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H. GREEN

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FILING AND JIGSAW MACHINE

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2 Sheets-Sheet 1

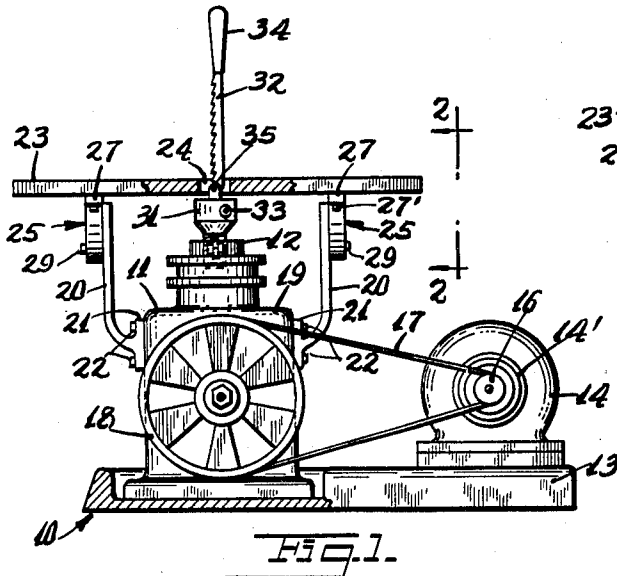
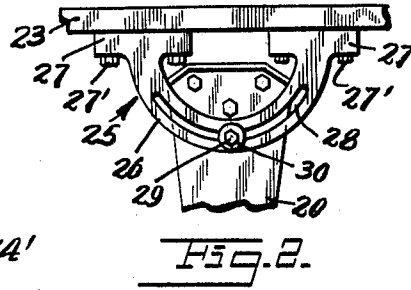
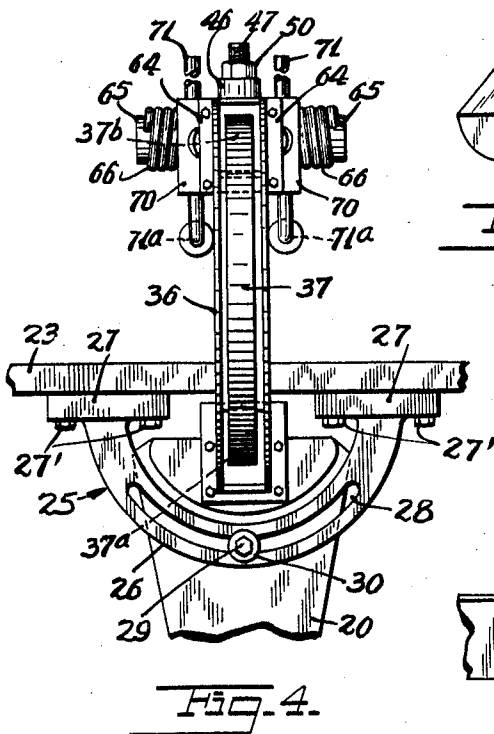
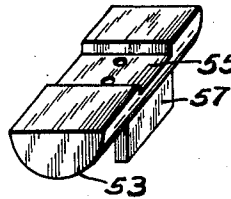


Fig. 10.

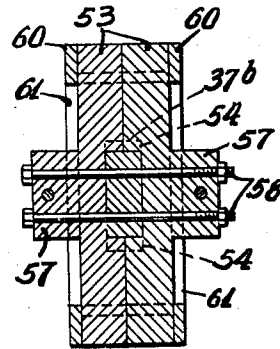


Fig. 7.

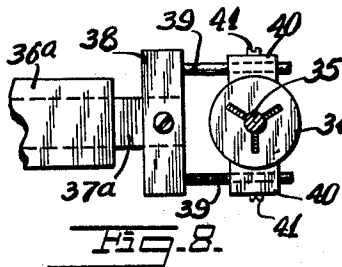


Fig. 8.

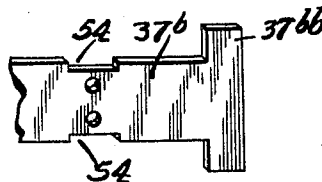


Fig. 11.

INVENTOR
Harry Greer
BY *John H. Hobbs*
ATTORNEY

UNITED STATES PATENT OFFICE

2,333,372

FILING AND JIG-SAW MACHINE

Harry Green, Elmhurst, Long Island, N. Y.

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8 Claims. (Cl. 143—71)

This invention relates to new and useful improvements in a filing and jigsaw machine.

More particularly, the invention proposes a machine as mentioned which is constructed from a prime mover unit having a housing with a vertically reciprocating member projecting from the top thereof. This prime mover may be new equipment, or it may comprise numerous old and otherwise useless units. For example, the old type of gas compressor unit from a refrigerator may be used. There are any number of old pumps, compressors and other units which could also be used in accordance with this invention.

The invention proposes certain means for supporting a work table over and across the vertically reciprocating member so that the work table may be tilted in various directions. It is also proposed to provide the vertically reciprocating member with a chuck for supporting various tools such as a jigsaw, a file or the like.

Numerous modifications of the broad concept are also proposed. One of said modifications relates to a certain casing supported in a certain way and housing a U-shaped member which is connected with the chuck and capable of more effectively supporting a jigsaw or file or other implement.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure—

Fig. 1 is a side elevational view of a filing and jigsaw machine constructed in accordance with this invention, certain parts being broken away to disclose interior construction.

Fig. 2 is a fragmentary enlarged elevational view looking in the direction of the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary enlarged elevational view of a filing and jigsaw machine constructed in accordance with another form of this invention, certain parts being broken away to disclose the interior construction.

Fig. 4 is a fragmentary elevational view looking from the left hand side of Fig. 3.

Fig. 5 is a fragmentary enlarged horizontal sectional view taken on the line 5—5 of Fig. 3.

Fig. 6 is a fragmentary enlarged horizontal sectional view taken on the line 6—6 of Fig. 3.

Fig. 7 is an enlarged vertical sectional view taken on the line 7—7 of Fig. 3.

Fig. 8 is a horizontal sectional view taken on the line 8—8 of Fig. 3.

Fig. 9 is a perspective view of one of the clamp sections shown in Figs. 2, 5 and 6.

Fig. 10 is a perspective view of one of the slide sections shown in Figs. 3 and 6.

Fig. 11 is a fragmentary perspective view of the top end of the U-shaped member used in the device.

The filing and jigsaw machine, in accordance with this invention, includes a prime mover unit 10 having a housing 11 with a vertically reciprocating member 12 projecting from the top thereof. This prime mover 10 is shown to include a base 13 upon one end of which there is an electric motor 14 provided with a variable speed transmission 14'. The transmission 14' is equipped with a pulley 16 engaged by an endless belt 17 which extends over a pulley 18 of an old type of gas compressor unit 19 of a refrigerator. This unit 19 has the housing 11 from which the reciprocating member 12 projects.

A pair of arms 20 is mounted on the housing 11 and extends upwards. These arms 20 have bottom flanges 21 which are engaged by fastening elements 22 which engage the housing 11, by which the arms are mounted on the housing. A work table 23 is disposed over and across the housing 11 and is provided with an opening 24 superimposed above a reciprocating member 12.

A pair of brackets 25 are mounted on said table 23 and are adjustably connected with said arms 20 and are for the purpose of supporting the table 23. More specifically, each bracket 25 has an arcuate central section 26, and end flanges 27. Fastening elements 27' engage these end flanges 27 and the table 23 for connecting these parts. Each arcuate central portion 26 is formed with an arcuate slot 28 which is engaged by a cap screw 29 having a washer 30 under its head. The cap screws 29 are mounted on the arms 20. The arrangement is such that the cap screws 29 may be loosened and then the work table 23 may be pivoted within the limits allowed by the arcuate slots 28.

A chuck 31 is mounted upon the reciprocating member 12 and is for the purpose of supporting a tool, such as the jigsaw blade 32 shown in Fig. 1. The chuck 31 is of standard construction and has the usual control nut 33 for the usual turning tool by which the jaws of the chuck may be opened and closed to release and grip a stud 35 or other holding element. The bottom end of the jigsaw 32 is attached to the stud 35. A

handle 34 is mounted on the top of the jigsaw 32.

The operation of the device is as follows:

The prime mover 10 may be set into operation which causes the member 12 to reciprocate vertically through a certain amplitude, usually about $1\frac{1}{2}$ ". Since the chuck 31 is mounted on the reciprocating member 12 it will be correspondingly moved. Thus the tool 32 is reciprocated. Work may be placed on the table 23 and engaged against the tool 32 in the usual way.

In Figs. 3 to 11 inclusive a modified form of the invention has been disclosed which distinguishes from the prior form in the fact that means is provided for supporting the upper end of the tool to facilitate its reciprocating action without likelihood of bending, breaking, or other damage to the tools being used. In accordance with this form of the invention a U-shaped casing 36 is turned on its side and is supported by one of its side portions 36^a which is mounted on one of the arms 20. The casing 36 has its other arm 36^b superimposed above the arm 36^a. The arms 36^a and 36^b are of tubular construction which may be understood by examining Fig. 4. However, the central portion of the U-shaped casing 36, that is the portion which joins the rear ends of the sides 36^a and 36^b is open at the back, see Figs. 3 and 4. A U-shaped member 37 is also turned on its side and is supported by one of its side portions 37^a which is mounted on the chuck 31. The U-shaped member 37 extends through the casing 36. The side portion 37^a extends through the side portion 36^a, and its other side portion 37^b extends through the side portion 36^b of the casing. The U-shaped member 37 may be removed from the casing 36 when it is freed and then it may be pulled towards the left, as illustrated in Fig. 3, so that it is moved out from the opened central portion of the U-shaped casing 36.

The side portion 37^a of the U-shaped member 37 projects from the outer end of the arm 36^a and is provided with a removably mounted bracket 38 from which a pair of parallel pins 39 project, see Fig. 8. These pins 39 straddle the chuck 31 and extend through a pair of lugs 40 mounted on the sides of the chuck 31. Set screws 41 are mounted through the lugs 40 and abut the pins 39 for fixedly connecting the U-shaped member 37 with the chuck. A tool holding unit 42 is mounted upon the side portion 37^b of the U-shaped member 37 and is disposed directly above the chuck 31. By loosening the set screws 41, the U-shaped member 37 may be shifted slightly laterally so as to properly align the tool holding unit 42 with the tool holding stem 35 of the chuck 31.

The holding unit 42 includes a clamp which is mounted upon the side portion 37^b of the U-shaped member 37 and which includes a pair of clamp sections 43. Each of these clamp sections has a semi-cylindrical central portion 43^a and end flange portions 43^b and 43^c. (See Fig. 9.) The flange portions 43^b are formed with aligned T-shaped slots 44 into which the T-shaped end 37^{bb} of the portion 37^b engages. The flanges 43^c are secured together with a fastening element 45, such as a bolt, for holding the clamp sections tightly on the end 37^{bb} of the U-shaped member 37. A vertical tube 46 passes through the cylindrical portions 43^a of the clamp sections and is fixedly held in various selected vertical positions by the fastening element 45. When the fastening element 45 is loosened the vertical tube 46 may be raised or lowered. Then the fastening

element 45 may be tightened to lock it in its selected position.

A stem 47 slidably passes through the vertical tube 46 and is held non-rotative therein. This is accomplished by several set screws 48 threadedly mounted on the tube 46 and engaging in a longitudinal slot 49 formed along one side of the vertical tube 46. A nut 50 is threadedly mounted on the top portion of the stem 47 and abuts the top end of the vertical tube 46 by which the stem 47 may be held in various elevated positions. A fastening element 51 connects the bottom end of the stem 47 with the jigsaw blade 32 or other tool used in the device.

Means is provided for resiliently urging the U-shaped member 37 into its top position. This means includes a pair of slide sections 53 which are fixedly mounted on the arm 37^b of the U-shaped member 37. More particularly, the arm 37^b is formed with a pair of top and bottom recesses 54 over which the slide sections 53 are mounted. (See Fig. 11.) Each slide section 53 has a central cutout 55 (see Fig. 10) of a size adapted to extend across the material of the arm 37^b between the recesses 54. Each slide section 53 has a lug 57 projecting from its side. Fastening elements 58 are engaged through the lugs 57 and thus through the slide sections 53, and also through the side portion 37^b for fixedly mounting the slide sections on said side portion 37^b. Each slide section 53 is of semi-cylindrical form so that both together are of cylindrical form.

The side portion 36^b of the U-shaped casing 36 is formed from a pair of laterally adjacent sections 36' and 36''. (See Fig. 6.) These sections terminate at their free end in a cylindrical portion 60. This cylindrical portion 60 is formed with a pair of vertical longitudinal slots 61 on diametrically opposite sides. (See Fig. 7.) The lugs 57 project from these slots 61. Fastening elements 62 assist in connecting the sections 36' and 36'' together. These sections are also held together by additional fastening elements 63 which are mounted on flanges 64 upon adjacent ends of the arm 36^b and the central portion of the casing 36.

A pair of horizontal cylindrical projections 65 are mounted upon the sides of the arm 36^b. Springs 66 are mounted on these projections 65. The outer ends 66^a of these springs are attached to the projections 65. The inner ends 66^b extend through the lugs 57. The springs 66 are so tensioned that they normally urge the lugs 57 into the top ends of the vertical slots 61. This, of course, is the top position for the U-shaped member 37.

A tubular clamp 70 is mounted on each side of the arm 36^b. A rod 71 passes through each tubular clamp 70. Each tubular clamp 70 is provided with a screw 72 by which the clamp may be closed to hold the rod 71 in a fixed elevated position. Each rod 71 has a bottom portion 71^a which extends horizontally. The free ends of these portions 71^a are provided with rollers 73 which may be engaged against the file or saw to act as a support or slightly above the work placed on the table 23 to prevent the work from being lifted up from the table, during the upward motion of the saw.

The side portion 36^a of the casing 36 is made from separate material from the central portion thereof, and the adjacent ends have flanges 74 which are engaged by fastening screws 75 for connecting these parts together.

The operation of this form of the device is as follows:

When the prime mover unit 10 operates, the member 12 will reciprocate vertically. Since the chuck 31 is mounted on the member 12 it will move correspondingly. This causes vertical reciprocation of the U-shaped member 37. The tool 32, which is mounted between the ends of the U-shaped member 37, will be reciprocated. Work may be placed on the table 23 and engaged against the tool 32.

The U-shaped member 37 may be removed from the open back end of the casing 36 by removing the parts connected with it.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side portion securely attached to a stationary portion of said prime mover, a U-shaped member turned on its side and extended through said U-shaped casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, comprising lugs projecting from diametrically opposite sides of said chuck and formed with openings, spaced pins projecting from the bottommost side portions of said U-shaped member and extended through said openings, and means for locking said pins in position relative to said lugs.

2. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side portion securely attached to a stationary portion of said prime mover, a U-shaped member turned on its side and extended through said U-shaped casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member and tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, comprising lugs projecting from diametrically opposite sides of said chuck and formed with openings, spaced pins projecting from the bottommost side portions of said U-shaped member and extended through said openings, and means for locking said pins in position

relative to said lugs, said latter means, comprising screws threadedly engaged through said lugs and abutting said pins.

3. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side portion securely attached to a stationary portion of said prime mover, a U-shaped member turned on its side and extended through said U-shaped casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member and tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, said tool holding unit comprising a clamp mounted on the topmost side portion of said U-shaped member, a tube vertically mounted in said clamp, a stem non-rotatively but vertically slidably mounted through said tube to have its bottom end connected with the top end of the tool being used, and means for holding said stem in various adjusted positions relative to said tube for spacing the end of said stem relative to said chuck permitting tools of different lengths to be used in said machine.

4. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side portion securely attached to a stationary portion of said prime mover, a U-shaped member turned on its side and extended through said U-shaped casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member and tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, said tool holding unit comprising a clamp mounted on the topmost side portion of said U-shaped member, a tube vertically mounted in said clamp, a stem non-rotatively but vertically slidably mounted through said tube to have its bottom end connected with the top end of the tool being used, and means for holding said stem in various adjusted positions relative to said tube for spacing the end of said stem relative to said chuck permitting tools of different lengths to be used in said machine, said non-rotative but slidable mounting of said stem, comprising set screws threadedly engaged through the walls of said tube and freely engaging vertical grooves formed in said stem.

5. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side portion securely attached to a stationary portion of said prime mover, a U-shaped member turned on its side and extended through said U-shaped

casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member and tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, said tool holding unit comprising a clamp mounted on the topmost side portion of said U-shaped member, a tube vertically mounted in said clamp, a stem non-rotatively but vertically slidably mounted through said tube to have its bottom end connected with the top end of the tool being used, and means for holding said stem in various adjusted positions relative to said tube for spacing the end of said stem relative to said chuck permitting tools of different lengths to be used in said machine, said latter means, comprising a nut threadedly engaging the top end of said stem and abutting the top end of said tube.

6. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side portion securely attached to a stationary portion of said prime mover, a U-shaped member turned on its side and extended through said U-shaped casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member and tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, said tool holding unit comprising a clamp mounted on the topmost side portion of said U-shaped member, a tube vertically mounted in said clamp, a stem non-rotatively but vertically slidably mounted through said tube to have its bottom end connected with the top end of the tool being used, and means for holding said stem in various adjusted positions relative to said tube for spacing the end of said stem relative to said chuck permitting tools of different lengths to be used in said machine, a T-shaped end formed on the topmost side portion of said U-shaped member, said clamp being formed of adjacent sections with each of said sections comprising a central semi-cylindrical portion and end flange portions, one of said flange portions being formed with an opening and the other of said flanges being formed with a T-shaped slot, whereby when said sections are brought together said semi-cylindrical portions will engage about said tube and said T-shaped slots will engage opposite sides of said T-shaped end and said openings will be aligned.

7. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side portion securely attached to a stationary portion of said prime mover, a U-shaped member turned

on its side and extended through said U-shaped casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member and tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, said tool holding unit comprising a clamp mounted on the topmost side portion of said U-shaped member, a tube vertically mounted in said clamp, a stem non-rotatively but vertically slidably mounted through said tube to have its bottom end connected with the top end of the tool being used, and means for holding said stem in various adjusted positions relative to said tube for spacing the end of said stem relative to said chuck permitting tools of different lengths to be used in said machine, a T-shaped end formed on the topmost side portion of said U-shaped member, said clamp being formed of adjacent sections with each of said sections comprising a central semi-cylindrical portion and end flange portions, one of said flange portions being formed with an opening and the other of said flanges being with a T-shaped slot, whereby when said sections are brought together said semi-cylindrical portions will engage about said tube and said T-shaped slots will engage opposite sides of said T-shaped end and said openings will be aligned, and a fastening element engaged through said aligned openings securing said sections together about said tube and on said T-shaped end.

8. A filing and jigsaw machine having a prime mover with a member arranged to reciprocate vertically and supporting a tool chuck, a U-shaped casing turned on its side to have its side portions superimposed and its bottom side securely attached to a stationary portion of said prime mover, a U-shaped member turned on its side and extended through said U-shaped casing and having its side portions projected beyond the ends of the side portions of said casing, a tool holding unit mounted on the free end of the topmost side portion of said U-shaped member, and means for mounting the free end of the bottommost side portion of said U-shaped member on said chuck causing said U-shaped member and tool holding unit to reciprocate with said chuck and superimpose said tool holding unit directly above said chuck so that a tool may be mounted between said chuck and tool holding unit, and means assisting said prime mover in the upward stroke of said U-shaped member, said latter means comprising a vertical cylindrical portion formed on the free end of the topmost side portion of said U-shaped casing, a vertical cylindrical slide section formed on the topmost side portion of said U-shaped member and slidably disposed in said vertical portion, lugs projecting from said slide section and through vertical elongated slots formed in the sides of said cylindrical portion, and resilient means fixedly mounted on said U-shaped casing and connected with said lugs and urging said U-shaped member upwards relative to said U-shaped casing to a position in which said lugs will be located at the top ends of said slots.

HARRY GREEN.