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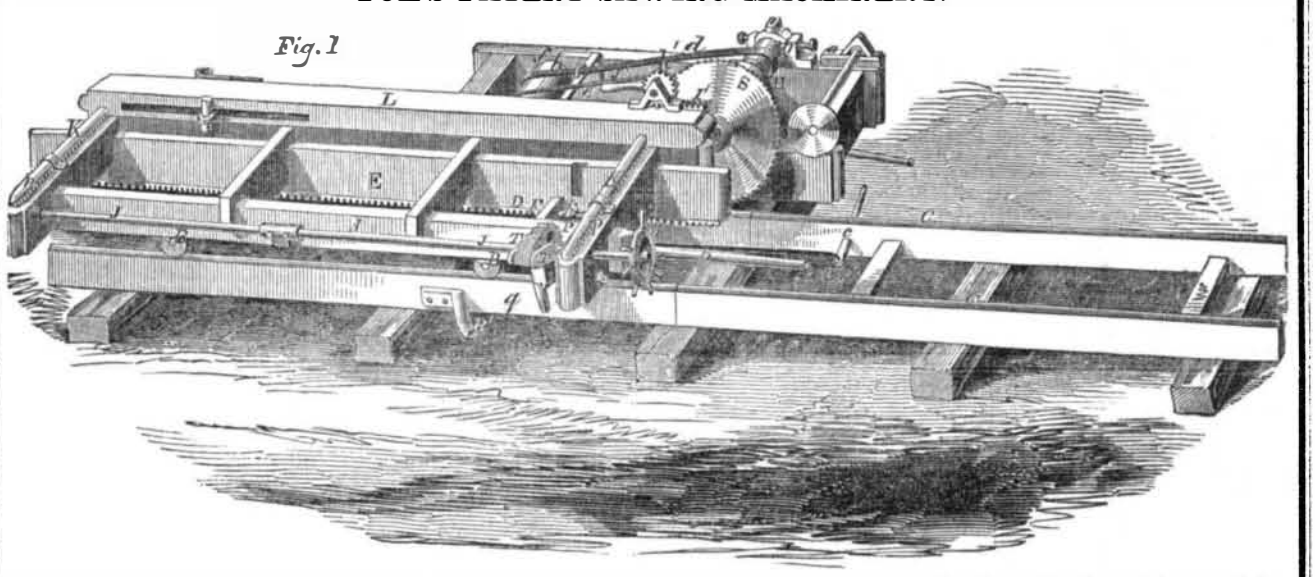
FOX'S PATENT SAWING MACHINERY.

Fig. 1



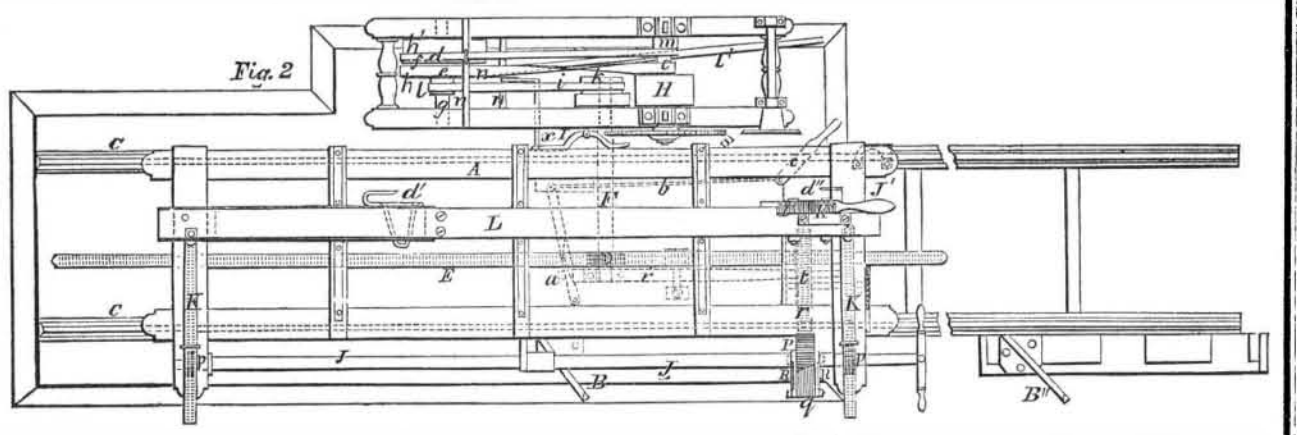
Sawing Machinery.

The accompanying engravings are a perspective view (fig. 1,) and a plan view (fig. 2,) of the improved patent sawing machinery of Charles R. Fox, of Chicago, Ill. The object of the invention is to furnish the means of giving any desired set to the log, and also to furnish a sure and simple set off for the carriage in gigging back, and a set off when moving forward, and consists of two parts. The first consists in the employment of a pair of arms movable around the feed rod, the lower arm jointed to accommodate the back motion of the carriage, and the upper arm carrying a sectional pawl with an oblique edge, so that some one of the sections will always catch in the ratchet moving the feed rod, the position of the lower arm being dependent upon the protrusion of a regulating rack, against which the arm rests; the advance or recedance of the rack determines the extent of surface of an inclined stud to be passed over by the lower arm, and the amount of movement given to the ratchet revolving the feed rod. The second part of the invention consists in placing under the carriage, roller boxes for the rollers carrying the carriage, the said boxes having inclined interior faces, and constructed for giving the carriage a lateral movement at its backward and forward motion, sufficient to clear the saw in gigging back, and insure a proper position for receiving the cut when moving forward. The machinery is so constructed as to cut by both the backward and forward motion, or to cut by the forward movement only and gig back for the succeeding cut, for which purpose the second part of the invention is employed.

A is the log carriage frame, and B its wheels moving on rails, C. The carriage is moved by pinion, D, which meshes into the rack, E, on shaft, F. This pinion is raised and lowered, and thrown in and out of gear, by the wedge lever, *a*, a rod, *b*, and lever, *c*. S is a circular saw secured upon a shaft in the common way. It is driven by a band round pulley, H, from a pulley in the shaft of a steam engine or water wheel. The shaft, F, receives motion by the band, *d* or *e*, passing from the saw shaft pulley round the pulley *f*, on shaft, *g*, which has also two other pulleys, *h* and *h'*, on it, for receiving one of the bands, *d* and *e*, when the other is in operation. The band, *d*, is straight, the other, *e*, crossed, so as to rotate the shaft, *g*, in contrary directions, the crossed band, *e*, giving the log carriage, A, its forward motion—(by the band, *i*, which passes over pulleys *l k*, on shaft F, carrying pinion D, which meshes into the rack on the carriage)—the straight band, *d*, gives it the backward motion. These bands, *d e*, operate the log carriage with the same velocity, for the saw to cut during both the forward and backward movements of the log carriage. When it is designed for the saw to cut during the forward motion only, the pulley, *m*, is employed to gig the carriage backward with an increased velocity. The bands, *d e*, pass through a slide, *n*, which is moved longitudinally by being connected with lever I, which is acted upon by studs on the carriage. This movement of the slide, *n*, causes one of the bands, *d* or *e*, to pass from the fixed pulley, *f*, to one of the loose pulleys, and the other band to pass from a loose pulley to pulley *f*, according to the slide's direction, which reverses the motion of the saw carriage without stoppage.

J is a feed rod on the outer side of the carriage; it has pinions, *p*, on its extremities, meshing into racks, K, attached to the head block, L. The revolution of rod J, gives lateral motion to the head block and feeds the log. It is the mode of giving the requisite amount of revolution to rod J, which constitutes the first part of the invention. Upon this rod, J, is the ratchet wheel, P, embracing which, and movable around the said rod, are arms, R and T, the latter shown in fig. 1 and the former in fig. 2. The former (R,) contains the sectional pawl, *q*, the oblique edge of which rests upon ratchet P, which is jointed to fold under the carriage when it meets with any obstruction during the backward movement of the carriage, but it is incapable of yielding during the forward motion. When therefore the carriage is moving, and one of the fixed inclined studs, B' or B'', on the permanent way, is met, an outward and upward movement is given to the arm, T, and the rotation of the ratchet wheel, P, by the action of the pawl, *q*, in one of the notches of the wheel. The amount of this upward and outward movement of arm, T, is governed by the extent of the surface of the stud, B' or B'', to be passed over, which will be greater or less, in proportion to the distance of the arm, T, from the side of the carriage at the time of striking the stud. This adjustment is regulated by the position of the rack, *r*, against the end of which the arm, T, rests, said rack meshing into pinion, *t*, and is moved by a plate wheel (not seen) which has graduated notches on its edges, into which a pawl takes, and moves it round one notch for each proper feed of the log. On the shaft of said graduated plate wheel is a pinion gearing into a cross rack, which moves the head block to give the proper log feed. The inclined studs are placed in the proper position for giving the requisite amount of feed motion during the movement of the carriage. The one, B'', is movable to accommodate logs of different lengths, and is removed when the mill is adjusted to saw by the forward motion of the carriage only. Studs (not shown) on the inner side of the carriage strike lever I, and operate slide *i*, to change the bands on the pulleys for giving the backward and forward motion of the carriage. The log is held between the dogs, *d'* and *d''*, the one secured to the block, L, and the other to rack, I', and is movable longitudinally by lever J', through the pinion, K'.

Fig. 2



OPERATION—The log is first secured between the dogs, *d'* and *d''*, and the bands, *d* and *e*, arranged for either the single or double cut of the saw—backward and forward movements of the carriage; the stud for the single movement being removed, and the double movement set to suit the length of log. The gauge plate wheel to gauge the feed of the log, is also properly set, so that the proper thickness of plank or board shall be cut at every movement of the carriage by the rotation of the feed rod, J. Motion is given to the saw shaft, and the carriage with the log on it is fed towards the saw as has been described, and as soon as the first cut is completed, the arm, T, strikes the stud, B'', the feed rod, J, is rotated, and the log fed over towards the saw the proper distance to cut a second board or plank by the return movement of the carriage. To give the back movement to the carriage, a rear stud, not shown on its inner side, strikes the lever, I, and shifts band *d*, to pulley *f*, which throws off band, *e*, to the loose pulley, *h*, producing an immediate reverse motion of the log carriage, A, and the cutting out of a new board or plank. When this back cut is completed, the forward stud (not shown) on the inner side of the carriage strikes the arm, *x*, of lever, I, again reversing the positions of the bands, *d* and *e*, on the fast and loose pulleys on shaft *g*, and thus again gives a forward motion to the carriage, and so on continuously until the log is sawn up. It will be observed that the studs, B' B'', operating arm T, feed the log towards the saw for every new cut, by moving transversely the head block of the carriage. The studs on the inner side of the carriage are for shifting the bands to reverse the carriage, by a common principle carried out in many other machines.

To cut with the forward movement only of the carriage, the journals, B, of the rollers, are peculiarly set in boxes, and as they move forward they run up an inclined plane, and set the carriage up for the cut, while on the return, for gigging back the carriage, the journals run to the opposite extremity of the box, and press against another inclined plane, and move the carriage sufficiently from the same to admit of its running rapidly back without interference with the saw. Stud B'' is not used is this case. Pulley *m* is employed for gigging back. The boxes of the journals, to produce the effect stated, may be considered self-acting, because they produce the lateral movement of the carriage by its motions. The operator can stop the carriage by lever *l'*, which will move the slide, *n*, and by the action of lever, *e*, make pinion D, drop clear of the rack.

He can also move the head block by the lever wheel at the nigh side, to take on a new log. This is a self-feeding, double and single acting saw mill, simple in its parts and operations.—A patent was granted for it on May 9th, last year, but it has never before been brought before the public. Two claims are embraced in the patent, one for the method of feeding by the double cut movement, and the other for the method of giving the requisite set off to the carriage when gigging back, and again setting up when moving forward for the cut by means of the journal boxes of the rollers, B. Every improvement in sawing machinery is of great importance to our country.

More information respecting it may be obtained by letter addressed to the patentee, at Chicago, Ill.