

N. Millington.

Stamping Carpenters' Squares.

N^o 87,581.

Patented Mar. 9, 1869.

Fig. 1.

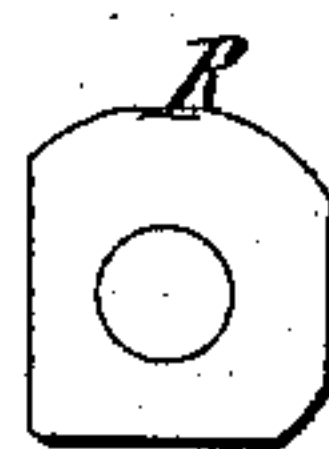
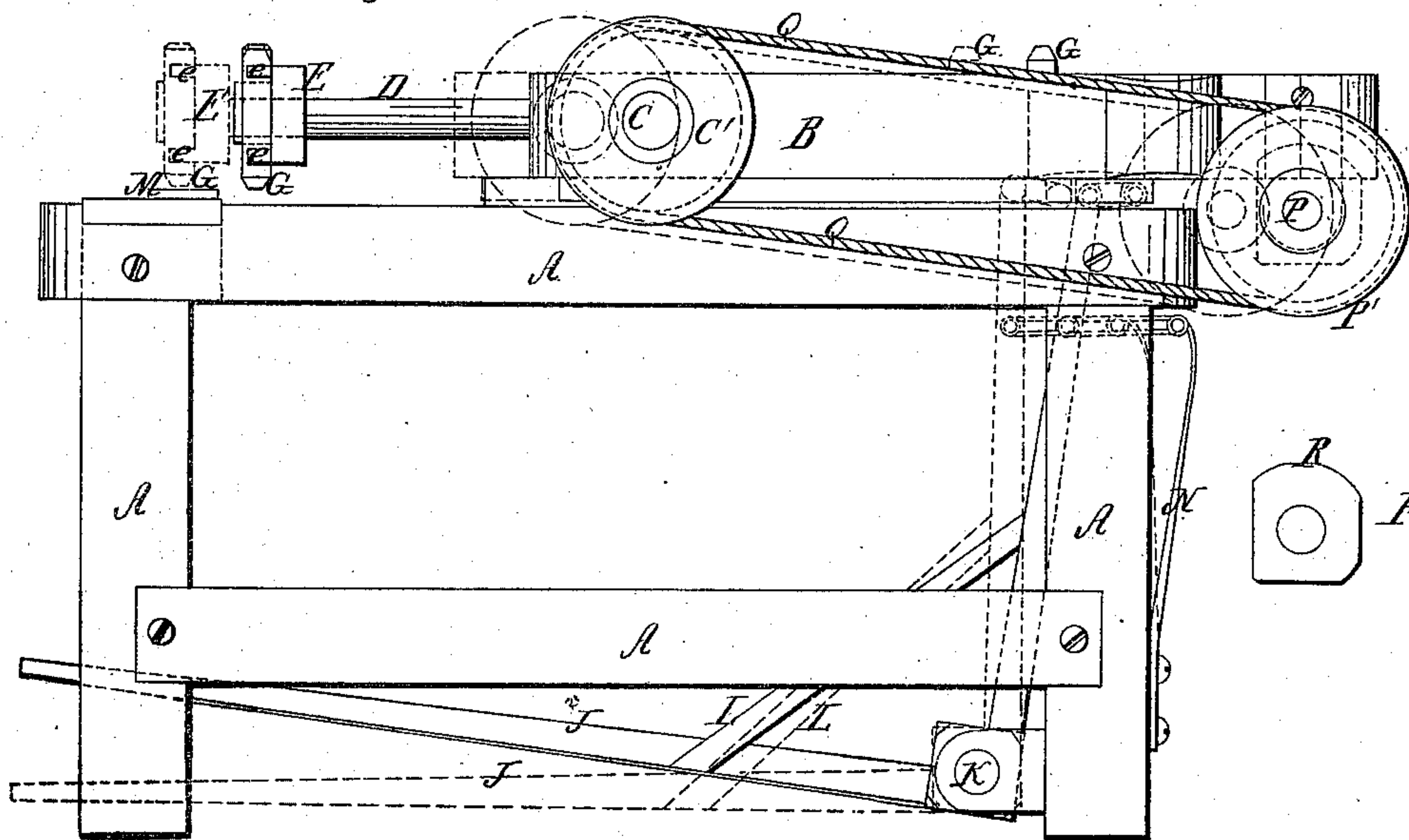
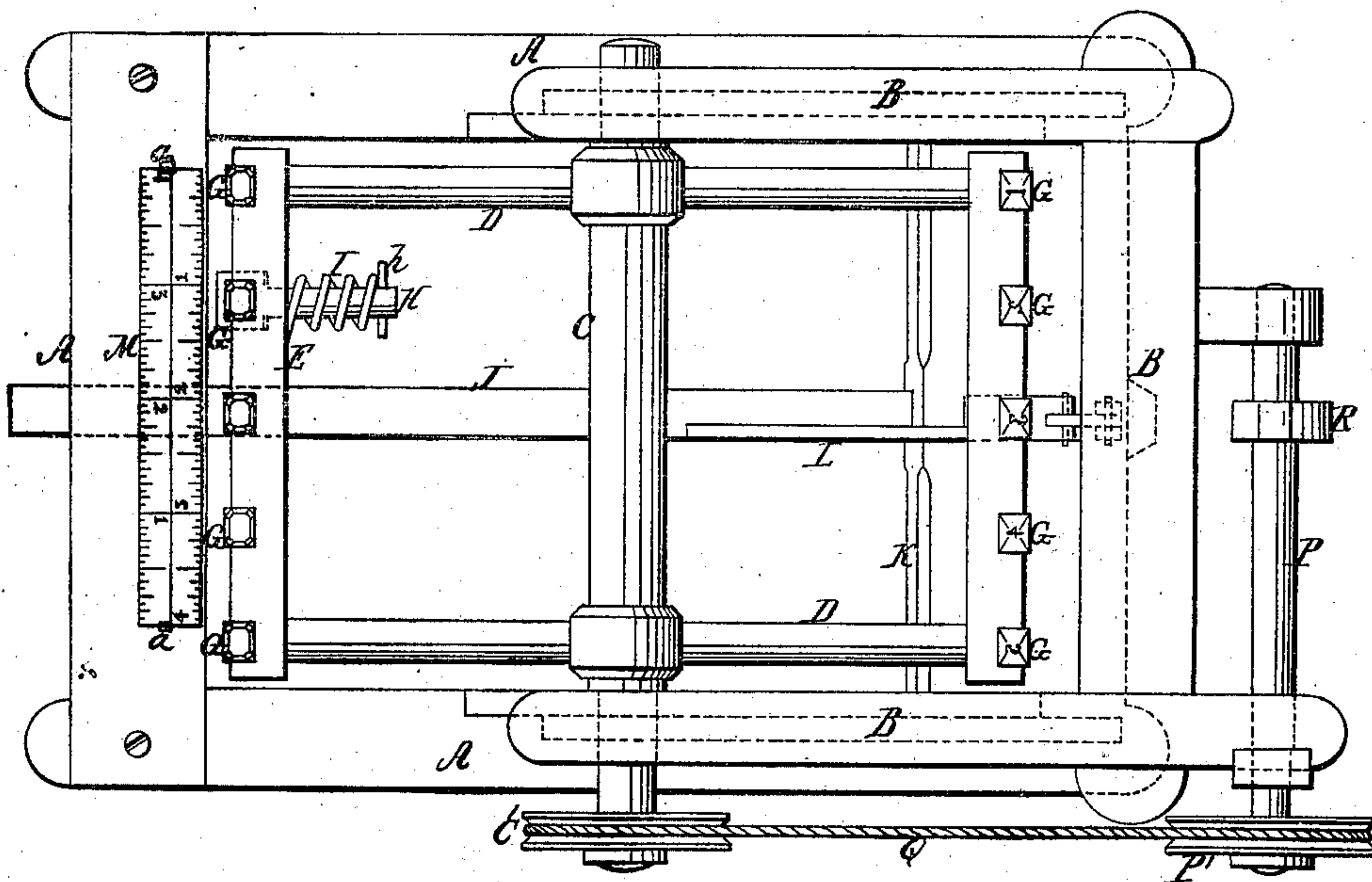


Fig. 3.

Fig. 2.



Witnesses;

*h. b. Swings
W. C. Dey*

Inventor;

*Roman Millington
by his atty J. G. Burton*

United States Patent Office.

NORMAN MILLINGTON, OF SOUTH SHAFTSBURY, VERMONT, ASSIGNOR TO EAGLE SQUARE COMPANY, OF SAME PLACE.

Letters Patent No. 87,581, dated March 9, 1869.

IMPROVEMENT IN MACHINE FOR FIGURING CARPENTERS' SQUARES, &c.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, NORMAN MILLINGTON, of South Shaftsbury, in the county of Bennington, State of Vermont, have invented certain new and useful Improvements in Machines for Figuring Carpenters' Squares and Analogous Measuring-Devices; and I do hereby declare that the following is a full and exact description thereof.

My invention is based on that patented by myself and D. J. George, dated October 18, 1853.

The dies containing the numbers are formed separately, and are mounted in proper positions in an extended piece or chase, with liberty to move a little as each is struck, and a succession of such chases containing dies is presented to the square, which is held on a suitable anvil.

The several dies are adapted to be struck separately by hand.

I will first proceed to describe what I consider the best means of carrying out my invention, and will afterward designate the points which I believe to be new.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation, and

Figure 2 is a plan view.

Similar letters of reference indicate like parts in both the figures.

The drawings represent the novel parts, with so much of the ordinary parts as seems necessary to indicate their relation thereto.

The parts not represented may be the same as in the patent of 1853, above referred to.

A is a rigid frame-work, preferably of cast-iron.

The front part is made very heavy and substantial, so as to support the square, M, very firmly.

There are clamps, the position of which is indicated by *a a*, which take hold of and release the square, at will.

B is a sliding frame, mounted on ways on the upper surface of the frame-work A, and adapted to slide longitudinally thereon to a limited extent.

C is a shaft supported in bearings in the frame B, so that it is free to be revolved. The chases are supported on arms fixed on this shaft C.

D D, &c., are the arms, and

E e e show the construction of each chase.

The several chases are rigidly secured upon the ends of the arms D, and the flanges *e e*, at the edges of each chase, are recessed with rectangular notches, adapted to receive and properly support the dies G, which are carefully planed, or otherwise reduced to a uniform size, and to an exact rectangular section, and are finished with the proper figure on the end of each, and hardened, as will be readily understood.

Each die G is confined by an eye-bolt, H, which em-

braces the die at or near its centre, and extends through the chase, and is drawn constantly inward toward the shaft C, by the tension of the coiled spring I, acting between the inner surface of the chase and a cross-pin or nut, *h*.

I have represented only one of these eye-bolts and its adjuncts, and have represented but two of the chases. It will be readily understood that the number of chases may be increased at pleasure, and may be arranged, equidistant or otherwise, around the shaft C, and that each of the dies G is provided with an eye-bolt, H, and spring I.

When the carriage B is slid backward, the shaft C and its connections may be freely turned, either a complete revolution or any part of a revolution, without bringing the dies in contact with the square.

This is the position of the arms after all the dies in one chase have been struck, and it is desired to bring another chase and its dies into position for use.

The best mode of changing the position is, to depress the chase which has just been used, and to bring the succeeding chase down from above. Before the descending chase has reached the level of the square, the carriage B is slid forward, so as to bring the dies in proper contact with the square.

The broad body of a carpenters' square is capable of displaying a considerable number of independent graduated lines and of corresponding figures.

It will be understood that the several chases are properly spaced, and provided with the proper dies for figuring, the first chase, for example, being adapted to put a line of figures near the edge of the square, the next chase being adapted to figure a different line.

It might be possible to adjust the position of the lines of figures by mounting the several chases nearer to or further from the axis C, but I prefer, for general practice, to mount the chases at pretty nearly a uniform distance from the axis, and to slide the entire carriage B and its connections further forward, or not so far, according to the position in which the figures are desired to be placed on the square.

To move the carriage B forward and backward conveniently, I provide a treadle, J, mounted on an axis, K, having a stout upright arm, L, which is connected to the carriage B, as represented.

By depressing the treadle J, the carriage B is moved forward, and on releasing the treadle J, the carriage B is moved back by the force of the spring N, which is secured on the framing A, and is connected to the arm L, as represented.

I adjust the distance to which the carriage moves forward at each depression of the treadle, by means of a cam carried on the carriage, and revolved with a motion exactly corresponding to that of the shaft C.

P is the cam-shaft bolted on the carriage B, and R is the cam firmly fixed on the shaft P, and adapted to

strike against the frame A, or a screw or other device mounted thereon, so as to gauge the extent to which the carriage may be moved forward.

A motion is communicated to the cam-shaft P, from the main shaft C, by gearing or other suitable connections.

I have represented a grooved pulley, O', on the overhanging end of the shaft C, and a grooved pulley, P', on the overhanging end of the shaft P, and a belt, Q, running over the two pulleys, but it is obvious that this simple device may be replaced by a train of spur or bevel-gearing, or even by cranks and connecting-rods, it being simply important that the two shafts turn alike, so that when the main shaft C is turned a twentieth or any other portion of a revolution, the cam-shaft P will be turned to the same extent, so as to present the part of the cam which is adapted to gauge the proper position for the line of figures, which is then to be impressed on the square.

As each chase in succession is presented, with its dies in the proper position upon the square, by the means above described, it may be clamped down, so as to bear firmly upon the upper surface of the square, by a clamp at each end, analogous to that shown at one end in the patent of 1853, above referred to, and the dies G are then struck in succession by a hand-hammer, the attendant being careful to strike fairly on each die, and with as nearly a uniform force as possible.

The hammer should have a small face, to avoid a possibility of striking more than one die at a time.

So soon as all the dies have been struck, the pressure on the treadle J is relaxed, and the carriage B and its connections slid back, in obedience to the force of the spring N, and the attendant, laying his left hand on the next succeeding chase, depresses it, and by again pressing on the treadle, brings it forward into position. He now again clamps it by a movement of the hand or foot, and proceeds to strike rapidly in succession on the several dies in this chase, in the same manner as he had struck all the dies in the preceding chase.

After each face of the square is finished, by receiving all the lines and figures which it is to carry, the operation of turning the chases and striking the dies is suspended, and the square unclamped and turned in a new position, so as to present a new face, and the several faces of the square being presented and treated in the same order for which the chases and dies have been previously arranged on the wheel C, the entire operation of figuring the square is proceeded with, with certainty and uniform accuracy, with great rapidity, and without the necessity for any high degree of skill on the part of the operator.

It will be observed that the dies G are held in such a manner, that while they are supported laterally with great firmness, they are free to slide endwise.

The practical operation of the device is peculiarly efficient.

As the hammer strikes each die, it depresses or slides the die downward through the chase, and sinks its impression into the metal of the square, but the elasticity of the parts is always sufficient to induce a slight recoil, which throws the die up again, and allows it to remain clamped by the eye-bolt H and spring J, in a position a little above the surface of the square. This avoids any slight contact and vibration, which is so destructive to the face of the die when it is out of use.

The former mode of holding the dies in the chase required the side of each die to be indented or notched, which greatly weakened the die, and induced frequent breakages at that point.

Furthermore, the former arrangement of holding each die loosely, allowed each to rest, by gravity, upon the square, during the whole period, while its chase was pressed thereupon, and as each blow of the hammer was struck in succession upon the several dies, while a useful effect was produced by means of the die struck,

a deleterious effect was produced by jarring all the other dies.

I believe, from long experience, that the wear of the dies, due to this jarring or constant vibration, while in gentle contact with the square, is greater and more destructive than that due to the legitimate work of once impressing the die into the square.

My present improved construction and arrangement, by avoiding the necessity for notching into the side of the die, promotes the durability, by very greatly increasing the strength.

It is not essential to the success of my invention, that the revolving part, R, shall be in the form of a smooth cam. It may be made in a polygonal or other convenient form, or it may be made by providing arms, each corresponding to a chase, the several arms being brought, in succession, against a surface of the frame A, as the carriage B and its connections are moved forward.

In either case, I can provide an adjustable screw, wedge, or analogous device, upon the frame, to receive the action, and thus to gauge the extent to which the lines are moved forward; or I can provide a separate screw on each acting-surface of the cam R, or its equivalent, by which to gauge or vary, at will, the position of each line of figures separately.

I propose to make the cam R, or the equivalent wheel or spurred device, always in a separate piece from the shaft P, on which it is mounted, and to provide set-screws, keys, or other convenient means, by which it can be conveniently moved to one side, or removed altogether, and another substituted in its place.

It is necessary, in making a variety of different styles of squares, to change the number and order of the lines of figures, and in such case I propose to provide corresponding cams, which may be substituted, one for the other, on the shaft P.

My machine may be used in graduating ordinary carpenters' squares, whether of steel or iron, the more delicate squares and scales used by draughtsmen, the wooden or other scales and rules used in various branches of the arts, yard-sticks, and measuring-devices generally. In short, it may be used for any work which can be placed upon the anvil or front part of the frame A, or to which the anvil or receiving-part of the machine can be adapted, and on which it is desired to impress several series either of figures or letters.

In making brace-scales, I put two or more (usually four) figures on each die, and can thus express quantities decimally with great nicety.

It will be obvious that my machine can figure scales on the French, or any other system, at will.

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 several chases and dies are mounted on a revolving shaft, C, and adapted to be presented in succession, in the order represented, I avoid the liability, incident to my former construction and arrangement, that the connection of the chases would become rapidly worn loose and shackly, and also secure more room for the adoption of improved modes of holding the dies in the chases.

Second, by reason of the fact that my shaft C and its connections are mounted on the carriage B, and operated by the treadle J and spring N, as represented, I am able to bring the several chases successively forward into position upon the square, and to move them backward, to allow the series to be rotated with very little labor, and by very simple mechanism.

Third, by reason of the employment of my cam R, combined and arranged as represented, I am able to gauge and determine exactly the proper position in which each line of figures shall be laid upon each square.

Fourth, by reason of the fact that my chase is formed as represented, so as to receive the dies in the rectangular notches in the flanges *e e*, at the upper and lower edges, and to hold the dies by a pressure exerted at or near the centre, by the eye-bolts H, I am able to hold the dies very firmly against any lateral or tremulous motion, and also to provide for an end motion, which is just sufficient under all conditions, allowing each die to be depressed to any desired extent, in working on squares or parts of squares of varying thickness, and holding each a little above the square while the succeeding dies are being struck; and by reason of the employment of the spring I, as a means of exerting the force upon the centre of each die, I secure a uniform and self-adjusting means of holding the die, which allows the advantage above set forth to be realized without any labor in delicate adjustment of the force, and secure, at the same time, a very ready means of liberating any die, to withdraw, or exchange, or repair it. It is simply necessary, in exchanging a die, to press forward the eye-bolt H strongly by one hand, and to lift the die out of its place with the other.

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

1. I claim the combination and arrangement of the stamping-chases and dies with the shaft C, for the purpose of being revolved and successively brought into position, to act on the square, as herein set forth.

2. I claim the combination of the frame B, and its revolving chases E, with the treadle J and spring N, for moving the chases successively forward and backward, substantially as herein set forth.

3. I claim, in combination with the above, the revolving gauge or cam R, connected and operated substantially as and for the purposes herein shown and described.

4. I claim the spring I, combined and arranged as represented, relatively to the chases E *e e*, eye-bolts H, and dies G, for the purposes herein set forth.

NORMAN MILLINGTON.

Witnesses:

W. C. DEY,
C. C. LIVINGS.