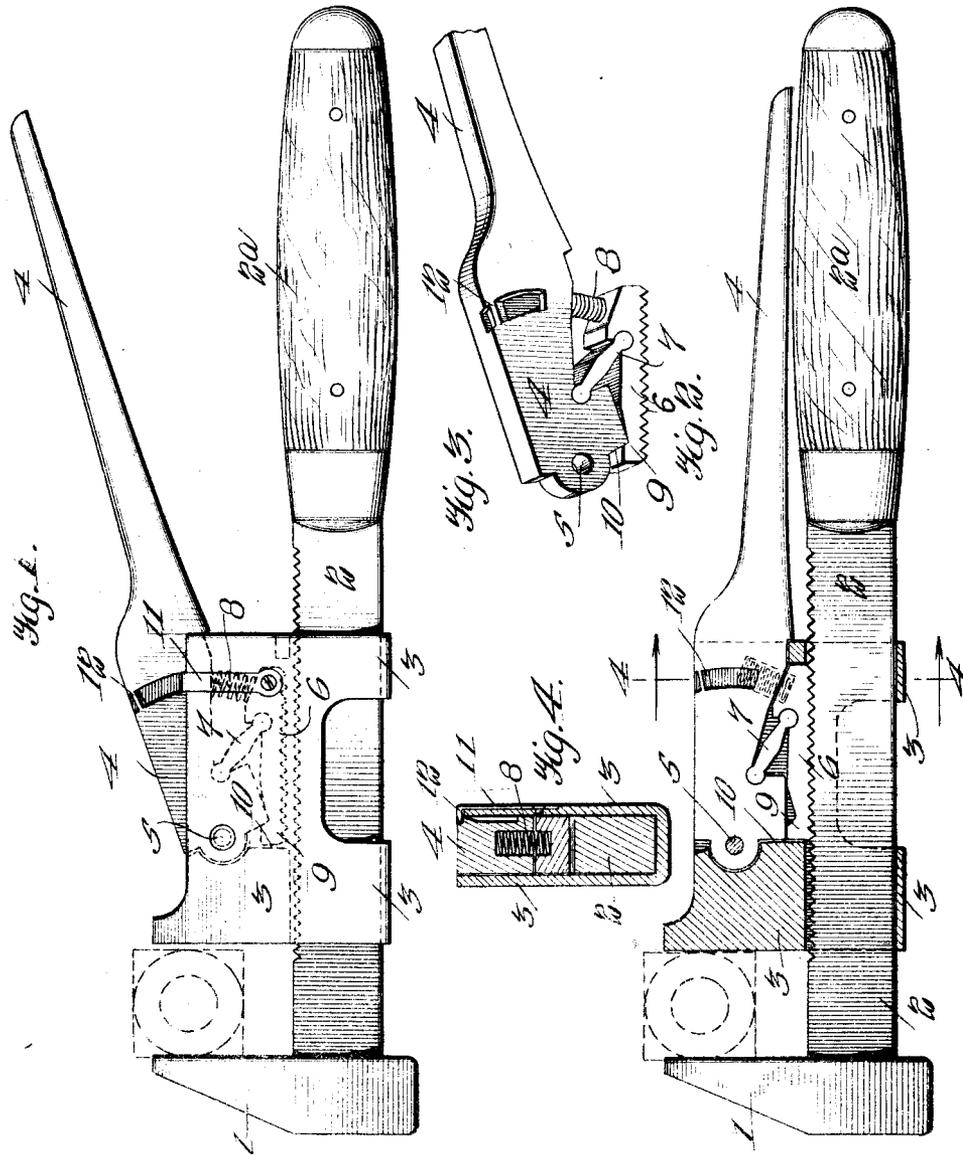


J. KRAHULEC.
MONKEY WRENCH.
APPLICATION FILED NOV. 30, 1912.

1,056,693.

Patented Mar. 18, 1913.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

Fig. 5.

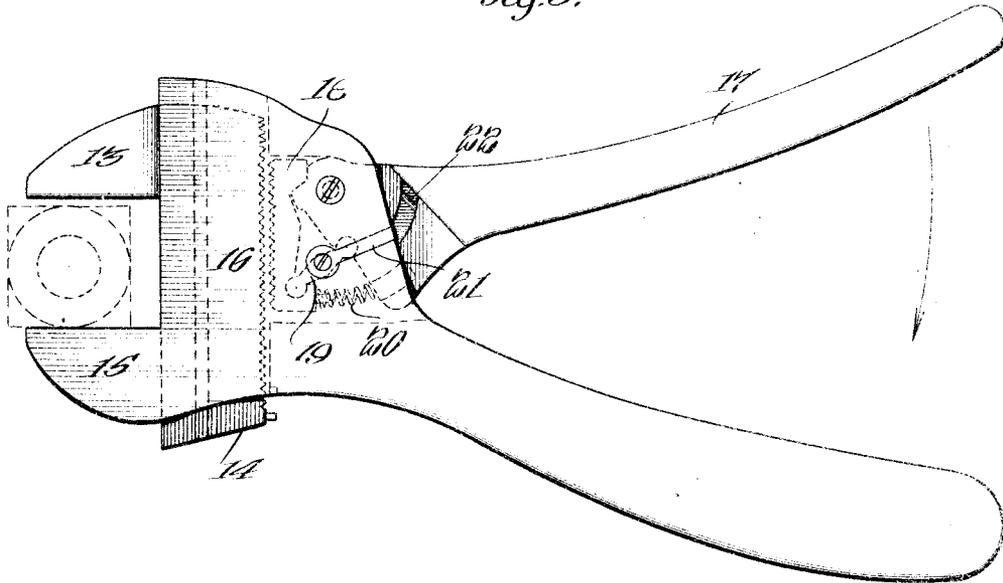


Fig. 6.

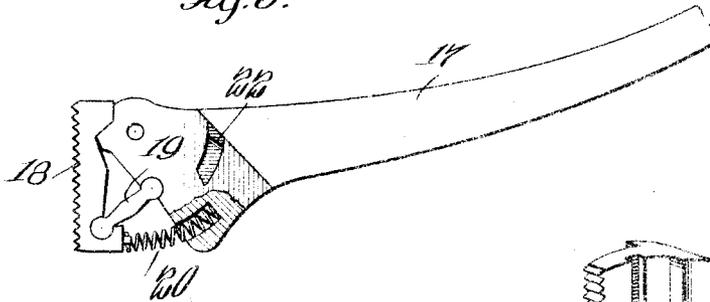


Fig. 7.

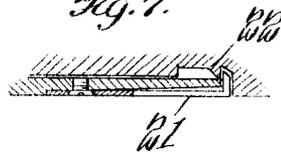


Fig. 8.

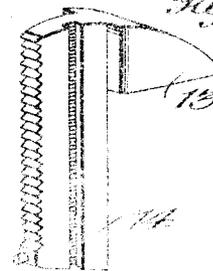
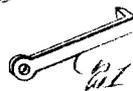


Fig. 9.



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MONKEY-WRENCH.

1,056,693.

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To all whom it may concern:

Be it known that I, JOHN KRAHULEC, a citizen of the United States, and a resident of Braidwood, in the county of Will and State of Illinois, have invented an Improvement in Monkey-Wrenches, of which the following is a specification.

My invention is an improvement in that class of monkey-wrenches which are provided with a slidably jaw and a toothed dog adapted to engage a toothed portion of the wrench shank, for locking the said jaw in any desired adjustment relative to the fixed jaw.

The invention is embodied in the construction and arrangement of parts hereinafter described and particularly indicated in the claims.

In the accompanying drawings, Figure 1 is a side view of my improved wrench, the pivoted lever which operates the movable jaw being shown in the raised or open position. Fig. 2 is a partly sectional side view showing the said lever in the closed position by which the movable jaw is advanced and locked. Fig. 3 is a perspective view of the lever, the toothed dog, and link which connects them. Fig. 4 is a cross section on the line 4-4 of Fig. 2. Fig. 5 is a side view of a modified form of the wrench. Fig. 6 is a partly sectional side view of the lever, the toothed dog, and the connecting link forming parts of the wrench shown in Fig. 5. Fig. 7 is a detail section showing the arrangement of the spring catch or lock for the pivoted lever. Fig. 8 is a perspective view of said catch or lock. Fig. 9 is a perspective view of the movable jaw and toothed jaw shank formed integrally therewith.

I will first describe the preferred form of my invention which is illustrated in Figs. 1 to 4, inclusive.

1 indicates the head and fixed jaw of the wrench, and 2 the shank rigidly connected with said jaw and provided with a handle 2^a.

3 indicates the movable jaw, which is provided with a housing that surrounds, and is adapted to slide on, the shank 2. The latter is toothed on the front side. A lever 4 is pivoted at 5 in the aforesaid housing of the movable jaw 3 and extends inward along the handle, it being, when in the normal open position shown in Fig. 1, at a considerable angle to the shank and handle of the wrench. The limits of vibration of the said lever, or

its movement toward and from the shank and handle, are illustrated in Figs. 1 and 2.

As shown best in Fig. 3, an elongated rectangular plate 6, which is toothed on the back side, underlies the pivot end of the lever 4 and is adapted to engage the adjacent toothed edge of the shank 2, in virtue of which function it may be termed a dog, or pawl. It is connected with or attached to the lever 4 by means of a link 7 which consists of a short bar having rounded ends that enter transverse sockets formed in the lever and dog, respectively. The normal position of the dog is illustrated by dotted lines in Figs. 1 and 3, and its operative position in Fig. 2, as will be further described. A spiral spring 8 is interposed between the inner end of the dog 6 and the opposite portion of the lever 4, the ends of the spring being set in sockets as will be readily understood. Near its forward end and on the upper side, the dog 6 is provided with a transverse notch 9 in which an angular shoulder 10 of the lever normally rests. The spring 8 serves to hold the lever 4 normally raised in the position shown in Fig. 1.

In the operation of the wrench, the link 7 performs another function in that it serves as a strut or thrust bar, the action resembling the well-known toggle lever. The strut is at all times inclined rearward, the angle being greater when the lever is raised as in Figs. 1 and 3, and less when the lever is depressed as shown in Fig. 2. But when the lever 4 is pressed down toward the handle 2^a, it forces the inner tooth on the dog 7 into engagement with the teeth of the shank, causing it to act in a selective way to seat the teeth; then the shoulder 10 on the lever 4 presses against the inclined face of the shoulder 9 on the dog, forcing it backward, thereby forcing all the teeth of the dog into engagement with the teeth of the shank, the back side of the lever 4 engaging the shoulder 9 on the dog. When in this position, the dog is locked to the shank 2 and a forward movement causes the face of shoulder 10 to slide on the upper face of shoulder 9 on the dog 6. Following such engagement the action of the strut 7 is such that the lever is forced outward which necessarily in turn forces the movable jaw 3 outward, so that it takes a firmer hold on the nut or other object to which the wrench may be applied. In brief, in order to adjust the

wrench to a nut or other object, the same is applied as indicated in Fig. 1, and the jaw moved into close proximity to said object; then, upon closing the lever 4, the dog 6 forces the lever and movable jaw outward so that the said jaw clamps tightly upon the nut or other object.

It will be seen that the described outward movement of the lever 4 and the movable jaw 3 is due to the fact that when the lever is closed, the inner end of the strut 7 is carried down with it a short distance, thus bringing the strut nearly into alinement with the pivot 5 of the lever and the inner end of the strut which is fulcrumed on the dog. Upon opening the free end of the lever 4, it is obvious the jaw 3 will be retracted so as to readily release the wrench from the nut or other object.

For the purpose of holding the pivoted lever locked in the closed position shown in Fig. 2, I employ a spring catch 11 whose back end is secured in a shallow groove formed in the side of the movable jaw or housing, the free end of the catch projecting inward and engaging a beveled shoulder 12 formed on the lever—see especially Fig. 4. The groove in lever 4 in which the spring catch is secured describes an arc which is concentric with the fulcrum 5 of the lever. It will now be understood that when the lever is closed against the handle 2^a, as shown in Fig. 2, the free end of the catch 11 will ride over the beveled shoulder 12 of the lever and engage the same, thus holding the lever 4 in the closed or locking position. But little force is necessary to disengage these parts and to open the lever 4. The back or rear end of the groove in lever 4 is formed with a shoulder which the spring catch 11 may also engage for stopping the lever in a certain part of its forward movement and preventing it from moving farther until pulled by hand to the farthest position shown in Fig. 1. When the spring catch thus engages the back shoulder, the lever is held in such position that the teeth of the dog remain engaged with the teeth of the shank 2. In other words, it automatically holds the movable jaw while it allows inward movement of the same to release the work held between the jaws. When the lever 4 is moved toward the handle 2^a until the lip on the spring catch drops into the groove in the lever, the teeth on dog 6 engage the teeth on shank 2 and prevent the movable jaw from moving into a different adjustment. The front shoulder 12 on lever 4 is used only when it is desired to use the tool as a common monkey wrench.

In the modified form of wrench shown in Figs. 5 to 9, inclusive, the movable jaw 13 is formed integrally with a straight bar or shank 14—see Fig. 9—and the latter is pro-

vided with a groove which receives a rib formed integrally with the fixed jaw 15 and housing 16 of the wrench. The construction, connection, and arrangement of the lever 17, dog 18, link and strut 19, and spring 20 are substantially the same as in the first or preferred form of my invention illustrated in Figs. 1 to 4. It will be seen that by closing the lever 17, the dog will be forced into locking engagement with the toothed portion of the shank 14 of the movable jaw, and, the strut 19 pressing backward against the dog, will force it backward and the dog will carry with it the jaw 13, thus closing the latter tightly on the nut or other object. The spring catch or lock 21—see Figs. 5, 7 and 8—is employed as in the case first described, the same being similarly adapted to engage the beveled shoulder 22 formed on the lever 17.

My improvement is obviously adapted to serve as an ordinary monkey-wrench or as a pipe wrench, as occasion requires.

What I claim is:—

1. In a wrench of the type indicated, the combination with a fixed jaw having a toothed shank, of a movable jaw, a lever pivoted to the latter, a dog interposed between the lever and toothed shank, a combined link and strut having rounded ends which are held in sockets in the lever and dog, and the same being inclined from the rear portion of the dog toward the pivot of the lever, and a spring interposed between the rear end of the dog and the lever, as described.

2. The combination with a fixed jaw and rigid handle and a movable jaw which is slidable toward and from the fixed jaw, of a pivoted lever, a dog arranged under the fulcrum end of the lever and provided with a beveled shoulder adjacent to its forward end, the lever having a shoulder adapted to engage and ride upon the shoulder of the dog, and a combined link and strut connecting the rear end of the dog with the lever and inclined rearward from the fulcrum of the latter, as and for the purpose specified.

3. The combination with the fixed jaw and rigid shank having teeth on its inner side, of a movable jaw adapted to slide on said shank, a lever pivoted to the movable jaw and provided with a shoulder on its under side adjacent to the fulcrum, a dog interposed between the fulcrum end of the lever and the toothed shank of the wrench and provided adjacent to its forward end with a beveled shoulder upon which the aforesaid shoulder of the lever is adapted to ride when the lever is depressed, and a strut interposed between the rear end of the dog and the portion of the lever nearer its fulcrum, whereby when the lever is depressed the forward and rear ends of the dog are simultaneously forced inward so

that the dog engages the toothed shank, and the movable jaw is simultaneously locked and advanced, as described.

4. The combination with a fixed jaw and toothed shank rigidly connected therewith, of a movable jaw which is slidable on the shank, a lever pivoted to the movable jaw and extended rearward, a toothed dog arranged between the fulcrum end of the lever and the toothed shank of the wrench, a device which operatively connects the dog and the lever so that when the latter is depressed the dog is engaged with the shank so as to

lock the movable jaw, a spring interposed between the lever and dog for normally supporting the former, and a spring locking device secured to the movable jaw and its free end adapted to engage the lever when depressed or forced inward, whereby the catch is adapted to hold the lever in the closed position, as described. 15 20

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Witnesses:

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LOUIS FRASCA.