No. 807,407. PATENTED DEC. 12, 1905.

J. J. TYNAN & H. C. MOSTILLER.

CALKING PROCESS.

APPLICATION FILED FEB. 5, 1904.

3 SHEETS—SHEET 1.

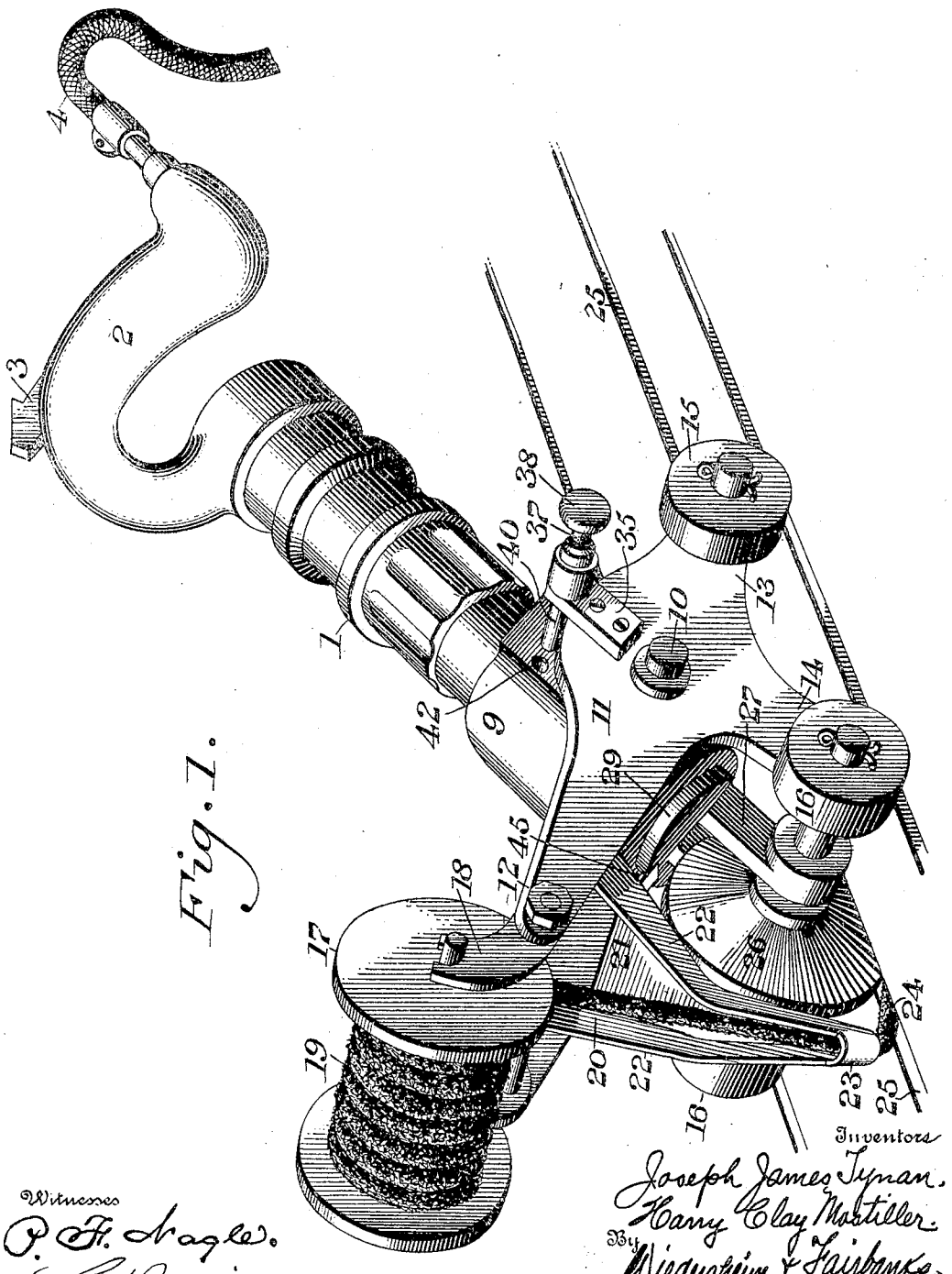


Fig. 1.

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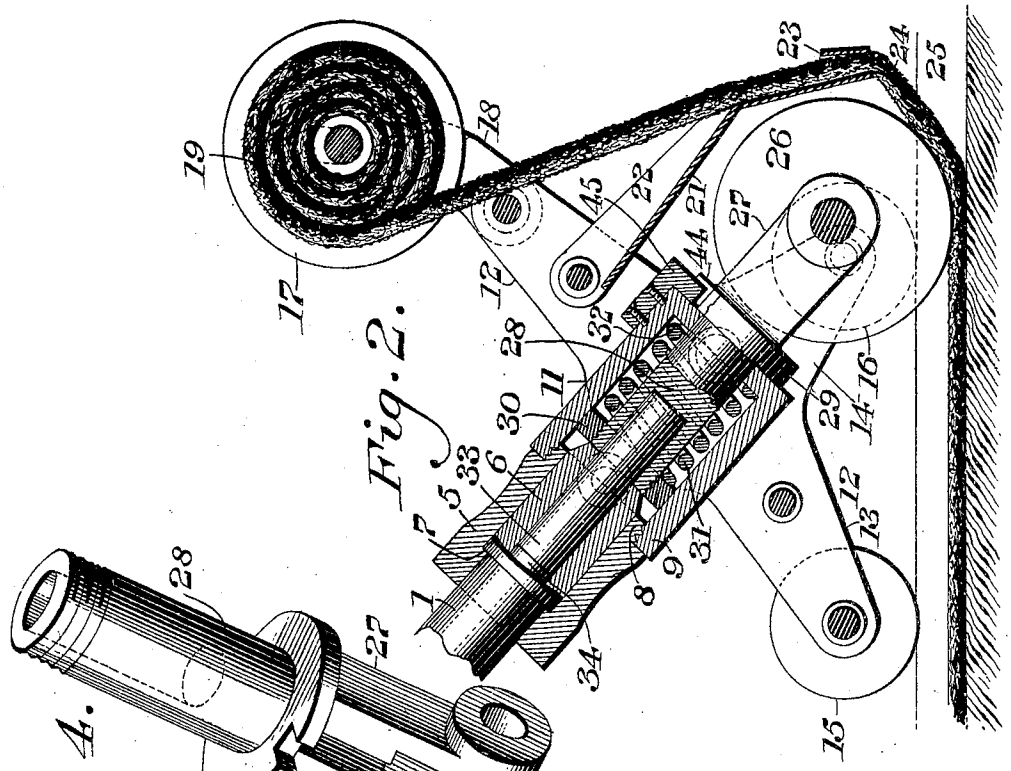


Fig. 2.

Fig. 4.

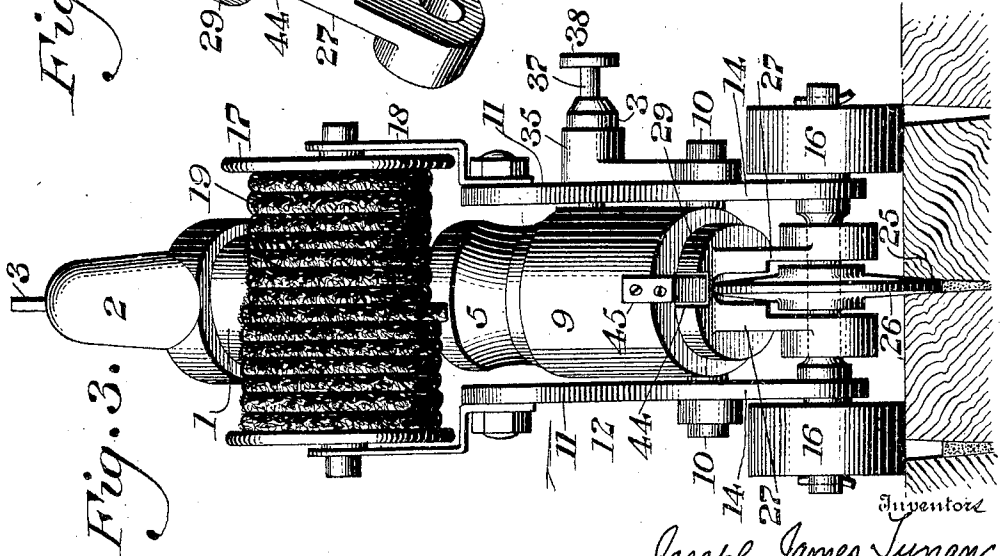


Fig. 3.

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3 SHEETS—SHEET 3.

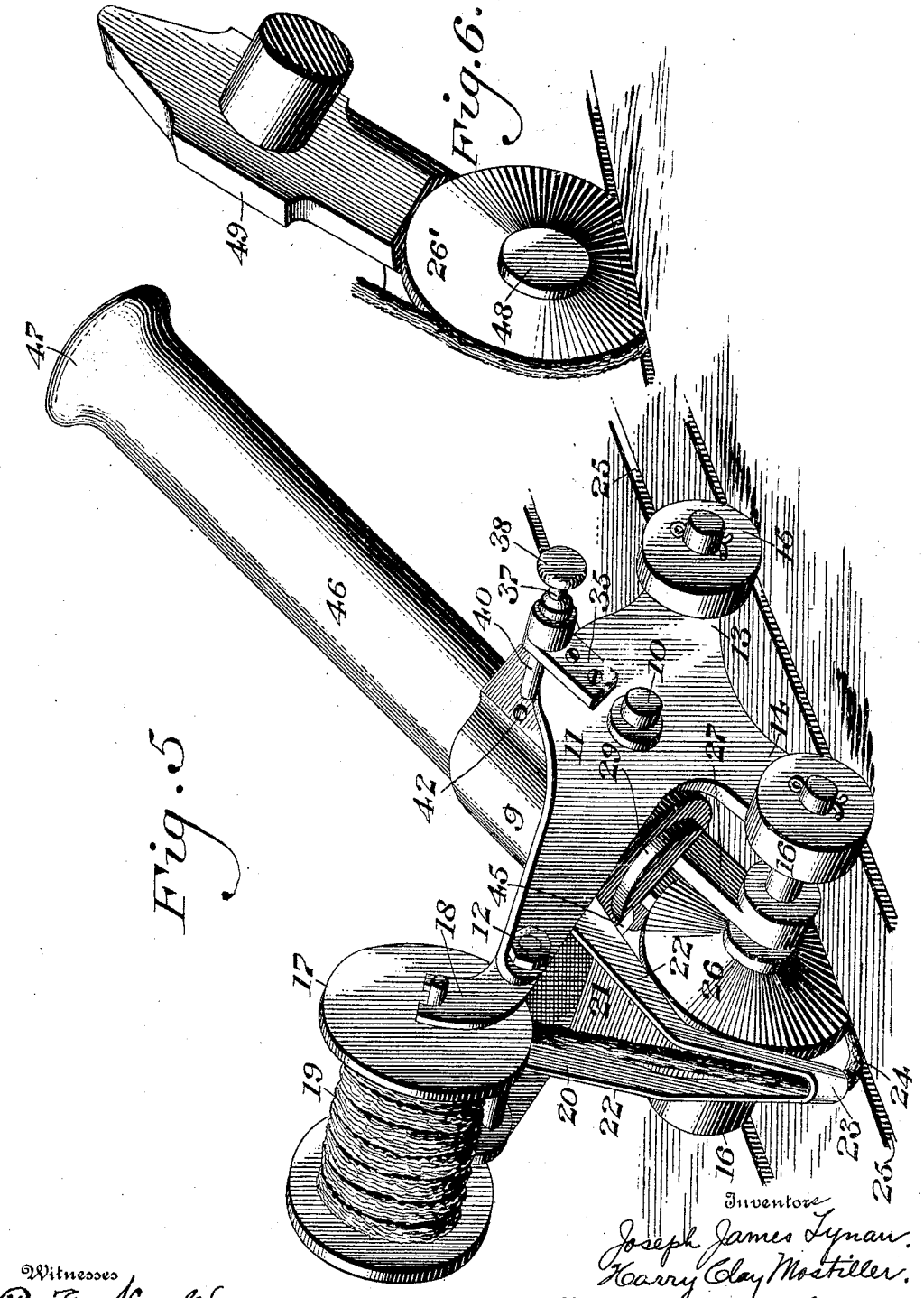


Fig. 5

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UNITED STATES PATENT OFFICE.

JOSEPH J. TYNAN AND HARRY C. MOSTILLER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNORS, BY MESNE ASSIGNMENTS, TO CHICAGO PNEUMATIC TOOL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF NEW JERSEY.

CALKING PROCESS.

No. 807,407. Specification of Letters Patent. Patented Dec. 12, 1905.

Application filed February 5, 1904. Serial No. 192,200.

To all whom it may concern:

Be it known that we, JOSEPH JAMES TYNAN and HARRY CLAY MOSTILLER, citizens of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Calking Processes, of which the following is a specification.

In the process of calking as ordinarily practiced the necessity of continual hand-feeding both of the tool and of the material causes irregularity and inaccuracy in the work and prevents that uniformity which is so greatly to be desired.

It is the object of our invention to overcome these objections by causing the tool to progress with each impact and causing the calking material to be placed within the groove ready for the next impact by each progression of the tool. This material may be held upon its support under tension or otherwise, as desired.

Other objects of our invention will appear in the explanation of the operation of the device shown and in the claims.

While our process is not limited to the operation of any machine and can readily be carried out by hand, we have chosen to illustrate it by the machine shown in our Patent No. 754,175, March 8, 1904.

Figure 1 represents a perspective view of a calking-tool capable of carrying out our invention. Fig. 2 represents a side elevation of a portion of Fig. 1, showing a part of the hammering and cushioning device in section. Fig. 3 represents a front elevation of Fig. 1. Fig. 4 represents a perspective view of the fork or anvil which carries the calking device. Fig. 5 represents a calking-tool in which the pneumatic hammer is intended to be replaced by the hand-hammer. Fig. 6 represents a disk and hammer by which my method may be carried out.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a cylinder or barrel of a hammering-tool using pneumatic or other fluid-pressure with long or short stroke and constructed in accordance with any of the well-known types. The tool has a grasping-handle 2, upon which is mounted a throttle-valve trigger 3, which may be in any position within easy reach of the operator. This trigger controls the admission of the fluid from the hose 4 to the cylinder 1.

5 designates a coupling, which is split to render it more easy of application. It has an interior shoulder 7, adapted to engage the adjoining portion of the cylinder 1, while its forward portion 8 is threaded for engagement with the cylinder 9.

10 designates trunnions on the cylinder 9, having their bearings in the sides 11 of the framework or carriage 12, which has the projecting legs 13 14. The rear legs 13 support the rollers 15, while the forward legs 14 support the rollers 16.

17 designates a reel which is supported in any suitable manner. As shown, it is mounted in arms 18, which are attached to carriage 12. The reel carries the oakum or other calking material 19. This material is threaded from the reel through the guide 20, which consists of a trough-shaped member having the face 21 and the sides 22. These sides terminate at the lower portion in the cylindrical guide 23, through which oakum passes, as indicated at 24, the oakum being shown in Figs. 1 and 2 as being pressed into the seam 25 by means of a rotary calking device or disk 26. This rotary device comprises in the present instance a disk having its walls converging from the center outwardly and is mounted in the arms 27 of the anvil. The arms 27 project from the body portion 28 in the opposite direction from the head 29. The body portion passes through an opening in the lower portion of the cylinder and has a nut 30 screwed upon it, against which abuts one end of the spring 31, the other end of said spring abutting against the shoulder 32.

33 designates a shank or bolt which is adapted to be inserted loosely within the body portion 28 and which when the parts are assembled projects into the nose-piece 6 of the pneumatic impact-tool. It will be seen that this shank 33 is adapted to be struck by piston 34 of the impact-tool. It will thus be clear that the tension of the spring 31, having its ends abutting against the end 30 and the shoulder 32, will normally hold the parts in the position seen in Fig. 2, it being apparent that the impact of the piston upon the shank will be imparted to the anvil consisting of

arms 27, flange 29, and body 28. The spring serves to return the parts to the position seen in Fig. 2 after the blow has been struck, so that the operation of the device is cushioned and the vibration will be reduced to a minimum or entirely obviated.

The pneumatic tool used is of any of the well-known impact types in which, as is well known, the travel of the hammer-piston is more rapid upon the downward or striking stroke than upon the return, a result brought about by any of the well-known means as admitting less motive fluid to return the piston or throttling the exhaust. The result is that the tendency to forward movement caused by the "striking" impact is greatly in excess of the tendency to rearward movement caused by the return, cushioned also, as above stated, by the spring. This is emphasized by the contact of the tool with the seam to be calked, which resolves the forward impulse into components of which one is along the length of the seam, whereas the rearward impulse is not so resolved and results chiefly in turning moment about the rear supporting-wheels, the effect of which turning moment is evidently modified by the location of these wheels and the disposition of the weights with respect to them. Consequently the machine has a constant tendency to forward movement along the seam. Forward movement may actually take place independently of any pressure exerted by the operator, who then merely keeps the admission-valve open. The forward movement of the machine in any case requires but slight pressure by the operator on account of the action of the tool.

It is in practice sometimes necessary to vary the angle of inclination of the impact-tool and shank from the position seen in Figs. 1 and 2. In order to provide for this, we have placed upon one of the sides of the supporting-carriage a bracket 35, having an opening therein, through which passes a pin 40, having shank 37 and head 38. This pin is spring-pressed or otherwise impelled against the face of the cylinder 9. Within cylinder 9, radiating about the axis 10, are placed openings or indentations 42 at suitable distances. It will be manifest that the pin 40 may be withdrawn from one opening and forced into another, producing the difference in angle of inclination desired. In order to prevent improper rotation of the fork in which the calking-tool 26 is carried, we provide a recess 44 in the head 29, into which enters the block 45.

In the form shown in Fig. 5 the parts are the same as in the previous figures, except that the bar 46, having head 47, replaces the impact-tool. The head 46 is adapted to receive the blows of a hammer, which takes the place of the impact-tool.

In Fig. 6 we have shown a disk 26′, preferably provided with projections 48 to prevent excessive movement into wide seams. This disk is shown receiving the impact of hammer 49 and carrying out our method.

In operation the seam is reamed to the desired uniform width, depth, and angle. This may evidently be done by any of the well-known means, as by wedging or cutting. The device is then rolled along the surface to be calked in such a manner that the disk 26 or 26′ enters the seam. The calking material is started within the seam and is driven in by successive blows of the hammer or impact-tool. Each blow of the tool forces within the seam that material which is under or but slightly in advance of the disk at the moment the blow is struck and at the same time advances the disk within the same, drawing down another portion of the oakum or calking material to supply the place of that forced within the seam by the last blow. In case of hand operation, as in Figs. 5 and 6, the oakum is held in any suitable manner, one end being inserted within the seam. Tension is provided, if desired. The calking-tool is inserted within the groove upon a portion of the oakum and is struck at an acute angle to the plane of the surface being calked and in the general direction of the length of the seam. The tool performs its proper calking function and is at the same time advanced within the seam in the same manner as is the case with the machine before described.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The method of calking which consists in forcing the calking material into the seam by impact upon a rotary tool in a direction at an acute angle to the surface being calked.

2. The method of calking which consists in striking a rotary calking-tool in such direction that the seam is calked and the calking material fed into the seam at the same time that the tool is advanced by the blow.

3. The method of calking which consists of striking the calking-tool in such a direction that the tool is advanced by the blow and oakum fed from a position outside the seam to one within the seam at the same time that the seam is calked.

4. The method of calking which consists in reaming the seam calked, supplying the calking material under tension and impressing the material by a blow upon a rotary tool such that the tool is advanced and a further supply of the material drawn down into the seam as a result of the blow.

5. The method of calking which consists in reaming the seam and impressing the calking material therein from a point outside the same by a blow upon a rotary tool delivered at an acute angle to the surface calked.

6. The method of calking which consists in supplying the material under tension, and calking the seam by a blow upon a rotary tool delivered in such a direction that the tool is ad-

vanced and a further supply of material drawn down into the seam as the result of the blow.

7. The method of calking which consists in forcing the calking material into the seam by impacts upon a rolling tool at an angle acute to the surface to be calked.

8. The method of calking which consists in forcing calking material into the seam by successive impacts upon a rolling tool in a direction acute to the surface to be calked.

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