

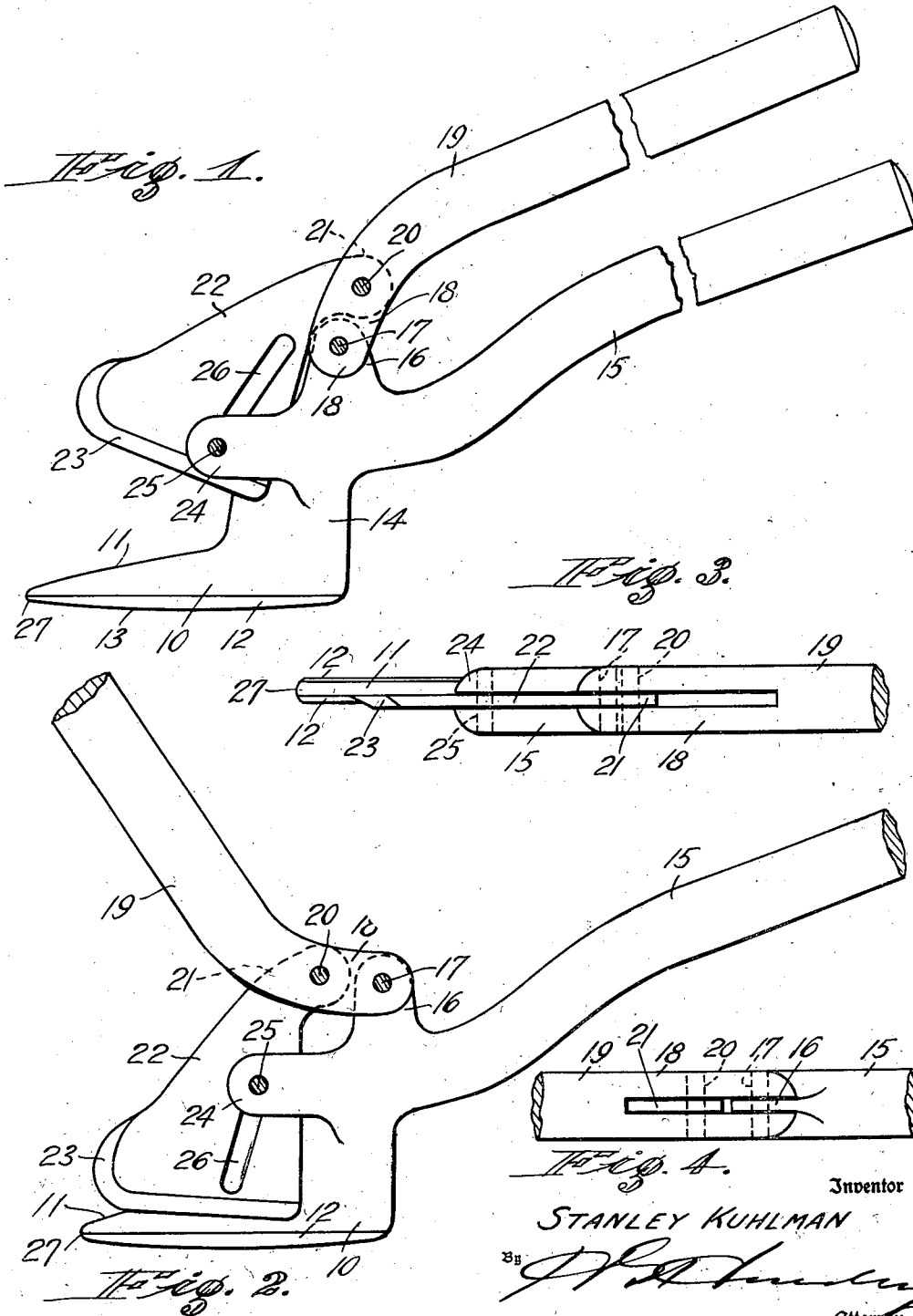
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CAST SHEARS

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CAST SHEARS

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7 Claims. (Cl. 30—211)

This invention relates to improvements in cast shears or snips and consists essentially of a pair of complementary cutting jaws or blades, one of which has a holding handle bar and the other an operating handle bar, the improved device being distinct from others of its class in that the blades bite into the plaster of Paris cast on parting the handle bars or levers instead of doing so when the handle bars are brought together as in common with other typical cast shears or, for that matter, shears for any other purpose.

The removal of a cast is an ordeal for the patient and an onerous task for the practitioner. The type of shears which have been most successful in the initial step of cast removing, that of bisecting the cast, is the one in which the so-called stationary shearing jaw is introduced between the cast and the part of the body of the patient to which the cast has been applied, by depressing the flesh or, in other words, by penetration of the closed area between the cast and the body. Such penetration is effected continuously as the shearing progresses and as a general rule is painful, particularly in the zone of the fracture or other injury to remedy which the cast was applied.

More painful, however, than the penetration of the toe of the stationary blade is the pressure inflicted on the patient by the downward pressure of the heel of that blade particularly during the final stage of each shearing cycle which is practically unavoidable with present types of shears in which to close the jaws on the cast the handle bars are brought together or toward each other.

The inevitable reason for this can probably be best explained as follows:

In removing the cast the operator stands over the patient in proximity to one end of the cast about to be bisected. Moreover, it must be understood that a plaster of Paris cast is very hard and in most cases quite thick, and bonded by a fibrous or fabric pad or lining. Accordingly, great muscular strength is required to operate the shears which themselves must be of durable and relatively heavy construction to withstand the work required of them.

The above being so, long handle bars are required in order to provide adequate leverage for operation of the jaws. With the use of shears with handle bars which are moved toward each other to close the jaws, to hold the bottom handle bar in a motionless position while the top bar is moved toward it is very difficult, particularly in the final stage of a cut when the cast might separate suddenly and the upper bar ter-

minate its movement with a jolt. Whenever this occurs the firm grip on the lower bar is almost bound to relax momentarily to cause the heel of the stationary jaw to painfully depress the flesh of the patient.

It might be held, however, that the same might be true when the handle bars are separated instead of coming together to effect closing of the jaws, only that the toe of the stationary jaw would hurt the patient rather than the heel; in other words, the effect might be construed to be as broad as it would be long, so to speak. However, there is here to be considered the phenomenon that the arms are manifestly under better muscular control when engaged in work where the hands are widely separated than where they are in close proximity, particularly when the work is conducive to physical strain. Moreover, the posture that the operator is able to assume over the patient's body while holding one handle bar in one hand and forcing the other away from him instead of forcing the latter toward him enables him to get a more resistant and immovable grip on the handle bar carrying the stationary jaw or blade.

It follows then that the important object of the invention is to provide a pair of cast shears wherein the shear operating handle bars are moved away from each other to effect closing of the shearing blades.

Another important object of the invention is to provide a device of the kind described which will be simple, durable, efficient, and inexpensive to produce.

With the above and other objects in view as will be hereinafter apparent, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawing and specifically claimed.

In the accompanying drawing like characters of reference indicate like parts in the several views, and:

Figure 1 is a side elevation of a pair of cast shears as constructed in accordance with the present invention and shown in open position.

Figure 2 is a similar view showing the shears in closed position.

Figure 3 is a top view of Figure 1, and

Figure 4 is a top view of Figure 2.

In its present embodiment the invention consists of a stationary jaw 10 having an inclined bevel-ground shearing blade 11 and a flanged bottom edge forming a skid 12 having a slightly rounded bottom surface 13 for humane contact

with the patient's body. Further, the stationary jaw is provided with an upstanding shank 14 from which immovably extends the stationary handle bar or lever 15.

Extending upwardly from the shank 14 above the point of union thereof with the handle bar 15 is an ear 16 to which is pivoted by means of the pin 17 the yoke 18 of the movable handle bar 19. Also pivoted in the yoke 18 by means of the pin 20 is the ear 21 of a guillotine blade 22 which is bevel-ground (23) complementary to the stationary blade 11. Thus a toggle joint is formed as between the two handle bars, the stationary blade and the guillotine blade.

Extending forwardly from the shank 14 is a yoke 24 which embraces the guillotine blade 22 and guides it laterally of the shears in its descending shearing action against the blade 11. Moreover, a pin 25 extending through the arms of the yoke 24 and intermediately through a limiting slot 26 in the blade 22 not only guides the blade longitudinally of the shears in its ascent and descent but also limits its movement so that it does not strike the skid 12 at the termination of its descent and, furthermore, prevents the handle bars, and therefore the hands of the operator, from striking at the termination of the ascent of the blade.

In operation, the handle bars 15 and 19 being close together and the guillotine blade 22 at the limit of its ascent as seen in Figure 1, the toe 27 of the stationary jaw 10, which is formed by the rounded convergence of the blade 11 and skid 12, is prizingly introduced between the patient's body and the cast which is to be bisected. The handle bar 15 being grasped firmly by one hand and preferably held against a portion of the operator's body for frictional support against the possibility of vertical movement and consequent general depauperization of the skid 12 with the patient's body when the handle bar 19 is moved, the latter handle bar is swung forwardly by the other hand until the two bars are widely separated as seen in Figure 2. Such action forces the guillotine blade 22 to descend first through the cast and then to shear the cast lining, whereupon the blade 22 is caused to ascend by again bringing the two handle bars together. The shears are then advanced and the cycle repeated until the cast and its lining are sheared from end to end.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, therefore, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

I claim:

1. In a pair of cast shears, a stationary blade

having a shearing edge, a substantially vertically movable blade coacting with the stationary blade, a stationary handle bar immovably associated with the stationary blade, and a movable handle bar pivotally associated with the stationary blade and having a toggle jointed association with the movable blade, said arrangement being such that when the two said handle bars are in substantially close relation the two said blades are apart but as the movable bar is swung away from the stationary bar the two blades close.

2. In a pair of cast shears, a stationary shearing blade, a substantially vertically movable shearing blade coacting with the stationary blade, a stationary handle bar immovably associated with the stationary blade, and a movable handle bar pivotally associated with the stationary blade and having a toggle jointed association with the movable blade, whereby the act of swinging the movable handle bar away from the stationary handle bar effects closing the blades.

3. In a pair of cast shears, a stationary shearing blade, a stationary handle bar immovably associated with the stationary blade, a movable handle bar pivotally associated with the stationary blade, a substantially vertically movable shearing blade coacting with the stationary blade and pivotally connected to the movable handle bar in such a position as to be caused to descend when the movable handle bar is swung away from the stationary handle bar and to ascend when the movable handle bar is swung toward the stationary handle bar, and means for guiding the movable blade in its descent and ascent.

4. In a pair of cast shears, a stationary shearing blade, a stationary handle bar immovably associated with the stationary blade, a movable handle bar pivotally associated with the stationary blade, a substantially vertically movable shearing blade coacting with the stationary blade and pivotally connected to the movable handle bar in such a position as to be caused to descend when the movable handle bar is swung away from the stationary handle bar and to ascend when the movable handle bar is swung toward the stationary handle bar, and means for limiting the movable blade in its descent and ascent.

5. The device according to claim 3 in which the guiding means consist of a yoke which embraces the movable blade.

6. The device according to claim 3 in which the guiding means consists of a yoke, the arms of which embrace the movable blade, and a pin passed through the yoke arms and through a slot in the movable blade.

7. The device according to claim 4 in which the limiting means consists of a yoke, the arms of which embrace the movable blade, and a pin passed through the yoke arms and through a slot in the movable blade.

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