his mot, "They gave to Airy nothing—a local habitation and a name." Airy has been for forty-five years Astronomer Royal (he resigned in 1881), and has received every honor and distinction open to men of science, including the presidency of the Royal Society.

AN IMPROVED GARDEN IMPLEMENT.

A simple and efficient tool for cutting up weeds, loosening the soil and gathering up weeds, stones, etc., is shown in the accompanying illustration, and has been patented by Messrs. James H. and G. L. Baxter, of Lexington, Ky. Figure 1 shows the implement arranged as a rake, and Figure 3 illustrates it in the form of a hoe made as a triangular loop. The handle has a metallic socket, shown in Figure 2, with a square hole for receiving the shank of the hoe or rake, the hoe being arranged at a slight angle to its shank. The handle socket has ears, in which is pivoted one end of a hook adapted to enter the angle of the loop of the hoe, to hold it in the socket, or an aperture in the rake head, whereby the latter is held in place in the handle socket.



BAXTER'S GARDEN IMPLEMENT.

American Bell Telephone Company.

The American Bell telephone statement of instruments for the month to June 20 records a net increase of 1,414, or more than 50 per cent of the increase for the half year, as see the following:

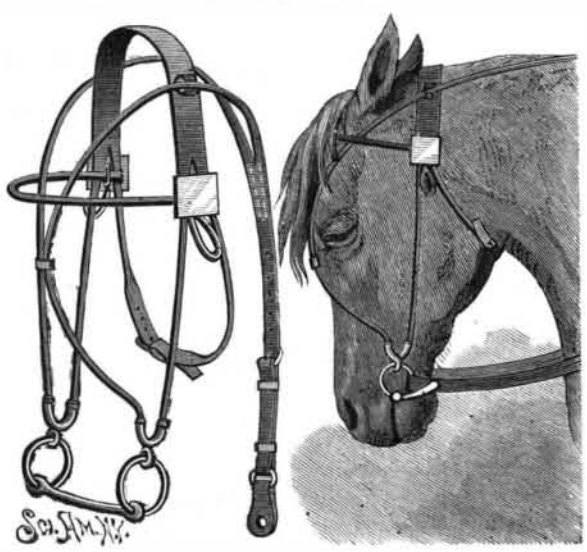
Month June 20.	1890.	1889.	Increase.
Gross output	7,758	6,511	1,247
Returned	1,927	2,094	*169
Net output	5,831	4,417	1,414
Since Dec. 20.	1889-90.	1888-89.	
Gross output	33,577	30,216	3,361
Returned	12,104	11,281	823
Net output	21,473	18,935	2,538
Instruments in use June 20	466,334	430,476	35,858

* Decrease.

AN IMPROVED BRIDLE FOR HORSES.

The illustration represents a combined bridle and check device, designed to be readily convertible for service with an overdraw check rein or a side check rein, and adjustable also to fit animals' heads of different sizes, while being light and inexpensive. It has been patented by Mr. John H. Rafferty, of 12 Green St., Worcester, Mass. Except its metal trimmings and bit, and the brow band, this bridle may be made practically of one continuous leather strap, the check rein strap being made partly of the leather straps forming the bridle, and stitched fast to the bridle straps. The cheek and face pieces of each side are formed as continuous straps connected at one end to the crown strap, and extending rearward at the other ends to form a check rein.

Bent or U-shaped divided clasps hold the straps at their lower bends or bights, the straps here being bent around or doubled upon themselves within the cavities or openings of the clasps, the two parts of which are also made to form a round eye to receive the bit ring, while overdraw check loops and side loops are held to the crown strap, with a detachable clip device for the face straps. By this means the bridle may be adjusted with an overdraw check or a side check, and the strap bights may be readjusted in the divided clasps to prevent twisting the straps when the overdraw check is changed to a side check.



RAFFERTY'S BRIDLE.