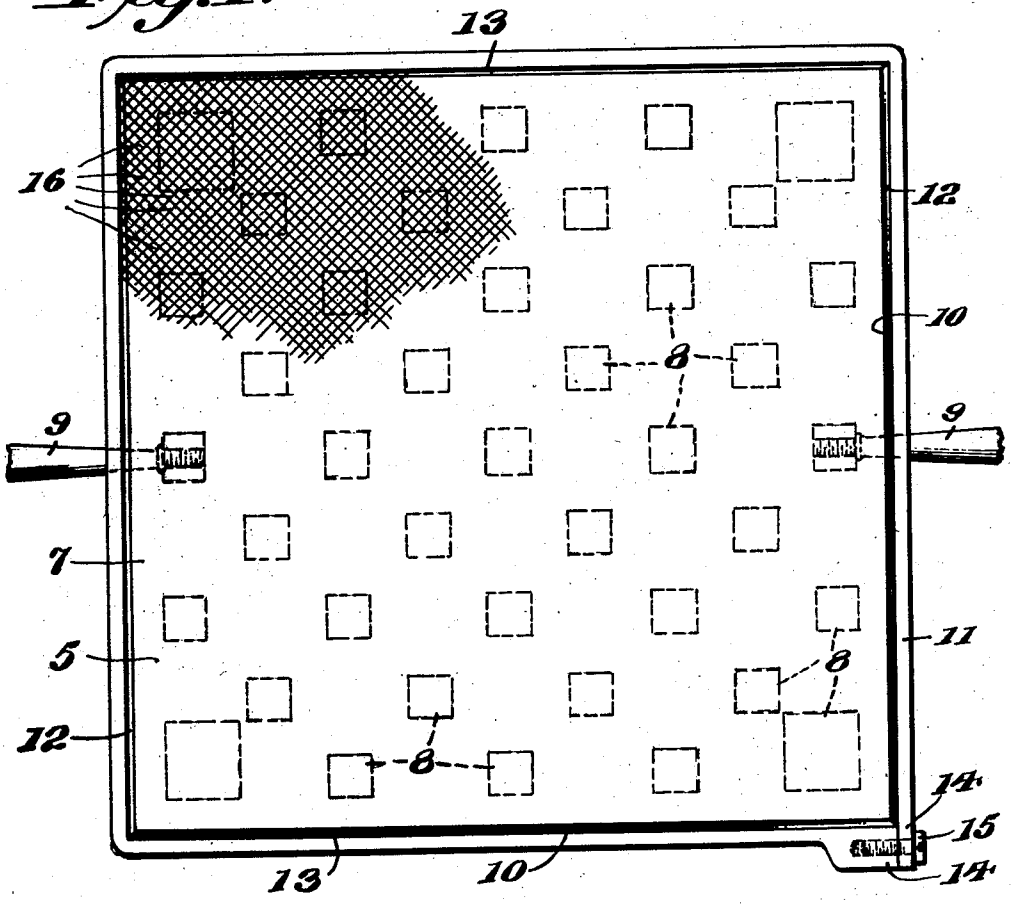
July 9, 1946. M. J. KULLA 2,403,805

METALWORKING

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Fig. 1.



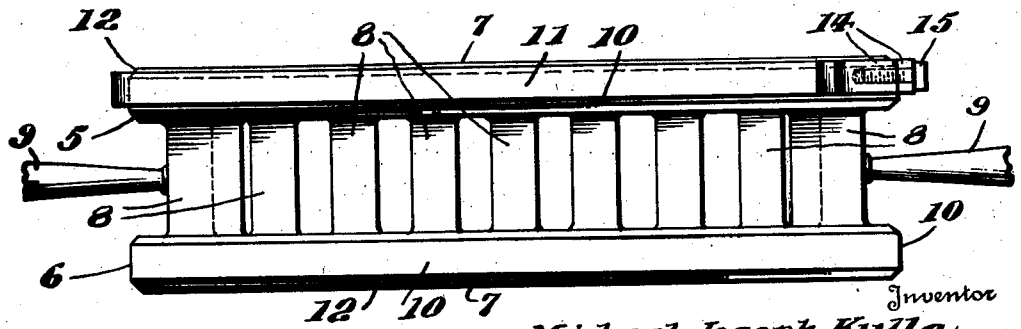


Fig. 2.

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Fig. 3.

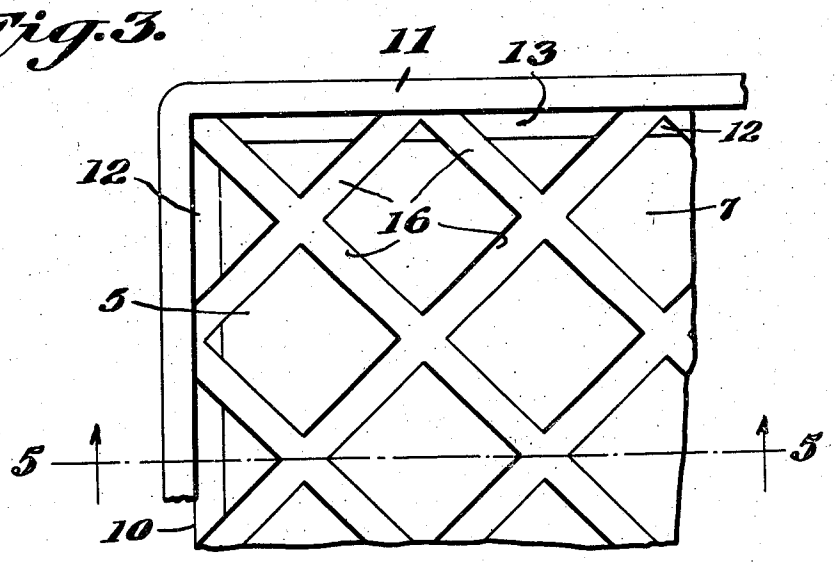


Fig. 5.

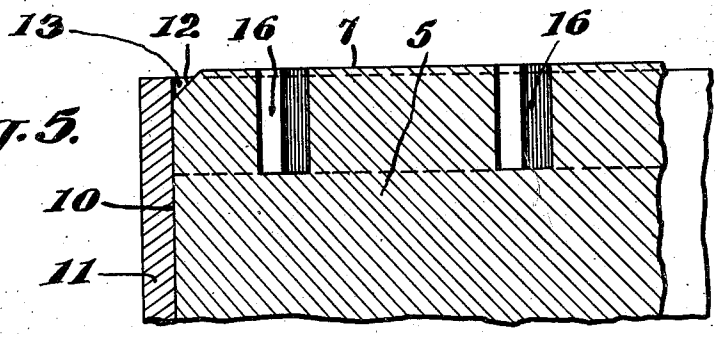
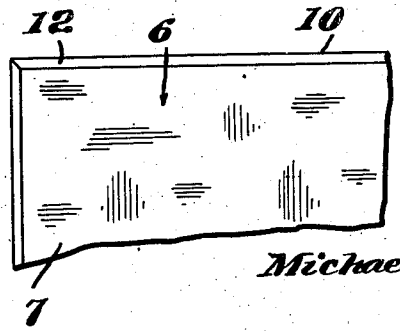


Fig. 4.



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Patented July 9, 1946 2,403,805

UNITED STATES PATENT OFFICE

2,403,805

METALWORKING

Michael Joseph Kulla, Cleveland, Ohio

Application January 18, 1944, Serial No. 518,732

4 Claims. (Cl. 51—212)

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My invention relates to metalworking and more particularly to lapping plates or assemblies.

One of the principal objects of my invention is to provide a lapping plate assembly so constructed and arranged whereby high precision lapping may be obtained and which assembly is equipped with means for conserving the lapping compound thereby eliminating waste of the compound during lapping.

Another object of my invention is to provide a lapping plate assembly that is simple in construction, durable in use, efficient in operation, economical in manufacture and which lends itself to high precision work in a minimum period of time.

With the above and other objects in view, as will hereinafter appear, the invention consists in the combination, and arrangement of parts hereinafter set forth and illustrated in the accompanying drawings, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

Referring to the drawings wherein like reference characters designate like parts throughout the several views:

Figure 1 is a plan view of my invention.

Figure 2 is a side elevation thereof.

Figures 3 and 4 are fragmentary plan views of opposite working faces, respectively.

Figure 5 is a detail, sectional view taken on the line 5—5 of Figure 3.

As illustrated in the drawings, my invention comprises a pair of lapping and surface plates 5 and 6 respectively, each having a working or outer face 7 and with said plates being integrally connected together in spatiality by a plurality of spaced standards 8. A centrally and oppositely disposed pair of the standards 8 are provided with outwardly extending handles 9 to facilitate transposition of the plates whereby to present a desired working face in an exposed position to receive work-pieces or parts to be operated in contactual relation thereover as hereinafter more fully made apparent, it being understood that the work faces are provided with the usual working compounds.

The lateral faces 10 of the plates, marginating the working faces 7, are tapered inwardly towards said working faces. As illustrated in the drawings, the lateral faces of the lapping plate 5 have mounted thereabout a slush band 11 coacting with the tapered portions 12 to form a channel or sump 13 extending about the work faces. The slush band 11 is formed with abutting ends

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14 and with one of the ends receiving therein a screw 15 carried by the other end whereby to clamp the band 11 about the plate 5. Obviously, by loosening the screw 15, the band 11 may be removed from the plate 5 and, if desired, disposed in a similar relation about the plate 6 to form a channel or sump about the plate 6.

The working face of the lapping plate 5 is formed with a multiplicity of minutely spaced intersecting diagonally disposed grooves 16 for effecting lapping of a work-piece operated thereover and in which the lapping compound is forced during the lapping operation. The grooves 16 are arranged in a more minutely spaced relation than in ordinary lapping plates whereby to effect high precision lapping in a minimum period of time. The face 7 of the plate 6 is adapted to be provided with the usual bluing compound to permit testing of the work-piece and thus indicate on the work-piece high and low areas. The grooves of the lapping plate communicate with the sump whereby the latter receives lapping compound forced out of the grooves. The close spacing and relatively deep depth of the grooves function to release or preclude vacuum or suction created during lapping by the operation of the work-piece, thereby, producing greater efficiency and high precision in work.

From the foregoing, it will be apparent that the slush band 11 coacts with the plate to which it is attached to provide a sump about the plate for receiving compound discharged outwardly from the plate, due to the operation of the work-piece, thus, conserving compound for future use.

Without further elaboration the foregoing will so fully explain the invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service. Moreover, it is not indispensable that all the features of the invention be used conjointly since they may be employed advantageously in various combinations and sub-combinations.

It is obvious that the invention is not confined to the herein described use therefore as it may be utilized for any purpose to which it is adaptable. It is therefore to be understood that the invention is not limited to the specific construction as illustrated and described as the same is only illustrative of the principles of operation, which are capable of extended application in various forms, and that the invention comprehends all construction within the scope of the appended claims.

What I claim is:

1. In a construction of the class described, a

pair of oppositely disposed lapping and surfacing plates connected together and each having a work face for receiving a work compound and for treating a work-piece operated thereover, each of said plates having side faces provided with tapered portions adjacent the work face, means extending around the side faces of at least one of said plates and coacting with the tapered portions thereof to define a sump about said last mentioned plate for receiving compound discharged therefrom by the operation of a work-piece thereover.

2. In a construction of the class described, a plate having a work face and sides and with the latter being beveled adjacent the work face, a detachable member extending about the sides and coacting with the latter, where beveled, to define a sump about the work face for receiving work compound discharged from any side area of said work face by the operation of a work-piece thereover. said member having a face disposed in a plane in parallel and spaced relation with the plane of the work face to preclude engagement of the member with the face of a work-piece operating in contactual relation with the work face.

3. In a construction of the class described, a pair of oppositely disposed lapping and surfacing plates connected together in spaced relation and each having a work face for receiving a work compound and for treating a work-piece operated over said work face, each of said plates having sides formed with beveled portions adjacent its work face, a member disposed about one of the plates and having end portions, means connecting said end portions together and in a manner to effect clamping of the member in sealed condition about said last mentioned plate to provide a sump about the work face of said last mentioned plate adjacent its work face.

4. A lapping plate assembly having oppositely disposed lapping and surface plates each provided with a work face adapted to receive a compound, said assembly being reversible to expose either of said faces for receiving a work-piece, and means extending around the exposed face to preclude discharge of the compound from the plate thereof, said means being detachable and transposable for extending about the other face when said assembly is reversed.

MICHAEL JOSEPH KULLA.