Improved Harrow and Clod-crusher.

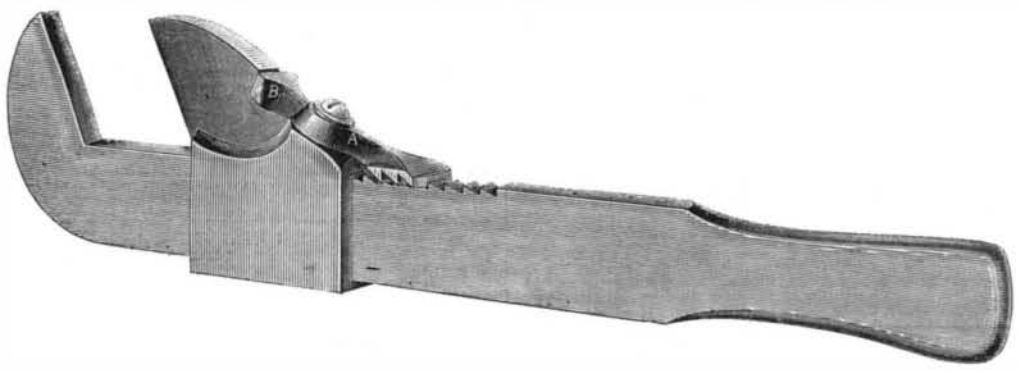
This machine is a combined harrow and clod-crusher, and is intended to effect its object in a simple and expeditious manner. The construction of it will be readily understood by referring to the appended description. The clod-crusher, A, is a strong frame made either of iron or of wood faced with iron, and is jointed to the harrow, B, behind, so as to move up and down easily. The harrow itself follows the clod-crusher, as may be seen by reference to the engraving, and is so arranged that when it is desired to use the clod-crusher alone, the harrow can be turned up over the latter, and thus add its weight to the work; this will generally be found sufficient, but if more pressure is required stones can be added as desired. The harrow is furnished with a handle, C, in in the rear, so that as occasion demands it can be raised to clear the teeth from weeds and grass that have clogged them. This machine will be found a very useful one for the purpose, and may be used as shown for either harrowing or clod-crushing, in combination or separately.

DUBUISSEN'S HARROW AND CLOD-CRUSHER.

The invention was patented through the Scientific American Patent Agency on June 30th, 1863, by Geo. W. Dubuissen, of Jerusalem South, Queens county, N. Y. For further information address the inventor at that place, or R. H. Allen & Co., 189 Water street, New York.

Improved Wrench.

The wrench herewith illustrated is one that will recommend itself as a very complete and useful tool. It can be set most readily to any size, and is very strong in the direction of the greatest strain. It is made light and thin so as to go into a narrow opening, and the body is increased in width so as to compensate for the reduction previously mentioned. The one before us is made of malleable iron, but they can be made of wrought-iron as well. The engraving explains itself so clearly that further comment is almost needless. The reader will see that the brace, A, has a grooved foot that fits into corresponding projections on the handle. The center of the brace is fitted with a screw as a pivot to turn on. The brace does not fit the screw, but has a slot in it so that the strain comes upon the upper end, B, and there is also a spring washer under the head of the screw which keeps the brace close up to the handle so that it cannot slip when about to be used. The wrench as thus made is a very convenient one, and was patented on Jan. 5th, 1864, through the Scientific American Patent Agency, by H. Sharp, and assigned to Brown & Heal, Factoryville, Staten Island. For further information address J. M. Brown, 388 Broadway, New York.



SHARP'S ADJUSTABLE WRENCH.

Damages of the Sheffield Disaster to be Paid.

The Northern and Eastern counties correspondent of the *London Engineer*, of April 22d, says:—"The Sheffield Waterworks Company held a rather gloomy meeting on Monday. The directors intend to admit the liability of the company, and in order to meet the claims upon them, they propose to ask Parliament for powers to raise £400,000, and to issue a special commission to assess the compensation due to the sufferers by the flood. The chairman briefly referred to the overwhelming calamity that had come upon the company since their last meeting, and stated, on the part of the directors, that they were desirous of satisfying, to the fullest possible extent, consistent with justice, all the claims that could be brought against them. The report recommended that no dividend should be declared. Mr. M'Turk moved that the usual dividend of five per cent., which had been earned previous to Dec. 31st, should be declared. The law clerk read a clause from the opinion of counsel' setting forth that shareholders were liable to the extent of their shares, but not further; and as regarded the question of a dividend, the attorney-general, and other eminent barristers, who had given the opinion, added that the company would act very injudiciously if they divided any sum at present. It was urged in the course of conversation, by those favorable to the declaration of a dividend, that many widows and orphans were dependent upon the annual dividends of the company, and that 'no dividend' meant to them the extreme of distress and privation; but it was felt that under present circumstances, however great the individual hardships might be and would be in many cases, it would not be right to declare a dividend in the face of the application that is to be made to Parliament. The motion was withdrawn by Mr. M'Turk, and the report of the directors was adopted."

Effect of Vibrations on Iron Girders.

In the London *Artizan* we find a full report of an elaborate series of experiments undertaken by William Fairbairn, LLD., F.R.S., to ascertain the effect of vibrations on iron girders when subjected to only a portion of the breaking strain. A beam, 16 inches in depth with a clear span of 20 feet, was so arranged that the weight could be let down upon it suddenly, and then caused to vibrate. The experiments commenced March 21, 1860, and continued to Jan. 9, 1862; the changes in the load amounting to upwards of 3,000,000.

Mr. Fairbairn concludes that iron girders in railroad bridges and other places where they are subjected to sudden changes of load and to vibrations, cannot be loaded with safety to one-third of the breaking strain, but that with one-fourth of the breaking strain they will last for hundreds of years.

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