

IMPROVED PLANER.

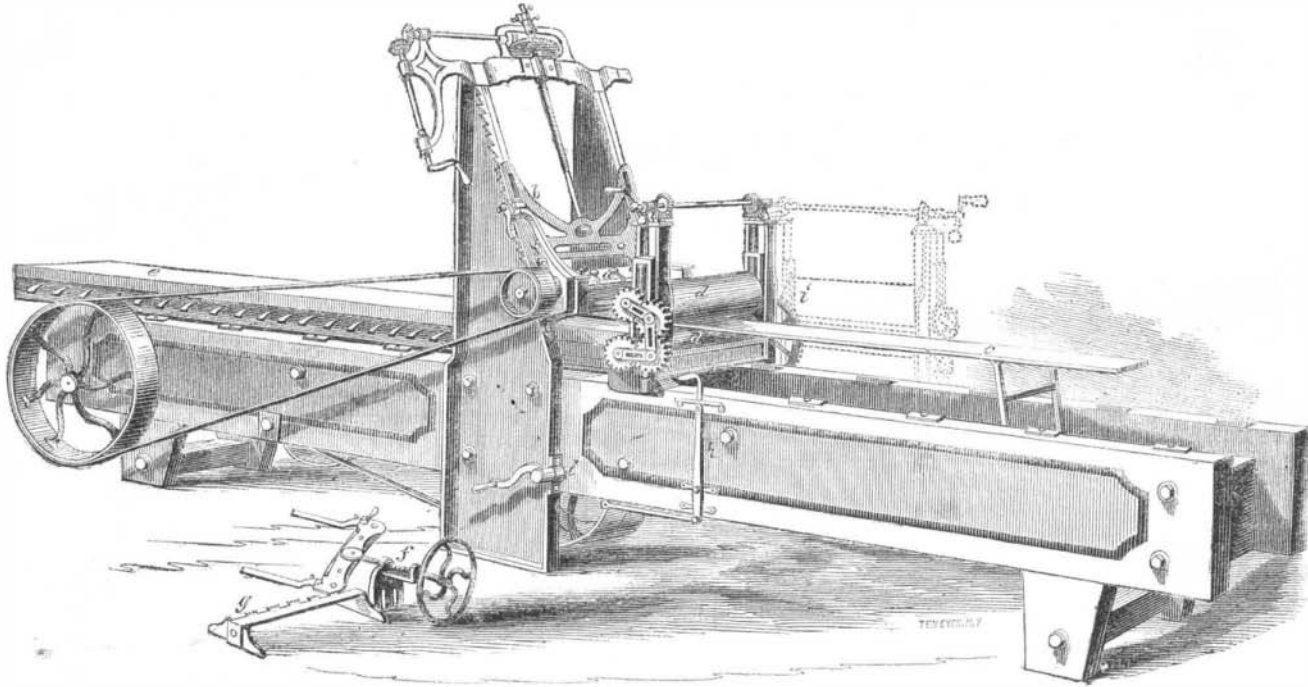
This is a combination of two costly machines, the Daniels' planer and the Woodworth machine, in one; which can be built at an expense but a trifle more than either of the two.

Our illustration represents it arranged as a Woodworth planer; the revolving cutters, *a*, being hung in the sliding frame, *b*, so that they may be raised or lowered according to the thickness to which the stuff is to be planed. The plank, *c*, is fed between the rollers, *d d*, which carry it

to sticking, architraves, cornices, base moldings, and various other kinds of work.

It is protected by three patents: one issued Aug. 22, 1854; the second, Sept. 4, 1855; and the third, Jan. 24, 1860. The claims of the last patent may be found on another page. It received a silver medal at the last fair of the American Institute. This machine, with the recent improvements, can be seen in practical operation at Ross & Marshall's cabinet manufactory, corner of Eleventh-avenue and

ty-ninth-street, and at John bent at right angles and hooked through the flat metal plate, *C*, in the manner plainly shown in the cut. The bands of iron are superior to those made of vegetable fiber in two important respects—they do not stretch, and thus the bale is preserved of the size to which it is compressed; and they do not burn, thus rendering a bale almost incombustible, for a bale of cotton can hardly be burned until the hoops give way and allow it to open to the air. The iron band is also adapted to bales of cloth as well as of cotton, having at least the advantage

**GRAY AND WOODS' IMPROVED PLANER.**

along by their revolutions under the cutters. When it is desired to plane stuff out of wind, as is done with the Daniels' planer, the frame in which the rollers, *d d*, are hung is swung round on a hinge out of the way, by the farther side of the machine, as shown by the dotted lines, and the bed, *e*, is brought into use. This bed being moved along to the right hand end of the machine, the dogs, *f* and *g* (seen loose in the cut), are fastened upon it, *f* at its right hand end and *g* at such place as will bring it at the opposite end of the stuff. The winding plank or other wood to be planed is dogged on the bed, and this being thrown into gear, is carried under the revolving cutters which reduce the surface of the plank to a plane from which it will not twist on being released from its hold. When the machine is thus arranged, stuff may be planed by it from $\frac{1}{2}$ to 16 inches in thickness, and by removing the left hand dog, *g*, and introducing the small pressure roller, *k*, in front of the cutters, stuff may be planed as thin as 1-16th of an inch. The bed is carried along by a rack upon its under side which gears into a driving pinion, and the direction of this pinion's motion may be changed by means of the handle, *h*, so as to carry the bed both ways by the power of the engine. The gear which drives the pinion by which the bed is carried back and forth is on the shaft, *l*, and a series of gears on the further end of the same shaft, *l*, turns the rollers when they are in use and the machine is arranged as a Woodworth planer; a lever on the further side of the machine, not shown in the cut, serving to shift the feed gear either to the bed or to the rollers, as may be required. One distinct subject of invention in this machine is the shape of the cutter-head, which is made concave from the edge of the cutters on the inner side, so as to operate like the double iron of the bench-plane to break the shaving and make smooth work in cross-grained hard wood. The crossbar of the dog, *f*, is pivoted in the middle, and the two arms are pivoted at its ends, thus adapting the dog to hold timber or plank the end of which is not at right angles with the length, or to hold two pieces of unequal length.

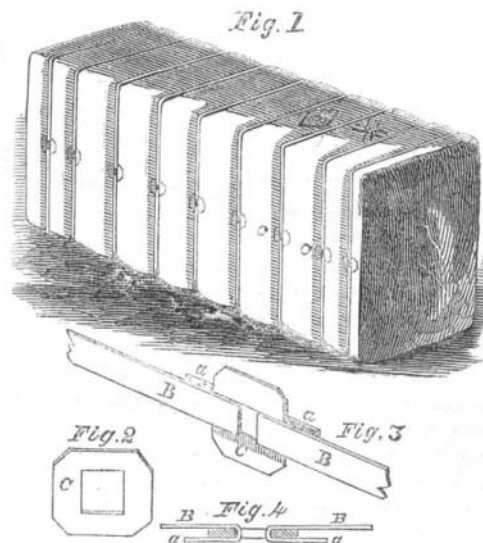
The object of these several combinations is the production of a machine practically adapted to the various kinds of shop work, such as carpenters' shop work, pattern-making, pianoforte work, cabinet work, sash and door-manufacturing, ship-carpentering, &c. It can be adapted

F. Cunningham's sash and door manufactory, corner of First-avenue and Twenty-seventh-street, this city.

For any further information in relation to this invention, inquiries may be addressed to Gray & Woods' machinery depot, No. 69 Sudbury-street, Boston, Mass.

NEW IRON HOOPS FOR COTTON BALES.

The manifest superiority of iron over cotton or hemp as a material for the bands of cotton bales has, within a few years, been recognized, and many of our most ingenious inventors have endeavored to devise some plan for fastening the ends of the iron bands, in a manner free from all objections, and the consequence is that a great many patents have been issued upon them. The inventor of the plan which we here illustrate states that



he has succeeded so perfectly in accomplishing this object that the shipmasters at New Orleans refuse to receive iron-bound cotton bales unless they are secured by his tie; its peculiar flatness allowing the bales to slide over each other, and thus greatly facilitate the handling and stowage.

The plan is so simple that it will be understood at a glance. The ends, *a a*, of the flat iron band, *B B*, are

of cheapness, as they cost less than those of cotton or hemp.

The patent for this invention was secured through the Scientific American Patent Agency, Nov. 15, 1859, and persons wishing to obtain further information in relation to it, will please address the inventor, John T. Butler, at Natchez, Miss.

OLD CHINESE SUSPENSION BRIDGES.—Sixteen hundred years ago, the Chinese exhibited great engineering skill; and had they continued to devote themselves to improvements in the arts and sciences, they would have been the most civilized nation at present in the world. In the second century of the Christian era, according to the concurrent testimony of all their historical and geographical writers, Shang-leang, the commander-in-chief of the army, undertook and completed the formation of roads through the mountainous province of Shense, to the west of the capital. Hitherto its lofty hills and deep valleys had rendered communication difficult and circuitous. With a body of 100,000 laborers he cut passages over the mountains, throwing the removed soil into the valleys, and where this was not sufficient to raise the road to the required height, he constructed bridges, which rested on pillars or abutments. In other places he conceived and accomplished the daring project of suspending a bridge by ropes from one mountain to another across a deep chasm. The bridges, which are called by the Chinese writers "flying bridges," and represented to be numerous at the present day, are sometimes so high, that they cannot be traversed without alarm. One still existing stretches 400 feet from mountain to mountain over a chasm of 500 feet deep. Most of these flying bridges are so wide that four horsemen can ride on them abreast; balustrades being placed on each side to protect travelers.

RESIGNATION OF COMMISSIONER BISHOP.—We regret to learn that the Hon. William D. Bishop, who has rendered himself so popular during the short time that he has held the office of Commissioner of Patents, &c., as we are informed, in consequence of the pressing nature of his private affairs, felt himself compelled to resign his office. The ex-Commissioner is not the man to remain long in private life, and we presume he will soon be heard from in some field of political activity.