

**Hinged Plates for Pianofortes.**

Science and mechanical skill undertake one of their most difficult and delicate tasks when they attempt to improve the pianoforte. The sensitive ear of the skillful musician detects the slightest inaccuracy, not merely in the harmony, but also in the volume, the tone, the rythm, the melody, of all the various sounds that enter into the composition of music, and the formation of these sounds of the proper quality, and their combination in exact harmony is certainly one of the nicest of all arts. The universal love of music has created an enormous demand for the most fashionable musical instrument, the piano; and this great demand is constantly stimulating the numerous manufacturers to make improvements in the instru-

ment. It will be observed that this plate strengthens the treble and tenor portions of the scale which are usually the weakest parts of the keyboard. It is estimated by the inventor and by impartial musicians who have tried pianos with this hinged plate, that the improvement *doubles* the volume of sound.

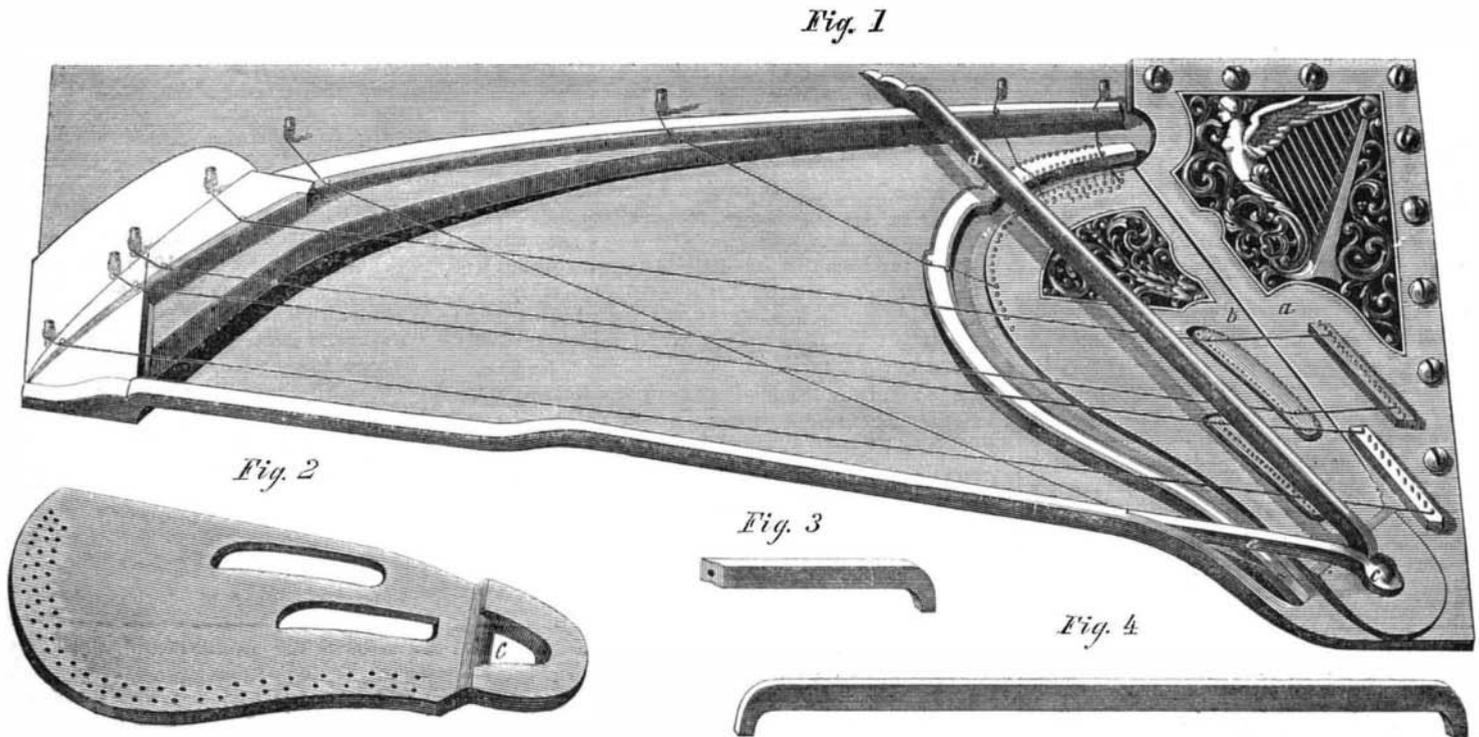
The patent for this invention was granted June 3, 1862, and further information in relation to it may be obtained by addressing the inventor at the corner of Third avenue and Fourteenth street, New York city.

F. WALTON, of London, manufactures a substance from linseed oil, which answers as a substitute for india rubber in many cases. The oil is boiled until it

made through the Scientific American Patent Agency, and further information in relation to it may be obtained by addressing the New York Emery Wheel Company at 116 Nassau street, New York city. [See advertisement on another page.]

**Paraffine as an Engine Lubricator.**

The common lubricating agent usually employed for the pistons in steam engines, is melted tallow. In the cylinders of engines in which superheated steam is used the tallow is very liable to be decomposed and its beneficial action as a lubricant thereby destroyed. And in those engines which have surface condensers, the steam passes from the cylinders to the condensers, thence to the boilers carrying with it

**WORCESTER'S HINGED PLATES FOR PIANOFORTES.**

ment, in order that their own articles may be more acceptable to the public than those of their rivals. Many of the patents granted are for modifications which are no improvements, but the few actual improvements which have been patented have shown that there is hardly any department in which good inventions are more profitable.

Horatio Worcester, an old-established and well-known manufacturer of pianofortes, of this city, has recently invented a modification in the plate of pianos designed especially to increase the volume and improve the quality of the tone. The modification consists in making the plate in two pieces, and connecting the piece to which the strings are attached with the stationary piece by a hinged joint, so that the hinged piece may vibrate with the strings. The invention is illustrated in the annexed engravings.

The stationary piece, *a*, Fig. 1 of the plate, is secured firmly to the piano in the usual manner, and the piece, *b*, is connected with it by a hinge at *c*. This piece is represented detached in Fig. 2. The hinge is formed by catching the slot, *c*, upon a short stud which rises from the stationary plate below. The strings are attached to the opposite edge of the hinged piece, *b*, as indicated, supporting this end of the plate simply by their tension.

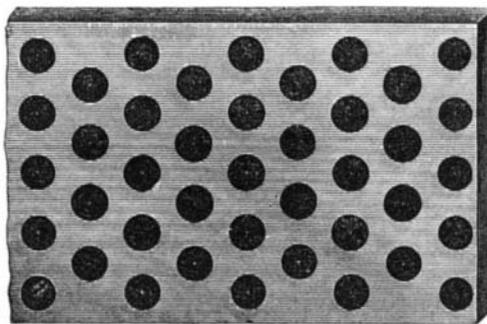
As the combined strain of so many strings amounts to some five or six tons, it is necessary to counteract it by devices of corresponding strength. Braces, *d* and *e*, are accordingly introduced to hold the piece, *b*, against the strain of the strings. These braces are made of metal, and are represented detached in Figs. 3 and 4.

By this arrangement the vibration of the strings is imparted to the piece, *b*, prolonging the note, giving increased volume to the tone, and imparting to it a singing quality which has been much admired by the most eminent musicians of the city. The inventor describes the freedom given to the sounding board by the hinged plate as similar to that found in the violin, the action of the tail piece of which beautiful instrument furnished the suggestion for this improve-

ment. It becomes a thick substance like glue. It is then mixed with a portion of shellac and rolled into sheets under warm heavy iron rollers. Waterproof boots, shoes, blankets, picture frames, &c., have been made of it. It is mixed with sulphur, and vulcanized like india rubber.

**VANDERBILT'S POLISHING BELT.**

The annexed engraving represents a polishing belt invented by George R. Vanderbilt, of this city. It is



formed by inserting plugs of emery in a leather in the manner represented. The holes are cut in conical form, being smallest at the polishing surface, and the plugs of emery are made to fit the holes; a strip of cloth upon the back side holds the plugs in place. The emery is fastened together with a suitable cement, which wears away with the leather, and thus the plugs act as constant feeders to the entire surface of the belt. The belt, consequently, requires no replenishing with emery until it is entirely worn out. It may be connected at the ends to form an endless belt and run on two pulleys, or it may be secured to the periphery of a wheel to form a polishing wheel.

This belt has been tried at the Novelty Iron Works, in this city, and is pronounced by the foreman a good article.

Application for a patent for this invention has been

much tallow, the acid of which is liable to act chemically upon the brass tubes of the condenser, forming verdigris, which is transmitted to the boiler. When this verdigris comes into contact with the iron of the boiler, under a high heat, it is decomposed, and the copper contained in it develops a galvanic action when in contact with the iron wheel, the latter is subject to rapid corrosion. Such is the theory of the action of tallow used as a lubricant in steam engines. As a substitute for it, Mr. W. Fairbairn, F. R. S. recommends paraffine. It is not decomposed by superheated steam, and it does not act chemically on brass tubes.

**Suspension of Cotton Growing at the South.**

Returned prisoners from the South state that, so far as they saw and heard, the cultivation of cotton is almost entirely suspended in those States that used to produce that staple. In the early part of the present spring cotton planting was commenced, but suppressed by proclamations by the governors of the cotton States, who enjoined the planting of corn instead. The planters were by no means disposed to obey these arbitrary ukases, but they were frightened into submission by the threat of a tax to the full value of the product. The consequence is, no more cotton is planted than will suffice for seed for an ensuing crop; but instead of the deposed monarch, King Cotton, King Corn wields the scepter—nearly the entire cotton lands being converted into one vast corn field.

**A SAFE RAILROAD.**—The New Jersey Railroad Co. (Jersey City to New Brunswick, 34 miles) has been organized thirty years, and since the road went into operation upward of 39,000,000 passengers have been transported over it, without the loss of a single life in any of the cars. During the past year alone nearly 3,000,000 of passengers have been carried over the road, without any serious accident to any one, except those who have either jumped from the trains while in motion, or otherwise jeopardized their own lives by violating the rules of the company.