N. C. STILES.

Adjustable Pitman for Presses, Punches, &c.

No. 56,631. Patented July 24, 1866.

Fig. 1.

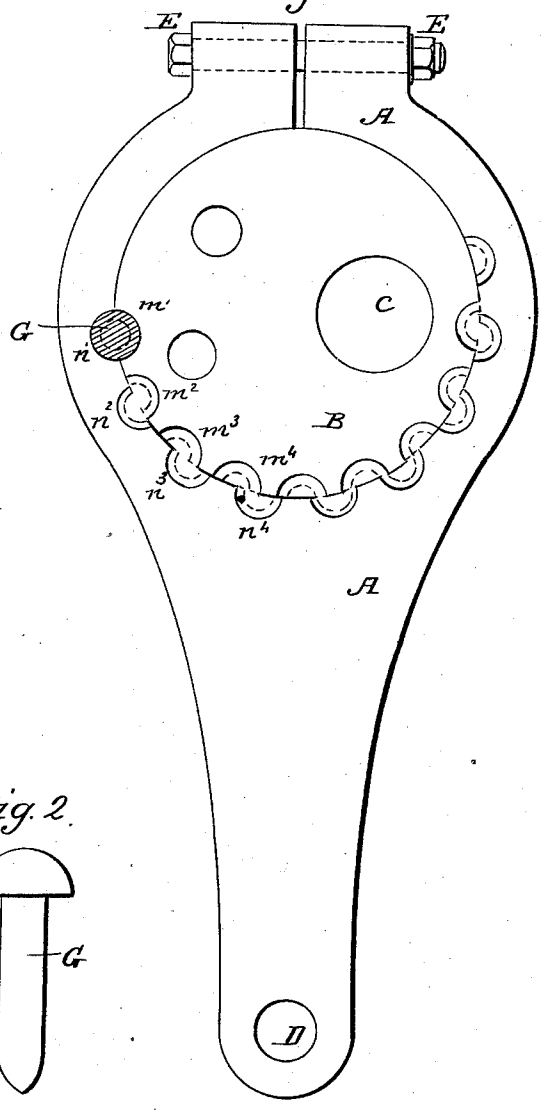
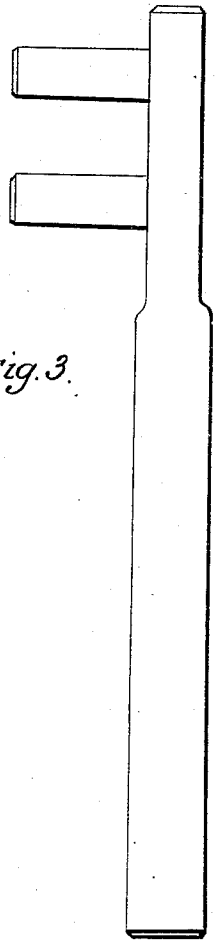


Fig. 2.

Fig. 3.



Witnesses
Orville H. Platt
Levi E. Lee

Inventor.
N. C. Stiles.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

NORMAN C. STILES, OF MERIDEN, CONNECTICUT.

IMPROVEMENT IN ADJUSTABLE PITMEN FOR PRESSES, PUNCHES, &c.

Specification forming part of Letters Patent No. **56,631**, dated July 24, 1866.

To all whom it may concern:

Be it known that I, NORMAN C. STILES, of Meriden, in the county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Adjustable Pitmen for Presses, Punches, &c.; and I do hereby declare that the following is a full and exact description thereof.

My present invention is applicable to that previously patented by me—patent dated January 26, 1864—and to other presses, punches, and analogous machines which require the pitman or connecting-link or connecting device between the crank-pin and the die or punch to be raised or lowered, so as to operate the punch at a different level, while the crank-pin, which gives it motion, continues to revolve in a uniform path.

My patent of 1864, above referred to, represents a turning piece fitted within the pitman and adapted to be turned and held in various positions. The hole to receive the crank-pin is located eccentrically in said turning piece, and the turning of said piece and the adjusting of it in various positions correspondingly raises and lowers the hole, and therefore changes the elevation at which the die or punch will be worked.

My present invention relates to the means of holding the turning piece in the required position and adjusting it at will.

The means for liberating and again confining the turning piece represented in my said patent of 1864 were merely frictional—that is to say, the eccentric was held by being embraced very firmly by simple pressure on its cylindrical exterior. When it was desired to adjust it the pressure or grasp on it was relaxed, the piece turned to the desired position, and the pressure again tightened. This method is objected to by some from a fear that it is insecure.

My present invention increases the security with which the eccentric is held, and also provides means for more powerfully turning the eccentric into the desired position in case it shall stick.

It consists, first and generally, in providing, in lieu of the smooth cylindrical surface of the turning piece before described, an interlocking of the surfaces, so that a stout part or parts shall project from one piece into the other and compel the turning piece to remain in the position in which it is adjusted.

It consists, second and more specifically, in providing on the exterior of the eccentric a series of notches or grooves of any desired form running longitudinally along the cylindrical surface, or in a direction parallel to the axis, and in providing similar grooves, but at a little greater or less distances apart, in the interior of the cavity in which the eccentric is received, and providing a key having a form corresponding to the said grooves, so that it may be driven into the grooves, one side of the key fitting into one of the grooves in the eccentric and another side of the key fitting into one of the grooves in the pitman. By changing the key from one groove or pair of grooves so arranged to another the turning piece may be held with great firmness in a variety of positions. By making the intervening end or point of the key a little tapering the key may be entered when the grooves do not exactly coincide in position, and by driving the key in that condition the eccentric may be turned with great force, so as to compel the grooves to coincide.

I will proceed to describe what I consider the best mode of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a front view of the pitman. It represents the same pitman as is described in my former patent, before referred to, and operates in the same relations to the other parts not represented, but improved by the addition of these grooves and key, the key being shown in section or with the head removed. Fig. 2 is a view of the key detached from the other parts; and Fig. 3 represents a wrench made to fit into holes in the turning part or eccentric, to aid in turning it to its right position. The use of this wrench with the circular form of the turning part represented obviates any necessity for taking out the turning part in order to turn and adjust it properly.

I prefer, where the strains are very great, to make the grooves rectangular in section, as shown in red outline, and considerably smaller than is represented in these figures, so as to provide more bearing for transmitting the direct strain.

A is the pitman. B is the eccentric. C is

the crank-pin, carried on a shaft, not represented; D, the pin at the bottom of the pitman, which aids to connect the pitman to the die or punch. E is a clamping-screw, which compresses the pitman at the top, so as to clamp the eccentric in position.

The grooves in the turning part are marked m' m^2 m^3, &c. The grooves in the pitman are marked n' n^2 n^3, &c. The key G is represented as fitted in the grooves m' and n', and as confining the eccentric B very firmly thereby in the manner long practiced with such pairs of coinciding grooves in holding gear-wheels, water-wheels, &c., in place. Now, if the key be withdrawn from these grooves and inserted in the grooves m^2 n^2, either by turning the eccentric B first into the desired position, or by inserting the pointed end of the key G and driving it so as to compel the eccentric to turn of itself into the proper position, it will confine it very firmly in a new position, correspondingly raising or lowering the entire pitman and the connected die or punch.

It will be obvious that by making the difference in the distances apart of the notches or grooves m and n very slight a great delicacy of adjustment may be obtained, while the coarseness of the work or the quantity of metal intervening between the several grooves gives immense strength to the construction, so that no ordinary force can break or derange the mechanism.

I can use two or more keys, G, by a proper arrangement of the grooves, or by making the keys G in such case slightly tapering can use two or more with the arrangement of grooves represented, and can, by driving neither quite home, hold the turning piece in any intermediate position between the adjustments possible with one key. I consider this a refinement not expedient to adopt in any ordinary case.

It will be evident that I can use this adjustment either with or without the clamping-screw D.

A very satisfactory construction may be made by making the pitman entire at the upper end, thus dispensing with the open joint and with the screw E for closing it, and relying entirely upon the key G, or an equivalent projection or projections from one part into the other, to confine the turning piece in place; or I can use this mode of adjustment in connection with any other convenient mode of constructing and arranging the other necessary parts.

Some of the advantages due to certain features of my invention may be separately enumerated as follows:

First. By reason of the fact that the turning part B, receiving the crank-pin C in a hole which is located eccentrically thereto, is adapted to be held firmly against turning around in the pitman by the positive locking resulting from the extending of the part G or its equivalent from one part into the other—that is to say, from the turning part B into the pitman A, or from the pitman A into the turning part B, or from each into each, as represented, and by reason of the further fact that there are several such recesses to allow the turning part to be locked firmly and positively in several different positions, I am able to operate the pitman at several different elevations, so as to punch material of different thicknesses to the best advantage and to operate properly with dies of different heights. By this device I am able to avoid the slipping around of the turning part to which the invention described in my former patent, above referred to, is liable.

Second. By reason of the fact that there are two series of grooves, m n, unequally spaced, the distance between the grooves or recesses in the surfaces of the turning part being greater or less than the distances between the spaces in the pitman, I am able to secure a delicacy or nicety of adjustment of the turning part by the aid of one or more removable keys, G, adapted to be introduced in the grooves, as described, without losing the advantages above enumerated as accruing from the positive character of the locking.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

The two unequally-spaced series of grooves m n, arranged to operate together by the aid of one or more keys, G, fitted into any desired pairs of the grooves, so as to compel the same to coincide and to hold the parts very firmly with great nicety of adjustment, substantially in the manner and for the purpose herein set forth.

N. C. STILES.

Witnesses:
LEVI E. COE,
ORVILLE H. PLATT.