J. LUND.

BENCH PLANE.

APPLICATION FILED MAR. 12, 1908.

934,924.

Patented Sept. 21, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

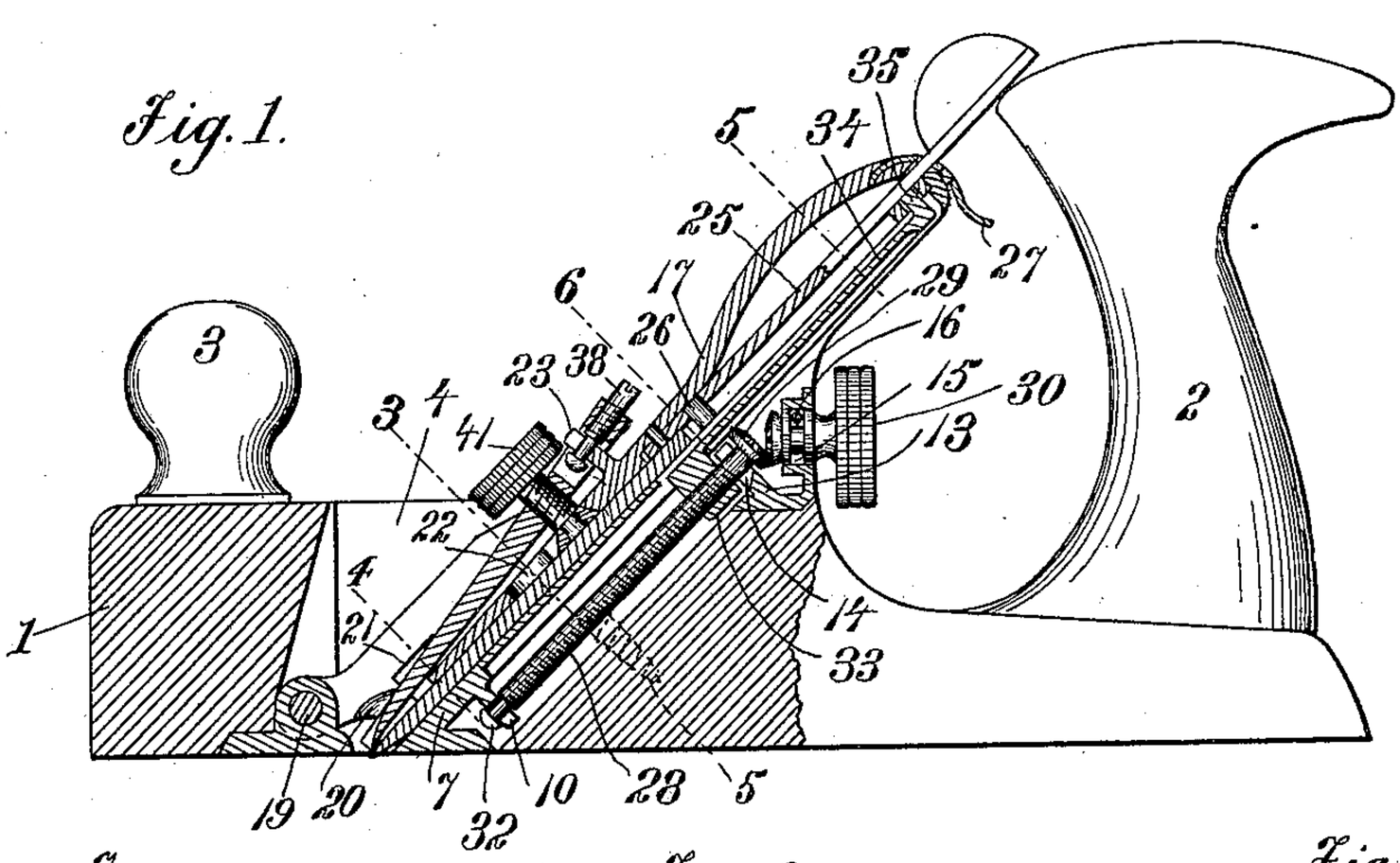


Fig. 2.

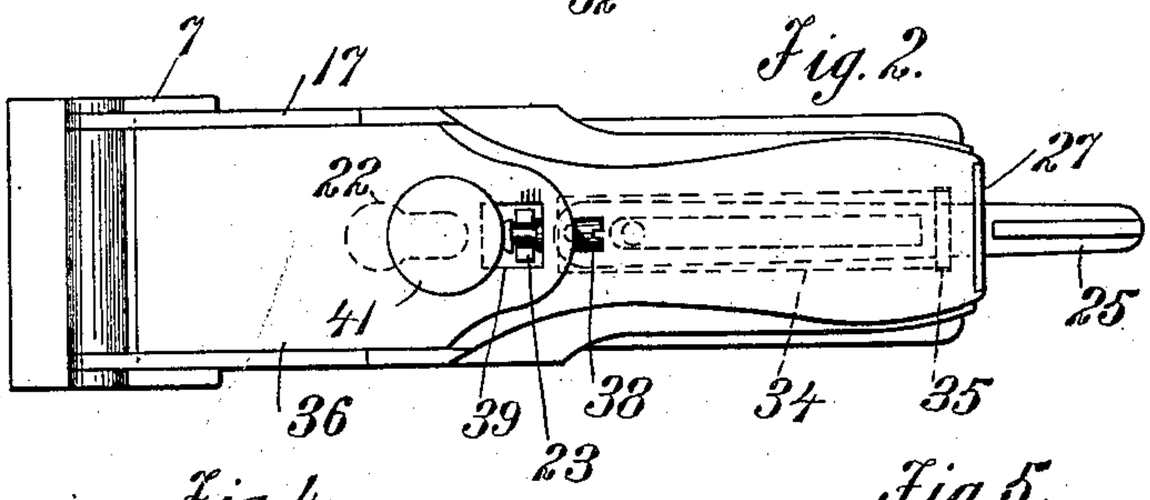


Fig. 3.

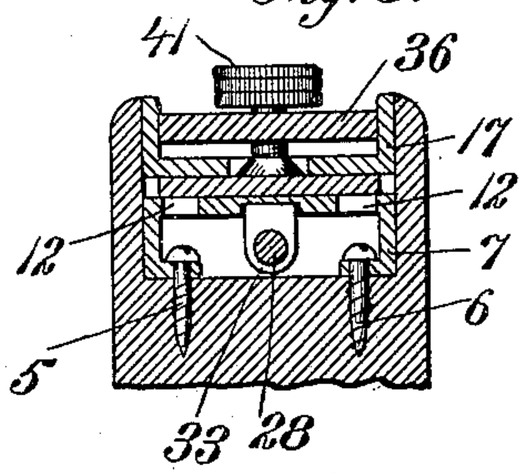


Fig. 4.

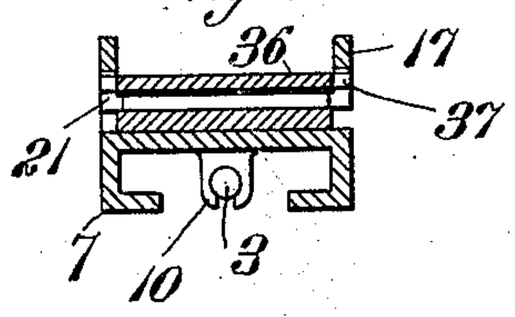


Fig. 5.

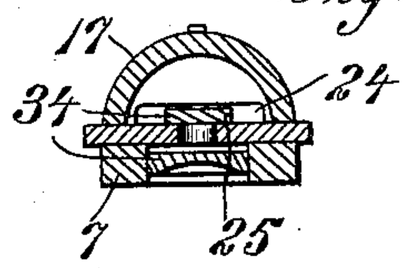


Fig. 6.

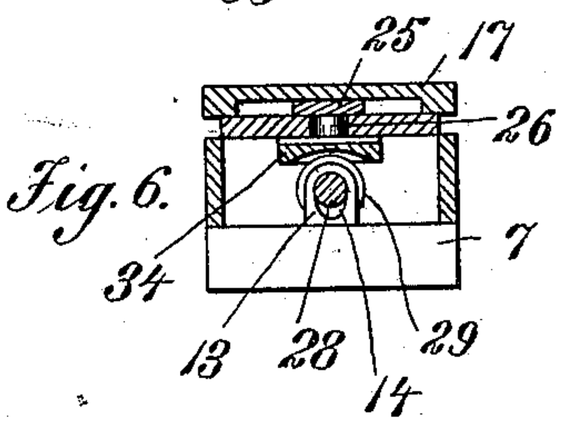


Fig. 7.

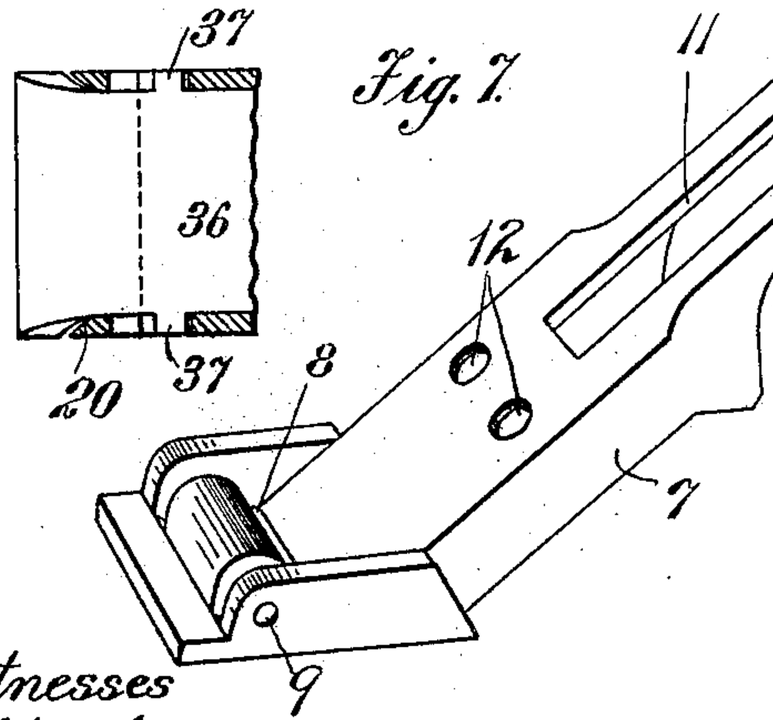
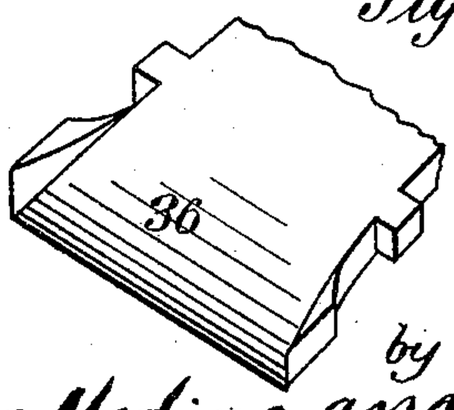


Fig. 8.

Fig. 9.



Witnesses
Alex Bource
George M. Kench

Inventor
Joel Lund
by
Medina and Griffin
Attorneys

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2 SHEETS—SHEET 2.

Fig. 10.

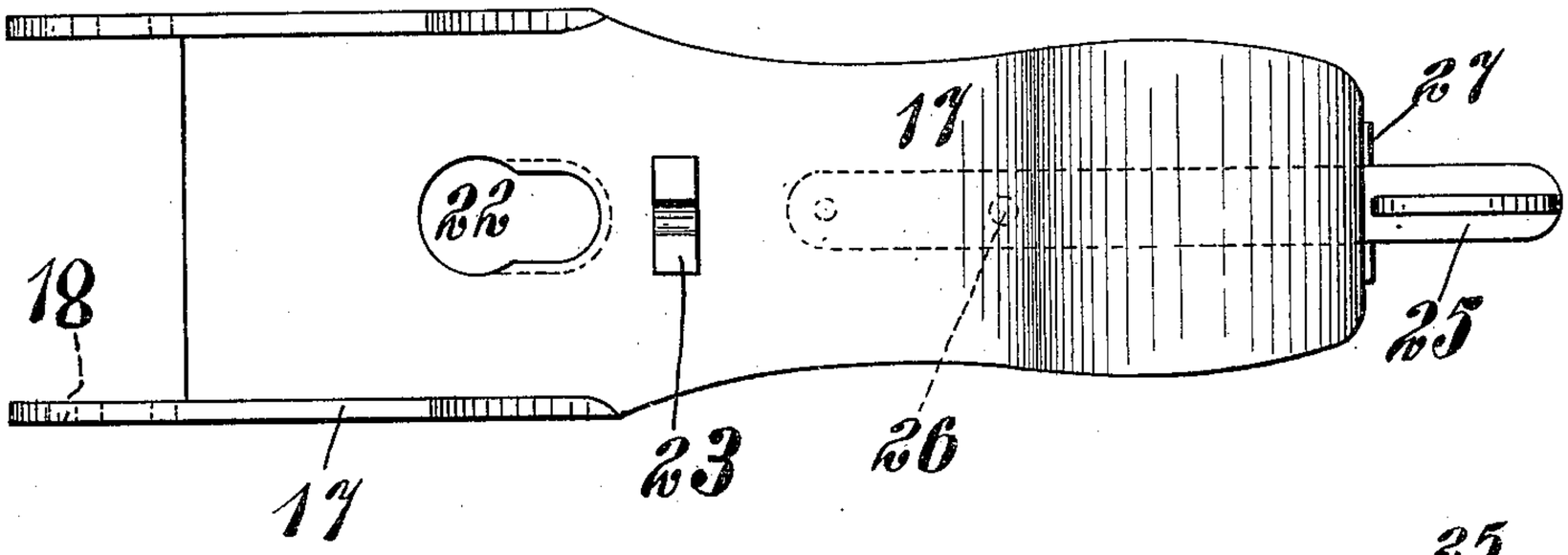
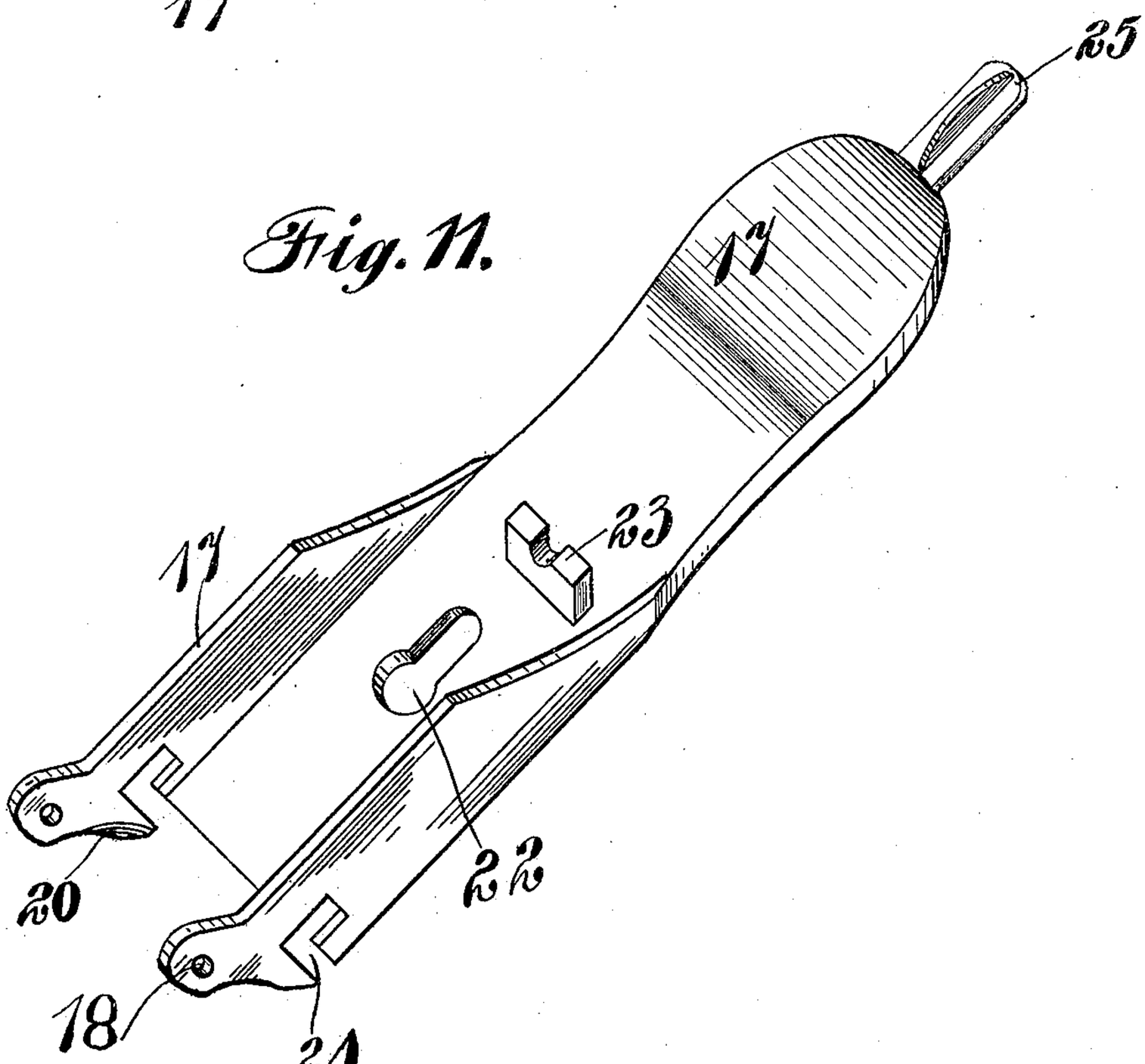


Fig. 11.



Witnesses
David J. Solan
E. Kingsbury

Inventor
Joel Lund
By Medina and Griffin
Attorneys

UNITED STATES PATENT OFFICE.

JOEL LUND, OF SAN FRANCISCO, CALIFORNIA.

BENCH-PLANE.

934,924. Specification of Letters Patent. Patented Sept. 21, 1909.

Application filed March 12, 1908. Serial No. 420,612.

To all whom it may concern:

Be it known that I, JOEL LUND, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Bench-Plane, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to a bench plane of the combination wood and iron type, and its object is to make such a plane as will be adjustable with the least difficulty, and which may be cleaned of any shavings that it may happen to collect with the least trouble. The plane might be made entirely of iron, if so desired.

Another object of the invention is to provide means for adjusting the bit of the plane at any point and yet to allow the bit to be worn as much as possible in order that it may be sharpened whenever it may be necessary.

Another object of the invention is to provide means to adjust the bit cap without removing the bit from the plane.

Another object of the invention is to so place the adjusting means as to be out of the way and in the most handy position for use.

Another object of the invention is to arrange the means for adjusting the bit cap in such a manner as to enable the carpenter to tell at a glance just how high the bit cap is above the bottom of the plane, thus making it easy for him to adjust the cap as may be necessary to correspond with the work he is doing.

Another object of the invention is to give the benefit of the iron construction to those parts of the plane which it is necessary should fit closely and smoothly, and yet not make the quantity of iron in the plane large enough to increase the weight of it to such a point as to make the plane unduly heavy.

In the drawing, Figure 1 is a sectional view of the entire plane, the plane of section being the central longitudinal, Fig. 2 is a plan view of the iron parts of the plane, Fig. 3 is a sectional view on the line 3 Fig. 1, Fig. 4 is a sectional view on line 4 of Fig. 1, Fig. 5 is a sectional view on line 5 of Fig. 1, Fig. 6 is a sectional view on line 6 of Fig. 1, Fig. 7 is a plan of the lower end of the bit cap with a part of the holder in section, Fig. 8 is a perspective view of the frame, Fig. 9 is a perspective view of the bit cap, Fig. 10 is a plan view of the bit cap holder, and Fig. 11 is a perspective view of the bit cap holder, both views being on a larger scale than that of Fig. 1.

The numeral 1 represents the wooden block which forms the body of the plane, 2 being the handle of the plane, and 3 a knob at the front end of the plane by which the person using the same is enabled to have a better hold of the front end of the plane than is possible where the block is not provided with such a knob. This block has the throat 4 cut through it and in which are secured the parts that make up the active members of the cutting device.

The iron parts to which the bit is secured are made complete and separate from the body of the plane, a pair of screws 5 and 6 being used to hold the iron parts to the body.

The main casting or frame of the plane is shown at 7. It is provided with openings and lugs as follows: At the bottom is the transverse slot 8 through which the bit projects, in front of this slot are two holes 9 in alinement transversely and just above the slot through which the bit projects. In the rear of the slot 8 there is a downwardly projecting lug 10 which is slotted for the reception of the adjusting screw, this screw having neck which is pushed up into the slot when the parts are assembled. In the center of the body of the casting 7 there is a slot 11 which opens through the casting. This opening 11 in the frame 7 is for the purpose of allowing the reciprocation of the part 35 of the bit adjusting bar 34, said bar moving in a shallow groove in the under side of the frame 7 at its lower end when the bit becomes worn. At the sides of this groove are the holes 12, 12 through which the screws 5 and 6 pass to hold the frame to the wood body 1. Under the slot 11 and near the top of the same there is a rib 13 which has a hole 14 therein, the hole being so shaped as to allow the adjusting screw considerable play when the same is inserted in its place, since it must carry an adjusting wheel.

Above and to the rear of the rib 13 there is another rib in which are the large hole 15 and small hole, the former being large enough to allow the adjusting wheel on the bit adjusting milled head 30 to pass through, and the small hole is for the reception of a small pin 16 to hold the said milled head 30 in its place.

The bit cap holder 17 is provided with a pair of holes 18 in its side flanges which correspond with the holes 9 in the frame and which, when in place receive a pin 19. This holder is provided with a beveled portion 20 at each side thereof and near the slot of the frame through which the bit projects. Just above each beveled part 20 there is a slot 21, and a little farther up near the center there is a slot 22 through which the set screw that holds the bit in any given position passes. Just above the slot 22 there is an upwardly extending lug 23 which has an open slot cut in it to receive the neck of the cap adjusting screw. Near the top of the cap holder there is a transverse slot 24 through which the bit adjusting lever 25 passes, said lever being pivoted to the frame and having a downwardly projecting pin 26 for moving the edge of the bit to compensate for uneven grinding when the same is sharpened. At the top of the cap holder there is a heavy spring 27 which holds the holder down to the frame when the same is in use. The bit adjusting screw 28 has a small bevel wheel 29 which meshes with a like small wheel carried by the thumb nut 30, said thumb nut shank having a groove around it for the reception of a pin 31 which holds the thumb nut in its place in the frame. The adjusting screw 28 is put into place from the top of the frame and is then pushed up into the slot of the lug 10, the head 32 holding the screw in a fixed position with relation to the frame. This screw 28 passes through a downwardly projecting lug 33 on the bit adjusting bar 34, said bar having an upwardly projecting lug 35 which takes in a slot in the top of the bit, thus allowing the bit to be moved longitudinally by turning the thumb screw in front of the handle.

The bit cap and adjusting parts are all secured to the bit cap holder independent of the frame and plane stock, the cap holder being hinged so that it can be raised up far enough to permit the removal of the bit, the movement being through a considerable angle. This is accomplished by having the center of movement of the hinge far enough in front of and above the point at which the front end of the bit cap bears on the bit, so the motion of all parts of the bit cap is away from the bit.

The bit cap 36 has a lug 37 on each side thereof which takes in the slots in the side of the cap holder, and it has a threaded hole at the top which extends longitudinally thereof for the reception of the small adjusting screw 38. In front of this hole there is another hole 39 which permits the upstanding lug 23 to pass through, and it is large enough to allow the cap to move longitudinally enough to compensate for any wear, should it be necessary to grind the cap at any time, or should it be necessary to move the cap, as in the case where fine work is to be done and then where coarser work is to be done. In front of the square hole 39 in the cap there is another threaded hole 40 which the thumb bolt 41 passes through, said thumb bolt having a washer on its end of greater diameter than the width of the long slot cut in the bit and through which the pin of the side motion adjustment lever passes. At the lower end the bit cap is beveled in three places, on the bottom, and on each edge just above the bottom. The purpose of this is to give perfectly smooth surfaces for the shavings to pass up over, since the cap is of the full width of the opening through the main frame below the beveled portion of the cap holder, this being accomplished by providing the cap with two lugs at the bottom, the two upper lugs passing through the cap holder slots 21.

Now it will be noted that when the cap holder is down on the frame that the cap will be tight on the bit at the lower end only, or it may not be tight there, but by tightening the thumb nut in the cap holder and which is threaded into the cap the lower end of the cap may be made as tight as necessary, up to the strength of the spring catch at the top of the cap holder. As illustrated the movable parts of the plane are all secured to the frame and it might be sold separate from the block.

In operation it is often necessary to take the bit out of a plane to free it from shavings that may get caught therein and with this plane this may be done without any difficulty and without in any way interfering with the adjustment of the bit, since all the adjustments are not in any way changed by lifting up the cap holder. It is also an advantage to have the bit cap free from the bit for the reason that it leaves the bit free to be taken out of the plane to be sharpened, while the relative position of the cap remains just the same as it was previously and may be adjusted at the will of the user, lines being provided on the cap to show its relative position with respect to the bottom of the plane block.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is as follows:

1. In a bench plane, a frame having a downwardly extending lug, a bit having an opening in the upper end thereof and carried by the frame, a bit cap, a hinged frame carrying said bit cap, means to adjust the bit longitudinally of the frame and comprising a threaded bolt having a head and a neck at the lower end said neck seated in an open slot in the lug on the frame and a bar lying in a groove in the frame and having a lug threaded over the threaded bolt and an upstanding lug passing into the opening in the upper end of the bit.

2. In a bench plane, the combination with a frame of a bit carried thereby, a hinged bit cap holder adapted to swing away from the bit, a bit cap in contact with the bit and carried by the holder, means carried by the cap holder to adjust the bit from side to side, and means carried by the holder to adjust the cap longitudinally.

3. In a bench plane, the combination of a frame, a bit carried in the frame, means carried by the frame to adjust the bit longitudinally, a hinged bit cap holder adapted to swing away from the bit, a bit cap in contact with the bit, means to adjust the bit cap longitudinally, and a screw threaded through the cap and passing through a slot in the cap holder and adapted to bear on the bit.

4. In a bench plane, the combination of a frame, a bit carried by the frame, a bit cap holder hinged to the frame in front of the lower end of the bit and having a slot at each side thereof, a bit cap carried by the holder in contact with the bit and having a lug projecting into the slot on each side of the holder and at a point intermediate the cap, a screw threaded into the cap and adapted to bear on the bit, and means to adjust the cap longitudinally.

5. In a bench plane, the combination of a frame, a bit carried by the frame and projecting through the bottom thereof, a bit cap holder hinged to the frame in front of the lower end of the bit having a slot at each side thereof and an open slotted lug projecting from the top thereof, a bit cap carried by the holder and having lugs projecting into the side slots of the bit cap holder, a screw carried by the bit cap and having a neck adapted to be seated in the slot in the upwardly projecting lug of the cap holder, and a screw threaded through the cap and adapted to bear on the bit.

6. In a bench plane, the combination of a frame, a bit carried thereby, means carried by the frame to adjust the bit longitudinally, a bit cap holder hinged to the frame in front of the lower end of the bit, a bit cap carried by the holder in contact with and free from the bit, and means to secure the bit cap against the bit.

7. In a bench plane, the combination of a frame, a bit carried thereby, a bit cap adapted to bear on the top surface of the bit, a bit cap holder hinged at its lower end to the frame in front of the sharpened edge of the bit, means to secure the cap and holder in a fixed position, and means to adjust the cap.

8. In a bench plane, the combination of a frame, a bit carried by said frame and projecting below the same, a bit cap holder hinged to the frame in front of the lower end of the bit, a sharpened bit cap carried thereby, means to adjust the cap longitudinally, means to adjust the pressure of the cap on the bit, means to adjust the bit sidewise at the cutting edge, and means to secure the bit cap holder against the bit.

9. In a bench plane, the combination of a frame, a bit carried thereby and projecting below the same, a bit cap holder hinged to the frame in front of the lower end of the bit and having a slot at each side thereof, a sharpened bit cap carried by the holder and having lugs projecting into the slots of the holder, means to adjust the bit cap longitudinally, means to adjust the pressure of the bit cap on the bit, means to adjust the bit sidewise at the cutting edge, and means to secure the cap holder against the bit.

10. A bit cap having the bit protecting edge beveled in three planes two of said planes being substantially at right angles with the main plane and at an acute angle with each other to form a main edge bearing on the bit and two side edges at right angles thereto.

11. In a bench plane, the combination of a frame, a bit carried thereby and projecting below the same, a bit cap holder pivoted to the frame in front of the lower end of the bit, a sharpened bit cap carried thereby, means to secure the bit cap holder against the bit, and means to regulate the pressure of the bit cap on the bit.

12. In a bench plane, the combination of a frame, a bit carried thereby and projecting below the same, a bit cap holder hinged to the frame in front of the lower end of the bit and carrying a sharpened bit cap, means to regulate the pressure of the cap on the bit, means to regulate the longitudinal position of the bit cap, means to secure the cap against the bit and means carried by the hinged cap holder for adjusting the bit sidewise at the cutting edge, as shown.

13. In a bench plane, the combination of a frame, a bit carried loosely in said frame, means to adjust the bit longitudinally, a bit cap holder hinged to the frame in front of the lower end of the bit and having a slot in each side thereof, a sharpened bit cap having a lug in each slot of the holder, means to secure the bit cap holder against the bit, means to adjust the pressure of the bit cap on the bit, means to adjust the cap longitudinally, and means carried by the cap holder to adjust the bit sidewise at the cutting edge.

In testimony whereof I have set my hand March A. D. 1908, in the presence of the two subscribed witnesses.

JOEL LUND.

Witnesses:
W. T. Hess,
C. P. Griffin.