Nov. 8, 1955 C. M. SMITH 2,722,790

PORTABLE SANDING MACHINE

Filed April 16, 1954

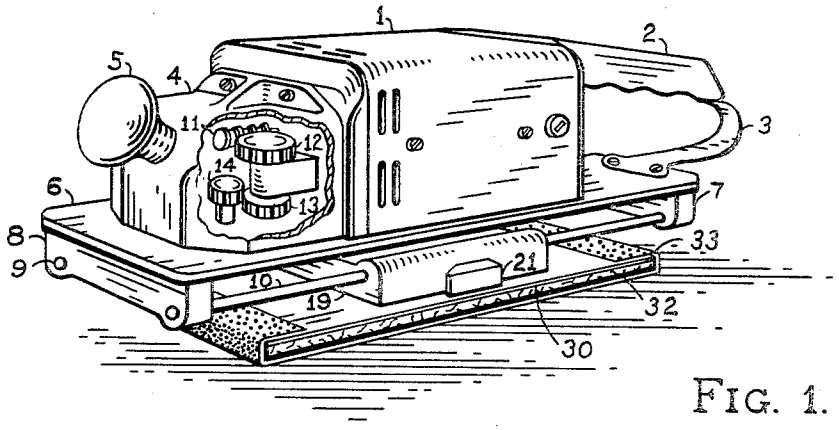


FIG. 1.

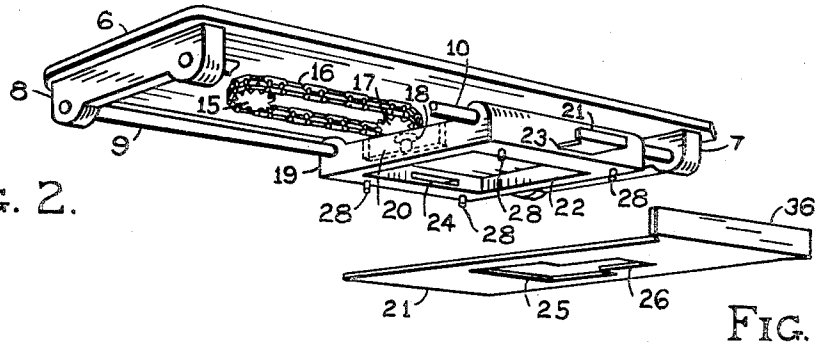


FIG. 2.

FIG. 3.

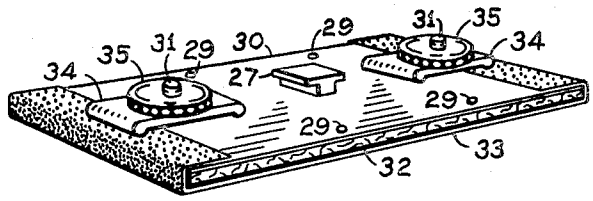


FIG. 4.

INVENTOR CARL M. SMITH

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2,722,790

PORTABLE SANDING MACHINE

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1 Claim. (Cl. 51—170)

My invention relates to surfacing machines of the portable electric type and more particularly it is intended for the purpose of producing a smooth sanded, rubbed or polished finish on the surface of articles made of wood, metal, plastics and the like.

A general object of the invention is to produce a light weight machine that is easily handled.

Another object of the invention is to provide a new construction for a portable sanding machine where the motion of hand sanding is really imitated. My design permits and is adaptable to a long stroke movement of the sanding pad. Previous machines of this type have used a very short stroke of the sanding pad activated by an eccentric crank arm. My experiments indicate that about four inches is a convenient and effective length of stroke to imitate hand sanding with a portable machine.

A further object of the invention is to transmit the power of a small electric motor through suitable gearing to a sprocket wheel and chain with a unit attached to it that drives a sanding pad with a reciprocating motion.

Another object of the invention is to provide a means to readily attach or remove interchangeable sanding pads.

A further feature of novelty is the compact construction that brings the center of gravity close to the work surface.

Another desirable feature of the machine is the elimination of any circular or sworl marks remaining on the finished surface of the work. This is due to the straight line back and forth movement of the pad.

A preferred embodiment of the invention is shown in the accompanying drawings.

Figure 1 is a perspective view of my sanding machine. A portion of the front cover is broken away to show the gear transmission.

Figure 2 is a perspective view looking up at the bottom of the machine with the sanding pad removed and part of one guide rod broken away to show the driving chain more clearly.

Figure 3 is an enlarged perspective view of the locking lever that holds the sanding pad.

Figure 4 is a perspective view looking down on the sanding pad when detached from the machine.

As shown in the drawings **1** is an electric motor housing fastened to the base **6** with a handle **2** on the rear of the motor and handle support **3** also fastened to the base. A cover **4** over the gear transmission is fastened to the front of the motor with a hand knob **5** mounted on the cover. The base plate **6** has a flange **7** at the rear end and a flange **8** at the front end. These flanges support the guide rods **9** and **10**. A worm **11** on the motor shaft meshes with the worm gear **12** attached to the same axle with the spur gear **13** that meshes with the spur gear **14**. The axle of gear **14** extends through the base plate **6** and has the sprocket wheel **15** attached to the lower end. The chain **16** is driven by the sprocket wheel **15** and rotates around the sprocket wheel **17** mounted on the bottom of the base **6**. A driving pin **18** (shown by dotted lines) is fastened to the chain **16** and moves the carriage **19** with a reciprocating motion along the guide rods **9** and **10**. The driving pin **18** moves transversely in a groove **20** (shown by dotted

lines) in the carriage **19** as needed when the chain turns around the sprocket wheels. Figure 3 shows an enlarged view of the locking lever **21** that serves to hold the sanding pad on the carriage **19**. The flange **36** on the end of the lever is a finger grip. In Figure 1 the lever is shown in closed position and in Figure 2 the external end of the lever is shown extended while the internal end of the lever is omitted in this view in order to show the recess **22** in the bottom of the carriage **19**. The locking lever **21** fits through the two slots **23** and **24** in opposite sides of the carriage **19** and has an opening cut out at **25** to fit over the T-block **27** and opening **26** that will fit under the top flanges of T-block **27**. Four pins **28** on the bottom surface of carriage **19** fit in the four holes **29** in plate **30** and serve both to locate and drive the sanding pad. The plate **30** has two stud screws **31** and the T-block **27** fastened to its top surface and a layer of felt **32** fastened to its bottom surface. The height of the T-block **27** is made so that it will create spring tension in the locking lever **21** when the opening **26** slides under the top flanges of the T-block in closed position of the lever and thereby hold the sanding pad in place under the reciprocating carriage **19**. The sanding pad is readily removed by pulling the lever **21** outward to where the opening **25** slides over the top of the T-block. A strip of sanding paper **33** wrapped around the pad is held at each end by the two clamp blocks **34** and the two knurled edge thumb and finger nuts **35** that are threaded to fit on the screw studs **31**.

This description is given to explain the operation of my sanding machine as shown in the drawings, but is not intended to limit the design of the various parts. Some deviation of details will be apparent without departing from the scope of the invention.

I claim:

A hand supported and directed sanding machine comprising a housing frame containing a driving motor with a handle at the rear and a gear housing containing gears at the front with a hand knob on the top of said gear housing; said driving motor housing, handle and gear housing mounted on a base with two parallel guides mounted in a longitudinal position under the base; a driving connection from the motor through reduction gears to a sprocket chain, said chain adaptable to various lengths as predetermined by the spacing of two sprocket wheels attached under the base of said machine; a driving unit fastened to the sprocket chain that slidably engages a transverse slot in a reciprocating carriage supported by and free to move longitudinally along said guides; said reciprocating carriage provided with locating pins to position a sanding pad and provided with a slidable latch to hold a sanding pad; a detachably mounted sanding pad comprising a metal backing plate with flexible material secured to the bottom of said plate and two stud screws mounted on the top side near each end of said plate and a projection mounted on the plate to engage with said slidable latch and two clamp blocks to hold the ends of a strip of sand paper wrapped around the sanding pad, said clamp blocks manually actuated by a thumb and finger nut on each screw stud.

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