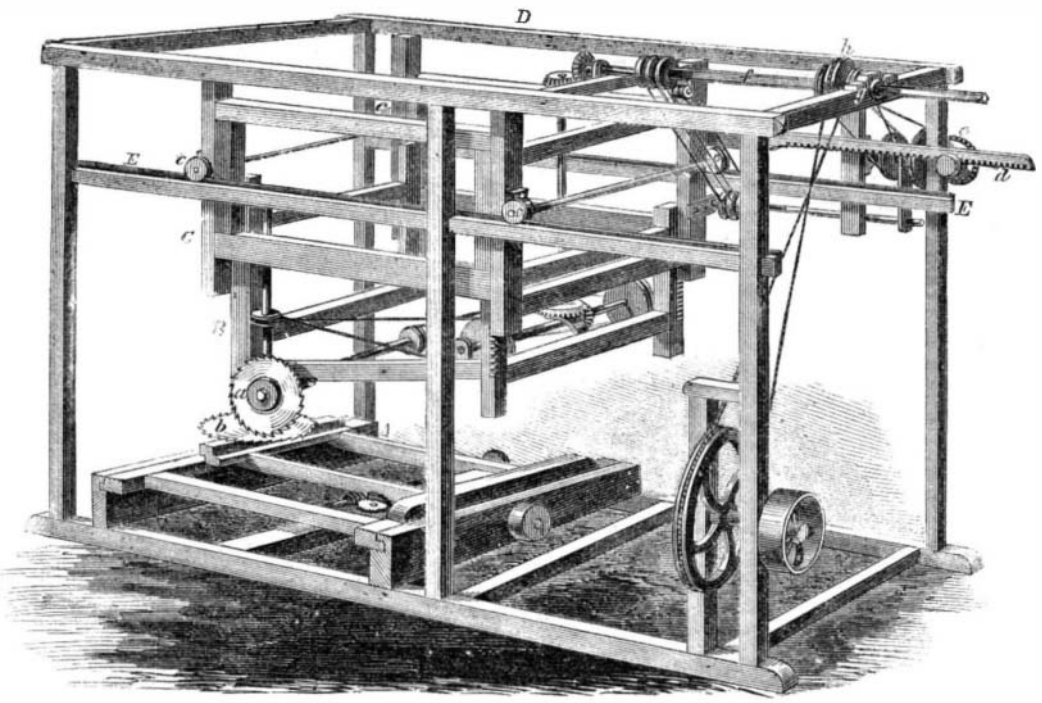
FULGHUM'S SAWING MACHINE.

For sawing square timber, machines have been made in which two circular saws were adjusted with their planes at right angles so as to saw out a stick at one passage of the log; and the invention which we here illustrate consists of a series of contrivances for the more convenient changing of the saws and handling and placing the log in this class of machines.



FULGHUM'S IMPROVED SAWING-MACHINE.

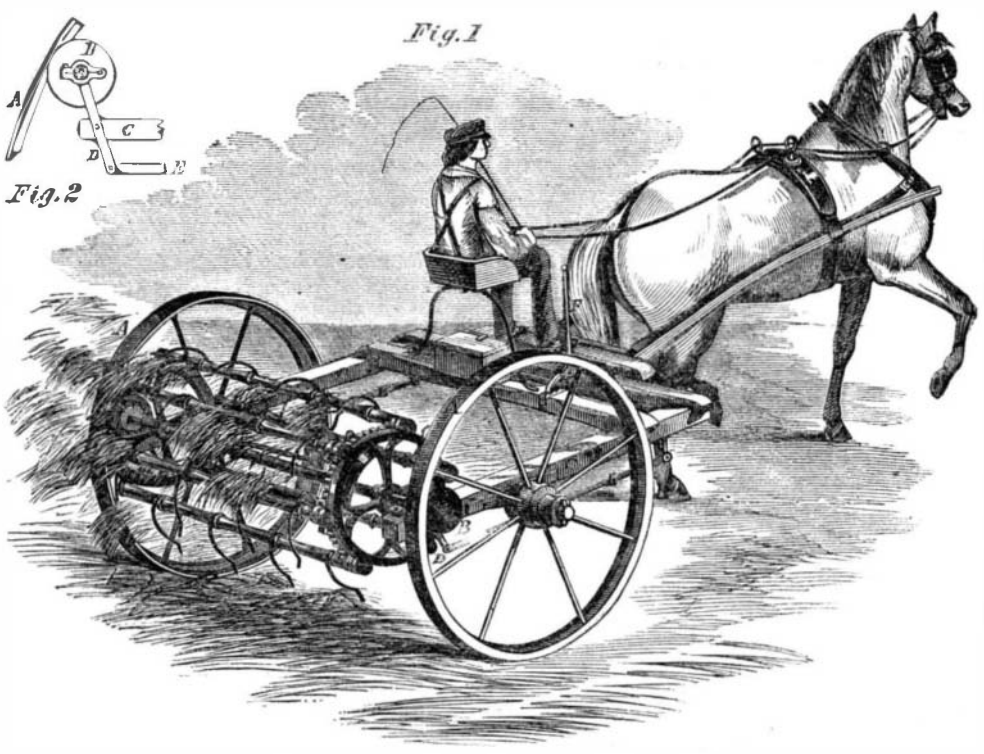
The two circular saws, *a* and *b*, are placed at right angles upon the ends of shafts which run in journals fastened to the frame, B. This frame, by means of four racks at its corners connected with pinions and a crank, may be moved up and down at the will of the operator, in the frame, C. The frame, C, is supported by friction rollers which roll along the ways, E E, on the frame, D, carrying along the frames, C and B, and feeding the saws as they cut their way through the log. This longitudinal motion of the frames, C and B, is effected by a pinion, *e*, which is geared into the rack, *d*; the shaft, *f*, which transmits the motion to the gears that drive the saws, sliding through its journal, *g*, and being rotated by its pulley, *h*, by means of a bead on the side of the shaft which fits in a slot in the bore of the pulley. The log being placed on the frame, A, and power applied, the saws receive a rapid rotation and are carried along through the log, cutting out a rectangular stick. The frame, A, on which the log rests, is then slid along its ways, by turning a pinion which gears into a rack on the lower side of the frame, thus moving the log horizontally, when another stick is cut in like manner. The ways on which the log frame rests are inclined slightly downward, so that when the log is moved horizontally after a cut, the horizontal saw plate is prevented from rubbing against that portion of the log from which the last preceeding stick had been taken. This is a prime feature in this invention. After one series of sticks have been cut from the log horizontally across it, the frame, B, is lowered sufficiently, and another series is cut, and so on. The several motions mentioned are produced by ordinary mechanical devices, and need no more minute description to be understood by machinists.

The patent for this invention was obtained through the Scientific American Patent Agency, on Aug. 16, 1859, and further information desired in relation to it may be obtained by addressing the inventor, Benjamin Fulghum, at Richmond, Ind.

IMPROVED HAY-MAKING MACHINE.

The engravings annexed illustrate a machine for spreading and turning hay, which is claimed to obviate the difficulties which have heretofore been encountered in such machines; especially the clogging of the gears.

A simple frame is hung on two wheels, the axles being short and attached to pivoted blocks, so that the wheel may be turned laterally out of the way when it is desired to substitute a rake for the reel. Upon the back end of the frame is suspended a reel to which a rapid rotary motion is given by means of a friction roller, in the manner represented in Fig. 2. A is a section of the periphery of the driving wheel, the tire of which is made considerably wider than the feloe, so as to project inward. Against this projecting portion a roller, B, presses, said roller being firmly keyed to the end of the axle of the reel. The roller is supported on the end of the short lever, D, which is attached to the side of the frame, C, by a pivot, and rests at an angle so that the weight of the reel may press the roll, B, against the inside of the projecting tire. To the lower end of the ever, D, is attached the rod, E, which leads forward, connecting with a rocking bar which crosses the frame under the seat. A rod connected with a similar arrangement from the other wheel is connected with the opposite end of the rocking-bar which is actuated by the lever, F, in a way to lift the reel from contact with the projecting tire of the wheel, A, or to drop it into contact with said tire at the will of the operator. This arrangement also causes the reel to rise from the tire in case the teeth come in contact with a stump, stone or any other rigid object, and thus stop the rotations of the reel and prevent the breaking of the machine.



STODDARD'S HAY-MAKING MACHINE.

The horse is attached to the machine by means of a staple which slides vertically in an uprig slot, and is moved up and down by a screw at the will of the operator, thus enabling him to change the line of draught at pleasure and tip the cart for the purpose of passing over any rigid obstruction, and also to adapt the elevation of the teeth to the quantity of grass upon the ground.

This machine is the invention of J. C. Stoddard, of Worcester, Mass., who has secured it by patents on several different points.

FRENCH GUNBOATS.

The Paris correspondent ("Malakoff") of the *New York Times* gives the following interesting description of one of the new French gunboats, of which a great number are now being constructed:—

"The system of gunboats is acquiring a large development in the French navy, Recently one of these constructions, by way of experiment, was taken from the Mediterranean to the Atlantic; that is to say, from Marseilles by Toulouse to Bordeaux, nearly all the way by water, thus avoiding the passage by the Straits of Gibraltar. France has long nursed the idea of making herself independent of Gibraltar, by cutting a ship canal over the route just indicated: the successful experiment of transporting a small armed vessel from sea to sea, has revived that idea, and will perhaps engage the nation in the undertaking. This species of gunboat has but one mast, and it is driven by a screw propeller. It carries but one gun, but it is of great calibre, and is placed near the bow behind an immense fire-proof screen, which protects the gunners. It consists of a thick wall of oak, covered with 5-inch plate iron, and pierced with an opening for the muzzle. This screen hides all the after part of the vessel and protects the entire deck. When moving forward such a vessel is very hard to hit because the screen is an immense convex shield, incapable of being penetrated by ordinary shot. These boats draw but little water, and thus, being able to penetrate everywhere, may become most useful and terrible instruments of destruction, if properly managed. We must not forget, however, that two of the British gunboats, of similar character, were lately sunk the conflict with the Chinese."