

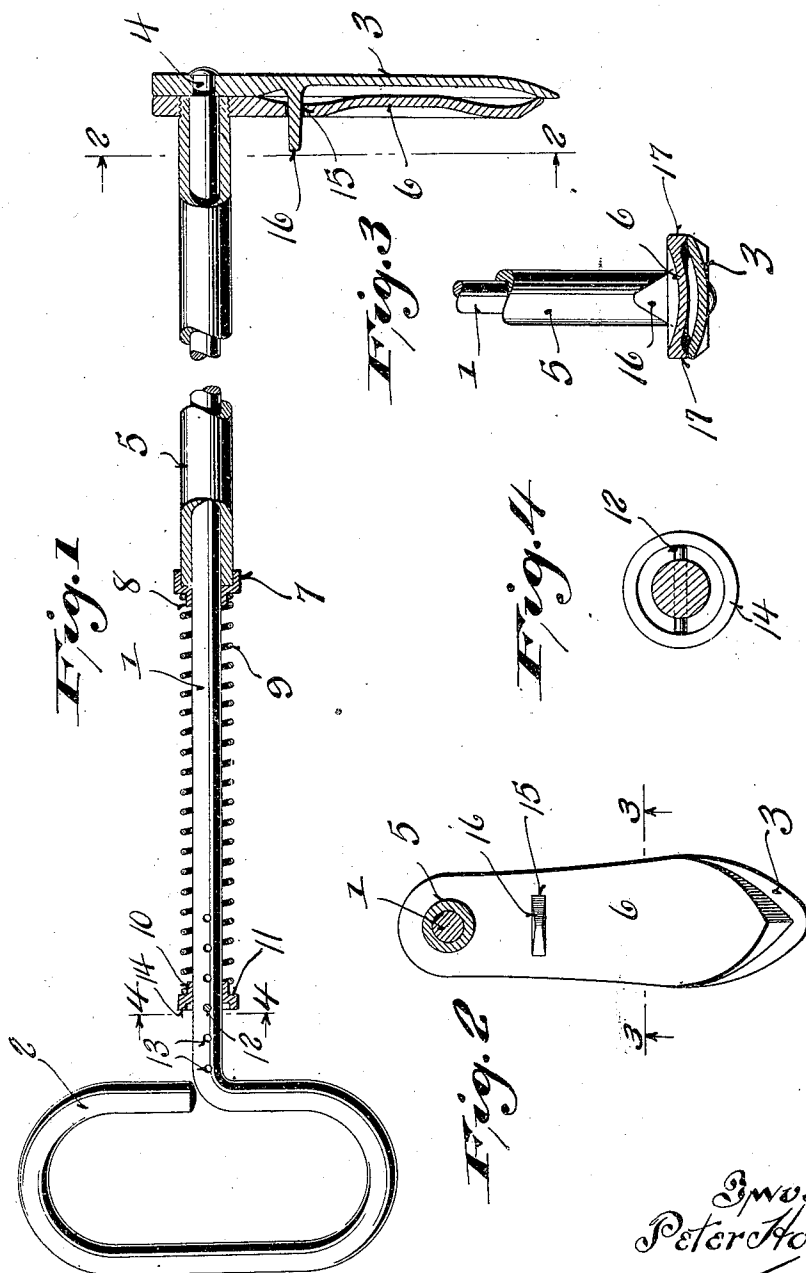
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P. HOTT

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CLEAN-OUT TOOL FOR FURNACES

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UNITED STATES PATENT OFFICE.

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CLEAN-OUT TOOL FOR FURNACES.

Application filed February 9, 1923. Serial No. 617,971.

To all whom it may concern:

Be it known that I, PETER HOTT, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Clean-Out Tools for Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to clean-out tools for furnaces.

It is well known that considerable difficulty is encountered in cleaning out the fire pot of furnaces, for the reason that it is difficult to reach every portion of the fire pot, and in addition thereto it is extremely difficult to remove clinkers in a satisfactory manner. Obviously it is undesirable at times to dump the entire fire in order to free it of clinkers, as it then becomes necessary to rebuild the fire. The ordinary implements used in caring for a furnace fire are not satisfactory for the reason that they can neither punch the clinkers out nor lift them free of the fire. This invention is designed to overcome the above noted defects and to provide a clean-out tool for furnaces which may conveniently be used to readily remove clinkers without the necessity of disturbing the entire fire.

Further objects of the invention are to provide a clean-out tool for furnaces which will readily reach all portions of the fire pot, which may be manipulated as a poker, for instance, which may be immediately available for use as a gripping member for catching and lifting clinkers clear of the fire, which is provided with means whereby the clinker is automatically held with any desired degree of pressure, and to provide means for insuring the aligning and retention in correct position of the gripping jaws.

An embodiment of the invention is shown in the accompanying drawings, in which Figure 1 is an elevation of the tool, with an intermediate portion broken away and with certain of the parts in section.

Figure 2 is a sectional view, taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view, taken on the line 3—3 of Figure 2.

Figure 4 is a sectional view, taken on the line 4—4 of Figure 1.

Referring more particularly to the drawings, it will be seen that the clean-out tool

comprises an elongated rod 1, provided at one end with a manipulated handle 2, and at the other end with a gripping jaw 3, such jaw being conveniently retained in position by passing a reduced extension 4, of the rod 1, therethrough and riveting the outer end of such extension. A tube 5, is slidably positioned upon the rod 1, as shown in the drawings, and has one end thereof threaded into the cooperating gripping jaw 6, as may be seen from Figure 1. The forward end of the tube may be provided with a collar 7, equipped with a reduced extension 8 upon which a helical spring 9, seats. The other end of the helical spring is adapted to seat upon a correspondingly reduced portion 10, of an adjustable collar 11, slidably mounted upon the rod 1. This collar is held in position by means of a pin 12, fitted within any one of a plurality of holes 13, transversely formed through the rod 1. It is to be noted particularly from reference to Figure 4, that the pin 12 is of slightly less length than the diameter of the collar 11, and that such collar is provided with an overhanging flange 14, which, when in position, covers the outer ends of the pin 12, and prevents its dropping from the rod 1. The exact degree of compression desired may be readily secured by selecting the proper hole 13, and putting the pin 12 therethrough, while the collar 11, is temporarily retracted.

It is desirable to maintain the jaws 3 and 6 in correct alignment, particularly when they are separated, and also when they are in engagement or contact with each other. This is readily secured by providing an aperture 15, through the jaw 6, and providing the jaw 3 with a triangular or tapering projecting lug 16, which cooperates with the aperture, as shown in the drawings to correctly align the two jaws. It is desirable to provide the jaws 3 and 6 with a transversely bowed contour to afford maximum strength and to aid in the retention of clinkers. This is readily accomplished by bowing the jaw 3, as may be seen by Figure 3, and by similarly bowing the jaw 6. If desired, the jaw 6 may be provided with marginal flanges 17, directed towards the jaw 3, to further aid in the retention of clinkers. It is to be noted that the jaws 3 and 6 are pointed, and that the jaw 3 is preferably extended slightly beyond the outer end of the jaw 6, so that it may re-

ceive the maximum stress, as such jaw 3 is the rigidly attached one; as, for example, when the device is used as a poker or rake for raking out the fire.

5 The operation of the apparatus is as follows: When it is desired to lift a clinker from the fire, it is merely necessary to hold the handle 2, and grip the tube or sleeve 5, and withdraw the movable jaw 6 from adjacent the jaw 3. The two jaws are then
10 positioned upon opposite sides of the clinker and the sleeve 5 is released, thereby allowing the jaws to yieldably grip the clinkers. Under these conditions, both
15 hands of the operator are free to manipulate the device by lifting it upwardly, thereby lifting the clinker from the fire.

It is to be particularly noted that when a grate is rocked or shaken, the small particles readily fall through, while the relatively large chunks of slate and clinkers will not pass through the grate. In other words, the ordinary furnace is not so constructed as to permit the ready removal of
25 clinkers and similar material. However, with this tool the clinkers and slate may be readily picked out of a hot fire with the greatest ease. In view of the poor quality of coal usually furnished, this tool
30 finds a ready use and is a very desirable addition to ordinary furnace equipment.

It will be seen that a clean-out tool for furnaces has been provided which may be easily operated to readily remove clinkers
35 from the fire, and which may be used as an ordinary poker or clean-out rake for the fire.

Although one specific form of the invention has been described in considerable detail,
40 it is to be understood that the invention

may take various forms and that such invention is to be limited only as set forth in the appended claims.

I claim:

1. A clean-out tool for furnaces comprising a rod having a handle at one end, a jaw rigidly attached to the other end of said rod and extending laterally therefrom and having a rearwardly projecting tapered lug, a tube slidably mounted upon said rod, a
45 spring for forcing said tube outwardly with reference to said rod, a second jaw mounted inwardly of said first mentioned jaw and rigidly attached to said tube and having an aperture for slidably receiving said tapered lug, said jaws being curved, and one of said jaws having marginal flanges whereby said jaws will remain in approximate
50 parallelism at all times and are adapted to readily grip and retain clinkers.

2. A clean-out tool for furnaces comprising a rod extending the full length of said tool and having a handle at one end, a jaw rigidly attached to the other end of said rod and extending laterally therefrom, a
55 tube slidably mounted upon said rod, a jaw rigidly carried by said tube and positioned inwardly of said first mentioned jaw, means for holding said jaws in alignment while said jaws are relatively adjusted, a helical
60 spring loosely surrounding said rod and urging said tube outwardly, and means for operatively securing the rear end of said spring with reference to said rod at any one of a plurality of points of adjustment.
65 70

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

PETER HOTT.