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Triplett

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(54) **PRESS, COTTON & HAY**

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Robert Triplett. County of Daviess. Kentucky.

Letters Patent.

The schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Robert Triplett himself of the improvement in the machine for pressing Hay, Cotton &c.

To all to whom these presents shall come.

Be it known that I Robert Triplett of the County of Daviess and State of Kentucky, have invented a new and useful improvement in the pressing machine for pressing Cotton, Hay, and other articles, and that the following is a full and exact description of the construction and operation of the machine as invented by me, and called the Rectangular Press

The object of this invention is to do the pressing horizontally instead of perpendicularly, as is usual, and to press all both ends, of the screw instead of at one, thereby accomplishing double the usual work in the same time, This is accomplished in three different ways. First by a cast iron wheel with a screw and a female screw in the hub thereof, and a male screw passing through the same; the hub resting in two plummer blocks, one on each side of the wheel, fixed into heavy blocks, resting the head of the hub completely, except an orifice sufficient for the screw to pass through, and all the ends of the hub as much as on the circumference only so much is allowed to bear (the balance being hollowed out) as may be requisite for strength. This is the main position, the wheel being engaged and geared into which driven by steam, water or horse power, will revolve with a velocity and strength according to the gearing and power applied to it

The gearing it is useless to particularize, as every mill wright understands it. But the simplest plan is by a perpendicular shaft, resting with its bevel and upon a bridge tree across the pressing box, the upper end passing through a floor above the pressing box, and confined by two timbers (part of the floor) with a half round cut out of each making about a mesh cut into said shaft. Through the upper end of the shaft a hole is cut of sufficient size for a lever of any given

brought to bear the power to be applied to it: on the said shaft below, is a wheel or a trundle to work into the nut wheel. The upright shaft being put in motion by horses at the end of the lever, turns the vertical nut wheel, and the screw being fastened at each end to followers, so as to prevent its revolving, it must pass to and fro, as the vertical wheel revolves, and so the pressing in boxes prepared for the purpose, at each end of the screw, see the drawing —

The mode is upon the same plan with this difference only. The screw instead of working into the wheel, forms the axle of the wheel & is fixed firm with the hub, for a small space on each side of the hub, there are no threads but the shaft of the screw, is left smooth, and these smooth spaces revolve in plummer blocks on each side of the hub as before described, on each end of the screw is a nut or a strong moveable timber of the same size of the pressing followers, which works in the press box. From this moveable timber to said followers are two screws of sufficient strength to bear any pressure which may be required. These screws extend from said moveable timber when at the end of the wheel, to said followers beyond the end of the screw, say two feet, as the screw revolves, it draws this frame towards the wheel, on one side and drives it from it on the other, and alternately, pressed at either end, see the drawing —

The first of these plans requires but half the length of screws of the latter and not much more than half the length of press box, it also dispenses with the timber in which the nuts are as well as the screw, — but it has more friction by revolving on the hub than the latter which revolves on a small axle, The latter advantage however seems unequal to the disadvantages, and therefore prefer the first plan. —

The third plan is as following. This screw is to be one large nut may be made of wood, The thread, work into cogs on a timber below, called the "slider" This slider is of substance sufficient to bear any pressure which may be put on it, wide enough to admit of cogs two feet across to fit the space between the threads of the screw, and runs in a chamber of the length of the screw or any desired length made just to fit it. It is followed a little at the sides and bottom to avoid friction the outer edges only touching, The bottom of the chamber is of a thickness equal to the space between the top of the slider and the top of the press box, thereby holding it (the slider) exactly in the centre of the box. The top surface of the

slides is hollowed to fit the circumference of the screw, save the legs of the cogs. and the cogs are put into the slides at the same angle as the threads of the screw, so as to fit well and closely into the spaces. A gudgeon at each end of the screw shaft (which should be about Eight feet long) fits into a head block morticed into the press box & tenoned into posts on the outside. all in the strongest possible manner, at one end of said shaft are bevelled cogs which work into bevelled cogs in an upright shaft, the gudgeon from which fits into the same head block, into which the gudgeon from the screw shaft is inserted.

This upright shaft passes through the floor above X, is worked as the others are — see the drawing for a more clear comprehension of this plan.

In this plane the friction proceeds up hill in either of the other two, as the pressing power is against the end of the gudgeon instead of being against the end of the surface of the screw. The friction against the cogs is not greater than that of the screw in the nut, for five feet of leg surface, in a slider eight feet in length, is less than the surface for the whole circumference two feet in length, and yet eight feet of leg surface (being about eleven cogs of two feet each) will give any desired strength, the cogs being three inches thick, and showing only two inches above the slider, but when the size of the iron screw, is compared with the wooden. I am not prepared to say that the same power on the iron would not do more than on the wooden screw, in the ratio of the pressure the wooden has the advantage. it may be made and the whole machinery belonging to it in any section of country by an ordinary engineering mechanic. The iron screw must be at least six inches in diameter and nineteen feet long. If of wrought iron (and I am not sure that cast iron will answer) it would be very costly. These considerations induce me to adopt for my own use the wooden screw, to press which I am now erecting. I get the shaft upon which the thread is cut three feet in diameter, cut the thread four inches wide and two deep, this space three inches, one revolution thereof drives the slider forward seven inches, the space is less than the thread because the face of a cog presented to a wooden thread is stronger than the thread. The press box should be about thirty seven feet long, eight feet in the centre for the screw, three feet for the two

head blocks, each being a foot and a half thick. Two feet for the followers, each being a foot thick & two feet for two false followers, the two latter to be between the bale & the follower, with two large grooves in them on the side next to the follower, for cramps (like square stirrups) to take hold of the false follower, by means of screw bolts passed down through those grooves, the arms reaching back and joined over the end of the press. When the bale is pressed these screw bolts are passed down, tops first on below and wedges driven between the cramps and the press, to tighten the false followers, or if the expense be not an objection, the sides of the press can be extended as represented in the drawing — the false followers with a tongue at each end fitting into said sides, the cramp embracing it and extending its arms into the press. A screw through this follower with the head inwards, the screw passing outwards and passing through an end piece and through the hub of a wheel on the outside with a screw nut therein, now when the cramps are fast in them of this wheel tightens the false follower, in other words presses the bale so as to release the slides which may now return to press upon the other side. The space in the pressing chamber for receiving the articles to be pressed should be ten feet in length, together with the two end pieces of the press a foot each makes thirty seven feet this completes the length of the press proper. — But if the apparatus for using the cramps are added then there must be two feet for the cramp followers. Ten feet for two spaces of five feet each, and two feet for the end pieces of a foot each — making an addition of fourteen feet, in all making the length of the press fifty one feet to the wheel and about four feet more for boxing to enclose the hub of the wheel, so as to hold it to its place. If the wheel be small it may revolve within the sides of the box extended but if desired larger the boxing must be widened. Another advantage in this wheel and the cramps is that by passing a chain round the wheel and over pulleys, then crossing the chain and passing it round the upright or driving shaft, you obtain the power of the horse to work the iron screw, as the wooden slides return, and by this means the pressure on the bale will be many fold greater than the foot pressing, it is only necessary to have the iron screw and cramps strong enough, as well

as the pulleys and chains, to press the bale so hard as not to require repressure for shipment. The pressing box is placed high enough from the ground floor to allow the bale when pressed to pass out below, also high enough to allow the door below to open without touching the ground. The lower side or bottom of the pressing chamber, is floored of course except so much as may be necessary for the bale to pass out at. This space is filled as is the top by doors, which are hung with hinges, which might be made strong enough as might the doors & a bottom on the opposite side to withstand the pressure but to guard against all doubt on that score. I shall construct that which I am erecting as I have had the model made, with iron bars. The advantage of this press over the usual one is, that it presses at both ends, that by being horizontal while the operation of pressing is proceeding on one side the other being empty can be filled and prepared to receive the pressure so soon as it is completed on the opposite side, even the delay for screwing and securing the bale is avoided by the aid of the cramps which are fixed in a few minutes, see the drawing of the cramps as clasping the followers detached from the press, & see them also in the press, — see a top view of the press in the drawing with the doors open on one side & closed on the other, see the upright shaft working into the screw shaft, & the screw working into the slider, as detached from the press box. See at the end of the slider, the follower with holes through it, for screwing it to the slider. See the false followers, ready to be laid loose against the followers with grooves for the cramp bolts on one side & for the baling rope on the other, see the corresponding grooves for the baling rope in the press chamber; then see the screwing of the whole machine together, and that together with this description will give a complete idea of the whole machine.

I claim as my invention, the horizontal pressing box, and cogged slider therein, whether moved by a screw or other machinery.

I claim also as my invention the application of the screw, to the said cogged slider. I claim also as my invention, the horizontal pressing box, with the screw passing through the hub of a wheel, which by revolving different ways causes the screw when attached to follow

at either end to press first at one end and then at the other.

I claim as my invention, the screw laid horizontally in a pressing box, with a wheel in the centre thereof revolving upon the screw shaft as an axle, the same being fast in the hub of the wheel, and a small smooth surface of the screw shaft on each side of said hub forming the axle -- nuts being fastened on each end of said screw to which is attached the pressing power as herein before described.

All the foregoing I claim as various modifications and applications of the same principle invented by me.

Witness
S. C. Rogers
H. Blair

Robert Triplett.

Patented 19 May 1831.