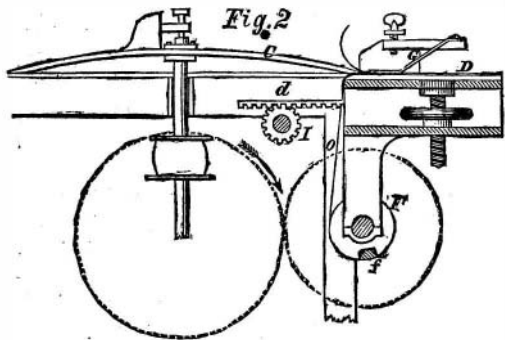


IMPROVEMENT IN LEATHER-SPLITTING MACHINES.

Leather being so costly a substance great efforts are made to introduce economics in its manufacture and use in every direction. One plan for getting the most possible surface out of a given weight, is to split the thick hides into two thinner sheets. The annexed engravings represent an improvement in the mechanism for effecting this.

A thin, circular knife, C, Fig. 2, made dishing with the convex side uppermost, is made to revolve by suitable machinery, with its sharp edge just above a horizontal table, D, and the leather to be split is drawn over this table against the edge of the revolving knife. The lower sheet, O, of the split leather passes down below the knife around the feed roller, F, to which it is secured by the clamping bar, J. The leather is drawn along and pressed against the edge of the knife by the rotations of the feed roller, F, which is turned by the machinery at the proper speed for this purpose. The upper sheet, P, passes above the knife and is removed by hand. A series of springs, G, with their ends curved to fit near the cutting edge of the knife, are placed above the leather to hold it down close to the table. The shaft which carries the knife rests upon a stiff spring at the bottom, and is pressed down by a set-screw at the top, by which means its distance above the table may be regulated, and the thickness of the lower sheet of leather varied at pleasure. The table has racks, d, secured to its lower side, which racks mesh into pinions, I, the shaft of the pinions having a crank upon its end. By this means the table may be drawn back



from the edge of the knife, for the purpose of placing the sheet of leather to be split upon it. After the leather is placed, with one end secured to the feed roll, the table is carried up to the knife, the machine started, and the operation proceeds.

The patent for this invention was granted November 23d, 1858, and further information in relation to it may be obtained by addressing the inventor, Henry E. Chapman, at Albany, New York.

ORIGIN OF IRON BRIDGES

The London *Quarterly*, in alluding to the new and varied applications of iron, gives Thomas Paine the credit of being the inventor of iron bridges. It states that when he resided in Philadelphia, in 1787, he proposed to erect a bridge over the Schuylkill river, and that it should be of great span, without piers (so as not to be obstructed with ice). Paine boldly offered to build an iron bridge with a single arch of 400 feet span. In the same year, he went to Europe and sent a copy of his plan to Sir Joshua Banks, in London, who submitted it to the Royal Society. Paine then went to the Rotherham Iron Works, in Yorkshire, to have the design of his bridge carried out. Segments of an arch of 410 feet span were made of cast and wrought iron. The castings were then shipped off to London and erect-

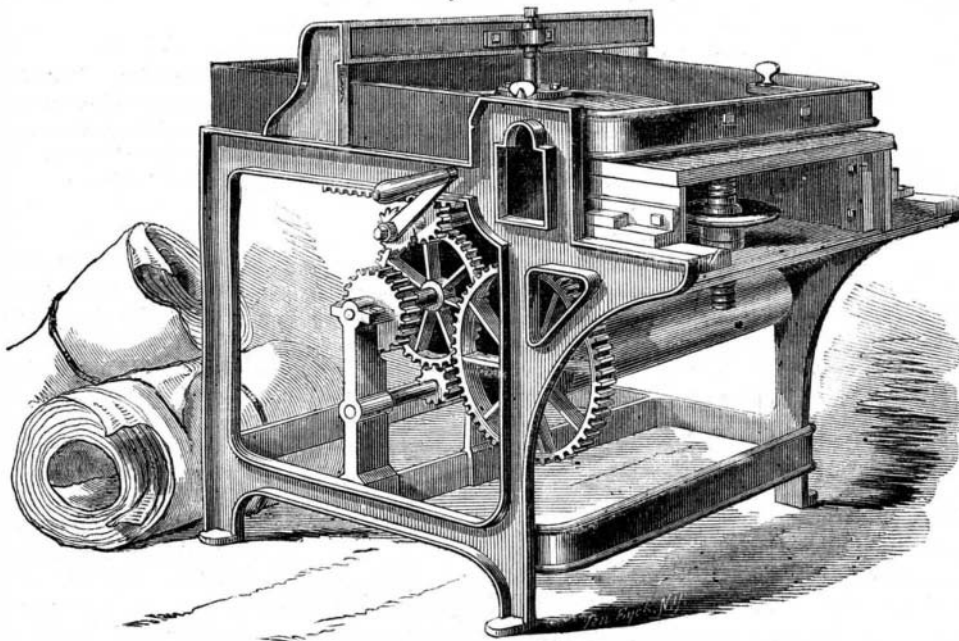
ed on a bowling-green at Paddington. It was there visited by a large number of persons and regarded as a great success. Paine, being poor, became debtor for the castings, but his creditors at last agreed to take back the castings, and they used them on a bridge erected over the river Wear, at Sunderland, where it was erected in 1794. This bridge was long regarded as the greatest triumph of art. Its span exceeded that of any existing stone arch, being 236 feet, with a rise of 34 feet, the springing commencing 95 feet above the bed of the river, allowing vessels of 300 tons burden to sail underneath without striking their masts. "If," says Mr. Stephenson, "we are to consider Paine as its author, his daring

saved from collapsing on the withdrawing of the water, by having one of these faucets inserted in it, as a supply cock. As soon as the pressure from the outside becomes less than that from the inside, the valve will open and supply the boiler with air. Again, in cases where the water is drawn from the pipes of a building, to prevent them from bursting in cold nights, if these faucets are used as draw-cocks throughout the building, the emptying of the pipes may be effected by a single valve and spigot in the lower part of the building, without any attention to the several faucets, each of which would open automatically and supply its portion of the pipes with air.

The patent for this invention was granted July 24,

1860, and further information in relation to it, may be obtained by addressing the inventor, James Flattery, at 17 Gates-avenue, Brooklyn, N. Y.

Fig. 1



CHAPMAN'S LEATHER-SPLITTING MACHINE.

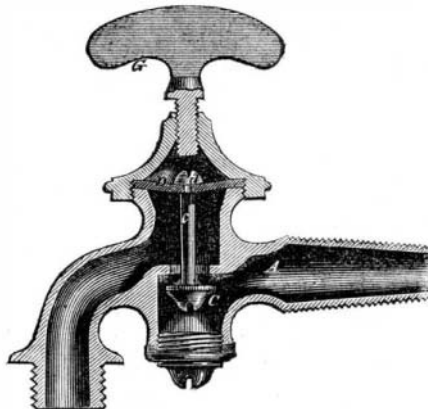
in engineering certainly does full justice to the fervor of his political career; for, successful as the result has undoubtedly proved, want of experience and consequent ignorance of the risk could alone have induced so bold an experiment; and we are rather led to wonder at than to admire a structure which, as regards its proportions and the small quantity of material employed in its construction, will probably remain unrivaled."

FLATTERY'S IMPROVED FAUCET.

This is a beautiful invention and it is just one of those little things that are always the best to make money out of.

The water enters at A, and is discharged at B. The valve, C, fits into its seat above, and is connected by its stem, c, with the flexible india-rubber diaphragm, D, to which it is secured by the screw, d. The faucet is closed by the pressure of the water against the valve, and it is opened by turning the thumb-screw, G, inward so as to press the valve downward away from its seat.

As the valve is held up against its seat merely by the



pressure of the incoming water, as soon as this pressure ceases, the valve falls down away from its seat, permitting a back flow outward, freely through the cock. This property adapts this faucet to many situations in which it is very valuable. For instance, a light boiler which is above the altitude at which water will be supported in it by the pressure of the atmosphere, will be

BRILLIANT PROSPECTS FOR THE FARMERS. — A writer in the *Herald* says: "I conversed, to-day, with a resident of Chicago, who has lately come in from the West. He reports that the people in the East have no idea of the revolution that the crop is producing in the Western States. Many farmers who sowed last fall and last spring, and calculated on a harvest, under favorable circumstances, of 20,000 bushels grain, will harvest 40,000. The yield of wheat per acre along the line of the Galena will, on the forest lands, be 25 bushels, while the best lands will yield over 40; the corn yield throughout Illinois will

vary from 75 to 100 bushels to the acre. Mr. McCormick, the inventor of the reapers, has sold, during the summer, 4,000 reapers to the farmers in the neighborhood of Chicago. Should the price of wheat at Chicago not fall below 80 cents per bushel, our informant estimates that 12,000,000 bushels will arrive at that point between the 15th of August and 15th of October. I note already that yesterday (13th) the receipts at Chicago were 300,000 bushels of grain. The prices obtained by the railroads for carrying grain are generally satisfactory. It will be noticed that the advices from Europe, via Quebec, report a continuation of unfavorable weather for the crops."

A GOLD MINE IN A TAN-PIT! — On the 21st of last February, Messrs. Robinson & Eggleston, of Waukesha, Wis., obtained (through the Scientific American Patent Agency) a patent for an improved process of tanning hides, whereby tanning operations may be conducted altogether independently of the oak and hemlock barks of our forests, in any location where there is plenty of water, and a superior quality of leather (both upper and sole) is produced. In a letter dated August 11th, expressing the patentees' gratitude for our services in preparing their specification and prosecuting their case to a successful issue, they incidentally mention that they have just forwarded to Washington, for record in the archives of the Patent Office, a deed-of-transfer of an undivided interest in their patent, in consideration of the snug little sum of \$150,000! This is a practical illustration of the aphorism of the *Æsopian fable*—"there is nothing like leather."

SEWING MACHINE CASES. — In the five suits brought under the A. B. Wilson feed patent for sewing machines, against Geo. B. Sloat & Co., J. G. Wilson and Judge Nelson has rendered a decision fully sustaining these patents and ordering a perpetual injunction to issue against the defendants. This decision seems to settle the validity of Wilson's feed patents, which have been in dispute. We alluded to these cases in our issue of the 7th inst. It was argued in June last, before Judges Nelson and Smalley, at Cooperstown, N. Y.