

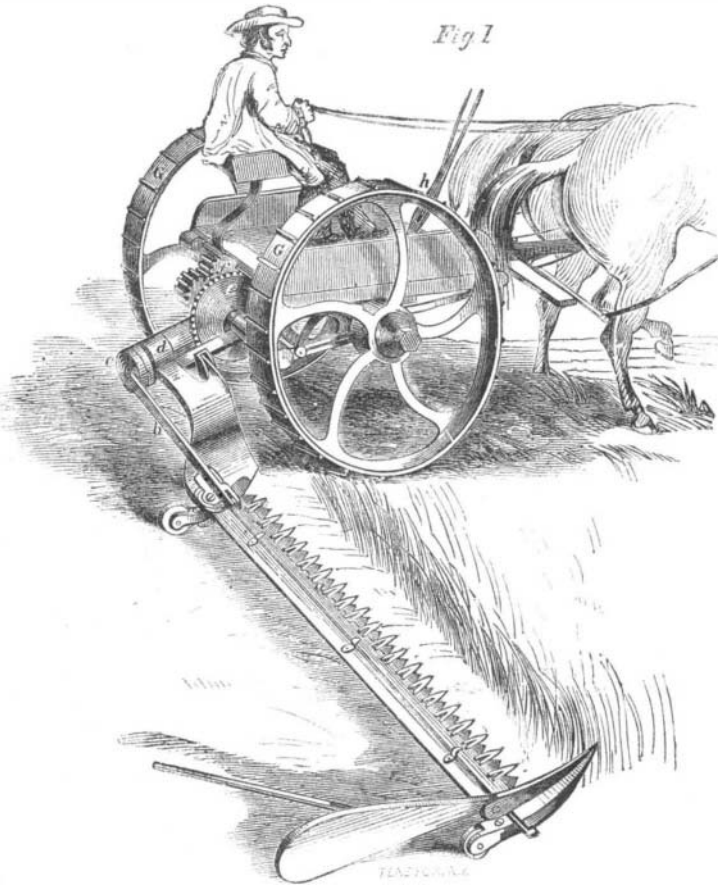
STETSON'S MARYLAND HARVESTER.

The most striking proofs of the boundless field for improvement in mechanism is furnished by the history of the steam engine, the sewing machine and the harvester. While it is true that in each of them some leading idea is preserved in all the modifications, improvements are being constantly suggested in the subordinate parts, or in the combination, which are of very great value. We have had occasion to describe a large number of mowing machines, and we now present an illustration of one invented by W. S. Stetson, which is claimed, and apparently with justice, to possess some advantages over all others.

The vibrating cutter, *a*, Fig. 1, receives its motion through the rod, *b*, which is connected to the revolving wheel, *c*, near its periphery. The shaft of this wheel passes through the journal box, *d*, and has a beveled gear upon its end which meshes into the large gear wheel, *e*. The shaft of the wheel, *e*, has a pinion upon its end which gears into the large wheel, *f*, upon the axle of the carriage. The driving wheels, *G G*, turn upon the axle, but are connected with it by a pawl and ratchet, so as to turn it when they are moving forward but not to turn it in backing. Thus the vibrating motion is given to the cutter by whichever wheel may be moving forward in turning.

In mowing, the height at which the grass is cut is regulated by varying the angle of the cutting points, and this is done by turning the frame to which the cutter is attached about its fulcrum on the axle of the carriage. For this purpose the lever, *h*, rises in a position accessible to the operator, its lower end being fastened rigidly to the frame and a pin being provided to hold it in any desired position. This pin is fastened to the lower end of a second lever, along side of lever, *h*, which has its fulcrum in the middle and its upper end pressed outward by a spring. The pin enters one of a series of holes in the solid part of the carriage, made in a curve concentric with the axle, so that, by grasping the two levers, the pin is drawn from the hole, when the lever may be turned, tipping the cutter to any angle desired, and by

ment of the joints by which the cutter is attached to the carriage. There being two of these at right angles, the cutter adapts itself in the most perfect manner to the inequalities of the ground; that is, if one wheel passes over an elevation so as to turn the carriage, the cutter is not thereby tilted but preserves its proper position, and if a hollow or ridge is encountered, the cutter follows closely these inequalities; thus mowing the grass over the whole of the ground in the most perfect manner.



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These two joints, it will be seen, being placed at right angles, are equivalent to one universal joint, and permit corresponding motions in all possible directions.

This invention is covered by three patents, issued Oct. 25, 1859, and persons desiring further information in relation to it will please address R. Sinclair, Jr., & Co., Baltimore, Md.

CHARCOAL.—Charcoal surpasses all other substances in the power which it possesses of condensing ammonia within its pores, particularly when it has been previously heated to redness. It absorbs ninety times its volume of ammoniacal gas, which may be again separated by moistening it with water. It is by the virtue of this power that the roots of plants are supplied in charcoal exactly as in humus, with an atmosphere of carbonic acid and air, which is renewed as quickly as it is abstracted. Charcoal has a physical as well as a chemical effect on soils, which is decidedly useful. It renders them, as far as it is present, light and friable, and gives additional warmth to them by its color, and retains readily the rays of the sun during the day. Wherever charcoal has been applied, rust never affects the growth of wheat.—*Liebig.*

GAS MONOPOLY.—We are glad to observe that an effort is being made successfully to establish a new gas light company, and destroy the much abused monopoly enjoyed at present by the Manhattan Gas Company. Gas is dearer at present than it should be, and the companies accumulate more money than they appear to divide, and by way of concealing what they do in this way, they keep adding largely to their capital by stock dividends, and then making dividends on the capital thus increased. The hundred dollar shares have been reduced to a mere nominal cost of ten dollars per share. The new company is the Metropolitan Gas Light Company, No. 402 Fourth-avenue. The president is Christian H. Sand, and the secretary is W. Titus. More on this anon.—*Wall Street Underwriter.*

A CHANCE TO MAKE AN ORIGINAL OBSERVATION IN ASTRONOMY.

The bright planet which is now very nearly overhead at 9 o'clock in the evening is Jupiter. It is in the edge of the constellation Gemini (the twins), the two bright stars near it at the north-east being Castor and Pollux. The motion of Jupiter among the stars is now retrograde, that is, from the east over towards the west, so called from its being in the direction opposite to the motion of the sun and moon among the stars. This retrograde motion of Jupiter can be observed by any one without the aid of any instruments. At the present time it will be seen to be in range with certain of the fixed stars, and a week hence it will be easy to see that it has moved over to the westward a little, in range with other of the fixed stars.

Below Jupiter to the east, about 27 degrees distant, is the planet Saturn. It is a little above the sickle in the constellation, Leo; the bright star, Regulus, in the end of the handle of the sickle, being almost directly below it, Saturn has the same retrograde motion as Jupiter. By considering the position of the sun down below the horizon, the motion of the earth eastward and downward at right angles to a line drawn from the earth to the sun, and that the orbits of Jupiter and Saturn are outside of the orbit of the earth, between us and the fixed stars, it is easy to understand the way in which the motion of the earth in its orbit causes this apparent retrograde motion of these two planets.

Since the above was written, while it has been lying in our drawer, the retrograde motion of the two planets, Jupiter and Saturn, has changed, and the motion is now direct; that is, from west to east, as any one may see. It is now very slow, but is becoming more rapid.

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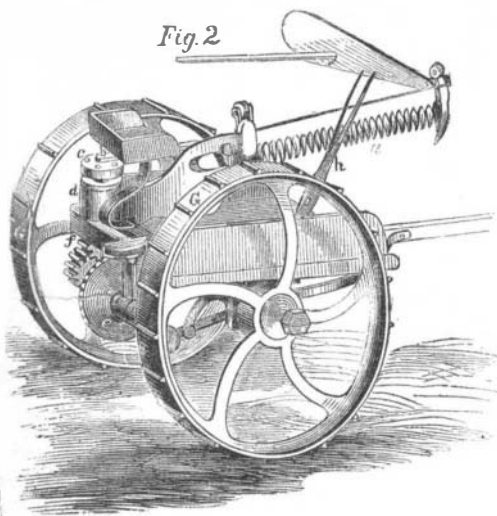
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releasing the lever the pin enters such hole as it may be opposite to, holding the parts in their new position.

In transporting the machine to the field the cutter is turned up and brought over to rest upon the top of the carriage, reaching forward by the side of the horse, as shown in Fig. 2.

To prepare the machine for reaping grain, the small rollers, *i i*, are replaced by wheels of such size as will raise the cutters to the proper height, which wheels support the platform and the raker's seat.

The peculiar feature in this machine is the arrange-