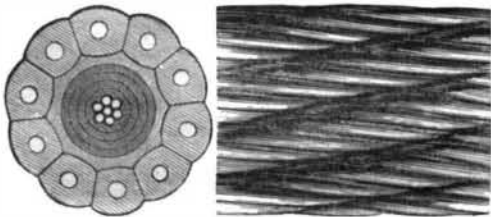


THE ATLANTIC TELEGRAPH.

The successful laying of the submarine telegraph between Ireland and Newfoundland marks an era in ocean telegraphing. Much credit is due the gentlemen who have persisted, under the depressing influences of successive defeats, in determining the practicability of uniting the two continents by a telegraphic cable. There can be no reasonable doubt that the feat of transmitting legible signals, conveying messages between Heart's Content, Newfoundland, and Valentia Bay, Ireland, has been performed, however much the declared success of the cable of 1858 was questioned. We sincerely hope that this success may be permanent.

The cable having been laid, the only fears for the permanence of its continuity must arise from the disturbing elements on the bed of the ocean, which, with the best scientific and mechanical appliances, are comparatively undetermined. The data in regard to ocean currents over the line of the telegraph, and in regard to the form and condition of the bed on which the cable is supposed to rest, are not sufficient to base a logical argument upon as to the permanence and reliability of the cable's continuity. These data also are contradictory; the most favorable representing an elevated plateau, undisturbed by the undulations of the surface, and beyond the reach of currents and the abrasions of icebergs. Sudden depressions and perpendicular precipices were not believed to exist, which might expose a portion of the cable to continual chafing until the connection was



severed. But other examinations occasion a doubt whether these conditions exist in so favorable a form. The cable crosses a portion of the Grand Banks, on which it is believed very large icebergs sometimes ground. Soundings, however carefully conducted, could hardly be depended upon to discover the existence of high rocks, or other elevations, descending precipitously to great depths. It is hardly possible to ascertain the point where the elevated plateau would sheer off to a deep chasm or valley. The lead-line might strike the brow of a bluff and glide off into water of great depth when all appearances would indicate a uniform plane. It is evident that, even if there were no deep sea currents in the path of the cable, whose influence reached to the bottom, there might be places where the cable would hang suspended from a point, which is as yet undiscovered, but which would project near enough to the surface to be affected by a current.

The fact, therefore, that telegraphic connection has been completed between the two continents, affords us but little encouragement for the perpetuity of such connection. The bed of the ocean is an unknown region which no means, as yet discovered, can enable us to thoroughly survey.

To give our readers an adequate idea of the present telegraph we reproduce from the *Engineer* the external view of the cable, with an end section, both full size. The cable of 1858 is well known to our readers by the numerous specimens to be found all over the country. The difference between the two is in a heavier conductor, consisting in each case of seven copper wires—six laid round one; in the insulation, which, in the present cable, is composed not wholly of gutta-percha, as was the former, but of that substance alternated with Chatterton's compound, an English patent, and in covering the sheathing of iron wires simply with Manilla yarn instead of india-rubber and tar. These variations do not constitute any very radical difference between the cable of 1858 and that of 1866.

One of the most remarkable circumstances attending the laying of the present cable is the directness of the route taken by the *Great Eastern* and the small percentage of slack of the cable paid out compared with the distance run. The whole distance run was 1,669 miles and the whole length of cable laid 1,864.

Much of this difference was made at the shore ends. The log of the steamer shows:—

SATURDAY, 14TH.—Distance run, 108 miles; cable paid out, 116 miles.

SUNDAY, 15TH.—Distance run, 128 miles; cable paid out, 139 miles.

MONDAY, 16TH.—Distance run, 115 miles; cable paid out, 137 miles.

TUESDAY, 17TH.—Distance run, 118 miles; cable paid out, 139 miles.

WEDNESDAY, 18TH.—Distance run, 105 miles; cable paid out, 125 miles.

THURSDAY, 19TH.—Distance run, 122 miles; cable paid out, 129 miles.

FRIDAY, 20TH.—Distance run, 117 miles; cable paid out, 127 miles.

SATURDAY, 21ST.—Distance run, 122 miles; cable paid out, 136 miles.

SUNDAY, 22D.—Distance run, 123 miles; cable paid out, 133 miles.

MONDAY, 23D.—Distance run, 121 miles; cable paid out, 138 miles.

TUESDAY, 24TH.—Distance run, 121 miles; cable paid out, 135 miles.

WEDNESDAY, 25TH.—Distance run, 112 miles; cable paid out, 130 miles.

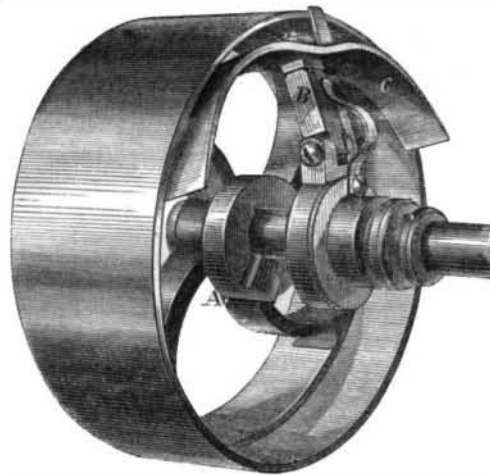
THURSDAY, 26TH.—Distance run, 128 miles; cable paid out, 134 miles.

FRIDAY, 27TH.—Distance run, 112 miles; cable paid out, 118 miles; which, with shore end off Valentia, distance 27 miles, cable paid out 29 miles, makes distance run 1,669 miles, and paid out, 1,864 miles.

The raising of the last cable, and its connection with this continent, which it is hoped and expected can be successfully accomplished, with the relaying of the connection between Newfoundland and the main land, will give two entire lines between America and Europe. In that case we believe it would be good policy for the directors to reduce the charge for conveying messages from the present exorbitant rates.

BIRDSALL'S PULLEY.

The advantages of friction pulleys for driving machinery are so well known, and have been alluded



to so frequently in these columns, that we shall not repeat them. It is not amiss, however, to state once more that one pulley and one belt are dispensed with by such an arrangement, as also the expense of repairing the same.

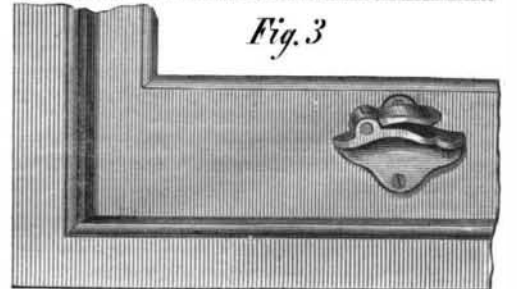
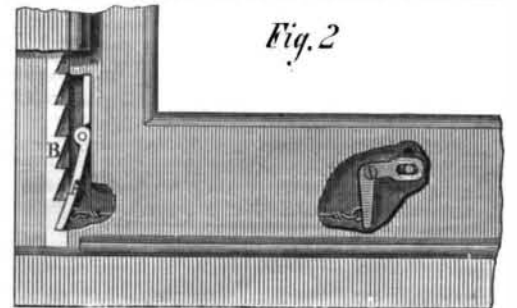
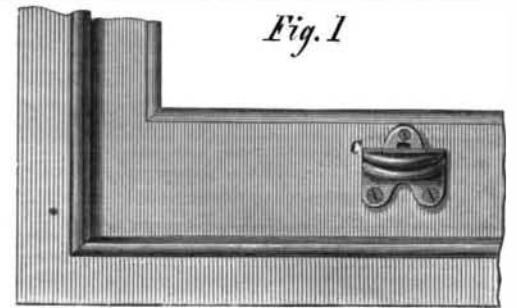
The pulley here shown is adapted for driving heavy machinery, and is a combination of the clutch and friction principles usually employed singly. It is, in detail, a pulley turned up true inside and out, having a socket, A, in the hub to receive a dog on the sliding collar. The end of the shipping bar works in a recess in the collar, as usual, and by throwing the same in gear, the dog falls into the socket, and the toggle joint, B, throws the spring plate, C, into contact with the rim of the pulley, the friction of course aiding in driving the main shaft. This is the whole arrangement, and it is claimed to be particularly adapted to heavy machines for the certainty of its action.

A patent on this pulley is now pending through the Scientific American Patent Agency, by E. M. Birdsall, Penn Yan, N. Y., whom address for further information.

THE Oakland Works, at Sag Harbor, N. Y., are finishing a fine clock for the Court House at Salt Lake City.

TOSHACH'S SASH SUPPORT.

The petty trials of life are often harder to bear than positive afflictions, and of all nuisances we place an obstinate windowsash at the top of the list. It is not necessary, perhaps, to harrow up any one's feelings by a recital of all the casualties and annoy-



ances springing from this cause; we therefore proceed to give an infallible remedy for the ills a window sash is heir to. That remedy is illustrated herewith.

Figures 1, 2, and 3 show, respectively, one corner of a window sash and framing, with the apparatus for opening it—a section of the framing revealing the arrangement, and a different arrangement of the parts externally to accomplish the same end.

It will be seen that the sash is without cords or weights, and that it is held at any desired point by a spring dog, A, working in a rack, B. The dog is connected by a wire and a lever to the thumb piece or handle, C, by which the window is raised, so that in raising the window and removing the hand the sash stops itself at the point it was raised to; it is lowered by simple pressure on the projection, D.

This mechanism is certain in action and not costly. The parts are few and simple, and will last for years with proper care. All sudden dropping, so fatal to windows with large and costly panes, is obviated, and the operation is so simple as to be easily understood by children and servants.

It was patented on June 27, 1865, and Jan. 9, 1866. For further information address Wm. Toshach, Sec'y National Manufacturing Co., No. 52 William street, New York.

Patent Swindling.

A correspondent in Altoona, Pa., complains that he, among others, has been swindled by a man representing himself as an agent for a patent corn sheller. The game appears to be selling the right to use the machine and a case of castings for making them, receiving the money, giving a receipt, but never sending the castings.

We cannot tell whether the patent alluded to has ever been issued. If so, it was probably by some other name than that by which it was sold. The game is an old one and has before been exposed in our columns. The only safety is to refuse to pay for what one does not receive, and never trusting to the mere word of an irresponsible agent. In such cases the written promise and receipt of an unknown and uncertified man is no protection nor assurance against a swindle.